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Resilience and sustainability scorecard

San Diego County

May 2025

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Executive summary

The San Diego County region encompasses 18 incorporated cities, including San Diego, Escondido, Carlsbad, Oceanside and Coronado, representing a vibrant and thriving area known for its coastline, diverse cultural experiences and economic vitality. This dynamic region offers a vast array of natural and cultural resources, from its breathtaking coastal hikes to its desert edges. Tourism plays a critical role in the local economy while also intersecting with environmental and community systems. At the same time, the region faces several risks as both a place to live and a visitor destination. This assessment explores how tourism in San Diego County is affected by and can contribute to addressing these issues through resilience planning, sustainability investment and community engagement.

Top Risks

1 **Ongoing water quality and scarcity:** Contamination from the Tijuana River continues to impact coastal tourism, causing beach closures and health risks. Water scarcity driven by drought and rising temperatures threatens long-term availability for both communities and tourism operations.

2 **Escalating climate change risks:** Heatwaves and droughts are expected to increase across coastal areas and inland parks, raising risks to visitor safety, outdoor activities and overall destination resilience.

3 **Infrastructure and emergency management:** High visitation and population growth strain transportation, emergency response and public services, particularly along the coast, exposing vulnerabilities during disasters and peak demand periods.

The most critical issue is the region's ongoing challenge with water quality and availability. Water contamination from the Tijuana River impacts beach destinations and exposes visitors and residents to public health hazards. In parallel, prolonged drought conditions and escalating heatwaves are straining water resources, threatening key tourism activities and natural habitats.

Climate-related risks are also rising. Heatwaves are projected to become significantly more severe in coastal areas like Coronado, San Diego and Oceanside, as well as inland parks like Anza-Borrego. These risks could disrupt visitation patterns, damage infrastructure and heighten health vulnerabilities.
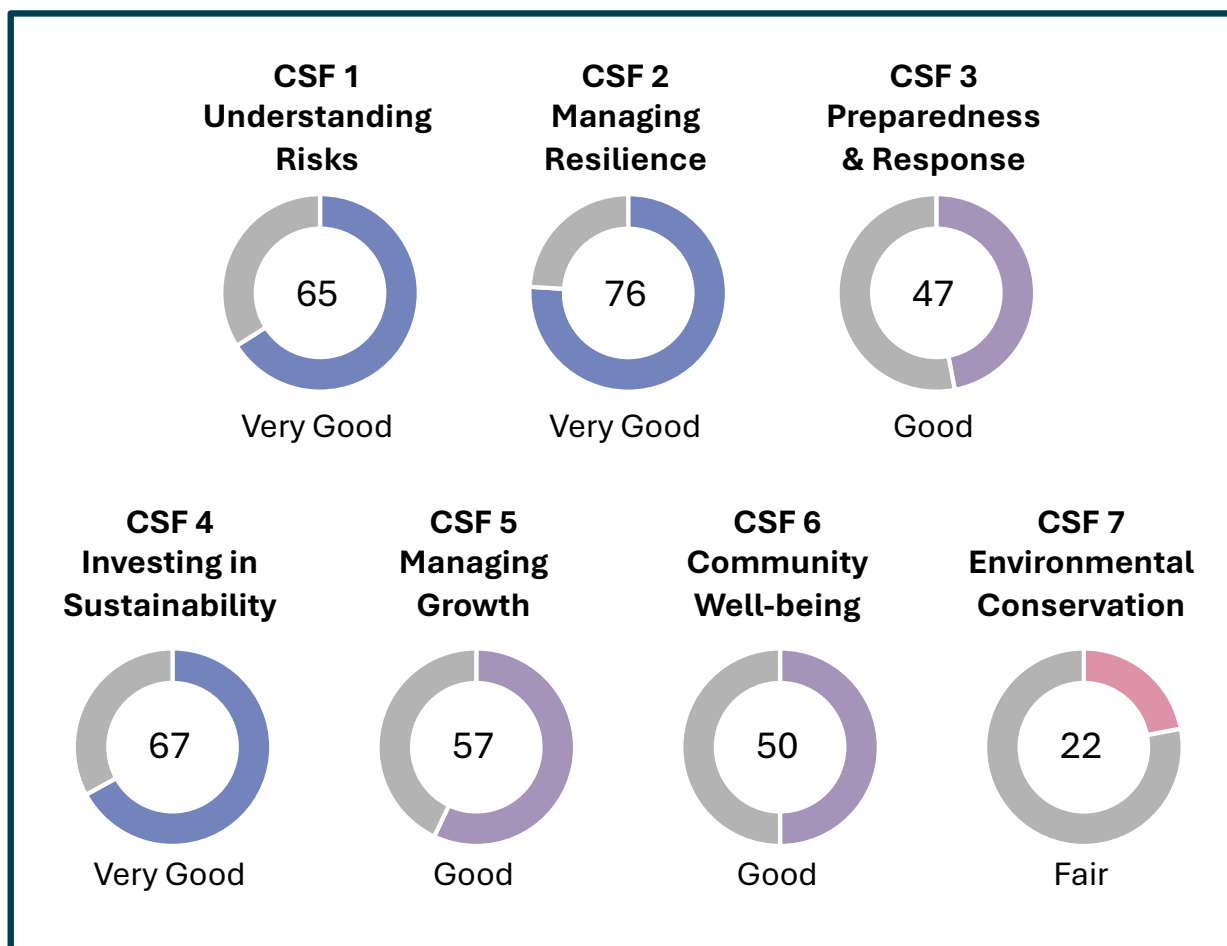
Finally, the region's infrastructure faces increasing stress. Dense urban centers and high visitor volumes amplify the need for improved emergency preparedness, transportation capacity and resource management. Without proactive investments, the tourism sector's ability to withstand disasters and climate pressures will be significantly compromised.

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 resiliency to identified risks. For more background on the scorecard approach, see Scorecard Overview.

The San Diego 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.

Resilience and Sustainability Scorecard: San Diego

CSF 1 Understanding Risks	CSF 2 Managing Resilience	CSF 3 Preparedness & Response
65	76	47
Very Good	Very Good	Good

CSF 4 Investing in Sustainability	CSF 5 Managing Growth	CSF 6 Community Well-being	CSF 7 Environmental Conservation
67	57	50	22
Very Good	Good	Good	Fair

Interpreting the scorecard

CSF 1 Understanding risks — Very good
Tourism businesses in the region benefit from low exposure to geological hazards and are projected to experience limited disaster-related losses. The sector remains very vulnerable to climate change, extreme weather and economic pressures. Regional planning efforts, such as San Diego County's **Climate Action Plan** and city-level initiatives, reflect a growing commitment to risk mitigation.

CSF 2 Managing resilience — Very good
The region has developed strong climate and disaster risk planning frameworks. While formal strategies are in place and planning is well underway across most jurisdictions, including at the county level and the primary cities of San Diego, Oceanside, Coronado and others, implementation remains uneven.

CSF 3 Preparedness and response — Good
The region is moderately prepared in terms of emergency planning, with strong frameworks in place to guide disaster response and coordination. The region continues to face infrastructure challenges around emergency shelter capacity and road accessibility, that could limit its ability to support visitors and residents during crises.

CSF 4 Investing in sustainability — Very good
There is strong performance in climate action and sustainability investment. The region benefits from robust climate planning frameworks and has secured significant funding for climate and resilience initiatives. Economic indicators remain weak and sustainability investments are not evenly distributed, particularly in the tourism sector, where businesses report limited support for and adoption of best practices.

CSF 5 Managing growth — Good
The region has strengths in visitor experience, data-informed decision-making and tourism pressure management. SDTA as the primary DMO in the region along with additional local DMOs like Discover Coronado, Visit Carlsbad and Visit Oceanside all report on visitor-related metrics and make strategic growth plans around data. Challenges remain in fully utilizing existing infrastructure, expanding tourism-related employment and generating year-round demand.

CSF 6 Community well-being — Good
There are strengths in workforce inclusion and resident engagement in the San Diego region. Community input is considered however there is socioeconomic disparity across the region that continues to be a focus of county and city leadership across the region. Challenges are in resilience, equity and coordinated tourism impact management.

CSF 7 Environmental conservation — Fair
The region scores well in biodiversity protection and shows moderate air quality. The lowest score for the region among all CSFs is on environmental conservation and ecosystem health, with persistent challenges in water quality, land conservation and renewable energy adoption. Water quality issues, particularly related to the Tijuana River contamination, is the most prevalent issue affecting all the coastal communities in the region.

The following sections dive into the findings of the San Diego 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 management 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 San Diego data here: San Diego County 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 region's composite tourism risk score is 65 out of 100, indicating a moderate level of overall risk based on quantitative analysis of geological, climate, economic and safety-related indicators. This score reflects a combination of strengths and areas of vulnerability across risk categories.
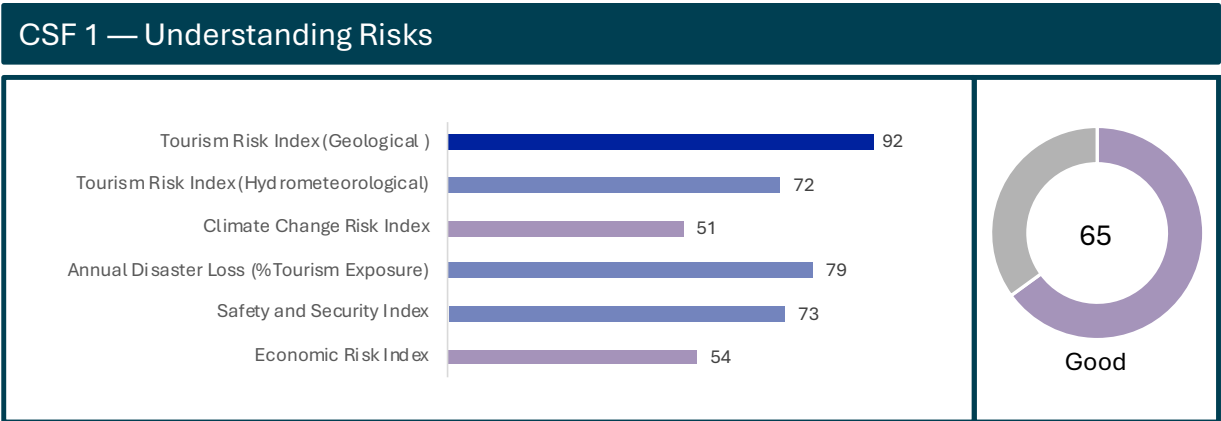
The region performs well in relation to geological hazards (92 out of 100), suggesting low exposure to events such as earthquakes and landslides. Similarly, the annual disaster loss score (79 out of 100) indicates that a relatively small proportion of tourism infrastructure is at consistent financial risk from hazard-related damages. Safety and security conditions also rate favorably (73 out of 100), reflecting generally positive public safety indicators, such as crime rates and healthcare access.

Hydrometeorological risks, such as floods and wildfires, (72 out of 100) fall in the moderate risk range. The climate change risk (51 out of 100) points to increased vulnerability from longer-term climate shifts, including heatwaves, drought and reduced snowpack. The economic risk score (54 out of 100) reflects challenges in workforce stability, housing affordability and economic resilience within tourism-dependent areas.

Panelists identify natural disasters as the highest perceived threat, followed by climate change, water scarcity and environmental degradation. Societal and economic concerns were considered moderate risks, while technological disruptions were viewed as the least concerning.

Panelists also report a moderate level of understanding of how natural disasters and public health issues impact tourism, with particularly strong awareness of climate and environmental impacts. Despite this, gaps remain in how risk information is accessed and shared. Experts note that risk information is inconsistently available. While an inventory of tourism assets generally exists, the effectiveness of data-sharing systems is low, with only some stakeholders adequately informed about risks and prevention strategies.

The CSF 1 analysis highlights a disconnect between quantified risk exposure and stakeholder perception and preparedness. To address this, strategies should focus on improving risk literacy, strengthening coordination and enhancing the accessibility and consistency of risk-related information across the tourism sector.

CSF 1 — Understanding Risks

Indicator	Score
Tourism Risk Index (Geological)	92
Tourism Risk Index (Hydrometeorological)	72
Climate Change Risk Index	51
Annual Disaster Loss (%Tourism Exposure)	79
Safety and Security Index	73
Economic Risk Index	54

65
Good

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 identification and highlighting of 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 to provide a holistic view of personal security and the overall quality of safety in the region. Additionally, this index incorporates indicators such as COVID-19 vaccination data (specifically the percentage of population with 1+ dose) from **CovidActNow** and homelessness data from the U.S. 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 San Diego region has a Mediterranean climate, characterized by warm, dry summers and mild winters, with the Pacific Ocean significantly moderating temperatures, resulting in a generally mild climate year-round. Its year-round pleasant temperatures have long been a major draw for tourists. However, climate change is projected to increase the frequency and intensity of heatwaves and droughts, posing significant challenges to the area's tourism. During the summer months, extreme heat inland. This could pose further threats to the county's regional agricultural and agritourism experiences across the region.

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.

Figure 1a. Heatwave Risk
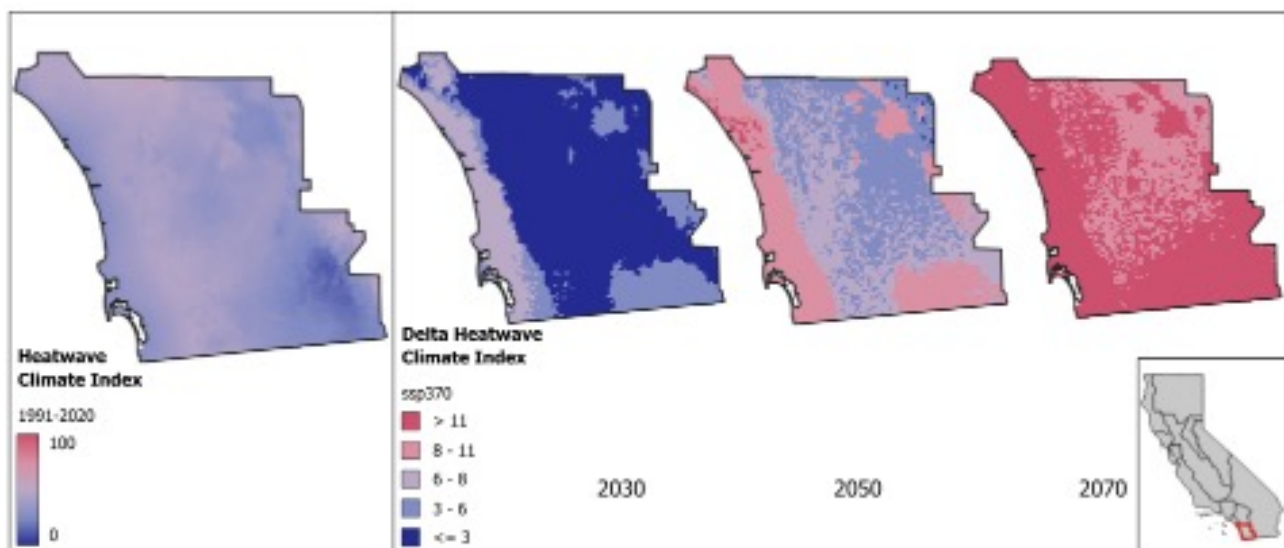
Source: Risklayer GmbH

Figure 1a displays the forecasted heatwave index. This is 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 in the heatwave risk index score 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 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.

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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 1b. Drought Risk
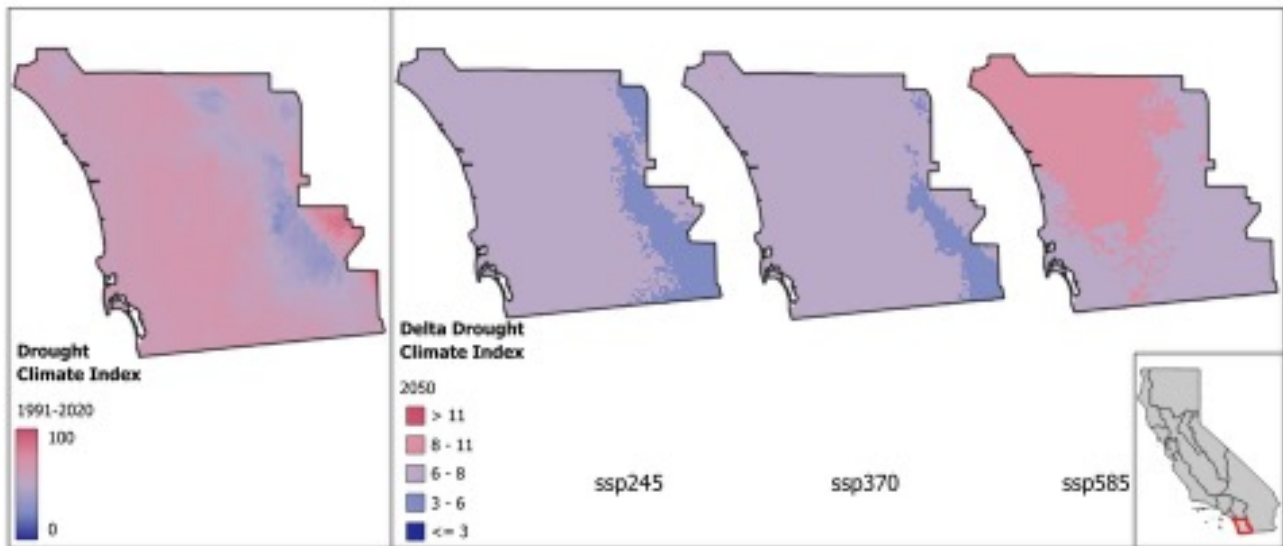
Source: Risklayer GmbH

Figure 1b represents drought index over the same time period. The areas in pink indicate a relative increase in the heat and drought indices for the San Diego region. Notably, inland areas of the county emerge as hotspots for worsening drought risk over time.

This 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.

Figure 1c. Earthquake Risk
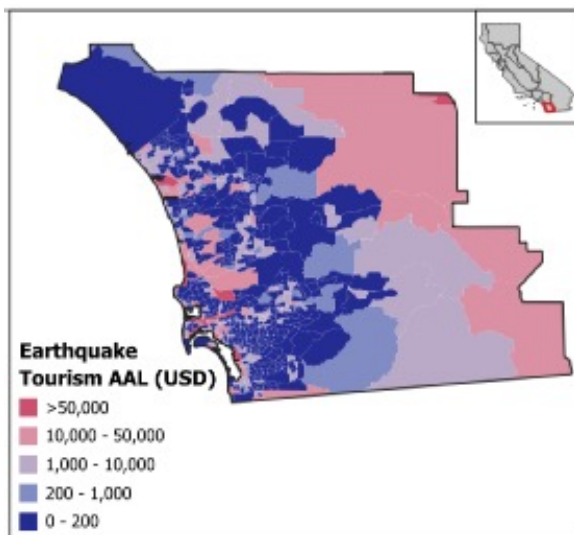
The high Average Annual Loss (AAL) in this region is attributed to infrequent but potentially significant earthquakes, which influence the annualized risk. The eastern side/inland area of the San Diego region stands out as having the most consistent earthquake risks and AAL.

According to the Southern California Earthquake Center, there is a 60% chance of a 6.7 or greater earthquake occurring in Southern California. Additionally, the Rose Canyon Fault runs through San Diego County's western side touching points within the City limits near the airport, downtown and running through the City of Coronado. According to the City of San Diego's Fire Rescue Department on safety education, only one in four households are prepared for such an emergency.

Source: Risklayer GmbH

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	1.8	Natural disasters are perceived as the highest risk in the region, followed by climate change, water scarcity, air quality and environmental impacts. Societal concerns and economic concerns are rated as moderate risks. Geopolitical issues and safety concerns (crime and homelessness) are seen as moderate risks as well. Technological disruptions are perceived as the lowest risk.
Understanding tourism impacts	3.0	Tourism stakeholders in the region demonstrate moderate levels of understanding across different risk categories. They have a moderate grasp of how natural disasters and public health crises impact the tourism sector. When it comes to climate change, environmental and ecological issues, stakeholders' understanding is strong.
Risk information sharing	3.0	Most panelists indicate that risk information access for tourism assets and destinations is inconsistent. Communication is perceived as positive but needed more consistency.
Data sharing effectiveness	2.0	Most panelists indicate that the current mechanisms for sharing risk data are only somewhat effective, needing improvement. Only some stakeholders are informed about key risks and prevention strategies, highlighting a need for enhanced data-sharing systems.

Panelist perspectives

"I think we talk at the industry level, but we need to have seats at the table more often with our legislators and appropriate organizations, depending on the risk. We also need to goal and actions in place on this."

"There is still room for improvement in terms of centralizing information, response and leadership."

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.
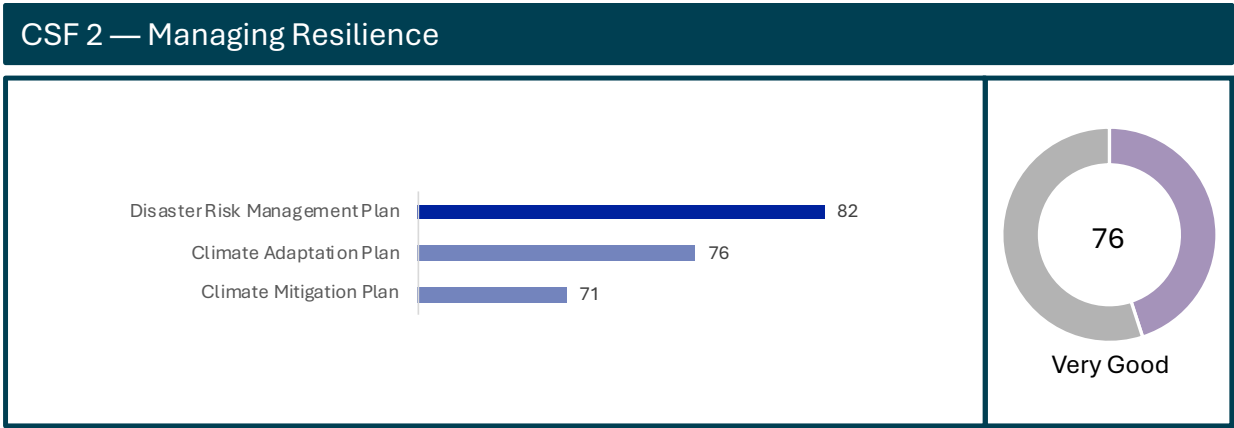
CSF 2 key findings

CSF 2 findings show the region has a strong overall approach to climate and disaster planning, with a composite score of 76 out of 100. This score reflects consistent performance across three core planning categories — disaster risk management, climate adaptation and climate mitigation — based on city and county-level plans. The highest-performing category is disaster risk management (82 out of 100). Climate adaptation planning also scored well (76 out of 100), due to meaningful efforts to address long-term vulnerabilities such as extreme heat, drought and sea-level rise. Climate mitigation planning (71 our of 100) shows an active but still evolving approach to reducing emissions and managing tourism's environmental footprint.

In contrast, panelist input offers insight into how the tourism sector interacts with and experiences these city and county planning efforts. Across various planning criteria, panelists generally rated San Diego's efforts as between fair to very good, showing progress but also highlighting inconsistencies in how well plans are communicated, coordinated and implemented within the tourism sector.

While strong planning frameworks exist at the city and county level, they are not always well-integrated into the tourism system. The effectiveness of planning measures is sometimes unclear or not widely understood within the sector, indicating a need for improved communication, collaboration and sector-specific engagement.

The region has made significant progress in developing plans to strengthen resilience, particularly through formal strategies and cross-jurisdictional climate frameworks. To fully realize the benefits of these efforts, there is a need to improve transparency and engagement with tourism stakeholders. Destination managers can play a key role in bridging this gap by embedding climate and disaster resilience into tourism strategies and aligning with broader public-sector plans. Aligning perceptions with actual progress will be critical to strengthening implementation, increasing buy-in and supporting more informed and adaptive resilience strategies over time.

CSF 2 — Managing Resilience

	Score
Disaster Risk Management Plan	82
Climate Adaptation Plan	76
Climate Mitigation Plan	71

76 — Very Good

CSF 2 quantitative rating descriptions

An inventory of local destinations was compiled and a desk top review was completed to evaluate each plan along three criteria:

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	2.5	Most panelists perceive inadequacy regarding budget allocations for resilience initiatives. They characterize the funding as very limited and insufficient to tackle resilience challenges effectively.
Risk-based tourism planning	4	Panelists note that development plans and zoning regulations do incorporate risks related to tourism, including disasters and climate change impacts.
Cooperation and coordination	2	Panelists report some interaction and basic coordination between the tourism sector and authorities responsible for disaster risk management and climate change adaptation. However, opinions varied, with some panelists perceiving minimal engagement and others reporting more regular coordination.
Effectiveness of resilience measures	3	Resilience measures have moderate impact, according to panelists.
Climate action	2	Most panelists report consideration of long-term climate actions in the region's tourism sector. Climate resilience planning is seen as initially integrated with needed coordination on these efforts.

Panelist perspectives

"There are several climate action plans now in place by local governments but there hasn't been outreach to the tourism industry in terms of impacts, management or future planning. Plans are typically communicated during the design/build phase so more geared to building industry than tourism operators."

"There is still education that needs to be done with our local and state legislators to ensure tourism has a seat at the table."
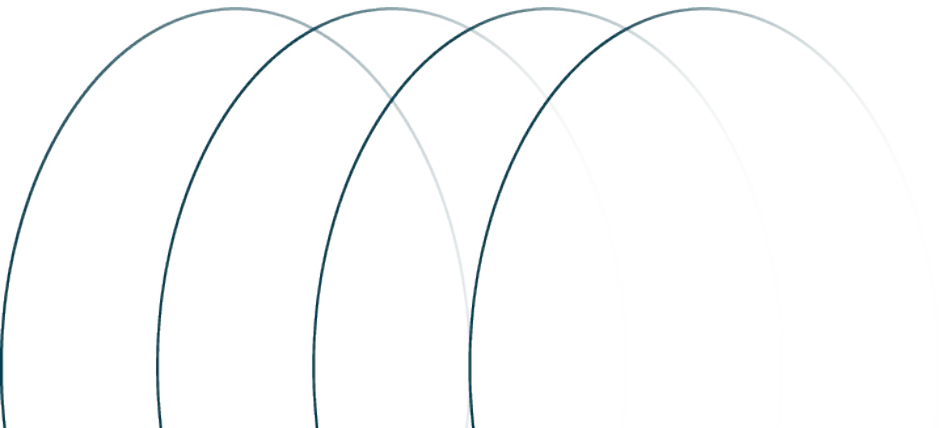
CSF 3 - Preparedness and Response

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 San Diego region demonstrates a moderate level of preparedness and recovery capacity, with a composite score of 42 out of 100 across key emergency infrastructure and planning indicators. Significant challenges exists, particularly on indicators critical to supporting visitors and residents during crisis situations.
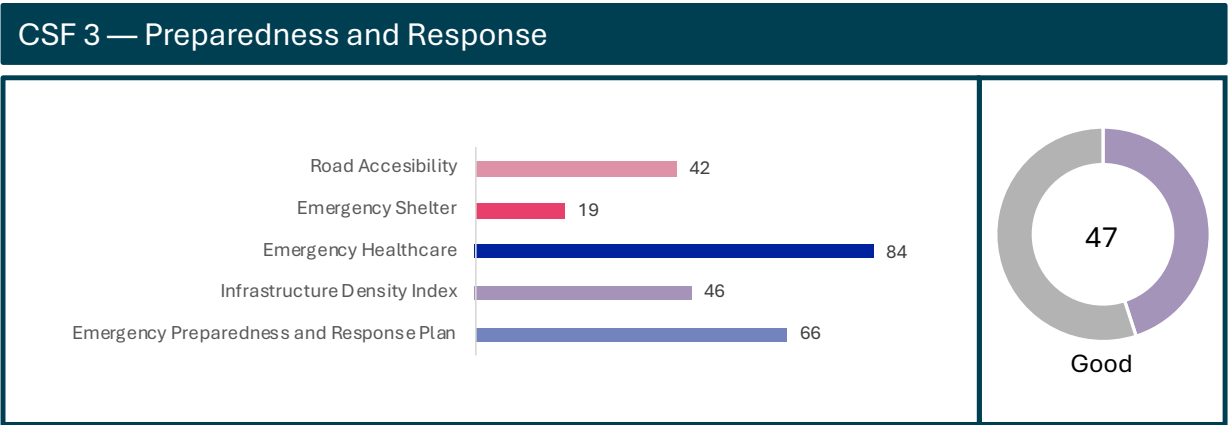
The region's highest rating is in emergency preparedness and response planning (66 out of 100), indicating there are developed formal strategies to guide emergency coordination. These plans set the region apart from many other areas in the state and are beginning to show positive effects for tourism stakeholders.

The region faces infrastructure vulnerabilities. The emergency shelter score (19 out of 100) represents a significant shortfall in shelter capacity. In the event of a major disaster, this gap may limit the region's ability to house affected residents and visitors. In the absence of sufficient public shelter space, hotels and accommodations may be relied upon to support both emergency housing and recovery functions.

Other infrastructure-related scores also indicate areas of concern. Road accessibility (42 out of 100) highlight physical constraints that may affect the movement of people and goods, emergency response times and evacuation logistics. Large-scale public infrastructure, such as shelter and transportation, require sustained public investment.

Improving data sharing and communication between public agencies and the tourism industry is a low-cost, high-impact opportunity. By ensuring that tourism stakeholders have access to current risk data and infrastructure assessments, local governments can support more informed planning and more targeted investments in resilience.

San Diego has made meaningful strides in emergency preparedness planning, but physical infrastructure gaps — particularly in shelter capacity — and coordination challenges continue to constrain full resilience. Addressing these issues through improved communication, regional investment and stronger public-private collaboration will be critical to ensuring the safety and continuity of the tourism sector in the face of future emergencies.

CSF 3 — Preparedness and Response

Indicator	Score
Road Accesibility	42
Emergency Shelter	19
Emergency Healthcare	84
Infrastructure Density Index	46
Emergency Preparedness and Response Plan	66

47
Good

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.

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	3	On average, the panelists indicate that tourism have moderate representation or involvement in disaster response decisions and actions.
Public-private partnerships	2	Most panelists agree that some public-private partnerships are in place, but with potential gaps across the region.
Preparedness and mitigation	2.8	Most panelists agree that early warning systems, post-disaster shelter plans and contingency plans for critical infrastructure are partially integrated.
Response and recovery measures	3.3	Panelists agree that financial relief for tourism jobs has had a significant impact. They also perceive targeted support for vulnerable groups and advocacy for preparedness and response to be effective. Tourism leaders' are effective in advocating for emergency preparedness resources, policies and programs.

Panelist perspectives

"San Diego Region is proficient in emergency response; and the transportation of visitors during and after an emergency; however, there are no sufficient plans or strategies dedicated specifically to the tourism industry, tourism stakeholders and especially visitor-serving accommodations."

"The County is usually directed to arrange for hazard planning, but I don't recall there being any representation from the tourism industry in the last iteration of planning the Hazard element. Additionally, disaster preparedness managers at the city, county and state levels are all underfunded, unorganized and reactive rather than proactive."

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 outcome reflects strong overall performance for the San Diego region, with a composite score of 67 out of 100, placing it among the higher-performing regions in terms of investment in sustainability and resilience. The region demonstrates particular strength in GHG emissions per capita (92 out of 100), indicating a clear and effective commitment to environmental sustainability.
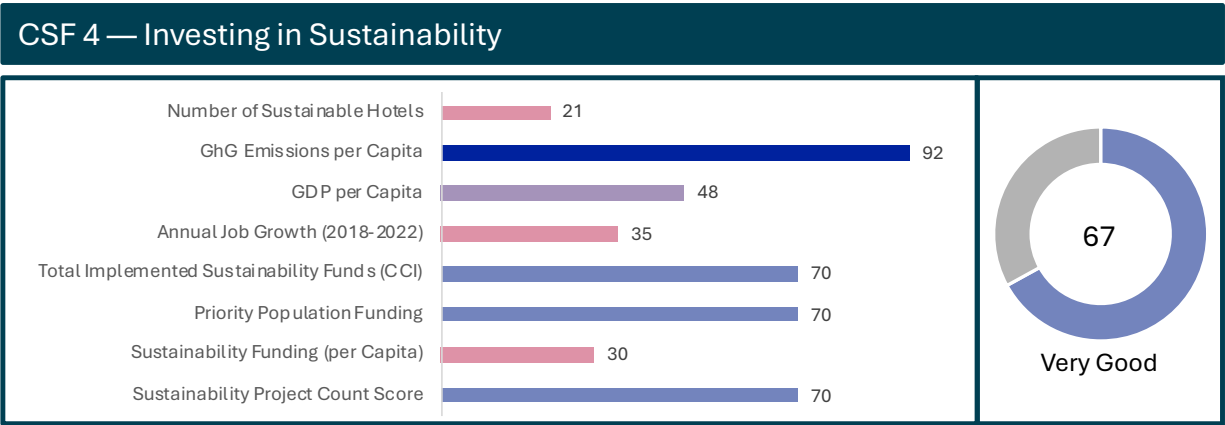
This strong GHG performance reflects the region's efforts to address climate change for over two decades. Current efforts in include the City of San Diego's Climate Action Plan, which includes a legally binding commitment to reach net-zero emissions by 2035. At the regional level, San Diego participates in California Climate Investments (CCI) programs and complies with statewide climate mandates such as AB 32 and SB 375, further reinforcing its role as a leader in emissions management.

However, both the quantitative and qualitative data reveal gaps in economic resilience and tourism sector-specific investment. GDP per capita (48 out of 100) and annual job growth (35 out of 100) reflect ongoing economic pressures, including limited recent gains in employment and income growth.

Panelist responses also indicate that resilience investments remain asset-specific, with moderate engagement in risk transfer strategies and limited perception of comprehensive planning. While certain measures have been implemented, stakeholders note the need for improved transparency and cross-sector collaboration.

Transportation emissions also remain a concern. The region's tourism infrastructure continues to rely heavily on personal vehicle use, with limited infrastructure or marketing support for green mobility options. This represents both a sustainability gap and a potential reputational risk in an era of increasingly climate-conscious travel.

San Diego County performs well in many aspects of environmental sustainability, particularly in climate mitigation and targeted public investment. Challenges remain in the equitable distribution of resources, sustainable tourism leadership, economic growth and transportation decarbonization. Addressing these areas will be critical to building a more inclusive and resilient tourism economy in the years ahead.

CSF 4 — Investing in Sustainability

Metric	Score
Number of Sustainable Hotels	21
GhG Emissions per Capita	92
GDP per Capita	48
Annual Job Growth (2018-2022)	35
Total Implemented Sustainability Funds (CCI)	70
Priority Population Funding	70
Sustainability Funding (per Capita)	30
Sustainability Project Count Score	70

67
Very Good

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, serving 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 and expresses this growth as a percentage, indicating the rate of job creation in the economy over a 12-month period. The metric 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 and 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.
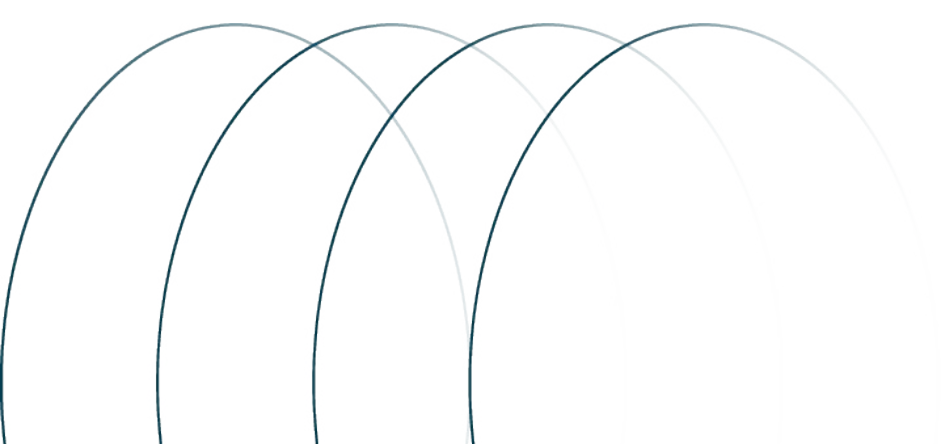
The individual performance criteria and the subsequent findings are shown in Table 4 below:

Table 4. CSF 4 qualitative performance criteria ratings

Performance criteria	Rating	Findings
Risk-Informed public investments	3	Panelists report public-sector investments in infrastructure and tourism projects incorporate multi-hazard vulnerability/risk studies.
Resilience initiatives and tourism assets	4	A strong level of investment, focused on specific assets and infrastructure, has gone to resilience initiatives to protect tourism assets, businesses and infrastructure, according to the panelists.
Prioritization of tourism product diversification	3	Panelists note some efforts are made to diversify tourism products, experiences and interpretation, including the County's efforts to grow tourism in the eastern region where there is more available land and natural and cultural resources.
Risk transfer strategies	3	Panelists believe that the region has some risk transfer measures (e.g., Insurance, reserves, climate bonds) applied to assets.
Transportation infrastructure	3	Panelists report that the regionwide visitor journey is somewhat dependent on personal vehicular travel versus public transportation. Although clean transportation options — such as bike sharing and lanes and multi-use paths — are available in some locations, they are generally not utilized by visitors. There have been efforts across the county to divert vehicle traffic to public transit on commuter lines. Panelists note that Carlsbad and Coronado recently launched electric transit options for visitors and residents.
Sustainability standards	2	Local tourism-related businesses receive limited support with minimal resources tied to meeting sustainability standards, according to the panelists.
Sustainability funding	2	The allocation of funds for tourism-related resilience and sustainability initiatives is limited. Revenue generated from tourism sources, including transient occupancy tax (TOT), surcharges on attraction admissions and events and fees from ride-share companies and taxis, is often prioritized for resident-focused projects over those directly benefiting tourists. Many of these tourism-focused initiatives are discretionary, rather than mandated.

Panelist perspectives

"The region appears to be mixed in our level of consistency in implementing CSF4 across the entire region. Though there are some investment processes in place for some areas and by some stakeholders, there is not an inclusive and thorough regionwide response."

"While some processes are in place, the region has room for growth – particularly as it relates to a coordinated effort across impacted parties."

CSF 5 - Managing Growth

This CSF evaluates how tourism strategies address seasonality, visitor distribution, responsible travel, visitor flow monitoring and marketing practices.
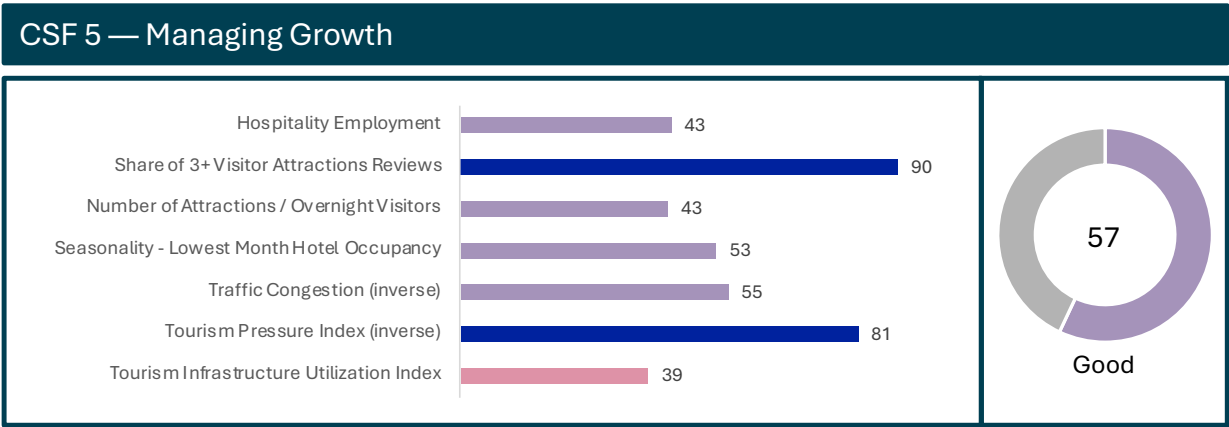
CSF 5 key findings

With a composite score of 57 out of 100, the San Diego region demonstrates moderate performance on CSF 5, which assesses sustainable tourism growth through metrics related to infrastructure use, visitor experience, employment and seasonality. The region shows several strengths, particularly in managing visitor experience and tourism pressure. Challenges exist in tourism-related accommodation infrastructure and hospitality employment.

The share of 3+ visitor attraction reviews (90 out of 100) indicates a high level of visitor satisfaction and a strong portfolio of well-regarded attractions. Similarly, the tourism pressure index score (81 out of 100) suggests that the region has effectively managed the impact of tourism volume in key areas, avoiding overcrowding and maintaining quality experiences. Panelists note the region's marketing strategies consider capacity, seasonality, environmental impact and community well-being, reinforcing a balanced approach to tourism growth.

Traffic congestion (55 out of 100) and seasonality (53 out of 100) show progress but need focus. Panelists confirm this by noting that monthly and daily visitor variations are actively monitored and that strategies to smooth demand, particularly in off-peak periods, are underway. Panelists also note that the San Diego Tourism Authority plays a key role in using and sharing visitation data, which supports informed, responsive tourism management.

Hospitality employment (43 out of 100) and attractions per overnight visitor (43 out of 100) may reflect underlying labor market constraints or imbalances between attraction capacity and overnight visitation. The lowest-performing indicator is the tourism infrastructure utilization index (39 out of 100), meaning existing tourism assets are underused and there may be potential inefficiencies in visitor distribution.

The San Diego region demonstrates a solid foundation in data-informed tourism management, particularly in areas like tourism pressure and visitor experience. The greatest opportunities for improvement are within infrastructure utilization, workforce development and the creation of year-round demand strategies to support long-term sustainability. Strengthening tourism employment pathways, expanding use of underleveraged assets and continuing to invest in off-peak marketing will be key to building on this momentum.

CSF 5 — Managing Growth

Indicator	Score
Hospitality Employment	43
Share of 3+ Visitor Attractions Reviews	90
Number of Attractions / Overnight Visitors	43
Seasonality - Lowest Month Hotel Occupancy	53
Traffic Congestion (inverse)	55
Tourism Pressure Index (inverse)	81
Tourism Infrastructure Utilization Index	39

57 — Good

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 and 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	3.3	The region is focused on mitigating seasonality and has had relative success, panelists report. Several efforts have been made to better manage visitor flow in high-volume areas during peak periods of demand.
Managing visitor distribution	3	Panelists believe that there has been a moderate amount of focus on and relative success in increasing visitor volume to less-visited areas in the region.
Managing responsible travel	3	Suggestions for visitors to travel responsibly and support sustainability are active, but vary on their level of effectiveness, according to panelists.
Monitoring visitor variations	4	Monthly and daily variations in visitation are monitored throughout the year and have a significant impact on tourism management regionwide, according to panelists.
Responsible marketing	3.5	According to panelists, the marketing strategies across the region typically have a good focus on capacity and seasonality and a focus on impact on the natural environment and residents' well-being.

Panelist perspectives

"There is great potential for aligned objectives. Capacity and funding are going to be obstacles. The collaboration with tourist industry leaders and working at the state level is going to be important; the communications network, the influence of policy and funding."

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.
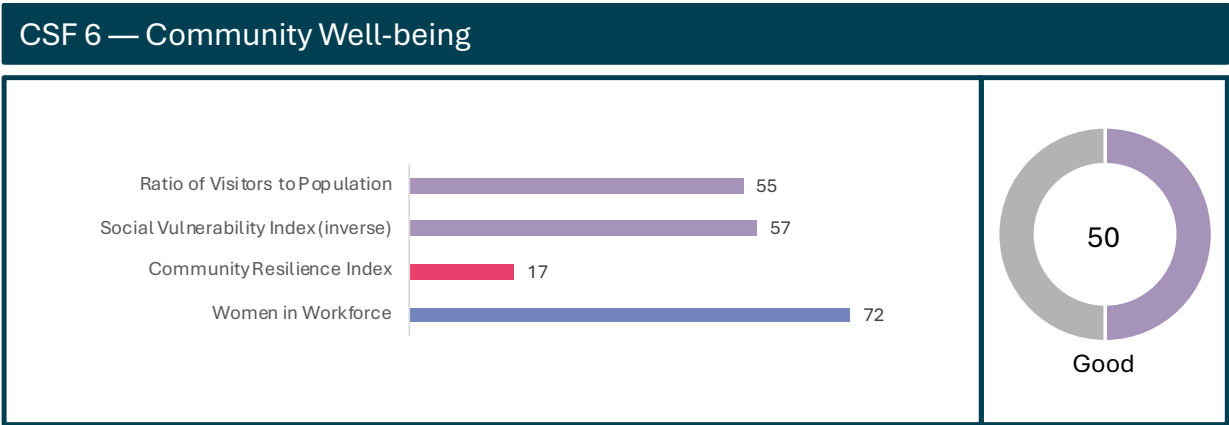
CSF 6 key findings

The San Diego region scores 50 out of 100 on CSF 6, reflecting uneven performance in addressing community well-being in relation to tourism. While some aspects are well-developed, others show gaps that require targeted attention. Women participate in the workforce at relatively high rates (72 out of 100), pointing to strong gender representation and economic participation in the tourism sector. Employment practices likely support inclusivity, and the diversity of tourism employees generally reflects that of the residential population.

The region has established consistent and structured community engagement mechanisms, including resident surveys, focus groups and town halls. These processes are embedded in broader tourism planning and contribute to cross-cultural understanding and local input in decision-making. Panelist feedback supports this assessment, describing tourism as a contributor to community cohesion and cultural exchange.

The region performs poorly on the Community Resilience Index (17 out of 100). This rating reflects limited capacity across social, institutional, economic and infrastructural systems to prepare for and recover from crises. While this may not be felt region wide, it exists in vulnerable committees (e.g., South Bay, Barrio Logan) that have less adaptive capacity due to structural inequalities. The Social Vulnerability Index (57 out of 100) underscores disparities across populations, especially for low-income residents, the elderly, individuals with disabilities and those with limited English proficiency.

While the San Diego Tourism Authority has developed a Destination Stewardship Plan that incorporates resident input and sustainable tourism priorities, there is currently no coordinated, enforceable regional framework that integrates tourism impact management across jurisdictions, agencies and community systems.

San Diego performs well in resident engagement and workforce inclusion but lacks the systems necessary to enhance community-level resilience and equitable outcomes. Addressing social vulnerability, reducing risk exposure for marginalized groups and integrating tourism more effectively into resilience planning are essential next steps for improving performance in this area.

CSF 6 — Community Well-being

Metric	Value
Ratio of Visitors to Population	55
Social Vulnerability Index (inverse)	57
Community Resilience Index	17
Women in Workforce	72

50 — Good

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	3	Resident feedback is solicited related to the tourism industry (surveys, town halls, focus groups) throughout the region, according to the panelists.
Community access to sites	2	Panelists note there are limited distinctions between resident and tourist access to highly visited natural and cultural attractions and sites.
Economic, social and environmental well-being	3	Panelists agree that the diversity of the tourism workforce generally reflects the residential population and that tourism contributes to cross-cultural exchange and understanding between tourists and locals. The tourism industry is focused on ensuring diversity, equity, inclusion and belonging is a priority in its hiring and retention practices.
"Overtourism"	2.8	Depending on the location and time of year, visitation does exceed carrying capacity according to panelists. Similarly, the note limited to significant risk of future overtourism. Although residents perceive limited to some overtourism, it is concentrated in specific parts of the region.
Tourism development	3.8	Planning guidelines, regulations and policies for tourism development exist and are somewhat effective. Somewhat effective measures exist to manage short-term rental inventory and to protect and preserve cultural heritage sites.

Panelist perspectives

"Every area within the San Diego region is different and the way tourism is managed in relation to the residential community is not consistent; however, overall community feedback is valued."

"Without regional alignment in policies, there isn't consistency on implementing community wellbeing."
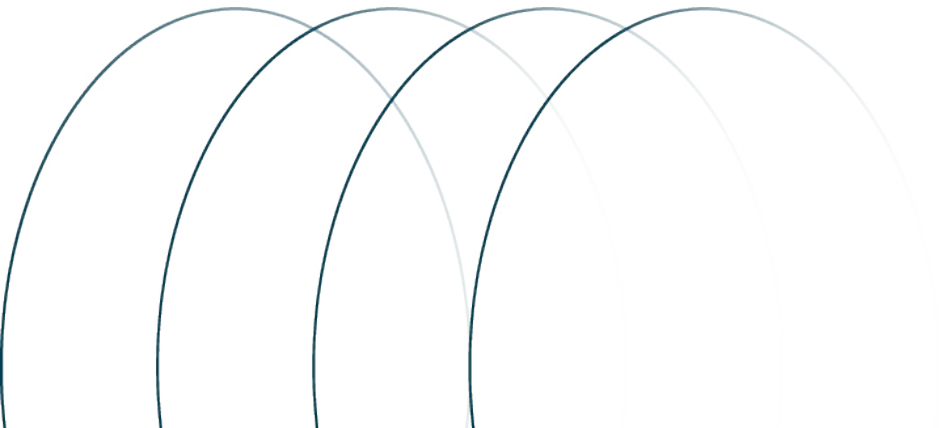
CSF 7 - Environmental Conservation

This CSF focuses on promoting sustainable tourism by preserving natural assets, ensuring responsible visitor behavior and addressing environmental impacts.
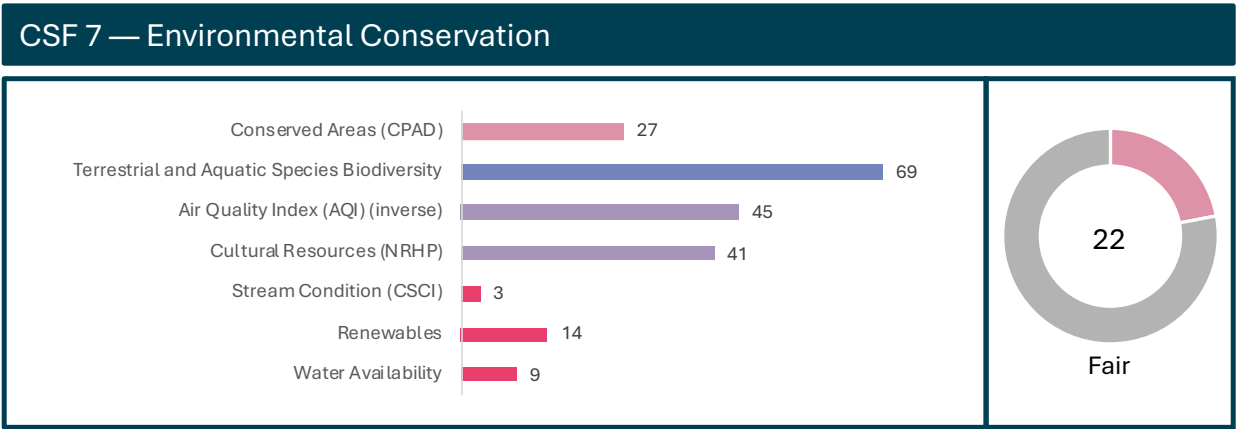
CSF 7 key findings

The San Diego' region's performance on CSF 7 reflects a fair level of environmental conservation and ecosystem health, with a composite score of 22 out of 100, the lowest among all CSFs for the region. The findings highlight a combination of strong biodiversity protection efforts alongside persistent challenges in water quality, land conservation and renewable energy integration.

The region's strongest performance is in terrestrial and aquatic species biodiversity (69 out of 100), reflecting protection of ecological diversity and habitat richness across various landscapes. The Air Quality Index score (45 out of 100) suggests average air conditions. The Cultural Resources score (41 out of 100), based on the National Register of Historic Places listings, reflects moderate preservation and integration of cultural heritage into the region's landscape.

The conserved areas score (27 out of 100) indicates a relatively small portion of the region's land is formally protected for conservation purposes. This raises concerns about long-term ecological integrity and sustainable land use, particularly as development and tourism demand increase.

Water-related indicators are among the weakest, with water availability (9 out of 100) and stream condition (3 out of 100) pointing to severe challenges in both access to and quality of water resources. These issues are especially relevant given California's ongoing drought conditions. Panelists and stakeholders repeatedly cited water quality and supply as persistent concerns during the regional planning process, particularly in communities such as San Diego, Coronado and Chula Vista, where water infrastructure faces growing strain.

The region faces significant challenges in water resource management, land conservation and renewable energy adoption. Improving environmental stewardship in tourism will require stronger regional coordination, greater investment in conservation infrastructure and targeted action to improve water systems and ecosystem health — particularly in areas that intersect directly with the visitor experience.

CSF 7 — Environmental Conservation

Indicator	Score
Conserved Areas (CPAD)	27
Terrestrial and Aquatic Species Biodiversity	69
Air Quality Index (AQI) (inverse)	45
Cultural Resources (NRHP)	41
Stream Condition (CSCI)	3
Renewables	14
Water Availability	9

22 — Fair

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.

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	3.7	Panelists report there is a comprehensive list of natural heritage sites and other protected areas/natural assets that is readily accessible to tourism panelists. Additionally, there are ongoing processes to measure performance and implement steps to protect natural assets in the region.
Guidelines for behavior at natural sites	2.5	Panelists say that there are some guidelines in place for appropriate visitor behavior at natural sites. Regionwide guidelines are moderately in place for tour operators and tour guides on visitor management at natural sites.
Ethical animal tourism	4	There are very good regionwide guidelines for ethical animal tourism, including interaction with wildlife and domesticated animals, according to panelists. The region's key anchor attractions have played an important role in setting high standards in this criterion.
Reusable products	3	Panelists believe that tourism businesses and attractions generally have a good focus on using reusable products, according to panelists.
Water usage	4	There are good regionwide guidelines in place encouraging water conservation by tourism businesses and attractions, according to panelists.
Emissions information on tourism	3	Tourism's impact on the region's overall emissions goal is somewhat considered and measured, according to panelists.

Panelist perspectives

"We also could take further steps in understanding tourism impact on the region's emissions goals."

"Mixed bag of guidelines and information available. Not in a centralized place for tourism businesses to share with travelers and industry."

Opportunities for incremental improvement

The San Diego Scorecard serves as a baseline resource to raise awareness of current sustainability efforts and the growing risks to tourism across the region. The most critical issue identified is the ongoing challenge with water quality and availability. Contamination from the Tijuana River continues to impact coastal destinations, posing health hazards and leading to beach closures. At the same time, prolonged drought and rising temperatures are straining regional water resources, threatening both community needs and tourism operations. Without proactive management, these water-related challenges will increasingly jeopardize the region's environmental health, visitor experiences and tourism economy.

Addressing these issues primarily resides with local, state and federal governments. However, there are still several opportunities for travel and tourism entities in the San Diego region 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.
    - Provide guidance on effective post-crisis recovery strategies.

- Prepare a regional risk-based action plan focused on protecting tourism assets, including tourism products prioritized for development in the San Diego 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.
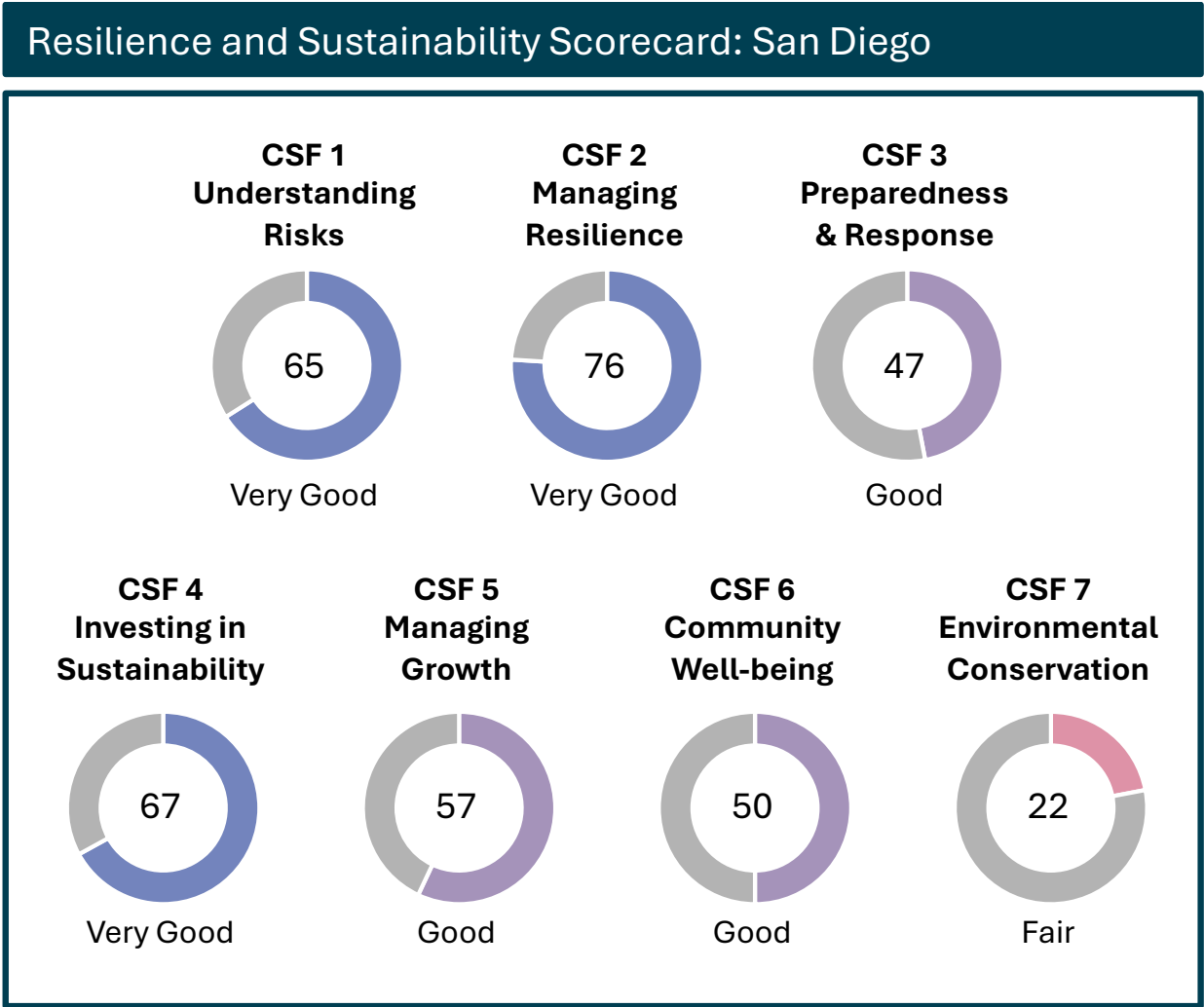
Act sustainably.

• 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.
  – 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.

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.

Conclusion

Resilience and Sustainability Scorecard: San Diego

**CSF 1
Understanding
Risks**

65

Very Good

**CSF 2
Managing
Resilience**

76

Very Good

**CSF 3
Preparedness
& Response**

47

Good

**CSF 4
Investing in
Sustainability**

67

Very Good

**CSF 5
Managing
Growth**

57

Good

**CSF 6
Community
Well-being**

50

Good

**CSF 7
Environmental
Conservation**

22

Fair

The San Diego region of California is at an early stage in improving its resilience and sustainability, particularly in the tourism sector. Implementation of recommended measures is expected to significantly enhance the region's performance on key sustainability criteria. There is strong 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.

This sustainability scorecard exercise highlights unique current and future challenges facing the San Diego, especially regarding climate change, drought concerns and water availability. These environmental pressures underscore the urgency of advancing robust sustainability approaches. 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 resilience and sustainability 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
Carlsbad	**Carlsbad general plan.**
Coronado	**City of Coronado general plan.**
Coronado	**Climate Action Plan**
Del Mar	**City Of Del Mar community plan ("general plan").**
El Cajon	**City of El Cajon general plan 2000.**
Encinitas	**City of Encinitas general plan.**
Escondido	**City of Escondido general plan.**
La Mesa	**La Mesa general plan.**
Lemon Grove	**Lemon Grove general plan.**
Oceanside	**Oceanside general plan.**
Poway	**Poway comprehensive plan.**
San Diego	**City of San Diego general plan 2008.**
San Diego	**Climate Action Plan**
San Diego County	**Climate Action Plan**
San Diego Tourism Authority	**San Diego Tourism Stewardship Plan**
Santee	**Santee general plan.**
Solana Beach	**City of Solana beach general plan.**
Vista	**General plan vista 2030.**