

# Addressing Air Quality Communication Shortcomings in the Salt Lake Valley

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## Background

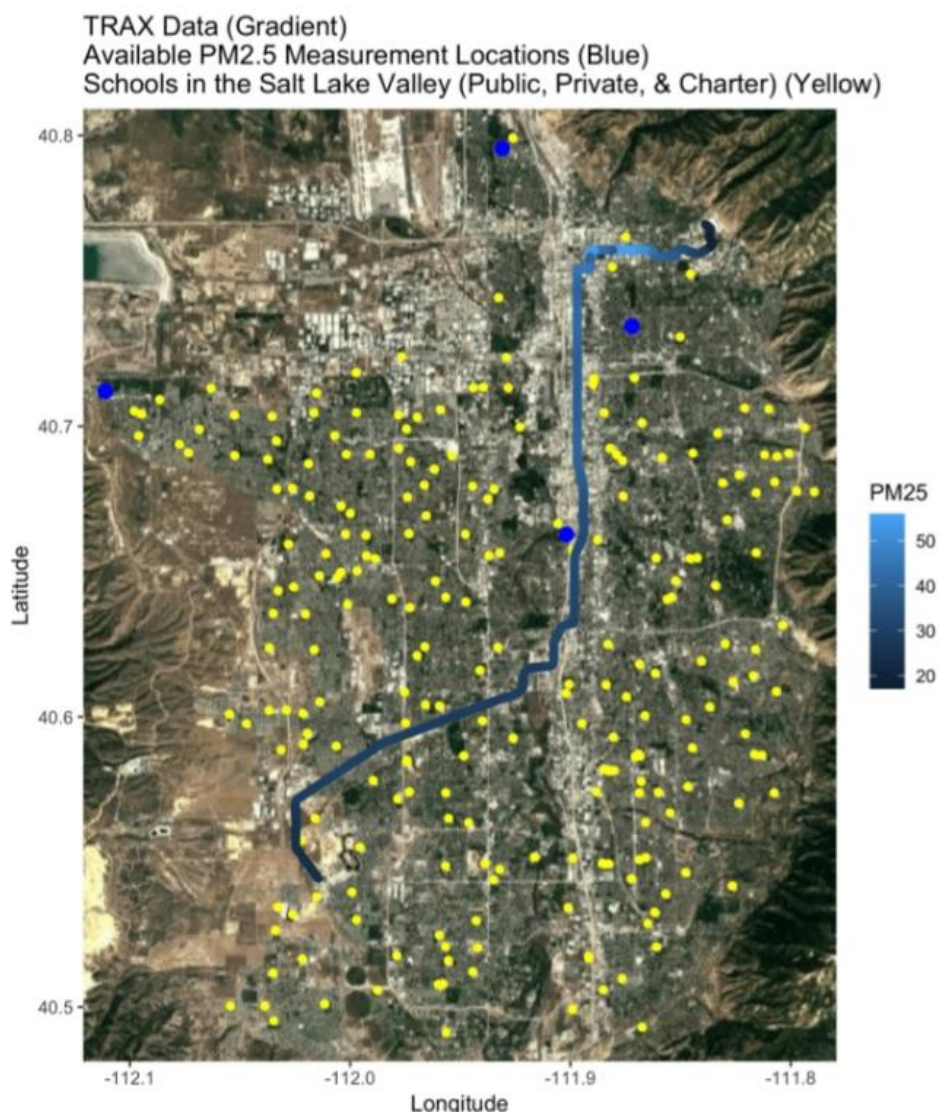
The United States' Environmental Protection Agency (EPA) identifies particulate matter with a diameter of  $10\mu\text{m}$  or less as a health hazard due to its ability to enter and irritate the lungs (*United States Environmental Protection Agency (EPA), 2018*). Adverse health effects of these particles include nonfatal heart attacks, irregular heartbeat, aggravated asthma, and overall decreased lung function. Occurring in winter months, the Salt Lake Valley (SLV) area is prone to persistent cold-air pool (inversion) events in which industrial and transportation-based emissions are trapped at near-ground altitudes (*Beard, et al., 2012*). Emissions from morning-time commuters are a significant contributor to urban  $\text{PM}_{2.5}$  concentrations and inversion events can further increase these near-ground concentrations (*Gupta & Elumalai, 2019*). In addition to  $\text{PM}_{2.5}$ , the EPA also identifies ozone as a health hazard (*United States Environmental Protection Agency (EPA), 2018*). Its potential effects can include shortness of breath, sore throat, inflamed airways, and other pulmonary issues. Unlike  $\text{PM}_{2.5}$ , ozone is a summertime problem in the north-eastern quadrant of the Salt Lake Valley.

Due to the adverse health effects from air-borne pollutants, Utah's Department of Health has published The Utah Recess Guidance for Schools program (*Utah Department of Health, 2016*). The documentation on the associated website provides a "set of recommendations for when elementary school students should stay indoors for recess based on current air quality" conditions. This guidance aligns with EPA Air Quality Index Recommendations and accounts for students with high sensitivity to poor air quality (*United States Environmental Protection Agency (EPA), 2016*). The website also provides links and email alerts for near real-time air quality conditions. For ease of access, a smartphone app, "UtahAir" is also available for download. For educators, suggestions for alternative indoor activities are also provided. Although this information is readily available online, several shortcomings exist within the Recess Guidance framework: 1) the program is designed for only elementary schools, 2) only  $\text{PM}_{2.5}$  is considered, 3) there are a limited number of sensors throughout the SLV, and 4) there is a discrepancy in the spatial resolution made available by the website versus the smartphone app.

There are over 200 schools within the SLV area and only 6 sensors. If air quality conditions are checked via the website, one  $\text{PM}_{2.5}$  value is provided for Salt Lake County. This value is sourced from a sensor located on Hawthorne Elementary School in the north-eastern quadrant of the SLV. However, the smartphone app will obtain a  $\text{PM}_{2.5}$  value from the nearest sensor. This method provides a more accurate measurement of relatively local air quality conditions. A two-hour time average of TRAX-based  $\text{PM}_{2.5}$

measurements, in Figure 1, depicts a large concentration gradient running north-south along the valley, indicating that sparse measurements from PM<sub>2.5</sub> sensors may not always provide the most accurate values for hyper-local air quality conditions (Mitchell, et al., 2018)

Figure 1



## Project Summary

This project group aims to start a conversation between the Division of Air Quality, the Department of Health, schools, senior care centers, homeless resource centers, and the general public on air quality. The group aims to provide resources for administrators and managers of these facilities to better assess and make day-to-day decisions about indoor/outdoor activities. Additionally, those receiving care will be directly benefited. Through a larger scope, providing air quality information will raise awareness of these issues among the general public. Specifically, the project group will address the importance of using the

UtahAir app, the consideration of summertime ozone, and the significance of checking air quality multiple times throughout the day.

## Project Goals

- Establish communication with the Division of Air Quality (DAQ)
- Establish communication with the Department of Health Asthma Program
- Communicate the differences between the DAQ website and the UtahAir app
- Clarify difference between PM<sub>2.5</sub> levels and the AQI
- Address summertime ozone in the Salt Lake Valley
- Have updated air quality guidance flyers with buy-in from DAQ (and other stakeholders) and distribute to: schools, nursing home, homeless resource centers
- Check in to see if the facilities that have been given updated information have changed how they get air quality info after seeing flyer
- Investigate an optimized location for new air quality sensors in the valley

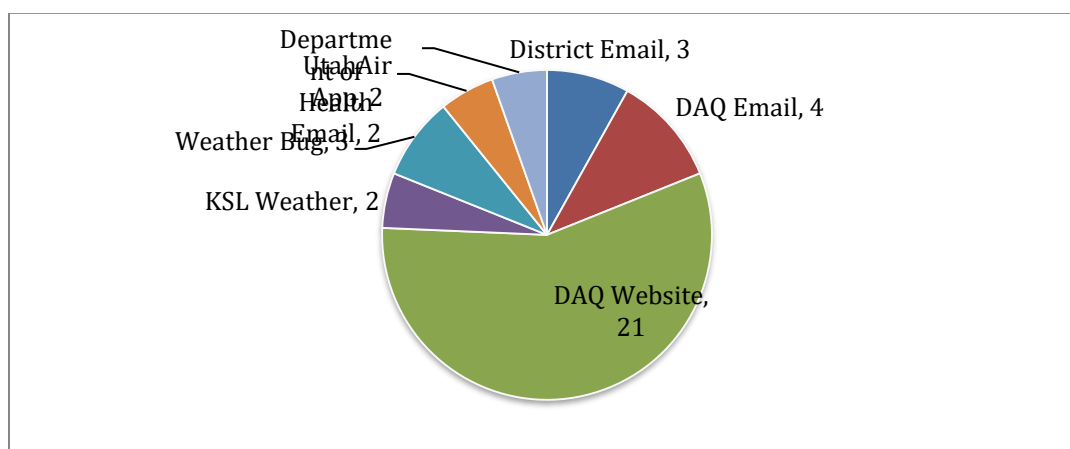
## Part 1: Communication Methods

### Survey to Schools

An initial survey was conducted by members of the class to determine how schools are currently checking air quality information. There was a wide array of responses, however most schools mentioned that they depend on the Division of Air Quality's website. Some schools check only when they notice an inversion, some check the night before, only in the morning, hourly, or multiple times a day before every recess.

The graph below shows how 35 surveyed schools in the SLV get their air quality information.

Figure 2



School Districts in the Salt Lake Valley have their own policies for implementing Recess Guidance. Granite School District stated that school administrators are instructed to check air quality levels each

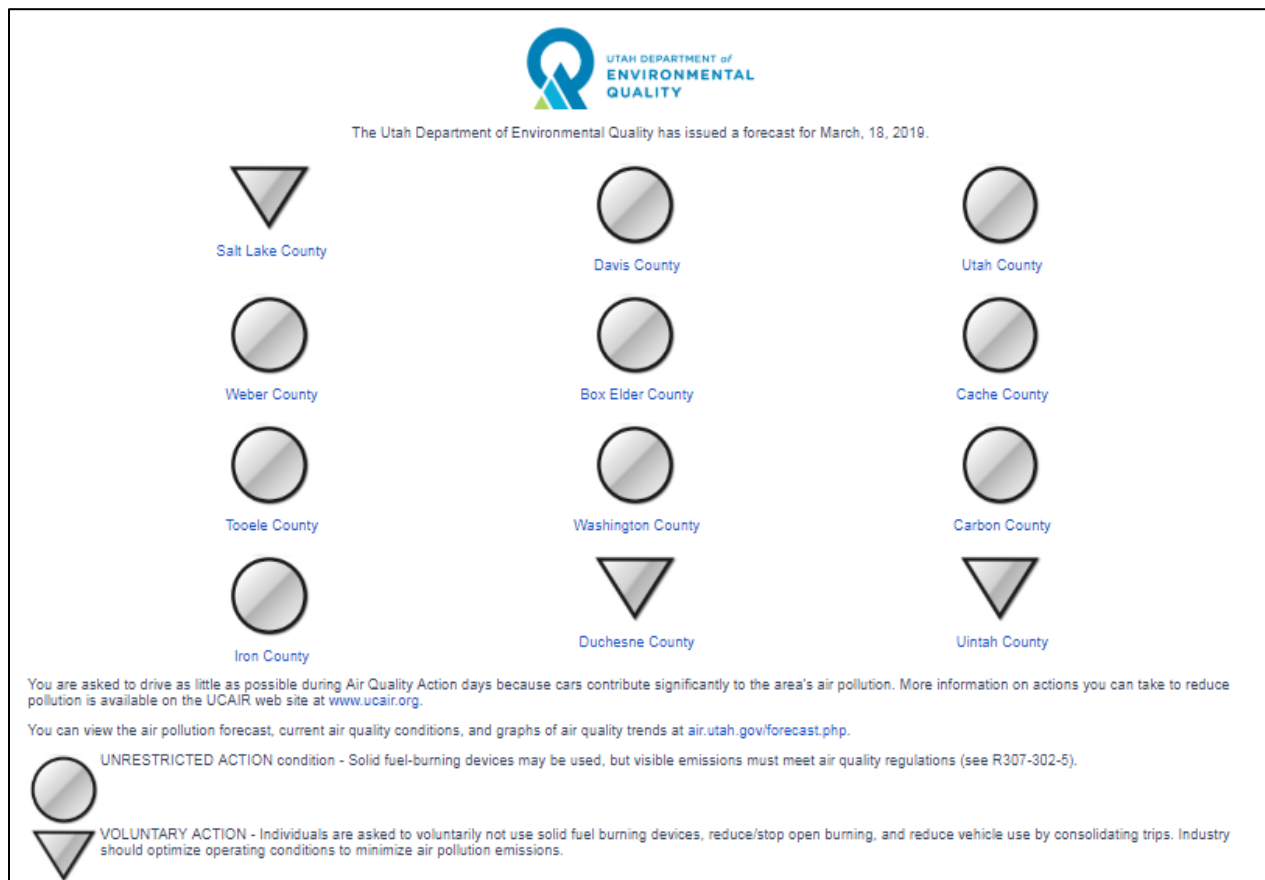
day, and they sign up for the emails from the Utah Department of Health Asthma program (*Granite School District, 2017*). They follow the Asthma Program's guidance on indoor recess levels.

Salt Lake School District also has a policy on outdoor air quality that is quite thorough. Every day, the principal or a designee will check the current PM<sub>2.5</sub> conditions before recess. Following the Department of Health's guidelines, if the PM<sub>2.5</sub> level is between 35.5 and 55.4  $\mu\text{g}/\text{m}^3$ , sensitive students and students with respiratory symptoms will remain indoors for recess. If the levels exceed 55.5  $\mu\text{g}/\text{m}^3$ , then all students will remain indoors (*Salt Lake City School District, 2018*). Additionally, both Salt Lake and Granite School District have Idle Free Ordinances that prohibit vehicles from idling more than two minutes.

### Contact with Division of Air Quality

The project group met with the Division of Air Quality (DAQ) to gather information and ask questions about the website. The DAQ described how their monitoring stations work, and clarified that their website ([air.utah.gov](http://air.utah.gov)) only uses the data from the Hawthorne Elementary sensor for the Salt Lake County value. Please see Figure 3 for an image of the DAQ website.

Figure 3



The DAQ worked with Weber State University to develop the UtahAir app. This provides ease of access to air quality data. Additionally, this application will use your phone's location to retrieve air quality data from the nearest sensor to provide the most accurate information. Figure 4 includes an image of the UtahAir app.

Figure 4



The project group discussed making changes to the DAQ website to have all the sensors listed on the website, rather than just the Hawthorne value. The project group even proposed an option where an individual could type in their address and nearest sensor information for their location. The DAQ explained that due to the Americans with Disabilities Act (ADA) requirements, they are not currently able to make these changes to it, but they encourage individuals to download the UtahAir app to get the most locationally-accurate information.

The DAQ expressed interest in the project group's goal to provide updated recess guidance and was very excited about the nursing home and homeless shelter guidance as well. They asked that we include information that explains the difference between PM<sub>2.5</sub> values and AQI levels because that is something that they see get confused quite frequently. The DAQ provided feedback on our flyers to improve them and align them with the Division's goals. With permission, the Division of Air Quality logo was included on the updated guidance flyer.

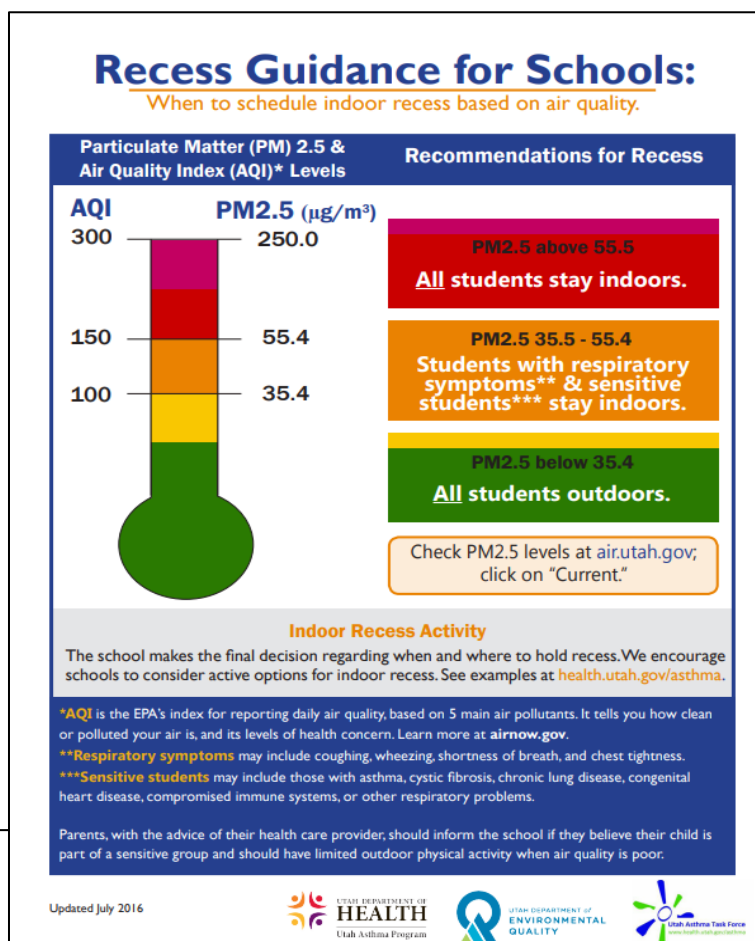
### Contact with Department of Health

The project group started a conversation with the Utah Department of Health's Asthma Program to get more information about the Recess Guidance history and implementation.

The Utah Asthma Program is an air quality program through the Utah Department of Health. The Asthma program published a Recess Guidance for Schools. The Recess Guidance, found in Figure 5, is a set of recommendations for when elementary students should have an indoor recess based on the day's air quality. Their guidance aligns with EPA's recommendations and it is based on PM<sub>2.5</sub> levels. The program is primarily active during the winter months because that is when PM<sub>2.5</sub> is mainly a concern. The Recess Guidance was put together by 27 stakeholder groups including schools, health scientists, advocacy groups, parent groups, and health care professionals (Utah DOH, 2018). The Recess Guidance is unique in that it is meant to provide guidance based on 20-30 minute exposure intervals (the length of recess), while all other EPA AQI recommendations are based on 24 hour exposure periods.

Figure 5

The Utah Recess Guidance program has an email program that emails parents and teachers (or whoever signs up) when air quality days are orange or red. This is when PM<sub>2.5</sub> levels are above 35.5 µg/m<sup>3</sup>. The PM<sub>2.5</sub> levels are based on the Division of Air Quality's forecast for the day. The school makes the final decision regarding when and where to hold recess. The Utah Recess Program does not track if students actually stay inside. Please see Figure 6 for an image of the recess email. Additionally, the Recess Guidance encourages users to check either the Division of Air Quality forecast or use the UtahAir app.



From: Utah-Department-of-Health Asthma <[asthma@utah.gov](mailto:asthma@utah.gov)>

Date: Thu, Feb 14, 2019 at 8:07 AM

Subject: 2/14/19: Recess Guidance Alert! - Duchesne

To: <[bguerra@utah.gov](mailto:bguerra@utah.gov)>

You are receiving this email because PM<sub>2.5</sub> levels today are forecasted to rise above 35.5 µg/m<sup>3</sup>, in the orange, red or purple levels for the following counties: **Duchesne**

1. Check the Utah Recess Guidance for recommendations regarding recess: [health.utah.gov/asthma/pdfs/airquality/recessguidance.pdf](http://health.utah.gov/asthma/pdfs/airquality/recessguidance.pdf)
2. Check the Utah Division of Air Quality website for hourly updates before making decisions about recess [air.utah.gov](http://air.utah.gov). Air quality levels generally change each hour, so make sure to check PM<sub>2.5</sub> levels at least 30 minutes before recess.

#### Stuck inside for recess? Try this indoor recess tip:

"Melting - Flow." Play video and have students follow the instructions in the video.

This game comes from "Go Noodle." For more ideas, click [HERE](#).

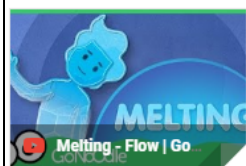
Research shows that physical activity affects the brain in ways that allow students to be more engaged and ready to learn. Check out the [EPICC website](#) for additional tools that teachers can use to help provide physical activity during the day.

#### Do your part to reduce air pollution!

A "cold start" is when a regular gas car has a cold engine, and cars pollute the most in those first few minutes. If there's anyone you can give a lift in bad air, you can help prevent a cold start for someone else.

See our website for more information: [health.utah.gov/asthma/airquality/recess.html](http://health.utah.gov/asthma/airquality/recess.html)

...



The Utah Recess Program has less than 10 forecasted days per year that students need to have indoor recess. In 2015, there was a single "orange" air quality day, and there was never a day that reached a high enough PM<sub>2.5</sub> level where all students would be advised to be kept indoors (Wood, 2016). They reach out to parent groups, teachers, and administrators every year and ask them to sign up for the email alerts. They consider an extra heads-up for those who are interested in receiving this type of alert.

Figure 6

### Contact with University of Utah Health

The project group consulted with University of Utah Health personnel on the guidance flyers. They provided valuable feedback on the air quality color scale that was used and changes were made accordingly. The University of Utah Health program provided their endorsement to be included on the flyers.

### Contact with homeless shelters

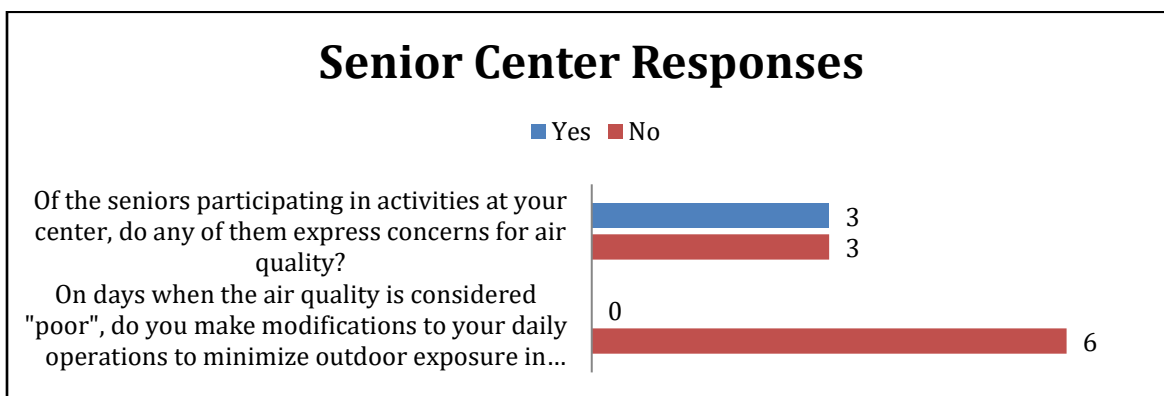
Transient populations are deemed vulnerable to air quality health risks due to usually having pre-existing conditions. Additionally, individuals experiencing homelessness are at a higher risk due to their increased outdoor activity time. The project group contacted homeless shelters in the area to get more information on how they address air quality concerns of residents, or if any changes are made on bad air quality days, but were unable to get any response.

### Contact with senior centers

The project group reached out to senior center managers in the SLV to better understand aspects of air quality communication. As people age, their bodies are less able to compensate for the adverse effects of air pollution. Similarly to homeless shelters, they were asked if any of their participants expressed concerns for air quality, and if they made any modifications to their activities on “poor” air quality days.

The graph below, Figure 7, illustrates the responses that were received. Many senior centers do not have outside activities, and if there are any field trip plans they are not cancelled due to the large efforts in organizing them. The field trips are usually to places that are indoors.

Figure 7



## Part 2: Updated Air Quality Guidance

### Introduction

Elementary school students are the most at-risk age group among school-aged children. Time allotted for recess is regularly incorporated into schedules in PreK-6<sup>th</sup> grade classrooms and time outside is preferred. Therefore, resources included in Recess Guidance documentation should be focused predominantly at elementary level. However, it is not uncommon for physical education courses to incorporate time outside, even during the winter months. Additionally, after school practice for various winter sports will often meet outdoors. Since the Recess Guidance program is currently designed for elementary grades only, administrators and coaches at secondary schools may not be aware of the resources available to properly check air quality conditions before outdoor practices. For this project, the Recess Guidance materials were generalized and supplemented to allow for use by administrators at secondary schools. This awareness of the guidance availability will help reduce the number of pulmonary-related cases in high school athletes.

Other at-risk population in the SLV may benefit from similar programs. Using the Recess Guidance program as a framework, additional materials were developed for the homeless and elderly populations. Each group has its own characteristics, and required the recommendations made to be slightly modified. See the Appendix for the four versions of this updated guidance that were made.

Once developed, Shelter Guidance can be implemented in affected homeless shelters and the Older Adult Guidance can be implemented in retirement communities and nursing homes. The larger population of the SLV will also benefit from the general guidance created for all individuals as well.

After discussion with the DAQ and the DOH Asthma program, the following items were determined to be the highest priority to include in the updated guidance for the various populations:

#### Clarify difference of PM<sub>2.5</sub> and AQI

In the project group coordination with DAQ, they mentioned that the most misunderstood aspect of the air quality guidelines is the difference between the PM<sub>2.5</sub> levels and the AQI. The updated guidance materials have added language that aims to help clarify this difference and help individuals understand and differentiate between these two values.

#### Use the UtahAir app

The website associated with the Recess Guidance program only sources air quality data from a single site, regardless of the user's location in the SLV. The UtahAir smartphone app sources data from the nearest available sensor. The updated guidance seeks to address the shortcoming in the website by encouraging administrators of schools and care facilities to use the UtahAir app rather than the website to check the air quality data. This will ensure that all users receive the most accurate data regardless of their retrieval



method. As mentioned, the Utah DAQ website pulls air quality information from only the sensor at Hawthorne Elementary school. Many schools in the Salt Lake Valley are a significant distance away from this sensor, and may in fact have a sensor closer to their facility. By using the UtahAir app, the facility will find the most location-accurate information because the air quality at their address may vary greatly from the air quality measured at Hawthorne Elementary.

### **Air quality can change throughout the day**

Through the project group's survey of schools, it was found that if schools check the air quality data, they usually only check in the mornings, or once per day. It is important for individuals to understand that air quality can change throughout the day due to weather, wind, or pollution events. For these reasons, the updated guidance includes language that stresses the significance of checking the sensors multiple times per day. It is recommended that the air quality levels are checked approximately 30 minutes before any outdoors time, such as recess.

### **Address summertime ozone**

Currently, the Recess Guidance program only addresses wintertime PM<sub>2.5</sub> in the Salt Lake Valley. During the summer months, there may be elevated levels of ozone. Some schools in the Jordan District are year-round, but most schools in the SLV are not in session during these months. Even though there may not be classes, there are still school related functions throughout the summer such as band camps, sports practices, and social events. The updated guidance in the flyer encourages school administration to consider summertime ozone concentrations as this will help protect students throughout the year.

## **Part 3: Maps of Schools and Air Quality Data**

There are six sensors distributed throughout the SLV. Four of these are in the northern half of the valley while the remaining two are in the southern half. Data collected from TRAX measurements indicate that a large gradient in PM<sub>2.5</sub> concentration exists along the Wasatch front. An effort was made to quantify the current resolution of the air quality monitoring system and determined that additional sensors may be necessary. If sensors are placed in closer proximity to susceptible populations (schools), this can decrease dependence on measurements taken further away and provide more localized air quality information.

The map in Figure 8 shows the schools and air quality sensors in the SLV. The gray lines connect the school to the closest sensor. This map is meant to illustrate where each school would be getting its air quality information from if the administration used the UtahAir application. This is a much better map than if all the schools were getting their air quality information from only the sensor located at Hawthorne Elementary. The pink areas are the large industrial PM<sub>2.5</sub> emitters added to the map. There are more industrial polluters on the outskirts of the SLV.

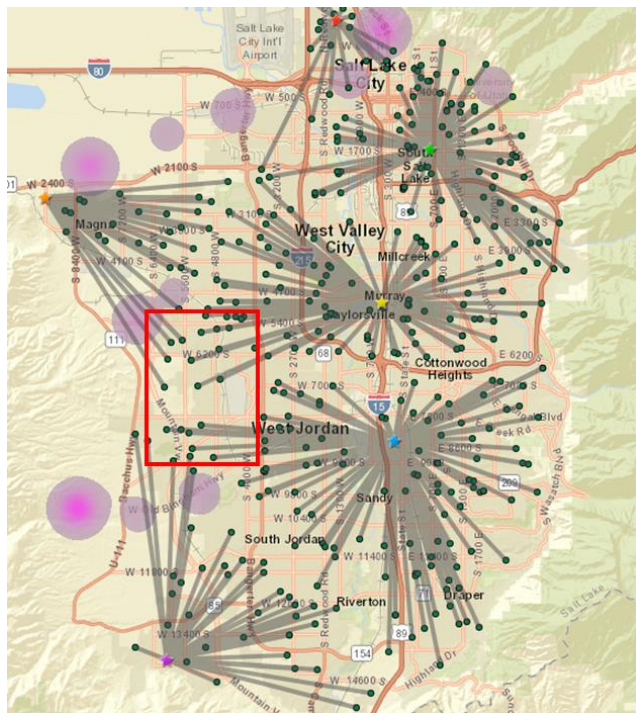
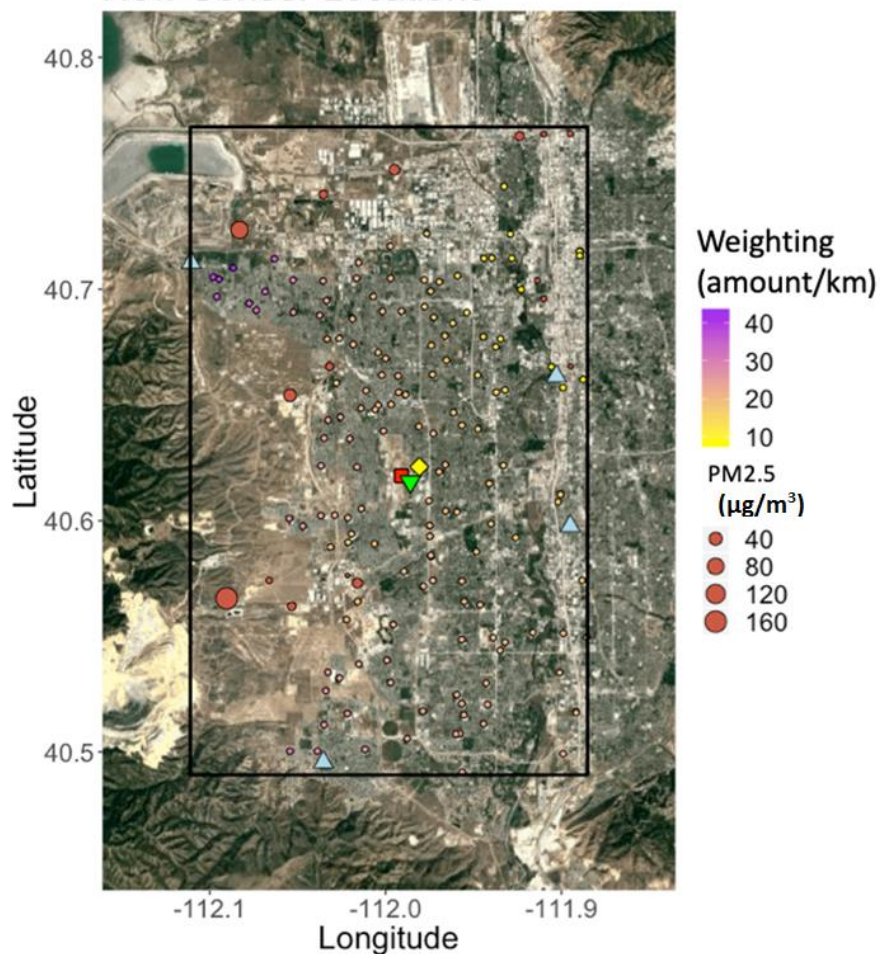


Figure 8

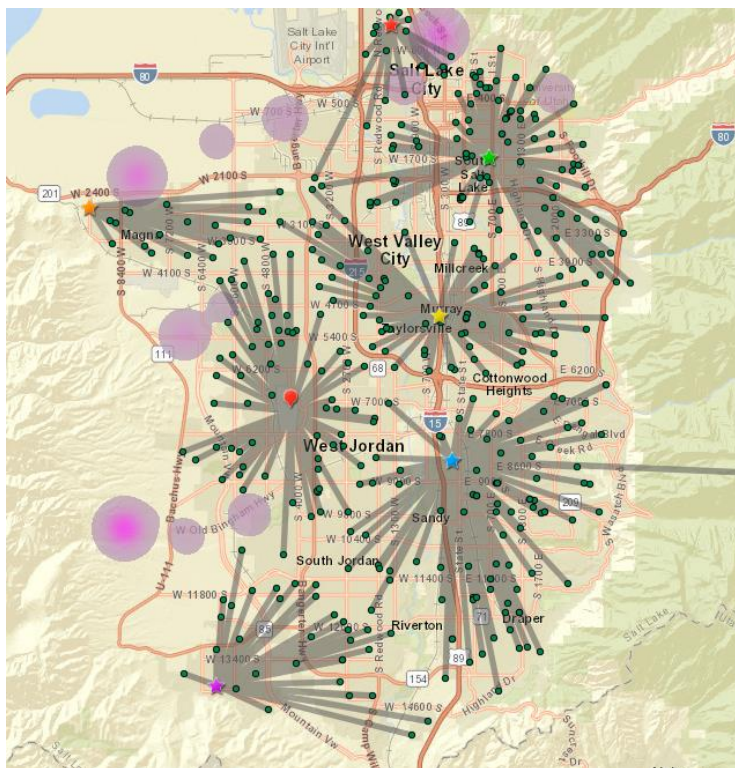
Based on this map, one can visually locate areas where there is significant distance between a school and an air quality sensor. The area between Bangerter Hwy and the Bacchus Hwy, and between 5000 S and 10000 S (outlined in red) seems to be a hole in the air quality information. Upon initial inspection, this seems to be a good area for a new air quality sensor. Our area outlined in red contains four large emitting sources. Provided this information, one can speculate that the air quality in this area may have more pollution sources impacting it, and the levels of  $PM_{2.5}$  in the area may significantly differ from the values at the sensors, or from the DAQ website that reads the Hawthorne Elementary value only.

The project group proposes that this area outlined in red would be a prime area for a new air quality sensor. School or commercial buildings are generally the best location for air quality monitors. In order to find an exact location for a new sensor, the map in Figure 9 was found by averaging three methods: 1) Using the locations of the schools, the centroid was calculated (Yellow Square). 2) Using an inverse distance weighting was applied to each school. The amount of  $PM_{2.5}$  from each point source was scaled by the distance from each school. Then, a weighted centroid was calculated (Red Square). 3) Using the locations of all the sensors, then centroid was calculated. The latitudes and longitudes of each of the three locations found in three methods above were averaged to produce the final location.

Figure 9  
New Sensor Locations

The new location was added to the original map in Figure 8, to produce a new map in Figure 10 below. Using the nearest sensor analysis, one can see a much a better distribution of sensors at each school. This location is near the South Valley Regional Airport.

Figure 10



## Future Considerations

The project group would be interested in future analysis to determine the level of air quality accuracy in the valley. For example, it is not quite known how far away you can get from an air quality sensor and still have accurate data. Depending on how close the sensor is to highways, industrial facilities, residential sources, as well as the topography of the area, the sensor accuracy could stretch feet or possibly even miles. Ideally, the project group would love to go out in the van equipped with mobile air quality sensors to determine how accurate our air quality sensors are and over what distances they remain accurate.

## Closing

The discrepancies in the availability of air quality information adversely impacts school-age children and other at-risk populations. To combat this, the project group proposed and accomplished three main solutions to the problem:

1. Established communication pathways with Division of Air Quality, Department of Health, schools, senior care centers, homeless resource centers and the general public on air quality
2. Provided updated air quality information that address communication shortcomings and distributed to stakeholders
3. Found an ideal location for a new air quality sensor based on proximity to schools

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*Wood, B. (2016, December 12). Updated air quality guidelines encourage Utah schools to hold indoor recess at lower particulate levels. Salt Lake City, UT: The Salt Lake Tribune. Retrieved March 14, 2019, from <https://archive.sltrib.com/article.php?id=4704685&itype=CMSID>*

## Appendix

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## Raising Air Quality Awareness

Exposure to air pollution can be a serious risk to children and adults, especially those with lung disease. As people age, their bodies are less able to compensate for the adverse effects of air pollution. Additionally, children have increased health risks due to participation in outdoor activities and growing lungs. Particulates, such as  $PM_{2.5}$ , can aggravate COPD and asthma, resulting in hospitalization.

Here are 3 Tips to help reduce exposure to air pollutants:

1

### Use the UtahAir App to check air quality

The UtahAir App can be freely downloaded for both android and iPhone users. The application houses the most up-to-date information and it displays air quality details from the nearest available sensor. Many other sources of air quality information only show county-wide data, while the UtahAir app is location specific for where you are in the valley. Check  $PM_{2.5}$  levels in the winter and Ozone levels in the summer.

2

### Check air quality data multiple times throughout the day

Air quality can change quickly. Levels in the morning may be different from levels in the afternoon. It is recommended that individuals check air quality levels at least twice a day: once in the morning and once in the afternoon.

3

### Remember: The EPA AQI value is NOT the same thing as $PM_{2.5}$ concentrations

The higher the AQI value, the greater the level of air pollution and the greater the health concern. AQI values and reported  $PM_{2.5}$  concentrations are not directly relatable. The UtahAir app reports values in  $\mu g/m^3$ , this is NOT the same as the AQI index.

| AQI                 | $PM_{2.5}$ ( $\mu g/m^3$ ) | Activity Recommendation   |
|---------------------|----------------------------|---|
| Below 50            | Below 12.0                 | All individuals outdoors  |
| Between 51 and 100  | Between 12.0 and 35.4      | All individuals outdoors  |
| Between 101 and 150 | Between 35.5 and 55.4      | Individuals with respiratory symptoms or sensitivities stay indoors |
| Above 150           | Above 55.5                 | All individuals stay indoors  |

For More information:

Utah Division of Air Quality  
[air.utah.gov](http://air.utah.gov)

Utah Department of Health Asthma Program  
[health.utah.gov/asthma/airquality/recess.html](http://health.utah.gov/asthma/airquality/recess.html)



## Flyer 2: Guidance for Schools



## Updates to Recess Guidance

Children and young adults have increased health risks when it comes to air quality pollution due to their participation in outdoor activities and growing lungs. Younger children are outside more often, and thus have an increased exposure rate to air quality pollutants.

### Here are 3 Tips to help reduce exposure to air pollutants:

# 1

#### Use the UtahAir App to check air quality

The UtahAir App can be freely downloaded for both android and iPhone users. The application houses the most up-to-date information and it displays air quality details from the nearest available sensor. Many other sources of air quality information only show county-wide data, while the UtahAir app is location specific for where you are in the valley. Check PM<sub>2.5</sub> levels in the winter and Ozone levels in the summer.

# 2

#### Check air quality data multiple times throughout the day

Air quality can change quickly. Levels in the morning may be different from levels in the afternoon. It is recommended that educators check air quality levels at least twice a day: once in the morning and once in the afternoon.

# 3

#### Remember: The EPA AQI value is NOT the same thing as PM<sub>2.5</sub> concentrations

The higher the AQI value, the greater the level of air pollution and the greater the health concern. AQI values and reported PM<sub>2.5</sub> concentrations are not directly relatable. The UtahAir app reports values in  $\mu\text{g}/\text{m}^3$ , this is **NOT** the same as the AQI index.

| AQI                 | PM <sub>2.5</sub> ( $\mu\text{g}/\text{m}^3$ ) | Activity Recommendation  |
|---------------------|--|--|
| Below 50            | Below 12.0                                     | All individuals outdoors   |
| Between 51 and 100  | Between 12.0 and 35.4                          | All individuals outdoors   |
| Between 101 and 150 | Between 35.5 and 55.4                          | Students with respiratory symptoms or sensitivities stay indoors |
| Above 150           | Above 55.5                                     | All individuals stay indoors                                     |

#### For More information:

Utah Division of Air Quality  
[air.utah.gov](http://air.utah.gov)

Utah Department of Health Asthma Program  
[health.utah.gov/asthma/airquality/recess.html](http://health.utah.gov/asthma/airquality/recess.html)



AIR  
QUALITY



HEALTH  
UNIVERSITY OF UTAH

## Flyer 3: Older Adults



## Raising Air Quality Awareness for Older Adults

Exposure to air pollution can be a serious risk to older adults, especially those with lung disease. As people age, their bodies are less able to compensate for the adverse effects of air pollution. Particulates, such as  $PM_{2.5}$ , can aggravate COPD and asthma, resulting in hospitalization.

### Here are 3 Tips to help reduce exposure to air pollutants:

# 1

#### Use the UtahAir App to check air quality

The UtahAir App can be freely downloaded for both android and iPhone users. The application houses the most up-to-date information and it displays air quality details from the nearest available sensor. Many other sources of air quality information only show county-wide data, while the UtahAir app is location specific for where you are in the valley. Check  $PM_{2.5}$  levels in the winter and Ozone levels in the summer.

# 2

#### Check air quality data multiple times throughout the day

Air quality can change quickly. Levels in the morning may be different from levels in the afternoon. It is recommended that individuals check air quality levels at least twice a day: once in the morning and once in the afternoon.

# 3

#### Remember: The EPA AQI value is NOT the same thing as $PM_{2.5}$ concentrations

The higher the AQI value, the greater the level of air pollution and the greater the health concern. AQI *values* and reported  $PM_{2.5}$  *concentrations* are not directly relatable. The UtahAir app reports values in  $\mu g/m^3$ , this is **NOT** the same as the AQI index.

| AQI                 | $PM_{2.5}$ ( $\mu g/m^3$ ) | Activity Recommendation   |
|---------------------|----------------------------|---|
| Below 50            | Below 12.0                 | All individuals outdoors  |
| Between 51 and 100  | Between 12.0 and 35.4      | All individuals outdoors  |
| Between 101 and 150 | Between 35.5 and 55.4      | Individuals with respiratory symptoms or sensitivities stay indoors |
| Above 150           | Above 55.5                 | All individuals stay indoors  |

#### For More information:

Utah Division of Air Quality  
[air.utah.gov](http://air.utah.gov)

Utah Department of Health Asthma Program  
[health.utah.gov/asthma/airquality/recess.html](http://health.utah.gov/asthma/airquality/recess.html)



## Flyer 4: Unsheltered Homeless



## Air Quality Awareness for the Unsheltered

Exposure to air pollution can be a serious risk to children and adults, especially those with lung disease. As people age, their bodies are less able to compensate for the effects of environmental hazards. Particle pollution, such as  $PM_{2.5}$ , can aggravate COPD and asthma, resulting in increased hospitalization. Additionally, individuals experiencing homelessness are at a higher risk due to their increased outdoor activity time.

### Here are 3 Tips to help reduce exposure to air pollutants:

# 1

#### Use the UtahAir App to check air quality

The UtahAir App can be freely downloaded for both android and iPhone users. The application houses the most up-to-date information and it displays air quality details from the nearest available sensor. Many other sources of air quality information only show county-wide data, while the UtahAir app is location specific for where you are in the valley. Check  $PM_{2.5}$  levels in the winter and Ozone levels in the summer.

# 2

#### Check air quality data multiple times throughout the day

Air quality can change quickly. Levels in the morning may be different from levels in the afternoon. It is recommended that individuals check air quality levels at least twice a day: once in the morning and once in the afternoon.

# 3

#### Remember: The EPA AQI value is NOT the same thing as $PM_{2.5}$ concentrations

The higher the AQI value, the greater the level of air pollution and the greater the health concern. AQI values and reported  $PM_{2.5}$  concentrations are not directly relatable. The UtahAir app reports values in  $\mu\text{g}/\text{m}^3$ , this is **NOT** the same as the AQI index.

| AQI                 | $PM_{2.5}$ ( $\mu\text{g}/\text{m}^3$ ) | Activity Recommendation   |
|---------------------|---|---|
| Below 50            | Below 12.0                              | All individuals outdoors  |
| Between 51 and 100  | Between 12.0 and 35.4                   | All individuals outdoors  |
| Between 101 and 150 | Between 35.5 and 55.4                   | Individuals with respiratory symptoms or sensitivities stay indoors |
| Above 150           | Above 55.5                              | All individuals stay indoors  |

#### For More information:

Utah Division of Air Quality  
[air.utah.gov](http://air.utah.gov)

Utah Department of Health Asthma Program  
[health.utah.gov/asthma/airquality/recess.html](http://health.utah.gov/asthma/airquality/recess.html)

