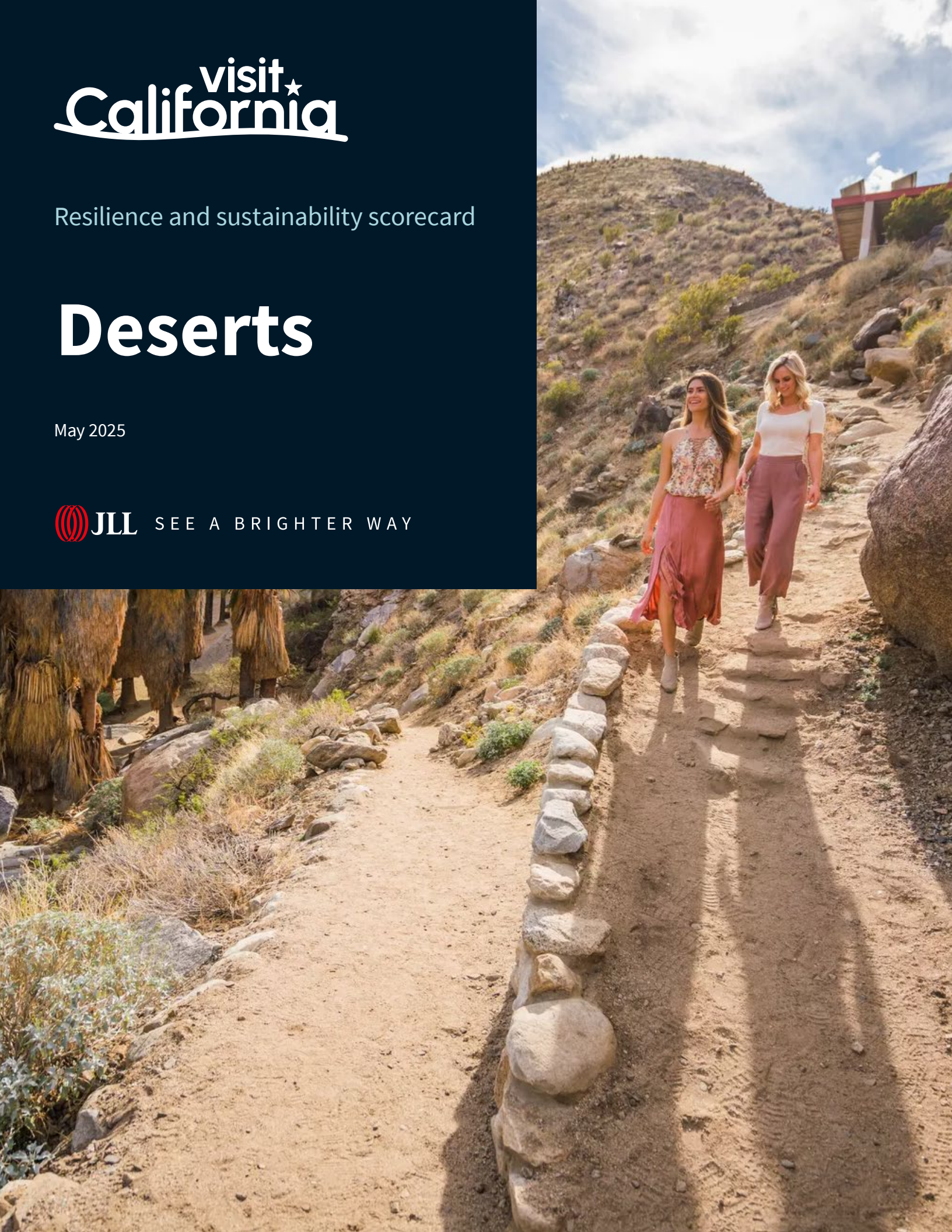
visit California

Resilience and sustainability scorecard

Deserts

May 2025

JLL SEE A BRIGHTER WAY



The development of these regional scorecards was funded by a State Tourism Grant awarded to Visit California as part of the U.S. Economic Development Administration's Travel, Tourism and Outdoor Recreation program. The program invested federal funds appropriated by the American Rescue Plan Act to support states and communities whose tourism economy was damaged by the COVID-19 pandemic.

The majority of the grant funds were used to directly support tourism recovery through marketing initiatives. With the EDA's oversight, a portion of the grant was directed to the development of these scorecards, which are designed to build a more resilient travel and tourism sector in California.

Visit California extends its gratitude to the diverse project teams, strategic partners and industry experts whose contributions were instrumental throughout the two-year process.

La Quinta

Executive summary

The Deserts region of California is a diverse landscape known for its unique geological features, including rugged mountains and expansive sand dunes. This region is home to a variety of ecosystems, supporting an array of plant and animal species adapted to its arid conditions. The Deserts are famous for its iconic Joshua trees and a mix of desert flora and fauna.

The region offers recreational opportunities, such as hiking, camping and off-roading, attracting visitors to its natural beauty. The area also holds cultural significance, with a rich history of Indigenous tribes and early settlers, making it an important region for study and exploration. However, the Deserts region also faces challenges that could threaten sustainability and resilience of its tourism industry.

Top risks

1. **Limited road accessibility:** Limited road access in and out of certain desert areas, particularly the Coachella Valley and High Desert, poses a significant challenge during emergencies or evacuation events.
2. **Escalating Climate and Hazard Risks:** Rising heatwaves and droughts, and to lesser extent risk exposure to earthquakes, pose serious threats to the region's tourism industry.
3. **Recruiting and retaining hospitality workforce:** The top risk to tourism from a sustainable growth perspective is the difficulty in the region associated with recruiting and training personnel for hospitality employment.

In the event of a natural disaster, the lack of road accessibility in the region could severely hinder both tourists' and residents' ability to evacuate the area quickly. The Coachella Valley and the High Desert both have one major road (Interstate 10 and State Route 62 respectively) leading in and out of the area. Roads are the primary transportation infrastructure for visitors, as compared to rail or air travel, and any disruption could have immediate and far-reaching consequences for the tourism sector.

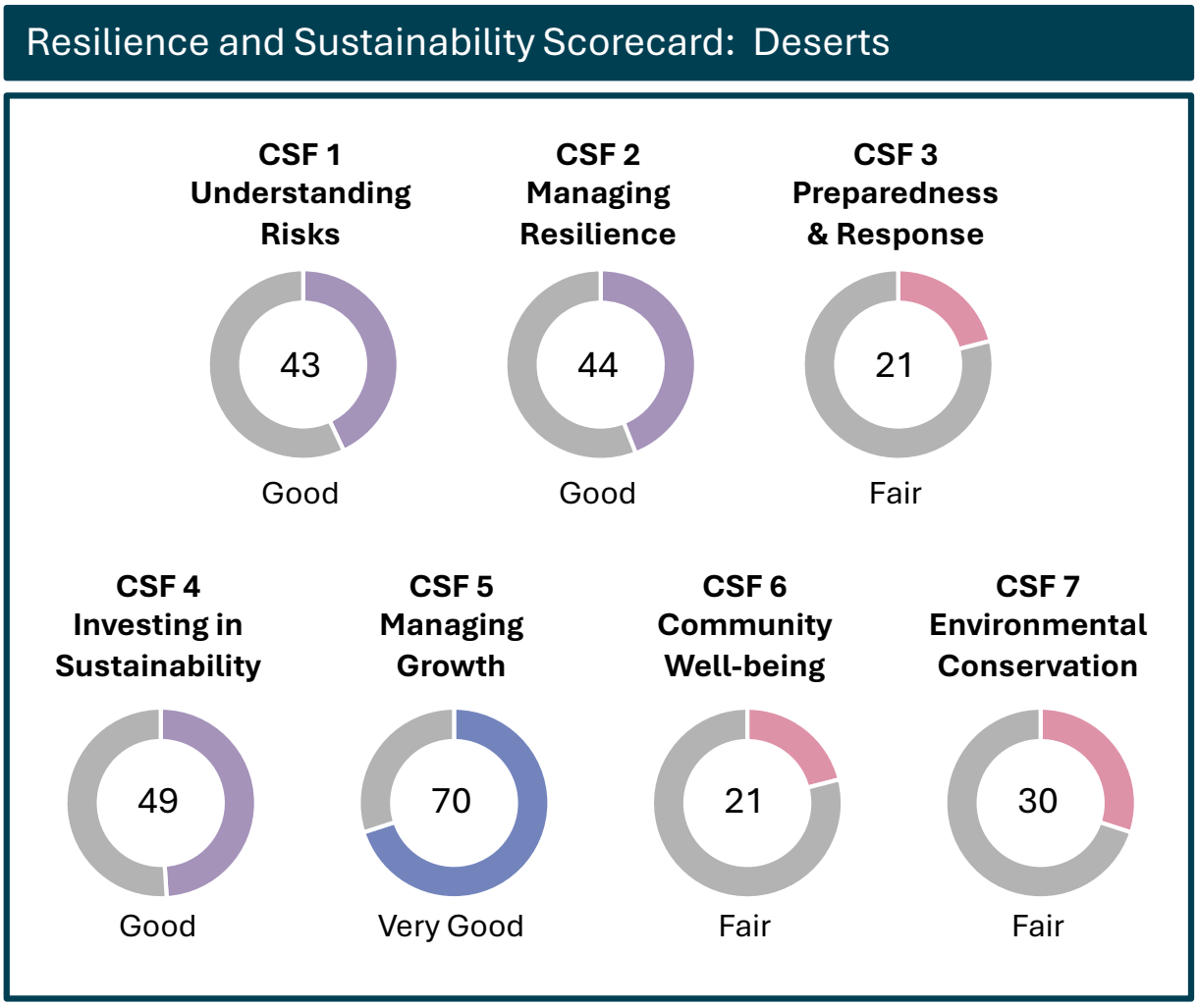
The challenges of recruiting, training and housing hospitality staff pose a risk to the future growth of the tourism industry. Businesses in the Deserts region rely heavily on a skilled workforce, yet many local communities struggle to attract and retain talent in hospitality roles. High living costs and perceptions of limited career growth opportunities can discourage potential employees from joining the sector. This shortage of trained personnel limits industry growth and can negatively impact customer service and visitor experience, potentially impacting the overall reputation of the region.

Collaborating with local government jurisdictions to improve road infrastructure and facilitate timely evacuations is crucial. Moreover, maintaining relationships with local educational institutions (including secondary schools, higher education and job training organizations) is important for building a future workforce pipeline. Targeted recruitment, educational and job training initiatives can attract local individuals to careers in hospitality. By developing a resilient tourism industry capable of withstanding challenges and delivering high-quality experiences, the tourism sector can ensure that the Deserts region remains an attractive destination for travelers while also supporting the local economy and community well-being.

To help tourism stakeholders prepare for, respond to and recover from a changing climate and other risks, the resilience and sustainability scorecard explores metrics across seven critical success factors (CSFs) to identify and define the challenges facing the region. The scorecard blends spatial data layers and quantitative analysis with qualitative input from regional experts in a panel format. Panelists were selected to reflect diverse perspectives across tourism, land and water management, environmental sustainability, government, Indigenous leadership, infrastructure and regional planning.

The resulting quantitative and qualitative ratings provide a baseline risk assessment from which strategies are offered to improve the region's sustainability and resilience to identified risks. For more background on the scorecard approach, see Scorecard Overview.

The Deserts Resilience and Sustainability Scorecard is a summary of results of this extensive process, with each dial chart representing the overall quantitative rating for each CSF. 40 different indicators in total were selected across the seven CSFs. The various units of measurement for the CSF indicators were normalized to a ratings scale of 0 to 100 to simplify comparisons and develop composite scores by CSF. The scores were then divided into five equal tiers — low, fair, good, very good and exceptional — where the higher the score, the better the CSF overall performance.



Interpreting the scorecard

CSF 1 Understanding risks — Good
At the regional level, tourism businesses in the Deserts are expected to experience limited losses over time from natural hazards. However, sub-regions within the Deserts face elevated exposure to specific risks and should prepare accordingly. Inyo County is especially vulnerable to intensifying heatwaves and prolonged droughts, while the Coachella Valley faces significant potential economic losses from earthquakes.

CSF 2 Managing resilience — Good
Some destinations within the region have taken initial steps to plan for the risks the region faces and include some consideration of impacts to tourism in their plans. For example, Palm Springs' **Climate Action Plan** and the **2021 Climate Action Roadmap** can serve as a model for other destinations in the region and across the state.

CSF 3 Preparedness and response — Fair
The region has limited ingress and egress out of disaster areas via one or two major roads - particularly Interstate 10 freeway for the Coachella Valley and State Route 62 for the High Desert, the most populous areas of the region. The region lacks essential infrastructure, such as emergency shelters and hospitals, that are vital in response to and recovery from disasters. The deficiency in basic emergency facilities can significantly amplify the adverse impacts of climate events and other crises.

CSF 4 Investing in sustainability — Good
The region's low greenhouse gas (GHG) emissions per capita have limited competitiveness for and receipt of state funding from the California Climate Investment program, which supports programs to reduce GHG emissions.

CSF 5 Managing growth — Very good
The region excels at growing tourism sustainability without overwhelming local infrastructure or communities. However, in certain areas (particularly communities in the High Desert) there is a greater perceived impact from "overtourism" on the local infrastructure and resident population.

CSF 6 Community well-being — Fair
The Deserts region faces challenges in community resilience and social vulnerability, with tourism growth outpacing efforts to engage and support residents in some areas of the region.

CSF 7 Environmental conservation — Fair
The Deserts region enjoys excellent air quality and is home to many large wind and solar energy facilities, but faces persistent challenges in water conservation, biodiversity protection and environmental stewardship at tourism sites.

The following sections dive into the findings of the Deserts regional scorecard and identify opportunities for incremental improvement across the seven critical success factors. While the assessment was carried out at the regional level, the opportunities can be pursued at the local level by tourism businesses and destination marketing organizations (DMOs) to better understand, prepare for, respond to and recover from the various threats facing the region.

California Tourism Resilience and Sustainability Dashboard

All the risk indices and data layers used to develop these indicators are accessible through an interactive dashboard created specifically for California and each of the 12 tourism regions.

Explore the Central Coast data here: Deserts Dashboard

CSF 1 – Understanding Risks

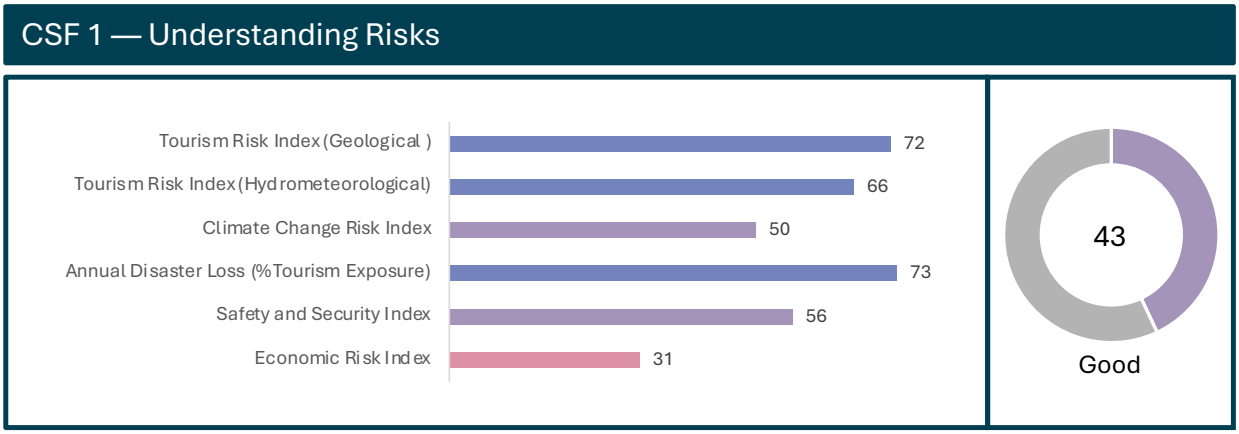
This CSF focuses on identifying, assessing and communicating the risks that impact the tourism sector.

CSF 1 key findings

The Deserts region faces exposure to natural hazards, particularly prolonged heatwaves and droughts and, to a lesser extent, earthquakes, which present growing risks to tourism infrastructure. Risklayer modeling and FEMA's National Risk Index identify elevated vulnerability across the region. Projections indicate that heatwave and drought risks will intensify significantly in the Inyo County area of the region. Earthquake risk, while less frequent, is associated with high potential for economic loss in the Coachella Valley, a key tourism zone in the region. Annual average loss (AAL) estimates reflect ongoing exposure of tourism assets — including lodging, entertainment and cultural sites — to climate and geological hazards. These risks are compounded by socioeconomic factors such as low housing affordability in the more populous areas of the region.

On a qualitative basis, panelists generally rated the region between 2 to 3 out of a possible 5 on the performance criteria measured for CSF 1, mirroring the composite score for the quantitative results. In general, panelists discussed the fact that tourism stakeholders in the region are very aware of the risk of natural disasters occurring given the summer heatwaves that happen each year and the region's location directly on the San Andreas fault. Panelists indicated risk information sharing amongst the tourism industry and enhanced coordination with city/county entities on disaster planning is warranted and would be helpful.

Opportunities to improve outcomes related to CSF 1 aim to advance the region's understanding of disaster risk, improve data sharing mechanisms and foster better communication between tourism stakeholders and emergency planning entities.



CSF 1 quantitative ratings and findings

CSF 1 assesses various geological risks including earthquakes, landslides and tsunamis, as well as hydrometeorological and other hazards such as floods, windstorms, heatwaves, hail and wildfires, evaluating their impact on the region's tourism exposure data:

Tourism risk index (geological and hydrometeorological)
Incorporates Risklayer modeling of average annual losses (AAL) from exposed accommodations and tourism attractions. The Federal Emergency Management Agency (FEMA) **National Risk Index**, which compiles data from various sources, provides the hazard models.

The geological index evaluates risks from earthquakes, landslides, volcanoes and tsunamis, all linked to geological processes. The hydrometeorological tourism risk index assesses natural hazards associated with atmospheric processes, including floods, hurricanes and wildfires. All hazards were analyzed and integrated into the index score, allowing us to identify and highlight the highest risks in the findings.

Climate change risk index
Assesses the severity of climate-related events, such as heatwaves, droughts, snowfall and increased precipitation, on tourism assets and local communities. Each climate indicator is calculated using different metrics, like mean annual precipitation, extreme maximum temperature and precipitation as snow, for different CMIP6 climate scenarios (ssp245, ssp370, ssp585) and projected years (2030, 2050, 2070, 2090) provided from **AdaptWest**. The climate change risk index uses a scale from 0 (low risk) to 100 (high risk) to indicate the intensity of these events, highlighting the areas that are most affected by climate variability.

Annual disaster loss (% tourism exposure)
Represents the proportion of tourism-related infrastructure exposed to natural disasters and climate impacts, calculated as a percentage of average annual losses. This index helps quantify the economic vulnerability of the tourism sector to recurring disasters. The data originates from FEMA's **National Risk Index**, a dataset that assesses the relative risk of 18 natural hazards across the United States, combining hazard risk, exposure and social vulnerability data to produce a comprehensive risk score.

Safety and security index
Evaluates public safety and security conditions for tourists, considering factors like crime rates, healthcare access and family-friendliness. Provides a holistic view of personal security and the overall quality of safety in the region. Additionally, incorporates indicators such as COVID-19 vaccination data (specifically the percentage of population with 1+ dose) from **CovidActNow** and homelessness data from the US Department of Housing and Urban Development (**HUD**).

Economic risk index
Measures economic stability and risks in areas with significant tourism activity, highlighting economic pressures that could impact the sustainability of the tourism industry. It considers factors like workforce availability (unemployment rate), housing affordability and economic stability. Housing affordability assesses the financial ability of a typical household to purchase an existing home in an area. Economic stability describes the relationship between non-workers and the employed population.

To assess tourism exposure for loss calculations (AAL — Average Annual Loss), the RES4, COM8 and COM9 occupancy classes from **FEMA's Hazus National Building Inventory**[1] were chosen; AAL represents the estimated financial loss a location can expect to incur each year from disasters, averaged over time based on hazard frequency and severity.

These FEMA classes collectively represent the accommodations, entertainment and cultural attractions that define tourism infrastructure:

- RES4 (temporary lodging) includes hotels, motels and resorts where tourists stay.
- COM8 (entertainment & recreation) encompasses amusement parks, casinos, stadiums, golf courses and other leisure venues.
- COM9 (theaters & cultural facilities) covers museums, performing arts centers and historic attractions.

The Deserts region is defined by its arid climate, marked by increasingly hot summers, mild winters and minimal precipitation. The region has unique ecosystems, home to a wide range of plant and animal species specially adapted to survive in extreme conditions. This delicate environment is increasingly at risk from climate-related threats, include prolonged droughts that could jeopardize water availability for both natural habitats and human communities.

Rising temperatures and shifting weather patterns are expected to exacerbate water scarcity and increase the frequency of extreme weather events, such as heatwaves. These climate challenges pose implications for the balance of the desert ecosystem and the livelihoods of communities that rely on its resources, highlighting the need for sustainable management and conservation efforts in this unique environment.

Each climate index shown below represents a combination of multiple climate variables, not a single measure. These climate indices are normalized across all California regions. The baseline or historical map (1991–2020) shows how different regions compare to one another, and should be interpreted as a relative, rather than absolute measure. In this map, blue areas represent regions that have experienced less climate-related risks than the state average, while pink areas indicate more severe conditions. The maps to the right show how much the climate index is projected to increase — measured in points on the same 0 to 100 scale — under future climate scenarios. These changes reflect how far a region's score could shift compared to the historical baseline, helping illustrate the potential magnitude of worsening conditions.

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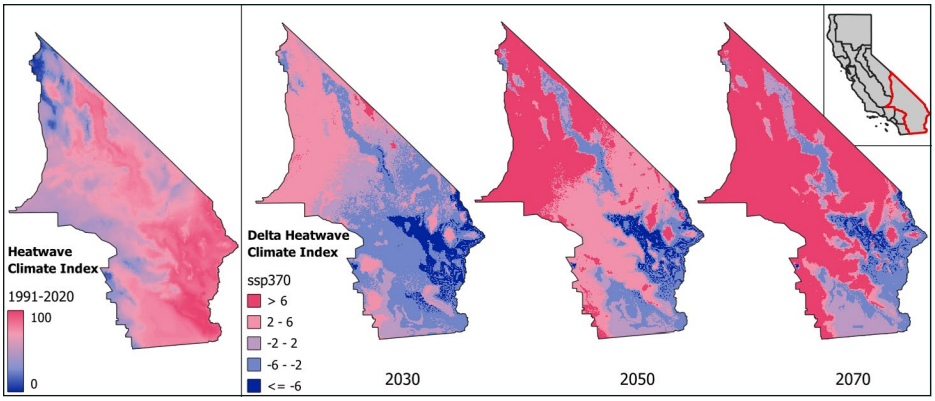
[1]FEMA's Hazus National Building Inventory, compiles property valuations based on business classification codes (NAICS), census data and commercial building datasets. These datasets help estimate replacement costs, exposure values and potential losses in disaster scenarios. A full listing of assets within these categories can be accessed through FEMA's publicly available Hazus data. Users interested in exploring detailed records can download and review the datasets at FEMA's Hazus Data & Resources.

Figure 1a. Heatwave Risk

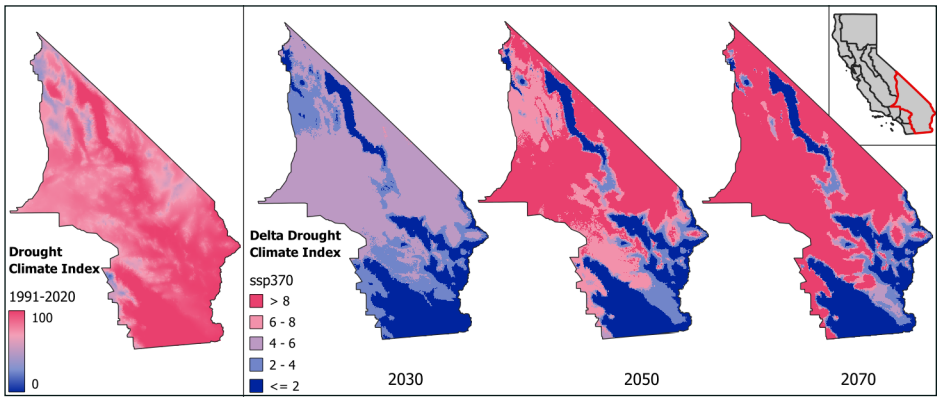


Source: Risklayer GmbH

In Figure 1a, the left image illustrates the heatwave climate risk index based on a 30-year historic average between 1991 and 2020 rating the risk from 0 (low) to 100 (high). The right images show increases (by point on ranking) in the heatwave risk index from the historic baseline for the years 2030, 2050 and 2070 based on an intermediate emissions scenario, "A Rocky Road" or ssp370 defined in the **Sixth Assessment Report of the Intergovernmental Panel on Climate Change**.

The projected heatwave index reveals a strong increase (darker pink) across much of the region. The heatwave index captures the severity of heatwaves in a region by combining data on key factors like extreme maximum temperatures, average summer temperatures and humidity levels. It provides a measure of how future heatwaves may impact different areas under various climate scenarios, helping stakeholders anticipate and prepare for changing risks over time.

Figure 1b. Drought Risk



Source: Risklayer GmbH

Figure 1b highlights how drought risk evolves across California's Deserts region. The left panel illustrates the historic drought climate risk index, based on a 30-year average from 1991 to 2020, using a scale from 0 (low) to 100 (high). Moving rightward, the projections for 2030, 2050 and 2070 under the intermediate emissions scenario, "A Rocky Road" (ssp370), show increasing severity of drought conditions. These projections show how the index score is expected to shift upward in points on the drought index. Inyo and San Bernardino Counties emerge as hotspots for worsening drought risk over time.

The drought climate index synthesizes data on precipitation, temperature and moisture availability to capture how drought conditions are expected to change under future climate scenarios. It serves as a critical tool for understanding regional vulnerabilities and helps decision-makers prioritize actions to reduce water scarcity risks and bolster drought resilience in vulnerable areas. The visualization underscores the need for adaptive strategies in the face of intensifying droughts.

All these risks can be visualized on the resilience dashboard, providing a comprehensive view of the vulnerabilities and strengths of the Deserts region.

CSF 1 qualitative ratings and findings

Qualitatively, the panelists were asked to assess the region across the following performance criteria:

Risk perception
Gauges the panelists' awareness of 11 types of risks affecting tourism, including natural disasters, climate change, water scarcity, air quality, economic factors, public health concerns and technological disruptions.

Understanding tourism impacts
Considers panelists' perceptions of the extent to which tourism stakeholders understand the impacts of natural disasters, climate change, environmental and ecological issues, public health crises, social, technological, political issues and economic uncertainty.

Risk information sharing
Analyzes panelists' perceptions of the degree to which risk-related information (e.g., data, maps, studies) on tourism assets and destinations is communicated effectively to tourism stakeholders and policymakers to support informed decision-making.

Data sharing effectiveness
Examines panelists' perceptions of the effectiveness of existing mechanisms for sharing risk data with tourism stakeholders and policymakers to inform them about key risks and prevention strategies.

The four individual performance criteria and the subsequent findings are shown in Table 1 below:

Table 1. CSF 1 qualitative performance criteria ratings

Performance criteria	Rating	Findings
Risk perception	3	Panelists perceive greatest risks are water scarcity, air quality, natural disasters and climate change. Environmental impacts, economic factors and public health crises were rated as moderate risks, while public safety and technological disruptions were perceived as the lowest risks.
Understanding tourism impacts	2.6	According to the panelists, tourism stakeholders possess a moderate understanding of the impacts of public health crises on tourism. They have limited understanding of how natural disasters, social, technological and political risks affect tourism, and only a basic awareness of climate change, environmental and ecological impacts and economic uncertainty risks.
Risk information sharing	2.5	Most panelists noted inconsistent access to risk information and basic data repositories. They also reported challenges with fragmented communication regarding risk management and emergency management. Foundations for data sharing exist, but further efforts are needed for consistent and comprehensive access to risk information among tourism stakeholders.
Data sharing effectiveness	2	Panelists mostly rate the current mechanisms for sharing risk data with tourism stakeholders as somewhat effective, with only 2 panelists finding them moderately effective.

Panelist perspectives

"Businesses need to have a long-range plan for survival. Here in the Coachella Valley, water is a hot topic, as is air pollution, rising temperatures and increasing storm intensity. And while our popularity grows, our limited resources here mean businesses need to be sustainable to survive temporary tourism interruptions."

"We all have different resources, in staff and funding available. We all have different needs and goals with our different desert region tourism entities."

CSF 2 - Managing Resilience

This CSF reviews existing local plans and strategies that have been adopted to mitigate adverse impacts from and adapt to climate change-related disasters, as well as manage risk from other natural disasters.

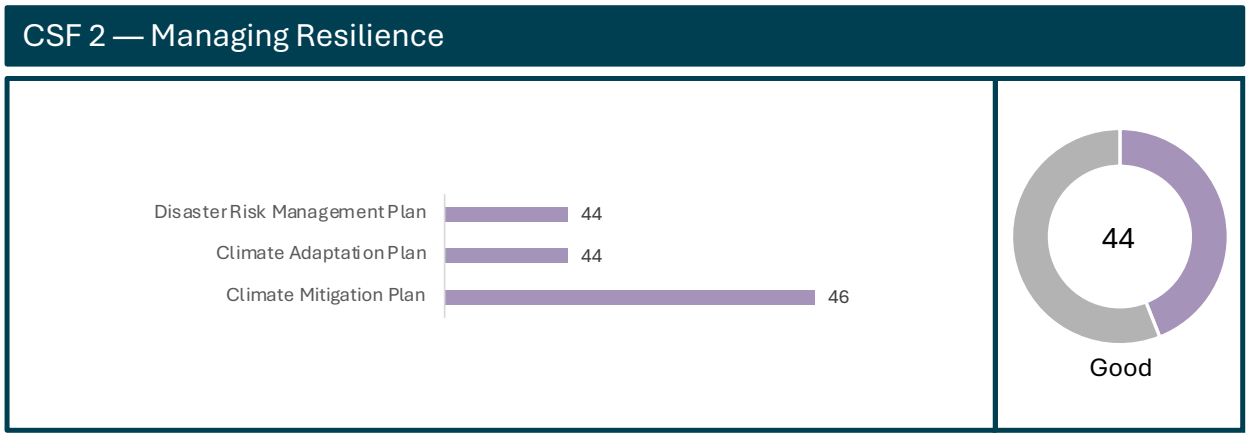
CSF 2 key findings

The overall composite rating on managing destination resilience is 44 out of 100 for the Deserts region. This rating reflects quantitative assessments of disaster risk management, climate adaptation and climate mitigation planning efforts at the city and county level. The score indicates that while formal plans are in place for portions of the region, coverage and comprehensiveness vary across jurisdictions.

In contrast, qualitative survey responses from tourism stakeholders provide insight into how these city and county planning efforts are experienced within the tourism sector. Panelists indicate there is active engagement in risk-based tourism planning, suggesting that some tourism stakeholders are participating in hazard awareness and response efforts. However, panelists also report basic or limited availability of budget for resilience measures, minimal cooperation and coordination between the tourism sector and local authorities and limited regional preparedness for climate change impacts. Only one city in the region, the City of Palm Springs, currently has a dedicated climate action plan (see Appendix 1).

Panelists also note disparities in planning efforts across the region. For example, stakeholders highlighted that the Coachella Valley area and its tourism operators demonstrate greater awareness and engagement with risk management and climate planning strategies compared to smaller or more rural areas, where limited population size and constrained budgets may restrict the scope of resilience initiatives.

Overall, the findings show that the Deserts region has taken important initial steps to prepare for climate change and other hazards. However, planning efforts remain uneven and smaller jurisdictions may lack the resources to fully engage with or benefit from broader resilience strategies. Strengthening regional disaster risk and climate planning — and more closely integrating tourism into these efforts—could better support tourism businesses, particularly in under-resourced areas. Destination managers can play an important role by helping to align tourism-specific strategies with city and county planning efforts and encouraging greater cooperation and coordination across sectors.



CSF 2 quantitative rating descriptions

CSF 2 examines the region's capacity to prepare for, adapt to and mitigate the priority risks identified under CSF 1. The priority risks for the region are heatwaves and droughts.

Disaster risk management planning
Indicates whether a destination has identified and mapped specific hazards, conducted detailed risk assessments, analyzed vulnerabilities and developed robust disaster management plans and hazard mitigation strategies. The presence and comprehensiveness of these plans and strategies indirectly reflect the destination's capability to safeguard visitors, local communities and tourism infrastructure from potential impacts of natural or human-caused disasters.

Climate adaption planning
Indicates whether a destination has developed a plan that discusses improving resilience of infrastructure to climate-change related disasters, consideration of water resource management, mitigation measures for floods and sea-level rise and public policies to integrate climate change considerations into broader planning framework. These plans typically include measures to reduce vulnerability to climate-related risks and capitalize on potential opportunities arising from changing climate conditions.

Climate mitigation planning
Refers to the existence of a plan focused on reducing greenhouse gas emissions from local economic activity. Such plans usually include strategies to decrease greenhouse gas emissions from the built environment, promote sustainable practices and support the transition to low-carbon business operations, including in the tourism sector.

CSF 2 qualitative ratings and findings

Qualitatively, the panelists assessed the region on CSF 2 across the following performance criteria:

Budget allocation and regulation
Indicates panelists' perceptions of whether policies and regulations are in place to mandate or support tourism stakeholders in advancing resilience investments through planning and compliance mechanisms, along with appropriate government budget allocations to fund these requirements.

Risk-based tourism planning
Indicates the extent to which panelists feel disaster- and climate-related risks are incorporated into tourism-related economic development plans and local zoning regulations to minimize vulnerabilities and support safe, sustainable tourism practices.

Collaboration and coordination
Assesses panelists' perceptions of the extent to which the tourism sector actively collaborates with public authorities responsible for disaster risk management and climate change adaptation in the region.

Effectiveness of resilience measures
Evaluates panelists' perceptions of the effectiveness of implemented measures, such as infrastructure design, disaster risk financing and coordination agreements, in reducing the impacts of natural disasters.

Climate action
Measures panelists' perceptions of the integration of climate change adaptation into tourism planning and evaluates the industry's active adoption of measures addressing ongoing climate impacts on the tourism sector.

The five individual performance criteria and the subsequent findings are shown in Table 2 below.

Table 2. CSF 2 qualitative performance criteria ratings

Performance criteria	Rating	Findings
Budget allocation and regulation	2.3	Panelists indicate little to basic support for tourism resilience, citing minimal regulations and limited budgets.
Risk-based tourism planning	4	Some panelists note minimal risk integration in tourism development plans and zoning regulations, indicating limited effectiveness. Most others observe that some areas have substantial risk management practices in place. The consensus is that, overall, improvement is needed for better risk mitigation.
Cooperation and coordination	2	Most panelists characterize coordination between tourism and local authorities as having limited interaction and sporadic engagement regarding resilience planning. Some panelists report only minimal engagement, showing no involvement in coordination with emergency authorities.
Effectiveness of resilience measures	2.5	Most panelists find disaster and climate resilience measures moderately effective, with some panelists noting only limited or minimal effectiveness.
Climate action	2	Most panelists assessed the region's climate change preparedness as limited, with the exception being the Coachella Valley, which has some awareness and initial planning steps.

Panelist perspectives

"Cities and counties need to get on the same page. Maybe more is happening behind closed doors, but I am not aware of it."

"Aside from some earthquake preparedness, nothing much is ever really done to address other climate or natural causes that would affect tourism, such as weather changes."

CSF 3 - Preparedness and Response

This CSF focuses on the tourism sector's ability to anticipate, respond to and recover from crises or disasters while maintaining competitiveness.

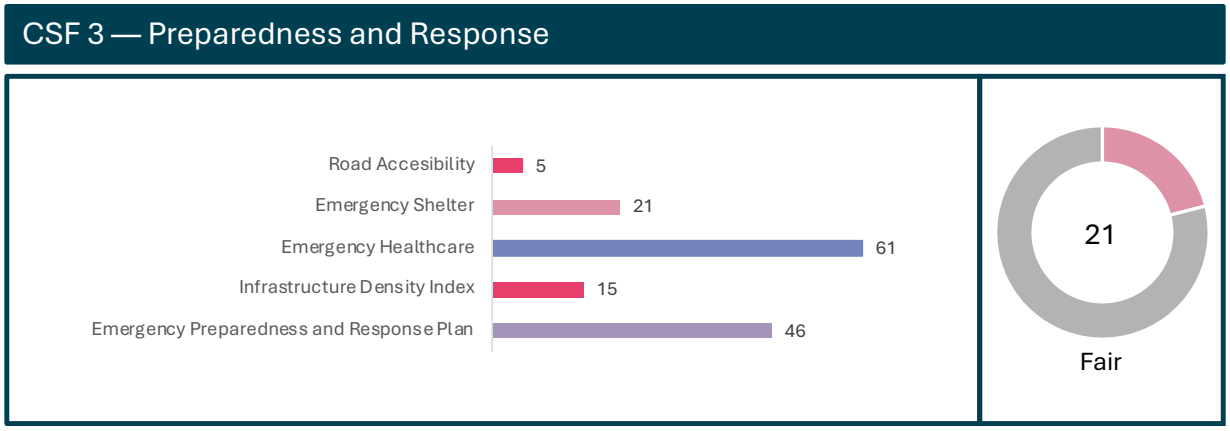
CSF 3 key findings

The CSF 3 outcome highlights significant challenges across the Deserts region in terms of emergency preparedness, response, and recovery. With a composite score of 21 out of 100, the region has extremely limited capacity to support residents and visitors in the event of a disaster. Road accessibility (5 out of 100) is among the most critical risks, with most communities in the Coachella Valley and High Desert areas each reliant on a single major highway for ingress and egress — Interstate 10 and Highway 62, respectively. Panelists reinforce the severity of this vulnerability, noting the high population density in these areas and the potential for bottlenecks and limited evacuation routes during emergencies.

Emergency shelter capacity score (21 out of 100) is also low. Despite a relatively high density of hotels in parts, there are few emergency housing options that could support both residents and tourists during a crisis. From the perspective of access to emergency healthcare (61 out of 100), Level 1 trauma centers are primarily located in the Coachella Valley, leaving remote areas far from critical medical care. Some cities in Inyo County may rely on neighboring regions for access to healthcare facilities. The Emergency preparedness and response planning score (46 out of 100) reflects some formal planning in place across jurisdictions.

Panelists acknowledge that the region has begun engaging in disaster planning and mitigation, but efforts remain limited and inconsistent. Live discussions reiterated the geographic challenges, including the vast size of the region and the varied risk levels depending on location. While some communities are better equipped with road access and lower population densities, the most populous area, the Coachella Valley, faces high risk exposure.

The low scores across multiple indicators point to an urgent need for public investment in physical infrastructure, particularly in transportation, emergency shelter, and healthcare systems. These improvements are critical for resident safety and for maintaining visitor confidence in a region heavily reliant on tourism economic activity. Tourism stakeholders should consider integrating risk awareness, emergency planning and business continuity strategies into their operations. Given the limited public infrastructure, the tourism sector needs to be preparing for high-probability natural hazards, heat waves and prolonged droughts, as identified in CSF 1.



CSF 3 quantitative rating descriptions

CSF 3 considers key regional infrastructure essential to responding to an emergency or natural disaster, as well as the region's preparedness to respond to and recover from the priority risks facing the region, primarily heatwaves and droughts:

Road accessibility
Utilizes Risklayer analysis to assess road accessibility in terms of proximity to airports, road condition and connectivity.

Emergency shelter availability
Calculates the number of emergency shelters per 10,000 residents. Provides a quantitative measure of shelter accessibility in case of emergencies.

Emergency healthcare availability
Measures the number of hospitals per 10,000 residents. Indicates the level of emergency medical care accessibility in the region.

Infrastructure density index
Evaluates infrastructure density based on the length of electric transmission lines per region, serving as a proxy for urbanization and overall infrastructure development.

Emergency preparedness and response planning
Employs a desktop review of emergency preparedness plans such as Emergency Operations Plans (EOPs) of counties or local government and evaluates quality and detail of key components such as clearly defined roles and responsibilities, coordination mechanisms, communication protocols including public warning systems, evacuation and sheltering strategies, resource allocation processes, and established cooperation agreements. Risklayer analysis of emergency preparedness based on accessibility, proximity to emergency facilities and transportation network conditions to provide a comprehensive view of readiness for potential crises.

CSF 3 qualitative ratings and findings

Qualitatively, the panelists assessed the region's performance on CSF 3 across the following performance criteria:

Disaster preparedness and response
Assesses panelists' perceptions of the involvement of tourism stakeholders in decision-making during and after disasters to minimize disruptions and losses and, as a result, maintain competitiveness of the tourism destination.

Public-private partnerships
Examines panelists' awareness of agreements and policies that mobilize public and private resources to enhance preparedness of the tourism sector, such as disaster communication, emergency services and shelter management.

Preparedness and mitigation
Reviews panelists' perceptions of the availability of early warning systems, post-disaster shelter plans, contingency plans of key service providers and strategies to mitigate reputational risks through marketing and communication.

Response and recovery measures
Evaluates panelists' perceptions of the effectiveness of recovery tools, such as government stimulus packages, targeted support for vulnerable groups and the advocacy skills of tourism leaders in the region to secure government resources.

The four individual performance criteria and the subsequent findings are shown in Table 3 below:

Table 3. CSF 3 qualitative performance criteria ratings

Performance criteria	Rating	Findings
Disaster preparedness and response	2	Panelists agree that tourism stakeholders are seldom consulted or considered in disaster response efforts.
Public-private partnerships	2	The consensus among panelists indicates limited awareness of public- private partnerships, policies or procedures available to enhance the tourism sector's preparedness for various risks.
Preparedness and mitigation	2.5	Panelists indicate that preparedness and mitigation measures are moderately implemented. Early warning systems provide limited and basic information. Contingency plans for post-disaster shelters exhibit basic coordination with the accommodation sector. Critical infrastructure contingency plans demonstrate partial integration with tourism needs. Strategies to mitigate reputational risks show varied effectiveness, ranging from non-existent to effective coordination.
Response and recovery measures	3	The evaluation of response and recovery measures by panelists shows a varied perception. Stimulus packages for tourism recovery have effects ranging from minimal to significant according to the panelists. Support programs designed for vulnerable groups within the tourism sector demonstrate limited effectiveness. Tourism leaders' familiarity with and advocacy for emergency preparedness resources vary from no awareness to moderate proficiency.

Panelist perspectives

"We really don't take into account anything that is tourism specific in planning for or recovering from natural disasters. We plan for all residents etc. and don't really carve out anything that is tourism specific."

"County, state and federal organizations need to be cleverer and more interesting during times of non-emergency to teach people how to be prepared. Discover the easy, inexpensive things that will protect your home or business 50% to 90% of the time from many natural disasters."

CSF 4 - Investing in Sustainability

This CSF involves integrating resilience and sustainability into tourism planning and operations through investment, risk management, diversification and resource allocation.

CSF 4 key findings

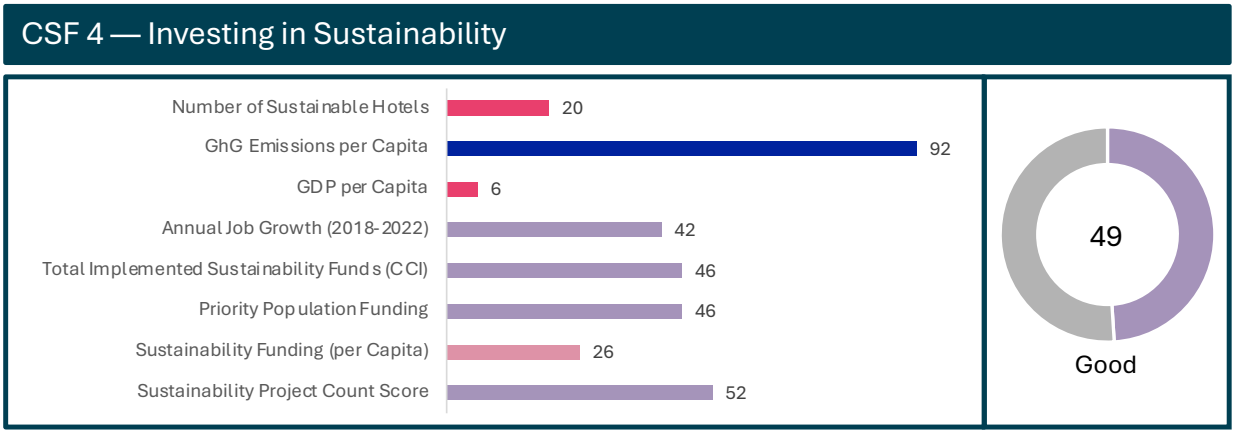
The CSF 4 composite score is good at 49 out of a possible 100, but the individual performance criteria outcomes show mixed results. The region has low greenhouse gas emissions (92 out of 100) and exhibits decent annual job growth (42 out of 100). The low GHG emissions per capita reflect several unique characteristics of the region, including the absence of heavy industry, low population density outside the Coachella Valley and the presence of large-scale renewable energy infrastructure, such as the wind farms near Cabazon and utility-grade solar installations near Mojave.

In contrast, the rating for sustainable hotels is low (20 out of 100), and sustainability funding per capita is also limited (26 out of 100). The very low GDP per capita score (6 out of 100) suggests the potential for wide economic disparities or structural challenges within the region. This low GDP score may also be influenced by unique regional dynamics, such as the high proportion of second homes in the Coachella Valley and large areas of preserved land, including state, federal, and tribal parklands, where permanent populations are limited.

The region's low GHG emissions explain why it has not been a major recipient of state investment from the greenhouse gas cap-and-trade program, which prioritizes areas with high emission levels.

Panelists' survey responses reflect basic engagement in sustainability across the region. Across several indicators, including resilience of tourism assets, transportation infrastructure sustainability, and funding mechanisms, indicating room for improvement in awareness and implementation. Panelists identify localized progress, particularly in the Coachella Valley. Visit Greater Palm Springs is actively investing in sustainability initiatives, including repositioning the region's tourism offerings to be more heat-resilient in summer, developing year-round events and partnering with **Kind Traveler** to help advance sustainable and regenerative tourism in the destination.

Local jurisdictions have also enacted measures, such as organic waste composting rules, investments in alternative transportation (e.g., the CV Link bike and pedestrian path) and water conservation rebate programs for xeriscaping and turf removal through local water authorities. These efforts indicate a willingness at the local level to move toward sustainability.



CSF 4 quantitative rating descriptions

CSF 4 evaluates the region across a myriad of criteria, characterizing investment in and funding for sustainability, as well as the region's overall economic health:

Number of sustainable hotels
Reviews a comprehensive list of sustainable hotels based on **Tripadvisor's criteria on eco-friendly practices**, from linen and towel re-use, recycling and composting to solar panels, electric car charging stations and green roofing. This is the total number of sustainable hotels in the region, not the percentage of all sustainable hotels in the region.

GHG emissions per capita
Analyzes GHG emission estimates based on state, regional or federal data sources and aggregated facility-specific emission reports from CARB's **Mandatory GHG Reporting Program**.

GDP per capita
Calculates the region's economic output per person by dividing total Gross Domestic Product (GDP) by total population. Serves as an indicator of the area's standard of living and the economic well-being of the local population.

Annual job growth (2018-2022)
Measures the year-over-year increase in the number of employed individuals within the region. Expresses this growth as a percentage, indicating the rate of job creation in the economy over a 12-month period. Incorporates the percent change in total employees between 2018 and 2022 for the scorecard and interprets positive percentages as an increase in employees and negative percentages as a decrease.

Total sustainability funds (CCI)
Reviews funding from the **California Climate Initiative (CCI)**, derived from the state's greenhouse gas (GHG) emissions cap-and-trade auction proceeds, aiming to reduce GHG emissions, strengthen the economy and improve public health and the environment. Provides data at the county level.

Priority population funding
Reviews funding from the **California Climate Initiative (CCI)** for projects benefiting "**priority population**" households as defined in state statute as disadvantaged communities, low-income communities and low-income households.

Sustainability funding (per Capita)
Reviews funding from the **California Climate Initiative (CCI)** per resident in each county.

Sustainability project count score
Examines the number of **California Climate Initiative (CCI)** projects per county. Indicates the level of effort invested in climate initiatives within each county and reflects the diversity of project types implemented across different counties.

CSF 4 qualitative ratings and findings

Qualitatively, the panelists assessed the region's performance on CSF 4 across the following criteria:

Risk-Informed public investments
Reviews the extent to which panelists feel public sector infrastructure projects consider multi-hazard vulnerability/risk studies to tourism.

Resilience initiatives and tourism assets
Assesses panelists' perceptions regarding public investment in programs that protect tourism assets, natural attractions and infrastructure and evaluates whether panelists believe such investments are being made and to what extent.

Prioritization of tourism product diversification
Evaluates panelists' perceptions of destination investment aimed at broadening the variety of tourism offerings and assesses efforts to diversify tourism products and experiences.

Risk transfer strategies
Measures panelists' perceptions of the level of risk transfer strategies implemented to safeguard tourism assets against unforeseen risks and includes strategies such as insurance, reserves and climate bonds.

Transportation infrastructure
Analyzes panelists' perceptions of visitor reliance on personal vehicles versus public transportation and assesses the extent to which visitors use green transportation options.

Sustainability standards
Examines panelists' perceptions of the level of support provided to local tourism-related businesses for meeting sustainability requirements.

Sustainability funding
Investigates panelists' perceptions of the availability of funding for resilience and sustainability initiatives in tourism, considering both non-tourism funds and tourism-generated revenue (e.g., taxes and surcharges) to assess support for initiatives such as protecting attractions, promoting eco-friendly practices and enhancing crisis response procedures.

The individual performance criteria and the subsequent findings are shown in Table 4 below:

Table 4. CSF 4 qualitative performance criteria ratings

Performance criteria	Rating	Findings
Risk-Informed public investments	4	Panelists feel that public-sector investments in infrastructure and tourism projects are mostly contingent upon the projects being risk-informed, including multi-hazard risk studies.
Resilience initiatives and tourism assets	2	Panelists believe that investments in resilience initiatives to protect tourism assets, businesses and infrastructure.
Prioritization of tourism product diversification	2	Most panelists believe there is minimal emphasis on diversification of tourism products throughout the region. Some panelists state that there is currently no prioritization of product diversification.
Risk transfer strategies	2	Panelists report that there are minimal risk transfer measures currently in place.
Transportation infrastructure	2	Most panelists note the region is completely dependent on vehicular travel, including owned cars, rental cars and ride sharing. The consensus is that green transportation options, such as bike sharing, bike lanes and electrified public transit either doesn't exist or is minimally utilized by visitors where it does.
Sustainability standards	2	Most panelists report there are minimal resources for technical support, financing/incentives or transparent approvals tied to meeting standards.
Sustainability funding	2	Most panelists concur that there is limited sustainability funding for tourism, including the protection of natural attractions, visitor use of public transit options and bike lanes, visitor use of reusable containers and visitor awareness of crisis response procedures.

Panelist perspectives

"Public transit is very limited here, making it less appealing to visitors — mostly used by our workforce with no other option"

"There appears to be no effort to decrease the use of private vehicles or rental cars in this area."

CSF 5 - Managing Growth

This CSF evaluates how tourism strategies address seasonality, visitor distribution, responsible travel, visitor flow monitoring and marketing practices.

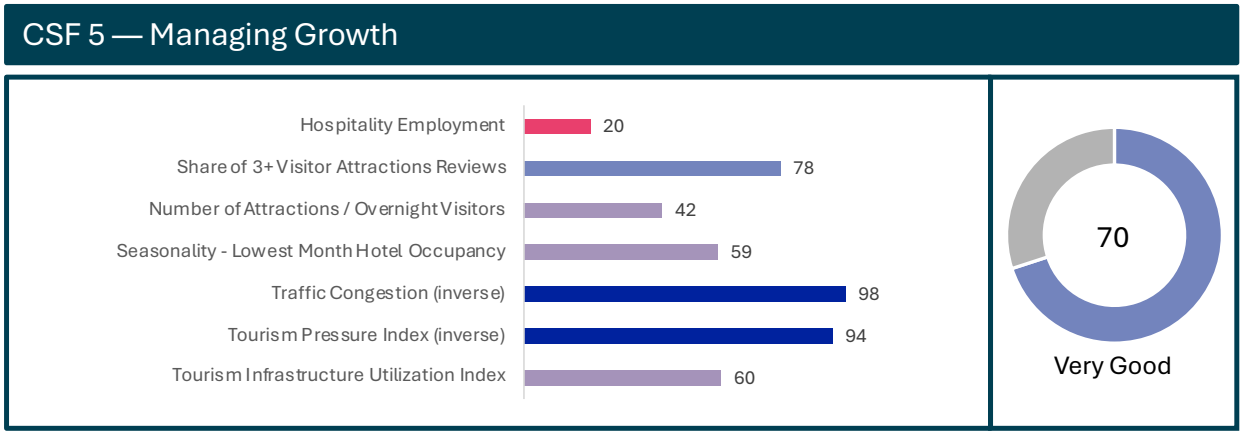
CSF 5 key findings

With a composite rating of 70 out of 100, the Deserts region excels in areas such as the lack of traffic congestion and the share of attractions with 3+ reviews. The region is less strong in terms of hospitality employment (20 out of 100) and number of attractions / overnight visitors, highlighting the potential for growth in year-round tourism and employment.

Qualitatively, panelists perceptions offer very different results than the quantitative data. Panelists score the region as minimal to fair efforts in managing tourism sustainably. There appears to be a gap between the panelists' responses and the quantitative data. Upon discussion, panelists provide anecdotal evidence of traffic congestion being a significant concern in the region, particularly at world-renown natural attractions (e.g., National Parks) and at certain times of the year (major holidays and events).

Analyzing the results further, the behavior of tourists, especially in sensitive natural and cultural environments, may need to be improved in the region as evidenced by the panelists' rating. The positive scores for traffic congestion and the tourism pressure index may be due to the large geographical area of the region, much of which does not experience major traffic congestion. In contrast, the panelists' viewpoints are related primarily to the Coachella Valley and the High Desert, where're there is a concentration of t ourism assets.

While areas such as Barstow, Mojave, Ridgecrest and the Coachella Valley may welcome and have the capacity for visitor growth, other areas such as Yucca Valley, Joshua Tree and Twentynine Palms may encounter challenges managing the same level of growth sustainably.



CSF 5 quantitative rating descriptions

CSF 5 explores the region's tourism economy and potential for sustainable growth in the industry:

Hospitality employment
Measures the total number of people employed in jobs related to accommodations, food service and other visitor-serving industries in the region.

3-star or higher attractions
Calculates the percentage of visitor attractions that have received three stars or higher reviews on **TripAdvisor** out of the total attractions in the region.

Attractions to overnight visitor ratio
Computes the ratio of total tourist attractions to the number of overnight visitors, indicating the variety of experiences available per visitor.

Seasonality
Analyzes the occupancy rate of hotels during the least busy month within a given year, reflecting the destination's seasonality and ability to attract visitors year-round.

Traffic congestion (inverse)
Estimates 'peak hour' traffic at all points on the state highway system in the region, showing how near to capacity the highway is operating. Peak hour values represent the total traffic volume in both directions during the busiest typical hour. While a small number of hours each year may have higher traffic volumes, the peak hour represents a more consistent high-traffic period. In urban and suburban areas, this peak hour typically occurs daily on weekdays, with approximately 200 hours per year showing similar traffic levels.
For roads with significant seasonal traffic variations, the peak hour is determined differently. It is identified as one of the four busiest hours of the year but excludes the 30 to 50 hours with the most extreme traffic levels. This approach ensures that the peak hour reflects a traffic volume that occurs frequently during the busy season, rather than including atypical spikes that do not represent regular conditions.

Tourism pressure index (inverse)
Measures the ratio of overnight hotel stays to the local population and the density of overnight stays per square kilometer. Each factor is normalized by dividing by its maximum observed value, typically found in highly urbanized areas. The population share component reflects the impact of tourism on the local community, while the stays per square kilometer component indicates tourism intensity and infrastructure density.
By averaging these two normalized ratios, the tourism pressure index provides a balanced measure of tourism's impact on both the local population and the physical environment. This approach allows for comparison across different regions, accounting for variations in population density and urbanization levels. Higher index values indicate greater tourism pressure on the destination.

Tourism infrastructure utilization index (TIUI)
Combines multiple indicators related to supply and demand of accommodations (e.g. home rental listings as percentage of hotel rooms, home rental occupancy and others), providing a holistic view of how well tourism infrastructure is being considered to evaluate the utilization of tourism-related accommodation infrastructure across the region.

CSF 5 qualitative ratings and findings

Qualitatively, the panelists assessed the region on CSF 5 across the following performance criteria:

Managing seasonality
Assesses a region's success in increasing off-peak tourism and managing peak visitor flow. Measures the region's focus on and results in balancing visitor volume throughout the year.

Managing visitor distribution
Evaluates the focus on increasing visitation to less-frequented areas and the success of such efforts.

Managing responsible travel
Rates the presence and effectiveness of clear suggestions to encourage sustainable visitor behavior.

Monitoring visitor variations
Examines the extent and impact of monitoring visitor trends (e.g., daily, seasonal) to inform tourism management.

Responsible marketing
Considers how marketing strategies account for capacity, seasonality, environmental impact and residents' well-being.

The individual performance criteria and the subsequent findings are shown in Table 5 below:

Table 5. CSF 5 qualitative performance criteria ratings

Performance criteria	Rating	Findings
Managing seasonality	2.3	Panelists indicate that managing seasonality has been moderately effective, scoring 2.3 across three criteria. Regional tourism stakeholders are somewhat focused on addressing seasonality (score of 3). There is limited success in visitor seasonality strategies (score of 2) and efforts to manage visitor flow during peak periods (score of 2).
Managing visitor distribution	2	The overall assessment of managing visitor distribution by the panelists indicates limited success with an average score of 2 over two criteria. Panelists reported the tourism community is slightly focused on increasing visitor volume to less-visited areas in the region (score of 2) and that efforts to implement visitor distributions strategies have had limited success (score of 2).
Monitoring responsible travel	1	The consensus among panelists was that there are no suggestions for responsible travel collectively throughout the region. This indicates that, regionally, there are limited recommendations in-place encouraging visitors to travel responsibly and support sustainability.
Monitoring visitor variations	2	The consensus among panelists was that monthly and daily variations in visitation throughout the year are monitored, but there is either no impact or limited impact on tourism management in the region.
Responsible marketing	2	The overall assessment of responsible marketing by the panelists indicates the region has a minor focus on it with an average score of 2 over four criteria. Panelists reported that the current marketing strategy somewhat focuses on capacity (level 2), moderately focuses on seasonality (score of 3), has a limited focus on the impact on the natural environment (score of 2) and is not focused on residents' well-being (score of 1).

Panelist perspectives

"Everyone wants more visitors, more business. But it is a double-edged sword; there are not enough employees. If you can find help, they cannot find an affordable place to live."

"Currently, it seems like more responsible recreation messaging is aimed toward the Joshua Tree area more than here in the Coachella Valley."

CSF 6 - Community Well-being

This CSF evaluates how well tourism supports community needs and promotes sustainable, inclusive development. It emphasizes community feedback, resident access, equity and responsible tourism development.

CSF 6 key findings

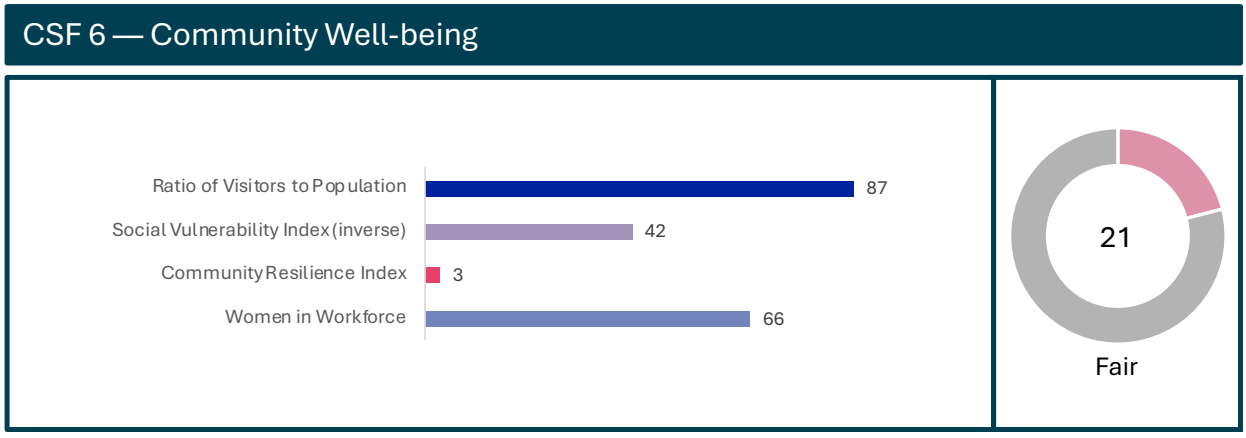
The evaluation of local community well-being and engagement in the Deserts region reveals a complex interplay between tourism and community dynamics. The overall composite score is 21 out of 100, driven primarily by a very low score on the community resilience index (3 out of 100), which measures the ability to prepare for, absorb, recover from and adapt to natural hazards across social, economic, institutional, infrastructural and environmental dimensions. The social vulnerability index (42 out of 100) reflects ongoing disparities in the community's capacity to withstand and respond to crises.

The women in the workforce indicator (66 out of 100) reflects progress in expanding economic opportunities for women and the implementation of supportive workforce structures. However, performance across the remaining indicators shows a need for significant improvement in community preparedness and engagement, particularly in a region that faces high exposure to environmental hazards and economic stress.

Panelists described limited community engagement in tourism planning and a lack of structured channels for resident participation in decisions that impact tourism development. While formal mechanisms may exist in some areas, they are not applied consistently across the region. Panelists also emphasized the urgent need to build community resilience, especially given the region's fragmented infrastructure and social vulnerability.

Tourism is the primary economic driver in the region, especially in the Coachella Valley. Strengthening the tourism workforce and ensuring opportunities for growth, mobility and year-round employment is essential. Ongoing initiatives including job training, upskilling and hospitality management degree programs at CSU San Bernardino and College of the Desert — are directly addressing workforce development and should continue to receive support from tourism stakeholders.

The Deserts region may benefit from a more inclusive approach to community well-being. Expanding resident engagement in tourism planning, investing in local workforce pipelines and aligning tourism growth with broader goals for social and economic resilience could yield a stronger connection between tourism and community outcomes will be essential to ensure that the benefits of the industry are shared more equitably across the region.



CSF 6 quantitative rating descriptions

CSF 6 switches the focus to the perspective of the local community and assesses the region through the lens of resident well-being and engagement with the tourism industry. Of the four quantitative metrics, two are derived from the **National Risk Index** dataset designed and built by the Federal Emergency Management Agency (FEMA). The National Risk Index helps illustrate the U.S. communities most at risk for 18 natural hazards and is measured at the county and census tract levels.

Visitor-to-resident ratio
Compares the number of visitors a destination receives to its permanent resident population, indicating the tourism intensity of an area and potential impact of tourism on local infrastructure, services and community.

Social vulnerability index (inverse)
Utilizes 16 socioeconomic variables from the **FEMA National Risk Index** to measure a community's reduced ability to prepare for, respond to and recover from hazards and natural disasters.

Community resilience index
Assesses a community's ability to prepare, plan for, absorb, recover from and adapt to natural hazard impacts using 49 indicators across six resilience types (social, economic, community capital, institutional, infrastructural and environmental) at the county level, as included in the **FEMA National Risk Index**.

Women in workforce
Calculates the proportion of women participating in paid employment compared to the total workforce, serving as an indicator of gender equality in the labor market and reflecting societal norms, economic opportunities and work-life balance policies in a given area.

CSF 6 qualitative ratings and findings

Qualitatively, the panelists assessed the region's performance on CSF 6 across the following criteria:

Community feedback
Evaluates panelists' perceptions regarding the solicitation of resident feedback about the tourism industry and the frequency with which this feedback influences policies and actions.

Community access to sites
Assesses panelists' perceptions of resident access to popular natural and cultural sites, distinguishing local needs from those of tourists.

Economic, social and environmental well-being
Analyzes the regional tourism industry's focus on diversity, equity and inclusion in hiring practices, as well as its contributions to cultural heritage preservation, cross-cultural exchange and environmental sustainability.

"Overtourism"
Investigates the presence, perception and mitigation of 'overtourism,' including strategies to address future risks associated with excessive visitor numbers.

Tourism development
Evaluates the effectiveness of planning guidelines and policies for sustainable tourism development, including the incorporation of resident feedback, management of short-term rentals and preservation of cultural heritage, as perceived by panelists.

The five individual performance criteria and the subsequent findings are shown in Table 6 below:

Table 6. CSF 6 qualitative performance criteria ratings

Performance criteria	Rating	Findings
Community feedback	1	Panelists agree that resident feedback is not solicited with regards to the tourism industry's marketing and planning.
Community access to sites	3	Panelists indicate there are modest distinctions between resident and tourist access to highly visited natural and cultural attractions.
Economic, social and environmental well-being	3	Panelists mention that tourism industry practices are somewhat aligned with DEIB in hiring and retention and reflect regional workforce diversity. However, tourism contributions to local cultural heritage preservation, cross-cultural exchanges and environmental measures are more limited.
"Overtourism"	3	Panelists feel the regions does contend with some "overtourism" but there are limited strategies to mitigate the issue through improved visitation management practices. Panelists reports that residents perceive some "overtourism" in the region. Panelists also indicate the risk varies based upon area of the region, with some areas (e.g., the national parks) experiencing increased pressure, while others (e.g., Salton Sea) experience very little.
Tourism development	3	The consensus among the panelists is that guidelines and regulations on tourism development exist but are minimally effective for the location and nature of the development. Resident feedback is perceived as sometimes incorporated in the creation of planning/zoning guidelines and regulations. Short-term rental regulations and measures exist but can be ineffective, particularly in certain areas of the region, like the High Desert. Guidelines and measures for protecting and preserving cultural heritage sites and traditions exist and are effective given the large amount of tribal land and cultural assets in the region.

Panelist perspectives

"There is a huge cultural (and physical) divide between our working-class residents and our retired population and visitors."

"In Twentynine Palms, the locals complain constantly about lack of seats in restaurants, congestion and lack of available long-term rental housing."

"Residents here are used to it being a destination area and adjust seasonally as warranted. Some cities have strict short-term-rental regulations, some have none so it's inconsistent, but the ones that do have strong short-term rental regulations seem to have it under control."

CSF 7 - Environmental Conservation

This CSF focuses on promoting sustainable tourism by preserving natural assets, ensuring responsible visitor behavior and addressing environmental impacts.

CSF 7 key findings

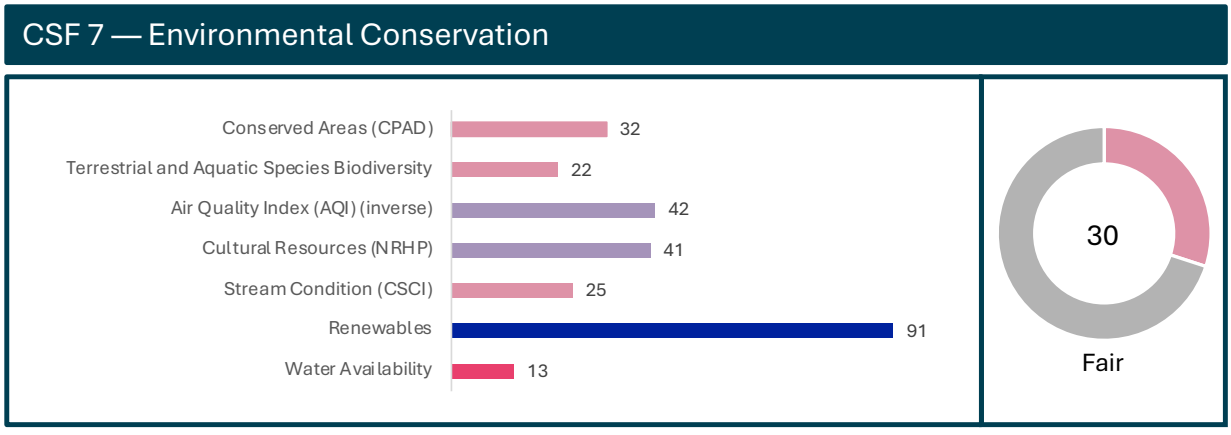
With an overall composite quantitative score of 30 out of 100, the region is home to high air quality (42 out of 100) and considerable renewable energy resources (91 out of 100), such as large wind and solar farms that provide power to the Deserts and surrounding regions.

In contrast, the region encounters challenges in stream conditions (25 out of 100) and terrestrial and aquatic species biodiversity (22 out of 100). Not surprisingly, the Deserts experience drought often and, at times, can encounter challenges with water availability (13 out of 100). The main body of water in the region, the Salton Sea, is one of California's most polluted inland lakes according to the University of California, contributing to the low scores. The challenge of water scarcity and Salton Sea pollution was also repeatedly mentioned throughout stakeholder engagement, especially in the outer and more remote areas of the region.

Qualitatively, panelists report there are limited efforts across the region to conserve water and implement water usage guidelines. A potential reason for this result may be due to the recent wet winters (2022 through 2024) and subsequent lack of drought conditions that might otherwise necessitate more water conservation initiatives.

The region also faces challenges in other aspects of environmental awareness and conservation. Panelists indicate a lack of regionwide guidelines for visitor behavior and tour operator management at natural sites. The consideration and measurement of tourism's impact on the region's overall emissions goals suggest a pressing need for more comprehensive environmental impact assessments of the tourism sector. Discussions with panelists indicate a lack of information in the space, particularly in areas of the region that may not have the resources to conduct such studies on emissions.

Moving forward, the region would benefit from a holistic strategy that builds on its existing strengths, ultimately aiming to enhance overall environmental awareness and conservation efforts across all aspects of the tourism sector.



CSF 7 quantitative rating descriptions

CSF 7 inventories the region's position with regards to various environmental metrics:

Conserved areas
Calculates the percentage of conserved areas within each region using the **California Protected Areas Database** (CPAD), which identifies lands owned and protected for open space, including all parks from National Forests to neighborhood pocket parks.

Terrestrial and aquatic species biodiversity
Examines native species richness, rare species richness and irreplaceability using the California Department of Fish and Wildlife's **Areas of Conservation Emphasis** (ACE) dataset. The species biodiversity metric examines three related measures: native species richness, rare species richness and irreplaceability (i.e., areas of high endemism that support a unique species with a limited range). ACE ranks areas from 1 (low species diversity) to 5 (high species diversity). The average species biodiversity metric within the region was calculated to determine relative ratings and rankings.

Air quality index (AQI) (inverse)
This composite index measures overall air pollution exposure in a given area. It is based on two components: the annual mean concentration of PM2.5 over a three-year period (2015–2017), using data from CalEnvironScreen 4.0 and the California Air Resources Board (CARB); and the 8-hour ozone concentration (in ppm) averaged over three years (2017–2019), also from CalEnvironScreen. Higher index values indicate better air quality. The AQI reflects long-term exposure risks to respiratory and cardiovascular health from both fine particulate matter and ground-level ozone.

Cultural resources
Quantifies the number of historic places within the region listed in the **National Register of Historic Places**, as defined by the National Park Service as worthy of preservation.

Stream conditions
Evaluates the percentage of streams meeting designated biological uses within the region using the **California Stream Condition Index** (CSCI), a biological rating tool assessing freshwater stream health. This tool is based on an assessment of a wide array of environmental data associated with each stream and sets forth benchmarks for sites based on the local environmental setting. CSCI ratings provide a threshold above which a stream segment is determined to meet designated biological uses. The percentage of those streams that "meet designated biological uses" within the region was calculated to determine relative ratings and rankings.

Renewables
Calculates the total percentage of energy generated by renewable resources within the region using utility-scale (>1 MW) power plant generation data from the **California Energy Commission**. Large hydroelectric plants (>30 MW) are considered non-renewable. The total percentage of energy generated by renewable resources within the region is calculated to determine relative ratings and rankings.

Water availability
Combines precipitation, drought and current/future water stress variables to create a comprehensive measure of water scarcity in the region.

- **Drought**
  Analyzes five years (2019-2023) of weekly **U.S. Drought Monitor** (USDM) data for California monitoring sites, classifying drought conditions from normal to exceptional. The **U.S. Drought Monitor** (USDM) is a weekly assessment of drought conditions by multiple federal agencies based on a variety of water-related variables including precipitation, streamflow, reservoir levels, temperature, evaporation potential, vegetation health and more. USDM combines data into six classifications to identify drought conditions from normal (or wet) to exceptional drought.

- **Precipitation**
  Computes the average 30-year normal precipitation value (1991-2020) within the region using data from the **PRISM Climate Group**.

- **Current water stress**
  Identifies and evaluates current global water risks using the **World Resources Institute's (WRI) Aqueduct tools**. This metric quantifies current water supply (upstream consumptive water users and large dams on downstream water availability) and demand (domestic, industrial, irrigation and livestock uses) factors through Aqueduct's current water stress data. It places areas into water stress categories ranging from low to extremely high and analyzes current water stress values in each study area to determine relative ratings and rankings.

- **Future water stress**
  Identifies and evaluates future global water risks using the **World Resources Institute's (WRI) Aqueduct tools** to predict future water supply (upstream consumptive water users and large dams on downstream water availability) and demand (domestic, industrial, irrigation and livestock uses) factors through Aqueduct's future water stress data for 2030. It places areas into water stress categories ranging from low to extremely high and analyzes future water stress predictions for 2030 in each study area to determine relative ratings and rankings.

- **Ratio of visitors to population**
  Compares the number of visitors a destination receives to its permanent resident population, indicating the tourism intensity of an area and can suggest the potential impact of tourism on local infrastructure, services and community life.

CSF 7 qualitative ratings and findings

Qualitatively, the panelists assessed the region's performance on CSF 7 across the following criteria:

Managing protected sites
Evaluates the accessibility, usefulness and effectiveness of maintaining and using a list of natural heritage sites and protected areas, including ongoing conservation processes.

Guidelines for behavior at natural sites
Assesses the presence and effectiveness of regionwide guidelines for visitor behavior and tour operators to ensure responsible management of natural sites.

Ethical animal tourism
Focuses on guidelines for ethical animal interactions in tourism, ensuring alignment with global standards like the **Global Welfare Guidance for Animals and Tourism**.

Reusable products
Measures the prioritization of reusable products over single-use items in tourism businesses and attractions.

Water usage
Examines the implementation and effectiveness of regionwide water conservation guidelines for tourism-related activities.

Emissions information on tourism
Considers how tourism's impact on emissions is measured and integrated into broader environmental goals and policies.

The six individual performance criteria and the subsequent findings are shown in Table 7 below:

Table 7. CSF 7 qualitative performance criteria ratings

Performance criteria	Rating	Findings
Managing protected sites	2	Panelists note the existence of a list of natural heritage sites and other protected areas/natural assets, which is accessed by studies on tourism carrying capacity.
Guidelines for behavior at natural sites	1	Panelists agree there are no regionwide guidelines for visitor behavior at natural sites, nor are there existing guidelines for tour operators and tour guides on managing visitors at these sites.
Ethical animal tourism	2	Panelists feel there are regionwide guidelines in-place, but they are not effective, including interaction with wildlife and domesticated animals.
Reusable products	2	Panelists perceive tourism businesses and attractions throughout the region are slightly focused on reusable products.
Water usage	2	Panelists concur that the existing guidelines regarding water conservation by tourism businesses and attractions are minimally effective.
Emissions information on tourism	1	Panelists report the tourism industry does not provide information on the industry's impact on regional emissions.

Panelist perspectives

"I believe that there are policies in place and tourism destinations and organizations try to enforce them, but limited budget and staffing affect the effectiveness of these policies."

"Studies show our natural areas, such as Joshua Tree, have poor air quality from a variety of factors. However, nothing has been done to reduce auto traffic."

"I think awareness continues to grow about the delicate ecosystems and biodiversity of the desert – however, there will always be folks who don't care."

Opportunities for incremental improvement

The Deserts Scorecard is intended as a baseline resource to raise awareness of current sustainability efforts and the risks to tourism in the region. What emerges as the most critical issues are the region's limitations in road accessibility and challenges with sustainability in the hospitality employment pool. Without additional support structures, the region's limited capacity for swift response and recovery poses risks to both residents and visitors.

Addressing road infrastructure issues primarily resides with local, state and federal governments. However, there are still several opportunities for travel and tourism entities to pursue to improve the overall sustainability and resilience of the industry to climate-related and other natural disasters:

Be prepared.

- Use the California Tourism Resilience & Sustainability Dashboard to identify potential impacts to tourism from various hazards and disaster events.
  - Organize webinar training sessions to familiarize tourism stakeholders, local officials and the broader public with the dashboard and how to interpret the data.
  - Determine which communities are most vulnerable to and face the greatest risks from tourism losses from natural disaster and other events.

- Develop scenario-based exercises focusing on the region's high-priority risks — drought, heatwaves and earthquakes — tailored for small and medium tourism businesses and DMOs, with an emphasis on supporting the most vulnerable communities.
  - Adopt emergency response strategies to prepare for higher risk crisis situations, including drought, heatwaves and earthquakes.
  - Train tourism employees in basic first aid and crisis response to increase the capacity for emergency healthcare and know what to do as a potential first responder in the more remote areas of the region.

- Prepare a regional risk-based action plan focused on protecting tourism assets, including tourism products prioritized for development in the Deserts Regional Strategic Tourism Plan, from the top risks identified under CSF 1.
  - Provide a detailed risk profile of key tourism assets.
  - Identify steps for mitigating impacts identified in the risk profile.
  - Incorporate mitigation/resilience improvements into operation budgets.

- Establish communication channels between tourism stakeholders, emergency services, regional news media and visitors to support timely and accurate information dissemination during crises.
  - Prepare a list of mobile apps, websites and local radio stations providing real-time updates on weather conditions and disaster alerts.
  - Develop tools, such as regular email updates, a dedicated hotline or social media updates for instant alerts, to communicate risk information to tourism businesses.
  - Pursue partnerships with local government to establish temporary agreements for converting facilities into emergency shelters during crises.

Act sustainably.

- Pursue sustainability certification through recognized frameworks, such as the Global Sustainable Tourism Council standards for hotel and tour operators, destinations, venues, event organizers, events & exhibitions and attractions.

- Incorporate sustainability initiatives into regular operations.
  - Install water-conserving and/or energy-efficient measures that exceed building code requirements when replacing existing building components.
  - Pursue electric utility and local, state and federal government incentives for clean energy improvements and electric vehicle charging infrastructure (see Statewide Opportunities for more information).
  - Partner with local businesses to create a closed-loop system for resources, such as turning food waste into compost for local farms that supply restaurants.
  - Include venue sustainability practices when responding to group and event RFPs.
  - Promote the reduction of single-use plastics and non-recyclable materials at events; emphasize compostable material where possible and feasible.
  - Collect relevant data, including guest satisfaction ratings, initial investment costs, ongoing maintenance expense, energy and water savings and waste reduction to determine the long-term financial benefits of sustainable practices

Develop the workforce pipeline.

- Continue the partnership with the region's educational institutions that have hospitality programs and job training certificates, namely CSU San Bernardino, College of the Deserts and Copper Mountain College and position the region as a premier destination for education in hospitality, culinary arts and casino management studies.

- Work with non-profits and local foundations, such as the Tourism Foundation mentioned in Visit Greater Palm Springs' Destination Development Plan, to provide scholarships for high schoolers applying to hospitality management programs and for individuals completing job training certificates to enter the industry.

Manage responsible visitation.

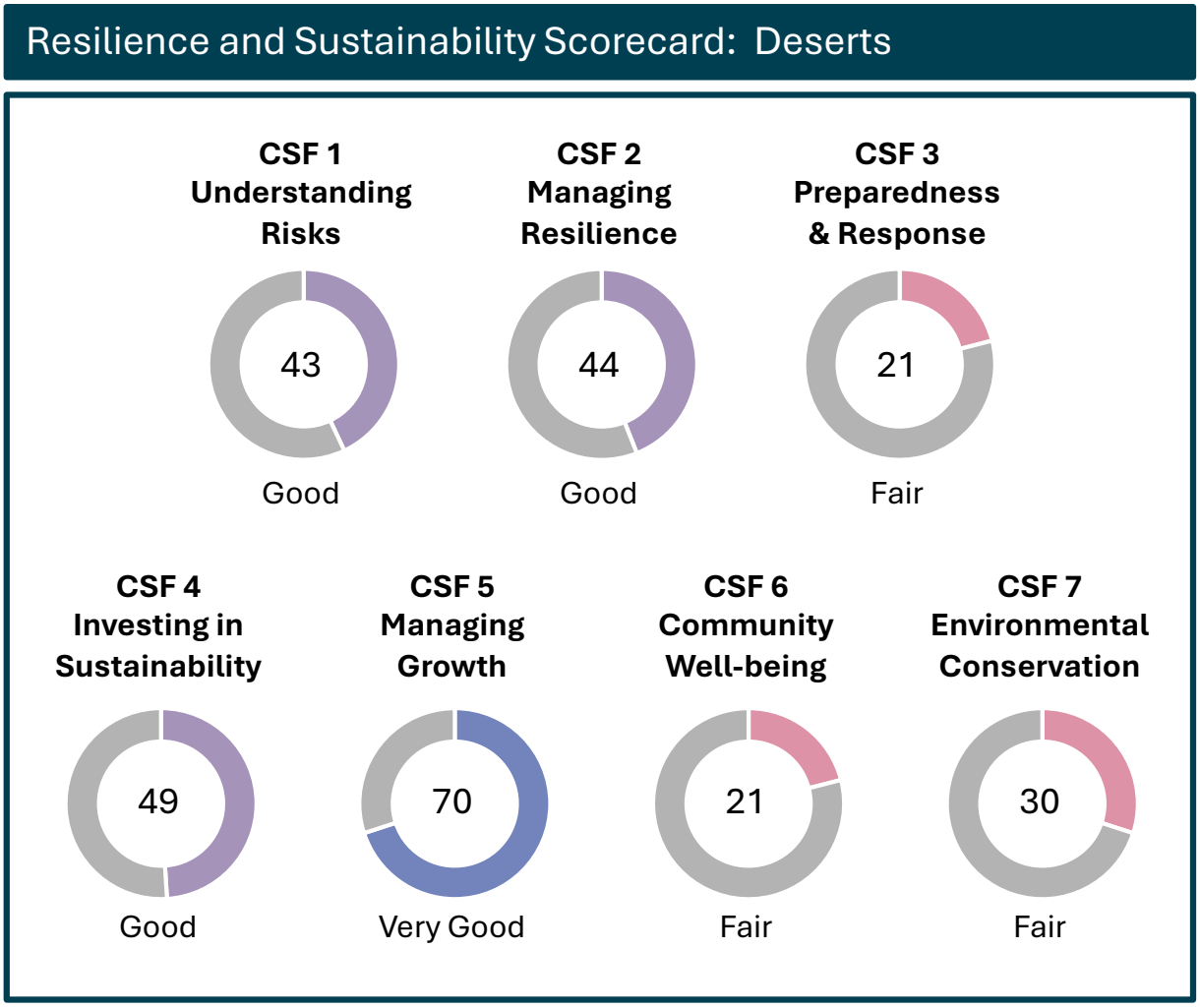
- Develop a strategy to manage visitation in popular areas to avoid exceeding capacity during peak periods.
  - Gather seasonal visitation data and monitor fluctuations to identify and address shifting demand patterns (monthly and daily) in a timely manner.
  - Partner with public agency stakeholders to collect visitor data at high-trafficked public sites to inform visitor management strategies.
  - Identify sites experiencing environmental degradation from visitation exceeding capacity, assign a level of urgency and develop a strategy for mitigation that includes resources and monitoring performance against KPIs.

- Create guidelines for visitor behavior at natural sites, communicate guidelines at all stages in the visitor journey and create a system to monitor the impact of visitor impact on natural sites.

- Implement campaigns on a regionwide basis, like Leave No Trace and Cleaner California Coast, to educate visitors on the importance of sustainability and how their choices can make a difference.
  - Leverage Visit California's **Responsible Travel Code** resources to encourage positive visitor behavior.
  - Emphasize pre-trip engagement, such as the USFS's **Know Before You Go**, to encourage visitors to plan effectively prior to arrival at a destination.

- Conduct resident sentiment surveys to inform tourism development planning and short-term rental policies.
  - In areas of the region where no existing resident sentiment survey data exists, consider organizing a resident sentiment survey, garnering responses from across the different cities and counties (particularly in the High Desert, where panelists indicated qualitative evidence of overtourism).

Conclusion



The scorecard highlights unique current and future challenges facing the Deserts, including heatwaves and droughts, as well as hospitality workforce limitations and insufficient road accessibility. These pressures underscore the urgency of advancing robust sustainability approaches and well as the need for additional public investment in key infrastructure. Without sufficient progress, the region faces distinct challenges that could impact its tourism industry and overall resilience.

There is energy, enthusiasm and commitment from regional stakeholders to address these critical issues, which are important not only for the region but for the entire state of California. The strong local support and recognition of sustainability's importance provide a foundation for addressing these issues. However, significant work lies ahead to improve the region's performance and prepare for future environmental challenges, particularly in managing drought conditions and adapting to climate change impacts.

Appendix

Appendix 1- Reviewed local plans

City/County	Plan
Adelanto	City of Adelanto General Plan
Barstow	2015-2020 General Plan
Blythe	City of Blythe General Plan 2025
Brawley	City of Brawley Final General Plan 2030
Calexico	City of Calexico Climate Action Plan
Calipatria	City of Calipatria 2035 General Plan
Cathedral City	Cathedral City Climate Action Plan
Coachella	General Plan Update
Desert Hot Springs	City of Desert Hot Springs General Plan
El Centro	Final Vision 2050 Strategic Plan
Greater Palm Springs	2016 Destination Development Plan
Greater Palm Springs	2019 Destination Next
Greater Palm Springs	2023 Two Year Priority Areas of Focus
Imperial	City of Imperial General Plan
Indian Wells	General Plan 2040
Indio	City of Indio Strategic Plan 2022-2024
La Quinta	2035 La Quinta General Plan
Needles	City of Needles Land Use & Transportation Element
Palm Springs	Palm Springs Climate Action Plan
Rancho Mirage	General Plan 2017 Update
Ridgecrest	City of Ridgecrest General Plan
Twentynine Palms	General Plan Update
Westmorland	City of Westmorland 2021-2029 Housing Element
Yucca Valley	General Plan Update

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