Mountain View Corridor Air Working Group
Meeting Minutes
September 10, 2018

Invited:

- Reed Soper - UDOT Mountain View Corridor
- Cameron Cova – Breathe Utah
- Kathy Van Dame – Wasatch Clean Air Coalition
- Linda Hansen - PTA
- Bo Call - Division of Air Quality
- John Close – Utah Transit Authority
- Brock Anderson – WVC
- Andy Neff – Langdon Group (facilitator)
- Andee DeVore – Langdon Group (co-facilitator)

<u>Minutes</u>

- Approval of 7/18/18 AWG Meeting Minutes
    - Minutes were approved and will be posted to the AWG website.
- Installation Status Update – Reed
    - Reed has a conference call with Steve Forbes and Don Adams today. Upgrades are still underway at Whittier and West Valley Elementary. Reed will get an update on the installation status and with Granite's go-ahead, the team can schedule a tour.
- Develop Monitoring Approach Game Plan
    - What are we hoping to accomplish with the monitoring? How will we use the data?
        - Reed: From my perspective, the mission is to get an understanding as to what air quality conditions are within the schools as a result of having a roadway constructed nearby.
        - Cameron: I think the secondary, or similar goal, is to find what the impact of a nearby roadway is for schools. Hopefully this can have a broader application.
    - What do we want to measure?
        - Andy: We talked about replicating what was done previously by Sonoma, including measuring black carbon and PM2.5. Do we still want to proceed in that direction?
        - Bo: I think we definitely need to have monitoring and the easiest way to proceed would be to hand somebody the report that Sonoma did and say we basically need to validate this report and let them give some suggestions on how they would do that. I imagine it will be very similar unless there is some new technology or equipment that would be just as good to use, if not better.
    - What devices should we use to measure? What is the desired quality?
        - Using a commercially available monitoring system called Purple Air? We wanted to get some shorter-term measurements before waiting for a few years for MVC to be completed.
        - Bo (Regarding the Purple Air system): There are sensors that use an optical detecting method to count particles. At the end of the process it gives you a number. They're relatively cheap, but they have some biases that are important to be aware of. They have been used in a lot of studies and they work well if you

understand their problems and take them into account. They're less valuable for a real-time use as opposed to a study use. They tend to be biased high when you start to get into particulate levels that are higher. If you look at low levels, there is a certain amount of noise. So far, they seem to be really good in the 5-20 reading range. This stuff can be corrected somewhat with a correction factor later. Their biggest advantage is they're cheap. You could get one for every school for low cost. You can check them at the front end to make sure they all read about the same and they will give you some relative differences. They do give a real-time number so that the school can see it and have it show how bad it is outside and how much better it is inside. They can also be used to determine things for recess. They're cheap enough that they can be given to the schools as a gift.

- Cameron: I think it's a very cost-effective and effective use of resources. And because there will be other personal Purple Air units nearby that we can reality-check the numbers, that would be an added bonus.
- Kathy: I think it would be great. Is there any implication for the schools in maintaining these? Do they need updates?
- Bo: Not a whole lot except you put them out and plug them in. They're designed to work off a wireless network. You can broadcast it to the public if you want. My recommendation would be that these stay private during our study and then the school can make them public if they want to.
- Bo: PurpleAir has a map on their website showing where sensors are located.
- Reed: Do we know what the lifespan of these devices are?
- Bo: We don't know. That is one of the challenges/drawbacks of the instruments. We also don't know how they deteriorate over time or what sort of drift they have. They're also pretty sketchy on what you do to clean or service them. There are no moving parts, really. But I have heard that blowing out the dust that accumulates on them is good. But they're so new that I don't think they've been out long enough to tell how long they last.
- Bo: There are other instruments out there; this is one of the easier ones to get. But every instrument has its own problems. I don't like them for a lot of reasons, but I think they would be a good fit here. There are others out there. There's a website called AQ SPEC (www.aqmd.gov), it's for a lab that analyzes these types of instruments. You can determine what you want to study and then choose an instrument from there. The U is also working on an instrument right now that is similar to PurpleAir. Also someone up in Cache Valley. Many out there, but PurpleAir is probably about a year ahead.
- Andy: So the group would like to proceed with PurpleAir?
- Reed: Hearing the caveats that Bo is saying, maybe before going all-in, we want to do a test case at one school and see what sort of data we get and how useful it is and how close it gets to helping us achieve our goals. Maybe I'm being too cautious, but I want to make sure we are spending our money wisely.
- Kathy: That sounds like a good consideration. I would suggest if we go that direction that we choose the one that's in-out monitoring PM2.5.
- Bo: I might also make a suggestion that I would not consider the PurpleAir monitoring in any way sufficient to validate what we are doing. I would only use it as a supplementary monitoring for what we are doing. That said, I would also suggest we get ahold of Kerry Kelly at the U. and see how far along their project is. It might

also be good to see if they can come out and do something to field test their equipment. (Bo will talk to her.)

- Reed: I think if they are ready to do it, it might be interesting to perhaps have them give a brief presentation on what they're doing. If there are opportunities to work together with other groups that have similar goals, we ought to be looking to pursue those. My understanding is in order to really get a comparison of what things were like with the background measurement study and how things will be when the roadway is complete, with sufficient traffic to warrant the next measurement, we'll have to do something similar in scope to what we've done before and the PurpleAir will be a supplement to that. It might be good to see if there are less expensive ways to see how things are going before we do the other measurement.
- Bo: If we can use these low-cost sensors, what they might be able to do is just give us a record of levels year-round. Certainly they are responsive to levels going up and down and can be used to show trends as construction progresses. We can observe the levels and maybe trigger the next round of monitoring to see how the schools are performing.
- Reed: So you're telling us they could probably tell us qualitatively what the trends are instead of giving us hard numbers?
- Bo: Yes. It could be an early-warning indicator that levels are increasing and we can monitor more closely when this happens.
- Reed: Well, I think there are probably a number of useful applications for using the PurpleAir stuff. It may be worth brainstorming on what all could these things do, how many we would need, and where would we need them to accomplish that, and whose cooperation would we need to get those to work.
- Andy: What measurements can the PurpleAir take?
- Bo: They count very discrete particle sizes. At its simplest, it has a detector that counts a particle that goes past a lens and then those counts go into different bins of particle sizes. It gives you a number by some estimation. I'm not sure exactly how it's calculated, but that's their trade secret, their algorithm. It's not the same thing as a black carbon-type sampler. We also need to consider what Sonoma did and find something equivalent. We'll have to cross that bridge when we get to it.
- Andy: So would that give us the measurements we're looking for?
- Reed: From what I'm understanding, it doesn't take the place of the future monitoring episode post roadway construction, it would just give us a qualitative feel for how well the upgrades are functioning. It wouldn't be anywhere close to what we had before, but it would give us a relative idea of the reduction of the particulate matter it was measuring.
- Cameron: I think within the scope of our goals, this means parents and the community can look this up on the map and have a status of the air quality at their kid's school. I think there's value in just that. It would take some educating the parents to show it was available, but this is another source of real-time info that anybody can see what it's looking like at my kid's football practice, etc.
- Bo: They're getting better and eventually they'll be awesome. But another challenge is that you're making an implicit endorsement of the specific product as opposed to a type of technology that could be out there through many different sources. But it is also something that is very cheap and the school district could decide to put one of these at every single school to give the parents and administration something that's closer to them.

        - Cameron: Yes, and it's a PTA thing. The PTA would inform the parents and it may come across differently if they did it rather than it coming from us. I think it's a good secondary benefit with all the caveats you mentioned.
        - Bo: An agency in California has put some of these monitors out. They're not just being used by individuals, they're being used by agencies who are trying to make high-level decisions based on their data.
    - When, where, and what duration should we measure? Who will do the monitoring?
        - Do we still want to start the monitoring in November and go through June? That gives us a couple months to get the plan in place, and if we want to coordinate with the U, etc.
        - Bo: How long would it take to get a contract out for the indoor-outdoor monitoring? I'm wondering if a couple of months is sufficient time?
        - Reed: If we to just do the indoor/outdoor monitoring and not the overall background monitoring, we paid Sonoma roughly $142,000 for that. To get a contract in place we might be able to use a pool contract just for that purpose, and we need to finish up the scope to just include that and then find somebody on the pool who is interested in doing the work and then work towards that. Long story short, we're probably a minimum of a couple months.
        - Bo: That's what I was thinking. And we don't know if the construction is complete in all the schools yet?
        - Reed: Correct. I don't think it's complete in those two schools yet.
        - Bo: Are we going to be waiting for completion on all the schools before we do any post-installation sampling? Or are we just going to go with the schools that are complete?
        - Reed: I think we could do either.
        - Bo: The timeliest thing is that if we're going to do sampling for this season, we need to start that soon.
        - Reed: If we're going to do this seasonal monitoring from November to May, are we just looking at doing a replication of the indoor/outdoor monitoring that Sonoma did before with similar equipment? Are we looking for a more qualitative thing potentially with PurpleAir? I want to get that scope ready, but I want to make sure I'm clear on what that scope is.
        - The timeframe is actually going to be broader this go-round to hopefully capture any inversion events that might occur during the winter.
        - Reed: I will re-look at the scope, make sure it's only looking at indoor-outdoor monitoring, get it up to speed and send it out to the group with a schedule and a budget by the end of the week.
- AWG Fact Sheet: We're waiting for actual costs of upgrades for the last two schools so will update the sheet when that is known.

<u>Action Items</u>

- **Andy**
    - Send out Doodle Poll to meet next month.
- **Bo**
    - Contact Kerry Kelly about status of project at the U. and potential presentation to the AWG.
- **Linda**

    - Ask the Hillside principal to write a letter about how there have been fewer incidents of asthma attacks since the filters were installed.
- **Reed**
    - Schedule school field tour.
        - Draft list of things AWG would like to see.
    - Letter to GSD re: Hunter High portables relocation.
    - Determine scope of GSD outreach efforts with the five schools.
    - Update AWG fact sheet with cost and Phase 2 roadway and Phase 2 (to mirror Phase 1) transit.
    - Circulate draft agreement to cover the budget shortfall.
    - Continue drafting the independent evaluation and monitoring contract scopes of work.
    - Provide update on status of last two schools.