Quarterly Adaptation Exchange: Notes

Thursday, May 24th | 1:00 – 4:00 PM
Sacramento County Primary Care Center Room PCC2020 | Sacramento, CA

Updates from the Collaborative

- CRC was able to temporarily work with CivicSpark Fellows on 2 separate projects
  - Built environment - creating development guidelines
  - Outreach plan for health sector, stemming from CRC ACEs workshop – document is almost done and ready to use.
- On April 11, CRC gave testimony at Senate for air quality committee. This was an opportunity to learn what's happening around the state in collaboratives like CRC – hoping to gather some additional funding for CRC
- CRC finished series of factsheets: Investing in Our Future – working on launch plan
- SB 1 – heat pollution initiative: CivicSpark Fellow working on website for heat initiatives - launching soon!
- CPUC rulemaking released earlier this month on Climate adaptation. This ruling is directed at investor-owned energy utilities in state, but other sectors CPUC regulates, including water and telecom might be affected as well. CPUC is currently asking for input on basic but important questions: how should CPUC define Climate Adaptation? How should decision-making inform climate-adaptation? If interested, CRC recommends reviewing and commenting.

State of the Air

Will Barrett | Senior Policy Analyst, American Lung Association (ALA)

18th Annual State of the Air Report

- The report provides a snapshot in time about our air situation by giving grades to every county with air quality monitors. It shows us the trends in air quality over the long term because there are 18 years of data.
  - About 90% of California received a failing grade and dominates list of most polluted cities in the US – data is sourced from 2014-2016 air quality monitoring data (most up-to-date data possible).
  - ALA uses this as an opportunity and tool to engage with the public raise awareness on air quality and climate change issues and how they can get involved.
- This years findings: Sacramento was #5 - had about 30 unhealthy air days (LA had over 100).
- In the time that Will has been with ALA, Particle pollution in Sacramento has really dropped off - great improvements
  - Ozone pollution has an impact throughout the state (30 million cars on the road)

- Particle pollution – SJV is most difficult are in CA to clean up (industry, consumer products, ag, wood burning, etc.)
-

➢ Pollution levels have been declining, how do our improves compare to coastal areas in the state?
- We're on the higher end but our baseline was higher than some coastal areas.
- Still at a level that's unhealthy so need to keep going. Made a lot of progress (60% reduction), but still lot of progress to make. But goes to show local programs make difference overlayed on fed and state programs to reduce emissions.

Key Air Pollution Health Impacts

➢ In children, air pollution can cause premature death and developmental harm
➢ In adults, air pollution can cause reproductive harm, lung cancer, asthma attacks, wheezing and coughing, shortness of breath, cardiovascular harm, susceptibility to infections, lunch tissue redness and swelling
➢ ALA shares information with the public about the many ways air pollution can harm health and shorten life - most most serious impact is premature death.
➢ In addition to these more well known impacts, air pollution is also associated with pre-term birth and low birth weight, obesity, reductions in cognitive development, and autism.
➢ Why is ALA issuing the report card? Pollution remains a serious health problem.

Who is at risk?

➢ California has some of the worst air pollution in the country, and with more than 90% of residents living counties with record high levels of pollution during some part of the year, this means over 35 million residents are exposed to unhealthy air during some part of the year. This is a far higher percentage than nationally.
- Ozone and particle pollution can shorten life, premature death/life

➢ Millions of individuals in California are at risk for more serious health damage from air pollution because of their age or existing illnesses, or a lack of resources– including children, seniors, people with existing heart or lung diseases and those living in poverty.
- All are susceptible to unhealthy air days, but children, seniors, LICs, outdoor workers more susceptible
- ~200k children living in Sac region with asthma at higher risk from unhealthy air

Sources of pollution

➢ Ozone Pollution - smog (highly irritating, yet invisible gas)
- Transportation dominates in sac region - generates smog, soot, and climate pollutants. In some parts of state, 80-90% of smog forming pollutants come from transportation sector. Vehicles, trucks and transportation are the biggest sources, but also oil refineries, manufacturing, paints, and wood burning
  - Did report last year on clear car standards that found ~$20 cost of filling a tank of gas for vost included climate damages, social costs of carbon

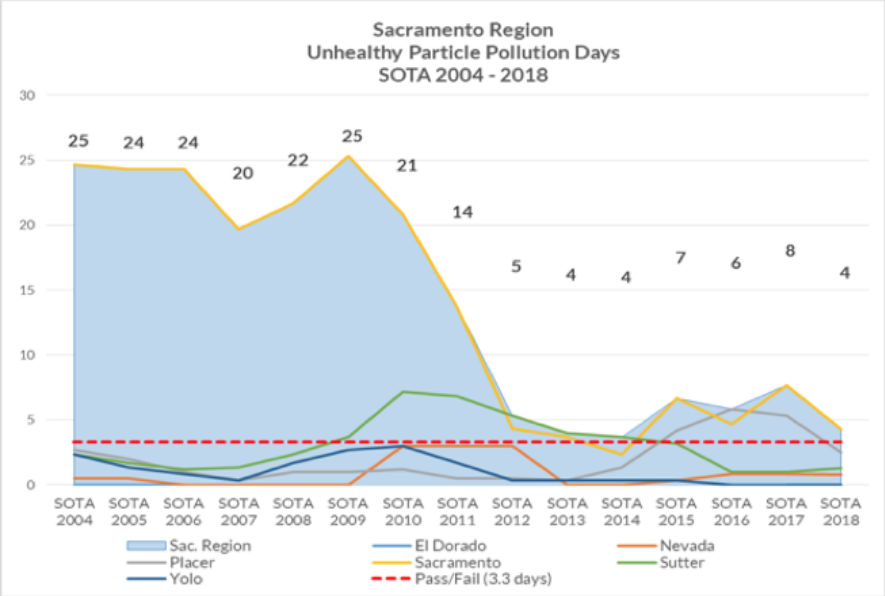
➢ Year round particle pollution - avg level of microscopic bits and solids and aerosols in the air
➢ Short term particle pollution - days with spikes in those bits of pollution
- Difference in particle days and particle pollution: spikes in unhealthy particle pollution as opposed to annual levels

➢ ALA released a report in 2016 about the health costs of tranportation pollution over the years, including a study that details clean car standard to include climate damages (Clean Air Future)

- Found that in just ten states, the cardiovascular and respiratory health, and climate change costs of traffic pollution was over $30 billion – or roughly $18.42 per tank of gas.
- We need to address transportation pollution as threat to public health through a mix of policies that address vehicles, low carbon fuels and more sustainable, healthier community planning.
- Another ALA report: The Road to Clean Air - This report highlights the need for California to adopt next generation of passenger vehicle standards (ZEVs) that will put California on the path to meet ambitious clean air and climate goals.

Grades and Rankings

- Overall progress is significant – nearly 60 percent fewer ozone days - but higher temperatures and weather conditions in 2016 created a slight uptick (heat created more ozone pollution).
- When ALA issues grades and rankings - there is the benefit of 19 yrs of data to show long term trends.
- Ozone daily AQI values - Launched by EPA recently
  - All data that goes into history of our report from 1998-2016 - shows air quality index.
  - Seeing fewer days and lower concentrations of smog on those days.
  - Same with particle pollution - can see about 80% reduction.
  - Can see depth of pollution, not just the unhealthy days
  - Air is cleaning up thanks to Clean Air Act
- Particle pollution: air pollution has gone down significantly in Sacramento
  - SMAQMD is committed to reducing pollution coming from wood burning fireplaces and wood stoves. It has an incentive program for Sacramento County that helps people change out their existing wood burning units to cleaner units, and an enforcement program to stimulate compliance with rules related to wintertime burning activities. This has significantly brought down particle pollution and daily AQI levels for Sacramento and an example of the power of local action (see graph).



Overall findings

- Overall findings with extreme heat in 2016:

    - Many counties saw increases in unhealthy ozone days.
    - Many counties saw an increase in unhealthy ozone days
    - With high temperature and little wind, ozone formed and remained stagnant
- ➢ Climate change and public health
    - Vulnerable populations (children, the elderly, low income communities) are already most impacted by air pollution and will face the greatest burden
    - Ozone - higher temperatures lead to increased emissions and accelerate ozone formation
        - There were 24 counties with more unhealthy ozone days than 2017
    - Asthma and allergy sufferers face high levels of ozone and pollen over a longer span of the year
    - Particulate pollution emissions will rise with increased energy demand, while black carbon (soot) particles also significantly contribute to global warming
        - For the 2014-2016 data, the effects of drought on particle pollution started falling off. Had bit of a reprieve there but *doesn't include 2017 wildfires* - this will be factored into report next year.
        - There were 30 counties with less unhealthy particle days than 2017
    - Hospitalizations and premature death will increase as rising temperatures worsen air quality and exacerbate respiratory conditions
    - Wildfires and smoke exposure (fine particulates) will increase as hotter, dryer conditions are more prevalent in CA
        - With the drought, wildfires, extreme heat we experienced, all have driven up level of pollution in parts and across the state. Within broader scope of CA, many view air quality improvement as strong signal that air is getting cleaner, but climate change is damaging that signal. We need to make sure we stay on the right path.
    - Heat Waves will increase in length, frequency, and intensity in CA

Six Current Threats to Clean Air (EPA is looking at cutting 60 different regulations)

- ➢ Threat 1: Weakening the Clean Air Act
- ➢ Threat 2: Repealing plans to reduce carbon pollution from power plants
- ➢ Threat 3: Removing limits on emissions from oil and gas operations
- ➢ Threat 4: Opening doors for more polluting trucks and cars
    - Potential rollback of clean car programs by rolling back restrictions on super-polluting trucks (Older truck engines can be placed in new truck engines, which can emit 400x emissions as compared to cars made today)
- ➢ Threat 5: Cutting funding and expertise needed to clean up the air
- ➢ Threat 6: Stacking the deck to deny the scientific evidence

Key state and fed clean air programs

- ➢ Defending and protecting Clean Air Act is at the core of all this - CA could potentially be islanded as they were before
- ➢ Widespread transformation and support of transportation sector to ZEVs
    - Freight, transit, school buses
- ➢ Support laws and policies to reduce super pollutants (e.g. methane)
- ➢ Support 100% renewable energy
- ➢ Support increased neighborhood monitoring and pollution controls

Key solutions in local communities

- ➢ Ask local officials what they are doing to make your community ZEV ready
- ➢ Support active transportation planning and investments in your community (walking, bicycling and transit options to reduce vehicle miles travelled)
    - Ensuring investments in active transportation are done in lens that allows safe access to those modes. These are planning decisions that make the clean air choice the healthier, easier, safer way to go.
    - A lot of work to transition fleets to ZEVs
- ➢ Take personal steps to reduce emissions including: reducing car trips, using zero emission cars or buses where possible, reducing energy use, avoiding wood burning.
- ➢ Reducing wood smoke pollution - has been really effective local program and more programs need to be implemented that are similar
- ➢ Communicating pollution:
    - Areas in foothills in Folsom is where pollution from downtown Sacramento drifts, forms and becomes trapped against foothills. Is it important to try to convey that clean air day in your neighborhood is important, and driving around all day affects people's health somewhere. We need to all see problem as connected. In coastal LA for example, communities have clean air, but the pollution just drifts upwards to the inland empire where populations are burdened by excessive pollution. It's a fairness/equity issue that we can't imagine (pollution) is swept away by breezes.

Materials available

- ➢ Top 10 lists, city rankings, detailed info on air pollution health impacts on www.lung.org

Regional Air Quality Priorities and Initiatives

Alberto Ayala | Executive Director, Sacramento Metropolitan Air Quality Management District (SMAQMD)

Why is CA doing what they're doing?

- ➢ Current state of politics: These are challenging times with the federal government. Alberto met with new head of air office, and their priorities are a "demolition list"
    - They are contemplating going back to standards adopted in 2015 – and ignoring science behind the limit - makes it difficult to digest and make progress
    - At a regional level, we are constrained. But there is a lot we can do - if we do it together, we are going to be more successful - regional collaboration will allow us to get there
    - US EPA is currently contemplating examining science behind AB 32 standards - we need to do what we can on a local and regional scale and leverage public investments
- ➢ Alberto previously worked at Air Resources Board (ARB) - got pulled into AB 32 around 2008. Had mindset of 410ppm carbon emissions threshold at the time that CA couldn't pass - we crossed the threshold on 4/29/18.
    - There is an effort right now by MIT engineer Peter Theokowski. Introduced to general assembly last year to take CO2 out of the air and reduce concentrations from over 410ppm down to 300ppm. Called Healthy Climate Alliance.

Shared responsibility in the Capital Region

- ➢ What is the shared responsibilities of mitigating impacts?

- Transportation crossed over as sector that contributes highest level of emissions. The convenience of motorized transportation is contributing - what role do we all have?

➢ Clean air progress in the capital region: Particle and ozone pollution.
- The trends are important to understand. Although we're in attainment and making progress, we're oscillating around the standard. Ozone will continue to be a big task for us.
- EPA released additional designations for the ozone standards about month ago (reclassifies five areas in CA and established air quality thresholds that define the classifications, see full report)

Built Environment and Transportation Sector

➢ County of Sacramento: GHG inventory shows transportation and built environment as two big contributing sectors. What do we do about it?
- Alberto came to SMAQMD from ARB with car perspective – now believes the way we move forward is better mobility, not better transportation. For the region, advocating for investments for clean, low-carbon sources - identified $350 M in shovel ready projects

➢ We are a car centric society and change will take time, but the best way regions can work is by making strategic investments into better transportation and mobility - electrification of transportation is not a matter of if but when. We are at the inflection point of significant transformation of transportation as we know it - AI, autonomous, connected, shared vehicles all turning transportation on its head. The Air District has a strong and growing partnership with Sacramento Regional Transit (RT) - hoping to tackle these issues together.

➢ Change is going to take time, but we are turning the tide. Most important role an air district plays is making strategic mobility investments to clean up transportation. This is going to take a long time (previously was unaware of barriers). We all have the responsibility to guide the development of technology that will result in a net environmental benefit.

➢ Electrify (battery and electric):
- Hydrogen has untapped potential - no compromise alternative to petroleum combustion. Also cheaper!
- Electric cars need to be exciting. Tesla, electric car manufacturer, brought a superior product to the market (fast, cool, etc.). EV cars used to be "settling"

➢ Advance regional strategies
- City of sacramento is emerging as a leader and endorsing clear direction from staff that will allow Sacramento to step up and do its share of the state target. As a region, we need to work towards that level of commitment across all our jurisdictions!
- Regional strategies provide great potential for both light-duty and heavy-duty vehicles and equipment
- Barriers to electrification: building infrastructure - need to double down and deploy more charging and fuel infrastructure across the region

SACOG Green Region / SMAQMD Investments

➢ SACOG: one of SMAQMD's strong partners - they want to advance to better land use planning and better mobility. Came up with Green Region concept focused on personal vehicles, sharing / rental, transit, municipal fleets, and disadvantaged communities.
- This plan works to elevate and expand the sphere of action in our region. It makes better land use planning and mobility. Great potential for car-sharing, transit, and municipal fleets

        - AB 617 prioritizes impact in underserved communities
    - Air district is also strategically targeting opportunities to spend about $36 M to clean transportation clean up multiple sources. If interested, having public meeting June 5th.
- We're at a point in time when we have huge transformation in transportation sector. At the same time, thanks to VW, we question our wisdom to continue to rely on combustion fossil fuels to move us. Political head wind will eventually pass and auto industry will come to a census. VW working with Apple on autonomous vehicles.
- Bike sharing vision at air district: The idea of bike sharing was born at air district - just rolled out Jump bike share program to make our communities more livable. Sacramento will have the largest electric bike share program in the nation - electeds deserve a lot of credit
- SMAQMD is using some VW funding to do community car sharing specific focused on disadvantaged communities - Electrify America, SACOG, want to expand program
    - SMAQMD is learning a lot about what it takes to provide mobility solutions for disadvantaged communities
    - Four communities in region were specifically identified - air district wanted to bring them zero-emission solutions. Technology solutions are easy, most difficult is the social dimension (language, knowledge of technology, etc.). Air District has worked through these challenges and many have become accustomed to the program and want to expand it – how do you get people to trust this is a solution for them?
    - Current car share program in underserved communities is limited to 1.5 hours max – as SMAQMD sees demand going, want to bring more capacity and more cars. When do people really need a car if they haven't had access to one?
- Congresswoman Matsui Initiative ATOS (Autonomous Transportation Open Standards) lab - Sacramento is a testing-ground
    - Is there a downside for autonomous vehicles? Like any innovation, it will take us time (we don't want to see more crashes). There's a technical solution and we have a role in guiding this inevitable development in a way that provides environmental and public health benefits.
    - Air district wants to seize opportunity and take the regional to the next level

Questions

- Is there a plan to use some funding to look at effective ways with technology to clean the air now instead of just focusing on roadmap for the future? Ex of someone cleaning air around a park – is there something similar that could be incorporated in the near future?
    - Ambient air filtration. Short answer is no – very focused on cleaning up sources as quickly as possible. Somewhat skeptical about solutions. If there is a viable technology, air district wouldn't be opposed to it
- Behavior change / storytelling: One of the really useful tools is telling a story. Can you tell us about your Jump bike experience?
    - Tried conventional bikes, but e-bike experience was great. Some challenges navigating city roads not prepared for bikes. There is not the proper charging network needed for the bikes, but did not want to delay the roll out, so right now, Jump comes around and charges the bikes. From the user perspective, Alberto wants people to see us using these bikes. The Air District wanted to make sure people could leave bikes anywhere.
    - Jump, about a month ago, was taken over by Uber. Concept: with one application, could have seamless transition
- As we try to pivot conversation, important for us to coordinate with each other. What does that look like? And can you expand on the outreach and engagement for the car share program?

- Currently the region is missing that common identity / leader, but things are changing. We're very committed but we're not the only ones - we need to expand our collaboration. One context that could be useful: lucky in Sacramento that we have very progressive Mayor from environmental standpoint e.g. climate commission. We know what we need to do, we just need to do it. Climate Commission could be our regional scoping plan – where can we go if we work together
- Investing in DACs. Tesla buyers have gotten rebates over the years.
- We need *better mobility, not transportation*. We need to move beyond just replacing cars – beginning of emphasis on car-sharing.
  - Mobility is key issues: can't forget mobility and better transportation - this will be key to a clean Sacramento and a clean region
- What if we commit to electrifying residential units? If we all get unified behind a common vision, everyone can speak of one goal – work in progress amplify the collective effort rather than what we can do as individual communities.

➢ Is there a unified outreach that we can do so as not to overburden communities?
- Absolutely. Communities are busy so want to be able to work with EJ groups.
- Not capable to speak to community as bureaucrats.
- Outreach question was about better mobility not just better transportation. That was beginning of emphasis on car sharing.

Current initiatives and Major Strategic Goals for Regional Transit

Henry Li | General Manager, Sacramento Regional Transit District (Sac RT)

Major initiatives moving forward

➢ Grant Opportunities - TIRCP, congested corridor, Electrify America and others
- Recently got $84M from state. $60M match from federal and local. Total budget $144 M
- This will allow RT to buy up to 20 new light rail vehicles with low floor accessibility
- Complete double tracking for LR Gold rail to Folsom to be able to have 15 min service instead of 30m during peak commute hours - expects this to be very popular
- Grant mandates RT to have 3 express trains during peak time of Gold line - Expect thousands to ride with RT.
- There is currently not a train that leaves after 6:15 PM - makes it difficult for folks to stay in Sacramento. They're extending service on June 17th this year to 11:30pm.

➢ Technology Advancement
- Microtransit, autonomous and electric vehicles, customer convenience

➢ SmaRT Ride Microtransit
- Neighborhood transit program in Citrus Heights launched two months ago – has more than tripled - first in the nation to implement
  - Smart ride: similar to an uber van type of service.
  - You can use the app to order the service any time and the smart bus will come tp pick you up in 15-20 min - Driver has gone through strict security clearance. Charge is $2.75 for adult passengers, and $1.75 for elderly/disabled
  - Allows passengers to transfer to a bus or light rail 90 min after for free. Wheelchair and ADA accessible.
  - Just received $12 M to run this for next 2.5 years. May get another $2M to convert these vehicles to zero emissions.

➢ Downtown/Riverfront Streetcar

- $208 million project
    - $100M from federal gov. Locally/statewide, another $100M.
- 4.4 mile circulator, 15 min headways

2030 Electric Conversion / State of Good Repair

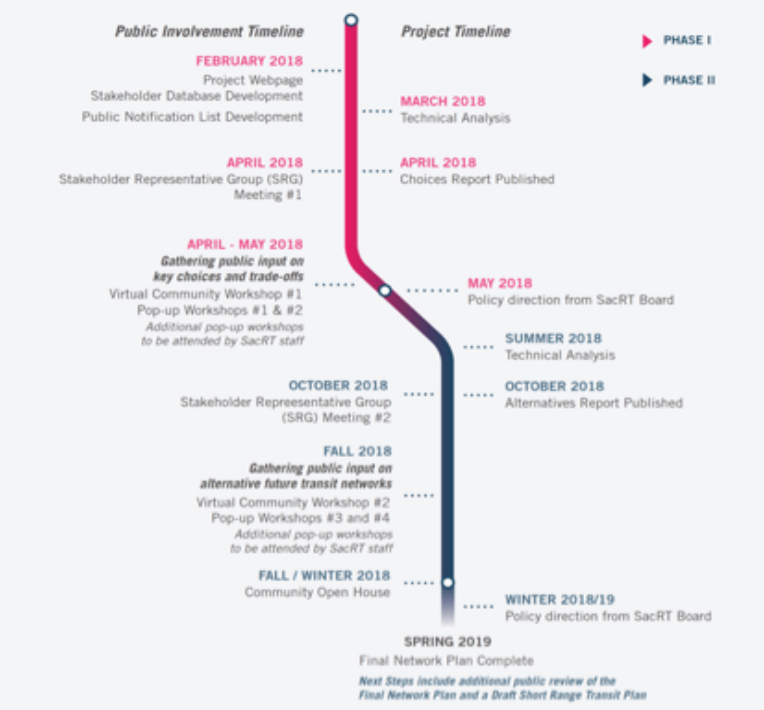
- Develop a comprehensive plan to deliver a complete transition to zero emission buses by 2030
    - Help reduce the emissions of GHG in the Sacramento region
    - Implementing massive effort to redesign entire network to make sure our system will go to places where we can serve most people. Current routes virtually 30 years old.
- The transition plan is contingent on two primary factors:
    - 1. Continuous advancements in electric bus battery technology (range) - Plan to convert all buses to ZNE by 2030 (bus lifespan is 12 years)
        - Have plan to convert all buses to zero emission electric buses within 12 years. because bus lifespan is 12 years. In next couple of years, will start to replace Compressed Natural Gas (CNG) buses by zero emission electric buses
            - - 2020-2023 replace 22 to 23 buses per year (91 total buses)
            - - 2027-2029 replace 30 to 33 buses per year (96 total buses)
    - 2. The availability of funding to maintain and sustain technology & infrastructure

Sustainability Commitment / RT Vision

- Need to be true key player to move towards sustainability and eliminate pollution from our region
- Public Private Partnerships: RT works with Electrify America very closely. Applied for 12 electric buses. If we get this award, 12 buses will be used between UC Davis main campus to downtown and Medical Center here. This 15-minute service will help reduce congestion.
- Transit role in environmental sustainability:
    - Improve air quality - Air quality is often the unhealthiest in urban and suburban areas where traffic congestion is the worst. Public transportation can reduce the need for many separate trips by private vehicles. Most rail transit vehicles emit little or no pollution, as they are powered by electricity. SacRT's buses currently use compressed natural gas (CNG), which produce fewer pollutants.
    - Reduce GHG -Studies show that light rail systems produce 62% less and bus transit produces 33% less GHG emissions per passenger mile than an average single-occupancy vehicle
    - Facilitate smart growth - Transit reduces GHG's by facilitating compact development, which conserves land and decreases distances people need to travel to reach destinations.Compact development also leaves more land in the region for parks, wildlife preserves, forests and other uses such as agriculture. Trains also reduces the need for pavement, meaning less run-off that degrades the water supply.
    - Save energy - Ride-sharing using public transit can save fuel and decreases the need for constructing more transportation infrastructure, manufacturing new vehicles, and extracting more fossil fuels, which equals energy savings and fewer environmental impacts.Congestion relief from transit also saves fuel as vehicles stuck in gridlock waste fuel, generate emissions and leads to wasted time sitting in traffic.

Sac RT forward

- Starting massing effort to redesign entire network to ensure buses will go to places where there will be the most rideshare



Future Major Capital Projects / future sales tax

- Expansion to airport, Citrus Heights
    - Normally, federal grants account for 50% of cost.
    - Next ask for fed gov: airport-lightrail extension - working with more stakeholders to determine how it will happen and consider other potential options
- Citizen Initiative
    - Local funding makes a difference, but local funding is very behind other local jurisdictions. E.g. SacRT is incredibly underfunded compared to LA. This region expects more public transit, but the local funding is so low - we need to do something because we are already behind in terms of mobility. If we continue to do this, we'll fall behind.
    - 2020 sales tax could have more share for transit to be able to put more services on the street
        - SD has 20% more population but 40% more buses. Their sales tax is transit-oriented (allows them to go to bikes, complete streets, etc.) Would like to work towards that, but working to not offset people on the roads

Regionalism and Annexation

- Join forces to do more and better with less
- Allows specific terms and conditions so cities will still a have high level of control (flexibility).
- Annexation will improve efficiency and effectiveness (scale of economy).
    - Working with local / regional population and surrounding organizations to see how RT can join force to provide better service with limited funding.
- Easier to apply for federal and state discretionary funds for major capital projects and innovative funds.

- Overall improved customer experience through integrated and coordinated services (timed transfers, fare structure, payment methods, scheduling and reporting apps, etc.).

Questions

- Integrating LR and buses to encourage bike use?
  - New buses and rail will have low floor
  - Local funding: sales tax is transit-oriented. Some fund go to bike/pedestrian/complete streets. Want to work towards that
- In terms of regional concept, any thought given to intercity travel? E.g. Davis to Rancho Cordova
  - RT's microtransit - if you live ~1mile from bus station in Davis, could use microtransit to take you to bus stop then use transit or bus system to get you to Rancho Cordova (free for the first 90 min after using a microtransit bus).
- Electrify America money for UC Davis to Sac: will that be available only to those in campus?
  - Two stops in west sac and two stops in downtown. Anyone could pay.
- Is RT profitable?
  - Not currently - need to increase ridership to increase profit

Panel Discussion: Air Quality, Transportation, and Heat

Introductions

- Earl Withycombe, Board Member, Breathe California Sacramento Region and Air quality Analyst at ARB
  - Breathe California has existed in Sacramento for 101 years. Prioritize air quality improvement in mid 1970s. Saw the need to protect lung health from air pollution by fighting TB and tobacco
    - Provided public resources starting in the 80s on tobacco, air quality, climate change
    - With respect to transportation, have history of being proponents and advocates for LR and catalysts for forwarding nonprofits that propel ideas of interest groups that hadn't been organized
    - Have strongly supported programs of air district and resources board to provide incentive funds to ZEVs
  - Breathe Ambassadors (typically high school students) are helpful to disseminate information to the rest of the community to help residents understand the messaging Breath provides around tobacco, air quality, and climate change.
    - Catalyst for forming nonprofits that propel and move forward ideas that have interest groups (WalkSacramento)
  - Breathe rents their building / office space to nonprofits that share vision and introduce them to community leaders and help refine programs
    - Climate change is a project that requires both mitigating actions and preventive actions – Breathe Sacramento supports projects of air district to convert fleets to zero emission
      - A non-fossil fuel based economy is imperative to met climate change and air quality goals.
  - Evolution of tech in autonomous vehicles – concerned: utopia vs nightmare
    - Autonomous vehicles need to be shared, otherwise we will have the same kind of congestion

- Janine Bera, Chief Medical Officer, WellSpace
    - In addition to working at WellSpace, Janine is also the VP of Sac Tree Foundation.
    - When she thinks of air quality, she thinks about asthma in children, poverty, etc - more of a human perspective on how variables impact Sacramento. Higher rates of heart attacks, strokes, etc. occur with poor air quality. If you improve the air quality, you will improve health.
    - Transportation is one of biggest reasons why patients don't show up for appointments at Well Space health.
    - At WellSpace Health, they have over 17 health centers. They serve the underserved who have done have access to care, the homeless, etc.
        - Transit system needs to be accessible to increase the number of moms after post postpartum visits, diabetes patients, etc.
        - With better mobility, they will see increased the number of visits.
        - In terms of bikes, what do you have to with any disease? Exercise - what better way to exercise than use own public transportation. Having exercise incorporated into transportation is terrific.
    - Neighborwoods program (free trees) at Sacramento Tree Foundation- strong correlation between health and number of trees in your community.
        - Community without many trees are generally in poor neighborhoods.
        - There are lots of studies that show the correlation between on life expectancy and our zip codes. It is scary that where you choose to live can have an impact on life expectancy - important to think about those who can't move. It is up to us to make every zip code liveable - we can start by planting trees.
        - When you plant trees, have lower rates of asthma, depression, diabetes, more walking, more social cohesion.
    - Not much done yet on impact on health impact of climate change - just don't know yet.
        - Stress is at the core of almost every major disease. As we have more fires, floods, etc - there are impacts on stress and that is at the core of major diseases.
- Henry Li, General Manager, Sac RT
    - Everyone please support and spread news that RT is clean and safe! Transit agencies are kicking people out that don't have tickets and there is a transit agent / police officer at every station. Previously, 20% of people used to evade fares, now it's at 5% - makes system much safer. Over 2,000 cameras across stations.

Climate adaptation is huge - biggest impact is heat. Share your thoughts in terms of opportunities or barriers when we consider air quality and mitigating heat

- Earl
    - South Sacramento pastor has received funding to build community solar farm on vacant lot and use the revenue to promote retrofit programs for houses to reduce the ghg footprint and to provide power for community cooling centers. Government needs to be aware of this need – gov is developing pop-up shelters for homeless. It would be great if there was a cooling component as well. Misting systems are a cheap alternative to cooling for large structures.
    - Sensitive that Sacramento has second highest risk of flooding to New Orleans. How do we move large segments of the population in an emergency that doesn't clog our freeways and relies more on public transit?
- Janine
    - Our biggest opportunity is planting more trees

- Henry
    - To reduce heat, we need to make sure service is much better (cleaner, safer) to double ridership to 50M. Cars off the road could contribute to improved air quality

Where do you see greatest opportunities for collaboration in context of your organization, if we are to work together to address air quality and extreme heat events?

- Earl
    - As nonprofit, Breathe wouldn't be able to move forward without collaboration with orgaizations that share our mission. Imperative that we create critical mass that is larger than what we've developed to date, to push political leaders and adopt strong policies that avoid congestion and avoid problems that clutter environment with bikes e.g. with designated bike parking spots that do not block the ways of pedestrians.We can achieve more faster and with greater collaboration - number of opportunities.
- Janine
    - One of our goals is getting mothers to appointments and well child visits - infant mortality goes down. WellSpace partners with community organizations by giving out bus passes, worked with Mayor's office to talk about use of autonomous vehicles, etc. Problem is new autonomous vehicles are more middle class - what does this look like in the medical population and for people who don't have these resources. WellSpace is looking at how city can help
    - Homeless shelters to take people out of extremes of environment – have to start thinking about this and making them available to people
- Henry
    - This region has some areas for improvement. In the past, had so many initiatives and everyone is trying to do the best, but did not work together. Collaboration and cooperation has significantly improved. Primary reason we didn't have great collaboration: lack of communication - did not talk to stakeholders or agencies. RT is here to serve the community - need to very candid and anxious to look at what the community really wants. Started massive communication with as many stakeholders as possible. now regularly communicating with opponents from the past.

<u>Audience Questions</u>

Has WellSpace talked to patients about climate risks or do you find it to be challenging? Any economic barriers?

- Usually when pateints come in, primary needs are so immediate - have a hard time even talking about healthy diet and exercise. Just starting to screen for drug and alcohol abuse and screen for depression. And it's so early in field of climate change in terms of the impact on health, but lots of good ongoing research to provide answers.

Excited about all of the collaboration being done at a high-level. Alberto, how much are you working with SMUD to get to 100% clean renewable energy? Because could have ZEVs but if energy fueling is dirty, we are still not there.

- SMUD has been really progressive as a utility. Utilities have been mandated to electrify. I think there's great potential because they understand they're going to be key players. The indicators are there that we're all committed. If we just coalesce behind a common vision I think there's great potential there.

427 California heat assessment tool – publicly available this summer. 427 developed tool that builds out medially informed baselines around heat exposure and correlation with emergency room visits to see at what level people experience adversity from heat. The tool also incorporates climate projects throughout

- What information could be useful to you guys to help you guys understand how they then can help with adaptation on the ground? What do you need?
    - Earl: Actions that are within economic grasp of the audience: homeowners, businesses. Can't sell regional solutionsto individual homeowners, but you can sell information on grants available, assistance to install solar panels, contact info for companies that do this at zero capital cost, but provide homeowners some tools to vet these people, etc. That's the kind of information that we think is useful for the distribution for our networks to get people to take personal responsibility to reduce their carbon footprint
    - Janine: Heat-related diseases - we want to know if heat is going up? Then we can actually plan better and examples have place where homeless can go in the summer time because there's actual data on increased death from extreme heat. Can take this type of information to make change and educate people on what risks look like when people come into the emergency room. Information needs to be shared with the public: signs of heat exhaustion, feeling lightheaded, not sweating, etc. Funding more research like this helps tremendously because we practice evidence-based resource.

For Janine: What is missing is the data. Even state data is a number of years old. Given the clientele you serve, what would be the opportunity for WellSpace to screen your clients for heat so that we at least for Sac have more accurate, on-the-ground data?

- How do you do research on information you don't have access to? To back up, need someone interested in doing the research, then we need them to apply for a grant to do that research. There is a way to do scientific research using that data. With electronic medical records, it is now easier to do that type of research, but challenge is someone to do the research and get a grant. Have people come in to do research all the time. What are some early signs of heat exhaustion or intoxication that we might look for? Need education and community research change

For Earl: Can you share more info on oil companies?

- CAs significant history with tobacco companies. Have very raw feeling that same sort of deception and confusion from oil companies (denia). The amount of money tobacco companies spent is similar to what the oil companies are doing. Not at the point where we can talk about how much they have deceived.
- It's not an environmental impact that impacts Sacramento as much as it will impact other parts of CA. Several studies in last three yrs indicated that CC in pacific southwest, soil moisture levels are declining, and with that, losing vegetation in desert areas that are more exposed to more frequent high wind events, and substantial increases in sand migration which is producing significant ramp ups of PM 10 (sister to PM2.5). Dust particles increasing in concentrations in Imperial county, Mohave desert, and we need to be more mindful of protecting surface of soil, because even in vacant lots in Sacramento, could begin to see dust emissions, which also adversely affect health (chronic bronchitis, etc)

Still have 30 days a year we still need to manage. What kinds of programs can we implement to deal with those 30 days?

- Lot of Ideas, just need political will

SB 1 Introduction: Urban Heat Island Solutions & the Capital Region

Shelley Jiang, Climate Change Coordinator at Sacramento Metropolitan Air Quality Management District

- In 2015, CalEPA funded heat island study of major metropolitan areas in CA.
  - For Sacramento, found a lot of paved areas in Sacramento downtown / midtown area. Heat migrating north and east with prevailing currents. It's where we need to put our mitigation. From CA Dept Public Health, from 2000-2013, had above avg death rate related to heat compared to CA avg. In Sacramento, Black, Hispanic, and Asian populations more disproportionately affected.
- Our solution: model heat island impact for entire region. Took advantage of SB 1 and awarded $487k for model to not only evaluate the heat island impact but also model the effectiveness of different mitigation strategies and deployment scenarios.
  - Timeline: May 2018 to Feb 2020
  - Mile of pavements and roads are main contributor to heat island effect in the region. With more green infrastructure and trees, can help combat heat. The findings will turn into specific recommendations for transportation plans/projects/codes in the area to have blueprint for turning transportation sector into heat island mitigation solution. Will also be taking lots of community input
- Sample of solutions: cool roofs, trees, cool pavements, solar panels, and EVs.
  - EVs based on study showing EV helping reduce heat by reducing ICEs on streets.
- Local government transportation agency: can sign up to participate in project.
- Community group: looking for partners to host community outreach events and reach out to most impacted communities - contact sjiang@airquality.org if you gave any suggestions.
- For everyone: Share impacts of heat with friends and neighbors by keeping cool and staying safe. We will be forming technical advisory council as well. If you have more technical questions, feel free to reach out.
- Outcome: determine where heat is generated, where it is transferred, and how mitigation efforts play into this.

What are the outputs of the model?

- Hope to end up with heat island map that will highlight hot spots in the region. And more in-depth modeling to ID how heat is being transported in the region. And model results on how different mitigation measures reduce heat island effect. Will get a sense of how effective different measures are in the region. Also hope to incorporate some down-scaling to look at heat island impacts now vs. 2050 to see how climate change is going to impact heat island effect.

Wondering about the multi-benefits (groundwater recharge, ecologically adapted, locally adaptive vegetation) from this concept:

- Will be hiring modeler with atmospheric experience, so may not be able to conduct additional layer. Would be great if we could take results from first model and provide to another researcher to then go after analyzing those other benefits. Heat findings will be applicable to all sectors (health, water management, etc), and results will be publicly available to be able to help other types of research