INTERGOVERNMENTAL COOPERATIVE AGREEMENT FOR THE HINKSON CREEK SYNOPTIC SAMPLING 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 _____, 2020, 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 Synoptic Sampling Project".

Whereas, the University will enter into the contract/memorandum of understanding with a consultant to perform work for the project.

Whereas, the University will provide the City and the County 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 Synoptic Sampling Project" as described in the attached Exhibit B. This project has a total not to exceed amount of $39,855.00, with each of the parties' total proportionate one-third costs not to exceed $13,285.00. 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 University, 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 Exhibits A and 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, 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.

_____
Matthew Lue, 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.

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
Cavanaugh Nace

BOONE COUNTY, MISSOURI

By: _____
Dan Atwill, Presiding Commissioner

ATTEST:

_____
Wendy Noren, County Clerk

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 0 5 2013
PJH
General Counsel via EMAIL

163 -2013

CERTIFIED COPY OF ORDER

STATE OF MISSOURI } ea.
County of Boone

April Session of the April Adjourned Term. 20 13

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.

Daniel K. Atwill
Presiding Commissioner

Karen M. Miller
District I Commissioner

Janet M. Thompson
District II Commissioner

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

Exhibit B

Hinkson Creek Synoptic Sampling Project

Dr. Alba Argerich, MU Limnology Lab, School of Natural Resources, University of Missouri

1. RATIONALE

Hinkson Creek watershed is a multi-land-use watershed located in Boone County, Missouri that runs through the city of Columbia and MU property. Hinkson Creek has failed to meet water quality standards for aquatic life since 1998, and, despite several studies conducted in the past (Hooper, 2015; Hubbart, Hooper, Hosmer, & Hogan, 2014; Lea, 2013), the causes for the impairment are still unknown.

One of the hypotheses for the impairment is the **increased stormwater volume** resulting from urbanization and consequent increase in impervious surfaces which

a) increases channel erosion and sediment transport which adversely affect aquatic organisms, and
b) decreases stream water quality by allowing pollutants to arrive to the Creek faster, limiting the opportunities for transformation and retention.

Another hypothesis for Hinkson Creek impairment is contamination due to **road salt applications**.

Hinkson Creek water quality data is limited both regarding spatial and temporal coverage (although see Kellner & Hubbart, 2018; Zeiger & Hubbart, 2017, 2018). To build upon previous efforts, Argerich and collaborators, have designed and implemented a monitoring plan with **broad spatial coverage and spanning different hydrologic conditions to capture pollutant hotspots and hot moments at the Hinkson main stem and tributaries**. We hypothesize that multiple stressors impact the Hinkson and that the relative importance of these stressors will vary spatially, in response to land use and geomorphology, and temporally, in response to precipitation and temperature.

2. SAMPLING SCHEME

- The sampling lasts two hours and occurs four times per year.
- We sample a minimum of 30 sites at the main stem and 10 sites at the tributaries (Fig 1).
- Water samples are analyzed for chloride, specific conductivity, total nitrogen, nitrate, ammonium, total phosphorus, soluble reactive phosphorus, and dissolved organic carbon. We would like to incorporate the analysis of suspended sediments to inform about erosion processes.

3. PREVIOUS RESULTS

We have sampled on five occasions. Results show a decrease in phosphorus and nitrogen concentrations and increasing chloride concentrations as we move downstream, except for June 2019 when total phosphorus remained high throughout the stream. Highest and lowest chloride concentrations have been seen on June 2018 and June 2019, respectively, under contrasting flow conditions (0.3 cfs vs. 214 cfs). Current funding will cover another sampling event which is scheduled for mid—October.

Since our results indicate a strong dependence of water quality on hydrological conditions, **we propose to extend the monitoring another year**, to be able to capture water quality changes across a broader range of streamflow.

4. COST

Cost of the analyses of 160 samples for:	Price
Total nutrient (Total Phosphorus, Total Nitrogen)	$5,859
Readily bioavailable nutrients (Soluble Reactive Phosphorus, Nitrate, Ammonium)	$6,835
Suspended sediment analyses	$3,782
Specific conductivity and chloride	$3,452
Total Direct Costs per year	$19,928
Total Direct Costs per 2 years	$39,855

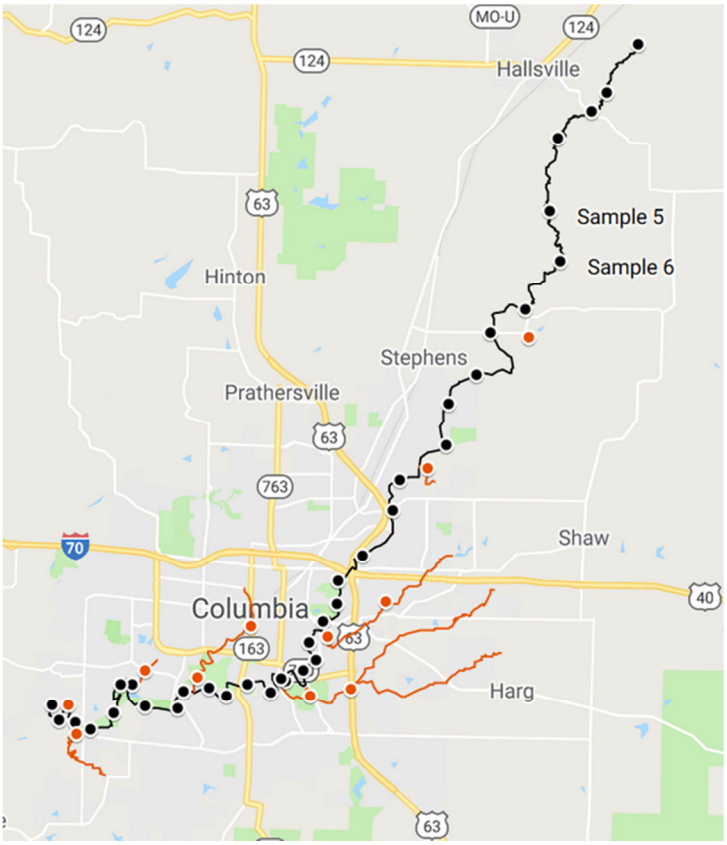

Fig. 1 Sampling sites

REFERENCES

Hooper, L. W. (2015). A stream physical habitat assessment in an urbanizing watershed of the Central USA: University of Missouri-Columbia.

Hubbart, J. A., Hooper, L. W., Hosmer, G., & Hogan, M. (2014). Hinkson Creek Collaborative Adaptive Management. Physical Habitat Assessment. Phase II: Field Component. http://www.helpthehinkson.org/documents/CAMPHAFinalReport_03-01-2015.pdf

Kellner, E., & Hubbart, J. A. (2018). Spatiotemporal variability of suspended sediment particle size in a mixed-land-use watershed. Science of the Total Environment, 615, 1164-1175.

Lea, R. (2013). Hinkson Creek Collaborative Adaptive Management. Physical Habitat Assessment. Phase I: GIS Data Development. http://www.helpthehinkson.org/documents/Hinkson%20GIS%20Technical%20Report%20Final.pdf

Zeiger, S. J., & Hubbart, J. A. (2017). Quantifying flow interval–pollutant loading relationships in a rapidly urbanizing mixed-land-use watershed of the Central USA. Environmental Earth Sciences, 76(14), 484.

Zeiger, S. & J. Hubbart (2018). "Assessing the Difference between Soil and Water Assessment Tool (SWAT) Simulated Pre-Development and Observed Developed Loading Regimes." Hydrology 5(2): 29.