

Kailey

I'm Kailey Gilbert, and this is Impact on You. The Salt Lake Valley seems to be infamous for its air pollution. Every winter, locals dread the impacts of the inversion. But what exactly is the air pollution we're all talking about? And are the impacts of it the same across the valley? Today, we'll discuss these topics. But first, a little bit of history. Cornell Legal Information Institute defines redlining as a discriminatory practice that consists of systemic denial of services, such as mortgages, insurance loans, and other financial services, to residents of a certain area based in their race or ethnicity. The term finds its origins in the 1920s and 30s during the New Deal era. As government-insured mortgages were established for homeowners to support the economy and lift it out of the crisis left behind by the Great Depression, the government mapped different areas and properties that would be considered for these kinds of loans. These maps were color-coded, and red, the color deemed not worthy of homeownership programs, was used to mark neighborhoods predominantly inhabited by Black residents. While the Fair Housing Act of 1968 eventually put an end to discrimination concerning selling, renting, or financing houses, we still see implications of these districting zones today. Because these neighborhoods were essentially left behind, they have systemically been faced with disadvantages, including modern low homeownership rates, low property values, higher poverty levels, and, as we'll see in today's episodes, a greater exposure to environmental hazards. Bauer takes us to the west side of the Salt Lake Valley today to explore these concepts.

Bauer

So, if you've been around Salt Lake City lately, you've probably noticed how much construction is happening right now. I mean, it's everywhere. There's road work, there's new apartments going up, and there's freeways that are getting wider. And it kind of seems like every time you go somewhere, there's a new project or building that didn't exist before. Well, that's because Utah is growing incredibly fast and everything's coming in at once. There's freeway expansion that's meant to help traffic, there's new entertainment and tourism areas designed for the Utah Mammoth and the 2034 Olympics, and there's even talks about getting a Major League Baseball stadium on the west side for a new potential MLB team. And while on paper all this sounds like progress, well, frankly it is. More jobs, more business, more opportunity. Growth like this brings pressure, especially when it comes to air quality. More development usually means more cars on the road, there's more construction dust in the air, and there's more emissions that are sitting in our

valley. And according to Jason Wessel from the Westside Coalition, this impact isn't felt the same across the valley.

Jason Wessel

Historic redlining has pushed a lot of people into the west side where the socioeconomic conditions disproportionately impacted the west side based on the kind of businesses and industry over there. Think Rocky Mountain Power, the railroad lines, the freeways literally ring the entire west side that pours pollution into the west side neighborhood.

Bauer

To really understand why the west side deals with so much of this, you have to look at how the city was developed over time, specifically redlining, which was a housing practice where certain neighborhoods were labeled too risky for investment. Those neighborhoods were often home to minority and low-income families. And over time, that shaped where people lived and where the industry and infrastructure was built. So the environmental pressure we're seeing today just didn't happen overnight. It built up over decades, rail lines that cut through neighborhoods, freeways surrounding communities, industrial areas sitting on top of homes. And geography makes it worse, too.

Jason Wessel

The part that kind of gets overlooked by this is that the west side of Salt Lake City is a bowl within a bowl. It's the low point of the valley between the Wasatch Front and the Oaker Mountains. So whenever we do have bad inversion days where the air packs in the pollution, it's worse on the west side because we're the low point of the entire valley. So it's sort of adding insult to injury. We've got rail lines ringed by freeways, heavy industry, and it all collects on the west side of Salt Lake City.

Bauer

So when winter inversions trap pollution in the valley, the west side feels it more than anybody. It's history, location, and infrastructure all stacking on top of each other. Unfortunately, geography isn't the only issue. A bigger factor is what's currently happening in the west side neighborhoods, because while the air sits around, development continues. According to Wessel, the west side has been growing exponentially. And when asked about new legislation to help the matter, especially in regards to redlining, there isn't much being said.

Jason Wessel

I don't believe redlining per se is being addressed by legislation. I think it's been a heavy lift just to get it acknowledged that it is a factor of what went into

development of the west side. But what we see is with the emphasis on density and the emphasis on economic development, the west side is the only part of the Salt Lake Valley that's still available for that kind of development. So it's kind of all piling on on the west side now. So you've seen in the last five years, apartment buildings just proliferating along the North Temple Corridor. We've seen massive infrastructure developments come in. You've got the U Fair Board. You've got the Ballpark Energy District. I guess they've changed the name a couple of times. The idea of putting a new Major League Baseball stadium in the Power District is all future development. And what this is doing is going to put in a lot more people, a lot more vehicles, a lot more need for infrastructure on the west side. Looking forward with what's going on is legislation that's trying to promote more density and more development on the west side, which is going to add to the problems with air quality if we don't get ahead of it and come up with innovative solutions to get ahead of that.

Bauer

Utah isn't just focused on small-scale projects anymore. This is large-scale development, the kind that can completely reshape a neighborhood. And right now, one of the biggest proposals on the table is a potential Major League Baseball stadium planned to be right in the center of the west side. And for the people that currently live there, this brings up a huge question. What does this development actually bring? Well, according to Wessel, the answer isn't simple.

Jason Wessel

As far as the Major League Baseball stadium, that really is right in the center of the west side. The potential for economic impact and development, both positive and negative, is huge, but it's also being very much a factor being debated at this level, the legislative level, the large Larry H. Miller level of corporate interest. The community is trying its best to engage with them through organizations like the West Side Coalition to just figure out, okay, are we going to make sure that you're not going to push out local businesses, that our property value is going to skyrocket to the point where people who've lived here for three generations can no longer afford to live here? So these are some of the concerns that keep coming up, is that it'd be really nice to have a Major League Baseball team in Utah. It'd be really nice to have one three, four blocks from my house. Will I be able to afford tickets to that game?

Bauer

Salt Lake City is growing, and there's no question about that. New buildings, new teams, new opportunities. But as that growth continues, so do the

questions that come with it, because the same geography that traps pollution in this valley also reveals something deeper. Not every part of the city experiences that growth the same way. On the west side, it's not just about what's being built. It's about what's being added to a place that's already carrying a lot. More people, more traffic, more pressure on the air, and on the people who live there. And for many, the concern isn't just change. It's whether they'll be there to see what comes next. Growth can bring opportunity, but without the right balance, it can also leave people behind. And in a place like Salt Lake City where everything settles, those impacts don't just disappear. They stay. For Impact On You, I'm Bauer Anderson.

Kailey Gilbert

So where you live in the Salt Lake Valley can impact your exposure to air pollution. But we can also go a little deeper and see other ways air quality disproportionately impacts communities within the valley. America takes us through an interview with Dr. Sara Grineski, a professor of sociology at the University of Utah and a faculty member of the HAPPIEST Project. HAPPIEST stands for Health Air Pollution Initiative in Education and Science Training. Dr. Grineski will tell you more.

America

Okay, thank you. I know that you do a lot of research on air pollution and I see a lot of it measures PM2.5. Can you explain exactly what that is and why it could be dangerous?

Dr. Sara Grineski

Sure. PM2.5, the PM stands for particulate matter. 2.5 is a measure of size in micrograms per cubic meters. And so PM2.5 is a relatively small particle. Unlike some other pollutants like nitrogen dioxide or ozone, PM is actually capturing a size of particle. And so the composition of that particle could be different. It could be a heavy metal. It could be dust from the Great Salt Lake. And so it's a small particle and it gets deep within your lungs. And that's one of the reasons why it's dangerous in terms of your health because it's small. It can sort of penetrate all the way sort of deep into your lungs. Sometimes particulate matter can cross the blood-brain barrier. So it can sort of enter your whole system. And it tends to cause like an inflammatory response. Sometimes your body mounts like an immunological response to it. And over time, that can lead to, you know, stress on your system and chronic inflammation in different parts of your body, which can lead to health effects. The health effects of particulate matter, especially fine particulate matter, range from, you know, you could, it could trigger you to get bronchitis or pneumonia. It can trigger asthma symptoms. There's, you know, evidence that it's related to cardiovascular health, maybe a heart attack

or cardiovascular disease. It also has neurodegenerative risk linking Parkinson's and Alzheimer's to exposure to particulate matter. We've done some work here on exposure during pregnancy and a child's risk of intellectual disability. There's research that links exposure to school performance. So because it gets inside your body and causes this kind of inflammation the effects are really quite wide ranging

America

So I know you've done a lot of research on pollution and the affects of pregnancy. Can you maybe talk about that and how it may affect populations that are especially vulnerable

Dr. Sara Grineski

My team has done several studies here in Utah and our outcome has been intellectual disability. We've looked at particulate matter like the general concentration of pm through pregnancy as well as the spikes through pregnancy. We've looked at ozone exposure through pregnancy, and we've been seeing increasing ozone and these studies have shown that pollution exposures during the preconception period and in the first trimester we saw that pollution both the concentration and the spikes correlated with increased odds of intellectual disability.

America

That brings a follow up question for mw. Any exposure is bad exposure, but is there a point of no turning back? If I had family visiting and they're pregnant and they were exposed to that is that still impacting them? Obviously not the same as if they were living there.

Dr. Sara Grineski

Yeah, it's hard to know and the other thing to keep in mind is that our health is incredibly complicated. It relates to the timing of exposure, there's social determinants, genetics, family history. It's so difficult to understand who is going to be affected and when. But statistically, we do see that there's some association, what it means for any individual person we wouldn't really know. And if someone has a condition, like if someone were to have an intellectual disability, we wouldn't really be able to know if it was air pollution related to it for that person, so these are population-level studies where we're looking at this. But then I guess you have to decide how worried you are about it like would you want to wear a mask? It's a red air quality day, you're pregnant, you're going out, would it be worth it to wear a mask for these three hours. It just depends on how worried you are about it and what kind of action can you take, do you want to take or is it a case where your exposure is unavoidable. It's a complicated calculation.

America

Yeah especially with it having a wide range of effects

Dr. Sara Grineski

And there's such a time delay. Like maybe you're going through puberty and are exposed. That's a critical period of growing, developing, and changing, and that affects you 20 to 30 years later. It's hard to figure this out. It can be that you inhale ozone and your lungs feel tight. It can also be that exposures over time lead to health effects that are off in the distance for you too.

America

Is there any specific things in terms of air quality in terms of short term and long term exposure or is it kind of just a mix of things

Dr. Sara Grineski

I mean short term exposure as well as long-term exposure mean some research measures you know what was the air yesterday did you end up in the emergency room for asthma today and their studies? I'm working right now about air pollution immortality 10 years before the matter average than pollution as well academic performance like how was there air quality on the day you took that standardized test? And then it might be related to exposure exposure over 10 years. And then there's also like chronic low level exposure is a chronic high-level exposure. Is it pretty clean but then you have this really bad air there's so many different temp dynamics and research and we try to tease out these different aspects. There's information and knowledge about all things Knowledge about all things relate to health.

America

Specifically in the Salt Lake Valley, there's a lot of air pollution that's concentrated on the west side. Why do we maybe see it more there is the east

Dr. Sara Grineski

It relates to both you know our patterns of industry and transportation, as well as sort of the geography, physical geography of the Wasatch front. The west side is lower, like the elevation is lower. We think about the Jordan River being a low point in our valley. Particulate matter kind of settles and you see that when the inversion is kind of building off it first builds in the low parts of the valley and then over time as we enter into the fifth, sixth, or seventh day the inversion has kind of climbed up the east bench. So there's that geographic component, and then if you think about where a lot of the industry is located the big refineries, the airport, these big point locations are located in that same kind of area. We also see higher levels of particulate matters along freeways and busy streets. Those factors all kind of contribute. The valley creates this shape where the pollution can settle and then we have those sources of pollution.

America

Yeah, and then I've seen some things that also show where we look at air pollution like where detectors are. They're less on the west side. Does that impact your research or our understanding of how much air pollution is around?

Dr. Sara Grineski

Yeah you know in general throughout the United States we don't have as many regulators whether that be the EPA or the state's department of environmental quality as you might think we would. We would like to have that definitely limit our information about air pollution and they are using sensors in different parts of the county, but it's not the same as if we had one every block right? There's a lot of these low cost sensors where people have a sensor at their own house and they're sharing that information with their neighbor who wants to look at it and so in the last decade that's a pretty big advance where the average person can find out what the pollution is like near their home or near their work or where they run or whatever given day those sort of network low cost sensors provide pretty good information to the average person who has access to the internet about air pollution where they're located. Kacey Mullen did some research about like social inequalities and the location of these low cost sensors and did some work in her dissertation to actually give low income families on the west side these sensors and try to fill the gaps since there are sensors on the west side, just not as many. So that's definitely an area of important work.

America

Yeah not only is it informative but what was the impact personally. Like I know for myself I personally for myself like there's really crappy air out today and I personally can't be doing much about it so is that kind of a way to gain personal control and are there things you can do based off of those home sensors?

Dr. Sara Grineski

I mean yeah definitely having more information especially about air quality in your specific area is important because if we use the county wide alerts saying "It's a red air day today" if you live up in Olympus Cove you might not actually have red air quality yet. You may later, but you don't yet so having information about air quality where you are or maybe the county wide alert says it's yellow but you actually are in the red in your area so having information can help you have a better sense of your exposures. You still have to deal with it and you're right it is hard to know what to do. We have to work together to try to reduce air pollution, better regulations, more carpooling, busses, better public transportation, all those kinds of things. But

I mean individually you may make the choice not to exercise outside if that's a choice you have. Now, if you work outside because that's your job, you may not have any control over what you do during that. For particulate matter, wearing those masks actually is helpful. Like the masks we all wore during COVID are actually really effective at filtering out the particulate matter that you breathe. It's not really fun. It's sort of uncomfortable. It can be expensive, but those things do work. Having air purifiers in your home can work for particulate matter. They can also be expensive, and you have to replace the filters every three to six months or whenever the machine tells you your filter is dirty. And you can make low-cost purifiers using a fan. There's like this box fan method of like low-cost materials to make an air purifier. So that can be something you can do. Those air purifiers do work really well to improve the quality of the indoor air. Now, if you're working outside, it's not going to help you with that. But inside the house, you can make your air cleaner with those types of machines.

America

Is there anything, because Salt Lake City right now between, you know, redesigning things for the Olympics coming up, there is a lot of rapid urbanization. Is there anything that you anticipate will maybe change these patterns as all of this new infrastructure is coming in?

Dr. Sara Grineski

I'm pretty excited about the potential for the Olympics and the sort of push up to the Olympics to have a positive impact on our air quality. I know that, you know, the state is thinking about like the Great Salt Lake vis-a-vis the Olympics and how we can try to, you know, sort of fast track our work with, you know, getting more water into the lake before the Olympics. And I also think of public transit, you know, improved public transit may be like a positive outcome of the Olympics in terms of our local air quality.

America

Because I'm also a little bit hopeful, but for me when hearing that there's a lot of urbanization, to me that just means more air pollution. So sometimes it's interesting to again think that it's being done differently and in a more green direction. You know, air pollution is bad. No one wants air pollution. So in your opinion, why is this necessarily something that's maybe hard to fix?

Dr. Sara Grineski

Yeah, I mean, definitely. When you think about all the things we do in our lives that generate air pollution, I mean, the burning of things, right? The burning of gasoline in our cars, the burning of fuel to heat our homes, to run our factories. Like we, you know, we've made decisions as a society, as a world, like throughout time that we, you know, we do things that generate air

pollution. So there's a lot of inertia. And like if we want to undo this, right, there's a lot of steps that we have to take. I mean, we have seen over the past decades, like a general trend of falling levels of air pollution. There's concerns with climate change and wildfires that like we may start to see like an uptick in air pollution again. But a lot of that has come from like the Clean Air Act and like, you know, the government requiring people who drive cars, people who sell cars, people who, you know, operate factories to reduce their emissions. So even as we've had more cars, each individual car is producing less air pollution than it did 40 years ago. Now, I think we need less cars and less pollution, but it is possible. But I think history has shown like it needs, we need pretty like strong regulations to like force companies to pollute less. Because if we make it easy, then it's, you know, it's cheaper, it's easier. Let's just keep doing what we've always been doing. It's nice, you know, some companies make choices to reduce emissions voluntarily, but often it comes from, you know, tightening regulations, which then lead to better air quality. And we've seen that historically. Like we can continue to see that. We just need those regulations in place and enforcement of the regulations.

America

Yeah, thank you. Because that is something that I, you know, also find important and have to make sure people show up on that political front.

Because sometimes it's easy to want to stay out of politics, but politics very much is literally what we breathe in this case.

Dr. Sara Grineski

It is, yeah. It is our health.

Kailey

It's clear that air pollution in the valley is a multifaceted issue. Regulations and personal responsibility can lead to better air quality -- air quality that is actively impacting people's health. In our next episode, we'll look at how air pollution can impact athletes and individuals with asthma, and wrap up some thoughts about the intersections of health, environment, air quality, and hope. See you next time. This is Kailey Gilbert from Impact On You.