

Curtis Arboretum Conservation & Landscape Master Plan

the past, present & future

Cheltenham Township
Wyncote, Montgomery County, PA

Funded in part by



Prepared by

NAM Planning & Design, LLC
landscape architecture planning restoration horticultural therapy
P.O. Box 86, Lahaska, PA 18933

April 6, 2016

PROJECT GOALS

- **Develop the long term plan for the design and historic renovation of the Arboretum and overall site.**
- **Develop long term property management strategies to preserve the historic and natural resources.**
- **Innovation of recreational and/or educational activities.**
- **Document the historic landscapes and pursue designation as a Historic American Landscape Survey (HALS) site according to the National Park Service standards.**

Acknowledgements

Cheltenham Township Officials Montgomery County, Pennsylvania

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Irv Brockington	Drew Sharkey
Baron B. Holland	Ann L. Rappoport
Brad M. Pransky	

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Alyson E. Elliot, Assistant Township Manager
Brian Hinson, Director, Park & Recreation
Joe Baxter, Public Works Superintendent
Bruce Rangow, Director of Fiscal Affairs

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Dr. Tobias Landberg	Tom Sexton
Rabbi Nathan Martin	

NAM Planning & Design, LLC

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David Benner, Botanist	Linda E. Malinowski, BS, Planner
Rachel Feignbutz, BLA, Landscape Architect	Melissa Miles, MS, Conservation Biologist
Emma Haley, BLA, Landscape Architect	Rebecca, Ressler, AS Architecture, Landscape Architecture Intern
Nicole Keagan, RLA, Landscape Architect	

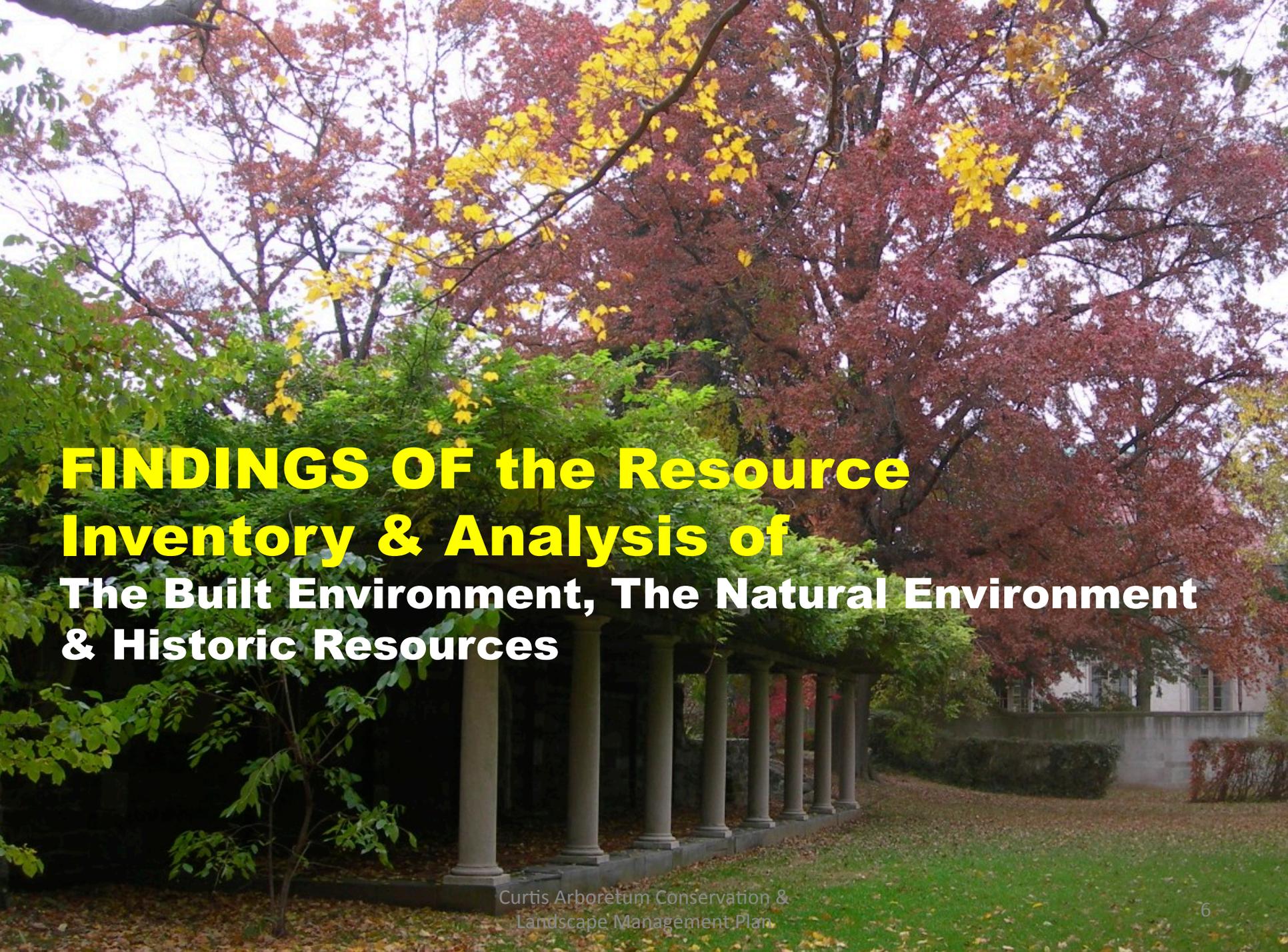
Subconsultants

Edward Landau Landau Landscape Architecture
Ed Landau, RLA

E. J. Wilson, Architecture
E. Jane Wilson, AIA, Leed AP, NCARB

Key Person Interviews & Community Survey Summary

- **OVERALL the PUBLIC LOVES CURTIS ARBORETUM.**
- **What people liked most about Curtis:** history, architecture, trees, peace and solitude, pond, the creek.
- **If programs developed:** self-guided tours, guided walks, labeled plant material, lectures, special workshops, permanent exhibits, geotagging, CSA/ farmers market, permaculture.
- **People want to learn more about** the Curtis family, the architecture, the landscape, the Olmsted Brothers.
- **68%** felt that the park is not being utilized to its maximum potential.
- **70%** felt **maintenance was inadequate.**
- **68%** felt **trails inadequate.**
- **77%** said they would use the park more often **if walking & bike access were improved.**
- **75%** of the 50 surveys respondents do not use the dog park: **most of the users are non-residents.**



**FINDINGS OF the Resource
Inventory & Analysis of
The Built Environment, The Natural Environment
& Historic Resources**

Beautiful stonework throughout the park



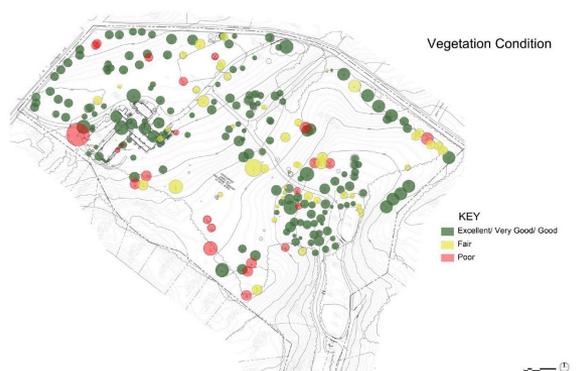
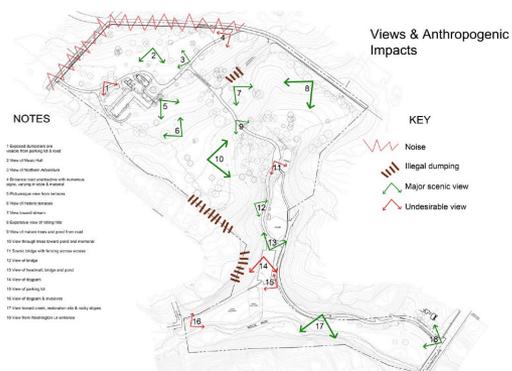
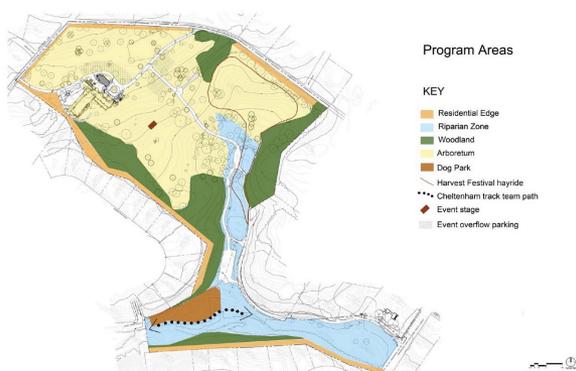
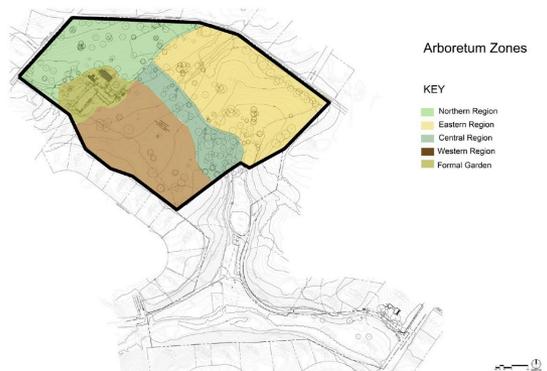
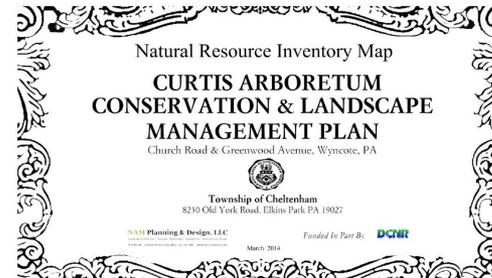
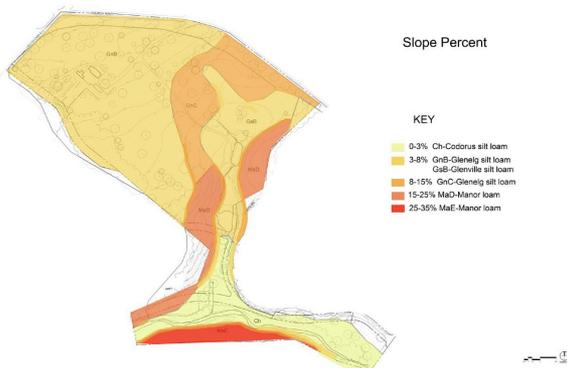
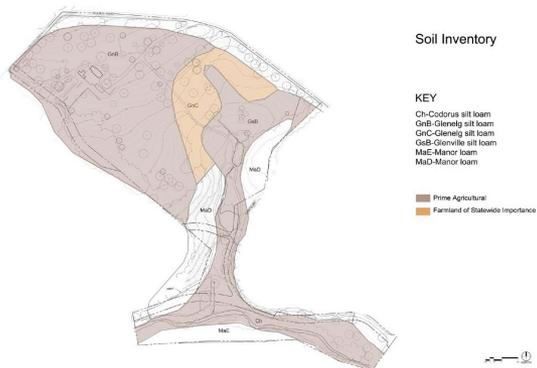
Historic walls in need of repair



Failing Walls

(Township is currently addressing this with Boucher & James)





NAM mapped all the available map data & field work to analyze the significant natural features & to inform the management plan.

Rock Outcrop on Rock Creek Bank

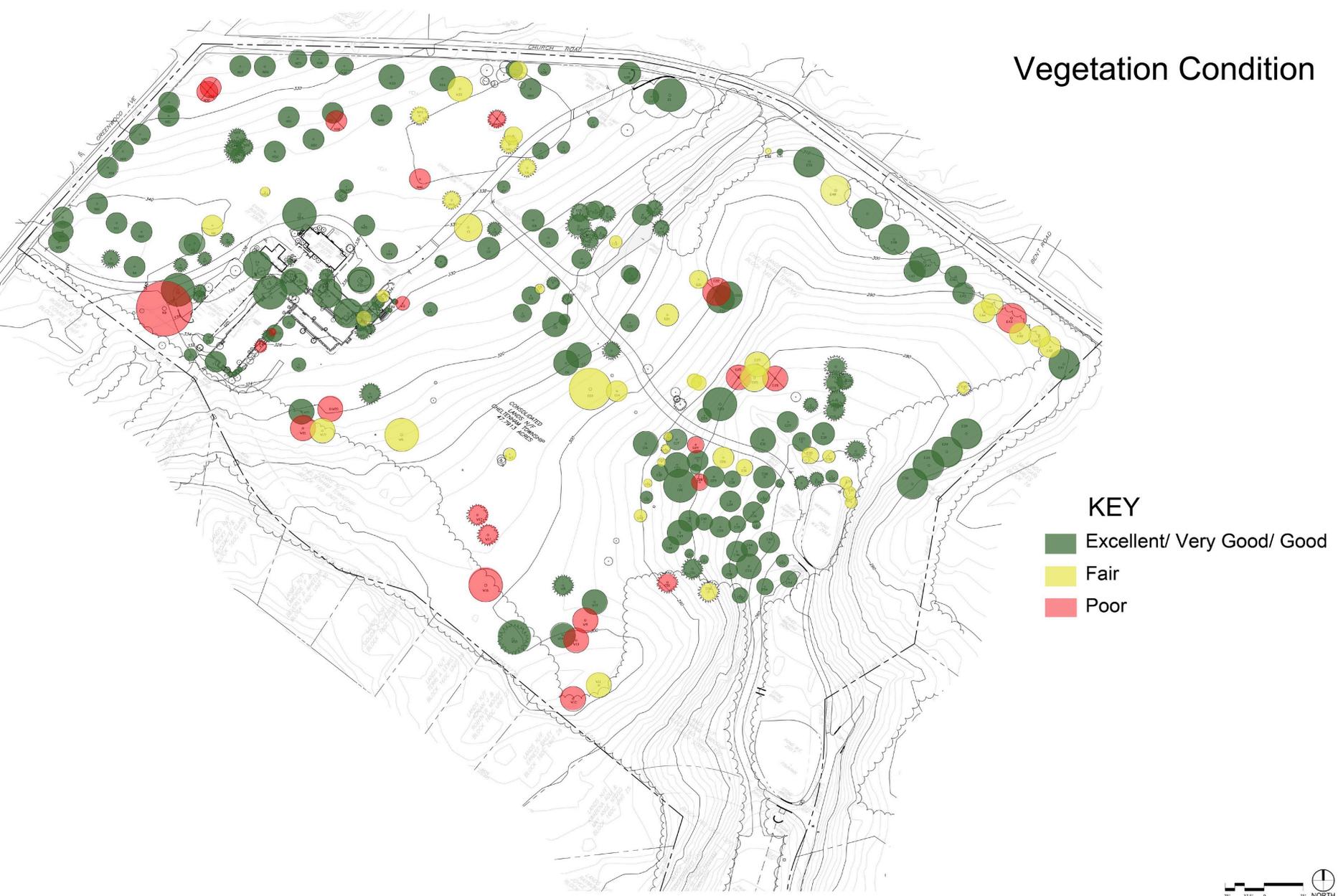


Lower Pond



Curtis Arboretum Conservation &
Landscape Management Plan

Vegetation Condition



Trees in red and yellow have been ID'ed as in fair to poor condition. They appear to be in locations where vehicles have parked along roads on lawns for events



**Notable Trees at
Curtis Arboretum**
1250 Church Road, Wyncote, PA



1. English Yew *Taxus baccata*

Yews were commonly used in Picturesque landscape plantings. There are several Yews found in and around the formal gardens at Curtis. These Yews are over 100 years old and in excellent condition.



2. Willow Oak *Quercus phellos*

This native Oak species is typically found in seasonally wet woods. It is unusual to see a Willow Oak of this age and caliper used in a formal setting such as this specimen tree at Curtis.



3. Lindens *Tilia* sp.

These Linden trees were part of the 1930s Olmstead Brothers design. Growing out of tree pits within an elaborate paving pattern, at the grand terrace overlooking the Arboretum area. Originally there were four tree pits, only two remain defined by the large Lindens.



4. White Pine *Pinus strobus*

This native White Pine is over 100 feet tall. This tree towers over the Arboretum and is visible as you enter the site. White Pine was commonly planted as an ornamental specimen tree in Picturesque landscapes, as it is growing at Curtis.



5. Sugar Maple *Acer saccharum*

This is one of the largest Sugar Maples in the region. Estimated to be older than 100 years with a caliper of 4 feet. This tree was possibly planted in the 19th century by Thomas Meehan for the Curtis family prior to the Olmstead Brothers plan.



6. Katsura Tree
Cercidiphyllum japonicum

There are three unusually large, multistem Katsura trees in the central region of Curtis. The largest has a caliper of 5.5 feet.



7. Pear Tree
Pyrus sp.

Two very large Pear trees exist on site. These Pear trees may be remnants of a historic orchard that was possibly located on the Eastern side of Curtis.



8. Persimmon
Diospyros virginiana

An extremely large native tree with edible fruit. The tree is in excellent condition still producing fruit. It is unusual to see a Persimmon tree of this caliper. It is located in an area of the site that may have been an orchard or homestead area.



9. Cucumber Magnolia
Magnolia acuminata

An extremely large specimen tree that is at least 120 years old. Predating the Olmstead Brothers plan. Possibly a Thomas Meehan planting over 3 feet caliper.



Birds-eye view of Curtis Arboretum.

Map courtesy of Bing Maps, www.bing.com/maps/

Cheltenham Township is turning its attention to the restoration and enhancement of the Curtis Arboretum, a 70-acre area located in the Wyncote neighborhood of Cheltenham. The Curtis Arboretum has been frequented and beloved by many generations of our town's residents, and it hosts our annual Harvest Festival. The former Curtis Estate provides park goers with wonderful natural, historic, recreational, and architectural resources, its network of ponds and streams, and the elegant Curtis Hall.

In this planning effort NAM Planning and Design LLC is serving as the project consultant, along with volunteers serving on a Project Steering Committee. Together, they have been charged with planning the renovation of the Arboretum, and innovation of its recreational and/or educational activities. We welcome your help in meeting this challenge.

An exceptional collection of rare and unusual mature specimen trees and native woody plants flourish at Curtis Arboretum. Set amid rolling hillsides and pleasant vistas, there are over 200 notable trees in this historic landscape. This is a brief summary of some significant trees found here.

These trees are either unusual in age, size, or use in designed landscapes. Walk around and find these and other great trees at Curtis Arboretum!

June 2014
NAM Planning & Design, LLC
Landscape Architecture Planning Restoration Management Horticultural Therapy

Significant trees – either size or species – have been included in a brochure NAM developed for the Township

Natural area trees overgrown with vines



Curtis Arboretum Conservation &
Landscape Management Plan



Tree growing into one another

Erosion from stormwater



Curtis is mowed too often and in the wrong places. Landscape practices in general are not environmentally sound especially the mowing and removal of leaves from property. The correct landscape plantings and practices can help improve water quality in the Tookany Creek.

NATURAL RESOURCE INVENTORY & ANALYSIS

Issues:

- **Extensive deferred maintenance.**
- **Old school maintenance practices- need to transition to sustainable practices & retrain park maintenance staff.**
- **Stormwater runoff & NPS pollution needs to be addressed.**
- **2 major headwater tributaries to Rock Creeks are in pipes– need to be daylighted for better Water Quality in Tookany Tacony/ Frankford Watershed.**
- **Dog park a source of NPS pollution.**
- **More focus needs to be on removal of invasive species.**
- **Major trees are in need of a professional arborist to address ongoing care.**
- **Policy changes in where vehicles can park without impact to natural resources.**

PROGRAMMING

Curtis Arboretum is underutilized for programs suited to its natural & historic resources.

- More environmental & historic programs needed that highlight the significant resources such as trees, watersheds, geology, farming, architecture, stone work, & the history

Some existing programs are not suited to the sensitive environment

- Harvest Festival has damaging impacts to the trees & compacts soils & should be at another site such as a large parking lot.
- Dog park should be moved elsewhere- it was built in the floodplain & dog waste regularly washes into the creek.

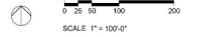
Illustrative Masterplan
CURTIS ARBETUM
CONSERVATION & LANDSCAPE
MANAGEMENT PLAN
 Church Road & Greenwood Avenue, Wyomest, PA

 Township of Cheltenham
 8290 Old York Road, Elkins Park PA 19027
 WAD Planning & Design, LLC
 Winter 2018
 Funded In Part By: 



KEY

	EVERGREEN TREE
	DECIDUOUS TREE
	NATURAL AREAS
	MOWED LAWN
	NATIVE WILDFLOWER MEADOW
	NATIVE GRASS MEADOW
	NATIVE GROUNDCOVERS
	NATIVE PERENNIAL BEDS
	BLUESTONE
	ADA PATH
	MOWED TRAIL
	CROSSWALK
	BIKE TRAIL
	SKI LIFT
	STREAM
	INFILTRATION TRENCH
	BENCH
	SMALL FOOTBRIDGE
	PEDESTRIAN CROSSING
	BIKE RACK

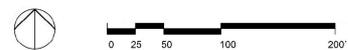




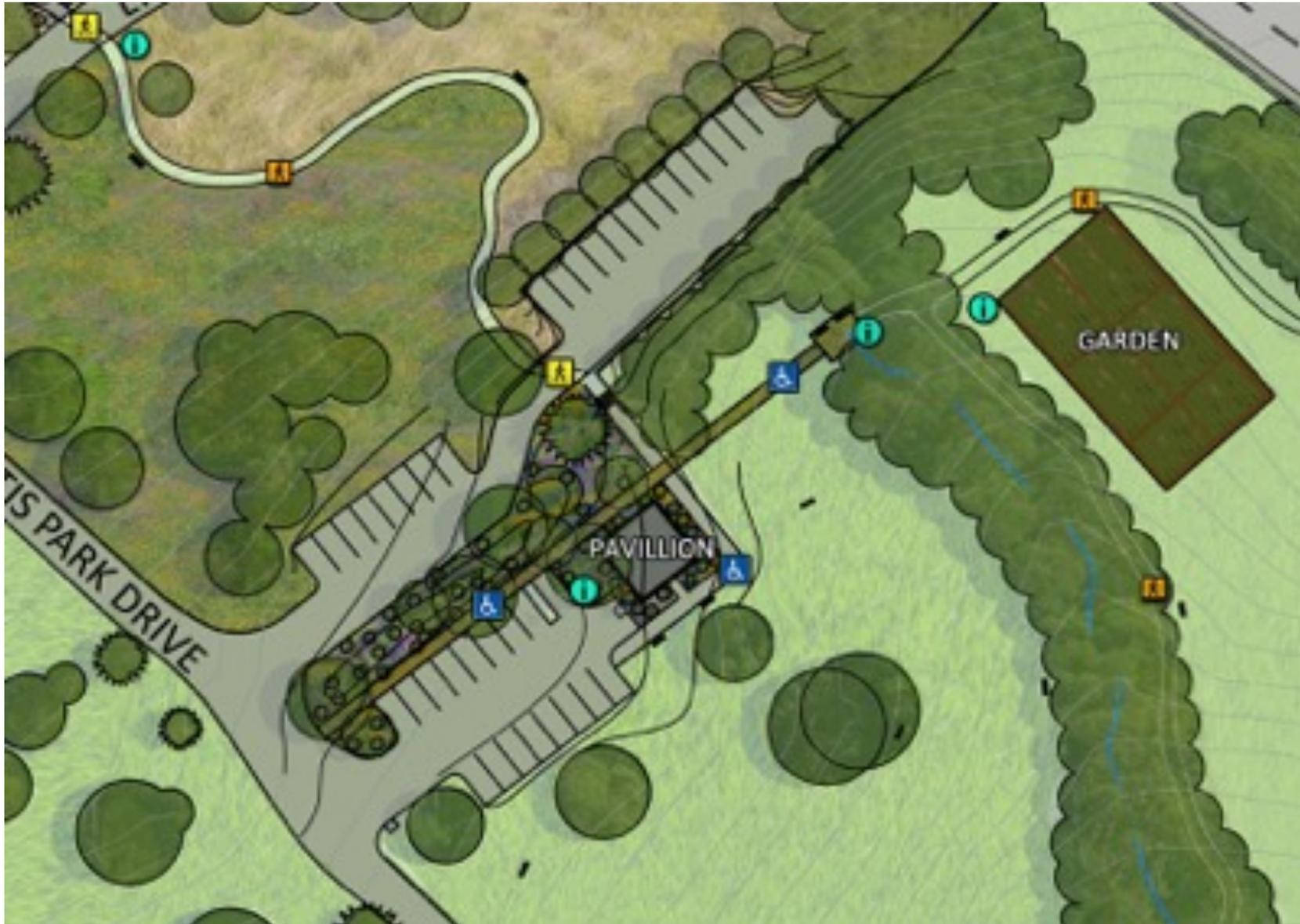
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	NATIVE PERENNIAL BEDS
	BLUESTONE
	ADIRONDACK PATH
	MOWED TRAIL
	CROSSWALK
	BIKE TRAIL
	SIGN
	STREAM
	INFILTRATION TRENCH
	BENCH
	SMALL FOOTBRIDGE
	PEDESTRIAN CROSSING
	BIKE RACK

Event Space Illustrative Detail



Environmental Education Area



Curtis Arboretum Conservation &
Landscape Management Plan

Cross Section: A-A1



Cross Section: B-B1



Environmental Education Area

0 20' 40'

Environmental Education Area



Boardwalk

Environmental Education Area



Benches & Bike Racks



Banning Park Bench
Style # BN1-1000



Arlington Park Bench
Style # AR1-1000



TallGrass Park Bench
Style # TG1-1000



Heavy Duty Metal Tree Surround Bench
Style # CAL-956



Bench Examples



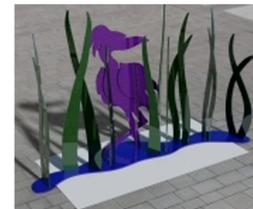
Leaf Bike Rack
Style # CAH-314



Nature Bike Rack
Style # 38065



Music Rack



Heron in Weeds



Bike Rack Examples

Alternative benches from cut trees



Lighting



**Cast Aluminum Art Deco
Acrylic Globe Light**
Style # D12-GM2500



**Murray Feiss Dakota
3 Light Outdoor Post Lamp**
Style # OL7607



Roadway
Style # 1430LED



Plaza
Style # 1190A/ALED



**Post Lighting
Examples**



Designers Fountain
Style # BC1855880



**Kichler Tremillo Collection
Outdoor Wall Light**
Style # BC1222417



**Kichler Trafari 12" High Bronze
Outdoor Wall Light**
Style # 4N399



**Kichler "Riverbank"
Outdoor Wall Light**
Style # KK49146AGZ



**Wall Lighting
Examples**

Trash & Recycling Receptacles



Wood and Steel
Style # FS-3, FS-4, FS-5



Halo Trash Receptacles
Style # HL2-2100



TallGrass Large Square
Style # TG2-2000



Leaf Trash Receptacle
Style # 38210



Trash Receptacle Examples



36-Gallon Broadway
3 Bay Recycle Bin
Style # Recy-Orn-FT-(3)36-SA



Essence 30 Gallon Recycler
with Graphic Panels
Style # E30PPRT



Solar Compacting
Waste & Recycling
Stations



4 in 1 Metal Recycling
Bins/Station
Style#CAR-707



Recycling Receptacle Examples

Wayfinding/Signage

Directional Signage Examples



Park Map



Directional Wayfinding Map



Dual Directional and Informational Map



Wayfinding and Handicap Accessible Map

Educational Signage Examples



Sign in English and Spanish



Natural Features Signage



Individual Plant Label



Site Specific Signage

Permeable Paving

Permeable Paving Examples



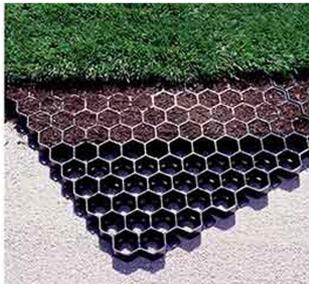
Bioverse Paving System



Turfstone Transitional Collection



Eco Dublin Transitional Collection



NDS Tufftrack Grass Pavers 2' x 2'
TT-24



BodPave™ 85 Porous Grass Paving Grids
057580



Angelus Turfstone



Figure 3-6 Master Plan Feature Statistics (estimated)

FEATURE	EXISTING AREA/LENGTH	MASTER PLAN AREA/ LENGTH
Water		
length of Rock Creek	1,450 LF	1,450 LF
unnamed tributary: lower parking lot to Rock Creek	225 LF	225 LF
unnamed tributary daylighting at Environment Education area to the creek above upper pond	400 LF (piped)	550 LF
unnamed tributary above upper pond	200 LF	200 LF
lower parking lot unnamed tributary daylighting	250 LF (piped)	250 LF
unnamed creek between each pond	300 LF	300 LF
total daylighting	0	800 LF
upper pond surface area	9,000 sq'	9,000 sq'
lower pond surface area	15,400sq'	15,400 sq'
Trails, Roads & Parking Lot		
proposed boardwalk trail sections	n/a	850 LF / .16 miles
proposed mowed trail distance	n/a	5,825 LF / 1.1 mile
proposed paved trail (ADA)	n/a	2,000 LF / .4 miles
total trail length	n/a	1.66 miles
roads	108,900 sq' / 2.5 acres	125,400 sq' / 2.88 acres
formal garden parking lot	5,600 sq'	n/a
proposed porous paving roads (event area only)	n/a	16,500 sq' / .037 acres
proposed porous parking lots (event area)	n/a	19,000 sq' / .43 acres
modular paving parking spaces (Environmental, Educ)	n/a	18,825 sq' / .43 acres
WW II Memorial asphalt parking lot	5,000 sq'	5,000 sq' / .11 acres
lower parking lot	16,000 sq' / .37 acres	11,000 sq' / .25 acres
other parking (2 spaces near Curtis Hall, old entrance...)	2,000 sq'	1,000 sq' / .02 acres
total parking	28,600sq' / .66 acre	61,419 sq' / 1.41 acres
other impervious (conservatory, steps, road widening ...)	20,000 sq' / .46 acres	24,000 sq' / .55 acres
Landscape		
mowed lawn	21 acres	8.9 acres
labyrinth	n/a	1 unit
native grass meadow	n/a	3.96 acres
native wildflower areas	n/a	1.49 acres
natural areas (hedgerows)	12 acres	12 acres
rain gardens, riparian buffers (grasses, wildflowers, shrubs, trees)	n/a	2.3 acres
formal garden beds & Church Road entrance	.82 acres	1.22 acres
Infiltration trenches	0	1,400 SF
DEP flood control basin (mowed regularly)	0	3.03 acres
dog park	.75 acres	.4 acres

Major changes in Curtis Arboretum Site Features

Most of these changes will result in major improvements to water quality & quantity.

Will help the Township meet MS4 requirements.

Preliminary Opinion of Probable Cost

will be around \$1,300,000

(not including professional design fees for architects, landscape architects, engineers...)

FIGURE 3-12 PRELIMINARY OPINION OF PROBABLE COST				
EVENT AREA				
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL COST
Porous paving 1-way road, parking spaces	30,950	sq ft	\$6	\$185,700
Repave existing road adjacent to Music Hall	7,500	sq ft	\$3	\$22,500
Bluestone walkways & patio	2205	sq ft	\$30'	\$66,150
3" caliper trees	24	each	\$500	\$12,000
1" caliper/6 ft small tree	23	each	\$300	\$6,900
#2 shrubs	86	each	\$60	\$5,160
Wildflower meadow	0.80	acre	\$4,000	\$3,200
Native grass meadow	2.41	acre	\$2,125	\$5,121
Invasive removal & formal garden cleanup	1.00	each	\$3,000	\$3,000
14 ft post lighting fixtures on around parking lot, roads, paths & garden	60	each	\$700	\$42,000
Trash/recycling receptacles	3	each	\$1,500	\$4,500
Trash receptacles	6	each	\$700	\$4,200
Benches (higher end cost)	26	each	\$1,200	\$31,200
Signage	7	each	\$400	\$2,800
Bike racks	5	each	\$700	\$3,500
Minor grading & earth moving/erosion control	1	acre	\$4,500	\$4,500
Mobilization costs	1	each	\$2,000	\$2,000
SubTotal				\$404,431.00
ENVIRONMENTAL EDUCATION AREA				
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL COST
Daylight unnamed creek				
Remove pipe, regrade for creek meanders & emergent wetland	1	each	\$8,500	\$8,500
Engineered E&S plans, permits	1	each	\$7,500	\$7,500
Plant riparian buffer	1,100	lf	\$8	\$8,800
Footbridges	2	each	\$2,000	\$4,000
Invasives species removal	5	days	\$1,500	\$7,500
Rain gardens (includes preparation, soil, regrading & all plants)	4,750	sq ft	\$30	\$142,500
Trees 3" caliper	38	each	\$500	\$19,000
#2 shrubs	68	each	\$60	\$4,080
Native grass meadow	0.40	acre	\$2,125	\$850
Native wildflower meadow	0.68	acre	\$4,000	\$2,720
Pavilion (green roof or solar array)	1	each	\$10,000	\$10,000
Retaining wall along overflow parking lot	150	each	\$30	\$4,500
Lighting	22	each	\$500	\$11,000
Signage	4	each	\$400	\$1,600
Trash receptacles	3	each	\$600	\$1,800
Trash & recycling receptacles	2	each	\$1,500	\$3,000
Benches	8	each	\$900	\$7,200
Bike racks	2	each	\$300	\$600
Recycled plastic boardwalk & observation	1,500	sq ft	\$25	\$37,500
Regrade & repaving	11,875	sq ft	\$3	\$35,625
Regrade & porous paving	11,525	sq ft	\$6	\$69,150
SubTotal				\$387,425

Figure 3-12 PRELIMINARY OPINION OF PROBABLE COST (CONTINUED)				
WWII PARKING AREA & POND				
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL COST
Regrade & repave the 7 parking spaces, paint lines	320	sq ft	\$2.50	\$800
Infiltration trench	270	cu ft	\$6.00	\$1,620
Remove invasive species	2	days	\$1,500	\$3,000
Native grass meadow	1	acre	\$2,125	\$2,125
Dredge pond (includes permit)	1	each	\$7,000	\$7,000
Trash & recycling receptacles	2	each	\$1,500	\$3,000
Trash	2	each	\$600	\$1,200
Benches	3	each	\$900	\$2,700
Lighting	2	each	\$300	\$600
SubTotal				\$20,545
LOWER PARKING AREA				
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL COST
Daylight Creek				
Remove pipe, regrade for creek meanders & emergent wetland	1	each	\$8,500	\$8,500
Engineered E&S plans, permits	1	each	\$7,500	\$7,500
Plant riparian buffer	460	lf	\$8.00	\$3,680
Benches	5	each	\$900	\$4,500
Lighting	9	each	\$300	\$2,700
Signage	2	each	\$400	\$800
Trash	2	each	\$600	\$1,200
Trash & recycling receptacles	2	each	\$1,200	\$2,400
Regrade & repave parking lot	3520	sq ft	\$3.00	\$10,560
			\$80,000	
Bridge (includes design & permits)	1	each	.00	\$80,000
SubTotal				\$141,840
ROCK CREEK DRIVE				
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL COST
Lighting	2	each	300	\$600
Benches	1	each	\$900	\$900
Signage	1	each	\$500	\$500
Bike rack	1	each	\$1,000	\$1,000
Trash & recycling receptacle	1	each	\$1,200	\$1,200
Subtotal				\$4,200

Figure 3-12 PRELIMINARY OPINION OF PROBABLE COST (CONTINUED)				
WASHINGTON LANE				
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL COST
Signage	1	each	\$400	\$400
Repair broken lighting	2	each	\$300	\$600
Repair wrought iron fence	1	each	\$500	\$500
Subtotal				\$1,500
INVASIVE REMOVAL IN NATURAL AREAS				
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL COST
Remove invasives	24	days	\$1,500	\$36,000
Replant with native trees shrubs, seeding as needed	1	acre	\$9,000	\$900
Ongoing repeat spot removal	25	each	\$300	\$7,500
SubTotal				\$44,400
OTHER SITE FURNISHINGS ALONG ROAD & TRAILS				
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL COST
Benches*	30			
Trash receptacles	5	each	\$600	\$3,000
Trash & recycling receptacles	3	each	\$1,200	\$3,600
Repave & stripe Lyndon & Curtis Park Drives	55,000	each	\$3	\$165,000
Bollard & chains on bridges	3	each	\$250	\$750
SubTotal				\$172,350
ARBORETUM				
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL COST
Registered Consulting Arborist (RCA) to assess trees	40	hr	\$80.00	\$3,200
Landscape contractor to remove trees	18	each	\$3,000.00	\$54,000
Plant labels	200	each	\$2.00	\$400
SubTotal				\$57,600
Total for entire site				\$1,234,291

*Benches can be made from the trees removed along Greenwood Avenue and Church Road when PennDOT begins constructing the new intersection.

Implementation Recommendations

- Form a 501c3 “Friends of Curtis Arboretum”
- Start a Property Management System now. (only way to get out of deferred maintenance)
 - Retrain Maintenance staff in sustainable practices
 - Track all expenses, staff hours, & work tasks
 - Start invasive species removal
- Consider placing a conservation easement on Curtis to permanently protect the significant resources.
- Develop a policy that only sustainable practices be utilized at Curtis.
- Consider moving the Dog Park & Harvest Festival to another site.
- Add Event Area parking with sustainable stormwater features.
- Develop an Environmental Education Area with a pavilion, parking, & a daylighted creek headwater with emergent wetland.
- Daylight the creek under the lower parking area.
- Add almost 2 miles of walking trails around the park.
- Reduced lawn mowing by ~ 43% by adding meadows, rain gardens, etc.
- Add historically appropriate style of lighting, benches, trash receptacles & signage.
- Place Curtis Arboretum in the National Park Services “HALS” Program.



The End

**NAM Planning & Design, LLC staff *Thanks*
Cheltenham Township for the opportunity to develop
the management plan for such a locally, regionally and
nationally significant project site.**