

**MEMORANDUM OF UNDERSTANDING
BETWEEN
THE IOWA DEPARTMENT OF NATURAL RESOURCES
AND
THE CITY OF MUSCATINE, IOWA**

This Memorandum of Understanding (MOU) between the Iowa Department of Natural Resources (DNR) and the City of Muscatine, Iowa (City) is effective on the 4th day of October, 2021.^{As}

1. **Purpose.** The purpose of this MOU is to establish a framework for the City to engage in watershed support within Muscatine County. The focus of any work under this agreement will be in Copperas Duck watershed (Hydrologic Unit Code (HUC) 07080101), and those portions of the Lower Cedar watershed (HUC 07080106), where the watersheds fall within the boundaries of Muscatine County. Any quantifiable nutrient reductions in these watersheds may be used for the benefit of the City's nutrient reduction targets through National Pollutant Discharge Elimination System (NPDES) permitting. The City may use this framework to achieve compliance with current requirements arising from the Iowa Nutrient Reduction Strategy (NRS) and any future nutrient reduction requirements that are imposed on the City. In exchange for utilizing this framework, the City will receive certainty from the DNR regarding compliance with future nutrient reduction permit requirements.

2. **Background.** The Iowa NRS was developed to reduce excess nutrients in Iowa's surface waters. Under the Iowa NRS, wastewater treatment plants are tasked with specific nutrient reduction goals. The Iowa NRS supports the development of water quality credit trading between two or more entities, commonly a point source which is mandated to achieve a permit goal and one or more nonpoint sources who voluntarily collaborate with the point source to reduce the amounts of nitrogen and phosphorus entering a water body. Trading can provide a means to improve water quality, especially in cases where the technology does not exist or is not affordable or feasible to allow a point source discharger to comply with permit requirements or where the same or greater pollutant reductions can be achieved more quickly or at lower cost through implementing Best Management Practices (BMPs) or other nutrient reduction efforts.¹

The City of Muscatine recognizes that nutrient discharges from its Water & Resource Recovery Facility (WRRF) comprise only a fraction of the total nutrient

¹ The United States Environmental Protection Agency also supports water quality trading, offsets and similar programs to achieve compliance with regulations, in particular using land management strategies for implementing market-based programs within a watershed, as most recently stated in the EPA February 6, 2019 Memorandum titled "Updating the Environmental Protection Agency's (EPA) Water Quality Trading Policy to Promote Market-Based Mechanisms for Improving Water Quality."

loading to the Mississippi River. While the City is proud to do its part by working to achieve the point source goals of the Iowa NRS, it also recognizes that the overall goals of the NRS cannot be achieved without significant reductions from nonpoint sources in the watershed as well. The City desires to foster and encourage nutrient discharge-reducing activities upstream of the Muscatine WRRF by supporting the activities of willing landowners, and by undertaking projects itself where appropriate.

In support of the Iowa NRS's goals and policy statements and in partnership with the Iowa League of Cities, the DNR established a Nutrient Reduction Exchange (NRE), a tool for registration of practices implemented in a watershed that reduce Nitrogen (N) and Phosphorus (P), for registration of the modeled nutrient reductions of those practices, and that are thus available for offsets or trading. This MOU is designed to build on the Iowa NRS policy and goals, and the establishment of the NRE, to provide the City with a well-defined path to achieving regulatory compliance and regulatory certainty through the implementation of watershed-based nutrient reduction practices.

3. **Goal.** The goal of this MOU is to provide the City with regulatory certainty by allowing the City to utilize nutrient load reductions achieved through implementation of BMPs and/or other nutrient reduction efforts in the watershed to offset nutrient reduction targets required in the City's current (NPDES Permit No. 7048001) and future NPDES permits, or to bank environmental outcomes of nutrient reducing practices to offset future permit requirements.
4. **General Areas of Agreement.**
 - A. **Use of Nutrient Reducing Practices as Offsets.** Provided that the terms of this agreement are followed, the City shall be able to utilize nutrient reducing practices as offsets (Nutrient Reduction Offsets) towards its requirements for nutrient reduction under an NPDES permit, in accordance with the terms of this MOU. Nutrient reducing practices (such as BMPs) built or implemented as part of a watershed plan will be considered as described below.
 - B. **Monitoring and Modeling.** The City may develop a monitoring strategy to assess overall N and P concentrations in-stream and to document progress toward nutrient reductions within the watershed. However, progress towards nutrient reduction will be based on modeling using the Nutrient Tracking Tool (NTT) provided by the U.S. Department of Agriculture's Environmental Markets Division, or another mutually agreed upon model, as further set forth below.

For urban practices, the City may present the DNR with a proposal for new infrastructure and an analysis, using one or more models then in use by the civil engineering community, of the expected reduction in N, P or Total

Suspended Solids (“TSS”). Based upon this proposal, the DNR and City shall agree upon a rate of Nutrient Reducing Offsets that may be applied toward the NPDES permit.

- C. **Baselines.** Baselines for measuring environmental outcomes resulting from watershed management activities will be established at the outset of this MOU, prior to the implementation of any new BMPs and/or other nutrient reduction efforts by the City. The baselines will be set through the calculation of point and nonpoint source loads of N, P, and sediment as estimated using NTT modeling. For nutrient reducing practices, baseline conditions may be further defined in terms of geographic scale, existing conservation practices, and schedule of implementation to facilitate improved environmental performance to achieve nutrient load reductions. Agricultural nonpoint source baselines will be established using pre-existing field management data. Baseline data will be verified using the NRE guidelines and will be stored within the NRE system as a part of the NTT model runs. Baseline conditions shall be established at the field scale prior to the City-connected implementation of any BMP on a given field.
- D. **Future Mandated Practices.** In order to recognize investments made by the City towards NRS reduction goals, and to reward leadership, if a BMP, urban practice or other nutrient reduction effort funded under a watershed project subsequently becomes mandated by local, state or federal law, the N, P, and TSS reductions associated with that BMP, urban practice or other nutrient reduction effort will continue to be credited to the City if allowed under the new law, provided that the BMP, urban practice or other nutrient reduction effort continues to be viable with ongoing maintenance or rehabilitation, verified, and within the useful life of the practice.
- E. **Total Suspended Solids.** BMPs and other nutrient reduction efforts put in place to address P will also generally be effective in reducing TSS. Where necessary and when correlated within a watershed, P reductions will be used as a surrogate for TSS reductions. TSS reductions, in addition to N and P reductions, can be considered, if applicable and consistent with state and federal law.

5. **Watershed-Based Nutrient Reduction Plan.**

- B. **Outlining the City’s Goals.** Every five years following the adoption of this MOU, the City must submit a watershed-based nutrient reduction plan or a document that explains the City’s approach for implementing BMPs and/or other nutrient reduction efforts within the watershed to achieve nutrient reductions within the permit timeframe. Each watershed-based nutrient reduction plan will outline a targeted strategy for implementing the City’s Nutrient Reduction Program to ensure maximum efficiency in the use of City

funds invested in BMPs and/or other nutrient reduction efforts. Existing HUC 8 and HUC 12 level Watershed Management Plans (WMP) may serve as a Watershed-Based Nutrient Reduction Plan, provided the WMP meets the Plan Requirements specified below.

- B. Plan Requirements.** A watershed plan must include an analysis of the following:
- (1) identification of appropriate watershed management within the City's designated watershed focus (here, the Copperas watershed and portions of the Lower Cedar watershed),
 - (2) a discussion about how the City will attempt to achieve nutrient reduction through BMPs and/or other nutrient reduction efforts and landowner engagement,
 - (3) an estimation of load reductions expected from implementation of new BMPs and/or other nutrient reduction efforts,
 - (4) how the practices will be maintained over the design life of the practice,
 - (5) an expected project schedule during the permit term, and
 - (6) a description of how the City will monitor and track the effectiveness of the City's BMP implementation schedule.
- C. Location.** The City may select one or more areas in the Copperas Duck watershed (Hydrologic Unit Code (HUC) 07080101), and those portions of the Lower Cedar watershed (HUC 07080106), where the watersheds fall within the boundaries of Muscatine County for its Watershed-Based Nutrient Reduction Plan.
- D. Practice Criteria.** BMPs and/or other nutrient reduction efforts identified in a watershed plan shall be installed and maintained according to Natural Resources Conservation Service (NRCS) or Iowa Department of Agriculture and Land Stewardship (IDALS) technical standards. Work shall be done in accordance with generally accepted engineering practices and the City shall document the NTT-modeled estimates of pounds/tons reduced as compared to nutrient and sediment loading conditions prior to the installation of a BMP or other nutrient reduction effort. Novel practices not included in NRCS or IDALS standards may be used, as long as the nutrient reductions they produce can be modeled using the NTT, are consistent with the NRS, and approved by the DNR and Iowa State University (ISU) technical reviewers. Other models or methods to calculate nutrient reductions may be substituted for NTT modeling as deemed appropriate, subject to agreement by the parties to this MOU.

For urban practices, the Iowa Storm Water Management Manual (ISWMM) will be used for technical guidance.

6. **Partnerships, Contractual Relationships, Watershed Management Authorities, Third-Party Designees, and Other Arrangements.** Under this MOU the City is permitted to implement the activities defined by its Watershed-Based Nutrient Reduction Plan(s) through a partnership, contractual relationship, Watershed Management Authority, Third-Party Designee (such as the Soil and Water Outcomes Fund), or other arrangement. In these instances, the City shall maintain the right to register practices implemented through arrangements in which City funds were utilized.

7. **Determining Achievement of the City's NRS Goals, Interim Progress, and Usable Nutrient Load Reductions.**
 - A. **Method of Determining NRS Goals Achievement Progress.** Interim progress, final achievement of the City's NRS goal and usable nutrient load reductions will be determined using the best available modeling tools. Currently, BMPs will be modeled at the field scale using the NTT. Other models or methods may be substituted as deemed appropriate, subject to agreement by the parties to this MOU.

 - B. **Offset and Practice Eligibility.** Implemented BMPs shall be recorded on the NRE. In general, the City shall provide experienced personnel to be trained in the NTT, to model BMPs and/or other nutrient reduction efforts through the NTT (or other approved model), obtain verification and approval from ISU or the DNR designee, and to confirm and document practice construction completion and record NTT results into the RIBITS system. The DNR shall accept the NTT-modeled load reductions of the BMPs or other nutrient reduction efforts within RIBITS and issue a letter establishing the validity of the practices. These may be used by the City as an offset in a one-to-one ratio to contribute to its NRS goals or may be used in other regulatory formats so long as the practice has been maintained and is functioning as designed. Upon receipt of the verification and approval of the model run by ISU (or the DNR designee), the DNR shall have sixty (60) days to review, comment, and issue a letter establishing the validity of the nutrient load reductions claimed or request modifications.

 - C. **Interim Progress for NRS Goals.** During the term of this MOU, the City shall provide annual progress reports to the DNR detailing its progress in the watershed, the BMPs and/or other nutrient reduction efforts implemented, verification of ongoing practices, and the nutrient load reductions obtained. To the extent nutrient load reductions were committed as offsets towards use in the City's NPDES permit requirements, the report shall identify overall progress towards the 5-year goals for N and P reductions, as well as what percentage of reductions come from technological improvements versus work in the watershed. DNR also expects the report to sum the load reductions (i.e., pounds) in each year for each of the pollutants at issue (e.g.,

N and P). This should not require additional calculations, instead merely summing already quantified pounds of nutrient load reductions used as reported in the state's NRE registry/tracking system.

D. **Achieving Total NRS Goals.** The City will continue to submit feasibility studies regarding a technological approach to achieving the point source NRS goals at the Muscatine WRRF. This agreement does not supersede the requirement for such a study.

E. **Future Requirements.** If the City implements a watershed plan in accordance with this MOU, DNR agrees not to impose any additional nutrient reduction requirements during the plan implementation term unless required to do so by law.

F. **Look Back Period.** For purposes of nutrient reducing practices, the City may record modeled nutrient reductions from BMPs implemented since May 2013 in the NRE, as outlined above. However, the City must be able to fully document the field conditions prior to the City-initiated BMPs. These nutrient load reductions may be applied to the nutrient reduction goals committed to by the City, and ongoing practices may continue to be used for offsets.

8. **Termination of Agreement.** This MOU shall be in effect unless modified or terminated by mutual agreement of the parties, or the DNR elects to terminate this MOU to coincide with the expiration of the City's next NPDES permit by providing written notice to the City at least one-hundred eighty (180) days in advance of the current permit's expiration. Such unilateral termination by the DNR shall only be made based on changes in regulatory requirements duly adopted.

9. **Notice.** All notices under this Agreement shall be in writing and shall be deemed to have been given: (i) upon hand delivery or (ii) if sent by Regular Mail, within seventy-two (72) hours after the notice has been deposited in the United State Post Office, postage paid. Notices shall be sent to the other party at the addresses set forth below. Either party may change its address by giving notice in writing thereof to the other party.

For the City:
Director of WRRF
City of Muscatine
1202 Musser Street
Muscatine, Iowa 52761

For DNR:

Iowa Department of Natural
Resources
Environmental Services Division
Field Office #6
1023 W Madison St
Washington, Iowa 52353-1623

10. **Governing Law/Severability.** This MOU shall be governed by and construed in accordance with the laws of the State of Iowa. Any provision of this Agreement which is found to be invalid, void, or illegal shall in no way affect, impair, or invalidate any other provision hereof; and the remaining provisions hereof shall nevertheless remain in full force and effect.
11. **Amendments.** This MOU may be amended at any time by mutual agreement of the parties. Amendments to this MOU must be in writing and signed by both parties.

IN WITNESS WHEREOF the parties hereto have caused this instrument to be executed by their duly authorized representatives.

CITY OF MUSCATINE, IOWA

IOWA DEPARTMENT OF NATURAL
RESOURCES

By: 
Carol Webb (Oct 1, 2021 15:23 CDT)

Its: City Administrator

By:  Digitally signed by Kayla Lyon
Date: 2021.09.30 11:24:03
-05'00'

Its: Director

