

# Electric Bus Air Quality Monitoring Project

February 2021

# History of Air Quality Monitors



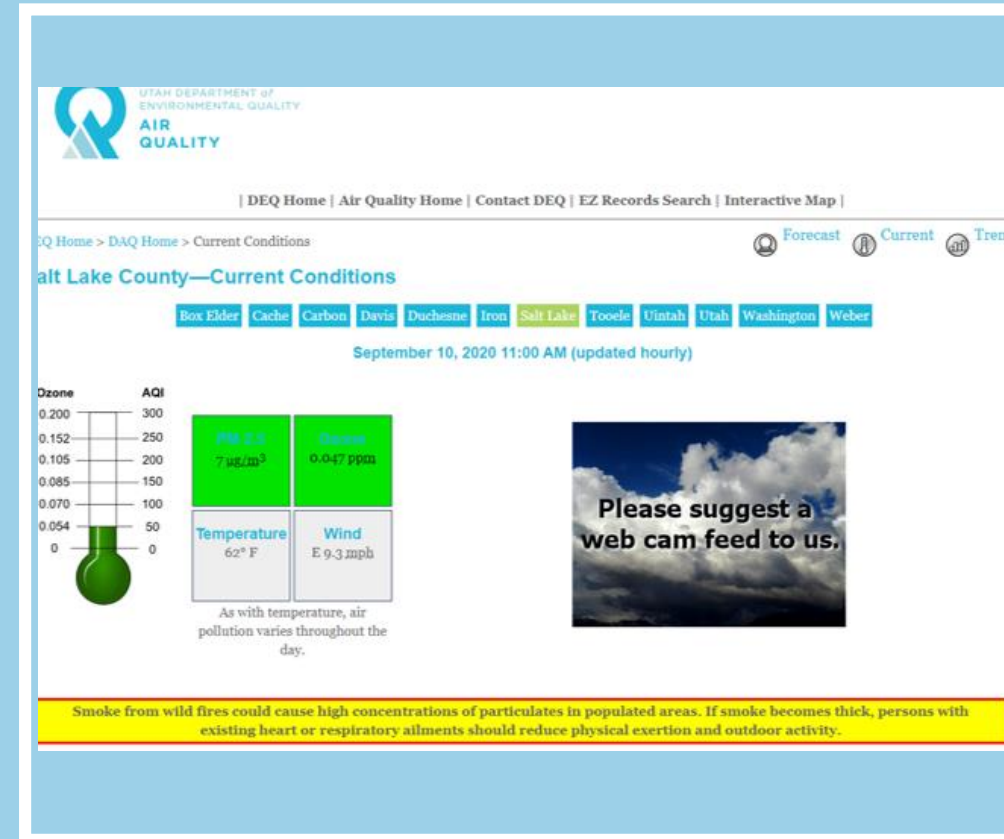
Air quality monitors have been used in SLCo since 1963 to help scientists, policy makers, and the public better understand the types and levels of particulates in the air that are unhealthy to breathe



Data was always public, but the internet made it much more accessible



In the past, air quality monitors were only at fixed locations.

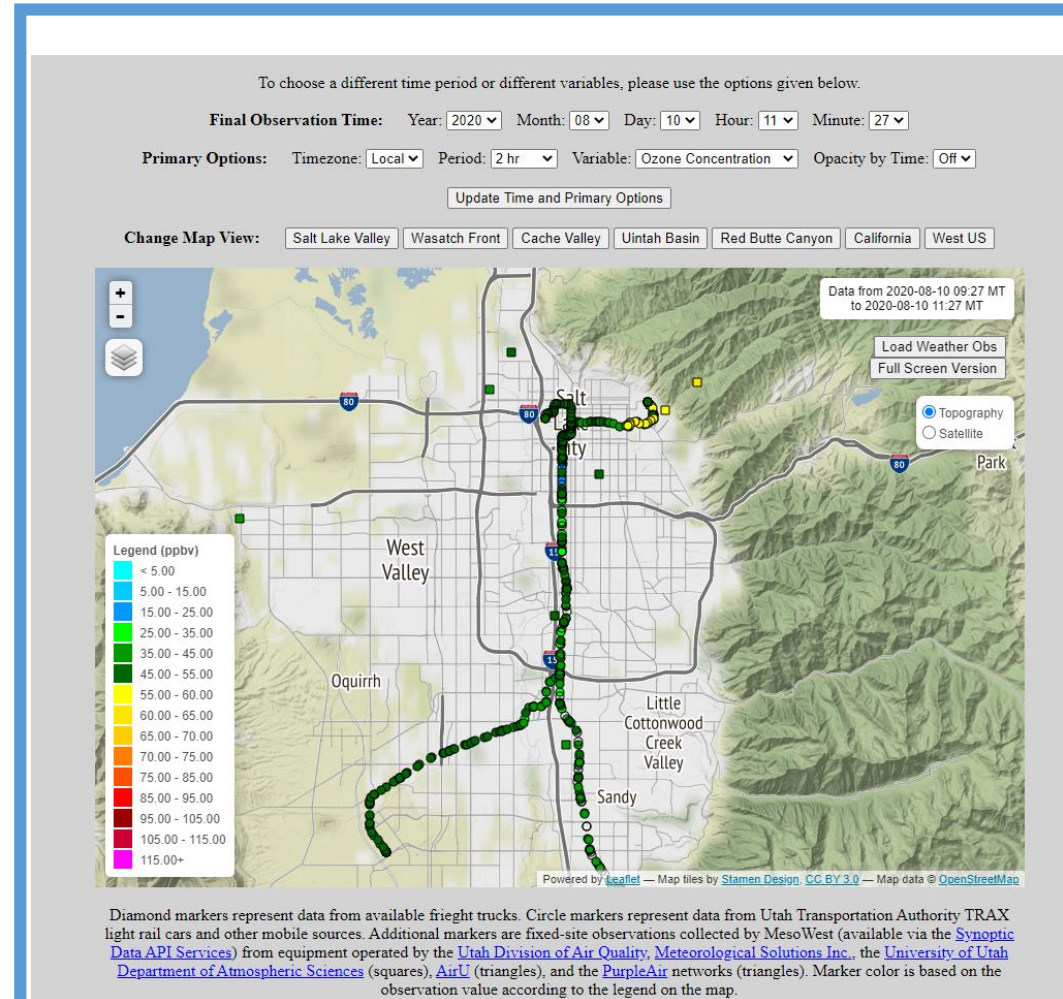


# History of Air Quality Monitors



In December 2014, the University of Utah partnered with UTA and DAQ to place air monitoring equipment on electric-powered TRAX trains covering 45 miles of rail lines.

This created the **first mobile non-emission platform** in the United States that collected real-time air quality data with research-grade sensors.



# Electric Bus Air Quality Monitors



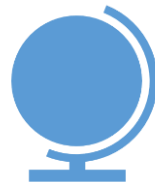
Building on success of the TRAX monitoring platform, the project is proposing to place **air monitors on 3 electric buses** within the Salt Lake City Business Unit UTA fleet



# The Future of Air Quality Monitors

This project will use an emissionless mobile platform (Ebus) to provide real-time air quality monitoring data for criteria pollutants PM2.5, ozone, and nitrogen oxides.

Proof of concept



**FIRST-IN-THE-WORLD PROPOSAL**

# Project Work Group



- Salt Lake County
- Utah Transit Authority
- Utah Division of Air Quality
- University of Utah

# Program Scalability



When the project is successfully completed, and the evaluation finds **positive results...**



Electric Bus Air Quality Monitoring can be **scaled** to all new ebuses in UTA's fleet.



This would create the most detailed air quality map **in the world**

# Benefits of Electric Bus Air Quality Monitors



✓ More accurate data gathering

✓ More focused policy initiatives



✓ Better reductions in air pollution

✓ Greater understanding of health effects



✓ Long-term cost savings through geographic, targeted incentive programs



# Program Budget

BUDGET ITEM	COST (\$)
<b>Three Sensor System Construction</b> <ul style="list-style-type: none"> <li>PM2.5: MetOne ES-642\</li> <li>Ozone: 2B Technologies Model 205</li> <li>Nox: 2B Technologies Model 405</li> <li>Total of 3 completed sensors</li> </ul>	\$90,000
<b>Ongoing Maintenance and Operational Costs</b> <ul style="list-style-type: none"> <li>Two- to three-month maintenance needed</li> </ul>	\$20,000
<b>Installation Costs</b>	Minimal
<b>Equipment Needs Related to Data Collection</b> <ul style="list-style-type: none"> <li>Cellphone modem</li> <li>Data logger as backup</li> </ul>	\$5,500
<b>Future Monitors/Backups</b>	\$40,000
<b>Data Display</b> <ul style="list-style-type: none"> <li><a href="http://meso2.chpc.Utah.edu/aa/cgi-bin/current_map.cgi?tz=local&amp;region=GSL&amp;var=PM25">http://meso2.chpc.Utah.edu/aa/cgi-bin/current_map.cgi?tz=local&amp;region=GSL&amp;var=PM25</a></li> <li>Future SLCo Environmental Info Portal</li> </ul>	Minimal
<b>Total</b>	<b>\$155,000</b>

# Current Funding

- Salt Lake County: \$20,000
- UTA: \$20,000
- Rocky Mountain Power: \$20,000
- UCAIR: \$10,000
- Wasatch Front Regional Council: \$5000

# Timeline

2020

2021

August

March

March

April

July

Fall

Winter 2022

Form Project  
Proposal

Finalize  
Project  
Funds

Project  
Finalized and  
Approved

Installation  
of One  
Monitor

First Two-Month  
Observation  
Report

Midway  
Research  
Report

Initial  
Research  
Ends

Research Begins

TBA  
Seasonal  
Observation  
Report

# Questions

