

INTERGOVERNMENTAL COOPERATIVE AGREEMENT FOR THE HINKSON CREEK AQUATIC MACROINVERTEBRATE DATA MINING PROJECT

The parties hereto are the City of Columbia, Missouri, a Constitutional charter city of the State of Missouri (the "City"), the County of Boone, a first class non-charter county and political subdivision of the State of Missouri by and through its County Commission (the "County"), and The Curators of the University of Missouri (the "University") and those parties enter this Performance Acknowledgement (Acknowledgement) this ____ day of _____, 2019, by stating as follows:

Whereas, the parties entered an Intergovernmental Cooperation Agreement, attached hereto as Exhibit A, on April 2, 2013; and,

Whereas, in that Agreement the parties acknowledged their mutual obligations in certain projects initiated under a Collaborative Adaptive Management (CAM) process emanating from a Municipal Separate Storm Sewer System (MS4) permit issued by the Missouri Department of Natural Resources; and,

Whereas, the parties now wish to agree to the scope and details and costs of a study project known as the "Hinkson Creek Aquatic Macroinvertebrate Data Mining Project".

Whereas, the County will issue the Request for Statement of Qualifications (RSQ) and enter into the contract with the successful consultant performing the project.

Whereas, the City and the University will provide meaningful input on the selection of the consultant and general oversight of the project.

Whereas, the County will provide the City and the University access to all data and deliverables received from the consultant.

NOW, THEREFORE, in consideration of the mutual covenants in this Acknowledgement, the parties agree as follows:

1. The parties agree to the scope and details of the project known as the "Hinkson Creek Aquatic Macroinvertebrate Data Mining Project" as described in the attached Exhibit B. This project has a total not to exceed amount of \$99,000.00, with each of the parties' total proportionate one-third costs not to exceed \$33,000.00. The proportionate payments shall be subject to the appropriations of each of the parties. Subject to appropriation, the City Finance Director will have the authority to make payment on behalf of the City to the County, after receiving an invoice for the proper amounts as set forth herein. Subject to appropriations, the University and County shall take whatever

individual actions they deem appropriate to make payment for the proper amounts as set forth herein.

2. No party may assign or transfer any of its rights or obligations under this Agreement to any other person or entity without the prior, written consent of the other parties.
3. This Agreement is for the sole benefit of the parties, and nothing in this Agreement is intended to confer any rights or remedies on any third party.
4. Nothing in this Agreement will be deemed or construed by the parties, nor by any other entity or person, as creating any principal and agent relationship, or partnership, or joint venture, between the parties.
5. This Agreement will be governed by the laws of the State of Missouri, and any action relating to this Agreement will be brought in the Circuit Court of Boone County, Missouri.
6. The covenants, agreements, and obligations in this Agreement will extend to, bind, and inure to the benefit of the parties and their respective successors and approved assigns.
7. Each person signing this Agreement on behalf of any of the parties represents that he or she has been duly authorized and empowered, by order, ordinance, or otherwise, to execute this Agreement and that all necessary action on behalf of that party to effectuate that authorization has been taken and done.
8. The parties state that this Agreement, together with its attached Addenda A through B, contains the entire agreement between the parties, and there are no other oral, written, express, or implied promises, agreements, representations, or inducements not specified herein.

IN WITNESS WHEREOF the parties hereto have caused this Acknowledgement to be executed by their duly-authorized officers on day and year indicated by their signature below.

THE CURATORS OF THE UNIVERSITY OF MISSOURI

By: _____
Name

Date

CITY OF COLUMBIA, MISSOURI

By:


John Glascock, Deputy City Manager

Date

ATTEST:

Sheela Amin, City Clerk

APPROVED AS TO FORM:

Nancy Thompson, City Counselor 

I hereby certify that this contract is within the purpose of the appropriation to which it is to be charged, that is, account _____ and that there is an unencumbered balance to the credit of such account sufficient to pay therefore.

Janet Frazier, Acting Director of Finance

BOONE COUNTY, MISSOURI

By:

Dan Atwill, Presiding Commissioner

Date

ATTEST:

Taylor Burks, County Clerk

APPROVED AS TO LEGAL FORM:

C.J. Dykhouse, County Counselor

Boone County Auditor Certification:

I hereby certify that a sufficient, unencumbered appropriation balance exists and is available to satisfy the obligation arising from this contract. (Note: Certification of this contract is not required if the terms of this contract do not create a measurable county obligation at this time.)

County Auditor

Date

INTERGOVERNMENTAL COOPERATION AGREEMENT

This intergovernmental cooperation agreement (the "Agreement") is entered into on this 2ND day of APRIL, 2013, by and between the City of Columbia, Missouri, a Constitutional charter city of the State of Missouri (hereinafter referred to as the "City"), and the County of Boone in the State of Missouri (hereinafter referred to as "County"), and The Curators of the University of Missouri (hereinafter referred to as "University"); and may collectively be referred to as the "Parties."

WHEREAS, a Total Maximum Daily Load (TMDL) for Hinkson Creek was issued by the Federal Environmental Protection Agency (EPA) in 2011; and

WHEREAS, the City, County, and University are partners in a Municipal Separate Storm Sewer System (MS4) permit issued by the Missouri Department of Natural Resources, which is affected by the TMDL; and

WHEREAS, the City, County, and University entered into an agreement with the EPA and the Missouri Department of Natural Resources (DNR) to address the TMDL with a Collaborative Adaptive Management (CAM) process; and

WHEREAS, the City, County, and University wish to enter into an agreement with regard to how the Parties will contribute to projects that are initiated in the CAM process to address the TMDL.

NOW, THEREFORE, the parties agree as follows:

- 1 **TYPES OF PROJECTS.** The Parties will contribute to projects which are initiated in the CAM process to address the TMDL for research, study, or monitoring-type projects and for construction projects.

For research, study, or monitoring-type projects, the three entities will each be responsible for one-third of the project cost. The University shall coordinate research, study, or monitoring-type projects on behalf of the parties. Before any research, study, or monitoring-type project is started, the Parties shall agree in writing regarding the scope and details of the project, including a not-to-exceed amount for each project.

For construction projects, each entity will exercise discretion and control over projects and be responsible for the costs of projects conducted on its own property unless otherwise agreed between the parties in writing.

2. **APPROPRIATIONS.** All types of projects shall be subject to the appropriations of the Parties who shall pay for the projects. Subject to these appropriations, the Parties shall each delegate in writing a person who shall be responsible for implementing this agreement and any associated documents or contracts to give this agreement effect.



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COL. CITY
CAM PROJ. HINKSON CREEK

3. **TERM.** The effective date of this Agreement is the date the last party executes the Agreement and provides original executed documents to the other Parties. Any of the Parties may terminate this Agreement at any time by providing the other Parties written notice of their intent to terminate at least thirty (30) days in advance of the intended termination date
4. **ASSIGNMENT.** None of the Parties may assign or transfer any of its rights or obligations under this Agreement to any other person or entity without the prior, written consent of the other Parties.
5. **SOLE BENEFIT OF PARTIES.** This Agreement is for the sole benefit of the City, County and University. Nothing in this Agreement is intended to confer any rights or remedies on any third party.
6. **ENTIRE AGREEMENT.** The Parties state that this Agreement contains the entire agreement between the Parties, and there are no other oral, written, express or implied promises, agreements, representations or inducements not specified herein.
7. **AUTHORITY.** The signatories to this Agreement warrant and certify that they have obtained the necessary authority, by resolution or otherwise, to execute this Agreement on behalf of the named party for whom they are signing.

[SIGNATURES ON THE FOLLOWING PAGES]

IN WITNESS WHEREOF, the Parties hereto have been duly authorized to execute this Agreement as of the day and year first above written.

CITY OF COLUMBIA, MISSOURI

By: 
Mike Matthes, City Manager

ATTEST:


Sheela Amin, City Clerk

APPROVED AS TO FORM:


~~Fred Boeckmann, City Counselor~~
Cavanagh Noel

BOONE COUNTY, MISSOURI

By: 
Dan Atwill, Presiding Commissioner

ATTEST:

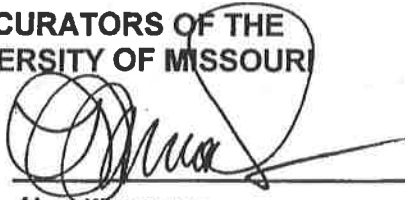

Wendy Noren, County Clerk *my*

APPROVED AS TO FORM:


C.J. Dykhouse, County Attorney

THE CURATORS OF THE
UNIVERSITY OF MISSOURI

By:



Lisa J. Wimmenauer
Assoc. Director, Business Services

ATTEST:

Approved By

MAR 05 2013
PJH
General Counsel via EMAIL

CERTIFIED COPY OF ORDER

STATE OF MISSOURI

April Session of the April Adjourned

Term. 20 13

County of Boone

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In the County Commission of said county, on the

2nd

day of April

20 13

the following, among other proceedings, were had, viz:

Now on this day the County Commission of the County of Boone does hereby approve the Intergovernmental Cooperation Agreement between the County of Boone, the City of Columbia and The Curators of the University of Missouri as it relates to the collaborative adaptive management implementation process for Hinson Creek.

The terms of this Cooperative Contract are stipulated in the attached Intergovernmental Cooperation Agreement. It is further ordered the Presiding Commissioner is hereby authorized to sign said Intergovernmental Cooperation Agreement.

Done this 2nd day of April, 2013.

ATTEST:

Wendy S. Noren
Wendy S. Noren
Clerk of the County Commission

[Signature]
Daniel K. Atwill
Presiding Commissioner
[Signature]
Karen M. Miller
District I Commissioner
[Signature]
Janet M. Thompson
District II Commissioner

Exhibit B
Scope and Details of the Project Known as the
“Hinkson Creek Aquatic Macroinvertebrate Data Mining Project”

1. Background:

- 1.1 Study site: The macroinvertebrate data to be analyzed during this project were collected from Hinkson Creek, located in Boone County, Missouri. Hinkson Creek Watershed is a mixed-land-use watershed with rural (primarily agricultural) and urban (through the City of Columbia) reaches. In 1998, the Missouri Department of Natural Resources (MDNR) placed Hinkson Creek on the Clean Water Act Section 303(d) list of impaired waters for failure to fully support aquatic life. The source of the impairment was listed as “urban nonpoint lagoon runoff.” Both water body identification numbers for Hinkson Creek (MO_1007 and MO_1008) were included in the listing. The cause of impairment to macroinvertebrate communities was listed as “unspecified” pollutants (USEPA 2011). Subsequent bioassessment studies, water quality analyses and follow-up studies were unable to determine a specific cause of impairment (MDNR 2003, 2006, and others).
- 1.2 Macroinvertebrate sampling protocol (language taken directly from reference MDNR 2006): The biological assessment monitoring was conducted according to the MDNR Semi-Quantitative Macroinvertebrate Stream Bioassessment Project Procedure (SMSBPP: MDNR 2003)¹. In summary, macroinvertebrates were collected using a multi-habitat sampling method. The sampling was conducted in a stream reach approximately twenty times the average width of the stream and encompassed two riffle sequences or two meander sequences. Hinkson Creek is considered a “riffle / pool” predominant stream and, therefore, macroinvertebrate samples were collected from three predominant habitats: flowing water over coarse substrate (e.g., riffle); non-flowing water over depositional substrate (e.g., pool); and root-mat substrate. Each macroinvertebrate sample was a composite of six subsamples within each habitat. The sampling periods occurred during periods of stable base flow before peak aquatic insect emergence times. In general, macroinvertebrate sampling occurs in the spring from mid-March through mid-April and in the fall from mid-September through mid-October.
- 1.3 Biological assessment methods (language based on MDNR (2006) but with updated biological criteria tables for both MDNR sample seasons): Macroinvertebrate identifications were made to the lowest possible taxonomic level (usually genus or species) and according to MDNR-FSS-209 *Taxonomic levels for Macroinvertebrate*

¹ The SMSBPP was revised in 2012 and undergoes review every three years per MDNR policy. The most recent project procedure is available at <https://dnr.mo.gov/env/esp/SOP/Semi-quantMacroStreamBioassessmentProjectProcedure.pdf>

Identifications (MDNR 2005b)². The macroinvertebrates from each habitat were evaluated using the following metrics:

- a) **Taxa Richness (TR):**
Reflects the health of the community through a measurement of the number of taxa present. In general, the total number of taxa increases with improving water quality, habitat diversity, and habitat suitability. Taxa Richness is calculated by counting all taxa from the subsampling effort.
- b) **Ephemeroptera/Plecoptera/Trichoptera Taxa (EPT Taxa):**
Is the total number of distinct taxa within the orders Ephemeroptera, Plecoptera, and Trichoptera. This value summarizes taxa richness within the insect taxonomic orders that are generally considered to be pollution sensitive. The EPT Taxa index generally increases with higher water quality.
- c) **Biotic Index (BI):**
Developed as a means to detect organic pollution. Tolerance values for each taxon range from 1 to 10, with higher values indicating increased tolerance.
- d) **Shannon Diversity Index (SDI):**
Is a measure of community composition that takes into account both richness and evenness. It assumed that a more diverse community is a more healthy community. Diversity increases as the number of taxa increases and as the distribution of individuals among those taxa is more evenly distributed.

1.4 The above four metrics were aggregated into a single value presented as the Stream Condition Index (SCI). The SCI is calculated according to SMSBPP (MDNR 2003c) for each season and year and is based upon data collected from reference streams with the same EDU as the study stream. The SCI scores were divided into three categories. Study reaches that scored from 16-20 were considered fully biologically supporting, scores from 10-14 were considered partially biologically supporting, and scores of 4-9 were considered non-biologically supporting of aquatic life.

1.5 The study stream was then evaluated by calculating the metrics, scoring them using the scale determined in the SCI, and totaling the scores into a single value. The study stream is then ranked for aquatic life sustainability using the following criteria for Warm Water Reference Streams in the Ozark/Moreau/Loutre Ecological Drainage Unit:

² The *Taxonomic Levels for Macroinvertebrate Identifications* Standard Operating Procedure is updated every three years per MDNR policy to reflect changes in taxonomy and new taxa records for the State of Missouri. The most recent 2016 version can be found at <https://dnr.mo.gov/env/esp/SOP/MDNR-ESP-209.pdf>.

Table 1. Spring Biological Criteria Threshold Values for the Ozark/Moreau/Loutre Ecological Drainage Unit

	Score =5	Score =3	Score =1
TR	>71	71-35	<35
EPT Taxa	>17	17-9	<9
BI	<6.4	6.4-8.2	>8.2
SDI	>2.80	2.80-1.40	<1.40

Table 2. Fall Biological Criteria Threshold Values for the Ozark/Moreau/Loutre Ecological Drainage Unit

	Score =5	Score =3	Score =1
TR	>73	73-37	<37
EPT Taxa	>15	15-7	<7
BI	<6.8	6.8-8.4	>8.4
SDI	>3.18	3.18-1.59	<1.59

2. Scope of Work

- 2.1 General Requirements: The contractor shall assist the Hinkson Creek Collaborative Adaptive Management process (CAM) in the computation and interpretation of aquatic macroinvertebrate community-level indicators using the existing Missouri Department of Natural Resources (MDNR) data sets available for stream sites in the Hinkson Creek watershed (2001-2017). The data may be found on the MDNR website: https://dnr.mo.gov/mocwis_public/wqa/waterbodySearch.do, water body IDs 1007.00 and 1008.00, Hinkson Cr., Boone County.
- 2.2 The objective of these analyses and interpretation shall be to diagnose stressors causing aquatic life impairment in Hinkson Creek. Indicator metric values will be calculated and analyzed to compare stream sites and summarize trends over time.
- 2.3 All analysis and reporting shall be completed and submitted in final written form to the Boone County Resource Management Department no later than within one (1) year of the contract award date. The contract award date shall be determined after the pre-

qualification process and after the County's acceptance of project pricing. Project pricing shall be negotiated between the pre-qualified vendor and the County subsequent to pre-qualification.

- 2.4 The contractor shall understand and agree that all data collected as part of the study shall adhere to the data management plan prepared by the County, signed by the contractor, and incorporated into the contract. The contractor shall understand and agree that all data and analysis shall be considered public information.
- 2.5 The contractor must provide numerical values for macroinvertebrate community metrics and synthesis of diagnostic indicators to aid in the evaluation of causes for aquatic life impairment, as specified below:
- 2.6 Specific Task Requirements:

The contractor shall provide the following services to include but not necessarily be limited to:

- 1) Calculation of numerical values for indicator metrics at all stream sites (11 sites total) and for all time periods for the raw macroinvertebrate community data that are currently available.
 - a. Classify macroinvertebrate taxa and assign pollution tolerance values as needed for calculation of indicator metrics, including organic nutrient enrichment, deposited sediment, hydrologic stressors, trait states, and any other tolerance values available in the literature.
- 2) Determination of indicator macroinvertebrate species and site comparisons based on taxonomic presence/absence.
 - a. Analyses of existing spreadsheets using appropriate software for determining presence / absence of individual macroinvertebrate taxa among sites and between site categories (rural v. urban, Hinkson v. reference sites, etc.).
 - b. Compare presence / absence of indicator species among Hinkson Creek sites, between Hinkson and other reference sites, and trends over time.
- 3) Interpretation of resulting macroinvertebrate indicator data as follows:
 - a. Summary statistics, including statistical comparisons among sites and groups of sites (urban v. rural, Hinkson v. reference, etc.), while using appropriate scaling and data transformations where necessary
 - b. Correlation analysis between indicator metric values and environmental variables that are available for the sites from previous work (water quality parameters, habitat quality scores, hydrological variables such as flow metrics, etc.)

- c. Analysis of trends in indicator metric values over time for individual sites, groups of sites (rural v. urban, Hinkson v. reference)
 - d. Analysis of site differences and trends for stressor-specific metrics, such as those for deposited sediment tolerance, hydrologic alteration, nutrient loading, etc.
 - e. Analyses to determine “best” indicator metrics for stressor identification and assemblage of multi-metric indices for diagnosing causes for aquatic life impairment in Hinkson Creek
- 4) Develop assessment tools to aid the CAM process in further monitoring and evaluation of aquatic life in Hinkson Creek, as well as to provide materials for outreach and education, including but not limited to the following:
- a. Develop a database that includes quick public access to metric values, results of statistical comparisons, and evidence of stressor identification and aquatic life diagnosis
 - b. Identify aquatic life thresholds and risks for specific stressors where appropriate
 - c. Recommend specific management alternatives for enhancing, maintaining, and preserving the integrity of aquatic macroinvertebrate communities in Hinkson Creek

2.7 Project Work Product and Deliverables:

As a result of the contractor’s analysis, the contractor shall provide at minimum each of the following work products to the County:

- 1) A schedule of project milestones at the outset of the project;
- 2) Monthly progress/project status meetings in person or remotely, via Skype or alternative remote methods. The contractor may report progress more frequently than monthly as needed;
- 3) Development of a database (see paragraph 2.6.1(4)(a) above) immediately after the metrics have been run. Data shall be made available in accordance with the prescribed data management plan. The database shall be made available to the public via a link to the www.helpthehinkson.org website;
- 4) Provision of an interim presentation to the CAM Stakeholder Committee, Action Team, and Science Team via a single presentation on-site in Columbia, Missouri;
- 5) Finalization of the database and interpretation thereof;
- 6) Final report/presentation to the CAM Stakeholder Committee, Action Team, and Science Team via a single presentation on-site in Columbia, Missouri.