Analyzing Accessibility of Essential Services and Opportunities for Tribal Nations
May 20, 2026

Lisa Glover-West: Welcome and thank you for standing by. Currently, all participants are in a listen only mode. Today's webinar is being recorded and the recording will be posted publicly. If you have any objections, you may disconnect at this time. Now, I'd like to turn the call over to your host for today Earlene Dowell.

Earlene Dowell: Good afternoon, everyone, and thank you for joining us for the May Local Employment Dynamics or LED webinar. Before I introduce today's speakers, let's go over a few housekeeping rules. As I mentioned earlier, this webinar is being recorded. For your convenience, it will be uploaded to our Census Academy site with all supplemental materials relating to the webinar within 30 business days.

We welcome your questions during the webinar. Please submit your questions using the Q&A panel, which is located at the bottom right corner of your WebEx screen. Once you've found the Q&A panel, make sure you choose all panelists from the dropdown menu. This will ensure we see your question as time allows. We will answer your questions directly through the Q&A panel, or we will share your questions with the presenter to respond to during the Q&A portion of the webinar.

Also, we ask that you do not include any personal or business identifiable information with your questions. We suggest keeping the chat panel open as we will provide key links and other resources throughout the webinar. Keep in mind you won't be able to respond to the chat. That is for us to send out links and other resources related to the presentation.

As you know, we are in a virtual environment and sometimes technical difficulties might occur. If you are having issues, try a different browser or consider logging out and coming back into the session. If you are having audio issues, try selecting the computer audio or calling into the webinar via phone. On behalf of the U.S. Census Bureau and the Local Employment Dynamics Partnership, in collaboration with the Council for Community and Economic Research and the labor market information, it is my pleasure to welcome back the San Diego Association of Governments, or commonly known as SANDAG, as they present analyzing accessibility of essential services and opportunities for tribal nations. This study will explore the accessibility of essential services for the tribal nations in the San Diego region by leveraging multi-dimensional data elements including LEHD Origin Destination Employment Statistics, or LODES data, employment density, public service, geographic data, broadband access data, and demographic characteristics. Visualization of this analysis will help highlight the level of access tribal nations are currently experiencing.

Additionally, investigating the feasibility of accessing this essential services may provide a more comprehensive view of what services are available, the quality of services, and what obstacles prevent or discourage the community from utilizing these essential services. Darren Jiang is a data science intern at SANDAG. Prior to SANDAG, Darren worked as a research assistant for the UC San Diego Moores Cancer Center and contributed to data analysis projects with companies like Prism Data.

He has a master's degree in data science from Boston University, and holds a Bachelor of Science from the UC San Diego, with a concentration in statistics and Machine Learning. Liang Tian is a principal overseeing data science, management and analytics work program areas at SANDAG. Liang previously worked at top fintech companies, where he gained extensive experience in data science, analytics and machine learning artificial intelligence capabilities.

He has led cross-functional teams to deliver high performance predictive science and analytics solutions in various application domains across global markets. Liang has published many journals across articles and book chapters, and is first name inventor of the U.S. Patent Application and Financial Risk Management domain. Liang holds a PhD in computer science with a specialization in computational intelligence methods and its applications.

Paula Zamudio serves as a senior planner and tribal liaison at SANDAG, where she oversees the agency's tribal program. In this capacity, she acts as the staff liaison for the Inter-Agency Technical Working Group on Tribal Transportation Issues and works directly with the tribal nations and the Southern California Tribal Chairman's Association to advance key priorities. Her work includes collaborating on complex grant applications and overseeing all aspects of tribal summits, which facilitate direct engagement between the tribal leaders and the SANDAG Board of Directors.

Additionally, she is currently serving as a project manager for the Rural Corridors Study, an initiative dedicated to advancing tribal priority projects, among other efforts. With that, I'll hand it over to Liang.

Liang Tian: Thank you, Earlene for the introduction. We are so glad to be here and truly appreciate this opportunity to share our research work. Our topic here today is analyzing accessibility of essential services and opportunities for tribal nations in the San Diego Region.

We will start with a brief introduction to SANDAG to San Diego Region and what we do in our data science and planning teams, we will then cover more details on the research objective, data sources, methodology, research findings, and also to show how SANDAG is collaborating with tribal nations on implementing programs.

SANDAG, or San Diego Association of Governments, is a federal designated metropolitan planning organization and a state designated transportation planning agency. SANDAG is bringing together local decision makers, jurisdictions, and the public to develop solutions to address regional issues, including transportation infrastructure, air quality, clean energy, economic development, trade movement across our binational region, public safety, housing, and so much more.

San Diego County is home to more tribal nations than any other county in the United States. Native American reservations are comprised of more than 127,000 acres in the San Diego region, accounting for approximately 4% of the region's land use, land base. As you can see on the map, most of our local jurisdictions are located in the western part of the region, which is also more densely populated.

Our tribal reservations and desert areas are less populated and are located in the central and eastern part of the region. SANDAG maintains agreements with the Southern California Tribal Chairman's Association to collaborate with the region's 17 sovereign tribal nations, which Paula elaborates more later on the collaboration. Jerry and I are part of Data Science department. Paola is part of the planning department.

We work closely in developing data products and pull from your research to help make better informed decisions on issues that matters to all the tribal nations. Using data to better understand our tribal nation’s accessibility to essential services and the various opportunities is critical to help us plan and implement transportation strategies. It has been and always will be a foundation for our regional planning effort.

Further, we should also focus on understanding how tribal nations compare with similarly remote communities in the region to help us gain a more holistic view of our regional issues and best strategy to address them. All right, let me turn it over to my colleague, Darren. Let's start with the research objectives.

Darren Jiang: All right. Thank you, Liang. And hello everyone. So now that, let's kind of get into the research topics. So there's a general consensus that the further away you are from populated urban areas, the less accessible essential services such as hospitals, schools and retailers become to you. Because of this trend, much of the lack of access to essential services that tribal nations face is attributed to their distance from urban zones.

And this study aims to account for this trend and examine the accessibility of essential services with regards to tribal nations and comparable rural regions. You can see the specific research objectives that we were looking at with the study up on screen.

All right. So in order to evaluate accessibility to essential services, this study uses a wide variety of data sources to both define what essential services are present and how accessible those services are. Before we get into specific data sources, there are a couple of key factors that we must consider when identifying data sources. Firstly, availability. Given the challenges in data accessibility, much of the data we're drawing from are publicly available and/or SANDAG data products. Secondly, vintage. We use the most recent versions of datasets possible to maximize the relevancy of this study for the present. And thirdly, geography. We used widely-accepted geography levels, which in this case was Census Blocks, to ensure that we had a reasonable granularity for the project and to help overlay multiple dimensions of data consistently in a understandable way.

All right. So now that we know those key factors, let's look at the primary data sets that were used for the study, which you should be able to see up on screen. For all geographic boundaries we use the U.S. Census Bureau TIGER files. And these are just kind of the boundary files that we drew from the U.S. Census.

When looking at employment, this study uses the LEHD Origin Destination Employment Statistics or LODES version 8.3. We decided to use job type zero three, which is all primary private jobs, to better align with the objectives of this study. Beyond employment, the primary essential service facilities this study looks at are essential retailers, schools and health care facilities. To find the locations of all essential retailers, we used Google Maps to pull all the most recent public star locations in the San Diego County region.

We got the locations of all schools from the schools and college inventories data set from SANDAG, and all health care facilities were pulled from the California Health and Human Services Agency, or CHHSA, open data portal, and covers the locations and characteristics of all registered health care facilities up to 2024. Broadband coverage was pulled from the interactive broadband map from California created by the CPUC. And when evaluating safety impacts this study utilizes this Traffic Safety dashboard, which was published when SANDAG recently completed the Vision Zero Action Plan. This was combined with CHP data to measure the safety conditions of roads in the study area. And finally, SANDAG data products were used to find estimates for where people were likely to live within each census block, as well as the population and housing estimates for our study areas.

All right. So now that we know what the study aims to examine, let's take a look at the overall methodology of the study.

Before we start the analysis, we standardized the data so that all data sources could be used together. The main steps for this process can be seen up on screen. The first two steps are essentially limiting the scope and creating common keys. While the last two steps focus on creating comparable areas and finding areas where people are likely to travel to or from within each census block.

This study utilizes distance as a proxy for accessibility, and what this means is that the closer a rural community or tribal reservation is to an essential service, the more accessible that essential service is to the community or nation and its residents. We set up a node map based off of the road infrastructure, which we'll see later, and we can calculate the direct distance between two points of interest, let's say a census block and a hospital, using the Haversine formula.

Beyond direct distance, we also want to find how long the shortest trip would be between two points of interest. And to do this we use an algorithm called bidirectional A-Star search, which generates the shortest path of two points based off of some node network, which in this case is our road transportation network. Finally, we calculate the accessibility score by dividing the direct distance with the distance of the shortest path.

And this score evaluates how direct the shortest trip is. The closer to one the score is, the closer the shortest trip path is a straight line, and the closer to zero, the more convoluted.

All right. So you can see that the areas highlighted in orange are our comparable rural regions. And we chose these regions because they were about as distant from an urban zone as the tribal reservations were from within their local subregional areas or SRAs. For those of you that are unaware, SRAs are SANDAG aggregations of census tracts that were assigned city or community names to simplify reporting of demographic data.

In this case, we're using them to account for geography and reduce the number of confounding variables that may occur. Theoretically, if the lack of access to essential services were only due to distance from urban centers, both tribal reservations and their local rural communities should have the same lack of access. Again, you can see that the urban areas are colored in green.

The comparable rural areas are colored in orange, and the tribal reservations are colored in purple. The SRA boundaries are outlined in black.

All right, so now that we have an idea of what our comparable rural regions are, let's take a look at how populated our study area is. Up on screen you can see the populations of each census block in the study region. The lighter the color, the less populated the census block is, and the darker the more populated. The population values for each census block are normalized so that the outliers won't skew the results visually.

But overall we can see that the northern or northwestern regions tend to have higher population densities compared to the southern and southeastern regions.

All right. Before we look at the specific SRAs in detail, let's take a look at the transportation infrastructure overall. And this is the road infrastructure that impacts the node map. In general, you can probably notice that the road infrastructure in the northern regions are a bit more developed than in the southern regions. We can see a high density of roads in the northern regions over here.

At least in comparison to the southern regions over here, which have less roads and generally form smaller routes. Beyond that, you'll probably notice that even within comparable regions, there are areas where the tribal reservations tend to have less roads than the comparable rural areas. And this is especially prominent in the area north of Escondido. Right over here again.

Where there's a significant density of roads in the area that sharply decreases when it reaches the borders of reservations in the same area. Of course, this isn't universal, but it is a trend that holds true for a lot of comparable regions that we're looking at on the map.

Right. When we move on to the transit stop infrastructure, we can see a similar disparity in infrastructure, where much of the transit stop infrastructure is concentrated within urban areas, and of the transit stops that are outside of urban areas, northern areas like here again near the Pala and Rincon reservations are much more developed. And while there is transit infrastructure present in the southern regions, the number of transit stops is smaller and form fewer potential routes compared to the ones in the northern regions.

Additionally, you notice that there are areas that have significant amounts of road infrastructure, but lack transit infrastructure. This is especially noticeable over here, that had clusters of road networks, but have no transit stops near them whatsoever. It's important to note that this is an incomplete picture of public transportation access. While this map shows where the transit stops are located, they don't show how frequently public transportation visits those areas.

So a location could have transit stops very close to them, but be visited less frequently. An example is the eastbound route 894 in Pauma, which only visits on weekdays and doesn't visit on Saturdays or Sundays.

All right, so next up we have the broadband coverage. Over on the map, you can see that the areas that have sufficient broadband coverage as defined by the CPUC are highlighted in green. And the areas that aren’t highlighted in green don't have sufficient broadband access. And while the map of broadband coverage is roughly correlated to population density, we can see that residents of tribal nations are disproportionately affected by the lack of sufficient internet access compared to their equivalently remote rural counterparts.

All right. So now that we've seen how the transportation infrastructure network is laid out in the San Diego County area, let's take a closer look at the SRAs that contain the tribal reservations and comparable rural areas. We chose two primary sub regional areas that were on the higher end in terms of population, those being the Pauma subregional area and the Mountain Empire Sub regional area, which you can see again up on screen.

The Pauma subregional area is a northern sub regional area with a total population of around 6,500 people. It contains around a 2,600 housing units and has three reservations within its borders. And you can see the names of those over on the left.

Overall, we can see that when evaluating commute distances to places of work, residents of tribal nations and rural communities tend to have similar direct end trip distances. We can see the left two graphs showing the direct distance and shorter strip distances, while the rightmost graph shows the accessibility score. The bars in purple represent Tribal Nation residents, and the bars in orange represent rural community residents.

There is a notable spike in the proportion of tribal nation residents that are within 15 to 20 miles of their place of work. As you can see right here. And commute around 35 to 40 miles to work, which you can see

right over here. But overall, this doesn't substantially change the analysis. When looking at the directness of their commute trips, we see that the distribution of accessibility scores for Tribal Nation residents is slightly higher than rural community residents, but overall, the distributions are similar.

Now let's look at the access to essential retailers for Pauma subregional area residents. The graph on the top left shows the direct distance between where residents live within each census block to their nearest essential retailer. The graph on the top right shows the distance of the shortest path between residents and their closest essential retailer, based on the road infrastructure.

And the bottom shows the distribution of accessibility scores. Data from Tribal Nation residents, again are purple. Whereas data from comparable rural regions are orange. And overall, we find that residents of tribal nations are further away from the closest essential retailer on average and tend to drive further away to get to their closest essential retailer. This is the case both when looking at the census block as is, and when weighing the distances by population density.

When evaluating accessibility scores, we find that residents of comparable rural communities tend to have accessibility scores concentrated to around 0.4 to 0.45, whereas tribal nations, residents are much more variable. Overall, tribal nation residents have a slightly higher average accessibility score compared to equivalently remote rural regions. And again, you can see all the graphs up on the screen.

While essential retailers were further away from the tribal nation residents, on average, the opposite is true for educational facilities. We find that tribal nation residents of the Pauma SRA are closer to their closest school, regardless of grade covered. This is the case when evaluating their geographic location alone. And when weighing those distances by population. When evaluating accessibility scores, we find that both tribal nation and comparable rural region residents have similarly direct paths to their closest school, with rural regions being slightly more convoluted when just about any geographic position and tribal nation residents having slightly more convoluted paths when weighing by population.

As with essential retailers, we can see that tribal nation residents from Pauma SRA area also tend to live further away from their closest health care facility and drive longer to reach it, compared to equivalently remote rural regions. Additionally, we can see that the paths that tribal residents take to get to their nearest health care facility are more convoluted compared to paths taken by rural community residents.

And just as a caveat, when we say health care facility, what we mean is any facility that isn't a home health agency or hospice. So essentially things like hospitals, long term care facilities or clinics. Overall, we find that tribal nation residents are further away from their closest hospital than comparable rural community residents. Before getting into traffic metrics. It's important to note that data infrastructure can be underdeveloped for both rural communities and tribal nations. Due to potentially reduced amounts of data collection, any specific numbers should be taken with a grain of salt. That being said, we can still expect the general trends of the analysis to hold true. We can see overall that residents of tribal nations tend to experience disproportionately more crashes, regardless of whether we are weighing by population or road mileage, at least compared to their local rural areas around them.

Again, the specific numbers shouldn't be taken as absolute fact, but the general trends hold true.

All right, now let's go on to the Mountain Empire sub regional area. This is a southern SRA with around ,8000 people living in it. And you can see the reservations within this SRA highlighted in purple. Again the names are on the left.

So while the distributions for direct and trip distances are again fairly similar for residents of tribal nations and rural communities, we do see that some residents of tribal nations live further away from their place of work, and travel longer to commute there. We can see this reflected in the accessibility score, where some residents of tribal nations have a more direct path to their place of work, while others have a more convoluted path.

Now let's look at the access to essential retailers for Mountain Empire subregional area residents. And overall, we find that the average direct and shortest path distance from residents to their closest essential retailer is similar for both the tribal nation and rural community residents. With tribal nation's residents being slightly further on average. This remains the case when weighing both distances by population, and is also reflected in the average accessibility scores, which is extremely similar for both tribal nations and rural community residents.

Unlike the Pauma SRA, tribal residents of the Mountain Empire SRA are, on average, further away from their closest school and must travel further to reach them than their respective comparable rural regions. This is a difference that only becomes greater when weighing direct and shortest path distances by population. That being said, while residents of tribal nations are further away from their closest school, they do have a slightly more direct path to get to them than equivalently remote rural community residents.

This difference in accessibility score, however, is fairly small, with the average accessibility score of tribal nations scoring around 0.414, while the average accessibility score for rural residents is around 0.401.

When looking at health care facilities, we find again that the residents of tribal nations are on average further away and must travel further to reach their closest health care facility. Additionally, the paths that tribal nation residents must take in order to reach their closest hospital is, on average, more convoluted than their comparably remote rural community counterparts. When weighing by population, we find that the difference between the direct distances, shortest path distances and accessibility scores of rural communities and tribal nations increases. Meaning that tribal nations residents are disproportionately further away from the closest hospital when taking into account population density.

As a reminder, the caveat of poor data infrastructure and lack of data collection for both rural communities and tribal nations applies here as well. And you can see, although that local rural areas experience more crashes, on average, tribal nations experience more crashes when weighing by population and road mileage.

This difference is also noticeable when looking at income and age. Demographics. Residents of tribal nations are earning noticeably less and are slightly younger than their counterparts in comparable rural regions, at least within the Mountain Empire SRA.

Overall, we find that tribal nations, on average, seem to have greater difficulty accessing essential services, at least compared to equivalently remote rural communities. Tribal nation residents tend to be located further away from education, health care, and essential retailer facilities, and the trips on average tend to be more convoluted. Accessibility to places of employment tends to be equivalent on average, but there are areas where residents of tribal reservations must commute longer in order to reach their place of employment.

Interestingly, when looking at the differences in infrastructure between rural communities and tribal reservations, rural regions tend to have more developed road infrastructure, whereas tribal reservations were more connected to public transportation. When weighing for population at least when looking solely at the distribution of transit stops and their distribution density and disregarding bus frequency. However, overall, both rural areas and travel reservations were disproportionately disconnected from public transportation compared to urban areas, regardless of their distance from an urban census block.

And those were the major findings of the study. I'll go ahead and pass it on to my colleague.

Paula Zamudio: Thank you Darren. So again, I'm Paula Zamudio. I'm the tribal liaison at SANDAG. Darren and Liang shared a bunch of very good information. I'm going to focus on how SANDAG works with tribal nations. So we've got a couple slides, starting with the first one. If we could go to our timeline. Earlier at the start of the presentation, Liang mentioned that San Diego has 17 tribes in our region and that this is the most of any county in the United States.

We recognize the significance of this, and we have a long history of working with tribes. I did want to start, though, for folks who are not aware on this call. I want to note that tribal nations operate under independent constitutions. They have their own systems of governance. And they establish and administer their own laws. Their sovereignty is recognized by the federal government.

And the sovereign status of tribal governments dictates that the United States and all agencies that operate within it, are expected to engage in government-to-government relationships with Native American tribes. So again, just sort of wanted to set the scene on sovereignty and what sovereignty means. So hopefully that's clear. This slide here shows some milestones of our long history working with tribes at SANDAG.

So informal collaboration began with tribes more than 20 years ago. You can see that first bullet point on the left. In 2002, tribal leaders, or tribal chairpersons, as well as the SANDAG board of directors, convened the first tribal summit. And that really allowed an opportunity for that policy level discussion. These have generally continued every four years since 2002.

In 2007, moving a little bit over to the right there, you can see that a government-to-government relationship was formalized between SANDAG and the Southern California Tribal Chairman's Association. Liang also mentioned them earlier. The Southern California Tribal Chairman's Association is a convener of tribes in our region. So this government-to-government relationship established tribal advisory roles on the SANDAG board of directors, as well as our committees for tribes.

And I want to note that government-to-government relationships are uncommon at the local or regional level. They're most typically applied at the state and federal levels for tribes, since tribes have that sovereign status at the federal level. So our unique agreements that government-to-government relationship allows for close coordination with tribes in our region.

So I won't go over these other milestones, but I think this is a good slide just to show we have a long history of working with tribes. And then, in addition to that formalized government-to-government agreement that we've got in place, you know, since 2007, as part of each of our long range plan updates, SANDAG and the Southern California Tribal Chairman's Association establish an MoU, as well as a tribal consultation plan that details our mutual priorities and outlines how we are going to both formally consult, as well as informally collaborate.

This slide shows some of the elements that are included in that plan. I will say that our ongoing collaboration is primarily carried out through several reoccurring meetings and events that are designed to support, again, that formal, legally required consultation, as well as that informal ongoing coordination. So we have quarterly working group meetings that have been meeting regularly since 2006.

We have one monthly task force meetings that are meant to guide those quarterly agendas, as well as have more technical folks who are helping to advance some of those priorities. We have the tribal summits I shared earlier. And I will just share that that ongoing coordination and collaboration, it really helps provide SANDAG with a clear understanding of tribal priorities, which then we can use and incorporate into our ongoing planning programing and other efforts that we're working on here at SANDAG. And then on our next slide, we wanted to share some specific examples of ways that we've worked with tribes over the years. The on the far left here, you can see transportation funding. So we worked with the Pala Band of Mission Indians to secure funding to bring a bus route that serves several reservations in a rural part of our county that didn't previously exist.

And then the next sort of frame over is the entire regional tribal transportation strategy. This was first completed in 2018 and then updated in 2021. The strategy outlines more than 150 tribal priority transportation projects. This has been very helpful. We worked with the tribes to put this document together so that as SANDAG staff are working on planning effort we can refer back to the Inter Regional Tribal Transportation Strategy and say, okay, we're doing work in this corridor. These tribes are in this corridor. What are some of their known transportation priorities? And that way, we're not starting over for every project cycle, right? We already have a known list of projects that tribes have said to us.

These are our priorities that we can refer back to. The next example that we have here, this is just one. This digital equity grant. So SANDAG and the Southern California tribal Chairman's Association have successfully applied for a number of grants. This one in particular was nearly half a million dollars to improve internet services for tribes, generally in San Diego.

They're in rural areas with far less traditional network coverage. So that's just one example of a way that we've helped tribes bring resources, with funding that didn't come from SANDAG, necessarily. And then on the right here, you see housing, the, we are currently, the program is in process right now working again with the Southern California Tribal Chairman's Association to administer a program to advance more housing on or near tribal reservations.

This program is dedicating more than $4 million to help tribes advance housing for tribal members on tribal reservations in our region. So it doesn't have its own photo. I wanted to mention one more example. SANDAG worked closely with the La Jolla Band of Luiseño Indians, another tribal nation in our region, on their safety action plan. This was an important effort because it required analysis of the safety data for the tribe, while upholding indigenous data sovereignty principles.

Indigenous data sovereignty is a right tribal nations have to control how data about their people, their lands, cultures, languages, resources and communities is collected. How it's owned, how it's shared, how it's accessed. What this really means in practice is that we recognize that the available data does not provide a complete picture for tribal nations often.

This effort has resulted in ongoing conversations with the La Jolla Band, as well as other tribes around the collection of data. And, how individual tribes handle that. Again, this all goes back to tribal sovereignty.

These are just a few examples of the accomplishments that have been made possible through our collaboration with tribal nations in the San Diego region.

And as you can see from the examples, collaboration with tribes over the two plus decades that we've been working with them, has really expanded to broaden beyond transportation efforts. And then so what does all this mean? What are, you know, what are some next steps, things that we can take from here. How do we continue to work with the tribes?

Here we've outlined three strategies. The first is to partner on research and grant applications with tribal nations as collaborators and co-decision makers. One thing we often hear from tribes, especially those tribes who have less resources or smaller staffs, is the need for more staff capacity. I'm sure many of us can relate to that with our organizations.

SANDAG staff, because of this, has partnered with tribes to complete grant applications on behalf of the tribes as one way to bring additional resources to our mutual priorities. Indigenous data sovereignty also plays a role here, since data is an important part of most grant applications. And again, just going back to, how SANDAG and organizations like SANDAG can work with tribes who are sovereign nations.

So then the second bullet here, moving on, is to enhance SANDAG data products to better support tribal nations. Again, while we're upholding, indigenous data sovereignty principles. One example of how we've been able to be responsive was a request that tribes made for SANDAG to include employment centers in our data. This is something that we were able to respond to and now have employment center data for our region, and for tribal nations.

And then finally to inform regional transportation planning strategies through this ongoing collaboration. I touched on this a little bit, but continuing to do that. And then wrapping up here. We want to take the opportunity to share about the SANDAG open data portal, which has many free public resources. The Open Data portal hosts a wide spectrum of unique and original data products on one single platform that tribes, jurisdictions, members of the public can all access.

It really enables more efficient and, effective data sharing. So again, all of this is available to anyone, on the SANDAG website. You can see some good examples here. Our traffic safety dashboard. The employment center's data that I reference just for census, census information, estimates and forecasts our transit ridership numbers. So all of that readily available, since we launched this a few years ago, I know we've had millions of downloads and views across the different topic areas.

And we always want to encourage folks to check it out, in case it can be helpful. And with that, we invite you to stay connected with us. And, here's some of our information. I believe now we'll open it up for questions and answers. Thanks for staying with us.

Tonja White: To Liang, Darren and Paula before we get to the questions. As a reminder, the presentation will be accessible on the Census Academy website at census.gov forward slash Academy under the web webinar tab within 30 days.

The links have been added to the chat. Again, please type all of your questions in the Q&A box and keep your questions pertaining to the presentation. The chat has been disabled to all of our attendees.

We'll give it a few minutes, a few seconds, for people to write questions. The box is open.

Okay. Thank you. And we'll turn the mic over to Earlene.

Earlene: Thank you, everyone, for joining us this afternoon. And thank you to Liang, Darren and Paula for their informative presentation. Would any of you like to make any closing remarks?

Liang: All right. Maybe I can go first, Earlene. I really I just couldn't agree with Paula, more. The data, part of this analysis is not only for this one particular analysis helping tribal nations. I mean, as a data scientist, we have to really find ways and creative ways, to locate reliable data. And then to help our local jurisdictions and also tribal nations right for their, for example, trial grant applications or some new research data products.

Right, really to help them you know to potentially get additional resources to help all of them. Right? So I just want to emphasize on that. And data is the key for everything we do here, not only for data science team, but also for planning for everything we do at SANDAG. So I just want to emphasize that and couldn't agree with Paula more with what she said earlier.

Earlene: Okay! Wonderful! So this concludes the May LED webinar. Join us on June 17th at 1:30 p.m. Eastern Time when Anthony Schaffhauser presents *Where Did the Workers Go?* using the QWI-based employment to population ratios to understand post-pandemic employment recovery. Upon exiting this webinar, you will receive a pop up to an evaluation. We would appreciate that you take the time to answer the questions, so we may better serve you. On behalf of the U.S. Census Bureau and the LED partnership, thank you for joining us today, and enjoy the rest of your afternoon.