SIERRA REGION
A CALIFORNIA 100 REPORT

CALIFORNIA 100
VISION & STRATEGY FOR THE NEXT CENTURY
ABOUT CALIFORNIA 100

The California 100 Initiative envisions a future that is innovative, sustainable, and equitable for all. Our mission is to strengthen California's ability to collectively solve problems and shape our long-term future over the next 100 years.

California 100 is organized around 5 policy themes and 5 core values, and driven by interrelated stages of work: research, policy innovation, and engagement with Californians. California 100's work is guided by an expert and intergenerational Commission.

Through various projects and activities, California 100 seeks to move California towards an aspirational vision—changing policies and practices, attitudes and mindsets, to inspire a more vibrant future. This Regional Analysis was produced as part of California 100's research stream of work.

The California 100 initiative is incubated through the University of California and Stanford.

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INTRODUCTION TO THE SIERRA REGION

The following counties comprise this region: Alpine, Amador, Calaveras, Inyo, Mariposa, Mono, and Tuolumne.

The major cities within this region include:
- Mammoth Lakes (Mono County, 7,191)
- Sonora City (Tuolumne County, 10,739)

Note: cities are not listed for Alpine, Amador, Calaveras, Inyo and Mariposa Counties because the Census only provides data for cities and towns with a population of 5,000 or more.
However, it covers a significant amount of land throughout the most eastern side of the state reaching nearly 20,000 square miles. Much of this land is managed by the National Park Service (Yosemite National Park, Kings Canyon National Park, Sequoia National Park, Death Valley National Park), the United States Forest Service (Sierra National Forest, Sequoia National Forest, Inyo National Forest, Stanislaus National Forest), and the U.S. Bureau of Land Management (Mono Lake).

The region gets its name from the mountain range that runs through it, the Sierra Nevada, which was first observed by the Spanish explorer, Juan Rodriguez Cabrillo in 1542, who named it the snowy mountains in Spanish.² The mountain range is estimated to date back to the Mesozoic Era, when lava erupted to form granite mountains chain.³ Although the region today has relatively few full-time residents, the Sierra are home to some of the most frequently visited tourist attractions in the state and country, notably Yosemite National Park. Climate change threatens this heavily forested region, however, as wildfires grow in size and intensity.

**REGIONAL CHARACTERISTICS**

The SIERRA region is the least populated region in California with less than 1 percent of the state’s total population across seven counties: Alpine, Amador, Calaveras, Inyo, Mariposa, Mono, and Tuolumne.
The Sierra Region has Predominantly White Residents and an Older Population

The Sierra Region has a Much Whiter Population Compared to the Rest of the State

<table>
<thead>
<tr>
<th>County</th>
<th>Hispanic or Latino</th>
<th>Black or African American alone</th>
<th>Asian or Native Hawaiian and Other Pacific Islander</th>
<th>American Indian and Alaska Native alone</th>
<th>Two or More Races</th>
<th>White</th>
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<tr>
<td>Alpine</td>
<td>7%</td>
<td>67%</td>
<td>1%</td>
<td>18%</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Amador</td>
<td>15%</td>
<td>73%</td>
<td>3%</td>
<td>1%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Calaveras</td>
<td>13%</td>
<td>77%</td>
<td>1%</td>
<td>6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inyo</td>
<td>23%</td>
<td>58%</td>
<td>12%</td>
<td>1%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Mariposa</td>
<td>12%</td>
<td>75%</td>
<td>1%</td>
<td>1%</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>Mono</td>
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<td>66%</td>
<td>1%</td>
<td>4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuolumne</td>
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<td>1%</td>
<td>6%</td>
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<td></td>
</tr>
<tr>
<td>California</td>
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<td>35%</td>
<td>5%</td>
<td>15%</td>
<td>4%</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** U.S. Census Data, 2020
The Sierra Region Skews More Republican Than the Rest of California

**Figure 3**

**SOURCE:** California Secretary of State, September 9, 2022 Report of Registration.
The Sierra region lies along the eastern side of California, and its counties are some of the most sparsely populated in the state. Relative to other regions of the state, much of the land within the region is held by government agencies, including the National Park Service, the United States Forest Service, and the U.S. Bureau of Land Management. The Sierra Nevada mountains, formed roughly 40 million years ago, capture the majority of California’s rainwater annually. This water is collected in reservoirs along the mountain range, like the Hetch Hetchy Reservoir in Yosemite National Park, which provides the city of San Francisco with more than 80 percent of its water.

There is tremendous biodiversity and topographical variation within the Sierra Nevada. More than half of all animal species in California live in the Sierra Nevada. Moreover, Inyo County is home to the highest elevation in the U.S., Mount Whitney, as well as the country’s lowest point at Badwater Basin.
Prior to settlement in the mid-19th century by “forty-niners” in search of gold, this land was home to several indigenous tribes, including the Yokut, Sierra Miwok, Maidu, Paiute, and Washoe. In the desert region, the Paiute people lived free from the encroachment of European settlers until around 1861, when settlers brought roughly 500 cattle to graze in the Owens Valley. The introduction of the cattle depleted resources on which the Paiute people depended, leading to a mass starvation the following year. A war between the settlers and the Paiute began not long after this period of scarcity, when the natives reportedly killed a cow for sustenance. Today, the Bishop Paiute is one of the largest tribes in California, occupying a nearly 900-acre reservation in present-day Inyo County.

Further north, the Miwok people settled along the Cosumnes and Calaveras Rivers within Yosemite National Forest, with settlements extending as far south as Yosemite National Forest. The Miwok people also resided in present-day Tuolumne, where they subsisted on acorns, as well as fish and local animals.

Yosemite National Forest is part of present-day Mariposa County, named by the Spanish explorer Lieutenant Gabriel Moraga in 1806, who believed the region to have swarms of butterflies, or mariposas. Despite naming the region, Moraga did not establish any settlements there. The area was later purchased inadvertently by American settler, John C. Fremont. Fremont had planned to purchase a ranch near San Jose in 1847, but ended up purchasing Rancho Las Mariposas due to an error. The accidental purchase proved to be fortuitous when gold was discovered at the base of the Sierra Nevada mountains a year later.
Like Mariposa, Tuolumne and Calaveras counties were initially surveyed by the Spanish explorer, Gabriel Moraga. Upon arriving at the river running through Calaveras, Moraga reported finding skulls along the banks, and named the river Calaveras, or skulls. Initially, Calaveras also included Amador and Alpine Counties, which were particularly impacted during the Gold Rush. Along with Mariposa and Tuolumne counties, they made up part of the Mother Lode – a stretch of land known for the prevalence of gold running along its foothills.

The population of California boomed at this time, with small mining towns springing up throughout the Sierra region – some of which are designated today as state historical landmarks. The unprecedented influx of settlers into the region resulted in dramatic population declines among the native peoples spread throughout the Sierra Nevada region. Local authorities were not adequately prepared to manage the rapid population growth, leading to random violence by gold seekers encroaching upon the land of Native Americans – in the first two years of the Gold Rush, more than 100,000 Native Americans were killed, or roughly two thirds of the regional population.

During the Gold Rush, the technique of hydraulic mining was also introduced in order to strip away cliff faces in the hopes of uncovering gold. Although effective, hydraulic mining wrought permanent damage to the Sierra Nevada ecosystems. Water that had previously been used for farmland was diverted,
while the debris washed from the cliff face polluted nearby rivers. Although hydraulic mining was short-lived – it was banned in 1884 – the practice created another industry that damaged the environment.

Because water had been diverted from rivers, canals from timber were now needed to bring water to mining sites, where wood was also used by boilers to extract gold from mines. As timber was also required for construction on the transcontinental railroad, a second “timber gold rush” arose during the last 40 years of the 19th century as the initial gold fever waned. Beginning in the early 20th century, the Yosemite Lumber Company sustained logging operations for 30 years, cutting down sugar pine trees around the perimeter of Yosemite National Park. Although logging can help to thin out forests, thereby lessening risks associated with wildfires, improper techniques can lead to ecosystem disruption, particularly where roads are cleared through forests to transport timber – this activity can not only affect the topography of the forest, disrupting its soil and ability to collect rainwater, but can also divide animal and plant habitats.

Meanwhile, as the region’s mines were believed to have been depleted of gold, more settlers moved to the area around Calaveras County for ranching and agricultural purposes. Along the foothills, these settlers farmed wheat and vegetables, while also raising
livestock like cattle and sheep. The compounding of hydraulic mining, logging, and the introduction of foreign animal and plant species led to permanent changes to the Sierra ecosystem. The altering of waterways destroyed the habitats that tribes like the Miwok depended on for fishing and agriculture; moreover, cattle introduced into the region were fed acorns on which the native peoples had subsisted on for thousands of years. Consequently, the Miwok people were forced out of their ancestral lands, both by environmental changes and forced removal by settlers – some estimates indicate the population of Miwok plummeted more than 90 percent following settlement by outsiders.

Today, the federal government recognizes a small reservation – less than an acre – for the Miwok people in Calaveras County. In nearby Tuolumne County, there are two additional reservations totaling more than 350 acres for the Miwok.

**FROM THE GOLD RUSH TO PRESENT DAY**

The transition from gold mining to an agricultural economy was not by accident in the years following the Gold Rush. Recognizing
the extent of the damage to the ecosystem caused by mining, and its cost, the newly-formed California government passed laws — including the banning of hydraulic mining — to encourage people to leave the mining industry. Because the Gold Rush had required a rapid development of infrastructure and roads, many of the towns bolstered initially by gold miners were able to transition to agricultural economies.

In 1850, California achieved statehood. Among the first counties established by the original constitutional convention were Mariposa, Calaveras, and Tuolumne. The remaining four counties were eventually carved out from these and other nearby regions. Tuolumne was initially inhabited by a community of Spanish-speaking Mexican War veterans who settled the area during the Gold Rush; as such, the city of Sonora in Tuolumne was named for their original hometown of Sonora, Mexico. In 1854, Amador County was created from Calaveras County following years of political splintering between residents in the northern part of the county and the county’s government. Although its planned name was initially Washington, Amador assumed its name from a native Californian, Jose Maria Amador, who was a veteran of the Mexican army and was granted 16,500 acres for his service in the military and later for his contributions to the Mission San Jose.

Mono County formed shortly thereafter from Calaveras, Fresno and Mariposa Counties, and was named after its lake, Mono. In 1864, land from Mono County formed Alpine County, and later additional land was ceded to Inyo County in the late 1860s. Alpine had experienced a
population boom shortly before its recognition as a county because of the discovery of silver along its Comstock Lode – its first county seat was named Silver Mountain. However, mining for silver in the region proved to be unprofitable, and a population once estimated to be 11,000 dropped to about 1,000 between 1864 and 1868. Today, Alpine is the least populated county in California, depending primarily on tourism to sustain its economy.

Relatively few Californians reside in the region, yet the population experienced significant increases during the 1970s and 1980s, by 65 and 39 percent respectively. Across the Sierra today, tourism supports much of the economy. Yosemite National Park remains one of the most distinctive features of the Sierra region; in 2019, nearly 4.6 million people visited the park from all over the world. Under President Abraham Lincoln in 1864, management of the Park was given to the state of California, in an effort to protect the ecosystem from human encroachment.

Likewise, Inyo County’s Death Valley National Park is also frequented by more than 1 million visitors per year.

During the COVID-19 pandemic, the Sierra region’s tourism industry lost roughly 20 percent of its total jobs. By 2021, the local economy had improved over 2020, however, tourism spending remained about $1 billion lower than it had been in 2019. The timber industry, which is also a significant contributor to the region’s economy today, was also affected by the pandemic: at the start of the pandemic, many operators within the industry cut back on activity, which added to the inflated prices of building materials shortly thereafter as more people spent time at home, working on home improvement projects.
Inyo County, home to Mount Whitney and Death Valley, is the second largest county in California by land mass, more than 98 percent of which is owned by federal and state agencies. Among the three counties that make up the Eastern Sierra – Alpine, Mono, and Inyo – this figure is more than 90 percent. By contrast, less than 50 percent of the state as a whole is owned by such agencies.

Much of this land is managed by the Forest Service, attracting visitors annually to national forests for tourism and recreation. Across the seven counties of the Sierra, average populations fall below 30,000 residents – by contrast, the national forests in the region alone attract more than 20 million visitors per year.

Within the region, there are no public universities, and within Alpine County, there is neither a hospital nor a supermarket. Rather, seasonal tourism largely supports these local economies.
The Majority of Land in the Sierra Region is Managed by the U.S. Forest Service

FEDERAL LAND IN CALIFORNIA

KEY:
- Department of Agriculture
- Forest Service
- Department of Defence
- Military Reservations and Installations
- Department of the Interior
- National Service
- Fish and Wildlife Service
- Bureau of Land Management

PERCENTAGE OF LAND BY AGENCY

- DOD 1.9%
- NPS 7.6%
- BLM 15.3%
- Forest Service 20.7%

SOURCE: Berkeley Science Review
In 2021, total travel spending in the region exceeded $3 billion in the High Sierra, primarily from visitor spending on accommodations and food services. Total jobs supported in the region by this spending hit nearly 33,000 in 2021, on its way to again reaching the high in 2019 of more than 36,000 prior to the pandemic. The workers in these jobs, however, are often temporary workers coming to fill positions during peak tourist seasons. In the town of Mammoth Lakes, for example, the population of full-time residents is about 7,000 as of 2020 – down roughly 1,500 people since 2010. By contrast, about 2,700 seasonal workers come to Mammoth Lakes at the height of the winter ski season – increasing people in the town by nearly 40 percent of its full-time population.

Like other resort towns along the Sierra Nevada, housing these employees can often be a challenge. Mammoth Lakes recently approved and started construction on 466 affordable housing units to accommodate its seasonal workers. Further north around Lake Tahoe, however, the Palisades ski resort offered its seasonal workers a campsite with waterless toilets, encouraging its employees to park their vans in nearby campgrounds during the harsh winter months.
Unlike Tahoe, Mammoth was able to approve housing developments with the recognition that higher occupancy housing is required to accommodate not only tourists, but also a growing population of full-time residents who moved to the mountains during the pandemic.

In Mammoth Lakes, median home prices between January 2020 and August 2022 increased nearly 40 percent. The economy of Mono County, where Mammoth Lakes is located, relies heavily on the hospitality industry, with a series of resorts and hotel facilities serving as some of the greatest employers in the County. A 2017 RAND analysis found that median hourly wages for workers within the travel and tourism industry were roughly 25 percent lower than those of workers in other industries throughout the state. Moreover, such workers tended to be younger and less likely to have a college degree. In fact, in the Sierra region, only about 20 percent of the population has received a bachelor’s degree. The spike in home prices, therefore, is likely being driven by Southern California residents who purchase property as vacation homes or rentals – and the lower-wage earning temporary workers are forced into longer commutes in order to secure housing.

According to a 2022 analysis tracking where the highest volume of second homes were purchased in California, Mammoth Lakes occupied the sixth slot. The town has long been plagued by a lack of affordable housing, but the pandemic – as well as a trend towards Airbnbs and rental homes in recent years – appears to have exacerbated the problem. A recent study found that the ubiquity of Airbnbs can raise rental rates and house prices by...
two mechanisms: first, landlords opt to rent to short-term renters, rather than long-term renters and are thus able to charge higher rents, which drives up the value of home prices. Second, because homeowners can generate income from these short-term rentals, the value of owning such a home becomes greater, also driving up home values. The result is that residents are priced out of their communities, while the largest numbers of homeowners in Mammoth do not live there permanently.

Figure 5 Mammoth Lakes—and Others in the Sierra Region—Experienced Increased Home Prices During the Pandemic, Both Due to New Residents That Moved From Densely Populated Cities and Increased Investments in Second Homes

Mammoth Lakes Median Sales Price and Volume Sold Over Time

SOURCE: Mammoth Lakes Real Estate.
Wildfires and Climate Change

Dependence on a single industry can have additional undesirable consequences, particularly as climate change results in prolonged droughts, leading to more frequent and larger wildfires, thereby impacting not only the environment of the region, but also its economy. Prior to the pandemic, resorts in Mammoth had begun to distribute N95 masks to guests as protection against particulate matter and other pollution from nearby wildfires. At the time, in the summer of 2018, the Lions Fire in Inyo County burned through more than 13,000 acres, releasing carbon dioxide, carbon monoxide, and particulate matter into the air. By 2020, the number of acres burned had doubled since its high in 2018. 2021 broke yet another record, with more than 1.5 million acres burned in the Sierra Nevada. In the last two years, an estimated 20 percent of the sequoias – some of the oldest trees in California – are believed to have been lost to severe wildfires.

For thousands of years, the indigenous people of California practiced controlled burns as a means of maintaining the health of the forests,
renewing food resources, and mitigating risks associated with large wildfires. Until the late 20th century, the U.S. government supported fire suppression policies, or the act of containing a fire as quickly as possible. Gradually, however, California has been reintroducing the practice of burning off brush, litter, and other fuel to thin out high-risk areas.

Controlled burns in the Sierra region have proven to be effective tools to mitigate severe wildfire damage. In 2019, nearly 500 acres near Sequoia National Park were burned as a part of this effort. Although the KNP Complex Fire burned more than 88,000 acres around the Park in 2021, the previously burned region was spared – the fire stopped around its perimeter. Years earlier during the 2013 Rim Fire – which burned about 260,000 acres through Tuolumne and Mariposa Counties – communities whose forests had been previously managed were spared.

The Rim Fire, however, was the largest recorded fire in the Sierra Nevada, releasing more than 11 million tons of greenhouse gas emissions and forcing the temporary closure of two of its hydroelectric plants. Research has indicated that the 2020 wildfire season undid years of progress in improving air quality. An additional concern with these wildfires is an inability to find firefighters for hire, often due to low pay and a long hiring process – according to reports from the U.S. Forest Service in 2021, nearly one-third of its fire engines are understaffed.

The overcrowding of brush and other fuel within California's forests lead not only to fire susceptibility, but also to infestations by bark beetles. Although these beetles can be ben-
eficial to the health of a forest, helping to decompose dead trees for regrowth, their proliferation within drought-stressed trees has led to a massive die-off, particularly of pine trees in the Sierra Nevada. The beetles lay their eggs within trees; a healthy tree can produce sap to push the beetles out of the trees, but a weaker tree is unable to produce such sap, so thousands of beetles are able to take over the tree. More dead or dying trees results in more fuel for future wildfires. The Sierra Nevada Conservancy estimates that more than 50 percent of pines have died as a result of overgrowth, drought, and bark beetles.
Within the Sierra, these forested ecosystems play a critical role in sustaining clean water, air, and biological diversity. Roughly 60 percent of California’s drinking water comes from the Sierra Nevada, and the forests themselves help to capture and reduce carbon dioxide emissions. Within overgrown forests, the snow that normally reaches the forest floor for collection in downhill water storage facilities gets trapped among the forest canopy where it evaporates.

As part of a 2020 initiative, the U.S. Forest Service and Cal Fire announced a $1 billion joint effort to manage forested land in the state in an effort to reduce wildfires – some of which will be spent on prescribed burns to clear overgrowth. By 2025, the initiative plans to treat 1 million acres of land annually, though some experts believe more should be done. According to 2020 research, more than 20 million acres of California land would benefit from fuel treatment through controlled burns.

A longer, more intense fire season has become a reality for much of California in recent years; however, understanding the cumulative effects of such a reality could take years. Fires wreak immediate damage upon lives and property; they also disrupt economies, particularly those dependent on tourism. And experts believe that the scarring of the landscape caused by such extreme wildfires may result in permanent loss of tree life; instead, shrubs begin to fill the land previously occupied by trees. These wildfires also halt income from the tourism industry, which is particularly impactful in regions like the Sierra that depend heavily on this spending. Smoke can travel hundreds of miles beyond the source of the wildfire, causing tourists in California – 80 percent of whom are residents of the state – to change their plans.

For local operators within the tourism industry, securing fire insurance can be yet another challenge and expense. Many Californians pay for home insurance coverage through private companies; however, costs associated with such plans for residents in high-risk regions can often be prohibitive. According to estimates, policy premiums can double or triple annually as wildfires spread throughout the state, leading many to opt not to renew. By contrast, some residents are dropped by their insurance company because the risk of wildfire to their home has been deemed too great. A 2019 analysis found that the insurance companies lost more than $10 billion following the 2017 and 2018 wildfires seasons, or about 26 years of cumulative profit. For residents who are no longer insured, or cannot afford such insurance, California has a state-run program called the Fair Access to Insurance Requirements (FAIR) Plan, which guarantees fire insurance to all state residents, though the costs associated with the plan are often high, and offer minimal coverage.
CLIMATE MIGRATION

In the last 10 years, California’s population has grown by nearly 6 percent.\(^9\) Within the Sierra region, by contrast, growth has been relatively flat, with declines in population in Mariposa, Mono, and Alpine Counties.\(^9\) In Mariposa County, some attribute this decline to climate migration. According to the California Housing Partnership, the Sierra region is not producing adequate housing across nearly all income levels per the goals set by the California Department of Housing and Community Development with its Regional Housing Needs Allocation.

For those who do have housing in the Sierra, many have experienced a compounding effect of climate change and COVID-19. Like many other rural communities, residents within the Sierra were vulnerable to the pandemic because access to medical care can be challenging – Alpine County does not have a hospital, Mariposa has one without an ICU, and Inyo has two with a total of about 34 beds.\(^9\) Within the Sierra, too, the population is heavily skewed towards older populations, more susceptible to severe illness from COVID-19.\(^9\) Moreover, the relative lack of medical facilities in the region caused heightened concern for those who live further away, or have limited access to medical care.\(^9\) Consequently, officials in these counties urged tourists to stay away, despite their economy’s reliance on the tourism industry.\(^9\)

At the height of the pandemic, the Sierra experienced a precipitous drop in job availability, though this has begun rebounding.

For residents in the Sierra, however, the job loss associated with the pandemic left some unable to keep up with bills – and for some, this included home insurance. In August 2022, Mariposa County the Oak Fire burned about 20,000 acres, destroying 127 of its total 9,826 homes.\(^9\) At this scale, the effects of such a fire can be devastating in spite of state-run programs to offer temporary trailer housing to residents who have lost their homes. For some residents, however, these climate disasters are not a deterrent to staying.

Within California, the Sierra region has a relatively high rate of home ownership, which can be attributed to a number of factors. First, a significant proportion of the population is older, and home ownership rates tend to increase with age; moreover, the costs associated generally with financing a home and its mortgage tend to be lower in rural areas than in urban areas.\(^9\)

For the majority of such residents, however, it is easier to move out of the area, rather than rebuild with the knowledge that another fire may be imminent as droughts worsen and forests remain unmanaged. In the last 10 years, Mariposa County has experienced a 6 percent decline in population, which some attribute to climate migration – the cost to own has become more expensive because of wildfire risk, and homes that have been destroyed by wildfires exacerbate an existing lack of available housing, forcing residents to move elsewhere.\(^9\) In part, this lack of housing is likely due to an unwillingness to build
additional housing in high-wildfire risk areas. In Greenville, a formerly 800-person community in the Sierra Nevada, homes and other structures were razed during the 2021 Dixie Fire – a Los Angeles Times analysis estimates the cost to redevelop the community would be nearly $1 billion.99
Limited Access to the Rest of California

In some parts of rural California, the cost of rebuilding such communities entails both redevelopment of homes and schools, as well as infrastructure to increase access to broadband internet. Roughly 20 percent of California residents do not have access to broadband in their home, leaving these residents – usually lower income, and often people of color – disadvantaged when it comes to work and educational opportunities. During the pandemic, when the need for remote access to education, work, and medicine was acute, the American Rescue Plan Act (ARPA) allocated funding to expand access to broadband nationally. In California, the state legislature designated about $6 billion between the Department of Technology and the Public Utilities Commission to ensure greater access to broadband through construction and maintenance of the statewide network.

Part of this funding has been designated for services to reach “the last mile,” or the customers who live at addresses that fall within sparsely populated regions, where the topography inhibits ease of access and installation. By some estimates, the cost to install fiber optic cable is roughly $20,000 per mile. Following the announcement of funding, representatives from Alpine, Amador, Calaveras, Tuolumne, and Mariposa

LIMITED ACCESS TO THE REST OF CALIFORNIA
Counties formed the Central Sierra Broadband Roadmap to facilitate increased broadband service throughout the Sierra region. Although roughly 20 percent of California households lack access to broadband, the concentration of such housing falls along the eastern side of the state, concentrated largely within the Sierra region.

A recent CalMatters analysis found that of 400 school districts across the far North, Sierra, Central Valley, and Inland Empire, about half of all households lacked broadband internet access, whereas one-third lacked the option of a broadband service provider. As the rest of the country adopts remote learning as an increasingly viable option to education, this leaves students in rural communities without a broadband option at a disadvantage. In the summer of 2021, McKinsey released a report estimating that students in the U.S. were roughly five months behind in mathematics, and four months behind in reading during that school year. For students who have chronic challenges logging into virtual classrooms and keeping up with schoolwork, this problem is likely worse. According to the Sierra Business Council, many rural parents were forced to drive to their local schools to access the internet during the pandemic so that their children could receive instruction and keep up with schoolwork, as they were unable to do so from their homes.

In addition to the issue of last-mile connectivity, the Sierra region is also disproportionately affected by poor broadband access because of aging infrastructure. This aging infrastructure also puts these regions at a higher risk of wildfires, so the California legislature is seeking to accelerate the process of undergrounding electric utility lines. According to California Senate Majority Leader, Mike McGuire, building such lines underground lowers the likelihood of wildfire by 99 percent, and yet only 100 miles are moved underground per year. Consequently, although planned shutoffs often occur during the windy, dry summer months, winter storms also lead to shutoffs. In a region that often experiences below-freezing temperatures during the winter, these blackouts can have serious effects, particularly on high-risk populations, like the elderly and those with special needs.

Telehealth, too, has been touted as an opportunity to help a greater number of patients, particularly those who live in rural communities, where fewer than 10 percent of physicians in the U.S. practice, as compared with urban communities. Across the country, such communities are at a higher risk of hospital closure, often for reasons related to staffing shortages and patients’ limited ability to access in-person medical care. However, in order to access telehealth, residents in rural areas require stable broadband access. Because the Sierra region does not currently have reliable broadband access, these technological advances that may improve access to education and health remain unattainable for these residents.
CONCLUSION

The Sierra is among the most sparsely populated regions in California, with much of its land managed by the National Park Service. Home to national parks like Yosemite and Death Valley, the Sierra is economically dependent upon low-wage, seasonal hospitality work. In spite of significant availability of low-wage work, home prices in tourist-friendly areas like Mammoth Lakes have steadily been rising in recent years, as the pandemic sparked demand for remote or second homes for residents in nearby Southern California. Consequently, many residents of the Sierra have been priced out of their communities. Rising prices have also been coupled with longer, more intense fire seasons, which destroy communities and the available housing stock, while also adversely affecting the region’s economy. As fires tear through communities, many Sierra residents have been dropped by their home-insurance providers due to heightened risk, while rising prices have left others opting not to renew. In largely rural regions like the Sierra, aging or inadequate infrastructure also often leads to challenges accessing broadband internet, though last-mile efforts to reach more residents in rural California are ongoing.
ENDNOTES

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