



CITY OF LONGMONT | Purchasing & Contracts

August 12, 2020

Boulder Atmosphere Innovation Research, LLC
2820 Lafayette Dr.
Boulder, CO 80305

**AGREEMENT # DW-19055, LONGMONT AIR QUALITY STUDY
CONTRACT AMENDMENT 1
AMENDING THE CITY OF LONGMONT, COLORADO
PROFESSIONAL SERVICES AGREEMENT
FOR LONGMONT AIR QUALITY STUDY**

The following provision(s) are hereby agreed to and shall be amended to THE CITY OF LONGMONT, COLORADO PROFESSIONAL SERVICES AGREEMENT FOR LONGMONT AIR QUALITY STUDY (Agreement) dated March 26, 2019:

1. The Agreement is hereby renewed until December 31, 2021. However, consistent with section 5 of the Agreement, all financial obligations of the City under this Amendment as amended will be contingent upon appropriation, budgeting, and availability of specific funds to discharge such obligations.
2. Section 5 of the Agreement, PRICE, is updated as specified in Addendum 1, Exhibit B, attached hereto.
3. The Agreement is hereby amended to incorporate the scope, tasks, exhibits, and other requirements as included in Addendum 1, attached hereto.

All other terms and conditions of the Agreement remain in full force and effect.

Please indicate your agreement by signing and dating below. Return your signed Amendment and applicable documentation to purchasing@longmontcolorado.gov.

CITY OF LONGMONT

Signature: _____

Date: _____

Printed Name: _____

Title: _____

Purchasing@longmontcolorado.gov

**BOULDER ATMOSPHERIC INNOVATION
RESEARCH, LLC**

Signature: _____

Date: _____

Printed Name: _____

Title: _____

Email: _____

CITY OF LONGMONT:

MAYOR

ATTEST:

CITY CLERK

DATE

APPROVED AS TO FORM:

DEPUTY CITY ATTORNEY

DATE

APPROVED AS TO FORM AND SUBSTANCE:

ORIGINATING DEPARTMENT

DATE

CA File: 20-000850

ADDENDUM 1
TO CONTRACT AMENDMENT 1 AMENDING THE CITY OF LONGMONT, COLORADO
PROFESSIONAL SERVICES AGREEMENT FOR LONGMONT AIR QUALITY STUDY # DW-19055

SCOPE OF SERVICES

Boulder Atmospheric Innovation Research, LLC (Consultant) will provide the following scope of services (Services) to the City of Longmont (City) for the Regional Air Quality Monitoring Study associated with Professional Services Agreement (Contract #DW-19055, Munis #31900042). The Consultant will carry out the following Services in a good and workmanlike manner, and will at its own expense, provide all labor, equipment, and work necessary and incidental to providing the described Services.

Task 1 – Project Management and Communication

Consultant will provide project management and communication services, which include the following tasks:

- Maintain and monitor project scope, budget, and schedule
- Furnish all labor and equipment needed to safely and effectively carry out the described Services
- Provide an ongoing in-house quality check of the work being performed as part of this project, including internal reviews of draft technical reports before submission to the City
- The Consultant accepts the City's –monitoring sites as is and agrees to procure any future items not associated with general maintenance of shelters and towers, such as tools, hardware, software, office items, and safety items needed to carry out the services. Items shall be procured using the Consultant's own time and resources, unless it has been determined by the City that the item is required for the Services, but can only be acquired by, or arranged for, by the City

Task 2 – Data Collection and Visualization

Consultant will continue to provide a publicly accessible web portal, which displays data in near-real time (less than 4 hours post-collection).

Consultant will continue to provide data collection in compliance with the following:

- Ensure that air monitoring instrumentation is well-maintained and functional
- West Longmont Monitoring Site (Vance Brand Airport Monitoring Site)
 - Meteorological Parameters: Temperature, Relative Humidity, Wind Speed, Wind Direction, Solar Irradiance
 - Chemical Measurements: Methane, Carbon Dioxide, Ozone
 - Webcam Images
- Union Reservoir Monitoring Site
 - Meteorological Parameters: Temperature, Relative Humidity, Wind Speed, Wind Direction, Solar Irradiance

- Chemical Measurements: Methane, Carbon Dioxide, Ozone, Nitric Oxide, Nitrogen Dioxide, Volatile Organic Compounds
- Particle Measurements: PM_{2.5}, PM₁₀
- Webcam Images
- Ensure that all air monitoring data are safely stored and provided upon request, in a database format acceptable to the City
- Notify the City of disruptions in data collection, or online data visualization, within 24 hours of the onset

Task 3 – Data Sharing, Communication, and Public Outreach

- Provide the City with written notice of publications and/or public presentations, wherein the City's data will be analyzed or interpreted at least 7 days prior to release of information. The City shall notify the Consultant of permission or denial within 5 days of request. City reserves the right to prohibit use of the data by any party, including Consultant, without the express written permission of the City.
- Inform the City of any communications the Consultant has with journalists or media regarding analysis or interpretation of the City's data by the end of the day in which the statement is made.
- Consultant is an independent contractor and is not authorized to represent City's views or positions. Accordingly, Consultant shall not make any statement regarding the City's views or position on air quality including, but not limited to opinions, analysis, and conclusions about the data unless specifically authorized in writing to speak about the City's views or positions.
- City may from time to time enter into data sharing agreements with other entities to permit downloadable access to the data resulting from this agreement. City shall notify Consultant of any such agreement. Consultant shall share downloadable data only pursuant to a data sharing agreement between the City and another entity.
- Anytime data is transferred as part of a sharing agreement, Consultant shall notify City.

Task 4 – Data Interpretation and Analysis

The Consultant will perform the following interpretations and analyses using air quality data collected as part of these services. Data interpretation and analysis will be described in quarterly reports as outlined in Task 5.

Task 4a – Monitor greenhouse gases upwind and downwind of Longmont

- The Consultant shall establish a baseline for greenhouse gas concentrations at monitoring sites
 - Provide time-series plots for each greenhouse gas measured
 - Provide descriptive statistics used in establishing baselines
- The Consultant shall also provide an estimation of the City's enhancement of greenhouse gas emissions as air moves across the City, and assess changes in emissions over time
 - Provide methods and statistical analyses used in determination of differences

- Provide references supporting methodology
- Conclusions and recommendations
 - Recommendations shall include time frame, purpose, and reasoning

Task 4b – Monitor primary oil and gas emissions

The Consultant shall provide an estimation of relative enhancements of oil and gas-related emissions above regional background levels.

- Establish a baseline for primary oil and gas emissions at the Union Reservoir and West Longmont monitoring sites
 - Provide time-series plots for each of the greenhouse gasses measured
 - Provide descriptive statistics used in establishing baselines
- Provide an analysis of changes in emissions associated with new oil and gas activities
 - Provide information about observed changes in emissions related to new oil and gas development
 - Provide methods for statistical (or other) analyses used in determination of differences
 - Provide references supporting methodology
- Provide an assessment of differences in burden from oil and gas emission at Longmont monitoring sites compared to data collected at Boulder Reservoir and Broomfield monitoring sites, and other sites including, but not limited to, regulatory sites
 - Provide methods for statistical (or other) analyses used in determination of differences
 - Provide references supporting methodology
- Conclusions and recommendations
 - Recommendations shall include time frame, purpose, and reasoning

Task 5 – Reporting and Invoicing

The Consultant shall provide the following deliverables:

- Monthly invoices in accordance with the invoice template attached hereto as Exhibit C
- Quarterly and annual reports which summarize the results of the analyses outlined in Task 4, and in accordance with the report template attached hereto as Exhibit A
 - Draft quarterly and annual reports shall be submitted via email within 60 days following each quarter during the service period, unless otherwise arranged with the City
 - Final quarterly and annual reports shall be submitted via email within 90 days following each quarter during the service period, unless otherwise arranged with the City

Cost of Services, Time of Performance, and Liquidated Damages

The City and Consultant have established a not-to-exceed budget of \$116,211 for the period of September 1, 2020 through December 31, 2020, and of \$348,632 for the period of January 1, 2021 through December 31, 2021 for the scope of services described herein. A cost estimate with a breakdown of fees by task is attached hereto as Exhibit D. Work for this project will be billed based on services and deliverables provided on schedule and in accordance with the pricing attached hereto as Exhibit B.

Deliverables not received by established deadlines shall result in damages to the City, unless the parties have agreed in writing to an alternate timeline. If the Consultant fails to provide a deliverable by the established deadline, the City may deduct the sum of \$582.00 for each calendar day that the Deliverable remains uncompleted from monies due or that may become due to the Consultant. This sum is not a penalty but is the cost of liquidated damages. Similarly, if the consultant fails to comply with other terms or responsibilities outlined herein, the City may deduct up to \$582 per day to account for administrative burden associated with responding to or addressing issues resulting from the Consultant's failure to provide the outlined services.

The parties agree that, under all of the circumstances, the daily basis and the amount set for liquidated damages is a reasonable and equitable estimate of all the City's actual damages for delays and/or failure to comply with the Agreement. The City expends additional personnel effort in administering the Agreement or portions of it that are not completed on time, and such efforts and the costs thereof are impossible to accurately compute. In addition, some, if not all, citizens of Longmont incur personal inconvenience and lose confidence in their government as a result of public projects or parts of them not being completed on time, and the impact and damages, certainly serious in monetary as well as other terms are impossible to measure.

Exhibit A: Report Template

Cover Page

Introductory letter to City (optional)

Executive Summary (2-3 pages highlighting the key points)

Table of Contents

1. Project scope/overview and goals (these are from your presentation to Council)
 - a. Monitoring greenhouse gases upwind and downwind of Longmont
 - b. Monitor primary oil and gas emissions
 - c. Provide monitoring and interpretation to the public
 - d. Provide data to public, research community, and industry partners
2. Overview of monitoring program
 - a. Selection of locations
 - i. East – Union Reservoir
 - ii. West – Vance Brand Airport
 - b. Analytes included in evaluation
 - i. List of analytes with basic background on their sources, applicable regulations, and relevance to the study.
 1. Carbon dioxide
 2. Methane
 3. VOCs
 4. Nitrogen oxides
 5. Ozone
 - c. Data QA/QC process
3. Air Quality Monitoring Study Updates
 - a. Objective 1: Monitoring greenhouse gases upwind and downwind of Longmont
 - i. Establish a baseline for green gas concentrations upwind and downwind of City of Longmont
 1. Analytical methods
 2. Results, conclusions, and recommendations (if applicable)
 - ii. Develop concentration difference for estimation of the City's emission of greenhouse gasses
 1. Analytical methods
 2. Results, conclusions, and recommendations (if applicable)
 - b. Objective 2: Monitor primary oil and gas emissions
 - i. Establish a baseline for primary oil and gas emissions downwind of oil and gas operations
 1. Analytical methods
 2. Results, conclusions, and recommendations (if applicable)
 - ii. Determination of relative enhancements of oil and gas emissions over regional background levels

1. Analytical methods
2. Results, conclusions, and recommendations (if applicable)
 - a. Comparison to regulatory standards
 - i. Summary of exceedances
- iii. Analysis of changes in emissions from new oil and gas operations/well sites
 1. Analytical methods
 2. Information on new oil and gas operations considered
 3. Results, conclusions, and recommendations (if applicable)
- iv. Assessment of differences in burden from oil and gas emissions at Longmont monitoring sites versus Boulder Reservoir
 1. Analytical methods
 2. Results, conclusions, and recommendations (if applicable)
- c. Objective 3: Visualization and interpretation of data for public
 - i. Website and outreach
 1. Website overview
 2. Description of “near-real time” online reporting (what does it mean?)
 - a. Indicate dates of major disruptions in online data and why
 3. Description of how the data is managed and stored
- d. Objective 4: Provide data to public, research community, and industry partners
 - i. Public
 1. Description of how all data has been made available to staff and residents of the City of Longmont
 - ii. Research community
 1. Summary of data sharing partners and highlights of any new analysis/publications
 - iii. Industry partners
 1. Summary of data sharing partners and highlights of any new analysis/publications
4. Air Quality Monitoring Study General Recommendations
5. Summary and Conclusions
6. References

Tables & Figures: Ensure that all figures are properly labeled with basic figure components. Maps have a scale and a north arrow. All figures have a title, and typically a frame and are high-resolution and easy to read on a printed copy of the report.

Data and Appendices: Include all data plots which were used to support conclusions, as well as any other support for analytical work. Data shall be safely stored by the Consultant and made available for transfer to the City within 7 days, upon request.

Exhibit B: Pricing

Pricing and Payment:

Pricing and payment, discounted to reflect missing samples and/or any liquidated damages, will be according to the following schedule:

September 1, 2020 – December 31, 2020

- The City will pay a not-to-exceed contract amount of \$116,211 for services September 1, 2020 – December 31, 2020, subject to the terms and conditions of the Agreement and this Addendum. This will include 3 monthly payments of \$29,052.66 and 1 payment of \$29,053.02, predicated on delivery of all requirements and assumptions (including all data points and deliverables for any given month) specified for both the Union Reservoir site and the West Longmont site.

January 1, 2021 – December 31, 2021

- The City has not appropriated funding for this contract for 2021. If funding is appropriated in the City's approved 2021 budget, then the City will pay a not-to-exceed amount of \$348,632 for services January 1, 2021 – December 31, 2021, subject to the terms and conditions of the Agreement and this Addendum. This will include 11 monthly payments of \$29,052.66 and 1 payment of \$29,052.74 predicated on delivery of all requirements and assumptions (including all data points and deliverables for any given month) specified for both the Union Reservoir site and the West Longmont site.

Assumptions:

Services under this Agreement include collection according to the following parameters. Any decrease in sample collection exceeding 5% of total aggregate samples for a calendar month will result in discount to reflect missing samples and/or liquidated damages.

- The Union Reservoir site air quality monitoring will include:

Item	Analyte/Variable	Frequency:		
		per hour	per day	# samples / year
1	Ozone, TEI_49, regulatory-like	6	144	52596
2a	NO, TEI_iQTL, regulatory-like	6	144	52596
2b	NO2, TEI_iQTL, regulatory-like	6	144	52596
3	Methane, PICARRO G2301	12	288	105192
4	Volatile Organic Compounds (including ethane, ethene, acetylene, propane, propene, i-butane, n-butane, i-pentane, n-pentane, isoprene, n-hexane, benzene, toluene, o-xylene, ethylbenzene, o-xylene, m-xylene, p-xylene); custom-gas chromatograph		12	4383

5	PM2.5, GRIMM EDM180, regulatory-like	1	24	8766
6	CO2, PICARRO G2301	12	288	105192
7	Meteorological variables (wind speed, wind direction, temperature, radiation)	12	288	105192
8	Webcam, weatherproof, 1 year	12	288	105192
9	Website/data portal maintenance/data management			

- The West Longmont site will include:

Item	Analyte/Variable	Frequency:		# samples / year
		per hour	per day	
10	Ozone, TEI_49, regulatory-like	6	144	52596
11	Methane, PICARRO G2301	12	288	105192
12	CO ₂ , PICARRO G2301	12	288	105192
13	Meteorological variables (wind speed, wind direction, temperature, radiation)	12	288	105192
14	Webcam, weatherproof, 1 year	12	288	105192
15	Website/data portal maintenance/data management			

Pricing per sample will be in accordance with Consultant's Quote dated August 5, 2020, attached here to as Exhibit D, subject to the not-to-exceed amount of the contract for the current term.

At the end of each month of the Contract Term, the Consultant will submit an invoice in accordance with the invoice template provided in Exhibit C.

Exhibit C: Invoice Template

Invoices submitted by the Consultant shall include the following items:

Date of invoice

City of Longmont, 1100 S. Sherman, Longmont, CO 80501 Attn: Dr. Jane Turner

Boulder AIR Invoice Number

Reference Contract #31900042 – Longmont Regional Air Quality Study

Service period

Activities: Description of activities at the West Longmont Monitoring Site (Vance Brand Airport Monitoring Site) and the Union Reservoir Monitoring Site, and other services provided.

Sampling: Detailed listing of any time periods during which some or all samples were not collected, and/or sampling data was not displayed on the website. Provide the quantity and types of missing samples (i.e. variable/analyte) and the total value of these samples according to Boulder AIR's sampling costs as outlined in Exhibit D. Provide an explanation of why sampling and/or visualization was not provided.

Invoice total

Deliverables Provided: Description of deliverables provided during the service period and the date of their submission.

Upcoming Deliverables: List of deadlines for upcoming deliverables (e.g. the next quarterly report draft and final version) according to guidelines provided in Task 5 of Scope of Services.

Payment Instructions and Address

Signature of Boulder AIR Representative

Exhibit D: Consultant Quote for Services

Boulder



Atmosphere
Innovation
Research

Boulder A.I.R. L.L.C; 2820 Lafayette Dr., Boulder, CO 80305, U.S.A.; dh.bouldair@gmail.com

August 5, 2020

To:

City of Longmont
350 Kimbark St
Longmont, CO 80501

Attn: Jane Turner

Quote for Air Quality Monitoring

Union Reservoir Site: Ozone (regulatory-like), Nitrogen Oxide (regulatory-like), Nitrogen Dioxide (regulatory-like), Methane, Volatile Organic Compounds, Carbon Dioxide, PM2.5 (regulatory-like), Meteorology, Webcam (see page 3 for details):

Cost per month:	\$20,584
Cost September 1 – December 31, 2020:	\$82,335
Cost January 1 – December 31, 2021:	\$247,004

West Longmont Site: Ozone (regulatory-like), Carbon Dioxide, Methane, Meteorology, Webcam (see page 4 for details):

Cost per month:	\$8,469
Cost September 1 – December 31, 2020:	\$33,876
Cost January 1 – December 31, 2021:	\$101,628

Both sites together:

Total cost per month:	\$29,053
Total cost September 1 – December 31, 2020:	\$116,211
Total cost January 1 – December 31, 2021:	\$348,632

Exclusions:

Instrument Shelter, 10 m Tower, Site Access, Electricity, Internet Connection (all to be provided by City of Longmont)

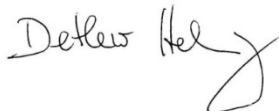
Deliverables:

- High accuracy and regulator-like monitoring of all variables, as specified in Tables on Page 3 and 4
- 24/7, 365 days a year automated monitoring
- Instrument upgrades
- Data reporting to public website 'Longmont Air Quality Now'; website hosting, maintenance, and further improvements
- Weekly site visits for regular maintenance and calibrations; additional site visits as needed.
- Daily remote system and data checks; daily data downloads and data backups on three standalone data servers
- Data quality control
- State audits of ozone, nitrogen oxides monitoring
- Data archiving
- Provide data to interested individuals/parties
- Data analyses and interpretation
- Respond to citizen and City staff questions
- Present findings to citizens and City staff and City Council
- Four quarterly reports
- One annual report

Approximate expenditures breakdown for 1-year cost (please note that this breakdown can change depending on instrument upgrades/repairs/calibration needs, staffing, and citizen's and City requests):

Project management, insurances (13%):	\$45,322.16
Sampling, maintenance, site visits (including subcontractor payments) (25%):	\$87,158.00
Materials and supplies, calibration gases, instrument upgrades (10%):	\$34,863.20
Data quality control, archiving (including subcontractor payments) (20%):	\$69,726.40
Website development, maintenance (including subcontractor payments) (12%):	\$41,835.84
Analyses and reporting (including subcontractor payments) (20%):	<u>\$69,726.40</u>
Total:	\$348,632.00

Submitted by



Detlev Helmig, PhD
Boulder A.I.R. LLC

Union Reservoir Monitoring Site

Item	Variable	Rate \$	Frequency per hour	per day	Total # samples per year	Regular \$	Discount %	Net \$
1	Ozone, TEI_49, regulatory-like	0.50	6	144	52596	26298	40	15779
2a	NO, TEI_iQTL, regulatory-like	0.60	6	144	52596	31558	40	18935
2b	NO ₂ , TEI_iQTL, regulatory-like	0.60	6	144	52596	31558	40	18935
3	Methane, PICARRO G2301	0.50	12	288	105192	52596	40	31558
4	Volatile Organic Compounds (including ethane, ethene, acetylene, propane, propene, i-butane, n-butane, i-pentane, n-pentane, isoprene, n-hexane, benzene, toluene, o-xylene, ethylbenzene, o-xylene, m-xylene, p-xylene); custom-gas chromatograph	30.00		12	4383	131490	40	78894
5	PM2.5, GRIMM EDM180, regulatory-like	5.00	1	24	8766	43830	40	26298
6	CO ₂ , PICARRO G2301	0.50	12	288	105192	52596	40	31558
7	Meteorological variables (wind speed, wind direction, temperature, radiation)	0.05	12	288	105192	5260	40	3156
8	Webcam, weatherproof, 1 year	0.03	12	288	105192	3156	50	1893
9	Website/data portal maintenance/data management					20000		20000
Total								247004

Item	Variable	Rate \$	Frequency per hour	per day	Total # samples per year	Total \$	Discount %	Net \$
10	Ozone, TEI_49, regulatory-like	0.50	6	144	52596	26298	40	15779
11	Methane, PICARRO G2301	0.50	12	288	105192	52596	40	31558
12	CO ₂ , PICARRO G2301	0.50	12	288	105192	52596	40	31558
13	Meteorological variables (wind speed, wind direction, temperature, radiation)	0.05	12	288	105192	5260	40	3156
14	Webcam, weatherproof, 1 year	0.03	12	288	105192	3156	50	1578
15	Website/data portal maintenance/data management					18000		18000
Total								101628