

**PROGRAM STRATEGY
ALTERNATIVE OFFSITE STORMWATER TREATMENT
CITY OF MANHATTAN, KANSAS**

Adopted October 14, 2025

The City of Manhattan (“City”) has authorized an Alternative Offsite Stormwater Treatment Program (“Program”).

This document presents the City’s strategy (“Strategy”) for obtaining pollutant removal credits from targeted offsite agricultural conservation practices from offsite areas within the regional watershed. Credits will be obtained to mitigate for annual pollutant loads from enrolled developments inside the city limits of the City of Manhattan.

Preparation and implementation of this Strategy is the responsibility of the City’s director of public works (“Director”). The Strategy will be updated periodically as experience is gained with the Program, subject to Kansas Division of Health and Environment (KDHE) approval.

A. General Strategy & Background

The Program provides site developers with the option to pay a one-time fee as an alternative to meeting requirements for onsite post-construction stormwater treatment. Program fees paid by developers fund incentive payments for the pollutant-reduction best management practices (“BMPs”) of agricultural properties outside the City but within the City’s watershed.

To achieve the offsets, the Program will fund and coordinate the BMPs of agricultural land areas within the regional watershed, in accordance with the adopted Strategy. The proposed Strategy incentivizes agricultural producers to adopt BMPs to obtain pollutant removal to a greater degree than would be realized in the absence of the Program by utilizing the following practices:

- Cover crops with herbicide management
- No-till with herbicide management
- Vegetated buffers on cropland
- Rehabilitation of existing terraces on cropland

The Strategy builds on background and analyses prepared in a Feasibility Study by Dr. Trisha Moore of the Carl and Melinda Helwig Department of Biological and Agricultural Engineering at Kansas State University and documented in two memoranda: *City of Manhattan Alternative Stormwater Compliance Program, Memo 1: Program Objectives and Recommended Policies (6/24/2025)* and *City of Manhattan Alternative Stormwater Compliance Program, Memo 2: Fee Structure and Recommendation (6/24/2025)* (“Feasibility Study”).

The Strategy was developed with input from local county conservation districts and applicable stakeholders managing the Watershed Restoration and Protection Strategies (WRAPS) for both the Tuttle Creek Reservoir and the Middle Kansas River watersheds.

This Strategy supplements other regulatory and implementation documents for the Program, including the Program Standards which are proposed separately as an amendment to the City's design criteria and standard specifications. The launch of this Program is subject to approval by KDHE based on requirements of the City's permit for stormwater discharges from our Municipal Separate Storm Sewer System (MS4), all of which is under the jurisdiction of the National Pollutant Discharge Elimination System (NPDES) as administered by the Environmental Protection Agency (EPA). The relevant permit numbers are: KDHE Permit M-KS38-SN01, and Federal permit KS4440012.

B. Implementation

1. Based on the recommendations of the Feasibility Study, the Director finds that total suspended solids (TSS) loading is the primary pollutant of concern generated from urban development within the City and that TSS loading is also the most suitable surrogate for managing two other pollutants of concern, nutrients and bacteria. Nutrients are recognized as a specific stream impairment with Total Maximum Daily Load (TMDL) regulation for the Kansas River and the Big Blue River. Bacteria is recognized as a specific stream impairment with TMDL regulation for the Kansas River, the Big Blue River and Wildcat Creek. Sedimentation, which is related to TSS concentrations upstream, is a known impairment to Tuttle Creek Lake, located on the Big Blue River.

2. As described in the Program Standards, the pollutant loads and corresponding pollutant removal efforts under this Program will all be measured in units of "Equivalent Commercial Acre" (ECA). Per calculations contained in the Feasibility Study, the estimated TSS loading from one ECA is 0.233 tons (466 pounds) per year. KDHE requires that offsite BMPs to offset the Development's urban stormwater pollutant be provided at a minimum 2 to 1 ratio. Therefore, the target level of pollutant removal required from offsite BMPs is 0.466 tons (932 pounds) TSS annually per ECA enrolled ("ECA Offset").

3. To secure the ECA Offset, the City will execute conservation incentive contracts with agricultural producers ("Producers") to undertake these BMPs. The Director will recruit and recommend Producers to ensure reliable production of offset credits. The form of contract used will be approved by the City Attorney and all contracts will be approved in accordance with the city's procurement policy.

4. A schedule will be maintained that lists each of the agricultural BMPs approved for use and which relates the quantity of each designated offsite BMP to the pollutant reductions estimated and the credit to be given. The initial schedule of credits is listed in Table A, attached hereto and based on available science documented in the Feasibility Study. The schedule may be updated periodically without otherwise amending the Strategy to reflect variations or refinements and to reflect updated cost trends. The most current version of the schedule will be posted on the City's website and available on file with the City Engineer.

5. Offset credits may only be earned through, and the Program will only support, BMPs occurring within the watersheds located within an area shown in Figure 1 of this Strategy, generally described as within Riley, Pottawatomie, Clay, Washington, and Marshall Counties,

provided that those lands are tributary to any of the following water bodies: (a) Wildcat Creek; (b) the Kansas River between Ogden and St. George, from either the left or right banks; or (c) the Big Blue River or its major tributaries from areas downstream of US-36 Highway to the confluence with the Kansas River, including Tuttle Creek Reservoir. Land within the Fort Riley Military Reservation is excluded from the focus watershed. The Director will verify and interpret watershed boundaries to determine the eligibility of any proposed BMP for the Program. Priority will be given to Producers proposing BMPs within Riley and Pottawatomie Counties.

6. Incentive contracts are based on cost-shares between the Producer and the City, as follows:

a. When the City's funding is estimated to cover only a share of the total cost to implement the BMPs, the Director will only claim offset credits to the City in proportion to the funding share provided.

b. To ensure higher-cost practices that achieve multiple benefits remain competitive, in cases where a Producer receives multiple incentives for the same BMP, but other incentives are based on separate benefits provided (such as wildlife habitat, carbon sequestration, etc.), the portion of costs associated with other benefits may be reduced from the implementation cost before calculation of the ratios to determine the number of offset credits the City may claim.

7. The Director will monitor the performance of Producers under contract with the City and will prepare an annual report to document the performance of the Program, suitable for reporting to the governing body and KDHE.

8. The Director anticipates procuring separate contracts with Kansas State University and with one or more qualified water conservation organizations to assist in the performance of tasks outlined in this Strategy, the Program Standards, or through any adopted ordinance or resolution relating to the Program.

9. To estimate the necessary fees for this Program, the Director finds that the assumptions and recommendations contained in the Feasibility Study are reasonable. The cost basis set forth therein included a mix of initial practices with an average annual cost of \$210/ECA in current-year (2025) prices, including an annual budget for administration, technical support, and a contingency for uncertainty. Annual costs are then extrapolated to a long-term present worth value of \$11,551 per ECA utilizing a 100-year analyses period and conservative discount rate that takes additional future risks into account.

10. The Director intends that this fee will be increased regularly for inflation and based on actual experience with deploying and conducting the Program. Fees are established by the governing body through the adoption of a Resolution.

11. Revenues generated by this program will be segregated and regular reporting provided.

12. For purposes of efficiency, the Director may pursue and fund BMPs in any given year that generate more or fewer offset credits than are required by the annual ECA Offset requirements. Any offset credits earned in advance of need will be utilized during later years for compliance. Similarly, any unavoidable deficits will be remedied in subsequent years as quickly as practicable.

Adopted:



Brian Johnson, P.E., Director of Public Works/City Engineer	10/14/2025
	Date

Revision History: A version of this strategy was circulated for public comment in August and September 2025. Final revisions included an updated map and additional standards and restrictions in Table A related to fields with drainage tile and to fields on steeper slopes. Incremental updates Table A may be issued in the future without otherwise amending the strategy.



Figure 1: Map of the Target Watersheds for Implementation of Alternative Offsite Stormwater Treatment Measures

Table A
Schedule of Values for Offsite Practices
(Adopted 10/14/2025, see note 6)

Agricultural Offsite BMPs	Annual Est. TSS Retention (tons/ac of practice/yr)	Annualized cost basis for practice (\$/acre of practice /yr)	Cost Incentive Percentage for Contracting (% of total cost offered as incentive)	Cost per ton sediment retained (\$/ton) (3)
Cover crops + herbicide management (on fields where no-till is already established as a base practice) (see note 5)	0.24	\$76.25	TBD (2)	\$317.71
No-till + herbicide management (see note 5)	1.44	\$55.80	TBD (2)	\$38.75
Terrace rehab (see note 1 and 4)	0.48	\$112.61	TBD (2)	\$234.60
Vegetated buffer – cropland (see note 1)	0.96	\$87.02	TBD (2)	\$90.65

Notes:

1. Terrace rehabilitation and vegetated buffers are linear practices, and the cost per acre is reflective of an average condition. Actual estimates of sediment retention and cost of practice may be varied based on individual evaluations of target fields by the City’s conservation professional.
2. The percentage of cost incentive to offer relative to the estimated true cost of each practice is yet to be determined and will be based on market standards for each practice.
3. The estimated annual TSS removal for each practice was based on the literature review as documented in the Feasibility Study, as was the annualized cost basis for each practice using 2025 price levels. The cost per ton of sediment is calculated from these values. For example, for the cover crop line, Cost per ton = (\$76.25 \$/acre of practice/year) / (0.24 tons/acre of practices/year) = \$317.71 \$/ton.
4. Terrace rehabilitation will be limited to traditional terraces; rehabilitation or installation of tile-drained terraces is not eligible due to adverse water quality and runoff characteristics associated with tile drains.
5. In the case of fields with steeper slopes, fields should have appropriate traditional terraces or other erosion management practices to be eligible for incentives for cover crops or no-till. “Steeper slopes” will generally be those greater than 3 to 5 percent in slope, subject to evaluation by the City’s conservation professional.
6. As noted in section B.4 of this strategy, this Table A may be revised from time to time without otherwise amending the strategy. Contact the City of Manhattan Public Works Department to obtain the latest revision.