AGENDA
Huron-Clinton Metropolitan Authority
Board of Commission Meeting
June 9, 2016 – 10:30 a.m.
Stony Creek Metropark – Nature Center

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1. Chairman's Statement

2. Public Participation

3. Minutes – May 12 14, 2016 Regular Meeting and Closed Session

4. Approval – June 9, 2016 Full Agenda

Consent Agenda

5. Approval – June 9, 2016 Consent Agenda

a. Approval – May 2016 Financial Statements and Payment Registers

b. Approval – May 2016 Appropriation Adjustments **pg. 1**

c. Approval – 2016 Tax Levy Report **pg. 5**

d. Purchases
1. Staff Vehicles, Stony Creek Metropark **pg. 9**
2. Mower, Willow Metropark **pg. 11**
3. Park Pool Vehicles, Various Metropark locations **pg. 13**

e. Approval – TIFA Exemptions, Charter Township of Orion **pg. 15**

f. Bids – Hudson Mills Activity Door Replacements **pg. 19**

g. Update – Wolcott Restoration Grant **pg. 23**

h. Update – Wolcott and Stony Creek Water Quality **pg. 61**

Regular Agenda

6. Legislative Report **pg. 71**

7. Reports

A. *Planning Department*
1. Update – Stony Creek and Wolcott Master Plans **pg. 73**

B. *Administrative Office*
1. Approval – Administrative Parking Lot Expansion **pg. 93**
2. Approval – Cell Tower Lease Agreement Renewal **pg. 101**

8. Election of Board Officers

9. Other Business

10. Staff Officer Update

11. Commissioner Comments

12. Motion to Adjourn

The next regular Board of Commissioners meeting will take place
Thursday, July 14, 2016 – ***10:30 a.m.***
Indian Springs Metropark – Environmental Discovery Center

HURON-CLINTON METROPOLITAN AUTHORITY

To: Board of Commissioners
From: Rebecca Baaki, Chief Accountant
Subject: Approval – May 2016 Appropriation Adjustments
Date: June 1, 2016

Action Requested: Motion to Approve

That the Board of Commissioners' approve the May 2016 Appropriation Adjustments as recommended by Director Phifer and Controller Franchock.

Background: The Metroparks ERP system provides a work-flow process to facilitate departmental budget management. Requested transfers are initiated by Department staff and routed to the appropriate Department Head/District Superintendent for review and approval. Finance provides a final review of the approved requests to verify that they do not negatively affect Fund Balance.

For the month of May, these transfers totaled $136,339. These were primarily a result of funds that were transferred from the major maintenance accounts to the parks operation accounts to cover projects being done within the parks. The result of this change can be seen in the attachment.

During the month, there was one amendment that affected Fund Balance.

- $1,120 was taken from Fund Balance to fund Foundation Supported projects. These projects were completed in 2015, but the parks asked for reimbursement in 2016.

Attachment: May Appropriation Adjustments

May 2016 - Apropriation Adjustments

	Location	Increase	Decrease	Difference
Capital	Administrative Office	$ 12,000.00		$ 12,000.00
	Lake St. Clair		$ 10,282.00	(10,282.00)
	Total	$ 12,000.00	$ 10,282.00	$ 1,718.00
Major Maintentance	Kensington		$ 4,530.00	$ (4,530.00)
	Hudson Mills		4,530.00	(4,530.00)
	Stony Creek	$ 8,200.00	13,195.00	(4,995.00)
	Lake Erie	20,000.00	20,000.00	-
	Wolcott Mill		1,200.00	(1,200.00)
	Total	$ 28,200.00	$ 43,455.00	$ (15,255.00)
Operations	Lake St. Clair	$ 3,000.00	$ 3,000.00	$ -
	Kensington	12,730.00		12,730.00
	Lower Huron	10,282.00		10,282.00
	Hudson Mills	5,530.00	1,000.00	4,530.00
	Stony Creek	4,995.00		4,995.00
	Lake Erie	200.00	200.00	-
	Wolcott Mill	1,200.00		1,200.00
	Total	$ 37,937.00	$ 4,200.00	$ 33,737.00
Administration	Administrative Office	$ 58,202.00	$ 78,402.00	$ (20,200.00)
	Total	$ 58,202.00	$ 78,402.00	$ (20,200.00)
	Grand Total	**$ 136,339.00**	**$ 136,339.00**	**$ -**

HURON-CLINTON METROPOLITAN AUTHORITY

To: Board of Commissioners
From: Rebecca Franchock, Controller
Subject: Approval – 2016/2017 Tax Levy Report
Date: June 1, 2016

Action Requested: Motion to Approve 2016 Tax Rate

That the Board of Commissioners approve (1) the 2016 Tax Rate Request forms at .2146 mills; and (2) the inclusion of "net" tax revenues of $29,232,724 in the 2017 Budget as recommended by Controller Franchock and staff.

Summary: Final 2016 Taxable Value figures used for the calculation of the Metroparks 2017 tax revenues have been received from the county treasurer's offices. At this time, it is necessary for the Board of Commissioners to certify the requested tax levy rate of .2146 mills for each county.

Background: The calculation of the Metroparks tax levy millage rate is controlled by the "Headlee" Millage Reduction Formula (Michigan Compiled Law 211.34d) and Proposal A (1994 Public Act 415). Once the Metroparks tax levy rate is calculated, it is applied to the "taxable values" throughout the five counties of Livingston, Macomb, Oakland, Washtenaw and Wayne.

The Metroparks "taxable value" for the five counties for 2016 is $139.8 billion, a slight increase of $175 million (0.12 percent) from the 2015 value of $139.6 billion. While the Metroparks taxable value did show an overall positive trend, it is notable that Wayne County and Macomb County both decreased (by 2.5 percent and 0.84 percent respectively). This reverses the positive trend from the 2015 taxable value. Increases for the remaining counties ranged from 1.75 to 2.22 percent. This is concerning as our long range planning originally anticipated growth of 1.8 percent.

In applying the 2016 taxable value figures to the Headlee Millage Reduction Factor calculation formula, with the permitted inflation rate multiplier of 1.003, the Metroparks will be permitted to again levy .2146 mills for 2017. This is the 12th consecutive year at the same tax rate, with the Metroparks levying 86 percent of the original authorized millage of .2500 mills. It should be noted that our reduction factor was just over 1.000 and the Metroparks will most likely be in a rollback situation for next tax year.

In applying the .2146 millage rate against the district's 2016 "taxable value" figures, anticipated "gross" tax revenues for 2017 will be $30,002,724. The breakdown by county is as follows:

	2016/2017 Levy	%	2015/2016 Levy	%	Change
Livingston	$ 1,758,341	5.9%	$ 1,728,299	5.8%	1.7%
Macomb	5,416,668	18.1%	5,462,583	18.2%	-0.8%
Oakland	11,310,893	37.7%	11,116,960	36.6%	1.7%
Washtenaw	3,273,075	10.9%	3,201,874	10.8%	2.2%
Wayne	8,243,747	27.5%	8,447,144	28.3%	-2.5%
Total	$ 30,002,724	100.0%	$ 29,956,860	100.0%	0.2%

As the Authority has done for the last eight years, staff recommends that the Metroparks estimate the amount of "captured" tax revenues and potential tax refunds and adjust the anticipated gross tax revenues down at the start of the budget year. This is due to (1) the number of tax abatement programs, which include Downtown Development Authorities (DDA), Local Development Finance Authorities (LDFA), Tax Incremental Finance Authorities (TIFA), Brownfield, and Neighborhood Enterprise Zones; (2) the large number of communities that are utilizing them; and (3) the amounts of Metroparks tax revenue that is being captured and refunded.

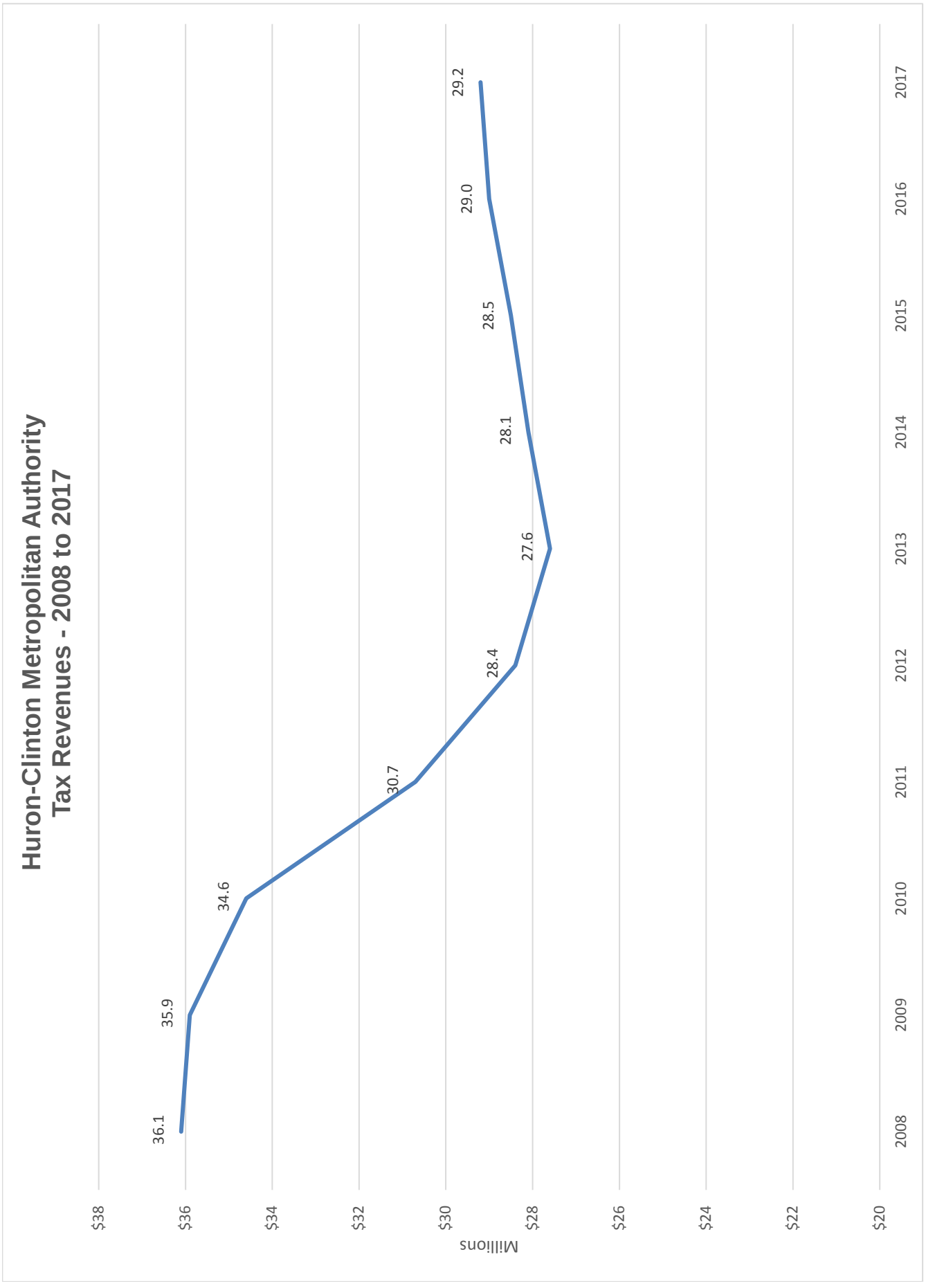
By booking this adjustment at the beginning of the budget year, we are able to have a more accurate picture of the actual amount of tax revenue that should ultimately be collected in 2017. Based on trends from the last five years of data from the amount of Metroparks tax revenue captured and refunded, the following breakdown details the "net" tax revenues recommended to be used for the 2017 Budget.

	2016/2017 Gross Tax Levy	Estimated Captured Taxes	2016/2017 Net Tax Levy
Livingston	$ 1,758,341	$ (30,000)	$ 1,728,341
Macomb	5,416,668	(20,000)	5,396,668
Oakland	11,310,893	(300,000)	11,010,893
Washtenaw	3,273,075	(70,000)	3,203,075
Wayne	8,243,747	(350,000)	7,893,747
Total	$ 30,002,724	$ (770,000)	$ 29,232,724

The 2016 Budget was prepared based on anticipated net tax revenues of $29,021,860. The recommended net tax revenue for 2017 is $29,232,724, an increase of $210,864. For 2017, the Metroparks budgeted revenue remains fairly close to the amount of tax revenues that were received in 2003.

The Metroparks have received confirmation of the calculations of the 2016 tax millage rate and revenues from the State Department of Treasury, Assessment and Certification Division. At this time it is necessary for the Board to certify the 2016 tax levy rate for each county.

Attachment: 2008 – 2017 Tax Revenue Trends


Huron-Clinton Metropolitan Authority
Tax Revenues - 2008 to 2017
Millions
$38
$36
$34
$32
$30
$28
$26
$24
$22
$20
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
36.1
35.9
34.6
30.7
28.4
27.6
28.1
28.5
29.0
29.2

HURON-CLINTON METROPOLITAN AUTHORITY

To: Board of Commissioners
From: Maria van Rooijen, Senior Buyer
Project No: Macomb County Bid Macomb #71-15 A.3.u.d.
Project Title: Staff Vehicles
Location: Stony Creek Metropark, Macomb County
Date: June 1, 2016

Action Requested: Motion to Approve

That the Board of Commissioners' (1) approve the purchase of two (2) 2017 Ford Explorers in the total amount of $53,898 (each $26,949) from Signature Ford, Owosso, Michigan the low responsive, responsible bidder for Macomb County Vehicle Bid #71-15 A.3.u.d.; and (2) approve a transfer of funds within the Capital Equipment accounts to cover the $3,898 over budget amount as recommended by Senior Buyer Maria van Rooijen and staff.

Fiscal Impact: These vehicles are included in the 2016 Capital Equipment Budget, which was approved by the Board at the Nov. 12, 2015 meeting. However, the vehicles are $3,898 over budget.

Scope of Work: Furnish and deliver two (2) 2017 Ford Explorers.

Background: These are replacement vehicles for the Eastern District Park Superintendent and Park Operations Manager. The vehicles they currently have will be reallocated within the park system.

Price comparison is by done comparing state, local and counties police and/or vehicle cooperative contracts. Signature Ford has both state and county vehicle contracts.

Vendor	**Location**	**Price**
Signature Ford	Owosso	$53,898.00

HURON-CLINTON METROPOLITAN AUTHORITY

To: Board of Commissioners
From: Maria van Rooijen, Senior Buyer
Project No: ITB 16-034
Project Title: Mower
Location: Willow Metropark, Wayne County
Date: June 1, 2016

Bids Opened: Friday, May 20, 2016 at 2:00 p.m.

Action Requested: Motion to Approve

That the Board of Commissioners' award ITB 16-034 to the low responsive, responsible bidder, J.W. Turf, Inc. in the amount of $26,805.86 as recommended by Senior Buyer Maria van Rooijen and staff.

Fiscal Impact: This is a budgeted item in the 2016 Capital Equipment, which was approved by the Board at the Nov. 12, 2015 meeting. This purchase is $2,194 under budget.

Scope of Work: Furnish and deliver one (1) John Deere 2500B Mower.

Background: Willow Golf Course currently has three (3) John Deere 2500B mowers with the necessary extra attachments; this unit is a replacement for a Jacobsen mower. Staying with the same John Deere unit allows the park to save money because all the units can share attachments, which can cost an additional couple thousand dollars.

Vendor	Location	Price
J.W. Turf, Inc.	Wixom	$26,805.86
Jacobsen	Novi	$25,281.27
Spartan Distributors	Sparta	$27,874.70

Requests for quotations were posted on the Michigan Inter-Governmental website.

HURON-CLINTON METROPOLITAN AUTHORITY

To: Board of Commissioners
From: Maria van Rooijen, Senior Buyer
Project No: Macomb County Bid 71-15 A.2
Project Title: Park Pool Vehicles and Maintenance Truck
Location: Various Metropark Locations
Date: June 1, 2016

Action Requested: Motion to Approve

That the Board of Commissioners' (1) approve the purchase of five (5) 2016 Ford Taurus' for $114,500 ($22,900 each) and one (1) 2016 Ford F-150 Truck for $26,299 totaling $140,799 from Signature Ford, Owosso, Michigan the low responsive, responsible bidder for Macomb County Vehicle Bid 71-15 A.2; and (2) approve a transfer of funds within the various Capital Equipment accounts as recommended by Senior Buyer Maria van Rooijen and staff.

Fiscal Impact: These vehicles were not budgeted in the 2016 Capital Equipment Budget; however, funds are available in the Capital Equipment accounts.

Scope of Work: Furnish and deliver five (5) 2016 Ford Taurus' and one (1) 2016 Ford F-150.

Background: Staff has been keeping park vehicles longer in an effort to utilize funding for areas in the parks that had more immediate needs (i.e. facility repairs, equipment etc.). However, many of the older park vehicles were rusted beyond repair and became hazardous to drive. These vehicles were recently sold at auction and all of the parks are now short vehicles for their day-to-day operations.

Price comparison is by done comparing state, local and counties police and/or vehicle cooperative contracts; Signature Ford has both state and county vehicle contracts.

Vendor	Location	Price
Signature Ford	Owosso	$140,799.00

HURON-CLINTON METROPOLITAN AUTHORITY

To: Board of Commissioners
From: George Phifer, Director
Subject: Exemption of Taxes Subject to Capture
Date: June 1, 2016

Action Requested: Motion to Approve Resolution

That the Board of Commissioners' approve the Resolution exempting Ad Valorem Property Taxes from Capture for the Charter Township of Orion and direct staff to file the resolution in accordance with the applicable statutes governing the tax increment authorities as recommended by Director Phifer and staff.

Attachments: Resolution – Charter Township of Orion Corridor Improvement Authority

HURON-CLINTON METROPOLITAN AUTHORITY
13000 HIGH RIDGE DRIVE, BRIGHTON, MICHIGAN 48114

RESOLUTION EXEMPTING AD VALOREM PROPERTY TAXES FROM CAPTURE

Regarding the Orion Township Corridor Improvement Authority

Upon motion made by Commissioner _____

Supported by Commissioner _____

AT A MEETING OF THE BOARD OF COMMISSIONERS OF THE HURON-CLINTON METROPOLITAN AUTHORITY HELD ON JUNE 9, 2016, THE BOARD ADOPTED A RESOLUTION:

WHEREAS, the Charter Township of Orion, County of Oakland, Michigan (the "Municipality"), pursuant to Act 280, Public Acts of Michigan, 2005, as amended ("Act 280"), has established a Corridor Improvement Authority (the "TIF Entity") and proposes to adopt a development and tax increment financing plan; and

WHEREAS, the Municipality will hold a public hearing on the proposed development and tax increment financing plan for the TIF Entity on May 16, 2016; and

WHEREAS, ad valorem property taxes levied by the Huron-Clinton Metropolitan Authority (the "Authority") are subject to capture under the proposed development and tax increment financing plan; and

WHEREAS, in recent years the Authority has experienced a significant loss in property tax revenue as property values have sharply declined; and

WHEREAS, the Board of Commissioners of the Authority reserve the right to preserve and protect the Authority's tax base across its five-county region; and

WHEREAS, the Board of Commissioners has authorized staff to pursue the avoidance of tax capture by tax increment financing entities to protect the Authority's tax base; and

WHEREAS, Section 18 of Act 280 provides that not more than 60 days after a public hearing on the tax increment financing plan of a Corridor Improvement Authority, "the governing body in a taxing jurisdiction levying ad valorem property taxes that would otherwise be subject to capture may exempt its taxes from capture by adopting a resolution to that effect and filing a copy with the clerk of the municipality proposing to create the authority."; and

WHEREAS, the Board of Commissioners desires to exempt the ad valorem taxes of the Authority from capture by the TIF Entity.

NOW, THEREFORE, BE IT RESOLVED:

1. The Authority hereby exempts its ad valorem taxes from capture by the TIF Entity.

2. A copy of this resolution shall be immediately filed with the Clerk of the Municipality.

3. This Resolution shall take immediate effect and shall remain effective until a copy of a resolution rescinding that resolution is filed with that clerk.

4. Any resolutions or parts of resolutions which conflict with this resolution are repealed and rescinded to the extent of such conflict.

The following aye votes were recorded:

The following nay votes were recorded:

I hereby certify that the above is a true and correct copy of the Resolution adopted by the Huron-Clinton Metropolitan Authority on Thursday, June 9, 2016

_____
Director George Phifer

HURON-CLINTON METROPOLITAN AUTHORITY

To: Board of Commissioners
From: Mike Brahm-Henkel, Manager of Engineering
Project No: 708-16-012
Project Title: Bids – Door Replacements
Project Type: Major Maintenance
Location: Hudson Mills Metropark, Washtenaw County
Date: June 1, 2016

Bids Received: May 17, 2016

Action Requested: Motion to Approve

That the Board of Commissioners' (1) award Contract No. 708-16-012 to the low responsive, responsible bidder, FBH Architectural Security, Inc. in the amount of $ 42,595; and (2) transfer 42,595 from the Kensington Unallocated Major Maintenance account to the Hudson Mills Unallocated Major Maintenance account to fund the project as recommended by Manager of Engineering Mike Brahm-Henkel and staff.

Fiscal Impact: This is an unbudgeted project. Funds are currently available in the Kensington Unallocated Major Maintenance account for the road surface treatment project from the Milford Road entrance to the Traffic Diamond. This project can be deferred until next year. The remaining balance currently allocated for this project is $148,960. At the May 12, 2016 Board meeting funding from this project was used to also support the inflatable slide utilities at Stony Creek, Stony golf course aboveground storage tank, and the replacement of the Lake Erie pool canopies. Funding for the original roadwork was budgeted at $260,000.

Scope of Work: Work includes furnishing all labor, equipment and materials necessary for removal, disposal and installation of seven (7) doors at Hudson Mills Metropark. The installation will include six (6) doors at the Activity Center, one door (1) at the golf cart barn.

Background: The Activity Building was built in 1983 and the Golf Course Maintenance building was built in 1989. The existing doors and frames are rusting, in poor shape and need to be replaced.

Contractor	City	Amount
FBH Architectural Security, Inc.	Flint	$42,595.00
IDN Hardware Sales, Inc.	Livonia	$46,975.00
Rayhaven Group	Livonia	$47,530.00
Phoenix Contractors, Inc.	Ypsilanti	$56,305.00

Budget Amount for Contract Services and Administration	$ 0.00
Work Order Amount	
Contract Amount- FBH Architectural Security, Inc.	$ 42,595.00
Contract Administration	$ 1,500.00
Total Proposed Work Order Amount (Rounded)	$ 44,100.00

This project was reported and publicly advertised in the following construction reporting outlets: MITN, Construction Association of Michigan, Reed Construction Data, Construction News Corporation, Construction News Service, HCMA Website, Builders Exchange of Michigan, McGraw Hill Dodge, Builders Exchange of Lansing and Central Michigan.

Attachment: Current Photos of Doors at Hudson Mills

Current Doors at Hudson Mills Activity Center and Golf Course Cart Barn

HURON-CLINTON METROPOLITAN AUTHORITY

To: Board of Commissioners
From: Paul Muelle, Natural Resources and Environmental Compliance Manager
Subject: Update – Wolcott Mill Habitat Restoration Grant
Date: June 1, 2016

Action Requested: Motion to Receive and File

That the Board of Commissioners receive and file the Wolcott Mill Habitat Restoration Grant Update as recommended by Natural Resources and Environmental Compliance Manager Paul Muelle and staff.

Fiscal Impact: Projects components to be reimbursed through grants.

Background: As previously reported at the Oct. 9, 2014, Feb. 12, 2015 and Sept. 10, 2015 Board meetings, the Metroparks has been involved in floodplain restoration projects at Wolcott Mill Metropark through multiple grants totaling approximately $630,000 from the Michigan Department of Environmental Quality, in partnership with Macomb County Public Works Office, the U.S. Environmental Protection Agency, and the U.S. Fish and Wildlife Service. In total, these habitat improvement projects will restore more than 200 acres of Metropark property previously in agricultural use.

The projects are part of a strategy to improve water quality and recreational opportunities within Wolcott Mill Metropark along the North Branch of the Clinton River through:

- Re-establishing floodplain wetlands to help reduce runoff, capture sediment and facilitate water infiltration from adjacent agriculture which in turn will help improve fish and macro invertebrate habitat.

- Planting trees to increase connectivity between forest patches improving habitat for species reliant on large forest tracts to complete their life cycle and to promote both plant and animal genetic diversity.

- Restoring native grassland habitat to benefit wildlife species currently in decline such as pollinators and grassland birds.

The attached proposal outlines monitoring processes as defined in the grant Quality Assurance Project Plan to validate and measure success of the restoration process as required by the funding agencies. These projects are currently underway and all construction should be complete by the end of 2016 with monitoring extending through the growing season of 2017.

Attachment: Wolcott Mill – NBRC Wetland Monitoring, Phase I & II Proposal

Wolcott Mill – NBRC Wetland Monitoring – Phase I & II
AGREEEMENT FOR SERVICES
Non-Technical - Under $10,000

This Agreement for Services (the "Agreement") is effective this _____ day of _____, 20___ by and between Huron-Clinton Metropolitan Authority ("HCMA") and _____ as the Authorized Representative for _____ (the "Contractor"). This Agreement shall terminate on December 31, 2017. (The Contractor and HCMA may each be individually referred to as a "Party," and collectively, the "Parties").

The undersigned hereby declares that this agreement is made in good faith without fraud or collusion with any persons, that he/she has examined this Agreement, including the Huron-Clinton Metropolitan Authority Standard Terms and Conditions for Services of $25,000 or Less, described herein and is fully informed as to the nature of the Services described herein and the conditions relating to its performance.

The undersigned acknowledges that he has not received or relied upon any representations or warranties of any nature whatsoever from the Huron-Clinton Metropolitan Authority (the Authority), its agents or employees as to any conditions to be encountered in accomplishing the work and that compensation for services rendered is based solely upon his or hers own independent judgment.

The undersigned further proposes: to provide all labor, supplies, permits, new and current materials, transportation and equipment required to perform the Services set forth in the attached Proposal (Exhibit A); and shall be compensated as set forth in Exhibit B for services rendered under this agreement, and to complete the work described herein in strict accordance with the EPA approved Quality Assurance Project Plan - North Branch Clinton River Riparian Corridor Restoration (EPA GL-00E01515-0) and this Agreement including the Huron-Clinton Metropolitan Authority Standard Terms and Conditions of Services of $25,000 or Less, (together, the Contract Documents), all of which are incorporated in full into this Agreement by reference. No provision or condition of the undersigned's Proposal shall conflict with the Contract Documents. Any portion of the undersigned's Proposal purporting to include provisions or conditions in conflict with the Contract Documents shall be ineffective.

This Agreement constitutes the entire agreement. This agreement may be amended, changed, or supplemented only by written agreement executed by both parties hereto. If any term or provision of the Agreement or the application thereof to any person or circumstances shall to any extant, be invalid or unenforceable, the remainder of this Agreement, or the applications of such term or provision of this Agreement shall be valid and enforced to the fullest extent permitted by law.

This Agreement shall be governed by and construed in accordance with the laws of the State of Michigan.

SIGNED AND SEALED THIS ____ DAY OF _____, 2016.

BY: _____
Signature of Authorized Representative

TITLE: _____

LEGAL STATUS (To be completed by Authorized Representative)

( ) A Corporation, duly organized and doing business under the laws of the State of _____, for whom any one of the following persons is authorized to execute Contracts and other legal documents:

NAME	TITLE
_____	_____

Federal Tax I.D. Number: _____

( ) Michigan institution of higher education ("Community College/University"):

NAME	ADDRESS
_____	_____
_____	_____

Federal Tax I.D. Number: _____

( ) An Individual or Partnership whose signature is affixed to this Proposal:

NAME	ADDRESS
_____	_____

Federal Tax I.D. Number

or Social Security Number: _____

PROPOSAL ACCEPTANCE

ON BEHALF OF:
HURON-CLINTON METROPOLITAN AUTHORITY

BY: _____ DATE: _____

TITLE: _____

Proposal for Wolcott Wetland Monitoring: Phase I and II

Introduction

Wetlands provide habitat for many wildlife species, safely remove many water pollutants, provide floodwater storage, and minimize erosion. In addition they provide the aesthetic enhancement of open spaces. The overarching goal of this project is to develop maps of water depth that can be used as a management tool at Wolcott Mill Metropark to promote the development of high quality wetland habitat. A wetland is a complex assemblage of water, substrate, plants (vascular and algae), litter (primarily fallen plant material), invertebrates (mostly insect larvae and worms) and an array of microorganisms (most importantly bacteria). The mechanisms that are available to improve wildlife habitat and water quality are interrelated. To ensure success, it is necessary to monitor wetland hydrology. Hydrology is the most important design factor in constructed wetlands because it links all of the functions in a wetland and because it is often the primary factor in the success or failure of a constructed wetland. While the hydrology of constructed wetlands is not greatly different from that of other surface and near-surface waters, it does differ in a key respect: very small changes in hydrology can have fairly significant effects on wetland vegetation.

As a result of the Phase I and Phase II riparian habitat construction at Wolcott Mill Metropark, a natural experiment has been set in motion. We propose a relatively low-cost plan to install instrumentation and to monitor these areas that will provide sufficient hydrologic, water quality, and vegetation data to map and manage the new wetland habitat as succession takes place. These studies will form the basis of best-management practices that can guide future wetland restorations. In general, wetland restoration will be deemed hydraulically successful if water is inundating the area around the monitoring wells or measured within the upper 12-inch of the ground surface for 14 consecutive days. This will fulfill the primary hydrology indicator per the *Wetland Delineation Manual* dated January 1987 by the U.S. Army corps of Engineers and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (v2.0)* dated January 2012.

Hydrologic Monitoring

Hydroperiod is the seasonal pattern of water level fluctuations and is described by the timing, duration, frequency, and depth of inundation. The hydroperiod of a wetland results from the balance of inflow, outflow, and storage. Hydroperiod determines the availability of water throughout the extreme wet and dry conditions that can be expected, the extent of storage and drainage that may be required, and the criteria to be used in designing/managing the water control facilities. While hydroperiod can be engineered to control surface flow and to reduce its variability, the hydroperiod of a wetland will be strongly affected by seasonal differences in precipitation and evapotranspiration.

Despite relatively broad depth tolerances, freshwater plants often sort by small variations in water depth, producing the apparent zonation of vegetation in wetlands. Most wetland species are adapted to daily or seasonal fluctuations in water level but most wetland plants can tolerate neither extended periods of flooding nor drying of their roots. Water level is the key to determining the success of vegetation. The key parameters are the depth (of) to water, rainfall, high water marks, and duration.

Goals

Wetland monitoring and management at Wolcott Mill will initially focus on the most important factor: water level and soil moisture. Through practical application, engineers have gained insight into the design and creation of constructed wetlands for habitat and water quality improvement. However, the post-construction performance, operation, and maintenance monitoring is critical. To provide quality habitat, wetlands must be carefully monitored particularly as they establish themselves. Hydrologic and vegetation monitoring are needed to measure whether the wetland is meeting the objectives of the GLRI, to indicate its biological integrity, and to identify problems early on, when intervention is most effective.

Long-term objectives

- Develop a database of water depth to develop maps necessary to evaluate trends and succession in wetland condition. Hydrologic data coupled with photographs are the key to documenting conditions.
- Identify management practices needed to improve overall wetland condition. We anticipate that this will entail removal of invasive vegetation, prevention of wildlife damage, and operation of the flow control structure.
- Evaluate the effectiveness of wetland design and management with respect to wetland condition.

Short-term objectives

- Develop and implement cost effective methods for continuous monitoring of wetland hydrology.
- Monitor and map hydrologic condition in the wetlands as well as adjacent upland habitats and the river.
- Monitor location and extent to which invasive species or damaging wildlife are present and affecting wetland conditions.

Data Analysis

Monitoring data must always be interpreted in the context of the wetness conditions preceding the monitoring period. Is the monitoring data over a particular period of time representative of normal, wet, or dry conditions? Monitoring data will be presented graphically with water levels and precipitation data on the same time scale. This allows for a rapid visual assessment of water levels over a growing season in the context of antecedent precipitation. The key outputs of this project will be maps of the restoration areas that identify areas of inundation over time, near surface soil moisture over time, and depth to groundwater. If water level measuring points can be tied into absolute elevation (very useful) then water level data can be presented not only in terms of depth below ground surface, but also in terms of elevation. Combined with a topographic survey, water level elevation data can then be used to delineate areas meeting defined water level depth and duration criteria.

The basic conceptual water balance model is shown in Figure 3.

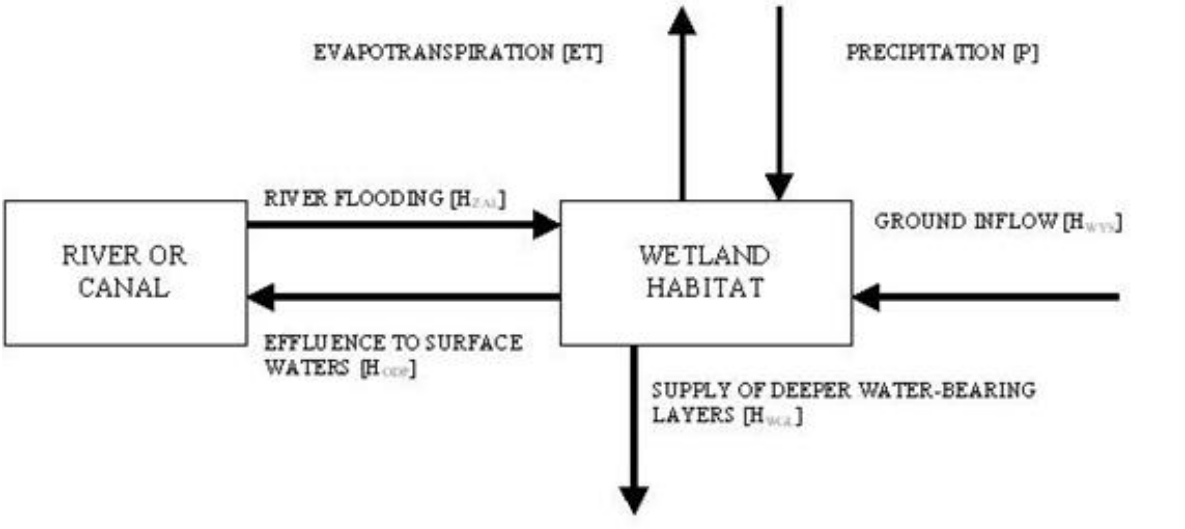


Figure 3. Conceptual water balance model.

Data from a weather station will allow calculation of ET and remote measurement of precipitation and soil moisture at a single location. Remote measurement is extremely useful in that it can be used to guide manual sampling across all sample sites. Stream level (via standalone level loggers) and NRCS TR-55 methods can be used to calculate the wetland/river water flow and overland flow components respectively in the model. The only unknown flux is the flux to ground water, which will be calculated by difference

Rainfall, the depth of net accumulated precipitation reaching the land surface, is a key variable. Rainfall data will be collected with an electronic tipping bucket rain gauge and logged on-site using an electronic data logger, which uploads data every 30 minutes to a commercial 'cloud' website. The rain gauge will not collect meaningful data during the cold months when temperatures drop below freezing. Barometric pressure will be collected continuously at the weather station and will be used to compensate for barometric effects on the level measurements that are described below.

Approach: Measurements and Instrumentation

Weather

As a first component in the monitoring program, Oakland University will install a HOBO RX3000 next-generation remote weather station that provides instant access to site-specific environmental data via the internet. This station is totally autonomous as it is powered by solar power and transmits data every thirty minute to a 'cloud' server via cell-modem. The station has sensors that measure: rainfall, relative humidity, wind speed and direction, incoming solar radiation, soil moisture, temperature, and soil temperature. Other sensors can be added to directly measure level in ground water via monitoring wells or nested piezometers, or water depth in deeper wetland pools.

This station will be located in Phase I Restoration Area B in Wolcott Mill Metropark near a monitoring well that will allow continuous water level measurements if desired. The station has been assembled and tested and is pictured in Figure 1. Test output from the sensors is shown in Figure 2. The panel in the upper left of Figure 2 shows the instantaneous values and the graphs to the right display long-term trends.

Figure 1: Photograph of the weather station as assembled in the laboratory.

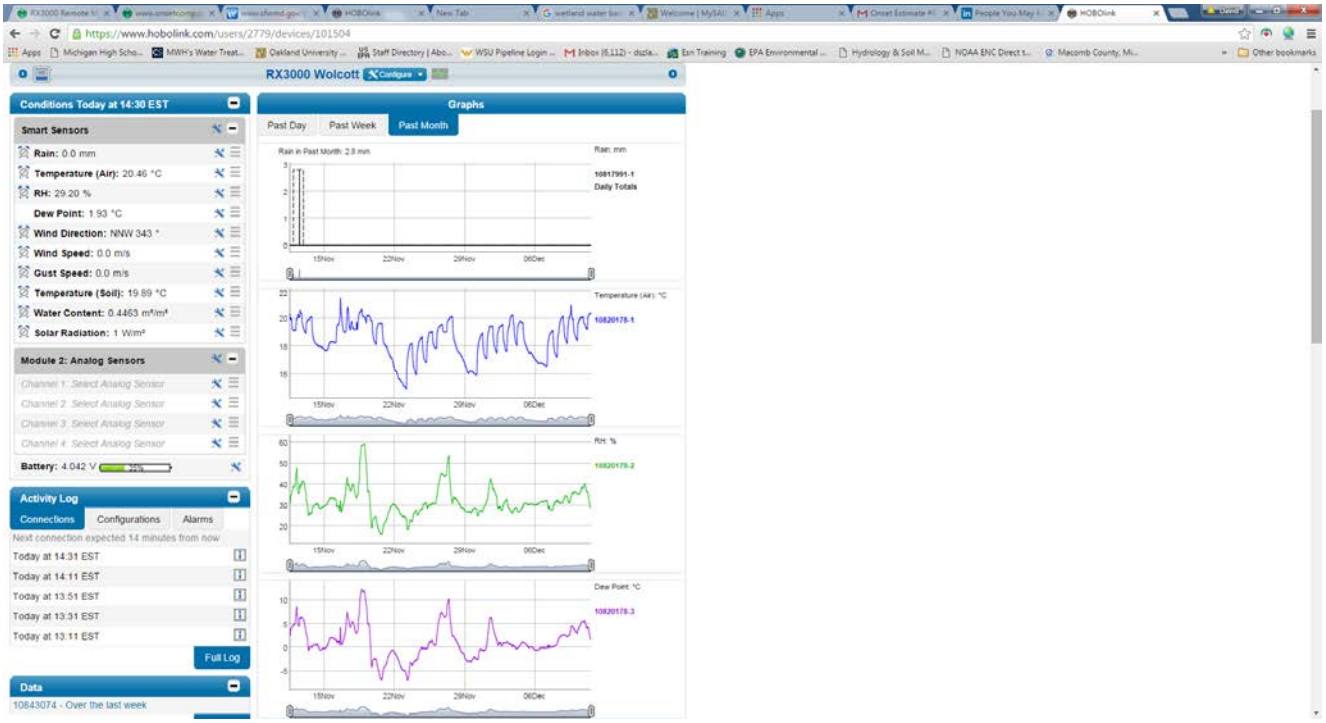


Figure 2. Screenshot of the web based data for the RX3000 interface from the laboratory.

Oakland University is ready to deploy this station immediately in advance of the 2016 growing season. The rain gauge is checked for accuracy prior to deployment and will be inspected every two or three weeks for debris and possible plugging. The gauge will be checked for calibration twice a season in the field.

Monitoring Wells

Shallow monitoring wells will be used to measure the depth to water below the ground surface and to obtain water quality samples. Phase I of the habitat construction is complete and ten monitoring wells have been installed by Tetratech, Inc. in Areas A, B, C, and D. Each 2-inch monitoring well consists of a polyvinyl chloride (PVC) riser with an attached point at the end. Three slots (< 1/16" width x > 1" length) were cut every other inch within the lower 2 feet of the PVC riser to allow water to pass into the well. A nylon mesh was placed and secured over the slots to provide a filter mechanism that will block soil infiltration. The slotted portion of the riser is completely below ground. Well locations are identified in the field with a stake and the coordinates of each well are documented by GPS units. The ground elevation and PVC riser elevation at each well site was taken and documented.

For Phase II, three sites (referred to as sites B, D, & F) were chosen to demonstrate that post construction hydrology is sufficient to maintain wetland habitat and function. At least three 2-inch diameter monitoring wells 48-60 inches deep will be installed at each site after construction in 2016, resulting in a total of nine monitoring wells. The monitoring well construction will follow the methods used in Phase I.

Water Level Measurement in Wells

Groundwater level measurements in monitoring wells will be obtained both manually and continuously. Manual measurements will be obtained using a two conductor, battery-powered water level indicator (e.g., electrical sounder) or 6-foot steel measuring tape marked with carpenter's chalk graduated in feet

and inches. Continuous water level measurements, will be obtained using an electronic data logger and pressure transducers (e.g., Onsett Hobo Level logger or equivalent device). Loggers will record temperature in addition to depth. These loggers will provide information throughout the year and for the duration of the project. In the event that a logger fails or becomes unavailable, manual measurements will be made weekly until the logger is replaced. Water levels will be measured and reported relative to the elevation of the top of the casing. During each site visit, two monitoring wells will be selected for duplicate measurement and recorded for precision.

A total of seven wells will be fitted with level loggers. Level loggers will be installed in the monitoring wells after construction and monitoring will continue throughout the fall and following spring. Hydrology will be evaluated semi-continuously at 30 minute logging intervals and the data downloaded and inspected approximately every three weeks during the growing season and twice during the cold season. The loggers can operate for more than a year unattended.

Stream Stage Measurement

Stream level measurements will be obtained both manually and continuously. Staff gauges are a straightforward way to track surface water levels and can be photographed with date and time stamps. They are sometimes overlooked tools that can provide valuable information for sites where there is open water. Many types of staff gauges are available commercially. These are typically attached to a fencepost that has been driven into the ground, or to some other stable structure. Manual measurements will be obtained from a surveyed-in staff gage placed downstream of the outlet control structures in Phase I and II areas. Continuous measurements will be obtained by deploying the level loggers in a small PVC stilling well secured to the stream bottom. For the areas that have water control boxes, the boxes can be fitted with a staff gauge and/or data logger, and a rating curve can be developed and wetland outflow can be estimated in addition to the depth. This type of location also provide a secure, fixed location for monitoring chemistry.

Figure 3. Outlet control box with stilling well.

Soil Moisture and Depth to Water Measurement Along Transects

Soil moisture will be measured manually along previously established vegetation transects at a minimum of the beginning, mid-season, and end of the growing season in both Phase I and Phase II areas. Volumetric Soil Moisture Content (VMC) refers to the volume of water in a given volume of soil and is measured in $m^3 \cdot m^{-3}$. Soil moisture content is very dependent on soil type. A saturated coarse, sandy soil can hold far less water than a saturated heavy silty clay. Modern soil moisture sensors measure the volumetric water content (VWC) of the soil by measuring the dielectric constant of the soil, which is a strong function of water content, rather than the conductivity. We will make three capacitance measurements of surface (5 cm depth) soil moisture in each quadrat using a digital soil moisture meter such as the Vegetronix VG-meter-200. Not all soils have identical electrical properties. Due to variations in soil texture and salinity, the generic calibration for soil moisture probes results in approximately ± 3-4 percent accuracy for most medium to fine textured mineral soils, and the accuracy for coarse-textured and high-salinity soils is ± 10 percent. These measurements provide a useful, but relative measure of soil moisture.

To augment water depth measurements in the monitoring wells, water depth relative to the soil surface will be measured in a borehole at each transect where vegetation is measured. The period of monitoring and the frequency of readings will be dependent on the monitoring objectives, the performance measures being tested, and the questions being asked. In general, water level measurements are taken throughout the growing season. If wetland hydrology is expected only in the early part of the growing season, readings will be more frequent during that time. Water level measurements might be taken as often as twice weekly, during the early part of the growing season. In many cases, the frequency of readings can be reduced as the growing season progresses and water levels drop during mid-summer. After auguring a hole, sufficient time will be allowed for water to infiltrate and to stabilize at the water-table level. The required time will vary depending upon soil texture. In general, it will take longer to equilibrate in finer textured soils than in coarser textured soils, as finer textured soils are less permeable. When digging a borehole with a soil auger in clayey soils, the sides of the borehole will be scarified to allow water to flow in unimped. Manual measurements will be obtained using a two conductor, battery-powered water level indicator (e.g., electrical sounder) or 6-foot steel measuring tape marked with carpenter's chalk graduated in feet and inches.

Water Quality Monitoring

Wetlands provide many ecological services in addition to habitat. Three key ecological services related to water quality are TSS, denitrification, and phosphorous sequestration. The turbidity, ammonia, nitrate/nitrate, and ortho-phosphorous will be measured in each area (four in Phase I and three in Phase II): areas of inundation; at each monitoring well; in the outfall; and in the North Branch immediately downstream of the mixing zone of the outfall. The number of areas of inundation are variable and dependent on precipitation so we are estimating that there will be at least two to three away from the monitoring wells in each area. This should result in about 15 samples for Phase I and 15 samples for Phase II per sampling. Sampling will take place five times over the growing season and once after senescence in the late fall. The total number of water quality samples is estimated to be 180.

Budget

Oakland University - Monitoring Services		
Wolcott Mill - NBCR Wetland Restoration Grant - Phase I		
Michigan Department of Environmental Quality (Grant No.2012-008)		
Wetland Hydrology Monitoring Phase I		
Equipment		
Level Loggers	$	1,200.00
Total Equipment	$	1,200.00
Labor		
Monitoring Well Sampling - Labor	$	300.00
Soil Moisture & Water Depth Transects	$	480.00
North Branch WQ Monitoring/Data Analysis	$	1,800.00
Total Labor	$	2,580.00
Total Phase I Hydrology Monitoring	**$**	**3,780.00**
Oakland University - Monitoring Services		
Wolcott Mill - NBCR Wetland Restoration Grant - Phase II (USEPA)		
U.S. Environmental Protection Agency (Grant No. 00E01515)		
Wolcott Wetland Hydrology Monitoring Phase II		
Equipment		
Level Loggers	$	1,500.00
KPSI Weather Station Integration	$	490.00
Total Equipment	$	1,990.00
Labor		
Monitoring Well Sampling - Labor	$	330.00
Soil Moisture & Water Depth Transects	$	480.00
North Branch WQ Monitoring/Data Analysis	$	1,800.00
Total Labor	$	2,610.00
Total Phase II Hydrology Monitoring	**$**	**4,600.00**
8-9-100-180-10.9410		

HURON-CLINTON METROPOLITAN AUTHORITY
STANDARD TERMS AND CONDITIONS
FOR CONTRACTS FOR SERVICES OF $25,000 OR LESS

This provisions of these Terms and Conditions (the "T&Cs") of Huron-Clinton Metropolitan Authority ("HCMA") shall apply to all contracts, purchase orders, agreements, or other arrangements with any contractor (a "Contractor") for the provision of services with a value of $25,000 or less (an "Agreement"), notwithstanding any statement or provision in the Agreement to the contrary. By entering into an Agreement with HCMA, the Contractor agrees to abide by these Terms and Conditions.

A. **INDEMNIFICATION, RELEASE, LIMITATION OF LIABILITY AND DISCLAIMER OF WARRANTIES.**

1. Indemnification and Release. Contractor shall indemnify, defend and hold HCMA harmless from any and all Claims (as defined below) which are incurred by or asserted against HCMA by any person or entity, alleged to have been caused or found to arise, from the negligent acts, performances, errors, or omissions of Contractor or Contractor's Employees, including, without limitation, all Claims relating to injury or death of any person or damage to any property.

   The indemnification rights contained in these T&Cs are in excess and over and above any valid and collectible insurance rights/policies. During the term of the Agreement, if the validity or collectability of the Contractor's insurance is disputed by the insurance company, the Contractor shall indemnify HCMA for all claims asserted against the HCMA and if the insurance company prevails, the Contractor shall indemnify the HCMA for uncollectable amounts.

   Contractor shall have no rights against HCMA for any indemnification (e.g., contractual, equitable, or by implication), contribution, subrogation, and/or any other right to be reimbursed by HCMA except as expressly provided herein.

   Contractor waives and releases all actions, liabilities and damage including any subrogated rights it may have against HCMA based upon any Claim brought against HCMA.

   The term "Claims" means any alleged losses, claims, complaints, demands for relief or damages, suits, causes of action, proceedings, judgments, deficiencies, liability, penalties, litigation, costs, and expenses, including, but not limited to, reimbursement for reasonable attorney fees, witness fees, court costs, investigation expenses, litigation expenses, amounts paid in settlement, and/or other amounts or liabilities of any kind which are imposed on, incurred by, or asserted against HCMA, or for which the HCMA may become legally and/or contractually obligated to pay or defend against, whether based upon any alleged violation of the federal or the state constitution, any federal or state statute, rule, regulation, or any alleged violation of federal or state common law, whether any such claims are brought in law or equity, tort, contract, or otherwise, and/or whether commenced or threatened.

2. Limitation of Liability. Neither Party shall be liable to the other for any amounts representing loss of profit, loss of business, or other incidental, consequential or punitive damages of the other Party under this Agreement.

3. Disclaimer of Warranties. HCMA MAKES NO REPRESENTATIONS OR WARRANTIES WHATSOEVER, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ALL OF WHICH ARE HEREBY EXPRESSLY DISCLAIMED. WITHOUT LIMITING THE GENERALITY OF THE RIGHTS OF THE HCMA, IN NO EVENT SHALL THE AUTHORITY'S AGGREGATE LIABILITY UNDER OR RELATING TO THE AGREEMENT AT ANY TIME EXCEED THE TOTAL AMOUNT PAID TO THE HCMA AS PROVIDED HEREIN.

B. **DISPUTE RESOLUTION**. Unless the Parties agree otherwise, any claims, disputes or other matters in controversy arising out of or related to the Agreement shall be subject to mediation as provided herein as a condition precedent to litigation:

1. The Party bringing a claim shall give notice to the other Party and, in writing, propose a meeting within fourteen (14) days after the claim arises in which to discuss and attempt to resolve the claim.

2. In the event the meeting between the Parties to resolve the claim does not resolve the dispute or does not take place within said fourteen (14) day period, the Parties shall designate, by mutual agreement, an

independent mediator who shall convene a meeting of the parties within a period of fourteen (14) days of the later of the initial meeting between the parties or the date notice was given pursuant to subparagraph (1) above. The mediator shall render his or her decision within fourteen (14) days of said meeting. The Parties may, by mutual written agreement, extend the time periods required under this subparagraph.

3. The purpose of mediation is to attempt to resolve the dispute between the Parties. The mediator shall not be empowered with the authority to render a binding opinion or award.

4. In the event the independent mediator's attempt to resolve the dispute between the Parties fails, then each Party will be free to any claims at law in a court of competent jurisdiction.

5. During the pendency of this alternative dispute resolution process, the Parties agree that any statute of limitations applicable to all claims that are the subject of this process shall be tolled.

C. **INSURANCE**: The Contractor, or any of their sub-Contractors, shall not commence work under this contract until they have obtained the insurance required under this paragraph, and shall keep such insurance in force during the entire life of this contract. All coverage shall be with insurance companies licensed and admitted to do business in the State of Michigan and acceptable to HCMA. The requirements below should not be interpreted to limit the liability of the Contractor. All deductibles and SIR's are the responsibility of the Contractor.

The Contractor and any sub-Contractor shall procure and maintain the following insurance coverage:

1. Worker's Compensation Insurance including Employers' Liability Coverage, in accordance with all applicable statutes of the state of Michigan.

2. Commercial General Liability Insurance on an "Occurrence Basis" with limits of liability not less than $1,000,000 per occurrence and aggregate. Coverage shall include the following extensions: (A) Contractual Liability; (B) Products and Completed Operations; (C) Independent Contractors Coverage; (D) Broad Form General Liability Extensions or equivalent, if not already included.

3. Automobile Liability including Michigan No-Fault Coverages, with limits of liability not less than $1,000,000 per occurrence, combined single limit for Bodily Injury, and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles, and all hired vehicles.

4. Liquor Liability Insurance for events where alcohol is served, coverage with limits of liability not less than $4,000,000 per occurrence and aggregate.

5. Professional Liability, for contracts where professional services are rendered, in an amount not less than $1,000,000 per occurrence and $1,000,000 aggregate. If this policy is claims made form, then the contractor shall be required to keep the policy in force, or purchase "tail" coverage, for a minimum of 3 (three) years after the termination of this agreement.

6. Limits of Liability referenced above may be obtained with primary policies or by the use of primary policies and umbrella coverage.

7. Additional Insured: Commercial General Liability, Automobile Liability, and Liquor Liability as described above, shall include an endorsement stating the following shall be *Additional Insureds*: HCMA, all elected and appointed officials, all employees and volunteers, all boards, commissions, and/or authorities and board members, including employees and volunteers thereof. It is understood and agreed by naming HCMA as additional insured, coverage afforded is considered to be primary and any other insurance HCMA may have in effect shall be considered secondary and/or excess.

8. Cancellation Notice: All policies, as described above, shall include an endorsement stating that is it understood and agreed Thirty (30) days, Ten (10) days for non-payment of premium, Advance Written Notice of Cancellation, Non-Renewal, Reduction, and/or Material Change shall be sent to: HCMA, attention Executive Director.

9. Proof of Insurance Coverage: The Contractor shall provide HCMA, at the time that the contracts are returned by him/her for execution, a Certificate of Insurance as well as the required endorsements. In lieu of required endorsements, if applicable, a copy of the policy sections where coverage is provided for additional insured and cancellation notice would be acceptable. Copies or certified copies of all policies mentioned above shall be furnished, if so requested.

10. Commercial Property Insurance: The Contractor shall be responsible for obtaining and maintaining insurance covering their equipment and personal property against all physical damage.

11. General Insurance Conditions: The aforementioned insurance shall be endorsed, as applicable, and shall contain the following terms, conditions:

    a. The insurance company(s) issuing the policy(s) shall have no recourse against the HCMA for subrogation, premiums, deductibles, or assessments under any form;

    b. All policies shall be endorsed to provide a written waiver of subrogation in favor of HCMA;

    c. If any of the above coverages expire during the term of this contract, the Contractor shall deliver renewal certificates and endorsements to (Your Entity) at least ten (10) days prior to the expiration date.

D. **TERMINATION, AMENDMENTS.**

1. Termination. HCMA may terminate and/or cancel the Agreement (or any part thereof) at any time during the term, any renewal, or any extension of the Agreement, upon thirty (30) days written notice to the Contractor, for any reason, including convenience without incurring obligation or penalty of any kind. HCMA may immediately terminate the Agreement for cause upon notice to Contractor if Contractor is in breach of the Agreement. The notice of breach shall include a statement of the facts that cause HCMA to believe Contractor is in breach of the Agreement. The effective date for termination or cancellation shall be clearly stated in the written notice.

   HCMA's sole obligation in the event of termination is for payment for actual Services rendered by the Contractor before the effective date of termination. Under no circumstances shall the HCMA be liable for any future loss of income, profits, any consequential damages or any loss of business opportunities, revenues, or any other economic benefit Contractor may have realized but for the termination and/or cancellation of the Agreement. HCMA shall not be obligated to pay Contractor any cancellation or termination fee if the Agreement is cancelled or terminated as provided herein.

   Contractor may terminate and/or cancel the Agreement (or any part thereof) at any time upon ninety (90) days written notice to HCMA, if HCMA defaults in any obligation contained herein, and within the ninety (90) notice period the HCMA has failed or has not attempted to cure any such default. The effective date of termination and/or cancellation and the specific alleged default shall be clearly stated in the written notice.

2. Agreement Modifications or Amendments. Any modifications, amendments, recessions, waivers, or releases to the Agreement must be in writing and agreed to by the Parties. Unless otherwise agreed, the modification, amendment, recession, waiver, or release shall be signed by a lawfully authorized employee of Contractor and HCMA.

E. **CONTRACTOR'S REPRESENTATIONS, WARRANTIES AND COVENANTS.**

1. Organization and Good Standing. The Contractor is duly organized, validly existing and in good standing under the laws of the State of Michigan, has all requisite power and authority to own, operate and lease its properties and is duly authorized to do business in the State of Michigan.

2. Power and Authority. The Contractor has all requisite power to enter into the Agreement and to carry out and perform its obligations hereunder. All action required on the part of the Contractor and its officers, and agents for the authorization, execution and delivery of the Agreement and the performance by the Contractor of its obligations hereunder have been taken. The Agreement when executed and delivered, shall constitute the legal and binding obligations of the Contractor in accordance with its terms, subject to (a) judicial principles respecting election of remedies or limiting the availability of specific performance, injunctive relief and other equitable remedies and (b) bankruptcy, insolvency, reorganization, moratorium or other similar laws now or hereafter in effect generally relating to or affecting creditors' rights.

3. No Conflict or Breach. The execution, delivery and performance by the Contractor of its obligations under the Agreement will not result in any violation of, be in conflict with or constitute a default under, in any material respect, any material instrument, mortgage, deed of trust, loan, contract, commitment, judgment, decree, order or obligation binding upon the Contractor or result in the creation of any mortgage, pledge, lien, encumbrance or charge upon any of its properties or assets.

4. No Debarment, Pending Governmental Action or Record of Violations. The Contractor has not been debarred by either the federal, state or any local unit of government from providing services, nor is it currently the subject of any debarment or similar proceedings. The Contractor has no record of violation of any federal, state or local government's procurement, contracting or ethics rules.

5. Conflicts; No Undue or Improper Influence or Inducement. The Contractor represents and warrants that it has disclosed in writing any existing conflicts of interest involving HCMA, and that it will disclose in writing to HCMA any conflicts that arise during the term of the Agreement. The Contractor represents and warrants that it has not, and will not, offer to HCMA or any of HCMA's employees any unlawful inducement, prohibited benefit, or improper incentive to enter into this or any other agreement with HCMA.

6. Performance of Services; Compliance with Law. The Services will be performed in a diligent manner in accordance with industry practices, by individuals of suitable training, skill, and licensure if appropriate. The Contractor's actions and performance of the Services throughout the term of the Agreement shall be in full compliance with all applicable federal, state and local laws, rules, regulations and standards, including all laws applicable to HCMA's operations or to which HCMA is otherwise bound. The Contractor has, and will maintain throughout the term of the Agreement, all licenses, permits, authorizations and approvals necessary for the lawful conduct of its business. No representation or warranty of the Contractor contained in the Agreement contains any untrue statement of material fact or omits to state a material fact necessary to make the statements and facts contained herein not misleading.

7. Full Knowledge of Service Expectations and Attendant Circumstances. Contractor warrants that before entering into the Agreement, it had a full opportunity to review the proposed services, and review all HCMA requirements and/or expectations under the Agreement. The Contractor is responsible for being adequately and properly prepared to execute the Agreement. Contractor has satisfied itself in all material respects that it will be able to perform all obligations under the Agreement as specified herein.

F. **GENERAL PROVISIONS**

1. Taxes. The Contractor shall pay its own local, state and federal taxes, including without limitation, social security taxes, and unemployment compensation taxes. HCMA shall not be liable to or required to reimburse the Contractor for any federal, state and local taxes or fees of any kind.

2. Contractor Employees. Contractor shall solely control, direct, and supervise all Contractor Employees with respect to all Contractor obligations under the Agreement. Contractor will be solely responsible for and fully liable for the conduct and supervision of any Contractor's Employee. All employees of Contractor assigned to work under the Agreement may, at the HCMA's discretion, be subject to a security check and clearance by HCMA.

   The term "Contractor Employee" means without limitation, any employees, officers, directors, members, managers, trustees, volunteers, attorneys, and representatives of Contractor, and also includes any licensees, concessionaires, associate researcher, independent sub-Contractor, Contractor's suppliers, subsidiaries, joint ventures or partners, and/or any such persons, successors or predecessors, employees, (whether such persons act or acted in their personal, representative or official capacities), and/or any and all persons acting by, through, under, or in concert with any of the above. "Contractor Employee" shall also include any person who was a Contractor Employee at any time during the term of this Agreement but, for any reason, is no longer employed, appointed, or elected in that capacity.

3. Independent Contractor. The Contractor's relationship to the HCMA is that of an Independent Contractor. Nothing in the Agreement is intended to establish an employer-employee relationship between HCMA and either the Contractor or any Contractor Employee. All Contractor Employees assigned to provide services under the Agreement by the Contractor shall, in all cases, be deemed employees of the Contractor and not employees, agents or sub-Contractor of HCMA.

4. Non Exclusive Agreement. No provision in the Agreement limits, or is intended to limit, in any way the Contractor's right to offer and provide its Services to the general public, other business entities, municipalities, or governmental agencies during or after the term of the Agreement. Similarly, the Agreement is a non-exclusive agreement and the HCMA may freely engage other persons to perform the same work that the Contractor performs. Except as provided in the Agreement, the Agreement shall not be construed to guarantee the Contractor or any Contractor Employee any number of fixed or certain number or quantity of hours or services to be rendered to HCMA.

GL-00E01515-0

Prepared for:
United States Environmental Protection Agency
Great Lakes National Program Office – Region 5
77 West Jackson Blvd.
Chicago IL, 66604-3507

Bart Mosier, Project Officer
USEPA - GLNPO

Prentiss Dixon, EPA Grant Specialist
USEPA - GLNPO

Prepared by:
Paul Muelle, Natural Resources & Environmental Compliance Manager
Huron Clinton Metropolitan Authority
Brighton, Michigan

_____ Date: _____
Bart Mosier, Project Officer

_____ Date: _____
Prentiss Dixon, EPA Grant Specialist

_____ Date: _____
Paul Muelle, Project Manager

_____ Date: _____
Ron Gamble, QA/QC Coordinator

_____ Date: _____
Dianne Martin, Project Consultant/Essential Contractor

_____ Date: _____
David Szlag, Hydrology Monitoring PI

A.2. Table of Contents

A3. Distribution List

Official copies of this QAPP, accompanying documents and any subsequent revisions will be provided to:

Bart Mosier, Project Officer
U.S. Environmental Protection Agency GLNPO
77 West Jackson Blvd.
Chicago IL, 66604

Prentiss Dixon, EPA Grant Specialist
U.S. Environmental Protection Agency GLNPO
77 West Jackson Blvd.
Chicago IL, 66604

Paul Muelle, HCMA Project Manager
Huron-Clinton Metropolitan Authority
13000 High Ridge Drive
Brighton, Michigan 48114

Ron Gamble, HCMA QA/QC Coordinator
Huron-Clinton Metropolitan Authority
13000 High Ridge Drive
Brighton, Michigan 48114

Ryan Colliton, HCMA Field Team Leader
Huron-Clinton Metropolitan Authority
13000 High Ridge Drive
Brighton, Michigan 48114

Dianne Martin, Essential Contractor
ASTI Environmental, Central Great Lakes Office
10448 Citation Dr., Suite 100
Brighton, Michigan 48116

David Szlag, Ph.D., P.E. Monitoring Principal Investigator
Oakland University
Department of Chemistry
207 Science and Engineering Building
2200 North Squirrel Rd.
Rochester, MI 48309-4401

A4. Project Organization

Project management will be provided by Paul Muelle (HCMA) who will be responsible for all reporting to EPA. Mr. Muelle will schedule regular meetings and conference calls among Project partners to ensure coordination and foster communication among project members. He will serve as coordinator and liaison with Oakland University, Clinton River Watershed Council, Macomb County, Michigan Department of Natural Resources, Michigan Department of Environmental Quality, and contractors. Coordination for the monitoring component will be provided by Ryan Colliton (HCMA). He will be responsible for organizing all monitoring participants and reviewing QA/QC methods and procedures. Mr. Colliton will act as Field Team Leader responsible for monitoring and coordination of field work between HCMA Administrative Staff, Park Staff, Project Consultants and Contractor.

The vegetation and hydraulic monitoring program will be carried out by the HCMA Natural Resources Department lead by Ryan Colliton and assisted by a monitoring team of scientists from Oakland University. Dr. David Szlag, will act as the Principal Investigator (PI) for the hydraulic monitoring portion of the program.

Ron Gamble (HCMA) will serve as the QA/QC officer. Mr. Gamble will review the QAPP and all QA/QC aspects of the monitoring program and will provide QC spot-checks throughout the project. He will also serve as an advisor for the vegetation component of the monitoring program and restoration efforts. Ryan Colliton, (HCMA) will assist Mr. Gamble in QA/QC field responsibilities.

Dianne Martin (ASTI) will serve as the Project Consultant and Essential Contractor for the restoration process. She will be responsible for the restoration project engineering, design, construction contract administration and coordination of efforts of the design team. Kyle Hottinger (ASTI) will assist Ms. Martin and serve as the Consultant's Field Representative. These individuals will ensure both cost-effective restoration planning and project oversight.

Project Team Background

Paul Muelle (HCMA-Natural Resources Dept.) has served as both a Landscape Architect and as Natural Resources Manager for the Huron - Clinton Metropolitan Authority, for the past 30 years. As a Landscape Architect he was responsible for the design, contract administration and the field supervision and development of a variety of Metropark facilities. He has served as the Metroparks Natural Resources Manager for the past 16 years, and has been responsible for all aspects of management of over 18,000 acres of natural area in the Metroparks including; water resources protection, wildlife management and habitat improvements. He supervises all forest management and arboricultural activity in the park system as well as all environmental compliance, reporting and environmental emergency response procedures.

Muelle is a Registered Landscape Architect (Michigan #981) and holds a degree in Landscape Architecture from Michigan State University. He currently sits on the Board of Directors for The Stewardship Network, the Detroit River International Wildlife Refuge Alliance, Macomb County Water Resources Advisory Council, Clinton River Area of Concern Remedial Action Plan Public Advisory Council and the Detroit River and Western Lake Erie CWMA.

Ron Gamble (HCMA-Natural Resources Dept.) is serving part-time as the Metroparks Regulatory Compliance Coordinator involved in all aspects of environmental compliance and sustainability for the organization. Mr. Gamble holds a Master of Science in Water Resources degree from the University of Michigan and a BS degree in Fisheries and Wildlife Biology from Iowa State University. Prior to the Metroparks, Mr. Gamble served as Staff Environmental Engineer at both the Ford Motor Company and Visteon Corporation and holds certificates and licenses for Industrial Wastewater Treatment and Industrial Stormwater Management. He is an accomplished botanist and serves as a guide and instructor for various organizations and school systems for outdoor education including aquatic biology and chemistry, botany, native plant restoration and geology.

Ryan Colliton (HCMA-Natural Resources Dept.) began with the Metroparks in 2014 as the Natural Resources Stewardship Coordinator and now serves as the Natural Resources Coordinator and is involved in all aspects of natural resources management, habitat improvement and supervision of the Natural Resources Department field crews. Mr. Colliton holds a Bachelor of Arts degree in Environmental Studies from Western Michigan University and is a Master's of Science degree (Forestry) candidate at Michigan State University. Prior to the Metroparks, Mr. Colliton worked as the Natural Areas Stewardship Manager for Oakland Township, Michigan and for five years as the Stewardship Field Director for the Kalamazoo Nature Center. Mr. Colliton has extensive knowledge of Midwest ecosystems and management techniques, has completed prescribed fire training through S- 290 and holds a Commercial Pesticide Applicators license.

Dianne Martin (ASTI Environmental) is a professional wetland scientist (PWS #1313) and has managed small and large-scale wetland restoration and enhancement projects throughout the Great Lakes for over 18 years. Ms. Martin has significant experience in ecological assessment and restoration, with an emphasis on aquatic ecosystems. Her recent work is focused on wetland mitigation and restoration design, as well as habitat management plans, endangered species surveys, and natural features inventories.

Ms. Martin has a Masters Degree in Aquatic Ecosystem Management from Eastern Michigan University, with her research focusing on the effects of sedimentation on benthic macroinvertebrates in wetland ecosystems. Following graduate school, Ms. Martin worked for the Missouri Department of Conservation, managing wetland research field projects post-floods of 1993 and 1995. In 1998, Ms. Martin started as an Associate at ASTI Environmental working mostly on wetland delineation, mitigation and mitigation monitoring projects. By 2002, Ms. Martin had been made a Director at ASTI and was placed in charge of all natural resource related projects.

As the Director of ASTI's Resource Assessment and Management Group, she actively manages between ten and fifty projects at any given time. These projects are often design/build scenarios and involve management of sub-contractors, construction, and permitting. In addition to her project involvement, she also manages a staff of five ecologists and is responsible for developing the ecological practice at the firm. Through this combined experience, Ms. Martin has over 20 years of significant ecological knowledge and project management experience, which makes her an effective restoration design leader for the Wolcott wetland restoration.

Kyle Hottinger (ASTI Environmental) is a wetland ecologist specializing in vegetation assessments and identification, wetland delineation, wetland quality assessment and mitigation design, natural resource permitting and ecosystem management and planning. Mr. Hottinger holds a Bachelor of Science degree from the University of Michigan – Flint. He is a Certified Storm Water Management Operator and Licensed Land Surveyor and holds certifications in wetland plant identification, 40HR-HAZWOPER, EPA Watershed Management Training and Commercial Pesticide Application. Mr. Hottinger has been with ASTI for 11 years and is a member of the Society of Wetland Scientists.

Dr. David Szlag (Oakland University) is an Assistant Professor at Oakland University in the Department of Chemistry. He received his Ph.D. in Environmental Engineering, and an M.S. in Chemical Engineering from the University of Colorado, Boulder. He has developed and taught courses in physical chemistry, hydrology, environmental science, and Geographic Information Science (GIS) over the span of 13 years. His research is focused on modeling and measuring the linkage between landscape change, hydrology, and aquatic microbiology-specifically harmful algal blooms (HABs). He is a registered Professional Environmental Engineer and has eight years experience at the U.S. EPA Research Laboratories in Cincinnati, Ohio. His last assignment at USEPA in the Sustainable Technology Division was hydrology team leader where he and his colleagues and developed an award winning GIS based system for allocating tradable storm water credits. Prior to his work at the USEPA Dave was employed as a research engineer with NIST, Department of Commerce in Boulder Colorado.

Roles and Responsibilities:

Bart Mosier, (USEPA)
• Project Officer

Prentiss Dixon (USEPA)
• EPA Grant Specialist

Paul Muelle (HCMA)
- Project coordinator and manager
- Organize and check QA/QC efforts
- Supervises the review and approval of the QAPP for HCMA
- Serves as a restoration technical advisor
- Responsible for project oversight and approvals

Ryan Colliton (HCMA)
- Project leader for vegetation monitoring
- Project team member coordination.
- Serves as a restoration technical advisor
- Assists with QA/QC efforts
- Responsible for field activities oversight and monitoring as outlined in the Project Description.
- Responsible for coordinating field activities with the contractor, park staff, volunteers and university staff for restoration and monitoring activities.

Ron Gamble (HCMA)
- Quality Assurance/Quality Control (QA/QC) Officer
- Reviews and approves the QAPP for HCMA
- Serves as a restoration technical advisor

Dianne Martin (ASTI)
- Project Consultant/Essential Contractor and project leader for restoration efforts.
- Coordination and gathering of essential site data (mapping, hydrology, site features).
- Coordination of the engineering and design efforts.
- Responsible for conceptual and final construction designs, engineering, permitting, construction oversight as outlined in the Project Description.
- Serves as senior restoration technical advisor

Kyle Hottinger (ASTI)
- Assists Project Consultant/Essential Contractor and team leader for restoration efforts.
- Coordination and gathering of essential site data (mapping, hydrology, site features)
- Serves as the Essential Contractor's field representative for restoration activities.
- Assists with conceptual and final construction designs, engineering, permitting, construction oversight and monitoring as outlined in the Project Description.
- Serves as a restoration technical advisor

David Szlag (OU)
- Serves as Principal Investigator and project leader for hydrology monitoring.
- Coordinates all monitoring activities for hydrology, ecosystem functioning and water quality in remediated wetlands.
- Serves as Laboratory Manager (Oakland University)
- Will be assisted by Oakland University students
- Will assist Ryan Colliton with vegetation / invasive monitoring.
- Coordinate database and data entry system specific to Hydrology
- Develops and implements QC checks for the database/data entry system
- Works with monitoring team to identify monitoring locations.

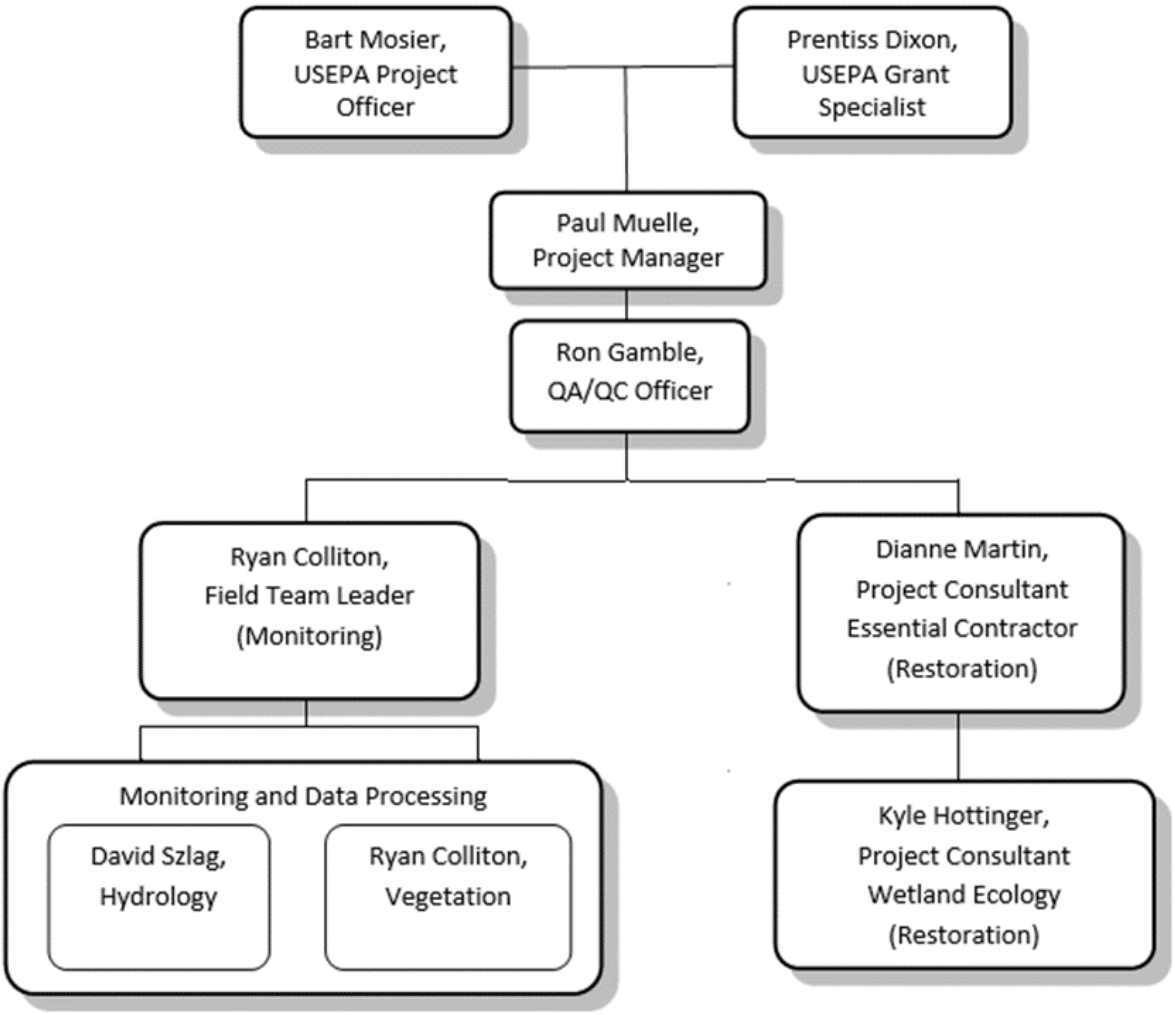


Figure 1. Organizational Chart for North Branch Clinton River Riparian Corridor Restoration

A5. Problem Statement

The North Branch of the Clinton River (NBCR) is a 43-mile long tributary to the Clinton River extending from Bruce and Almont Townships to its confluence with the Clinton River in Clinton Twp. According to the Michigan Department of Environmental Quality (2010), as much as 72 percent of the wetlands in the North Branch have been lost.

Approximately 100 acres of potential wetland restoration area have been identified along the 8 miles of shoreline of the NBCR within Wolcott Mill Metropark. Current land use consists of agriculture, passive recreation and natural areas. The North Branch Clinton River Riparian Corridor Restoration project will restore sections of floodplain along the NBCR currently in agricultural use, back to native grassland, forested floodplain and wetland systems. The projects are part of a long term strategy by the Metroparks to buffer the potential negative impacts of agriculture, increase storm water retention along the floodplain by increasing vegetative buffers, reconnect fragmented forested systems and restore native grasslands that will benefit wildlife species currently in decline such as pollinators, grassland birds and species requiring large tracts of connected forest to complete their life cycle. These improvements will also create improved recreational and educational opportunities for the citizens of Southeast Michigan.

A 40-acre restoration area was completed in 2015 through as Michigan Section 319-funded project. The current North Branch Clinton River Riparian Corridor Restoration project will act as a follow-on project to continue this wetland and associated upland restoration program on additional parcels within the Park. We anticipate that the completion of these two projects will help address water quality issues by reducing flashiness, peak flows, and the overall volume of water discharged to the stream, and reduce the nutrient and sediment load received in the NBCR and significantly increase the amount of quality wildlife habitat in the river corridor. This will begin to address the wetland restoration AOC delisting target for the NBCR watershed, including: Degraded Fish and Wildlife Populations; Loss of Fish and Wildlife Habitat; and Degradation of Benthos Beneficial use Impairments (BUI's).

A6. Project Description

The project is located within Wolcott Mill Metropark, Ray Township, Macomb County, Michigan 48096. 10th Congressional District. Latitude 42º45'57.75", Longitude -82° 55' 36.18"

Approximately 60 acres of Metropark property bordering the NBCR have been identified to have the potential to have native vegetation and wetland hydrology restored to mimic pre-settlement conditions. The majority of the properties have been either under private ownership or under lease from the Metroparks for agricultural purposes for decades. The purpose of the habitat restoration process is to:

- Attenuate runoff from adjacent agriculture production fields through the reestablishment of riverine wetland systems, floodplain forest and native grasslands to reduce runoff, capture sediment and facilitate water infiltration.
- Increase connectivity between forested or grassland patches along the river corridor to improve habitat for species reliant on large tracts to complete their life cycle and encourage genetic diversity through system connectivity.
- Reducing flashiness, peak flows, and the overall volume of water discharged to the stream, through the reestablishment of riverine wetland, floodplain forest and native grasslands vegetation to help reduce the nutrient and sediment load received in the NBCR.
- Establish system appropriate native vegetation and where feasible that will benefit wildlife species currently in decline such as pollinators and grassland birds, and reestablish or enhance wetland habitat and functions on selected sites.

The restoration areas will be surveyed for existing agricultural drain tile. If found the drain tile will be broken to facilitate the restoration of the historical hydrological regime. Topography and soils will be evaluated to determine the best course of action for restoration activities, which may include the installation of earthen berms to block or change current overland runoff, excavating shallow depressions to capture water and create a variation of habitat within the wetland areas and/or other mitigating activities. Native vegetation and trees will be chosen based on soil and moisture suitability and appropriate varieties for restoration goals based on historic conditions. Forested areas will be restored to increase connectivity between forest patches along the corridor of the NBCR, which will improve habitat for species reliant on large forest tracts to complete their life cycle.

Native grasslands will be established adjacent to forested tracts to reduce runoff, capture sediment and facilitate water infiltration from adjacent agriculture. A diverse mix of native wildflowers and forbs will be planted in these grasslands to promote habitat for pollinators in support of the Pollinators Health Task Force recommendation of restoring or enhancing 7 million acres of habitat for pollinators. This work will be completed during the first year of the project and will be monitored for a period of two growing seasons (2016-2017) as part of this grant program. The project area will continue to be monitored and assessed on a regular basis as part of the Metroparks natural resource management program. When needed and feasible, non-native invasive plants will be removed from the sites or adjacent sites to a reasonable extent and appropriate native species reintroduced.

The Metroparks has secured the services of ASTI as a consultant for site design and engineering services. Project administration and oversight will be the responsibility of the Metropark's Natural Resources Department. The Natural Resources and Engineering Department Field Engineering and Natural Resources Department staff will be present for major project activities to ensure they are completed satisfactorily.

Monitoring will be the responsibility of the Metroparks and will be performed by Metroparks staff with the assistance of Oakland University. Our vision for this project is to restore nearly 60-acres of hydrologically-altered, riparian wetland and associated upland systems within Wolcott Mill Metropark to a diverse complex of upland and floodplain forest, grassland, wet meadow and floodplain wetland that provides enhanced wildlife habitat value, and sedimentation attenuation. This project will support many initiatives including the Clinton River AOC RAP, the Lake St. Clair Comprehensive Management Plan, and the Lake St. Clair Coastal Habitat Assessment, among others.

To achieve this vision, the following tasks will be completed:

Task 1: Topographic Mapping

A topographic map of the project area will be necessary in order to conduct the hydrological analysis and complete the restoration plans. HCMA topographic surveys and Macomb County 2010 LiDAR Imagery will be the foundational basis to the development of this base map. FEMA's Firm mapping will be utilized to verify LiDAR imagery and topographic ground truthing will be performed as needed to ensure the accuracy and adjusted, as needed. Visual inspection by surveyors will be used to supplement the existence and location of existing or abandoned structures or where any utilities may exist if required.

Quality Assurance for Task 1: Macomb County has produced the 2010 LiDAR imagery through a standardized process. HCMA will provide 2' contour topographic surveys produced by Abrams Aerial Survey Corp., 1985. If needed to provide accuracy of topographical information, the Metroparks and ASTI will utilize a professional licensed surveyor to spot check accuracy and verify mapping data.

Task 2: Project Design

ASTI will use the base map to generate ideas for restoration planning. The Project team will meet to develop the outline for concepts (design alternatives and subsequently preliminary restoration design) relating to grading, hydrological control structures if needed, wildlife habitat enhancement, and native plant restoration.

ASTI will then further develop final plans from ideas that were developed at these meetings, including estimating probable costs and identifying the benefits and challenges of the project.

The final plans will meet the restoration plan output and outcomes listed in the Work Plan. In addition, the Project team will rely on the baseline information obtained by the project partners, as well as the Michigan Natural Features Inventory, to identify species that the restoration plan should target for habitat enhancement. Once these species are identified, the Project team will work to ensure that that the design will contain elements that will enhance habitat requirements for these species as appropriate. Quality Assurance for Task 2: The Project team will undergo review of the conceptual design, both internally and with project partners and externally with key stakeholders, and permitting agencies. It is anticipated that any errors in design will be brought to the attention of the Project team during this review process.

Task 3: Obtain Required Permits

ASTI will obtain all necessary permits required to complete this project. It is anticipated that this task may include preparation of the following permit applications:

- a wetland/stream/floodplain permit
- soil erosion permit

Quality Assurance for Task 3: Not applicable

Task 4: Complete Final Design / Prepare Construction Plans, Specifications and Contract Documents

Final design plans, supporting graphics, specifications, contract documents and an estimate of probable costs will be developed for presentation to the Project team.

Upon receipt of approval for the final design by the Metroparks, contract documents (drawings and specifications) will be prepared by ASTI. These documents would include, but are not limited to;

- cover sheet
- general development plan
- existing conditions plan
- soil erosion and sedimentation control plan
- plant material removal plan
- grading and layout plan
- re-vegetation plans
- construction details and notes
- construction specifications
- construction contract

Specifications will be in a modified CSI format. Documents will be submitted in PDF format (D-Sized and 11x17) along with seven (7) sets of hard copies (D-Size) to HCMA.

Quality Assurance for Task 4: The Project team will conduct an internal team coordination / review meeting (QA/QC) of the contract document package documents along with reviews with the project partners at 50 percent and 90 percent complete. At the conclusion of the internal and project partner reviews, an estimate of probable costs will be finalized. This complete package will then be submitted to HCMA Board of Commissioners for approval prior to release for bidding.

Task 5: Bid Project & Select Contractors

The Project team will publicly advertise the bid, based on the HCMA's requirements, and host a contractor pre-bid meeting if requested, where the general development requirements of the project and bidders' specific questions will be answered. During the bidding process, the Project team will answer any additional questions and prepare necessary addenda as required. At the time of bid submittal, the Project team will be in attendance to assist HCMA to review bids and bid requirements of the low bidder.

Quality Assurance for Task 5: Not applicable

Task 6: Construct Improvements / Construction Oversight

During the construction process, ASTI will provide complete field engineering and contract administration, coordinated with HCMA field engineering and natural resources staff, including the following items:

- Oversight inspections
- Field ecology
- Field layout and staking
- Contractor coordination
- Submittal approvals
- Contract document clarification
- Change order directives
- Bi-weekly progress meetings
- Application for payment reviews
- Contract documentation
- Project close out

Quality Assurance for Task 6: Construction oversight activities will consist of construction observation and documentation, field layout and construction staking, including written and photographic documentation, review of shop drawings and submittals, quantifying materials, reviewing pay requests, and communication with the project partners. Successful hydrological restoration will be insured by having the restoration design team complete the construction oversight with assistance from HCMA as property owner. ASTI's on-site construction manager or field representative will complete Daily

Observation Reports for each day on the job. The reports will consist of, but not limited to, the following components:

- Weather conditions and potential for weather-related project delays
- Visitors and subcontractor personnel on site that day
- Injuries
- Deviations from plans and specifications and reasons for them
- Condition of Soil Erosion Sedimentation Control (SESC)

Task 7: Ecosystem Function / Pre- and Post-Construction Monitoring

The various ecosystem and wetland hydrological regimes that historically occurred along the NBCR have been altered overtime by agricultural practices, the filling of pre-settlement stream channels, deforestation and isolation by road construction. This project will restore native vegetation in appropriate habitat, restore forest connectivity to the extent possible within the project sites, and restore or create wetland conditions that will mimic historical hydrological condition, given current constraints.

Quality Assurance for Task 7: Vegetation and Hydrological monitoring will be accomplished before and after the restoration, in order to evaluate the success of the project. It is the data collected during this task that is applicable to and the subject of this QAPP.

7A - Hydrological monitoring will be conducted using a combination of electronic soil moisture meters, staff gauges, manual observations, and submersible level loggers for sufficient spatial coverage and to encompass the variability of habitats present. Depth and temperature loggers will be placed in selected monitoring wells located in the restoration area after construction to augment manual observation of depth to groundwater and flow direction. These transducers will provide information throughout the year and for the duration of the project. An existing automated weather station will provide rainfall measurement. The soil moisture measurements will be made in conjunction with the vegetation monitoring (8b) These aspects of the monitoring will be conducted by faculty and students from Oakland University.

7B - Vegetation Monitoring will consist of two components. 1) sampling points will be established in each restoration area. Quadrats (1 m^2) will be established at the site along several transects that provide for sufficient spatial coverage and encompass the variability of habitats present. 2) At each sampling location, percent cover of dominant plant species will be documented at the beginning, mid-season and end of the growing season, and percent change over time will be documented. GPS equipment or smartphone apps will be utilized to map the vegetation cover and identify infestation of invasive plant species. If necessary, field samples will be taken in order to identify unknown species.

Photomonitoring will also be used to show vegetation coverage at the restoration sites. At the established points, photos will be taken using a GPS enabled camera, which will allow the monitor to repeat photos from the same location, the same cardinal direction, and angle. These photos will be taken at the same time that quadrat data is collected. Any invasive species found during monitoring will be documented and subsequently slated for treatment at the most effective time. Vegetation monitoring will continue through the duration of the grant and beyond.

7C - Invasive plant species monitoring will parallel Vegetation Monitoring (7B) and necessary treatment will take place annually to ensure project success. Vegetation monitoring will be performed by Metroparks staff with assistance from faculty and students from Oakland University. Any invasive species found during monitoring will be documented and slated for treatment at the most effective time. Invasive species monitoring will continue through the duration of the grant.

8D - Nutrient monitoring will be conducted for biologically available phosphorus and nitrogen. These measurements will be conducted three times during the growing season spring, summer, and fall and for the duration of the grant. This aspect of the monitoring will be conducted by faculty and students from Oakland University.

A7. Data Quality Objectives for Measurement Data
Success will be measured by comparing outcomes to the original 4 project goals listed in the Work Plan, which are:

- Attenuate runoff from adjacent agriculture fields through the reestablishment of riverine wetland systems, floodplain forest and native grasslands
- Increase connectivity between forested and grassland patches along the river corridor to will improve habitat for species reliant on large tracts to complete their life cycle and encourage genetic diversity through system connectivity.
- Reducing flashiness, peak flows, and the overall volume of water discharged to the stream, through the reestablishment of riverine wetland, floodplain forest and native grasslands vegetation.
- Establish system appropriate native vegetation and where feasible, restore native grasslands that will benefit wildlife species currently in decline such as pollinators and grassland birds, and reestablish or enhance wetland habitat and functions on selected sites.

Table 1: The outcome comparison can be represented as the following table:

Output	Activity	BUI addressed	Outcome (Metric)	Outcome (Metric)
Restore 60 acres of wetland and assoc. upland habitat along NBCR.	1. Create wetland depressions and berms where necessary. 2. Plant native trees.	1. Nutrient and sediment loading. 2. Wildlife habitat. 3. Wildlife populations.	Restore native species in appropriate habitats as measured by a dominance of richness and coverage.	
Eliminate agricultural drain tile in restoration areas.	1.View aerials and old records to locate tiles 2. Break tile fields by hand or blade.	1. Nutrient and sediment loading. 2. Wildlife habitat. 3. Wildlife populations.	100% elimination of agricultural drain tile.	
Restore forest connectivity	1. Mow cool season grasses to prepare site. 2. Plant native trees.	1. Nutrient and sediment loading. 2. Wildlife habitat.	As measured by an increase in contiguous acres of forest habitat.	
Establish native vegetation in restored areas.	1. Prep sites for planting (mow, herbicide). 2. Plant mix of native wildflowers and grasses	1. Nutrient and sediment loading. 2. Wildlife habitat. 3. Wildlife populations.	1. Restore native species in appropriate habitats as measured by a dominance of richness and coverage.	2. Reduce sediment and nutrient flow to NBCR as measured by biologically available phosphorous and nitrogen.
Reduce sediment and nutrient flow to NBCR	1. Restore wetlands along NBCR. 2. Plant native vegetation in restoration areas to slow flow and increase infiltration	1. Nutrient and sediment loading. 2. Wildlife habitat. 3. Wildlife populations.	Reduce sediment and nutrient flow to NBCR as measured by biologically available phosphorous and nitrogen.	

The primary data quality objective for this study is to produce accurate and representative measurements of the biological, physical, and chemical parameters for the Wolcott Mill Metropark remediated ecosystems.

Table 2: Timeline of tasks and deliverables for the North Branch Clinton River Riparian Corridor Restoration

	2015	2016				2017	
Task	F	W	Sp	Su	F	W	Sp
Grant Acceptance	X						
Confirmation of selected sites	X	X					
Consultant selection	X						
Site surveys / evaluation	X						
Mapping/Conceptual/Preliminary Design		X					
QAPP Draft		X					
QAPP Approval			X				
Final Design			X	X			
Permitting		X	X	X			
Contract Documents			X	X			
Contractor selection			X	X			
Pre-Construction Monitoring			X	X			
Construction / Construction Oversight				X	X		
Vegetation Establishment				X	X		
Post Construction Monitoring				X	X	X	X
Pre & Post Documentation QA/QC			X	X	X	X	X
Report to EPA						X	

A8. Special Training Requirements

None required for monitoring team leaders; the monitoring will be managed by professionals with Masters level degrees and scientists with Ph.D.'s or the appropriate credentials. Graduate students and temporary summer workers will always work with more experienced personnel and will receive substantial supervision until they prove themselves competent in field sampling methods. Project leaders will accompany field crews on several wetland sampling events to ensure that all data collection methods are being done according to established protocols. Field crews will be trained in proper data entry on field data sheets, use of the on-line data management system, and data error checking protocols.

Hydrology/Water quality sampling will be overseen by Dr. Szlag who will supervise QA/QC as it relates to the proposed project goals. Training for undergraduate students will focus on proper calibration and data management for the hydrologic measurements (e.g. level loggers), and considerations in the field for collecting/taking samples that have not been disturbed or contaminated accidentally by the field crew. Crews will also be trained to recognize when equipment is not functioning properly and how to code this on the field data sheets. A basic understanding of water quality/aquatic ecology/engineering gained either by having taken appropriate undergraduate coursework, or equivalent on the job training, will be a prerequisite for participating in water monitoring data collection.

Vegetation monitoring will be coordinated and led by Ryan Colliton. Mr. Colliton has expertise in managing Mid-west ecosystems, habitat restoration and invasive species detection and control. All field members will be required to demonstrate proficiency in visual identification of vegetation. Team members working with GPS and GIS on this project will have previously had academic training in the form of classes, work experience or will be trained by the project lead prior to starting any work. Training will include explanation of equipment and software, and use of these technologies on the project. Each team member will have logged a minimum of 10 hours of use of GPS equipment prior to use in the field. Each person will have a minimum of 15 hours experience in the office or in class before using GIS for this project. In both cases project lead will continue to work closely with team members and answer any questions.

A9. Documentation and Record
The Project QA/QC Manager will ensure that the current approved version of this document (and all subsequent approved versions, if applicable) is transmitted to all individuals listed on the distribution list in A3. Distribution List. Any deviations from this document will be included in progress summary reports and the Project QA/QC Manager will notify the appropriate Project team members if the deviation requires further updates to the QAPP.

Data from all monitoring groups will be entered on field data sheets at the time the measurement occurs. HCMA is responsible for managing and resolving any issues with the database. For each transect and survey point in the restoration area, data will include 1) GIS coordinates for all the sampling locations 2) vegetation identifications, counts, 3) Invasive plant identification, and percent coverage; and 5) hydrologic data. The database will include results of Quality Control checks, any necessary changes to standard procedures and protocols outlined in the QAPP, and any problems that were encountered in the course of the field or lab work.

Required reports to US EPA GLNPO will describe activities of the previous 6 months or as required by US EPA. Hard copies of the original data sheets and field logs will be kept on file at Huron-Clinton Metropolitan Authority located in Brighton, Michigan for archiving and made available upon request.

B. MEASUREMENT AND DATA ACQUISITION

B1. Site Selection
For wetland hydrology monitoring, three sites (referred to as sites B, D, & F) were chosen that would best represent and demonstrate that post construction hydrology is sufficient to maintain wetland habitat and function. For vegetation monitoring, sampling points will be established in all 6 restoration areas. Quadrats (1 m^2) will be established at each site to provide sufficient spatial coverage to encompass the variability of habitats present.

B2. Project Design and Monitoring Methods
The project monitoring goals are to monitor the recovery riparian and upland areas following restoration activity. To reach this goal we will monitor 1) native vegetation recovery and establishment, 2) occurrence of invasive plant species 3) wetland hydrology establishment, 4) ecological integrity following restoration.

Native Vegetation monitoring: The Project team will monitor and document the recovery at the impacted site through an assessment of the vegetative community; this will be accomplished through an evaluation of percent change over time. Quadrats (1 m^2) will be established at the site along several transects that provide for sufficient spatial coverage and encompass the variability of habitats present. At each sampling location, percent cover of plant species will be documented at a minimum of the beginning, mid-season and end of the growing season. GPS equipment will be utilized to map vegetation cover. If necessary, field samples will be taken in order to identify unknown species. Information from the *Field Manual of Michigan Flora*, (Voss & Reznicek, 2012), *Newcombs Wildflower Guide* (Newcomb 1977), *USDA Plant Database* website and the University of Michigan *Michigan Flora* website will be utilized in plant identification. The Project team will also consult with Dr. Tony Reznicek of the University of Michigan Herbarium to identify species and/or to confirm identification of small plants with non-flowering material if necessary.

Invasive Plant Species: The Project team will monitor and document the impacted sites through an assessment of infestation of invasive plant species within the native vegetative community; this will be accomplished through an evaluation of percent change over time. Quadrats (1 m^2) will be established at the site along several transects that provide for sufficient spatial coverage and encompass the variability of habitats present. At each sampling location, a percentage cover of invasive plant species will be documented at the beginning, mid-season and end of the growing season. GPS equipment will be utilized to map vegetation cover and identify infestation of invasive plant species. Control measures will be undertaken on the wetland sites that demonstrate invasive plant coverage of greater than 5 percent of the vegetation present. Control measures on upland sites that demonstrate invasive plant coverage greater than 50 percent of the vegetation present after three years of growth and active management (mowing and prescribed burning).

Weather data: Rainfall, the depth of net accumulated precipitation reaching the land surface, will be measured in units of mm. Rainfall data is collected near the restoration area with an electronic tipping bucket rain gauge and logged on site using an electronic data logger which uploads data every 30 minutes to a commercial 'cloud' website. The rain gauge is checked for accuracy prior to deployment and will be inspected every two weeks for debris and possible plugging when the level loggers are inspected and downloaded. The gauge will be checked for calibration every three months in the field. The rain gauge will not collect meaningful data during the cold months when temperatures drop below freezing.

Barometric pressure will be collected continuously at the weather station and will be used to compensate for barometric effects on the level measurements that are described below.

Monitoring Wells: Three sites (referred to as sites B, D, & F) were chosen to demonstrate that post construction hydrology is sufficient to maintain wetland habitat and function. Utilizing a hand auger, at least three 2" diameter monitoring wells 48-60" deep will be installed at each site after construction in 2016. The monitoring wells will be used to measure the water level especially in the upper 12" of the ground surface. Wetland restoration will be deemed hydraulically successful if water is inundating the area around the monitoring wells or measured within the upper 12 inches of the ground surface for 14 consecutive days. This will fulfill the primary hydrology indicator per the *Wetland Delineation Manual* dated January 1987 by the U.S. Army corps of Engineers and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (v2.0)* dated January 2012.

Each 2-inch monitoring well will consist of a polyvinyl chloride (PVC) riser with an attached point at the end. Three slots (< 1/16" width x > 1" length) will be cut every other inch within the lower 2 feet of the PVC riser to allow water to pass into the well. A nylon mesh will be placed and secured over the slots to provide a filter mechanism that will block soil infiltration. The slotted portion of the riser will be completely below ground. Each monitoring well will have a locking cap and key. Well locations will be identified in the field with a stake and coordinates of each well will be documented using GPS units. The ground elevation and PVC riser elevation at each well site will be taken and documented.

Water Level Measurement: Groundwater level measurements in monitoring wells will be obtained both manually and continuously. This aspect of the monitoring will be conducted by faculty and students at Oakland University. Manual measurements will be obtained using a two conductor, battery-powered water level indicator (e.g., electrical sounder) or 6-foot measuring rod graduated in feet and inches. Continuous water level measurements, will be obtained using an electronic data logger and pressure transducers (e.g., Onsett Hobo Level logger or equivalent device). Loggers will record temperature in addition to depth. These loggers will provide information throughout the year and for the duration of the project. In the event that a logger fails or becomes unavailable, manual measurements will be utilized weekly until the logger is replaced. Water levels will be measured and reported relative to the elevation of the top of the casing. During each site visit, two monitoring wells will be selected for duplicate measurement and recorded for precision

Level loggers (as many as: 3 sites x 3 wells= 9 loggers) will be installed in the monitoring wells after construction and monitoring will continue throughout the fall and following spring. Hydrology will be evaluated semi-continuously at 30 minute logging intervals and the data downloaded and inspected every two weeks during the growing season and approximately monthly during the cold season. The loggers can operate for more than a year unattended.

Soil Moisture Measurement: Soil moisture will be measured along the previously established vegetation transects at a minimum of the beginning, mid-season, and end of the growing season. Volumetric Soil Moisture Content (VMC) refers to the volume of water in a given volume of soil and is measured in $m^{3} \cdot m^{-3}$. Soil moisture content is very dependent on soil type. A saturated coarse, sandy soil can hold far less water than a saturated heavy silty clay. Consequently the soil moisture content values should only be compared across similar soils. Modern soil moisture sensors measure the volumetric water content (VWC) of the soil by measuring the dielectric constant of the soil, which is a strong function of water content, rather than the conductivity. A more costly method uses time domain reflectometry (TDR). We will make three capacitance measurements of surface soil moisture in each quadrat using a digital soil

moisture meter such as the Vegetronix. Not all soils have identical electrical properties. Due to variations in soil texture and salinity, the generic calibration for soil moisture probes results in approximately ± 3-4 percent accuracy for most medium to fine textured mineral soils, and the accuracy for coarse-textured and high-salinity soils is ± 10 percent.

B3. Sample Handling and Custody

Field samples are the responsibility of the sampling project team leader. All samples are labeled in the field with the site number, sample number, date, time, and name of the person sampling and noted on the field form. More detailed information is recorded on the field sheets including sample location description, site conditions, etc. Samples will not be passed to other organizations or institutions until the end of the study, so no Chain of Custody requirements are required. Standard holding times will be followed for each sample type. Standard Method holding times will be used for all water quality samples.

Plants: With the site's long history in agriculture and the few known difficult-to-identify rare plants species within these restoration areas, unknown plants should be able to be collected without jeopardizing rare or endangered species. Collected plants will be placed in a cooler or refrigerator upon return from the site for identification. Plant samples will be destroyed following identification, except for those of interest for the herbarium's collections, or samples kept as short-term identification aids to assist in training new personnel or as vouchers. A long-term voucher collection will not be made as part of this project.

Hydrologic sampling: All hydrologic data are taken in the field and no samples are to be collected.

Water Quality: Water quality samples will be collected at a minimum of the beginning, mid-season, and end of the growing season from the monitoring wells and from areas of standing water. Samples will be collected in acid washed 250 mL Nalgene containers and preserved according to the procedures described in the *Standard Methods for the Examination of Water and Wastewater 22nd ed*. They will be labeled with external labels. External labels will only be those that have previously been checked for ability to remain adhered to sample bottles even when wet. They will be written on with black fine point Sharpie markers or similar markers that have been tested and proven to be waterproof. Labels will consist of site code, replicate number, sample date, and collector. Sample numbers will be noted on field data sheets. Samples will remain in the custody of the field crews and brought to Oakland University at the end of the sampling day. At the laboratory, all sample codes will be entered into the laboratory log book, along with the date received and any notes about sample condition. This information will be transferred to an electronic sample processing spreadsheet maintained at Oakland University. The hard-copy laboratory sheets will be stored at Oakland University.

B4. Analytical Methods Requirements

Plant specimens of questionable identity will be pressed and returned to the laboratory and identified within one week of collection, using identification keys and a magnifying glass. Specimens not identifiable to species because of lack of characteristic features, such (flowers, fruits, etc.), will be identified to the lowest taxonomic levels possible. Unknown and unusual specimens will be sent to appropriate taxonomic experts for confirmation or refinement of taxonomic identity. Sterile or immature plants will be identified when possible. One of the most difficult aspects of plant sampling in quadrats is accurate estimation of the percent coverage for plant species present. Thus, we will use a protocol that is not strongly dependent on accurate plant coverage estimates, but instead converts percent cover to broad coverage classes of 0-10 percent, 10-25 percent, 25-50 percent, 50-75 percent, or greater than 75 percent.

After two years, software for the calculation of Conservatism coefficients and associated metrics, which are contained within the FQA software for Michigan (Herman et al. 2001) will be utilized in determining the quality of the vegetation restoration process. The Michigan FQA software has been used in prior Great-Lakes-wide wetland plant sampling projects, and has been found to contain almost all wetland plants growing in the Great Lakes. One of the advantages to the use of FQI and mean Conservatism scores is that they are based on the entire flora, not just a few indicator species. For this reason, the lack of a Conservatism score for one or two species at a site does not greatly alter the FQI or mean Conservatism scores.

Well Inspection: Prior to measuring depth to water, the well cover shall be removed and left off for at least three minutes prior to conducting measurements. Indications of air movement in or out of the well should be noted.

Manual Water level Measurement: The probe of the electric water level indicator will be lowered into the riser casing until water is encountered, as indicated by the instrument signal. The water level is then measured with respect to the "top-of-casing" reference point and entered on the field log. Two additional water level measurements shall be made to verify the initial reading obtained. It is good practice to visually inspect the measuring tape/probe to insure that it is not missing sections and the numbers are accurate. A periodic measurement of electric water level indicators using a measuring tape also is good practice. The water level measurement shall be compared to the most recent water level obtained for the well (if any). If the measurements differ by more than 0.3-foot, the depth to water shall be measured a second time for verification purposes. A remark shall be made on the field log if a probable cause for the discrepancy is known (e.g., tidal fluctuation, rainfall event, or start-up of a nearby pumping well).

Field measurements of water levels for a given well shall be recorded on the field form including the following information:

- the type of measurement device used;
- date and time of the measurement;
- any pertinent remarks concerning the well condition, instrument malfunction, variation of the sounded depth versus the installed depth of the well, etc.

A 6-foot measuring stick will be used to sound the total depth of the well. Any discrepancy between the total well depth as compared to the constructed well depth shall be noted as a remark on the form; such a discrepancy may indicate the presence of a possible obstruction or break in the casing or sedimentation at the bottom of the monitor well.

Continuous Water Level Measurement: Level loggers are set-up and readied for deployment in the laboratory using the manufacturer's software. The logger operation is confirmed by first deploying them in an aquarium with 5.0 and 10.0 inches of water prior to deployment and any offset from the true value will be recorded along with the serial number of the logger. The level loggers are not equipped with an internal barometer or vented pressure cable. Consequently, the barometric pressure readings from the weather station will be converted into a barograph using software provided by the manufacturer to gage changes in barometric pressure during the monitoring event that might impact water level measurements. The level logger shall be installed in the well in accordance with the manufacturer's instructions.

Level Logger Calibration: Level loggers cannot be calibrated in the field. Periodic (two week intervals) manual measurement of water levels shall be performed as a check on the water level data recorded by a data logger.

Soil Moisture Measurements: Due to variations in soil texture and salinity, the generic mineral calibration for soil moisture probes results in approximately ± 3-4 percent accuracy for most medium to fine textured mineral soils, and the accuracy for coarse-textured and high-salinity soils can vary up to ± 10 percent. However, accuracy increases to ± 1-2 percent for all soils with soil-specific calibration. We will perform a soil-specific calibration for best possible accuracy in volumetric water content measurements. Recent tests by independent researchers (Czarnomski et al., 2005) indicate that soil-specific calibration of soil moisture probes achieves performance results similar to that of TDR instruments - at a fraction of the price. The purpose of this application note is to provide a step-by-step guide for performing a soil specific calibration on soil moisture probes.

Water Quality and Nutrients:

B5. Quality Control Requirements

The project involves the collection of environmental data to assess the effects of restoration activities. Any measurements from the field and lab that are not consistent with normal or expected readings will be repeated. The Project manager will review the data analysis reports, and any inconsistencies, incomplete information, or other anomalies will be directed to the laboratory or responsible sampling

team. The Project manager will determine if repeat sampling is necessary. Individual team leaders are responsible for documented training of field personnel involved with the collection, preservation, and transport of samples; and documentation of all equipment and instrument calibrations; maintenance and testing of equipment; laboratory and field quality control standards. All data will be documented in hardcopy on a field notebook or collected electronically and supplemented with field notes as needed. All field instruments used in the measurement of physical, chemical or biological parameters shall be properly calibrated and maintained. Temperatures will be measured to the nearest degree Centigrade. Records will be kept of these operations for each instrument.

Members of the project team responsible for vegetation sampling will receive taxonomic training prior to field sampling. During the sampling season, representative specimens that cannot be identified in the field will be returned to the laboratory for identification, with assistance from botanical experts when necessary. The project team will maintain an ongoing dialogue to ensure accurate and consistent identifications. Field teams will 'calibrate' their percent cover estimates with each other during the yearly field training. Re-measurement of quadrats at a site will be conducted during training to calibrate individual sampler estimates of vegetation cover. The important test for this re-measurement is not the specific coverage value estimates, but the final conversion of the coverage values into the site metrics. The metrics are designed to be robust enough that slight differences in individual plant coverage values will not alter the metrics or the overall site quality ranking.

Field team members will confer with each other on percent coverage estimates for each quadrat; discrepancies in cover estimates exceeding 15% per species or species type (i.e.: sedges) between successive estimates will trigger a re-sampling of the quadrats in that vegetation zone. Identification accuracy of all vegetation sampling is anticipated to be 95 percent. Replication of work should be 95 percent or above with potentially slight replication variation due to the potential variance in survey periods and the ephemeral nature of some plant species. Representativeness of field data will be maximized by following the sampling plan, using proper sampling protocols, and observing sample holding times. Data will also be routinely screened for representativeness by comparing measured parameter values to historical project data and to current and historical data generated by other organizations when available.

To promote consistency of data, water level measurements in a given well should be obtained with the same measuring device as used during previous monitoring events. As a Quality Assurance/Quality Control (QA/QC) check on the accuracy of water level indicator measurements, the water level in a well may be obtained using a steel tape or measuring rod and carpenter's chalk. Measuring water levels with a steel tape graduated to 0.01-foot is considered the most accurate method for obtaining water levels. Verification of data obtained with an electronic data logger shall be obtained by periodic manual water level measurement.

B6. Instrument/Equipment Testing, Inspection, and Maintenance Requirements

To ensure that analytical data generated for the project are reliable, all equipment and instruments will have a prescribed routine maintenance schedule in addition to a calibration schedule. The project team will perform a variety of tests including: all instruments are to be inspected before each use to ensure they are clean and in good working order, and all batteries will be tested and fully charged the evening prior to sampling. Parts to equipment will be changed when broken or malfunctioning. All field water monitoring and laboratory instruments are maintained in accordance with manufacturer's specifications and the requirements of the specific method employed. For the electronic equipment, maintenance is to be carried out on a regularly scheduled basis and be documented in the laboratory instrument service logbook for each instrument.

Emergency repair or scheduled manufacturer's maintenance will be provided by factory representatives. Submeter accuracy GPS units will be used to collect spatial data for observed vegetation. At the end of each field survey, units are inspected for damage and again prior to start of each field day. At the startup of the GPS unit, the system goes through an auto calibration and correction to maximize accuracy. Additionally, data is reviewed real-time in the field using GPS units that display spatially referenced aerial photography. GPS accuracy will be maintained at a minimum of 2-5 meter accuracy with most data falling within the sub-meter range post-processing.

Collected data is reviewed using desktop analysis to determine accuracy of the observations. If errors are observed, equipment would be sent in for servicing and back up units employed. Digital cameras will be used to photo document observations. No calibration is required other than already done prior to sale of camera. Accurate data and time are entered to provide photos with the correct photo timestamp.

B7. Description of Historical Data Sets

1. HCMA Historic Photos – Historical photos of Wolcott Mill, dating from 1970 to the present, are stored in the HCMA Archives at the HCMA Administrative Office. They are in the form of paper photographs and scanned images. Paul Muelle (HCMA) is responsible for this data set.

2. HCMA Aerial Photos – Aerial photos of Wolcott Mill dating from the 1940s to the present, are stored in the HCMA Archives at the HCMA Administrative office and the DTE Aerial Photo Collection at Wayne State University. HCMA photos were acquired from SEMCOG, and are in the form of paper photographs and scanned images in MrSID format. Nina Kelly (HCMA) is responsible for this data set.

3. HCMA Site Surveys – Engineering, planning, and field survey maps dating back to the early 1980s reside in the Engineering Archive at the HCMA Administrative office. They are in the form of paper maps and CADD files. Mike Brahm-Henkel (HCMA) is responsible for this data set.

4. Wildlife Observations (Birds, Mammals, Butterflies, Dragonflies, Amphibian, Reptile) – General data regarding animal sightings dating from 1989 to the present is stored at the HCMA Administration Office, Lake St Clair Nature Center, and Stony Creek Nature Center. The data is in the form of hardcopy journals and notebooks. Julie Champion (HCMA) is responsible for this data set at Stony Creek and Lake St Clair Metroparks and Paul Muelle (HCMA) is responsible for this data set at the Administration Office.

5. **Plant Observations** – General data regarding plant sightings dating from 1989 to the present is stored at the HCMA Administration Office. Additions have been made to the resulting plant list by MNFI, and HCMA staff members as new sightings were reported. The plant list is stored as an Excel file on the HCMA server. Paul Muelle (HCMA) is responsible for this data set.

6. Rare Species Observations – Michigan Natural Features Inventory staff surveyed Wolcott Mill in 2005. They noted sightings of endangered, threatened, and special concern plants by taking a GPS point of their location. Since 2005, HCMA staff members have added new GPS points as new sightings of both rare plants and animals were reported by consultants and nature center staff. Points have also been added to represent species of greatest conservation need, as designated by the State. The data is in the form of an ESRI shapefile on the HCMA server as a pdf file. Paul Muelle (HCMA) is responsible for this data set.

7. Natural Communities – Current natural community types at Wolcott Mill were mapped by the Michigan Natural Features Inventory in 2005 through aerial photo interpretation and field surveys. Since 2005, HCMA staff has modified the maps as appropriate if further groundtruthing proves them to be inaccurate. This data is stored in the form of an ESRI geodatabase on the HCMA server. Historical wetland data, dating from 1978 was also provided by National Wetlands Inventory. Paul Muelle (HCMA) is responsible for this data set.

8. Elevation and Topography – Data regarding elevations originally obtained during initial land acquisition is still obtained on an ongoing basis as need for various Metropark projects. The data is in the form of a Digital Elevation Model in ESRI GRID format on the HCMA server. Paper topographic maps, dating from the 1980's from Abrams Aerial Survey Corp., reside in the Engineering Archives at the HCMA Administrative Office. Mike Brahm-Henkel (HCMA) is responsible for this data set.

9. Invasive Species – General data regarding invasive species sightings dating from 1989 to the present is stored at the HCMA Administrative Office. Surveys conducted by the Michigan Natural Features Inventory in 2005 identified the locations of invasive plant species using GPS points. This data is in the form of an ESRI shapefile on the HCMA server. Paul Muelle (HCMA) is responsible for this data set.

10. Habitat Restoration Units – Outlines of areas where native habitats have been restored, or are currently being restored or managed by HCMA staff or its contractors have been mapped by HCMA staff. The data exists as an ESRI shapefile on the HCMA server. Paul Muelle (HCMA) is responsible for this data set.

11. Buildings and Constructed Surfaces – The locations of buildings and constructed surfaces that have been developed by the local municipality, County or State agencies or HCMA is in the form of ESRI shape files on the HCMA server and paper files located at the HCMA Administrative Office. Mike Brahm-Henkel (HCMA) is responsible for this data set.

12. Trails – The locations of nature trails and other unpaved paths were mapped using GPS units by HCMA staff in 2010. The data is in the form of ESRI shapefiles on the HCMA server. Nina Kelly (HCMA) is responsible for this data.

13. Macomb County 2010 LiDAR Dataset – The LiDAR Imagery was collected and processed to provide at a nominal post spacing of one and one half (1.5) point per square meter (1.5 meter GSD).The data was collected using a Leica ALS50-II 150 kHz Multiple Pulses in Air (MPiA) LiDAR sensor, S/N 46. LiDar imagery is in LAS v1.2 Classified Point Cloud format, and is housed in Macomb County Department of Planning and Economic Development, Planning and Mapping Services. Gerald Santoro (MCP&D) has access to this imagery.

15. UMMZ Herp Accounts – Includes amphibian and reptile museum specimen locality data and resides at the University of Michigan, Museum of Zoology. Data is in the form of excel/GIS. Greg Schneider (UMMZ) is the contact person for this data.

16. HCMA Herp Element Occurrences – Includes data acquired through database search and Michigan Natural Features Inventory (MNFI) natural feature and community mapping project at Wolcott Mill. Data is in the form of GIS and was provided by Ryan Colliton. Paul Muelle (HCMA) is responsible for this data set.

17. Michigan Breeding Bird Atlas – Data from the Kalamazoo Nature Center includes the presence and breeding status of birds by township quarter. Data sets are from 1983-1988 and 2003-2008. Bill Rose and the Michigan DNR are responsible for this data.

B8. Data Management

All monitoring personnel will be responsible for collecting and recording data on the datasheets or digital forms at the time of collection. Team leaders will review data and then be responsible for making sure that data collected is uploaded into the main database within two weeks of collection. Only authorized personnel will have access to the main database through a personal login and password. Project personnel will accurately transcribe data into an excel spreadsheet for further analysis. All data entered into excel will be verified by a team leader to ensure accurate entry and calculations. Original datasheets will be kept on file at the Huron-Clinton Metropolitan Authority.

C. ASSESSMENT AND OVERSIGHT

C1. Response Actions

The Project Manager will do a performance and system audit once every three months for the first six months of the project and then once every six months following. The objectives of the performance and systems audits are to ensure that the quality assurance program developed for this project is being implemented according to the specified requirements, to assess the effectiveness of the quality assurance program, to identify non-conformance, and to verify that the identified deficiencies are corrected. If significant deviations from the QAPP are documented, corrective action measures will be immediately implemented with an approximate date of implementation and names of responsible personnel. The Project Manager will be responsible for corrective actions of any mistakes in reports or data.

C2. Reports to Management

After each monitoring event, the Field Team Leader and the Monitoring Principal Investigator will prepare summaries of their findings. The summaries will include not only monitoring data, but results of the performance evaluations, and any significant quality assurance problems. These summaries will be transmitted electronically via e-mail to both the Project Manager and the Project Consultant/Essential Contractor for review and comment.

The Project Consultant/Essential Contractor will prepare a quarterly project status memorandum and submit it to the Project Manager for review. Included in these reports will be updates on current findings and project developments, any problems encountered, and solutions to these problems. Any problems encountered and/or deviations from the approved QAPP will also be noted. These reports will be sent electronically. The Project Manager will submit reports to the EPA Project Officer documenting project progress as required.

The Project Consultant/Essential Contractor and the Project Manager will prepare progress reports for EPA submittal and review.

These reports will answer the following questions:

1. What work was accomplished for this reporting period?
2. If a problem was encountered, what action was taken to correct it?
3. What work is projected for the new reporting period activity?
4. Is the project work on schedule?
5. Does the project funding rate support the work progress?
6. Is there a change in the Project team?
7. Will the project take longer than the approved project period?
8. What is the date and amount of your latest drawdown request?

At the end of the 12-month project period, a draft comprehensive final report will be provided and distributed to the EPA Project Officer for review and comment. EPA comments will be incorporated into the final report.

D. DATA VALIDATION AND USABILITY

D1. Data Review, Validation, and Verification Requirements

Data will be accepted only if it satisfies the data quality objectives as outlined in section A7 and must therefore meet the following criteria:

- Field data sheets are complete and legible
- Field data and laboratory data are validated
- Locational data on vegetation and well locations will be submeter accuracy with a maximum error tolerance of 5 meters.

D2. Verification and Validation Methods

Any data in the databases not consistent with the data in the original data sheets will be discarded and the proper data will be entered at which point it will be verified.

As stated in Quality Control Requirements and Documentations and Records, any measurements from field and lab that are not consistent with normal or expected readings will be repeated. The Project Manager will review the data analysis reports, and any inconsistencies, incomplete information, or other anomalies will be directed to the laboratory or responsible sampling team. The Project Manager will determine if repeat sampling is necessary.

D3. Reconciliation with Data Quality Objectives

Data from each of the field monitoring groups will be examined by the Project Manager as close in time to the data collection as is reasonably possible to assure precision, completeness, and accuracy of the results. All data that is entered into the database will be cross checked against the original data sheets. Any discrepancies that cannot be resolved will be discarded and re-sampling may be necessary. If a problem is found in one of the field projects, it may be necessary to retrain team members.

The Field Team Leader and the Monitoring Principal Investigator will sign off on field data and recheck all findings out of the ordinary. Errors in data will be corrected and outliers will be investigated. Random cross checks will be conducted by field and office staff to ensure the accuracy and quality of data collected. Data quality will be evaluated by conducting field investigations and comparing them to on screen digitizing. Any problems with data quality will be discussed in the report to data users.

The Project Manager will review all data and determine if the data meet project objectives. Decisions to reject or qualify data are made by the Project Manager under the advisement of project PI. Results of the habitat restoration will be evaluated by the end user in terms of use of restored areas by subject species.

HURON-CLINTON METROPOLITAN AUTHORITY

To: Board of Commissioners
From: Paul Muelle, Natural Resources and Environmental Compliance Manager
Subject: Update – Wolcott Mill, Stony Creek Water Quality
Date: June 1, 2016

Action Requested: Motion to Receive and File

That the Board of Commissioners receive and file the Wolcott Mill and Stony Creek Water Quality Update as recommended by Natural Resources and Environmental Compliance Manager Paul Muelle and staff.

Fiscal Impact: This is a budgeted item and funds are available.

Background: Over the past several years, the Metroparks have been engaged in a water-monitoring program with the assistance of Dr. Judy Westrick (Wayne St. University) and Dr. David Szlag (Oakland University) at both Stony Creek and Wolcott Mill Metroparks. The goal of this monitoring program is to observe how Metropark and adjacent land management practices could affect water quality in the parks. The focus is to identify and quantify chemical and biological environmental pollutants and develop realistic management objectives.

The environmental perspective is to show that a public park can demonstrate sound environmental management and stewardship by initiating best management practices, such as riparian buffer zones that minimize the impact of park activities on water and environmental quality. The monitoring at Wolcott Mill and Stony Creek are ideal locations as they demonstrates a variety of recreational land uses including a golf course, equestrian trails and an active farm with animals and agriculture.

Through these monitoring efforts, negative impacts from adjacent land use has previously been identified and addressed. The current year program will continue to examine historic impacts as well as support data results collected as part of the current wetland restoration grant program. These monitoring programs have also had the added benefit of giving students at local universities the opportunity for field experience in data collection while working for the universities and the Metroparks. The attached proposal outlines monitoring criteria and processes to help validate and measure success of the Metroparks environmental practices.

Attachment: **Stony Creek / Wolcott Mill – Water Quality Monitoring Proposals**

Stony Creek / Wolcott Mill – Water Quality Monitoring
AGREEEMENT FOR SERVICES
Non-Technical - Under $10,000

This Agreement for Services (the "Agreement") is effective this _____ day of _____, 20____ by and between Huron-Clinton Metropolitan Authority ("HCMA") and _____ as the Authorized Representative for _____ (the "Contractor"). This Agreement will terminate on December 31, 2016. (The Contractor and HCMA may each be individually referred to as a "Party," and collectively, the "Parties").

The undersigned hereby declares that this agreement is made in good faith without fraud or collusion with any persons, that he/she has examined this Agreement, including the Huron-Clinton Metropolitan Authority Standard Terms and Conditions for Services of $25,000 or Less, described herein and is fully informed as to the nature of the Services described herein and the conditions relating to its performance.

The undersigned acknowledges that he has not received or relied upon any representations or warranties of any nature whatsoever from the Huron-Clinton Metropolitan Authority (HCMA), its agents or employees as to any conditions to be encountered in accomplishing the work and that compensation for services rendered is based solely upon his or hers own independent judgment.

The undersigned further proposes: to provide all labor, supplies, permits, new and current materials, transportation and equipment required to perform the Services set forth in the attached Proposal and shall be compensated as set forth in Exhibit A, for services rendered under this agreement, and to complete the work described herein including the Huron-Clinton Metropolitan Authority Standard Terms and Conditions of Services of $25,000 or Less, (together, the Contract Documents), all of which are incorporated in full into this Agreement by reference. No provision or condition of the undersigned's Proposal shall conflict with the Contract Documents. Any portion of the undersigned's Proposal purporting to include provisions or conditions in conflict with the Contract Documents shall be ineffective.

This Agreement constitutes the entire agreement. This Agreement may be amended, changed, or supplemented only by written agreement executed by both parties hereto.

If any term or provision of the Agreement or the application thereof to any person or circumstances shall to any extant, be invalid or unenforceable, the remainder of this Agreement, or the applications of such term or provision of this Agreement shall be valid and enforced to the fullest extent permitted by law.

This Agreement shall be governed by and construed in accordance with the laws of the State of Michigan.

SIGNED THIS ____ DAY OF _____, 2016.

BY: _____
Signature of Authorized Representative

TITLE: _____

LEGAL STATUS OF BIDDER

(The Bidder shall check and fill out the appropriate form).

( ) A Corporation, duly organized and doing business under the laws of the State of _____, for whom any one of the following persons is authorized to execute Contracts and other legal documents:

NAME TITLE

_____ _____

Federal Tax I.D. Number: _____

( ) Michigan institution of higher education ("Community College/University"):

NAME ADDRESS

_____ _____

_____ _____

Federal Tax I.D. Number: _____

( ) An Individual, whose signature is affixed to this Proposal:

NAME ADDRESS

_____ _____

Federal Tax I.D. Number

or Social Security Number: _____

PROPOSAL ACCEPTANCE

ON BEHALF OF:
HURON-CLINTON METROPOLITAN AUTHORITY

BY: _____ DATE: _____

TITLE: _____

The goal of the monitoring is to provide the Metroparks water quality information, so they can maintain and improve environmental land management practices. This focus is to identify and quantify chemical and biological environmental pollutants and develop realistic management objectives.

Historical Summary

Wolcott Mill Metropark encompasses 2,843 acres of northern Macomb County located in southeastern Michigan. This park includes a golf course, farm learning center and grist mill, hiking, biking, and equestrian trails. One of the most important aspects from a recreational and environmental perspective is that the North Branch of the Clinton River meanders through the park, north to south. The environmental perspective is to show that a public park can demonstrate sound environmental management and stewardship by establishing sound environmental practices, such as riparian buffer zones that minimize the impact of park activities on water and environmental quality. The goal of the Metroparks is to provide recreation and education opportunities to the public, while maintaining sound land management practices that lead to improved water quality. Monitoring at Wolcott Mill is ideal as it demonstrates a variety of recreational land uses, which include a golf course, equestrian trails, and an active farm with animals and agriculture.

Previous monitoring indicates that some aspects of water quality have improved as a result of the current watershed management. The site assessments showed that the North Branch in the park has a significantly higher amount of riparian buffer, which has a positive impact on water quality as it travels through the park. The most supportive indicator of an increase of quality in the water and habit was the results from the previous aquatic macro invertebrates assessments. Upstream of the park, pollution tolerant taxa were dominant whereas in the park sensitive (good) taxa were dominant. However, high levels of total phosphorous and *E. coli* have previously been reported at specific sites.

Stony Creek Metropark encompasses 4,435 acres in Macomb and Oakland Counties in southeast Michigan. Park activities include, golf, hiking, biking, disc golf, playfields, picnicking and bathing beaches. One of the most important aspects from a recreational and environmental perspective is the 500-acre Stony Creek Lake and the Stony Creek, which meanders through the park, north to south. Both the Stony Creek and Stony Creek Lake have been historically impacted by high levels of *E. coli* levels resulting in beach closures, abundant aquatic weed growth, excessive sedimentation and poor macroinvertebrate biointegrity indices. Monitoring results in 2015 indicated locations in exceedance of the state of Michigan health standards for *E. coli* levels. According to the Michigan Department of Environmental Quality, no single sample of 100ml can exceed 300 *Escherichia coli*.

Monitoring Proposal

Beginning in June 2016, water samples shall be taken from 16 sites at Stony Creek and Wolcott Mill Metroparks in Macomb County. Samples taken will evaluate Phosphate, Nitrate/Nitrite, and Ammonia levels, along with tests for *E. coli.* Twelve locations will be sampled in Stony Creek Lake and tributaries at previously established locations, and four sites on the North Branch of the Clinton River in Wolcott Mill. Onsite testing included temperature, dissolved oxygen, pH and weather data collection. Offsite testing included surfactants, nitrates, hardness, alkalinity, phosphates, *E. coli*, coliforms, and turbidity. At least one macro-invertebrate collection event will take place in early. Previous macro invertebrate data, which integrates conditions over the whole season, suggests that conditions improve in-stream within the park boundaries relative to the upstream control sites. These analyses will repeated to confirm the results.

Methods
The Standard Methods included:

Total Phosphorous – SDW 4500-P E, TP will be determined colorimetrically (ascorbic acid/molybdate method) following SDW 4500-P B, wet persulfate/autoclave digestion

Bacteria – EPA 9223b – *Enzyme substrate assay for measuring total coliforms and E. coli*

Turbidity – SDW 2130B – *Nephelometric Method*

Temperature – SDW 2550B – *Digital Thermometer checked against NIST traceable standard*

Hardness – SDW 2320B – *Titration Method*

Alkalinity – SDW 2340C – *EDTA Titrimetric Method*

pH – SDW 4500-H B – *Electrometric Method*

Dissolved Oxygen – SDW 4500-O G – *Membrane Electrode Method*

Inorganics and Metal – EPA *6020 – Inductively Coupled Plasma-Mass Spectrometery*

Anions (ortho-phosphate, nitrate, nitrite, and halides) – SDW 4110 B *–Ion Chromatography with Chemical Suppression of Eluent Conductivity*

Total Kjhedal Nitrogen – SDW 4500-N B – *Macro-Kjeldahl Method*

Macro invertebrate – SDW 10500 B-D – *Benthic Macro invertebrates*

Final Product
A Final Report including analysis of all relevant data collected and recommendations for future management shall be submitted to the HCMA no later than December 31, 2016.

Water Quality Sampling Budget

Sample Collection – Labor	$ 500.00
Chemical/Data Analysis	$3,000.00
Total	**$3,500.00**

HURON-CLINTON METROPOLITAN AUTHORITY
STANDARD TERMS AND CONDITIONS
FOR CONTRACTS FOR SERVICES OF $25,000 OR LESS

This provisions of these Terms and Conditions (the "T&Cs") of Huron-Clinton Metropolitan Authority ("HCMA") shall apply to all contracts, purchase orders, agreements, or other arrangements with any contractor (a "Contractor") for the provision of services with a value of $25,000 or less (an "Agreement"), notwithstanding any statement or provision in the Agreement to the contrary. By entering into an Agreement with HCMA, the Contractor agrees to abide by these Terms and Conditions.

A. **INDEMNIFICATION, RELEASE, LIMITATION OF LIABILITY AND DISCLAIMER OF WARRANTIES.**

1. Indemnification and Release. Contractor shall indemnify, defend and hold HCMA harmless from any and all Claims (as defined below) which are incurred by or asserted against HCMA by any person or entity, alleged to have been caused or found to arise, from the negligent acts, performances, errors, or omissions of Contractor or Contractor's Employees, including, without limitation, all Claims relating to injury or death of any person or damage to any property.

   The indemnification rights contained in these T&Cs are in excess and over and above any valid and collectible insurance rights/policies. During the term of the Agreement, if the validity or collectability of the Contractor's insurance is disputed by the insurance company, the Contractor shall indemnify HCMA for all claims asserted against the HCMA and if the insurance company prevails, the Contractor shall indemnify the HCMA for uncollectable amounts.

   Contractor shall have no rights against HCMA for any indemnification (e.g., contractual, equitable, or by implication), contribution, subrogation, and/or any other right to be reimbursed by HCMA except as expressly provided herein.

   Contractor waives and releases all actions, liabilities and damage including any subrogated rights it may have against HCMA based upon any Claim brought against HCMA.

   The term "Claims" means any alleged losses, claims, complaints, demands for relief or damages, suits, causes of action, proceedings, judgments, deficiencies, liability, penalties, litigation, costs, and expenses, including, but not limited to, reimbursement for reasonable attorney fees, witness fees, court costs, investigation expenses, litigation expenses, amounts paid in settlement, and/or other amounts or liabilities of any kind which are imposed on, incurred by, or asserted against HCMA, or for which the HCMA may become legally and/or contractually obligated to pay or defend against, whether based upon any alleged violation of the federal or the state constitution, any federal or state statute, rule, regulation, or any alleged violation of federal or state common law, whether any such claims are brought in law or equity, tort, contract, or otherwise, and/or whether commenced or threatened.

2. Limitation of Liability. Neither Party shall be liable to the other for any amounts representing loss of profit, loss of business, or other incidental, consequential or punitive damages of the other Party under this Agreement.

3. Disclaimer of Warranties. HCMA MAKES NO REPRESENTATIONS OR WARRANTIES WHATSOEVER, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ALL OF WHICH ARE HEREBY EXPRESSLY DISCLAIMED. WITHOUT LIMITING THE GENERALITY OF THE RIGHTS OF THE HCMA, IN NO EVENT SHALL THE AUTHORITY'S AGGREGATE LIABILITY UNDER OR RELATING TO THE AGREEMENT AT ANY TIME EXCEED THE TOTAL AMOUNT PAID TO THE HCMA AS PROVIDED HEREIN.

B. **DISPUTE RESOLUTION**. Unless the Parties agree otherwise, any claims, disputes or other matters in controversy arising out of or related to the Agreement shall be subject to mediation as provided herein as a condition precedent to litigation:

1. The Party bringing a claim shall give notice to the other Party and, in writing, propose a meeting within fourteen (14) days after the claim arises in which to discuss and attempt to resolve the claim.

2. In the event the meeting between the Parties to resolve the claim does not resolve the dispute or does not take place within said fourteen (14) day period, the Parties shall designate, by mutual agreement, an independent mediator who shall convene a meeting of the parties within a period of fourteen (14) days of the later of the initial meeting between the parties or the date notice was given pursuant to subparagraph

(1) above. The mediator shall render his or her decision within fourteen (14) days of said meeting. The Parties may, by mutual written agreement, extend the time periods required under this subparagraph.

3. The purpose of mediation is to attempt to resolve the dispute between the Parties. The mediator shall not be empowered with the authority to render a binding opinion or award.
4. In the event the independent mediator's attempt to resolve the dispute between the Parties fails, then each Party will be free to any claims at law in a court of competent jurisdiction.
5. During the pendency of this alternative dispute resolution process, the Parties agree that any statute of limitations applicable to all claims that are the subject of this process shall be tolled.

C. **INSURANCE**: The Contractor, or any of their sub-Contractors, shall not commence work under this contract until they have obtained the insurance required under this paragraph, and shall keep such insurance in force during the entire life of this contract. All coverage shall be with insurance companies licensed and admitted to do business in the State of Michigan and acceptable to HCMA. The requirements below should not be interpreted to limit the liability of the Contractor. All deductibles and SIR's are the responsibility of the Contractor.

The Contractor and any sub-Contractor shall procure and maintain the following insurance coverage:

1. Worker's Compensation Insurance including Employers' Liability Coverage, in accordance with all applicable statutes of the State of Michigan.

2. Commercial General Liability Insurance on an "Occurrence Basis" with limits of liability not less than $1,000,000 per occurrence and aggregate. Coverage shall include the following extensions: (A) Contractual Liability; (B) Products and Completed Operations; (C) Independent Contractors Coverage; (D) Broad Form General Liability Extensions or equivalent, if not already included.

3. Automobile Liability including Michigan No-Fault Coverages, with limits of liability not less than $1,000,000 per occurrence, combined single limit for Bodily Injury, and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles, and all hired vehicles.

4. Liquor Liability Insurance for events where alcohol is served, coverage with limits of liability not less than $4,000,000 per occurrence and aggregate.

4. Professional Liability, for contracts where professional services are rendered, in an amount not less than $1,000,000 per occurrence and $1,000,000 aggregate. If this policy is claims made form, then the contractor shall be required to keep the policy in force, or purchase "tail" coverage, for a minimum of 3 (three) years after the termination of this agreement.

6. Limits of Liability referenced above may be obtained with primary policies or by the use of primary policies and umbrella coverage.

7. Additional Insured: Commercial General Liability, Automobile Liability, and Liquor Liability as described above, shall include an endorsement stating the following shall be *Additional Insureds*: HCMA, all elected and appointed officials, all employees and volunteers, all boards, commissions, and/or authorities and board members, including employees and volunteers thereof. It is understood and agreed by naming HCMA as additional insured, coverage afforded is considered to be primary and any other insurance HCMA may have in effect shall be considered secondary and/or excess.

8. Cancellation Notice: All policies, as described above, shall include an endorsement stating that is it understood and agreed Thirty (30) days, Ten (10) days for non-payment of premium, Advance Written Notice of Cancellation, Non-Renewal, Reduction, and/or Material Change shall be sent to: HCMA, attention Executive Director.

9. Proof of Insurance Coverage: The Contractor shall provide HCMA, at the time that the contracts are returned by him/her for execution, a Certificate of Insurance as well as the required endorsements. In lieu of required endorsements, if applicable, a copy of the policy sections where coverage is provided for additional insured and cancellation notice would be acceptable. Copies or certified copies of all policies mentioned above shall be furnished, if so requested.

10. Commercial Property Insurance: The Contractor shall be responsible for obtaining and maintaining insurance covering their equipment and personal property against all physical damage.

11. General Insurance Conditions: The aforementioned insurance shall be endorsed, as applicable, and shall contain the following terms, conditions:
    a. The insurance company(s) issuing the policy(s) shall have no recourse against the HCMA for subrogation, premiums, deductibles, or assessments under any form;
    b. All policies shall be endorsed to provide a written waiver of subrogation in favor of HCMA
    c. If any of the above coverages expire during the term of this contract, the Contractor shall deliver renewal certificates and endorsements to (Your Entity) at least ten (10) days prior to the expiration date.

D. **TERMINATION, AMENDMENTS.**

1. Termination. HCMA may terminate and/or cancel the Agreement (or any part thereof) at any time during the term, any renewal, or any extension of the Agreement, upon thirty (30) days written notice to the Contractor, for any reason, including convenience without incurring obligation or penalty of any kind. HCMA may immediately terminate the Agreement for cause upon notice to Contractor if Contractor is in breach of the Agreement. The notice of breach shall include a statement of the facts that cause HCMA to believe Contractor is in breach of the Agreement. The effective date for termination or cancellation shall be clearly stated in the written notice.

   HCMA's sole obligation in the event of termination is for payment for actual Services rendered by the Contractor before the effective date of termination. Under no circumstances shall the HCMA be liable for any future loss of income, profits, any consequential damages or any loss of business opportunities, revenues, or any other economic benefit Contractor may have realized but for the termination and/or cancellation of the Agreement. HCMA shall not be obligated to pay Contractor any cancellation or termination fee if the Agreement is cancelled or terminated as provided herein.

   Contractor may terminate and/or cancel the Agreement (or any part thereof) at any time upon ninety (90) days written notice to HCMA, if HCMA defaults in any obligation contained herein, and within the ninety (90) notice period the HCMA has failed or has not attempted to cure any such default. The effective date of termination and/or cancellation and the specific alleged default shall be clearly stated in the written notice.

2. Agreement Modifications or Amendments. Any modifications, amendments, recessions, waivers, or releases to the Agreement must be in writing and agreed to by the Parties. Unless otherwise agreed, the modification, amendment, recession, waiver, or release shall be signed by a lawfully authorized employee of Contractor and HCMA.

E. **CONTRACTOR'S REPRESENTATIONS, WARRANTIES AND COVENANTS.**

1. Organization and Good Standing. The Contractor is duly organized, validly existing and in good standing under the laws of the State of Michigan, has all requisite power and authority to own, operate and lease its properties and is duly authorized to do business in the State of Michigan.

2. Power and Authority. The Contractor has all requisite power to enter into the Agreement and to carry out and perform its obligations hereunder. All action required on the part of the Contractor and its officers, and agents for the authorization, execution and delivery of the Agreement and the performance by the Contractor of its obligations hereunder have been taken. The Agreement when executed and delivered, shall constitute the legal and binding obligations of the Contractor in accordance with its terms, subject to (a) judicial principles respecting election of remedies or limiting the availability of specific performance, injunctive relief and other equitable remedies and (b) bankruptcy, insolvency, reorganization, moratorium or other similar laws now or hereafter in effect generally relating to or affecting creditors' rights.

3. No Conflict or Breach. The execution, delivery and performance by the Contractor of its obligations under the Agreement will not result in any violation of, be in conflict with or constitute a default under, in any material respect, any material instrument, mortgage, deed of trust, loan, contract, commitment, judgment, decree, order or obligation binding upon the Contractor or result in the creation of any mortgage, pledge, lien, encumbrance or charge upon any of its properties or assets.

4. No Debarment, Pending Governmental Action or Record of Violations. The Contractor has not been debarred by either the federal, state or any local unit of government from providing services, nor is it currently the subject of any debarment or similar proceedings. The Contractor has no record of violation of any federal, state or local government's procurement, contracting or ethics rules.

5. Conflicts; No Undue or Improper Influence or Inducement. The Contractor represents and warrants that it has disclosed in writing any existing conflicts of interest involving HCMA, and that it will disclose in writing to HCMA any conflicts that arise during the term of the Agreement. The Contractor represents and warrants that it has not, and will not, offer to HCMA or any of HCMA's employees any unlawful inducement, prohibited benefit, or improper incentive to enter into this or any other agreement with HCMA.

6. Performance of Services; Compliance with Law. The Services will be performed in a diligent manner in accordance with industry practices, by individuals of suitable training, skill, and licensure if appropriate. The Contractor's actions and performance of the Services throughout the term of the Agreement shall be in full compliance with all applicable federal, state and local laws, rules, regulations and standards, including all laws applicable to HCMA's operations or to which HCMA is otherwise bound. The Contractor has, and will maintain throughout the term of the Agreement, all licenses, permits, authorizations and approvals necessary for the lawful conduct of its business. No representation or warranty of the Contractor contained in the Agreement contains any untrue statement of material fact or omits to state a material fact necessary to make the statements and facts contained herein not misleading.

7. Full Knowledge of Service Expectations and Attendant Circumstances. Contractor warrants that before entering into the Agreement, it had a full opportunity to review the proposed services, and review all HCMA requirements and/or expectations under the Agreement. The Contractor is responsible for being adequately and properly prepared to execute the Agreement. Contractor has satisfied itself in all material respects that it will be able to perform all obligations under the Agreement as specified herein.

F. **GENERAL PROVISIONS**

1. Taxes. The Contractor shall pay its own local, state and federal taxes, including without limitation, social security taxes, and unemployment compensation taxes. HCMA shall not be liable to or required to reimburse the Contractor for any federal, state and local taxes or fees of any kind.

2. Contractor Employees. Contractor shall solely control, direct, and supervise all Contractor Employees with respect to all Contractor obligations under the Agreement. Contractor will be solely responsible for and fully liable for the conduct and supervision of any Contractor's Employee. All employees of Contractor assigned to work under the Agreement may, at the HCMA's discretion, be subject to a security check and clearance by HCMA.

   The term "Contractor Employee" means without limitation, any employees, officers, directors, members, managers, trustees, volunteers, attorneys, and representatives of Contractor, and also includes any licensees, concessionaires, associate researcher, independent sub-Contractor, Contractor's suppliers, subsidiaries, joint ventures or partners, and/or any such persons, successors or predecessors, employees, (whether such persons act or acted in their personal, representative or official capacities), and/or any and all persons acting by, through, under, or in concert with any of the above. "Contractor Employee" shall also include any person who was a Contractor Employee at any time during the term of this Agreement but, for any reason, is no longer employed, appointed, or elected in that capacity.

3. Independent Contractor. The Contractor's relationship to the HCMA is that of an Independent Contractor. Nothing in the Agreement is intended to establish an employer-employee relationship between HCMA and either the Contractor or any Contractor Employee. All Contractor Employees assigned to provide services under the Agreement by the Contractor shall, in all cases, be deemed employees of the Contractor and not employees, agents or sub-Contractor of HCMA.

4. Non Exclusive Agreement. No provision in the Agreement limits, or is intended to limit, in any way the Contractor's right to offer and provide its Services to the general public, other business entities, municipalities, or governmental agencies during or after the term of the Agreement. Similarly, the Agreement is a non-exclusive agreement and the HCMA may freely engage other persons to perform the same work that the Contractor performs. Except as provided in the Agreement, the Agreement shall not be construed to guarantee the Contractor or any Contractor Employee any number of fixed or certain number or quantity of hours or services to be rendered to HCMA.

HURON-CLINTON METROPOLITAN AUTHORITY

To: Board of Commissioners
From: George Phifer, Director
Subject: Legislative Report
Date: June 1, 2016

Legislative Consultant George Carr will give a verbal update at the June 9, 2016 meeting.

HURON-CLINTON METROPOLITAN AUTHORITY

To: Board of Commissioners
From: Nina Kelly, Manager of Planning
Subject: Update – Stony Creek and Wolcott Master Plans
Date: June 1, 2016

Action Requested: Motion to Receive and File

That the Board of Commissioners' receive and file the report on Stony Creek and Wolcott Master Plans as recommended by Manager of Planning Nina Kelly and staff.

Background: Public meetings were held for both the Stony Creek and Wolcott Mill master plans on Saturday, May 21, 2016. A summary is provided on the progress made with each planning process.

Stony Creek
The plan draft is nearing completion and will be posted on the Metroparks website for public review and comment by mid-June. The online questionnaire will be closed at the same time; currently, we have received nearly 600 responses. The second public meeting included a brief presentation and an opportunity for attendees to comment on some of the major projects being considered for inclusion in the updated master plan; 26 people attended.

Following review of the draft document, a presentation will be made to the Board requesting approval of the Stony Creek Master Plan in July 2016.

Wolcott Mill
Planning staff is currently assembling and analyzing data for inclusion in the plan text. The online questionnaire is live (less than 10 response thus far), and will remain open until the beginning of August. See https://www.surveymonkey.com/r/wolcottmillmp.

A printed version was available for attendees at the first public meeting and was also left with park staff to distribute to park attendees during the remainder of the master planning process. Nearly 20 individuals came to the master planning open house. Planning staff discussed with interpretive staff the potential for soliciting public input at non-traditional locations such as the Armada Flea Market.

Attachments: Stony Creek Master Plan Presentation
Wolcott Master Plan Participant photos

Stony Creek Master Plan Public Meeting #2

May 21, 2016

HURON CLINTON metroparks

Today's Agenda

10:00 – 10:20 am	Presentation
10:20 – 10:45 am	Q & A
10:45 – 11:30 am	Browse, discuss, and comment

HURON CLINTON metroparks

Metroparks Master Plan Process

- 4 months per park
  - Stony Creek: March – June 2016
- Steering Committee: Planning staff, park operations staff
- Public Input
  - Two public meetings
  - Questionnaire (online & hard-copy)
  - Draft posted on Metroparks website for comment – Month 4
- Board of Commissioners approval

HURON CLINTON metroparks

Stony Creek by the Numbers

Park acreage		4435
Buildings		21
Average building age		41
Picnic shelters		15
Average shelter age		18
Road miles		14
TRAILS	Paved trail miles	11
	Nature trail miles	10
	Cross Country trail miles	15
	Mountain Bike trail miles	17
Dams		2
Wells in use		19
Average well age		48
Acres of biodiversity areas		2327
Acres encumbered for recreation		3723
Average interpretive programs per year		628
Annual volunteers*		277
2015 CRAMBA volunteer hours		644

**Natural Resources and Interpretive only*

HURON CLINTON metroparks

Revenue Source	*2015 Total $*	*% of Revenue*
Tolling	1,919,596	54.71%
Golf	910,491	25.95%
Boat Rental	176,089	5.02%
Rip Slide	138,993	3.96%
Picnic Shelter	76,500	2.18%
Disc Golf	59,195	1.69%
Beach	49,808	1.42%
Family Camping	32,267	0.92%
Interpretive	27,329	0.78%
Boat Storage	27,149	0.77%
Special Events	26,879	0.77%
Banquet Tent	25,300	0.72%
Parkway Maintenance	18,260	0.52%
Cross Country Ski	11,583	0.33%
Mobile Stage	8,000	0.23%
Miscellaneous	1,264	0.04%
	$3,508,702	100.00%

- Budgeted 2016 operations revenues = $3,949,373
- Budgeted 2016 operations expenses = $4,742,942

Property tax and other revenues will subsidize 16.7% ($793,569) of the Stony Creek operating budget.

HURON CLINTON metroparks

Area Demographics & Trends

- Increased percent of households speaking other language at home
- Increased percent of households without cars
- Increased percent of population over 65
- Increased average population density

Recreational Trends

- Golf
  - "potential players in their 20s and early 30s…don't seem to be taking up golf like earlier generations. They also seem less excited about the time investment for 18-hole outings and league play." (*Detroit Free Press*, 4/11/16)
- Disc Golf
  - Michigan ranks # 3 in the United States in Professional Disc Golf Association members (1,666), courses (220) and events (146) (*Metromode*, 4/13/16)
- Trails
  - State government support (e.g. Iron Belle Trail)
  - System/population connectivity
  - Overall popularity

HURON CLINTON metroparks

Community Projects

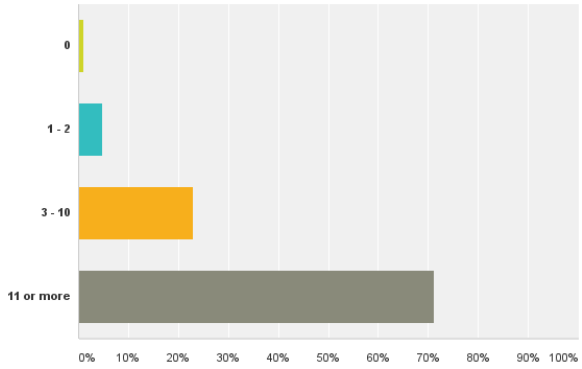
- *Washington Twp* — residential development expected in future east of Inwood trails, new community center being planned and working on master plan
- *Shelby Twp* — some new residential and commercial as well as several industrial developments, pathway connections
- *Oakland Twp* — several residential developments, one very close to the western edge of Stony, also interest in more pedestrian access
- *Rochester Hills* — several residential developments and some new commercial space, pathway connections, desire for a more western entrance to Stony

HURON CLINTON metroparks

Public Input Results

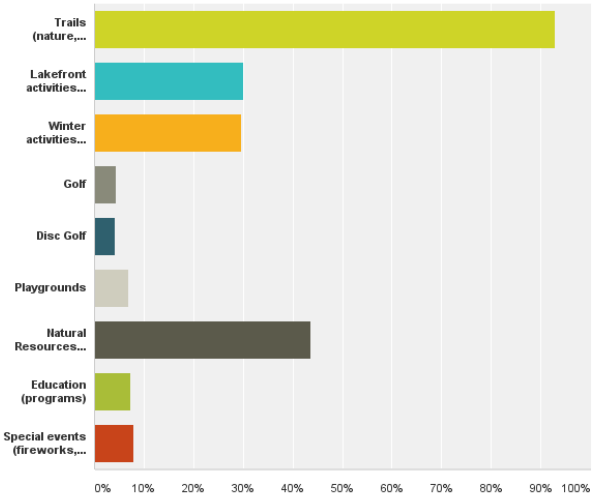
Q3 Approximately how many times do you visit Stony Creek Metropark in a year?

Answered: 547 Skipped: 3



Q5 What is your favorite part of the park or activity within Stony Creek Metropark? Examples are given for each category. (Choose up to 3.)

Answered: 487 Skipped: 63



Q6 What can be done to improve your favorite area or facilities for your favorite activity?

Water Maintain and Improve Birds Continuous Loop Docks Not Allowed Lake Longer Ski Trails Inwood Trails Nature Trail Mileage Single Track mt Bike Mountain Bike Trails Think Park Skills Area MTB Trails Trail Markings Road Preserve Boat Storage Small Sailboats Wildlife Additional Designated Mountain Bike Boat Launch

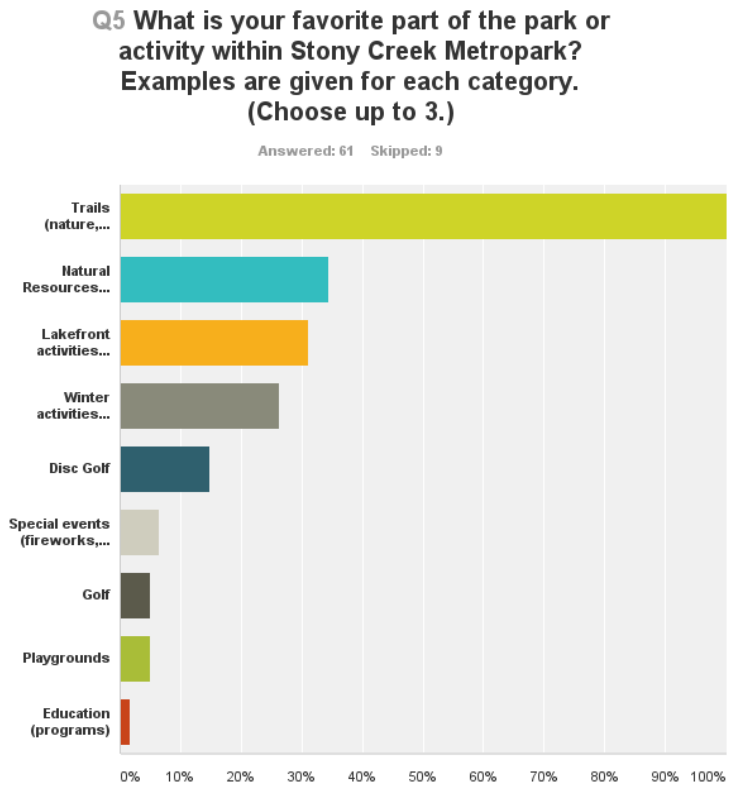
Q7 What would make your visit to Stony Creek Metropark more enjoyable overall?

Better Trail Events Think Boat Storage Costs Pass Hiking Trails Fat Biking Walking MTB Trails Rules Road Enforcement Mountain Bike Trails Activities Park Inwood Single Track Year-round Natural Fees Bikers Main Entrance Stony Creek Mt Bike Boat Launch Quiet Lake Beach

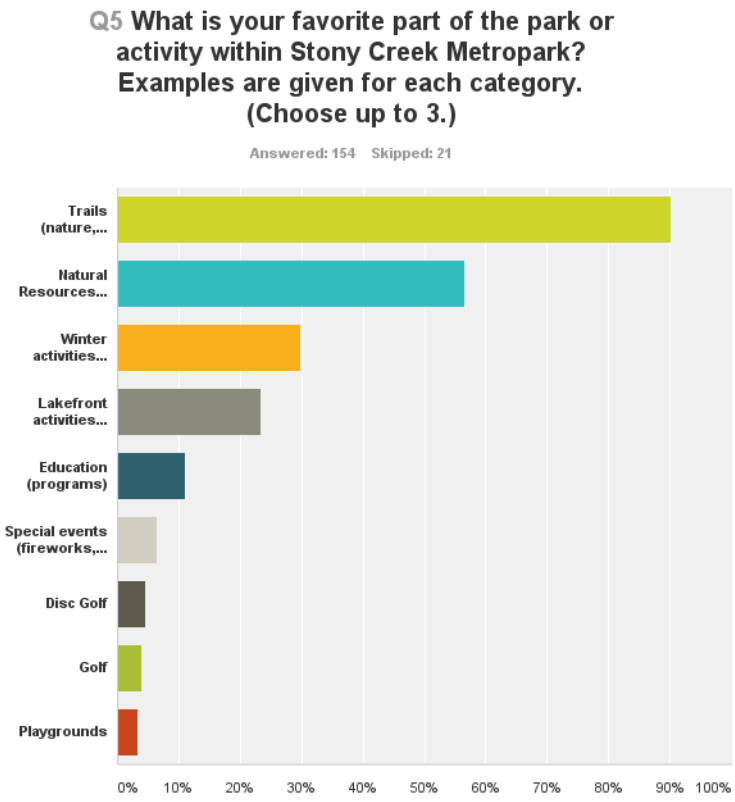
HURON CLINTON metroparks

Public Input Results

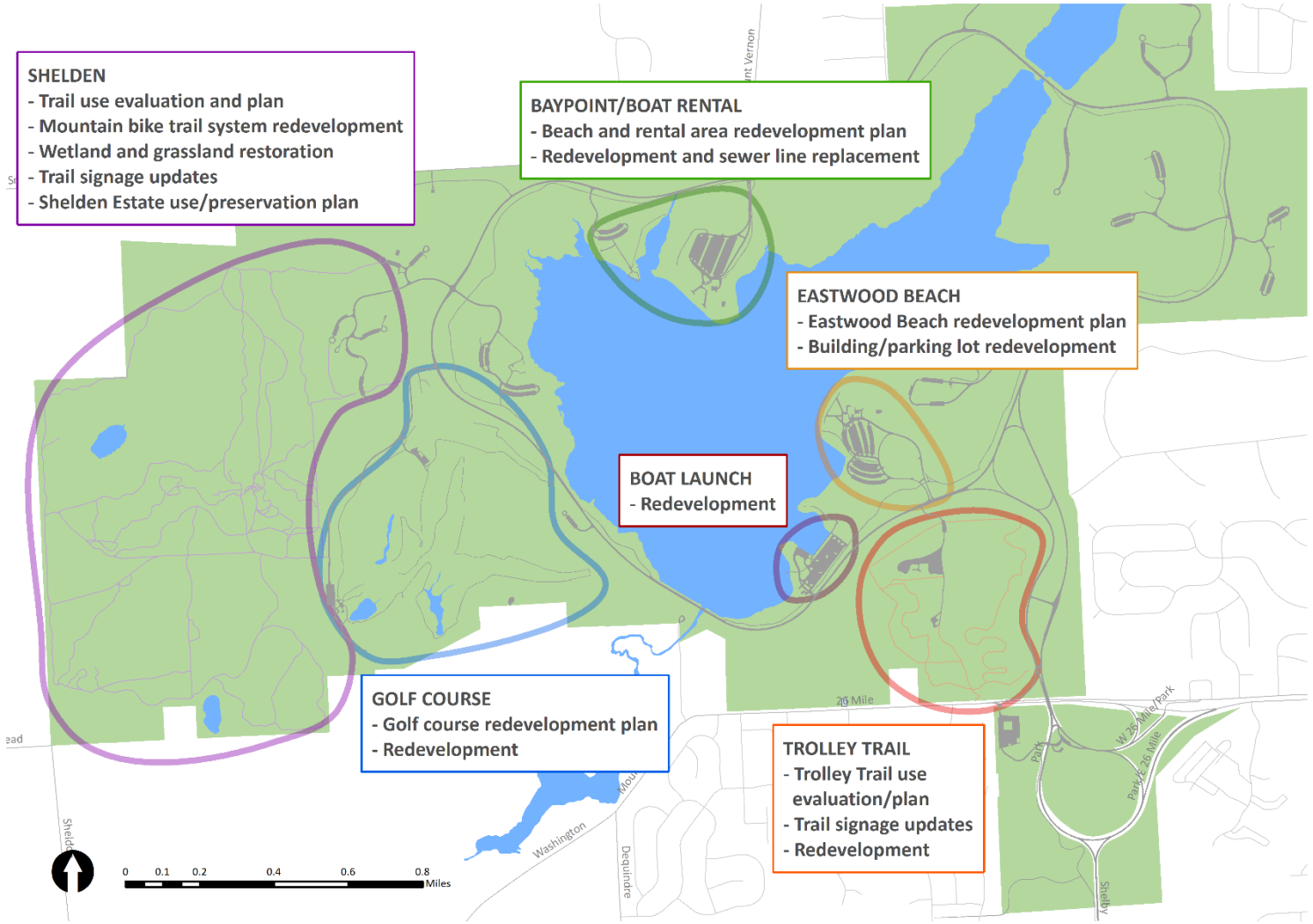
Ages 19-32 (Millenials)



Ages 52-70 (Boomers)



Major Projects (2017-2027)



HURON CLINTON metroparks

- Built in 1964
- Planned improvements
  - 5 Piers
  - Relocated trail
  - New building
  - Reconfigured parking lot
  - Improved accessibility
  - Accessible kayak launch

HURON CLINTON metroparks

Baypoint Beach & Boat Rental

- Opportunities
  - New building(s)
  - New restrooms
  - Additional picnic shelter(s)
  - Improved connectivity of the two areas

- Build dates
  - Baypoint Beach:1963
  - Boat Rental:1970

HURON CLINTON metroparks

Eastwood Beach

- Built in 1964 (concession & bath house)
- Opportunities
  - Building replacement
  - Beachfront improvements
  - Improved accessibility to trail and beach

HURON CLINTON metroparks

Golf Course

- Issues/opportunities
  - Aging buildings
  - Aging irrigation system
  - Accessibility
  - Decline in golf participation
  - Recent infrastructure improvements

- Build dates
  - Starter building:1964
  - Cart barn: 2000
  - Maintenance building:1974

HURON CLINTON metroparks

Mountain Bike Trails

- Issues/opportunities
  - 4 miles of single track, 6 miles of two track
  - Lack of connectivity and flow
  - Use conflicts (pedestrians/mountain bikers/skiers)
  - Designated biodiversity area
  - Signage

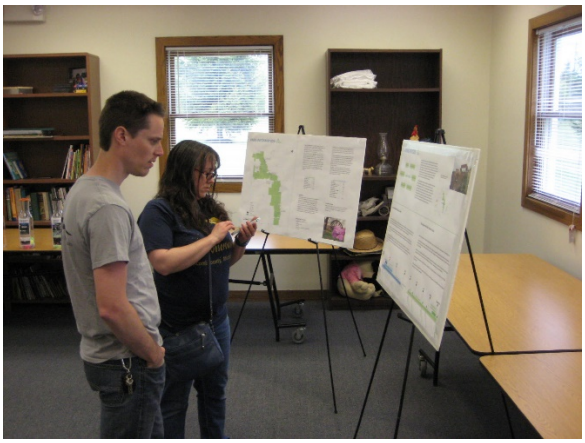
HURON CLINTON metroparks

Other Projects

- Walkway and interior accessibility improvements
- Realignment of paved trails to separate road & recreational cyclists
- Wetland and grassland restoration projects (Sheldon, Inwood, former Group Camp)
- Roadside wayfinding signage updates
- Trail signage updates
- Annual projects: paving, vegetation management
- Replacement of Buckhorn disc golf building

HURON CLINTON metroparks

Wolcott Mill Master Plan Meeting No. 1



HURON-CLINTON METROPOLITAN AUTHORITY

To: Board of Commissioners
From: Mike Brahm-Henkel, Manager of Engineering
Project No: 500-16-006
Project Title: Administrative Parking Lot Expansion
Project Type: Capital Improvement
Location: Kensington Metropark, Livingston County
Date: June 1, 2016

Bids Received: May 23, 2016

Action Requested: Motion to Approve

That the Board of Commissioners' (1) award Contract No. 500-16-006 to the low responsive, responsible bidder, T&M Asphalt Paving, Inc. in the amount of $56,222; and (2) transfer $42,595 from the Kensington Major Maintenance Unallocated account to the Administration Unallocated Capital account to fund the project as recommended by Manager of Engineering Mike Brahm-Henkel and staff.

Fiscal Impact: This is an unbudgeted project. Funds are currently available in the Kensington Unallocated Major Maintenance account for the road surface treatment project from the Milford Road entrance to the Traffic Diamond. This project can be deferred until next year. The remaining balance currently allocated for this project is $148,960. At the May 12, 2016 Board meeting, funding from this project was also used to support the inflatable slide utilities at Stony Creek, Stony golf course aboveground storage tank, and the replacement of the Lake Erie pool canopies. Funding for the original roadwork was budgeted at $260,000.

Scope of Work: The work includes furnishing all labor, equipment and materials necessary to complete the work of an approximately 750 square yards of asphalt for a parking lot expansion and all incidental construction.

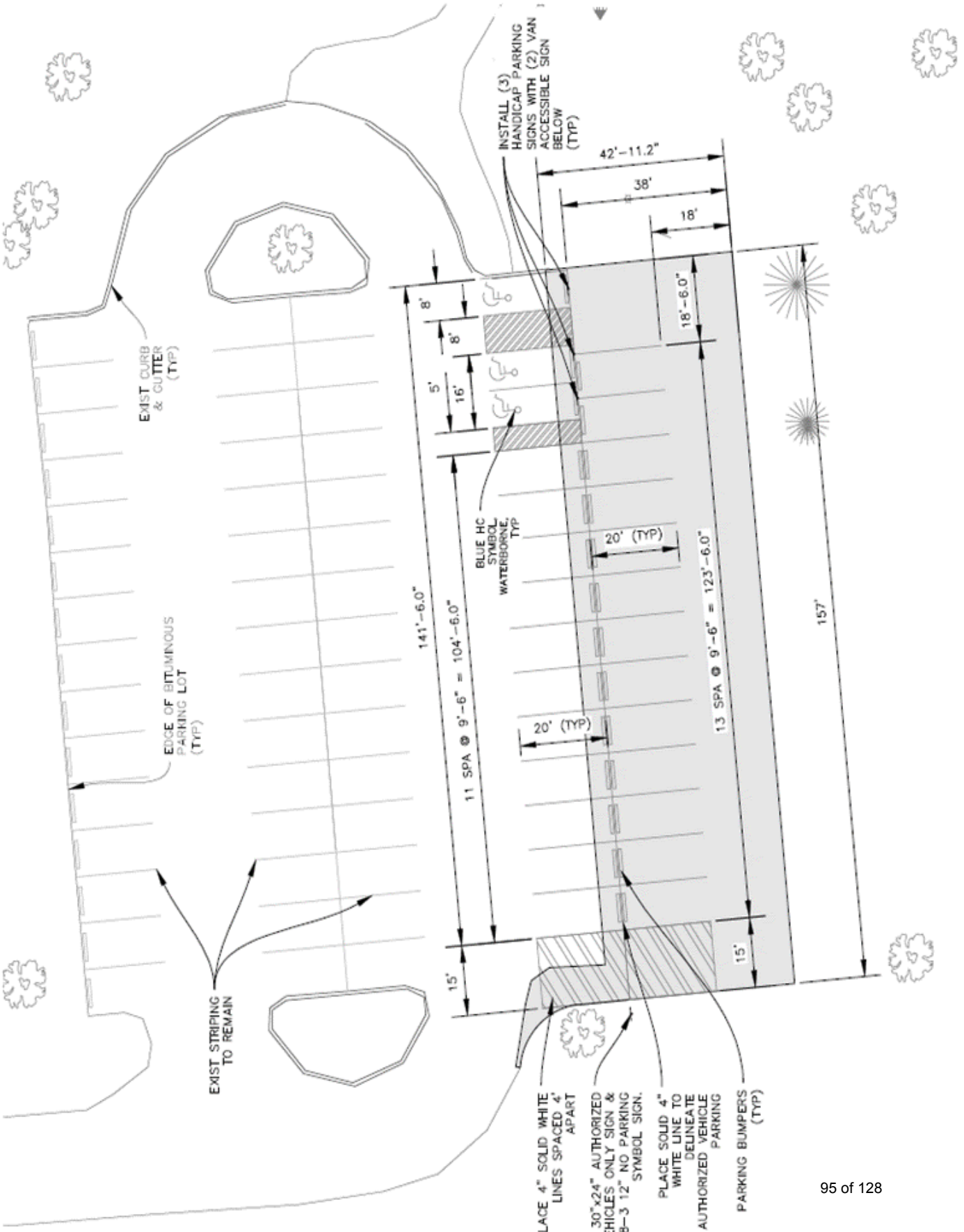
Background: The existing parking lot accommodates 60 vehicles. Eight of these spots are used for pool vehicles. There are currently 66 employees at the Administrative Office. The new lot will provide 13 additional spaces, which will be used for pool and employee parking and free up spaces for public use.

Contractor	City	Amount
T&M Asphalt Paving, Inc.	Milford	$56,222.00
Nagle Paving Company	Novi	$56,480.00
Pavex Corporation	Trenton	$59,291.01
J.W. Fields Companies	Highland	$67,768.88
Birkenstock Construction LLC	Brighton	$72,986.50

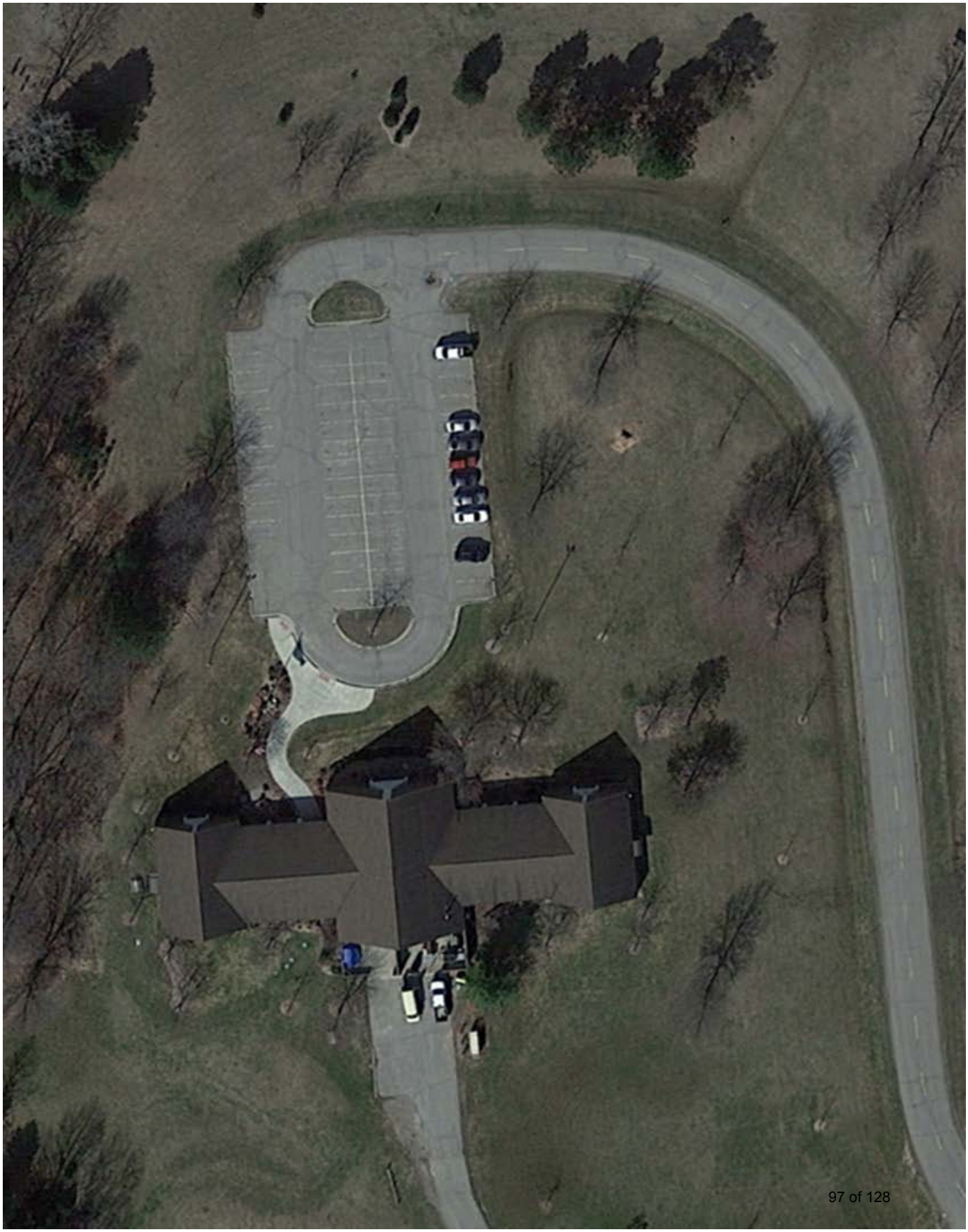
Budget Amount for Contract Services and Administration	$ 0.00
Work Order Amount	
Contract Amount – T&M Asphalt Paving, Inc.	$ 56,222.00
Contract Administration	$ 4,000.00
Total Proposed Work Order Amount	$ 60,222.00

This project was reported and publicly advertised in the following construction reporting outlets: MITN, Construction Association of Michigan, Reed Construction Data, Construction News Corporation, Construction News Service, HCMA Website, Builders Exchange of Michigan, McGraw Hill Dodge, Builders Exchange of Lansing and Central Michigan.

Attachments: Photos of Administrative Office Parking Lot


INSTALL (3) HANDICAP PARKING SIGNS WITH (2) VAN ACCESSIBLE SIGN BELOW (TYP)
42'-11.2"
38'
18'
EXIST CURB & GUTTER (TYP)
8'
8'
5'
16'
18'-6.0"
BLUE HC SYMBOL, WATERBORNE, TYP
20' (TYP)
141'-6.0"
11 SPA @ 9'-6" = 104'-6.0"
13 SPA @ 9'-6" = 123'-6.0"
157'
EDGE OF BITUMINOUS PARKING LOT (TYP)
20' (TYP)
15'
15'
EXIST STRIPING TO REMAIN
PLACE 4" SOLID WHITE LINES SPACED 4' APART
30"x24" AUTHORIZED VEHICLES ONLY SIGN & 8-3 12" NO PARKING SYMBOL SIGN.
PLACE SOLID 4" WHITE LINE TO DELINEATE AUTHORIZED VEHICLE PARKING
PARKING BUMPERS (TYP)

Aerial View of Administrative Office and Parking Lot



Current Administrative Office Parking Lot

HURON-CLINTON METROPOLITAN AUTHORITY

To: Board of Commissioners
From: George Phifer, Director
Subject: Approval – Cell Tower Lease Agreement Renewal
Location: Stony Creek Metropark, Macomb County
Date: June 1, 2016

Action Requested: Motion to Approve

That the Board of Commissioners' approve the contract proposal from Crown Castle CCATT LLC a Delaware limited liability company ("Lessee") as recommended by Director George and staff.

Fiscal Impact: Contract extension bonus of $70,000, with additional revenue available annually, based on duration of agreement.

Background: The Metroparks currently lease property for two (2) cell towers located in Macomb County. One located at 26 Mile road and another located at Snell road. Both of the cell towers are located near Stony Creek Metropark. One of the original leases dates back to August 26, 1996, when Mr. Rucynski, who was the property owner at the time, signed an agreement with AT&T.

Over the years, Crown Castle CCATT LLC has taken over the lease rights for both of these locations. Crown Castle is seeking to extend the current cell tower leases for 26 Mile Road location until May 31, 2057 and the Snell Road location until Feb 20, 2056. With the approval this agreement, the Metroparks will receive an extension bonus for $70,000 within 60 days of the contract signing and board approval.

Miller Canfield has reviewed the terms and conditions. A copy of the lease and rent agreements are provided for your review.

Attachments: Crown Castle Lease and Rental Agreements
Cell Tower Locations

Crown Castle
301 North Cattlemen Road, Ste 200
Sarasota, FL 34232

Tel: 941.309-1614
Patricia.Dinning@CrownCastle.com
www.crowncastle.com

May 31, 2016

Sent via email to: George.Phifer@metroparks.com
Phone: 810-494-6046

George Phifer
Director
Huron Clinton Metropolitan Authority
Brighton, MI 48114

Re: Business Unit # 856129
Site Name: 26 Mile Road
Site Address: 21387 26 Mile Road
And
Business Unit # 876876
Site Name: Stoney Creek Metro Parks
Site Address: 1588 Snell Road

Revised Lease terms:

Business Unit # 856129
Site Address: 21387 26 Mile Road

Current Lease: By and between, CCATT LLC, a Delaware limited liability company ("Lessee") and Huron-Clinton Metropolitan Authority ("Lessor"), for 5,625 square foot leased area (the "Property") upon which a cell tower has been erected.

1. The Lease currently provides for zero (0) remaining five (5) year renewal terms. That Lease section will be amended to provide that the remaining term of the Lease will be extended by an additional eight (8), five (5) year renewal terms. The new final Lease expiration date will be May 31, 2057.

2. On the first full day of the second full month following full execution of the Lease Amendment, the monthly rent shall increase one-time by an amount equal to 15% of the monthly rent in effect for the immediately preceding month ("One-Time Rent Increase").

3. Commencing on June 1, 2017 and every five (5) years thereafter (each an "Adjustment Date"), the monthly rent shall increase by an amount equal to 15% of the monthly rent in effect for the month immediately preceding the Adjustment Date. Such rent escalations shall replace any rent escalations currently in the Lease, the "Regular Rent Escalation".

(continued)

4. If at any time prior to May 31, 2027: (a) Lessee exercises any of Lessee's rights to terminate the Lease, or (b) Lessee elects not to renew the Lease, Lessee shall pay a termination fee ("Termination Fee") equal to the amount of rent that Lessee would have owed to Lessor under the Lease, as amended, between the date of such early termination or election not to renew, as the case may be, and May 31, 2027. The Termination Fee will be due and payable in the same manner and on the same dates as set forth in the Lease. Notwithstanding the foregoing, Lessee will be released from any and all of its obligations under the Lease as of the effective date of such termination and shall not be required to pay the Termination Fee if Lessee terminates the Lease due to a Lessor default.

5. If Lessor receives an offer from any person or entity that owns towers or other wireless telecommunications facilities (or is in the business of acquiring Lessor's interest in the Lease) to purchase fee title, an easement, a lease, a license, or any other interest in the Property, or Lessor's interest in the Lease, or an option for any of the foregoing, Lessor shall provide written notice to Lessee of said offer, and Lessee shall have a right of first refusal to acquire such interest on the same terms and conditions in the offer, excluding any terms or conditions which are (i) not imposed in good faith or (ii) directly or indirectly designed to defeat or undermine Lessee's possessory or economic interest in the Property. If Lessor's notice covers portions of Lessor's parent parcel beyond the Property, Lessee may elect to acquire an interest in only the Property, and the consideration shall be pro-rated on an acreage basis.

6. Lessee will pay to Lessor a one-time amount of Fifty Thousand Dollars ($50,000.00) for the full execution of the Lease Amendment within sixty (60) days of the full execution of the Lease Amendment ("Conditional Lease Amendment Signing Bonus"). In the event that the Lease Amendment (and any applicable memorandum of lease and/or amendment) is not fully executed by both Lessor and Lessee for any reason, Lessee shall have no obligation to pay the Conditional Lease Amendment Signing Bonus to Lessor.

Business Unit # 876876
Site Address: 1588 Snell Road

Current Lease: By and between, Sprint Spectrum L.P., ("Lessee") and Huron-Clinton Metropolitan Authority ("Lessor"), for a 2,500 square foot leased area (the "Property") upon which a cell tower has been erected.

Revised Lease terms:

1. The Lease currently provides for two (2) remaining five (5) year renewal terms. That Lease section will be amended to provide that the remaining term of the Lease will be extended, in addition to the above described renewal terms, by an additional six (6), five (5) year renewal terms. The new final Lease expiration date will be February 20, 2056. The monthly rent shall continue to adjust by fifteen percent (15%) per renewal term pursuant to the terms of the Lease.

(continued)

2. If at any time prior to January 31, 2023: (a) Lessee exercises any of Lessee's rights to terminate the Lease, or (b) Lessee elects not to renew the Lease, Lessee shall pay a termination fee ("Termination Fee") equal to the amount of rent that Lessee would have owed to Lessor under the Lease, as amended, between the date of such early termination or election not to renew, as the case may be, and January 31, 2023. The Termination Fee will be due and payable in the same manner and on the same dates as set forth in the Lease. Notwithstanding the foregoing, Lessee will be released from any and all of its obligations under the Lease as of the effective date of such termination and shall not be required to pay the Termination Fee if Lessee terminates the Lease due to a Lessor default.

3. If Lessor receives an offer from any person or entity that owns towers or other wireless telecommunications facilities (or is in the business of acquiring Lessor's interest in the Lease) to purchase fee title, an easement, a lease, a license, or any other interest in the Property, or Lessor's interest in the Lease, or an option for any of the foregoing, Lessor shall provide written notice to Lessee of said offer, and Lessee shall have a right of first refusal to acquire such interest on the same terms and conditions in the offer, excluding any terms or conditions which are (i) not imposed in good faith or (ii) directly or indirectly designed to defeat or undermine Lessee's possessory or economic interest in the Property. If Lessor's notice covers portions of Lessor's parent parcel beyond the Property, Lessee may elect to acquire an interest in only the Property, and the consideration shall be pro-rated on an acreage basis.

4. Lessee will pay to Lessor a one-time amount of Ten Thousand Dollars ($10,000.00) for the full execution of the Lease Amendment within sixty (60) days of the full execution of the Lease Amendment ("Conditional Lease Amendment Signing Bonus"). In the event that the Lease Amendment (and any applicable memorandum of lease and/or amendment) is not fully executed by both Lessor and Lessee for any reason, Lessee shall have no obligation to pay the Conditional Lease Amendment Signing Bonus to Lessor.

5. Provided that this Letter Agreement is signed and returned by Lessor by June 10, 2016, the Lease Amendment shall include a provision stating that Lessee will pay to Lessor a one-time amount of Ten Thousand Dollars ($10,000.00) within sixty (60) days of the full execution of the Lease Amendment (and any applicable memorandum of lease and/or amendment) ("Expedite Fee"). In the event that (a) the Lease Amendment (and any applicable memorandum of lease and/or amendment) is not fully executed by both Lessor and Lessee for any reason; or (b) this Letter Agreement is not signed and returned by Lessor by the above date, Lessee shall have no obligation to pay the Expedite Fee to Lessor.

(continued)

Upon receipt of this document evidencing Lessor's acceptance of the revised Lease terms herein, Lessee shall submit these terms to its property committee. Upon approval by its property committee, Lessee shall prepare a Lease Amendment that incorporates the terms and conditions described in this document. In connection therewith, the parties acknowledge and agree that this document is intended to summarize the terms and conditions to be included in the Lease Amendment. Upon receipt of a satisfactory Lease Amendment, Lessor hereby agrees to present the Lease Amendment to its Board of Commissioners and upon approval execute the Lease Amendment without any unreasonable delay. Neither party will be bound by the terms set forth herein until the Lease Amendment is fully executed.

If this document accurately sets forth our understanding regarding the foregoing, please so indicate by signing and returning to Lessee via e-mail to Patricia.Dinning@crowncastle.com.

Lessor:
Huron-Clinton Metropolitan Authority

_____ Dated_____
George Phifer, Director

Lessee:
NCWPCS MPL 27 - Year Sites Tower Holdings LLC,
a Delaware limited liability company
By CCATT LLC,
a Delaware limited liability company,
Its Attorney in Fact

_____
Rhonda Lullo, Land Acquisition Manager Dated:_____

Lessee:
STC Five LLC, a Delaware limited liability company
By: Global Signal Acquisitions II LLC,
a Delaware limited liability company,
Its Attorney in Fact

_____
Rhonda Lullo, Land Acquisition Manager Dated:_____

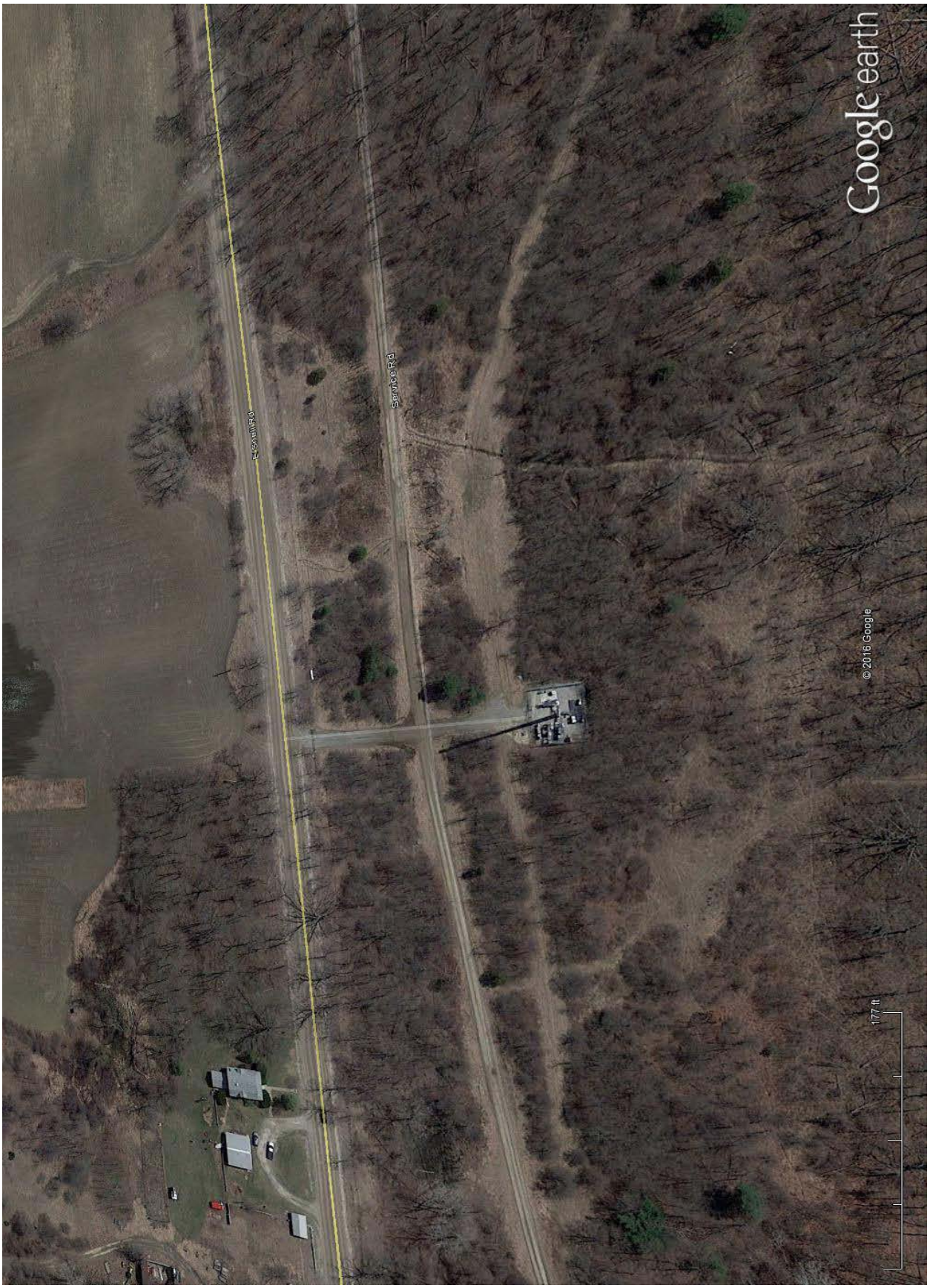
Crown Castle Rent Summary

BUN:	856129	26 Mile Road			
Current Term			Proposed		
	Annual Base Rent	Per Term	Annual Base Rent	Per Term	
Remaining Term					
Esculation Rate	Per Term Increase of $100 per Mon		15% Per Term		
Bonus Payment	$ -		$ 50,000.00		
5/1//2016 - 5/31/2016 (1Mo.)	$ 950.00		$ 950.00		
6/1/2016 - 5/31/2017	$ 11,400.00		$ 13,110.00		One-Time 15% increase
Bal of Existing Term		$ 12,350.00		$ 64,060.00	
New Term					
6/1/17 thru 5/31/22	$ -	$ -	$ 15,076.50	$ 75,382.50	15% per Term Increase Starts
2027	$ -	$ -	$ 17,337.98	$ 86,689.88	
2032	$ -	$ -	$ 19,938.67	$ 99,693.36	
2037	$ -	$ -	$ 22,929.47	$ 114,647.36	
2042	$ -	$ -	$ 26,368.89	$ 131,844.46	
2047	$ -	$ -	$ 30,324.23	$ 151,621.13	
2052	$ -	$ -	$ 34,872.86	$ 174,364.30	
2057	$ -	$ -	$ 40,103.79	$ 200,518.95	
		$ 12,350.00		$ 1,098,821.94	
Difference = Value of Extension				$ 1,086,471.94	

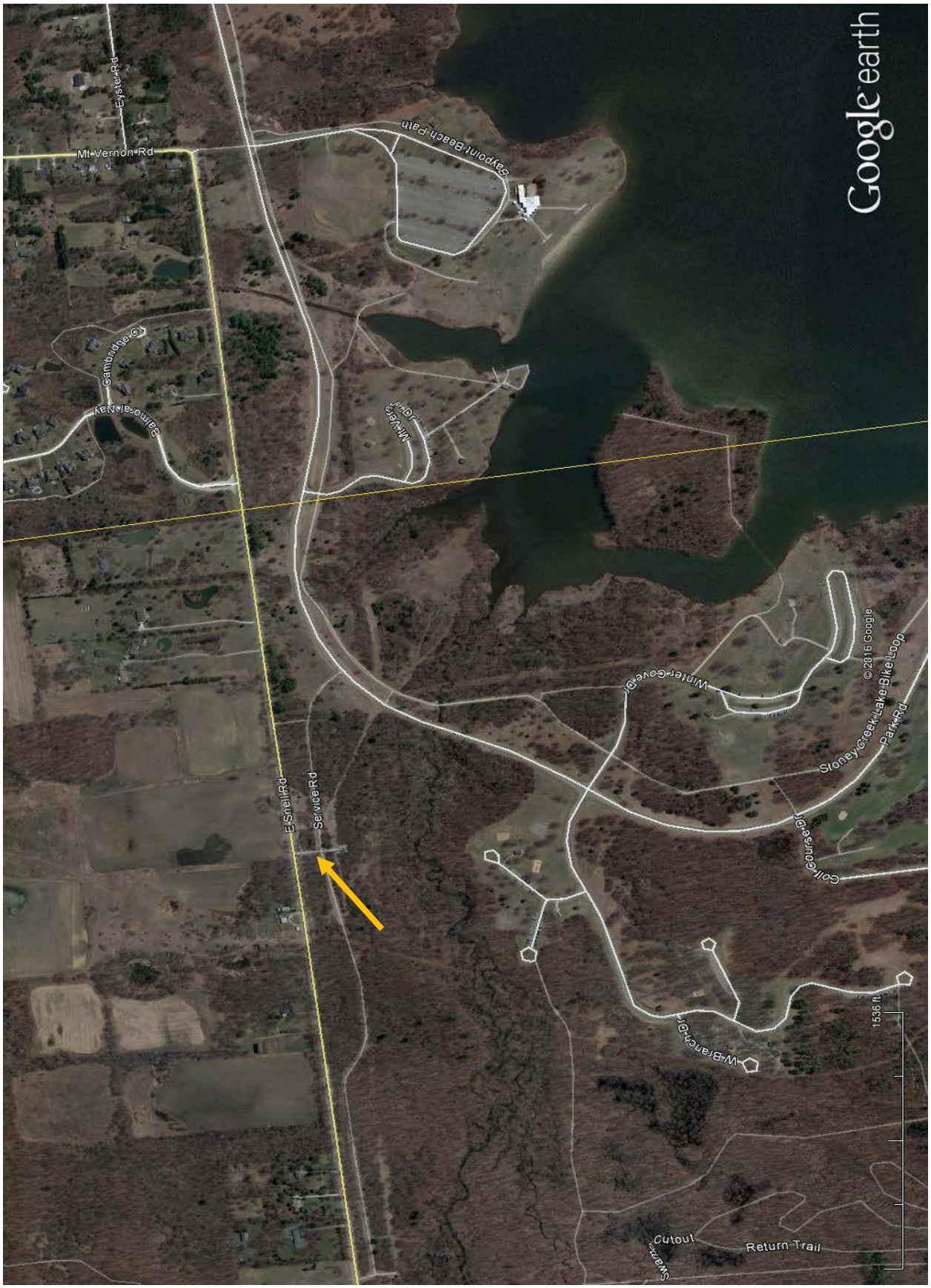
BUN:	876876	Snell Road		
Current Term			Proposed	
	Annual Base Rent	Per Term	Annual Base Rent	Per Term
Remaining Term				
Esculation Rate	15% per Term		15% Per Term	
Bonus Payment	$0.00		$20,000.00	
5/1/2016 - 1/31/21 (57 mos.)	$31,025.76	$147,315.93	$31,025.76	$155,128.80
2/1/21 - 1/31/26	$35,679.62	$178,398.12	$35,679.62	$178,398.12
Bal of Existing Term		$325,714.05		$353,526.92
New Term				
2/1/26 thru 2/31/31	$0.00	$0.00	$41,031.57	$205,157.84
2036	$0.00	$0.00	$47,186.30	$235,931.51
2041	$0.00	$0.00	$54,264.25	$271,321.24
2046	$0.00	$0.00	$62,403.89	$312,019.43
2051	$0.00	$0.00	$71,764.47	$358,822.34
2056	$0.00	$0.00	$82,529.14	$412,645.69
		$325,714.05		$2,149,424.97
Difference = Value of Extension				$1,823,710.92

Stony Creek Cell Tower Location

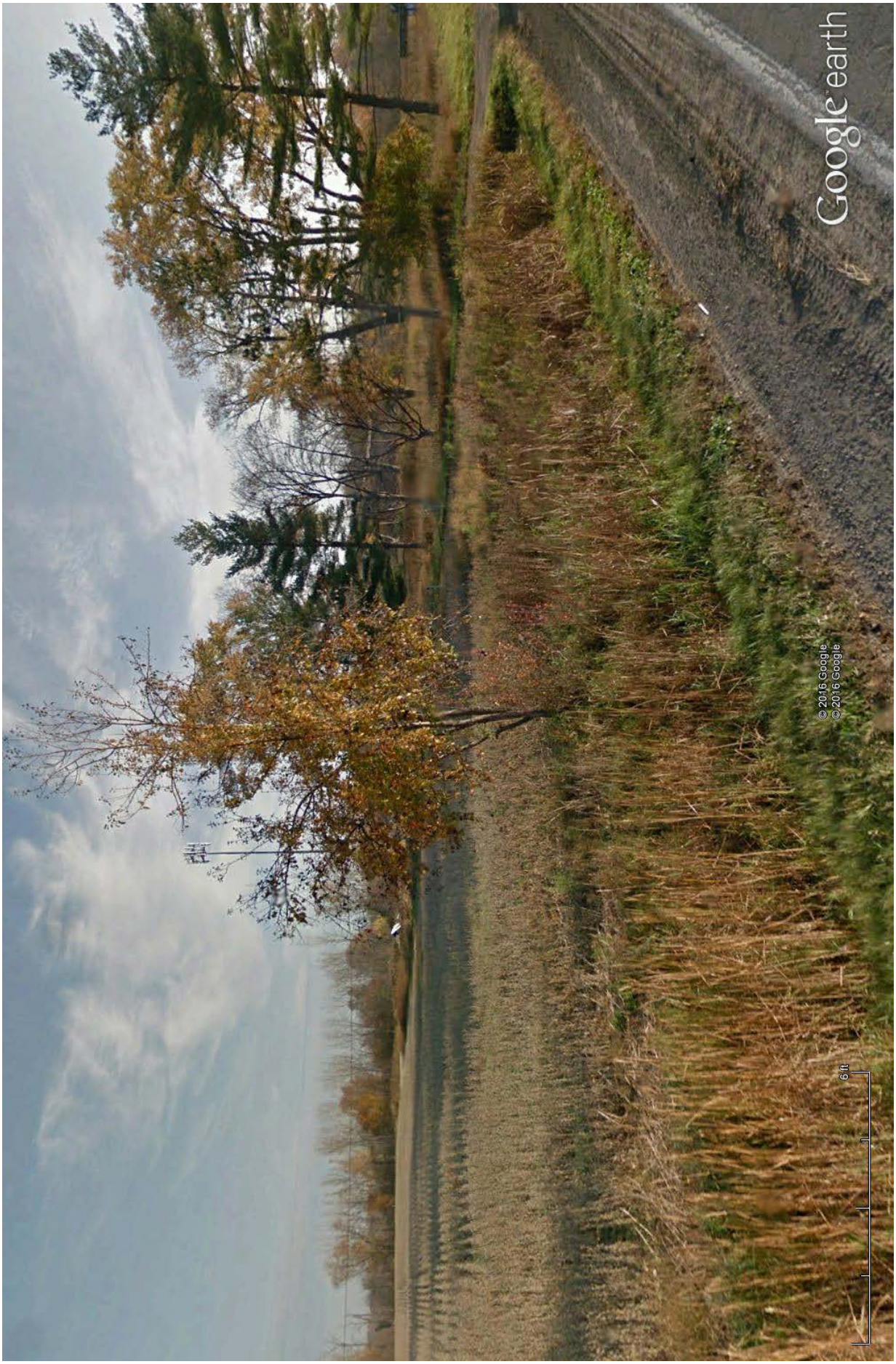
Stony Creek Cell Tower Location



Stony Creek Cell Tower Location



Wolcott Mill Cell Tower Location



Wolcott Mill Cell Tower Location

Wolcott Mill Cell Tower Location

HURON-CLINTON METROPOLITAN AUTHORITY

To: Board of Commissioners
From: George Phifer, Director
Subject: Board of Commission – Officer Elections
Date: June 1, 2015

Requested Action: Motion to Elect Board Officers

That the Board of Commissioners' elect a Chairman, Vice-Chairman, Secretary and Treasurer at the June 2015 Board meeting.

Background: The Huron-Clinton Metropolitan Authority Bylaws read in part:

> *The Board of Commissioners shall elect a Chairman, a Vice-Chairman, a Secretary, and a Treasurer, who shall be elected by the Commissioners at the annual meeting of the Board of Commissioners.*

The regular monthly meeting held in the month of June constitutes the annual meeting of the Board of Commissioners.

HURON-CLINTON METROPARKS MONTHLY STATISTICS

May 2016

PARK	MONTHLY VEHICLE ENTRIES			
	Current	Previous	Prev 3 Yr Avg	Change from Average
Lake St Clair	47,866	43,360	44,197	8%
Wolcott Mill	6,566	5,610	4,780	37%
Stony Creek	68,397	63,138	65,998	4%
Indian Springs	11,708	11,309	11,510	2%
Kensington	90,925	92,667	89,978	1%
Huron Meadows	10,901	9,333	9,285	17%
Hudson Mills	23,140	23,242	25,732	-10%
Lower Huron/Willow/Oakwoods	62,061	54,993	56,403	10%
Lake Erie	23,407	46,953	28,449	-18%
Monthly TOTALS	344,971	350,605	336,334	3%

PARK	MONTHLY TOLL REVENUE			
	Current	Previous	Prev 3 Yr Avg	Change from Average
Lake St Clair	$ 287,156	$ 211,107	$ 197,675	45%
Wolcott Mill				
Stony Creek	$ 412,005	$ 310,562	$ 310,626	33%
Indian Springs	$ 53,863	$ 37,605	$ 39,265	37%
Kensington	$ 417,516	$ 313,523	$ 283,884	47%
Huron Meadows	$ 4,282	$ 4,753	$ 4,883	-12%
Hudson Mills	$ 91,042	$ 64,526	$ 62,851	45%
Lower Huron/Willow/Oakwoods	$ 158,014	$ 106,612	$ 112,059	41%
Lake Erie	$ 89,833	$ 69,022	$ 69,636	29%
Monthly TOTALS	$ 1,513,711	$ 1,117,710	$1,080,879	40%

PARK	Y-T-D VEHICLE ENTRIES			
	Current	Previous	Prev 3 Yr Avg	Change from Average
Lake St Clair	117,277	114,284	112,793	4%
Wolcott Mill	22,851	16,077	15,133	51%
Stony Creek	171,846	148,561	151,558	13%
Indian Springs	27,918	26,773	25,470	10%
Kensington	260,471	263,194	248,969	5%
Huron Meadows	30,662	30,239	28,939	6%
Hudson Mills	66,120	63,821	68,642	-4%
Lower Huron/Willow/Oakwoods	190,392	166,299	165,543	15%
Lake Erie	64,312	46,953	50,217	28%
Monthly TOTALS	951,849	876,201	867,263	10%

PARK	Y-T-D TOLL REVENUE			
	Current	Previous	Prev 3 Yr Avg	Change from Average
Lake St Clair	$ 545,290	$ 425,403	$ 388,741	40%
Wolcott Mill				
Stony Creek	$ 947,999	$ 744,633	$ 699,825	35%
Indian Springs	$ 138,434	$ 105,001	$ 100,911	37%
Kensington	$ 1,048,984	$ 806,635	$ 721,871	45%
Huron Meadows	$ 29,640	$ 39,114	$ 32,182	-8%
Hudson Mills	$ 231,981	$ 188,781	$ 185,451	25%
Lower Huron/Willow/Oakwoods	$ 353,620	$ 255,020	$ 240,064	47%
Lake Erie	$ 272,633	$ 210,984	$ 196,421	39%
Monthly TOTALS	$ 3,568,581	$ 2,775,571	$2,565,465	39%

PARK	MONTHLY PARK REVENUE			
	Current	Previous	Prev 3 Yr Avg	Change from Average
Lake St Clair	$ 462,480	$ 372,493	$ 282,208	64%
Wolcott Mill	$ 84,279	$ 68,098	$ 62,294	35%
Stony Creek	$ 687,763	$ 539,183	$ 529,551	30%
Indian Springs	$ 169,908	$ 153,763	$ 156,142	9%
Kensington	$ 680,505	$ 528,684	$ 498,975	36%
Huron Meadows	$ 124,541	$ 101,874	$ 108,104	15%
Hudson Mills	$ 160,191	$ 141,397	$ 139,263	15%
Lower Huron/Willow/Oakwoods	$ 351,420	$ 221,961	$ 252,219	39%
Lake Erie	$ 248,682	$ 206,856	$ 213,599	16%
Y-T-D TOTALS	$ 2,969,769	$ 2,334,308	$ 2,242,355	32%

PARK	Y-T-D PARK REVENUE			
	Current	Previous	Prev 3 Yr Avg	Change from Average
Lake St Clair	$ 825,691	$ 720,818	$ 548,927	50%
Wolcott Mill	$ 169,589	$ 147,929	$ 134,981	26%
Stony Creek	$ 1,423,921	$ 1,137,518	$1,109,642	28%
Indian Springs	$ 351,589	$ 288,618	$ 289,121	22%
Kensington	$ 1,544,395	$ 1,255,277	$1,140,347	35%
Huron Meadows	$ 231,648	$ 201,562	$ 198,416	17%
Hudson Mills	$ 361,361	$ 330,164	$ 338,362	7%
Lower Huron/Willow/Oakwoods	$ 633,925	$ 437,204	$ 458,773	38%
Lake Erie	$ 516,989	$ 421,268	$ 435,648	19%
Y-T-D TOTALS	$ 6,059,108	$ 4,940,357	$4,654,217	30%

District	Y-T-D Vehicle Entries by Management Unit			
	Current	Previous	Prev 3 Yr Avg	Change from Average
Eastern	311,974	278,922	279,484	12%
Western	385,171	384,027	372,020	4%
Southern	254,704	213,252	215,760	18%

	Y-T-D Total Revenue by Management Unit			
	Current	Previous	Prev 3 Yr Avg	Change from Average
Eastern	2,419,201	2,006,265	1,793,550	35%
Western	2,488,993	2,075,621	1,966,246	27%
Southern	1,150,914	858,472	894,421	29%

HURON-CLINTON METROPARKS MONTHLY STATISTICS

May 2016

GOLF THIS MONTH	MONTHLY ROUNDS				MONTHLY REVENUE			
	Current	Previous	Prev 3 Yr Avg	Change from Average	Current	Previous	Prev 3 Yr Avg	Change from Average
Wolcott Mill	2,271	2,060	2,052	11%	$ 60,970	$ 47,811	$ 40,933	49%
Stony Creek	4,619	4,348	4,668	-1%	$ 154,150	$ 141,550	$ 141,493	9%
Indian Springs	3,442	3,335	3,455	0%	$ 85,629	$ 79,365	$ 90,576	-5%
Kensington	4,483	4,327	4,443	1%	$ 116,154	$ 108,922	$ 108,771	7%
Huron Meadows	3,806	3,548	3,400	12%	$ 104,654	$ 84,295	$ 93,659	12%
Hudson Mills	2,426	2,659	2,559	-5%	$ 47,575	$ 51,220	$ 50,632	-6%
Willow	3,754	3,376	3,028	24%	$ 108,149	$ 77,022	$ 89,507	21%
Lake Erie	3,961	5,165	3,945	0%	$ 101,425	$ 76,299	$ 78,429	29%
Total Regulation	28,762	28,818	27,550	4%	$ 778,706	$ 666,482	$ 693,999	12%
LSC Par 3	1,141	642	1,221	-7%	$ 6,924	$ 4,053	$ 7,350	-6%
LSC Foot Golf	87	102	34	156%	$ 629	$ 712	$ 237	165%
L. Huron Par 3	515	719	776	-34%	$ 3,717	$ 4,888	$ 5,259	-29%
L. Huron Foot Golf	174	79	26	561%	$ 999	$ 575	$ 192	421%
Total Golf	30,679	30,360	29,607	4%	$ 790,975	$ 676,710	$ 707,037	12%

GOLF Y-T-D	GOLF ROUNDS Y-T-D				GOLF REVENUE Y-T-D			
	Current	Previous	Prev 3 Yr Avg	Change from Average	Current	Previous	Prev 3 Yr Avg	Change from Average
Wolcott Mill	3,134	2,749	2,443	28%	$ 83,563	$ 63,050	$ 51,205	63%
Stony Creek	6,685	6,454	6,524	2%	$ 214,719	$ 194,980	$ 222,912	-4%
Indian Springs	5,246	4,857	4,727	11%	$ 127,411	$ 114,237	$ 125,095	2%
Kensington	6,872	6,566	6,398	7%	$ 169,284	$ 162,148	$ 160,610	5%
Huron Meadows	5,947	5,144	4,926	21%	$ 158,010	$ 125,841	$ 132,676	19%
Hudson Mills	3,514	3,683	3,506	0%	$ 67,874	$ 67,892	$ 81,899	-17%
Willow	5,411	4,988	4,096	32%	$ 156,367	$ 114,701	$ 139,557	12%
Lake Erie	5,744	5,165	4,624	24%	$ 147,919	$ 105,941	$ 129,627	14%
Total Regulation	42,553	39,606	37,244	14%	$ 1,125,147	$ 948,790	$1,043,581	8%
LSC Par 3	1,523	642	1,445	5%	$ 9,440	$ 8,486	$ 10,043	-6%
LSC Foot Golf	132	107	36	270%	$ 858	$ 747	$ 249	244%
L. Huron Par 3	865	911	987	-12%	$ 6,188	$ 6,149	$ 6,718	-8%
L. Huron Foot Golf	217	101	34	545%	$ 1,280	$ 719	$ 240	434%
Total Golf	45,290	41,367	39,745	14%	$ 1,142,912	$ 964,891	$1,060,831	8%

AQUATICS THIS MONTH	PATRONS THIS MONTH				MONTHLY REVENUE			
	Current	Previous	Prev 3 Yr Avg	Change from Average	Current	Previous	Prev 3 Yr Avg	Change from Average
Lake St. Clair	4,229	1,688	2,131	98%	$ 21,132	$ 6,693	$ 8,485	149%
Stony Creek Rip Slide	1,879	1,219	1,611	17%	$ 9,738	$ 5,942	$ 4,809	102%
KMP Splash	3,482	1,384	1,982	76%	$ 19,762	$ 8,865	$ 9,476	109%
Hudson Mills Rip Slide	159	227	76	110%	$ 1,502	$ 1,174	$ 391	284%
Lower Huron	5,307	2,514	3,064	73%	$ 53,072	$ 20,939	$ 28,711	85%
Willow	1,650	462	652	153%	$ 7,952	$ 1,641	$ 3,083	158%
Lake Erie	3,145	964	1,699	85%	$ 24,703	$ 5,339	$ 8,092	205%
TOTALS	19,851	8,458	11,214	77%	$ 137,861	$ 50,593	$ 63,048	119%

AQUATICS Y-T-D	PATRONS Y-T-D				REVENUE Y-T-D			
	Current	Previous	Prev 3 Yr Avg	Change from Average	Current	Previous	Prev 3 Yr Avg	Change from Average
Lake St. Clair	4,229	1,688	2,131	98%	$ 21,132	$ 6,693	$ 8,485	149%
Stony Creek Rip Slide	1,879	1,219	1,611	17%	$ 9,738	$ 5,942	$ 4,809	102%
KMP Splash	3,482	1,384	1,982	76%	$ 22,052	$ 10,915	$ 10,759	105%
Hudson Mills Rip Slide	159	227	76	110%	$ 1,502	$ 1,174	$ 391	284%
Lower Huron	5,307	2,514	3,064	73%	$ 53,072	$ 20,939	$ 28,711	85%
Willow	1,650	462	652	153%	$ 7,952	$ 1,641	$ 3,083	158%
Lake Erie	3,145	964	1,699	85%	$ 24,703	$ 5,339	$ 8,092	205%
TOTALS	19,851	8,458	11,214	77%	$ 140,151	$ 52,643	$ 64,332	118%

HURON-CLINTON METROPARKS MONTHLY STATISTICS

May 2016

PARK	Seasonal Activities this Month				Monthly Revenue			
	Current	Previous	Prev 3 Yr Avg	Change from Average	Current	Previous	Prev 3 Yr Avg	Change from Average
Lake St. Clair								
Welsh Center	1	6	5	-80%	$ 2,200	$ 4,600	$ 2,633	-16%
Shelters	56	64	36	54%	$ 13,520	$ 14,525	$ 13,468	0%
Boat Launches	622	606	665	-6%	$ -	$ -	$ -	-
Marina	0	271	352	-	$ 2,250	$ 1,641	$ 1,919	17%
Mini-Golf	713	586	698	2%	$ 2,586	$ 1,774	$ 2,341	10%
Wolcott								
Activity Center	6	14	11	-45%	$ 1,500	$ 4,450	$ 2,923	-49%
Stony Creek								
Disc Golf Daily	2,977	3,427	4,086	-27%	$ 10,001	$ 10,281	$ 9,310	7%
Disc Golf Annual	29	31	24	23%	$ 1,475	$ 1,330	$ 1,003	47%
Total Disc Golf	3,006	3,458	4,110	-27%	$ 11,476	$ 11,611	$ 10,314	11%
Shelters	73	65	65	12%	$ 14,625	$ 13,100	$ 15,200	-4%
Boat Rental	1,668	1,990	1,813	-8%	$ 17,538	$ 19,550	$ 16,642	5%
Boat Launches	54	179	287	-81%	$ -	$ -	$ -	-
Indian Springs								
Shelters	11	13	11	3%	$ 1,450	$ 1,250	$ 1,600	-9%
Event Room	4	1,032	1,101	-100%	$ 7,070	$ 7,756	$ 6,141	15%
Kensington								
Disc Golf Daily	4,181	5,690	6,197	-33%	$ 12,543	$ 12,984	$ 12,954	-3%
Disc Golf Annual	24	27	31	-23%	$ 1,160	$ 1,227	$ 1,430	-19%
Total Disc Golf	4,205	5,717	6,228	-32%	$ 13,703	$ 14,211	$ 14,385	-5%
Shelters	75	74	79	-5%	$ 18,500	$ 16,450	$ 17,292	7%
Boat Rental	1,957	1,656	1,803	9%	$ 26,408	$ 19,297	$ 20,946	26%
Huron Meadows								
Shelters	4	7	4	9%	$ 800	$ 1,400	$ 733	9%
Hudson Mills								
Disc Golf Daily	1,464	1,863	2,382	-39%	$ 4,392	$ 5,589	$ 5,386	-18%
Disc Golf Annual	21	32	28	-24%	$ 1,115	$ 1,580	$ 1,297	-14%
Total Disc Golf	1,485	1,895	2,410	-38%	$ 5,507	$ 7,169	$ 6,682	-18%
Shelters	16	20	23	-31%	$ 3,200	$ 4,000	$ 4,667	-31%
Canoe Rental	522	278	301	73%	$ 2,398	$ 1,740	$ 1,488	61%
Lower Huron / Willow / Oakwoods								
Shelters	45	31	48	-6%	$ 9,450	$ 6,750	$ 10,067	-6%
Lake Erie								
Shelters	15	40	19	-20%	$ 3,600	$ 2,700	$ 2,150	67%
Boat Launches	2,394	4,406	2,906	-18%	$ -	$ -	$ -	-
Marina	0	5	5	-	$ 28,065	$ 28,577	$ 28,807	-3%

HURON-CLINTON METROPARKS MONTHLY STATISTICS

May 2016

PARK	Seasonal Activities Y-T-D				Seasonal Revenue Y-T-D			
	Current	Previous	Prev 3 Yr Avg	Change from Average	Current	Previous	Prev 3 Yr Avg	Change from Average
Lake St. Clair								
Welsh Center	9	27	22	-58%	$ 8,675	$ 21,450	$ 11,850	-27%
Shelters	147	179	75	97%	$ 36,345	$ 38,950	$ 39,843	-9%
Boat Launches	872	616	712	22%	$ -	$ -	$ -	-
Marina	0	271	352	-	$ 2,278	$ 1,641	$ 1,945	17%
Mini-Golf	713	586	698	2%	$ 2,586	$ 1,774	$ 2,341	10%
Wolcott								
Activity Center	34	52	44	-23%	$ 8,000	$ 11,650	$ 10,723	-25%
Stony Creek								
Disc Golf Daily	5,470	5,980	6,565	-17%	$ 17,480	$ 17,940	$ 15,114	16%
Disc Annual	121	100	76	59%	$ 6,375	$ 4,520	$ 3,340	91%
Total Disc Golf	5,591	6,080	6,641	-16%	$ 23,855	$ 22,460	$ 18,454	29%
Shelters	228	222	215	6%	$ 45,435	$ 44,400	$ 45,967	-1%
Boat Rental	1,668	1,990	1,813	-8%	$ 17,538	$ 19,550	$ 16,642	5%
Boat Launches	75	334	386	-81%	$ -	$ -	$ -	-
Indian Springs								
Shelters	29	29	26	10%	$ 4,450	$ 3,950	$ 4,633	-4%
Event Room	23	1,282	1,844	-99%	$ 40,370	$ 23,966	$ 25,481	58%
Kensington								
Disc Golf Daily	8,112	7,978	8,960	-9%	$ 24,336	$ 23,935	$ 20,578	18%
Disc Annual	133	180	125	7%	$ 7,015	$ 7,721	$ 5,574	26%
Total Disc Golf	8,245	8,158	9,084	-9%	$ 31,351	$ 31,656	$ 26,152	20%
Shelters	227	288	275	-17%	$ 58,035	$ 64,650	$ 59,765	-3%
Boat Rental	1,957	1,656	1,803	9%	$ 26,408	$ 19,297	$ 20,946	26%
Huron Meadows								
Shelters	15	19	14	7%	$ 3,000	$ 3,800	$ 2,867	5%
Hudson Mills								
Disc Golf Daily	3,239	3,992	4,459	-27%	$ 9,717	$ 11,976	$ 10,248	-5%
Disc Annual	106	144	120	-11%	$ 5,670	$ 6,980	$ 5,683	0%
Total Disc Golf	3,345	4,136	4,578	-27%	$ 15,387	$ 18,956	$ 15,931	-3%
Shelters	58	70	71	-18%	$ 11,600	$ 14,000	$ 14,083	-18%
Canoe Rental	522	278	301	73%	$ 2,398	$ 1,740	$ 1,488	61%
Lower Huron / Willow / Oakwoods								
Shelters	163	142	160	2%	$ 35,375	$ 31,250	$ 33,733	5%
Lake Erie								
Shelters	41	40	46	-11%	$ 9,300	$ 8,600	$ 9,150	2%
Boat Launches	6,330	4,406	4,358	45%	$ -	$ -	$ -	-
Marina	0	5	5	-	$ 53,322	$ 51,438	$ 53,721	-1%

INTERPRETIVE FACILITIES

PARK	Monthly Patrons Served (total program participants and non-program visitors)				YTD Patrons Served (total program participants and non-program visitors)			
	Current	Previous	Prev 3 Yr Avg	Change from Average	Current	Previous	Prev 3 Yr Avg	Change from Average
Lake St Clair	26,014	22,214	22,522	16%	53,390	47,731	49,173	9%
Wolcott Mill	6,102	3,102	4,297	42%	16,727	7,909	11,583	44%
Wolcott Farm	16,322	11,391	13,438	21%	32,141	32,664	35,145	-9%
Stony Creek	23,461	19,753	21,146	11%	80,025	62,771	64,920	23%
Eastern Mobile Center	1,047	0	1,047	0%	3,263	0	3,263	0%
Indian Springs	12,876	15,154	14,353	-10%	32,021	35,316	35,500	-10%
Kens NC	34,042	35,044	34,543	-1%	110,178	107,715	106,308	4%
Kens Farm	40,067	45,230	43,414	-8%	120,200	129,136	118,911	1%
Western Mobile Center	1,261	4,032	2,652	-52%	8,579	15,584	11,197	-23%
Hudson Mills	3,583	4,721	4,452	-20%	16,526	20,756	19,099	-13%
Oakwoods	15,918	15,123	15,056	6%	64,873	45,533	54,429	19%
Lake Erie	11,681	5,759	10,786	8%	38,049	14,763	35,596	7%
Southern Mobile Center	1,506	0	1,506	0%	2,237	0	2,237	0%
Totals	193,880	181,523	189,213	2%	578,209	519,878	547,361	6%

PARK	Monthly Revenue				YTD Revenue			
	Current	Previous	Prev 3 Yr Avg	Change from Average	Current	Previous	Prev 3 Yr Avg	Change from Average
Lake St Clair	$ 5,814	$ 6,830	$ 5,245	11%	$ 14,564	$ 12,218	$ 11,186	30%
Wolcott Mill	$ 1,491	$ 1,364	$ 929	60%	$ 5,869	$ 5,648	$ 3,703	58%
Wolcott Farm	$ 8,246	$ 9,446	$ 8,068	2%	$ 33,241	$ 35,562	$ 31,575	5%
Wagon Rides	$ 1,902	$ 1,106	$ 471	304%	$ 4,689	$ 1,136	$ 1,643	185%
Livestock/Produce	$ 1,796	$ 1,543	$ 2,017	-11%	$ 7,070	$ 14,911	$ 16,616	-57%
FARM TOTAL	$ 11,944	$ 12,095	$ 10,556	13%	$ 45,000	$ 51,609	$ 49,834	-10%
Stony Creek	$ 5,736	$ 3,343	$ 3,586	60%	$ 13,333	$ 10,495	$ 10,775	24%
Indian Springs	$ 6,056	$ 9,765	$ 6,988	-13%	$ 14,118	$ 16,218	$ 16,741	-16%
Kens NC	$ 4,465	$ 4,640	$ 4,478	0%	$ 14,330	$ 10,122	$ 9,664	48%
Kens Farm	$ 6,377	$ 4,766	$ 5,675	12%	$ 43,686	$ 28,160	$ 28,347	54%
Wagon Rides	$ 2,768	$ 2,436	$ 3,524	-21%	$ 13,534	$ 10,766	$ 10,904	24%
Livestock/Produce	$ 593	$ 494	$ 747	-21%	$ 10,658	$ 10,065	$ 8,764	22%
FARM TOTAL	$ 9,738	$ 7,696	$ 9,946	-2%	$ 67,878	$ 48,991	$ 48,015	41%
Mobile Center	$ 3,663	$ 851	$ 1,946	88%	$ 13,842	$ 10,765	$ 9,297	49%
Hudson Mills	$ 1,384	$ 1,654	$ 1,717	-19%	$ 7,357	$ 8,354	$ 8,363	-12%
Oakwoods	$ 2,407	$ 3,534	$ 3,340	-28%	$ 6,279	$ 6,785	$ -	-
Lake Erie	$ 1,327	$ 1,403	$ 1,796	-26%	$ 4,584	$ 6,391	$ 4,870	-6%
Totals	$ 54,024	$ 53,175	$ 50,525	7%	$ 207,153	$ 187,596	$ 172,446	20%

HURON-CLINTON METROPARKS MONTHLY STATISTICS

May 2016

BREAKDOWN OF ATTENDANCE	ON-SITE Programs and Attendance			
	CURRENT YEAR		PREVIOUS YEAR	
	Programs	Attendance	Programs	Attendance
Lake St Clair	115	4,368	166	7,100
Wolcott Mill	6	99	5	214
Wolcott Farm	71	2,226	89	2,867
Stony Creek	142	4,395	103	3,015
Eastern Mobile Center				
Indian Springs	85	5,125	101	6,586
Kens NC	64	1,714	100	3,984
Kens Farm	144	3,281	193	4,102
Western Mobile Center				
Hudson Mills	29	913	24	659
Oakwoods	60	1,487	107	2,432
Lake Erie	68	1,118	103	1,765
Southern Mobile Center				
Totals	784	24,726	991	32,724

BREAKDOWN OF ATTENDANCE	OFF-SITE Programs and Attendance			
	CURRENT YEAR		PREVIOUS YEAR	
	Programs	Attendance	Programs	Attendance
Lake St Clair	-	-	9	330
Wolcott Mill	-	-	2	2,000
Wolcott Farm	4	155	2	3,680
Stony Creek	3	100	1	43
Eastern Mobile Center	7	1,047	-	-
Indian Springs	16	617	18	816
Kens NC	9	284	9	316
Kens Farm	-	-	-	-
Western Mobile Center	39	1,261	87	4,032
Hudson Mills	5	170	15	562
Oakwoods	-	-	6	248
Lake Erie	-	-	-	-
Southern Mobile Center	19	1,506	-	-
Totals	102	5,140	149	12,027

BREAKDOWN OF ATTENDANCE	OTHER VISITORS (Non-programs)	
	Current	Previous
Lake St Clair	21,646	14,784
Wolcott Mill	6,003	888
Wolcott Farm	13,941	4,844
Stony Creek	18,966	16,695
Indian Springs	7,134	7,752
Kens NC	32,044	30,744
Kens Farm	36,786	41,128
Hudson Mills	2,500	3,500
Oakwoods	14,431	12,443
Lake Erie	10,563	3,994
Totals	164,014	136,772

"ON-SITE" - Statistics includes both programs offered to the public and programs offered to school and scout groups.

"OFF-SITE" - Statistics includes outreach programs at schools, special events such as local fairs, or outdoor related trade shows.

"OTHER VISITORS" - Represents patrons to interpretive centers who visit to view exhibits, walk trails, and generally just enjoy the outdoors.