

**MEMORANDUM OF UNDERSTANDING
FOR PARTICIPATION IN POLLENSENSE:
SPATIAL DECISION-MAKING SYSTEM FOR
CITY-LEVEL MANAGEMENT OF AIRBORNE
ALLERGY AND ASTHMA TRIGGERS
IN OKLAHOMA**

Pursuant to this Agreement, **The City of Oklahoma City (“City” or The City)** and the **University of Oklahoma (“OU”)**, hereby agree as follows:

WITNESSETH:

WHEREAS, The City is a municipal corporation organized and existing under the laws of the State of Oklahoma; and

WHEREAS, OU is a comprehensive research university in the State of Oklahoma, conducting an allergen study using Earth Observations within the City of Oklahoma City; and

WHEREAS, despite decades of emission and control measures, ambient air pollution - including pollutants such as ozone (O₃) and particulate matter (PM), along with the impacts of climate change, such as extreme heat, cold and severe storms, remain a significant concern in the Southern Great Plains; and

WHEREAS, A Research Team assembled by the City and OU will plan, organize, provide data collection tools, analytics, and prepare the results from this project; and

WHEREAS, OU's Summary Report will be a geographically specific, scientific analysis of the impact of air pollutants and allergens within The City's neighborhoods, identifying those areas that suffer from more airborne allergy and asthma triggers due to environmental triggers that arise from both human activities and natural sources; and

WHEREAS, the health repercussions of such triggers are detrimental, leading to respiratory issues, cardiovascular problems, and other adverse health effects among the population; and

WHEREAS, despite efforts to mitigate emissions, the complex interplay of various factors continues to challenge effective management in the region; and

WHEREAS, addressing this issue necessitates a multifaced approach involving further regulatory measures, technological advancements and public awareness campaigns to safeguard both human health and the environment; and

WHEREAS, additionally, the Southern Great Plains, situated at a biological transition zone within the continent, spans from the deciduous forests in the east to the short grass prairie in the west, fostering a rich and well-defined floral diversity. This geographical positioning renders the region particularly vulnerable to the effects of climate change on its diverse flora, leading to an escalating release of allergenic pollen; and

WHEREAS, over 50 million Americans suffer from allergic diseases, imposing an annual burden of more than \$18 billion on the U.S. healthcare system. Asthma emerges as a prevalent chronic ailment among children, impacting nearly 4.8 million residents nationwide, a condition that stands as a leading factor behind school absenteeism and pediatric hospitalizations. Links have been drawn between allergy and asthma exacerbations and exposures to mold, pollen and household dampness, alongside the detrimental effects of air pollution; and

WHEREAS, despite some recognized impacts of these triggers, very few studies have comprehensively investigated allergenic pollen emissions alongside traditional environmental triggers such as air quality, extreme weather, etc. Most studies have focused on site-specific air quality or pollen monitoring only, which provide limited insights into the broader patterns of air pollution distribution across large areas. Additionally, it is difficult to forecast future emission scenarios under climate change, although such information is important for local communities who are exposed and vulnerable to respiratory diseases – such as the school manager who makes decisions on reducing school absenteeism, as well as local government, in its attempts to improve air quality and reduce pollen levels via synergistic monitoring and forecasting, as well as better land use planning; and

WHEREAS, this Memorandum of Understanding between The City and OU will allow the leveraging of advanced techniques from various areas including the satellite observation product, the state-of-the-art atmospheric dynamic model, and traditional long-term pollen and meteorological measurements, (e.g., Mesonet, mobile sensors from CAPA campaigns, DEQ monitoring) to mitigate air quality issues in Oklahoma City and tribal nations; and

WHEREAS, OU and The City desire to enter into this MOU to outline their binding agreement and to outline their responsibilities under the Project.

NOW, THEREFORE, in consideration of the covenants and representations made below, and the above recitals, which are incorporated herein by reference and made an essential part of this MOU, the Parties agree as follows:

SECTION 1. OU's OBLIGATIONS AND RESPONSIBILITIES

To ensure a successful Project, OU agrees to perform the following, during the three-year period of this Agreement while working closely with The City to mitigate airborne triggers for allergy and asthma, including air pollutants, extreme weather, and pollen emissions, aligning with the City's adaptive sustainability plans.

- A. Develop and validate an innovative environmental quality simulation and forecasting system, capable of analyzing and predicting the temporal and spatial distributions of air pollutants, weathers, as well as pollen concentrations based on various types of land cover observed from Earth.
- B. Integrate socioeconomic and demographic data with aerosol species distributions and pollen concentrations to establish a spatial decision-making system for assessing the vulnerability to respiratory disease.
- C. Utilize a tripartite consultation model, involving diverse stakeholders, including local government, healthcare providers, and community members, to refine and enhance the spatial decision-making system, to tailor it to specific end-users, and to inform different potential policy-making scenarios.

SECTION 2. THE CITY'S OBLIGATIONS AND RESPONSIBILITIES

To ensure a successful Project, The City agrees to work with OU to take steps to mitigate airborne triggers for allergy and asthma, including air pollutants, extreme weather and pollen emissions, in alignment with the City's adaptive sustainability plans. T.O. Bowman and Sarah Terry-Cobo, in The City's Planning Department, will serve as collaborators and consultants on this Project, and will specifically perform activities which include:

- A. Acting as end users for the spatial decision-making platform developed through the grant for addressing air pollution and pollen emission issues;
- B. Publishing project data as provided by OU on The City's Open Data Portal;

- C. Coordinating connections between the research team and the City; and
- D. Providing advisory services as representatives of the local government.

SECTION 3. COMPENSATION AND RELATED MISCELLANEOUS

OU will compensate The City for the professional services of its Planning Department Office of Sustainability at the rate of \$5,000 per year.

- A. The City agrees to provide the services outlined in *Section 2. The City's Obligations and Responsibilities* of this MOU.
- B. OU will pay The City \$5,000 per year, totaling \$15,000 over the three years of this MOU.
- C. Payments will be made annually via the University of Oklahoma, made payable to The City of Oklahoma City, and mailed to The City of Oklahoma City, Planning Department, 420 W. Main, Suite 1040, Oklahoma City, Oklahoma 73102, c/o T.O. Bowman.
- D. Receipt of payment from OU will be confirmed within 30 days of written notification of its mailing, unless receipt by The City occurs earlier.

SECTION 4. TERM OF AGREEMENT

The term of this agreement is from the date of the last signature on this executed agreement through June 30, 2027, or sooner if the work that is the subject of this Memorandum of Understanding has been completed. By agreement of the Parties, this MOU may be amended and/or extended for mutually agreeable terms, provided such extensions are in writing and executed by all Parties.

SECTION 5. CHANGES TO THIS AGREEMENT

No changes or amendments may be made to this Agreement unless mutually agreed upon by both Parties, made in writing, and executed by both Parties.

SECTION 6. NOTICE

All notices, requests, demands and other communication shall be in writing and sent by electronic mail, overnight delivery, registered mail, certified mail, or hand delivery, addressed to the Party's principal place of business herein written. Either Party may inform the other, by notice in writing, to direct future notices, requests, or demands to be sent to a different address. Notices

shall be deemed given at the time of delivery. The Authorized Representatives of each Party are the following:

To OU: Dr. Laurel C. Smith
Department of Geography and Environmental
Sustainability 100 East Boyd St. SEC 510
Norman, Oklahoma 73019

To The City: T.O. Bowman
The City of Oklahoma City, Planning Department
420 W. Main, Suite 1040,
Oklahoma City, OK 73102

SECTION 7. AUDIT

OU and The City shall retain all books, records, and other documents relevant to this agreement for one (1) year after the end of each year included in this MOU. The City shall maintain full confidentiality of all said materials, including this MOU, held or maintained by OU or The City, during said period.

SECTION 8. RELATIONSHIP OF THE PARTIES

The Parties to this Agreement are not joint venturers, partners, agents, nor representatives of each other, and such Parties have no legal relationship other than as contracting Parties to this Agreement.

- A. The City shall not act or represent or hold itself out as having authority to act as an agent or partner of OU or in any way attempt to bind or commit OU to any obligations, without the prior written consent of OU.
- B. Each Party hereto represents and warrants to the other that it has the authority to enter this MOU, and that it is not a Party to any other Agreement which prohibits it from entering into this MOU, or which renders any provision of this MOU ineffective or unenforceable.

SECTION 9. LIMITATION OF LIABILITY

In no event whatsoever, regardless of cause or circumstances, shall OU be liable for any consequential, incidental, indirect or exemplary damages, either real or alleged, including any losses from equipment downtime. Under no circumstances shall The City, or any other person,

recover from OU for any claims or damages, other than breach of contract as determined by an Oklahoma Court of competent jurisdiction.

SECTION 10. APPLICABLE LAWS AND COURTS

In the event any dispute shall arise out of or relating to this MOU and negotiation is unsuccessful, The City and OU agree to use good faith efforts to settle the dispute through mediation, costs for which will be assumed equally, prior to resorting to arbitration and/or litigation processes and procedures. This MOU shall be governed by the laws of the State of Oklahoma without reference to any conflict of laws principles thereunder.

SECTION 11. PAYMENT FOR SERVICES

The City agrees to the following stipulations regarding payment for the services described herein.

- A. Annual payments shall be provided in a lump sum from OU to the City to be received no later than June 1.
- B. Payments shall be remitted via physical check to the address and contact listed in *Section 6: Notice*.

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IN WITNESS WHEREOF, OU and The City have executed this MOU by their authorized representatives.

UNIVERSITY OF OKLAHOMA:

Dr. Laurel C. Smith Acting Chair of the Department of Geography and Environmental Sustainability

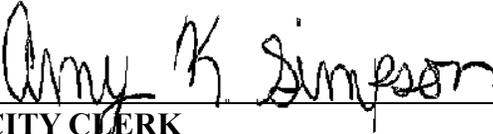
Print Name and Title


Signature

July 11, 2024
Date

ADOPTED by the Council and **APPROVED** by the Mayor of The City of Oklahoma City this 30TH day of JULY, 2024.

ATTEST:


CITY CLERK




MAYOR

REVIEWED for form and legality.


Assistant Municipal Counselor