Boulder Atmosphere Innovation Research

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May 29, 2025

To:
Town of Erie
645 Holbrook Street
Erie, CO 80516

Attn: David Frank

Year 2025-2026 18-month Cost Proposal for Continuing the Operation of the Erie Community Center (ECC) Air Quality Monitoring Station and the Implementation and Operation of a Dispersed Sampling Network

Dear Mr. Frank,

Thank you for your inquiry about a cost estimate for providing air quality monitoring to the Town of Erie. Please find below a cost proposal for an 18-month contract spanning July 1, 2025, to December 31, 2026. The following work is included:

A. Continuation of the air quality monitoring at the Erie Community Center (ECC) that is currently under contracted to Boulder AIR by the Town of Erie. The proposed work will continue the monitoring of all variables and pollutants, with the same real-time data reporting that was implemented at the beginning of the program in the summer of 2021. We have again quoted the monitoring of ozone and Particulate Matter (PM) following 'regulatory-grade' protocols. This entails adhering to the instrument configuration, calibration, and maintenance protocols as mandated by the EPA, and followed by the Colorado Department of Public Health and Environment (CDPHE). Both measurements have been audited by CDPHE and were found to fully meet regulatory quality requirements. The monitoring of volatile organic compounds (VOCs) relies on operation of a gas chromatography-flame ionization instrument. This will provide sensitive and VOC-specific monitoring of a series of primary oil and natural gas hydrocarbons. A minimum of twenty-five species of the most prominent VOCs observed in ambient will be reported. Quantification of VOCs will follow the protocol and be based on the calibration scale of the World Meteorological Organization Global Atmospheric Watch program with calibration standards from the U.K. National Physics Laboratory.

   This bid includes automated data processing and reporting to the Erie project web portal that was implemented and is maintained by Boulder AIR (https://www.bouldair.com/erie.htm). In addition, data from the Erie monitoring will be included in the AirLive Combined Northern Colorado Front Range website (https://www.bouldair.com/NoCoFrontRange.htm). All historical data can be viewed and analyzed at the Boulder AIR Interactive Data Analysis Tool (https://bouldairtools.com/interactive/). Final, fully quality-controlled VOCs data will be submitted to AMTIC, the EPA Ambient Monitoring Archive for Hazardous Air Pollutants (https://www.epa.gov/amtic/amtic-ambient-monitoring-archive-haps); data for all other chemical measurements will be submitted to the EBAS (https://ebas.nilu.no/) archive.

The cost for all monitoring and associated services for July 1, 2025 – December 31, 2025, will be the same as for the current January 1 – June 30, 2025, contract. Rates for 2026 will increase by 3% to adjust for inflation. However, Boulder AIR will drop the rate for methane monitoring by 20% starting January 1, 2026. Furthermore, we have eliminated the charge for the security system operation and maintenance. Consequently, the January 1 – December 31, 2026, budget at $224,631 comes in 3% lower than 2025 charges. The total cost for an 18-month contract for the ECC operation spanning July 1, 2025 to December 31, 2026, is $337,259.

B. Acquisition, installation, and operation of four SGS SmartSense solar powered (with battery backup) air monitoring stations (https://www.sgsgalson.com/smart-sense-home/). Monitored variables will include wind speed, wind direction, air temperature, particulate matter (PM1, PM2.5, PM10) and total VOCs by photoionization detection (PID). Each station will be equipped with a sampling trigger mechanism and air sampling canister to collect whole air samples when elevated VOC signals are detected by the PID. In case the current contract for continuous air quality monitoring with Boulder AIR at ECC is renewed, then, at no cost to Erie, one additional station will be installed at ECC in parallel to the real time methane, VOCs, and PM2.5 monitoring at ECC to provide comparison between the two methods and additional quality control of the SmartSense air sampling.

C. Analysis of 15 trigger canister samples collected by the SmartSense stations (B) for methane and VOCs, using the same instrumentation and quality assurance as under A. In the case that more than 15 trigger events (and samples) occur during the 18-month project, additional trigger canister deployments and analyses will be charged an additional $400 per sample.

D. Real-time reporting of the SmartSense data to the public SGS LiveView data portal (https://www.sgsgalson.com/sgs-liveview/).

E. Preparation and analysis of a maximum of nice grab sampling Summa canisters. Additional grab sampling canister deployments and analyses will be charged $400 per sample.

F. Pollution event analyses and event reports, one annual report and presentation to the Town of Erie Council.

G. Boulder AIR commits to conduct all monitoring listed above at ≥ 95% uptimes.

A cost breakup of these line items and a summary budget are provided below. Total cost for the dispersed sampling network deployment and operation will be $139,200. A discount of $33,000 will be granted if both the ECC continuous station monitoring and the dispersed sampling program are contracted to Boulder AIR. The resulting total cost for an 18-months contract covering the above detailed components is **$443,459.**

We appreciate this opportunity to provide air quality monitoring for the Town of Erie.

Thank you,

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

Erie Community Center (ECC) Air Monitoring Station:

Town of Erie Community Center (ECC) Air Quality Monitoring Proposal, 2025-2026

Item	Variable	2025 rate, full year US$	2025, July 1 - Dec 31, US$	2026 rate, full year US$	Total July 1, 2025 - Dec 31, 2026, US$
1	Ozone, TEI_49, regulatory-grade	17,918	8,959	18,456	27,415
2	Volatile Organic Compounds (including ethane, ethene, acetylene, propane, propene, i-butane, n-butane, i-pentane, n-pentane, cyclopentane, isoprene, n-hexane, cyclohexane, benzene, n-heptane, toluene, n-octane, o-xylene, ethylbenzene, o-xylene, m-xylene, p-xylene); WMO-grade by gas chromatography - flame ionization detection	105,665	52,833	108,835	161,667
3	Methane, PICARRO G2301, WMO-grade	35,837	17,919	29,530	47,448
4	PM_2.5, regulatory-grade, PM_10, GRIMM EDM180	30,102	15,051	31,005	46,056
5	Meteorological variables (wind speed, wind direction, temperature, relative humidity, radiation), research-	3,584	1,792	3,692	5,484
6	Webcam for public website images	2,150	1,075	2,215	3,290
7	Website data reporting, data management, data archiving, event reports	30,000	15,000	30,900	45,900
Total:		**225,256**	**112,628**	**224,631**	**337,259**

Four SGS Dispersed Air Monitoring Stations:

Four Meteorology/PID/VOCs Trigger Canister Sampling Stations; July 2025 through December 2026 Budget

Item	Variable	Cost per Unit	Number of Sites	Months	Total Number of Samples	2025 - 2026 Rate (US$)
1	Acquisition, installation, and operation of SGS PID/trigger solar powered canister sampling stations with meteorology, PM1, PM2.5, PM10, total VOCs	1450	4	18		104,400
2	Trigger canister analyis by gas chromatography for methane and minimum of 30 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 with flame ionization detection (FID), 15 canisters per year	400			15	6,000
3	Weekly site visits, trigger canister preparation, setup, and collection	200	4	18		14,400
4	Reporting, website maintenance, event analyses	800		18		14,400
	Total					**139,200**

Summary Budget:

ECC and Dispersed Sampling Network 2025 - 2026 Summary Budget

Program component	Cost US$
Town of Erie Community Center (ECC) continuous air quality monitoring, July 1, 2025 - Dec. 31, 2026	337,259
Four meteorology, PM, PID/VOCs trigger canister sampling stations; July 1, 2025 - Dec. 31, 2026	139,200
Grab sampling Summa canisters, preparation and GC/FID sample analysis, up to 9 total	0
ECC - Dispersed network bundle discount	*33,000*
Total	**443,459**