




visit
California

Sustainable & regenerative tourism

Guidebook

 **JLL** SEE A BRIGHTER WAY

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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 plans, which are designed to build a more resilient travel and tourism sector in California. While the one-time nature of the grant does not provide funding for ongoing implementation, the plans identify existing resources that can be leveraged at the state and regional level.

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



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Palm Canyon Drive, Palm Springs

Sustainable and regenerative tourism: pioneering a brighter future

The new era of California tourism is one that embraces community values, nurtures residents and visitors alike and champions the stewardship of the state's awe-inspiring natural wonders. At the intersection of tradition and innovation lies the opportunity to reimagine travel as a force for meaningful change.

This sustainable & regenerative tourism guidebook serves as both a blueprint and a call to action. It encourages tourism industry leaders to transcend mere sustainability and adopt a regenerative approach — one that seeks to enhance California's environmental, cultural and economic well-being for generations to come. Through collaboration, the tourism sector can evolve into a driving force for environmental renewal, community strengthening and economic fortitude.

On this transformative journey every traveler becomes a steward, every destination a source of renewal and every experience a step toward a more prosperous, harmonious and sustainable California. The future of tourism starts here — make it extraordinary.

The Golden State strives to be a best-in-class operation leading an authentic and diverse tourism industry forward. The cost of inaction is too great to ignore. Planning for the healthy growth of California's tourism and hospitality industry requires bold vision and intentional collaboration across communities, industry partners, government, academia, science, storytellers, creatives and more.

This guidebook provides a collaborative framework to empower all stakeholders — hotels, DMOs, restaurants, retailers and other accredited tourism businesses — to shape the path forward within their regions and for the state at large.

The overarching goal is to create an understanding of the shared tourism challenges and opportunities, while providing a framework for cross-sector and cross-industry collaboration to position California as a global leader of regenerative tourism. Resources and case studies are included to support regional tourism sectors to take collective action.

Introduction

To develop this comprehensive guidebook for California's tourism industry, JLL's Global Tourism and Destination Advisory team collaborated with leading experts in sustainability, resiliency and regenerative practices from across the United States and around the world. These specialists conducted an in-depth assessment of California's current tourism landscape and contributed to creating a road map for the industry's sustainable future.

Oceanside Beach

The following organizations were instrumental in shaping the guidebook and the overall sustainability initiative:

SWCA Environmental Consultants

SWCA Environmental Consultants stands at the forefront of environmental and management consulting, driven by a passionate team of problem solvers. Since 1981, they have been the scientists, planners, technical specialists and creative thinkers behind innovative solutions to complex environmental challenges. SWCA is consistently ranked among the top environmental firms globally. Their overall experience includes completing several projects in the tourism regions and provided a clear scientific foundation for the guidebook recommendations.

Regenerative California

Regenerative California is a dynamic organization dedicated to fostering positive change and sustainable growth across the state. As a convener and connector, it brings together diverse stakeholders to identify regional challenges and opportunities through meaningful dialogues and collaborations. By convening, supporting and amplifying successful initiatives, Regenerative California acts as a catalyst for positive change, contributing to a more sustainable, resilient and thriving California that benefits both communities and the environment.

Risklayer

Risklayer is a global and innovative risk and resilience consultancy firm that bridges the gap between scientific research and practical application. Founded in 2014 by a group of five scientists from the Center for Disaster Management and Risk Reduction Technologies at Karlsruhe Institute of Technology, Risklayer has evolved from a think tank to a dynamic, solution-oriented company. Risklayer’s approach combines scientific expertise with practical applications, positioning the company as a leader in developing innovative solutions for risk management and resilience, particularly in the tourism sector. Their work extends beyond analytics to creating tangible strategies that enhance preparedness and sustainability across various industries.

Professor Sara Dolnicar — University of Queensland

Professor Sara Dolnicar is a highly respected research professor at the University of Queensland’s Business School and at the Institute for Business and Economics at the University of Queensland in Australia. She has studied a range of different applied research areas, including sustainable tourism and tourism marketing, environmental volunteering and public acceptance of water alternatives and water conservation measures.

Professor Dolnicar is currently leading a global research program that develops and experimentally tests behavioral change approaches aimed at improving the environmental performance of businesses, especially hotels and restaurants.



The development of California’s 12 Regional Strategic Tourism Plans, coupled with additional research by SWCA and Regenerative California, revealed several statewide sustainability opportunities. This work involved interviewing regional leaders and a comprehensive analysis of current environmental impacts across all regions. The research team reviewed over 500 sustainability studies throughout the state, identifying recurring themes. A comprehensive summary of these findings is available in the [Appendix 2](#).

This guidebook explores how visitor behavior connects with California’s natural and cultural attractions and considers how those interactions relate to environmental concerns that matter deeply to local communities.

Climate change trends are contributing to rising average daily air temperatures, which present growing challenges for public health and energy consumption. In mountain regions, shorter ski seasons and reduced snowpack are beginning to impact winter tourism economies. Wildfire activity has increased, leading to temporary closures of recreational areas, decreased air quality and property damage — as seen during the 2025 Los Angeles Fires, which affected Pacific Palisades, Malibu, Altadena and Pasadena. Extended drought periods also create water supply challenges, impacting drinking water availability, agricultural output and aquifer health.

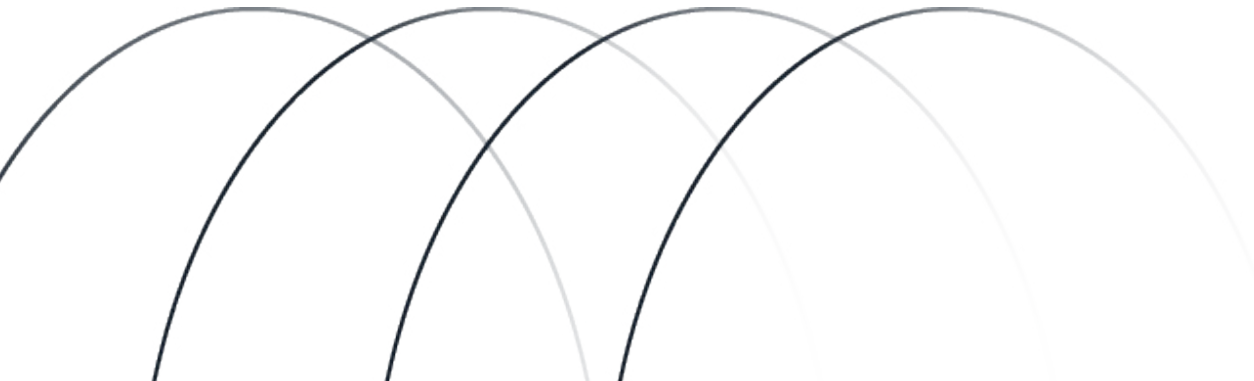
Additional considerations include coastal erosion and the loss of bluffs along parts of California’s coastline, including sections of the Pacific Coast Highway (PCH). Managing solid waste and transportation is an important opportunity to enhance the visitor experience and support long-term environmental health. Similarly, addressing transportation challenges — such as traffic congestion and access to public transit — can improve mobility for residents and visitors alike, while supporting more sustainable travel options across the state.

California’s tourism sector has an opportunity to address environmental concerns through a wide range of statewide sustainability and environmental restoration initiatives. For example, the Los Angeles Green New Deal focuses on a future guided by renewable energy, net-zero emissions, water conservation and green jobs. California’s high-speed rail project hopes to provide a fast, efficient and sustainable transportation option while reducing reliance on cars and airplanes. Regenerative agriculture techniques are being explored via initiatives like the Healthy Soils Program, which provides funding to farmers working to improve soil health. Ongoing habitat restoration projects are helping protect California’s diverse ecosystems, from estuaries and forests to wetlands, dunes and breeding grounds.

This guidebook proposes a multi-pronged approach to addressing these sustainability opportunities for those looking to take their organization or business to the next level. The Resiliency and Sustainability Scorecards that were completed and reviewed in each of the 12 regions also reflect opportunities to advance communication and preparedness. The approach emphasizes responsible tourism, partnering with local communities, implementing sustainable practices, monitoring and reporting and advocacy and policy support. California’s tourism industry is well positioned to lead through proactive engagement and shared action.

By embracing sustainable tourism practices, the industry can reduce environmental impact while supporting economic recovery. For example, following wildfire events, timely public education and communication can help support recovery by reassuring visitors and promoting safe, respectful travel. Encouraging fire safety awareness among travelers also helps protect communities and natural areas, reinforcing a culture of stewardship.

JLL’s partnership with SWCA, Regenerative California, Risklayer and the University of Queensland highlights the value of involving the tourism and hospitality sector as an essential partner in building a more resilient and regenerative future for California.



Regenerative Tourism

For over a decade, the tourism sector has embraced sustainability as a guiding principle for promoting economic vitality, environmental care and community well-being. However, recent challenges — from natural disasters to shifting market dynamics — underscore the need to evolve beyond maintaining the status quo in order to build a more resilient and thriving future for people, places and the planet.

Regenerative tourism is an aspirational approach to travel that aims to leave a destination better than it was before, focusing on the restoration and improvement of the local environment, community and economy. This approach seeks to improve health and prosperity for host communities, visitors and the natural environment while reinforcing the tourism industry’s role as an economic leader.

A key objective of this guidebook is to stimulate and nurture regenerative practices, enabling California’s communities, businesses, public agencies and nonprofits to excel as hosts and stewards. Achieving this vision requires greater collaboration across tourism-related sectors to create a shared path that integrates economic, environmental and social benefits for all.

“Cost of Doing Nothing”

Strategic planning for the sustainable growth of California’s tourism sector is essential for the State’s economic well-being. Achieving this vision calls for intentional cooperation and involvement from a diverse range of stakeholders, including the tourism industry, local communities, government bodies, scientific institutions, academic centers, marketing professionals, storytellers and creative individuals. This inclusive approach empowers all participants — such as hotels, Destination Marketing Organizations (DMOs), retailers, restaurants and other tourism-related enterprises — to actively contribute to shaping their regional futures and the State’s overall direction. The primary aim of this plan is to foster a shared understanding of the challenges and opportunities within the tourism sector, while offering a framework for cross-sector collaboration and innovation. To support collective action at the regional level, a variety of tools and case studies are included to guide and inspire local efforts.

The World Travel & Tourism Council distinguishes between sustainability and regeneration as follows, “Sustainability is about making sure that the resources we enjoy today will still be available for the generations that follow; regeneration is about making sure that what we do now feeds back into the system from which we benefit. It’s about being proactive and intentional.”

The following areas of focus provide high profile/high impact examples that affect virtually all 12 tourism regions in California.



San Diego Maritime Museum

Visitor behavior's impact on the environment

California's tourism sector is a powerful engine of economic growth, driving prosperity through increased visitation. It channels vital revenue into local businesses and economies, spurring economic development and creating jobs across diverse industries. Anticipated growth in tourism continues to support thoughtful infrastructure investments — including improved roadways, transit systems and community amenities.

Beyond economic its benefits, tourism fosters cultural exchange as international and interstate visitors engage with local communities, promoting mutual understanding and appreciation.

Tourism also plays a meaningful role in environmental stewardship. It generates vital funding for state and national parks, recreational spaces and diverse conservation initiatives through entrance fees, voluntary contributions and eco-tourism activities. When conducted responsibly, tourism can inspire environmental awareness and encourage a shared culture of sustainability among both visitors and residents.

As visitation grows, some destinations may experience pressure on local resources and infrastructure. Popular destinations often face overcrowding, not only diminishing the visitor experience, but also driving up costs due to increased demand for limited resources such as accommodations and food services. Managing this growth in a balanced and collaborative way helps preserve the unique character and cultural identity of California's diverse destinations.

Natural spaces may also experience increased wear due to high visitation, including trail erosion, habitat disruption and impacts on wildlife. More travelers can also contribute to pollution—such as litter, noise and carbon emissions — while adding stress to local systems for air quality, water access and waste management.

This is an opportunity for California to lead globally in regenerative tourism by innovating, adapting and enhancing how destinations are experienced and preserved. One of the most effective tools for progress is educating and influencing visitor behavior in ways that align with sustainability goals. This requires coordinated, multi-channel communication that meets travelers where they are and clearly explains how small actions make a big difference.

The tourism industry plays a pivotal role in this effort. Strategic planning, capacity management and tailored messaging can help shape positive behaviors while improving visitor satisfaction. A consistent theme across communications should be the “why” behind preferred behaviors — and how they contribute to the health and longevity of California's most treasured places.

This approach of pairing behavioral guidance with environmental education goes beyond mere instruction. It fosters a deeper connection between visitors and their surroundings, cultivating a sense of stewardship and creating a virtuous cycle: as visitors become more environmentally conscious, they contribute to the preservation of destinations, ensuring these places remain vibrant and appealing for future generations. Thus, tourism becomes not only an economic driver, but a powerful force for environmental awareness and sustainable practices.

Many destinations across California are already leading the way. Through careful visitor management and responsible tourism strategies, they are striking a thoughtful balance between industry growth and the preservation of cultural and natural assets. Examples of these successes are shared at the end of this section.

Deciding between managed or open public access for California tourism destinations requires evaluating various factors, including environmental sensitivity, cultural or historical significance, visitor safety and carrying capacity. This collaborative decision-making process typically involves a range of stakeholders, including state and federal agencies, local governments, conservation organizations, businesses and residents.

To support balanced and responsible access, a set of effective and practical practices may include:

- Conducting comprehensive assessments including Environmental Impact Reports, physical carrying capacity studies, cultural resource evaluations and safety assessments to determine a site's vulnerability and appropriate access level.
- Managing visitor numbers in sensitive or overcrowded areas through reservation systems, off-peak promotions and encouraging visits to less-known locations.
- Educating visitors about responsible travel and heritage conservation. Engaging local volunteer docents to guide tourists, especially in sensitive areas, can effectively impart knowledge about proper behavior and environmental stewardship, enhancing visitor experience through authentic interactions.
- Promoting sustainability certifications and eco-friendly practices among attractors, businesses and communities. For instance, businesses could provide waste/composting/recycling options, with best practices reinforced through repeated behavior.
- Integrating tourism planning into local community decision-making to ensure future tourism development meets community needs while protecting their interests.
- Investing in and advocating for initiatives and infrastructure (e.g., recycling, renewable energy projects, wildlife protection measures) that mitigate tourism's environmental impact, in partnership with state local and private entities.
- Implementing and monitoring mitigation plans after determining appropriate access levels to assess their effectiveness.

The tourism sector plays a vital role in balancing community well-being, environmental stewardship and memorable visitor experiences across California's natural, cultural and commercial destinations — today and for future generations. Achieving this balance requires building strong partnerships with the organizations responsible for managing natural resources and facilitating outdoor recreation.

In California, these essential partnerships include:

- California State Parks
- California Natural Resources Agency
- California Coastal Commission
- National Park Service
- U.S. Forest Service
- Bureau of Land Management
- California Department of Fish and Wildlife
- Local and Regional Park Districts

These agencies share an overarching focus on ecosystem protection and access management. By collaborating with them, the tourism industry can develop sustainable practices that safeguard natural and cultural resources while providing enriching experiences for visitors. This partnership-driven approach ensures that tourism development aligns with conservation goals, creating a harmonious balance between visitor enjoyment and environmental stewardship.

Solution examples

Point Lobos, Monterey

ParkIT! is a collaborative initiative formed in 2018 by local residents, nonprofit organizations and public agencies in Monterey, California. The aim of ParkIT! is to address the shared concerns surrounding the increased visitation to the region and to ensure improved access and safety for both residents and visitors. The primary focus of the initiative is to find a solution to the dangerous parking and pedestrian issues outside of Point Lobos State Natural Reserve. Through a series of over 30 listening sessions and input from various stakeholders, including See Monterey, a consensus was reached, leading to the formation of the ParkIT! Steering Committee. This community-based approach aims to enhance public safety, protect natural resources, optimize access and improve the visitor experience to the parklands along Highway 1, from Carmel to Big Sur. The project is still in the approval process with the Coastal Commission.

Hawai'i Tourism Authority

The Hawai'i Tourism Authority (HTA) is committed to promoting regenerative tourism in Hawai'i, which focuses on balancing the economic benefits of tourism with the wellbeing of communities, natural resources and culture. HTA aims to attract and educate travelers and group attendees who have a positive impact and are mindful of their interactions with residents, the environment and Hawaiian culture. This commitment involves addressing issues related to overcrowded sites, strained infrastructure and other tourism-related challenges. HTA collaborates with responsible agencies, community stakeholders and counties to improve and preserve the natural and cultural assets cherished by Hawai'i's residents. To promote regenerative tourism statewide, HTA, in partnership with counties, island visitor bureaus and community stakeholders, has developed Destination Management Action Plans for Kaua'i, O'ahu, Maui Nui and Hawai'i Island. These plans include implementing advance reservation systems at hotspot attractions to manage visitor capacity, protect Hawaii's natural environment and cultural sites, enhance visitor experiences and ensure better stewardship of the Hawaiian Islands.

Willamette Valley, OR

Willamette Valley Visitors Association (WVVA) is a private, nonprofit organization that supports travel and tourism in the Willamette Valley, Oregon's Wine Country. Comprising six destination marketing organizations, WVVA works to maintain the Willamette Valley as Oregon's premier travel destination, while also highlighting the culture, heritage and natural resources of the region. Since committing to the Transformational Travel Council's Regenerative Places program in 2019, WVVA has made efforts to create several travel opportunities that steward regenerative practices and sustainable travel. For example, WVVA has led multiple regenerative travel tours to rebuild areas affected by wildfires or erosion. WVVA has also supported winemakers and farmers as they pursue avenues to preserve land, such as Left Coast Estate's mission to protect the oak savannas and woodlands around the Willamette Valley. Additionally, WVVA has an on-staff agritourism coordinator to connect the Valley's farmers to visitors and highlight sustainable tourism offerings. Lastly, WVVA has developed a comprehensive Destination Regeneration learning program that consists of self-guided courses, virtual meetings and on-site workshops. The program is structured around a five-stage process that integrates principles of transformational travel design and regenerative leadership. This curriculum was created through a collaborative effort between the Transformational Travel Council and a group of experts specializing in regenerative tourism development.

Climate change

California has long been recognized as a global leader in environmental policy, climate innovation and sustainable development. From pioneering clean energy standards to advancing climate adaptation strategies, the state has consistently set ambitious goals to reduce emissions and protect its natural resources. California's tourism sector plays an important role in supporting these efforts — both by embracing sustainable practices and by inspiring visitors from around the world to engage with the state's environmental values.

Climate change refers to the long-term rise in global average temperatures, largely driven by increased greenhouse gas emissions — such as carbon dioxide — resulting from human activity. Its impacts are far reaching and include rising sea levels, more frequent extreme weather events (such as floods, droughts and wildfires), coastal erosion from storm activity and prolonged periods of extreme heat.

As a global industry, tourism intersects with climate change in important ways. The sector includes transportation, accommodations, food services and recreational activities — all of which carry environmental impacts. Air travel, in particular, contributes to carbon emissions through fossil fuel use. Likewise, hotels and resorts often consume significant energy for heating, cooling and lighting, while tourism-related activities can generate waste, including plastics and food waste. When not managed properly, this waste may contribute to greenhouse gas emissions and environmental degradation.

Tourism is not only affected by climate change — it also faces new challenges as a result of it. Extended periods of extreme heat can make outdoor experiences less enjoyable or even unsafe. Rising sea levels threaten the usability of beaches and may increase coastal erosion. More frequent wildfires, along with poor air quality caused by smoke, can further limit outdoor tourism opportunities — especially during peak summer seasons.

Coastal erosion, (examined in more depth later in this guidebook) presents a growing challenge for coastal destinations and the communities that rely on their visitors. As sea levels rise and storm intensity increases, shoreline loss can impact beaches, hotels, public infrastructure and even cultural heritage sites. These changes not only reduce the aesthetic and recreational value of coastal areas but also impose substantial economic costs for maintenance, repair and adaptation. Sustainable coastal management and climate adaptation strategies are essential to preserving these ecosystems and ensuring the long-term success of coastal tourism. Transportation infrastructure is also increasingly impacted. For example, storm-related landslides in recent years have disrupted travel along California's scenic Highway 1 and coastal rail lines — key access routes for both residents and visitors.

The tourism industry has a unique opportunity to be proactive in addressing a reduction in carbon emissions. Promoting, supporting and advocating for low-carbon transportation options, such as trains or electric vehicles, is a key step in reducing the carbon footprint of travel. By encouraging visitors to choose these eco-friendly alternatives, the tourism industry can contribute to a significant decrease in greenhouse gas emissions. For air travel, where long distances may necessitate flying, supporting airlines that invest in fuel efficiency and carbon offsetting programs can make a tangible difference.



What is carbon offsetting?

Carbon offsetting offers a way to help balance greenhouse gas emissions by supporting projects that reduce or remove emissions in other areas. While there is ongoing discussion about the effectiveness of some offset programs, continued innovation and transparency are helping to strengthen their impact.

Education plays a crucial role in fostering responsible behavior and garnering support for sustainable tourism initiatives. By raising awareness among staff, visitors and local communities about the value of environmental stewardship and the benefits of sustainable practices, the tourism industry can inspire informed choices and help cultivate a lasting culture of sustainability.

Solution examples

The California deserts

Temperature trends in California's inland deserts, specifically the Sonoran and Mojave deserts, are showing a significant increase. From 1961 to 1990, the average daily high across the region was 81 degrees Fahrenheit, reaching 88 degrees in Palm Springs. However, average temperatures have begun to rise, mostly due to the increased levels of greenhouse gases in the atmosphere. Climate models predict that if greenhouse gas emissions continue to rise, average daily highs in the desert could reach 90 degrees, with Palm Springs reaching 97 degrees, by the end of this century. From 2070 to 2100, the city could face 179 days above 95 degrees and 95 days exceeding 110 degrees. These temperature increases are occurring sooner than anticipated, highlighting the urgency of addressing climate change.

The Mojave National Preserve, an extensive desert area in Southern California, exemplifies proactive measures in tackling climate change challenges. The Preserve has launched various initiatives aimed at restoring degraded habitats, mitigating wildfire risks and promoting sustainable tourism. These efforts include:

- **Habitat restoration:** Planting native species to revitalize degraded areas and improve biodiversity.
- **Fuel reduction:** Removing dead wood, brush and other flammable materials to reduce the risk of wildfires.
- **Prescribed burns:** Conducting controlled burns to clear out underbrush and reduce fuel loads.
- **Visitor education:** Providing educational programs and resources to increase awareness of climate change and its impacts.
- **Sustainable tourism:** Promoting low-impact recreational activities and minimizing the environmental footprint of visitors.

Through these initiatives, the Mojave National Preserve is proactively contributing to the preservation of the desert ecosystem and its unique biodiversity in the face of climate change and rising temperatures.

Wildfires

Wildfires can have significant impacts on California's tourism economy. Evacuation orders can contribute to a slowdown in tourist activities and discourage future travelers from visiting the destination. In addition, poor air quality during and after wildfire events can pose health risks, potentially deterring visitors. Wildfires can also increase the risk of flooding, mudslides and debris flows in burned areas.



According to a study published in AGU Advances, an open access journal that publishes research articles in the earth and space sciences, California's forests lost almost 7%, or just over 1,700 square miles, of tree cover since 1985. That's an area larger than Yosemite National Park.

While tourism does not directly cause wildfires, certain tourism-related activities can exacerbate the risk of fire ignition. The most significant factor is the rise in human activity in fire prone regions. Campfires, smoking outside designated areas, the use of fireworks and sparks from vehicles or outdoor equipment can all unintentionally ignite fires. As more visitors explore natural areas, the likelihood of accidental ignition may grow. Off-road vehicles (ORVs), for example, can start fires when hot engines or exhaust systems come into contact with dry vegetation.

Tourism development in or near wildland areas — such as the construction of hotels, lodges, roads and other infrastructure — can also heighten wildfire exposure. In some cases, fires may damage accommodations near natural attractions, reducing available lodging and affecting local tourism economies.

The tourism industry is uniquely positioned to be part of the solution. With the right tools and partnerships, tourism stakeholders can play a vital role in mitigating environmental impacts and reviving affected areas through various strategies:

- **Public education and outreach:** Accurately communicate the safety and recovery of destinations post-wildfire to help revive tourism.
- **Fire safety awareness:** Inform visitors about fire safety precautions and potential consequences of their activities to reduce accidental ignitions.
- **Regulation implementation:** Enforce rules on campfires, smoking and off-road vehicle use in sensitive areas to prevent wildfires.
- **Infrastructure planning:** Design tourism facilities by implementing fire-smart landscaping and construction techniques in wildfire-prone areas.
- **Insurance advocacy:** Support State efforts to require insurance companies to maintain coverage for tourist attractions in fire-prone areas.

The tourism industry also plays an important role in educating visitors about safe behavior in fire-prone areas such as forests, parks and wildland-adjacent destinations. This includes encouraging compliance with seasonal regulations — especially those related to campfires, smoking and equipment use. Proactive communication can significantly reduce the risk of human-caused wildfires.

To support informed decision-making and regional preparedness, a key component of the Regional Strategic Tourism Plans and the Resiliency and Sustainability Scorecards is the development of an online dashboard. This tool is designed to deliver real-time and forecasted information, giving regional tourism teams access to up-to-date data on wildfire activity and risk in their areas.

Solution Examples

California's proactive measures and public Education on "fire seasons"

The tourism industry recognizes the importance of wildfire prevention and mitigation efforts to ensure the safety and enjoyment of visitors throughout the year. By implementing rigorous fire prevention strategies, including proper forest management, early detection systems and community preparedness initiatives, the State can reduce the prevalence and severity of wildfires. Engaging in comprehensive public education campaigns that highlight the ongoing efforts to safeguard against wildfires will help address any hesitations potential visitors may have.

In 2024, California launched its annual Wildfire Preparedness Week, emphasizing partnerships and collaboration across all societal levels. Governor Newsom's proclamation sparked a statewide focus on wildfire safety and prevention. CAL OES and CAL FIRE led the initiative, organizing informational events across multiple counties. Simultaneously, federal partners launched an online campaign targeting wildfire safety on public lands.

The strategy emphasizes community empowerment, encouraging residents to create defensible spaces, implement fire-resistant home improvements and develop wildfire action plans. California also promotes participation in Fire Safe Councils and Firewise Communities, fostering a grassroots approach to risk management.

To support these efforts, the State provides public resources through ReadyForWildfire.org and the Task Force's webpage on Fire Adapted Communities, offering comprehensive guidelines for wildfire preparedness.

Sonoma county's early fire detection technology

Sonoma County, California, offers an innovative case study in fire resilience through its groundbreaking use of artificial intelligence (AI) for early fire detection. In response to devastating wildfires in 2017 and 2019, the county partnered with a third-party firm to implement an AI-powered wildfire detection system in 2020. This system enhances the existing network of fire-spotting cameras by analyzing their feeds in real-time, using machine learning algorithms to identify smoke and fire signatures. When potential fire activity is detected, the system immediately alerts emergency dispatchers, significantly reducing response times. In its first year of operation, the AI system successfully detected several fires in their early stages, allowing for rapid intervention. This technology complements Sonoma County's other resilience measures, including vegetation management and community education programs. The success of this AI-driven approach has attracted attention from other fire-prone regions, positioning Sonoma County as a pioneer in leveraging technology for disaster resilience and potentially saving lives and property through early fire detection and response.



Gaige House, Glen Ellen

Air quality

Air quality is a significant concern for California's tourism sector, affecting everything from the health and safety of visitors to the economic well-being of visitor-dependent communities. Known historically for poor air quality in the Los Angeles Basin and the San Joaquin Valley, California has taken bold action over the decades to address this issue head-on.

In fact, California is recognized as a global leader in air quality regulation and innovation. Since the 1960s, the state has implemented some of the strictest air quality standards in the world, driving major reductions in harmful emissions from vehicles, industrial sources and energy production. Landmark regulations have significantly lowered ozone levels and particulate matter in many urban areas, contributing to improved public health and more livable cities for both residents and visitors.

Despite this progress, air quality remains a dynamic challenge — particularly due to the increasing frequency and intensity of wildfires. Events such as wildfire smoke, urban smog and industrial pollution can impact visibility, diminish the natural beauty of destinations and deter participation in outdoor recreation like hiking, biking and sightseeing. Visitors with respiratory sensitivities or other health conditions may avoid certain regions or travel periods based on perceived or actual air quality concerns.

Research shows that real or anticipated poor air quality can influence traveler perceptions and decisions, potentially reducing tourism demand in affected areas.

To support proactive planning and transparent communication, a key feature of the Regional Strategic Tourism Plans and the Resiliency and Sustainability Scorecards is the development of an online dashboard. This tool will provide real-time and forecasted air quality information, helping regional tourism teams stay informed about evolving conditions — especially during wildfire season, when winds and fire activity can quickly degrade air quality. With accurate data, destinations can adapt their messaging, make informed decisions and support visitor safety while maintaining a high-quality travel experience.

By working collaboratively, California's tourism industry can continue to build on the state's legacy of environmental leadership — ensuring that future generations enjoy the beauty, health and vitality of California's natural and cultural destinations, while supporting broader efforts to protect the planet.

Solution examples

Mexico City's air quality revolution: from world's most polluted to a model of urban environmental progress

In the early 1990s, Mexico City held the unenviable title of world's most polluted city. However, through concerted efforts and innovative strategies, the city has made remarkable strides in improving its air quality. While challenges persist, the transformation has been significant.

The city's journey towards cleaner air began with the implementation of its first air quality management strategy. This initiative gained strong public support, fueled by compelling research on the detrimental effects of air pollution on children's health. The results of these efforts have been tangible: daily sulfur dioxide concentrations, a key contributor to harmful particulate matter 2.5 levels, plummeted 66% from 1990 levels in 2018. Moreover, particulate matter 2.5 levels now fall well below the World Health Organization's interim target 1 of 35 µg/m³.

Mexico City's approach has been multi-faceted, combining policy changes, financial incentives and cross-jurisdictional cooperation. The city introduced a program offering direct subsidies to taxi drivers for retiring older, inefficient vehicles, complemented by low-cost loans for purchasing or renovating more efficient ones. Industrial plants were incentivized to reduce emissions through fiscal benefits and exemptions from emergency restrictions when they curtailed production during high pollution periods.

A key factor in Mexico City's success has been its focus on regional cooperation. The establishment of the Megalopolis Environment Commission defined a shared airshed for Mexico City and coordinated actions to improve air quality across the region, including the states of Mexico, Hidalgo, Morelos, Puebla and Tlaxcala.

This comprehensive and collaborative approach demonstrates Mexico City's commitment to tackling air pollution through a combination of targeted policies, economic incentives and inter-jurisdictional partnerships. While the city's air quality journey is ongoing, its progress serves as an inspiring example.

Water scarcity and availability

California has made significant progress in water conservation, even as the state's population has grown substantially over the past several decades. Thanks to effective policies and widespread conservation efforts, per-capita water use has declined statewide, helping to keep overall water demand relatively stable.

Despite this progress, water availability and scarcity remain ongoing concerns — often highlighted during periods of drought, which the state experiences regularly. The majority of California's water is used by the agricultural industry and for environmental purposes, together accounting for nearly 90% of total consumption. The remaining portion supports urban and suburban needs, including industrial, commercial and residential use.

Generally, the effects of water scarcity are anticipated to worsen due to climate change. Increasing summer temperatures will likely lead to high water demand for both households and agriculture. Warmer winter temperatures are expected to raise average snow levels to higher elevations, resulting in a smaller and earlier-melting snowpack — a key water source for much of California. This may require state reservoirs to release more water in the spring to capture early snowmelt, which could create further challenges for year-round supply.

Importantly, the water supply is most often managed by local government (e.g. cities, water agencies) and there are numerous measures taken by these organizations to reduce water use. Given that much of the tourism industry is served by public water supplies, tourism businesses can also lead by example, going beyond regulatory requirements to audit water usage and identify additional savings opportunities — such as rainwater harvesting, reducing turf areas and planting drought-tolerant vegetation. Supporting local conservation not only protects essential resources but also positions the tourism industry as a committed partner in sustainability. Sharing information with visitors about regional water conditions can encourage responsible behavior and foster a culture of environmental stewardship among travelers.

While drought and water scarcity are expected to intensify, they also present a clear opportunity for the tourism industry to innovate and lead. Ensuring the long-term sustainability of both tourism and the environment will require integrating responsible water practices across the tourism value chain. This includes adopting new technologies to reduce consumption, implementing water recycling and reuse systems and expanding education efforts for staff, guests and communities.

The following sections in this guidebook propose a multi-pronged approach to sustainability, including targeted strategies for tourism businesses to strengthen water management and conservation efforts.



Solution examples

Orange county's water revolution: turning wastewater into a sustainable future

Orange County, California, has emerged as a pioneer in addressing water scarcity through its innovative Groundwater Replenishment System (GWRS). This remarkable initiative, a joint venture between the Orange County Water District and the Orange County Sanitation District, stands as the world's largest water purification system for indirect potable reuse.

The GWRS ingeniously repurposes highly treated wastewater that would otherwise be discharged into the Pacific Ocean. Through a sophisticated three-step process involving microfiltration, reverse osmosis and ultraviolet light with hydrogen peroxide, the system produces high-quality water that fully complies with all state and federal drinking water standards.

This system generates an impressive 130 million gallons of purified water daily, serving the needs of approximately one million people. The GWRS has achieved the remarkable feat of recycling 100% of local reclaimable wastewater flows, effectively meeting 35% of the total water demands in the area.

Orange County's commitment to sustainable water management is further evidenced by its \$900 million investment to expand water reuse capabilities. This financial commitment reinforces the region's dedication to ensuring long-term water security and sustainability.

By transforming what was once considered waste into a valuable resource, Orange County has not only addressed its immediate water scarcity concerns but has also set a compelling example for other regions facing similar challenges.



Knott's Berry Farm, Anaheim

Coastal erosion

Sandy beaches play a significant role in the U.S. tourism industry, supporting a \$23 billion recreational and tourism economy. However, they are facing rapid degradation, with 20,000 miles of eroding shoreline in the U.S., including 2,700 miles currently considered “critically eroding.”

Coastal erosion in California presents ongoing challenges, with potential impacts to beachside communities, visitor attractions and tourism infrastructure. While temporary measures — such as placing rocks to protect railroad tracks or shoreline assets — offer short-term relief, they are not a long-term solution in the face of rising sea levels and the effects of climate change. Marina and harbor developments have also altered natural sand movement, limiting natural beach replenishment and, in turn, affecting the appeal of some coastal destinations.

However, this challenge also presents an opportunity to strengthen California’s leadership in coastal resilience. Local and regional initiatives are already shaping future policies and organizations such as the California Ocean Protection Council and the California Coastal Conservancy are funding and implementing projects to protect and restore vulnerable shorelines.

The tourism sector can actively contribute to mitigating coastal erosion in California through several initiatives:

- 1 Coastal Restoration Organizations:** Work with coastal restoration organizations by participating in company and/or visitor volunteer programs or donating to support dune restoration projects. These projects involve planting native vegetation and building dunes to stabilize the shoreline and absorb wave energy. Engaging local communities in erosion control projects fosters resilience and encourages stewardship of coastal resources.
- 2 Living Shorelines:** Support the implementation of living shoreline projects, which use natural materials like plants, sand and rocks to stabilize the coastline. These initiatives provide wildlife habitat while reducing erosion. Examples of living shoreline projects, such as those in San Francisco Bay, support this approach.
- 3 Supporting the Relocation of Infrastructure:** Consider sustainable long-term solutions by allowing the coastline to naturally move and relocating infrastructure and development away from vulnerable areas. This approach requires careful consideration of the ecological impacts of current and future development, beyond regulatory requirements like the California Coastal Act and Local Coastal Programs. It represents an investment in the collective interests of residents and visitors, prioritizing long-term benefits over short-term gains for a few.
- 4 Collaboration in Coastal Monitoring Programs:** Actively participate in coastal monitoring programs initiated by agencies like the California Coastal Commission and the U.S. Geological Survey (USGS). Supporting and sharing the results of ongoing coastal research contributes to understanding erosion patterns and informs management decisions.

Solution Examples

San Diego’s Beach Nourishment Projects

The San Diego Association of Governments (SANDAG) is a metropolitan planning organization and a council of governments, bringing together local decision-makers to develop solutions to regional issues. SANDAG tackles regional issues with communities through a big picture, coordinated approach. One area of focus is shoreline nourishment projects to replenish sand and protect coastal properties.

Current shoreline management projects include Shoreline Photo Monitoring; Nearshore Habitat Inventory; Regional Shoreline Monitoring Program; Sand Compatibility and Opportunistic Use Program; Coastal Regional Sediment Management Plan; and Regional Transportation Infrastructure Sea Level Rise Assessment and Adaptation Guidance.

San Francisco Bay Living Shorelines Project

The San Francisco Bay living shorelines project is demonstrating the potential of establishing native eelgrass and oyster beds to protect the San Francisco Bay shoreline while creating biologically rich and diverse habitat that is resilient to changing environmental conditions.

Habitats created through the project quickly showed the benefit to a wide variety of wildlife while decreasing energy from wave action. The decreased wave energy reduces flooding and erosion of the shoreline and allows sediments to accrete, enabling the shoreline to rise along with sea levels. Findings from this project are being used to design future projects and develop best practices for managing living shorelines and develop best practices for managing both living and submerged shorelines. Projects like this present an opportunity where the tourism industry should be a partner to support sustainable solutions that not only preserve but enhance the visitor experience.

Santa Clara Valley Habitat Plan

The County of Santa Clara — together with the cities of San Jose, Morgan Hill and Gilroy, the Santa Clara Valley Transportation Authority and the Santa Clara Valley Water District — has launched a collaborative process to prepare and manage a Habitat Conservation Plan or Natural Communities Conservation Plan, officially named “Santa Clara Valley Habitat Plan”. The goal of this plan is to provide for the conservation of endangered/ threatened species, thereby contributing to their recovery while allowing for compatible and appropriate development to occur.



Condor Express Whale Watching Tour, Santa Barbara

Solid waste generation

Solid waste generation presents ongoing sustainability challenges in California, affecting environmental, social and economic systems across the state. These challenges — often compounded by food waste — include resource depletion, pollution, greenhouse gas emissions and impacts on public health, equity and local economies. Without proactive measures, issues such as contamination from improper disposal, increased emissions from waste decomposition and financial strain from overburdened infrastructure could become more pronounced.

However, California has long been a national leader in reducing the impacts of solid waste, taking a comprehensive and forward-thinking approach. Through progressive legislation, innovative waste reduction strategies, robust recycling and composting programs and the promotion of sustainable consumption, the state continues to advance meaningful solutions.

Some of California’s most impactful initiatives and policies include:

- Recycling and waste diversion programs;
- Landmark legislation for organic waste reduction;
- Extended producer responsibility for e-waste and recycling;
- Product stewardship for required “take-back” programs that encourages manufactures to take back their products for recycling or repurposing, such as glass food storage jars;
- Plastic pollution reduction legislation such as single-use plastic ban, “straws upon request” policies;
- Investment in microplastic reduction research;
- Implementation of green building standards to reduce waste in construction and demolition; and
- Generation of public awareness campaigns to support educating the public about waste reduction, recycling and composting and innovative circular economy solutions to promote partnerships for waste reduction with businesses, non-profits and local governments.

California’s tourism industry has a unique opportunity to lead in reducing solid waste generation by promoting and supporting strategic sustainability initiatives. Through the adoption of eco-friendly practices and by engaging visitors in these efforts, the industry can make a meaningful contribution to statewide waste reduction goals.

These initiatives include:

- Encouraging sustainable practices among businesses including offering incentives for businesses achieving significant waste reduction;
- Implementing waste reduction initiatives in hotels and other accommodations, such as replacing single-use bottles with bulk dispensers;
- Promoting eco-friendly tourist activities and tour operators committed to sustainability practices;
- Providing information to visitors on ways for reducing their environmental impact while traveling;
- Implementing effective waste management systems for events and venues, such as replacing single-use plastics and water bottles with glass;
- Supporting products and venues that encourage locally sourced and sustainably produced products;
- Engaging in beach and park clean-up initiatives and educate tourist on the impact of litter on wildlife and the environment; and
- Collaboration with local governments and NGOs to support broader waste reduction and sustainability initiatives.

This guidebook includes recommendations for tourism businesses that further address waste management and implementation of an aligned program.

Solution examples

California coastal cleanup

The California Coastal Cleanup, initiated in 1985 by the California Coastal Commission, exemplifies successful collaboration between the tourism industry, environmental agencies and local communities in protecting natural resources while promoting responsible tourism.

Since its inception, over 1.6 million volunteers have participated, removing more than 26 million pounds of trash from California's coast and inland waterways. In 2019 alone, 74,000 volunteers collected over 900,000 pounds of trash and recyclables.

The program's success stems from strong partnerships between government agencies (like California State Parks and Regional Water Quality Control Boards), the tourism industry (hotels and tour operators sponsoring events) and local communities. These collaborations facilitate coordinated cleanup efforts, provide resources and offer incentives for participation.

Beyond immediate environmental impact, the Cleanup serves multiple functions:

- **Data collection:** Volunteers record debris types, informing policy decisions and public education.
- **Educational outreach:** The program raises awareness about marine debris and prevention strategies.
- **Tourism enhancement:** Clean beaches improve destination appeal and foster eco-tourism opportunities.
- **Community engagement:** Local participation strengthens the relationship between tourism and host communities.

The long-term advantages are substantial: a decrease in marine debris, informed policy-making (exemplified by California's prohibition on single-use plastic bags) and bolstering of the State's \$44 billion coastal economy, which includes tourism. Moreover, the initiative has effectively tackled challenges such as sustaining volunteer engagement and expanding inland by diversifying outreach efforts and incorporating river and creek cleanup activities.

This approach serves as a model, illustrating how collaborative conservation endeavors can yield positive environmental outcomes while simultaneously enhancing tourist experiences and nurturing long-term environmental stewardship.



Transportation sustainability

Tourism travel to California is primarily conducted by plane and car, both of which contribute to greenhouse gas emissions — a key drivers of climate change — as well as noise pollution, land use impacts and environmental effects related to fuel production. While these issues present real concerns, they also offer an opportunity for the tourism industry to lead in promoting low-impact travel solutions. Many popular destinations face transportation infrastructure limitations, including insufficient parking, limited road capacity and a lack of EV charging stations.

California's approach to addressing transportation-related sustainability challenges includes a broad range of strategies aimed at reducing greenhouse gas emissions, minimizing environmental impacts and expanding access to sustainable travel options. Key efforts to promote low-impact tourism and mitigate the environmental effects of air and car travel include:

- Promoting and supporting innovative technology developments (fuel-efficient, electric vehicles and hydrogen vehicles, improving aircraft design and fuel efficiency and exploring sustainable aviation fuels);
- Policy and regulations (encouraging sustainable transportation, exploring carbon pricing, fuel economy standards and investment in public transport and non-motorized transport infrastructure);
- Behavioral changes (encouraging shifts towards sustainable modes of travel e.g. public transportation, biking, walking); and
- Carbon offsetting (e.g. reforestation or renewable energy projects).

The implementation of sustainable transportation strategies takes place across multiple levels of government — federal, state and local. However, in many non-urban areas of California, some of these efforts can be more difficult to realize. For example, limited EV charging infrastructure in rural regions makes it challenging for travelers to rely on electric vehicles for extended, region-wide tours. As a result, many visitors currently opt out of EV rental options. Recent reporting by BCD Travel across North America and Europe shows that fewer than 20% of rental car travelers choose EVs.

The tourism industry can play a vital role in encouraging sustainability through the implementation of innovative and high-reaching practices, including:

- Encourage the development of more EV charging stations in rural areas and along destination travel routes;
- Promote carbon offsets, investing in public transportation, ride sharing and supporting use of electric and/or hybrid vehicles and expansion of pedestrian and bicycle infrastructure;
- Support the planning and construction of multi-modal trails to and within tourist attractions. A barrier to pedestrian and bicycle access to tourist attractions and regions in California is either pedestrian unfriendly walking routes and/or bikeways perceived as unsafe. Paved and unpaved trails set apart from busy roadways can encourage visitors to use these modes of transportation;
- Provide public transportation options, such as shuttles, that can allow visitors to still access the attractions while decreasing the impacts due to traffic, congestion and air quality. Yosemite National Park has provided free shuttles for visitors throughout Yosemite Valley for decades. It is also common in Europe, for example, for a public transit pass to be provided as a part of lodging to encourage and/or require the use of public transit;
- Work with transportation agencies to develop 'last mile' transportation options. This refers to transportation solutions that connect visitors from major transit hubs to their final destinations to encourage public transit use. Last mile options include walking, cycling, local shuttles or buses, on-demand transportation like ride-hailing or micro transit and bike or scooter rental programs. Bay Area Rapid Transit's (BART) strategic plan focuses on working with local agencies to improve last-mile access and identify funding partnerships with local agencies to implement upgrades;
- Encourage airlines to invest in sustainable aviation fuels and prioritize partnerships with carriers that demonstrate strong sustainability practices; support airports in engaging with airlines to optimize flight routes for improved efficiency and reduced emissions.
- Collaborate with tour operators in planning itineraries that prioritize cultural sensitivity and environmental sustainability. This includes training programs and resources for local tour guides and operators. Encourage operators to include lesser-known sites in their tours and promote off-peak travel.

Solution examples

The Global New Mobility Coalition (GNMC)

The Global New Mobility Coalition (GNMC), an initiative of the World Economic Forum's Centre for Urban Transformation, brings together public and private stakeholders to address the environmental and physical impacts of mobility in cities. By fostering collaboration, the GNMC aims to support cities and companies in developing resilient, healthy and decarbonized mobility systems. The coalition emphasizes the potential of new technologies and business models to reduce congestion, decrease emissions and enhance the quality of life for residents while promoting industry and policy collaboration to guide practical and impactful actions towards sustainable urban environments.

For the tourism industry, the GNMC offers valuable insights and tools to drive sustainable mobility practices in cities. One such tool is the [Urban Mobility Scorecard](#), which provides cities with a benchmarking system to assess their progress in achieving sustainable and inclusive mobility. By utilizing this tool, cities can evaluate their advancements in areas such as innovation, space allocation and integration. It enables cities to set actionable targets, engage with key mobility players and drive ambitious collaboration. By leveraging the GNMC's assessments and engaging in multi-stakeholder collaborations, the tourism industry can play a vital role in fostering sustainable mobility solutions, enhancing visitor experiences and mitigating the environmental impact of transportation in cities.



Tourism and regenerative agriculture

For over 100 years, California has been a national and international leader in agriculture — from the thousands of acres of specialty crops along the Central Coast to award-winning viticulture statewide and cannabis cultivation in the North Coast. Nearly as iconic as the Golden Gate Bridge or California's beaches, the state's agricultural sector draws visitors from around the world.

At the same time, consumer interest in locally sourced food, sustainable agriculture and organic farming continues to grow. These interests often align with cultural and heritage tourism, offering travelers authentic experiences that reflect the traditions, cuisine and lifestyles of California's diverse regions. The connection between tourism and regenerative farming presents a unique opportunity for visitors to engage with the source of their food, learn about sustainable practices and experience rural life and cultural richness across the state firsthand.

The tourism industry in California has a unique opportunity to actively engage with the agriculture sector, specifically in the area of regenerative agriculture, integrating with initiatives such as:

- California Department of Food and Agriculture's (CDFA) Healthy Soils Program, aiming to restore soil health, enhance biodiversity and reduce carbon emissions;
- Climate Smart Agriculture programs, such as the State Water Efficiency and Enhancement Program (SWEET), which improves water management and enhances climate resilience in agricultural systems; and
- The California Regenerative Agriculture Network's (CalCAN) advocacy efforts for policy changes and promotes regenerative practices statewide.

By actively engaging with the agriculture industry in the area of regenerative agriculture, the tourism industry can:

- 1 Showcase and Promote Sustainable/Regenerative Farming Practices:** Incorporate regenerative agriculture experiences into tour offerings, such as farm stays, vineyard tours and organic farming workshops.
- 2 Support Local Food Systems, especially Regenerative Farms:** Encourage the tourism industry to prioritize partnerships with farms that are actively engaged in regenerative farming practices.
- 3 Collaboration and Partnerships:** Foster collaborations between tourism operators and farmers to develop joint initiatives that promote regenerative agriculture. This can, farm-to-table experiences and Agri-tourism events that highlight the benefits of regenerative agriculture.
- 4 Education and Awareness:** Through tours, workshops and informational materials, the tourism industry can educate visitors about regenerative agriculture, its importance for soil health, biodiversity and climate resilience.
- 5 Economic Support:** By directing tourist spending towards regenerative farms and related businesses, the tourism industry can provide economic incentives for farmers to adopt and maintain sustainable practices.

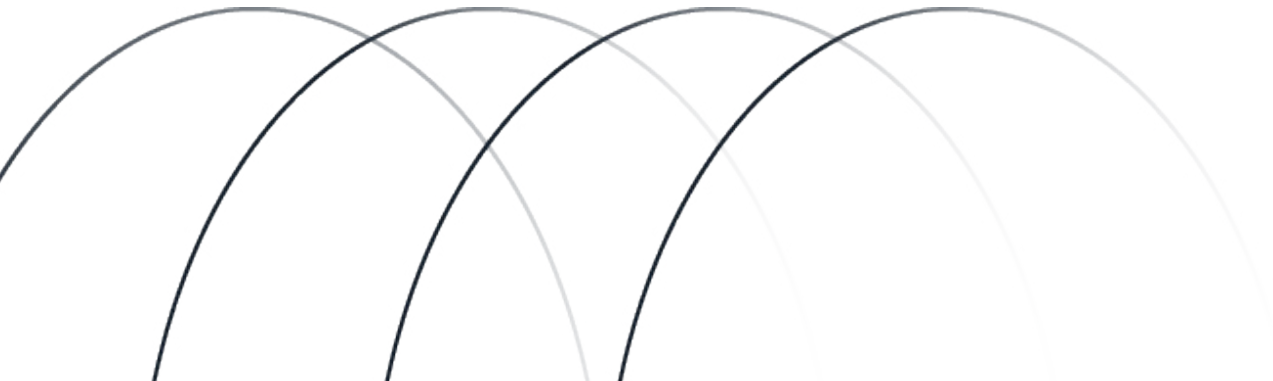
Tourism and regenerative agriculture (Cont'd)

According to the California Agricultural Statistics Review (2019–2020), the state’s agritourism industry generated over \$4.5 billion in direct revenue, including income from farm stays, tours, on-farm sales and special events. A 2017 study by the University of California Cooperative Extension estimated that agritourism contributes \$10.6 billion annually to California’s economy when accounting for indirect impacts such as job creation and revenue for related businesses like hotels, restaurants and retail. As of 2020, approximately 2,200 farms across California were engaged in some form of agritourism, according to the USDA Census of Agriculture.

For more remote areas like the North Coast or lesser-known destinations such as Salinas, agritourism offers a pathway for economic growth that reflects the values, livelihoods and natural assets of the region. It provides farmers with an additional revenue stream, helping stabilize income amid market uncertainties, while stimulating local economies through increased visitor spending at nearby businesses. Recognizing this potential, federal, state and local governments have introduced a variety of programs, grants and resources to support agritourism development. The USDA, for example, has funded initiatives and research aimed at advancing the sector.

Tourism is uniquely positioned to amplify California’s agriculture story — highlighting the state’s leadership in organic and regenerative practices, land and ocean-based (“blue food”) experiences and connections between growers and visitors. Driven by rising consumer demand for authentic, local and educational experiences — as well as the tangible economic benefits to farmers and rural communities — agritourism can serve as a powerful tool for uplifting California’s rural regions. Supporting its growth requires thoughtful planning, strong community engagement and a focus on delivering meaningful, place-based experiences for visitors.

“As part of California’s Ag Vision there is a strategic priority to foster climate-smart, resilient and regenerative food systems,” said California Department of Food and Agriculture Secretary Karen Ross. “The Board’s work to define regenerative agriculture, is a further step forward in recognizing the valuable contribution that farmers, ranchers and farmworkers contribute to our economy and working lands.”



Solution examples

Sonoma County

- **Sonoma County Farm Trails:** This initiative connects tourists with local farms, offering experiences like apple picking, cheese making and farm stays. The Farm Trails map guides visitors to various agricultural experiences, promoting both the farms and the local tourism industry.
- **Harvest Fair:** Sonoma County's annual Harvest Fair is a major event that celebrates the region's agricultural bounty. It features wine tastings, craft beer, farm-to-table food and agricultural exhibits, drawing tourists and locals alike.

Lancaster County, Pennsylvania

- **Amish Country Tourism:** Lancaster County is known for its strong agricultural roots, particularly its Amish farms. Visitors are drawn to the area to experience Amish culture, which includes visiting working farms, buying fresh produce and enjoying homemade goods like baked goods and preserves.
- **Farm Stays and Tours:** Many farms in the area offer tours and stays where visitors can participate in farm activities, such as milking cows, harvesting crops and riding in horse-drawn buggies.

Finger Lakes Region, New York

- **Wine and Agricultural Tourism:** The Finger Lakes region is renowned for its wine trails, but it also integrates broader agricultural tourism with experiences such as farm-to-table dining, craft beverage tours and seasonal events like harvest festivals.
- **Farm Stays and Workshops:** Many farms in the area offer stays and workshops where visitors can learn about sustainable farming, cheese making and other agricultural practices.



Vina Castellano Vineyards, Auburn

Restoring California’s natural heritage: The vital role of tourism in environmental conservation

Connection between restoration, conservation and tourism

Environmental restoration encompasses a broad range of activities aimed at repairing damaged ecosystems and revitalizing natural habitats. In California, these efforts are especially significant given the state’s ecological diversity and long history of intensive land use. Since its enactment in 1970, the California Environmental Quality Act (CEQA) has played a critical role by requiring environmental impact assessments for major development projects, helping to safeguard natural resources.

Notable restoration initiatives across the state highlight California’s leadership in this space. The ongoing revitalization of the San Francisco Bay wetlands — the largest wetland restoration project on the West Coast — is restoring critical habitat and improving ecological health. Near Monterey, the Elkhorn Slough National Estuarine Research Reserve has also seen successful tidal marsh restoration. In December 2023, the breaching of the South Bay Salt Ponds opened hundreds of acres to the natural tides of San Francisco Bay, marking a major milestone in one of the region’s most ambitious restoration projects.

Other efforts include the Lookout Slough Tidal Habitat Restoration Project, which constructed a new levee system and is restoring 20 miles of tidal channels surrounded by tule reeds and native vegetation while limiting human activity to protect sensitive wildlife. Similarly, the Decker Island Tidal Habitat Restoration Project transformed a 140-acre island in the Sacramento-San Joaquin Delta into an open tidal wetland by breaching levees to allow Sacramento River water to flow naturally through the marsh.



The Presidio, San Francisco

In recent years, California has placed increased emphasis on forest management and restoration as part of its broader strategy to reduce wildfire risk. Policies promoting practices such as controlled burns and understory clearing have become central to these efforts. The state's strong commitment to addressing climate change has also elevated the importance of environmental restoration, with programs like California Climate Investments funding projects that sequester carbon through habitat and ecosystem restoration.

The tourism industry is well positioned to support and amplify these efforts through sustainable operations, public education, volunteer programs, partnerships with conservation organizations and promotion of eco-friendly destinations. By integrating restoration principles into supply chains and visitor experiences, the tourism sector can serve as a valuable partner in advancing environmental goals while enhancing the long-term appeal and resilience of California's natural landscapes.

The following are key areas and examples of how the tourism industry can contribute to environmental restoration:

- **Endangered species and habitat protection:**
 - To Collaborate with local conservation organizations to identify and protect habitats of endangered species.
 - Support research and monitoring programs to better understand the needs of endangered species and their habitats.
 - Educate visitors about the importance of endangered species conservation and promote responsible wildlife viewing practices.
- **Land conservation:**
 - Partner with land trusts, NGOs and government agencies to support land conservation initiatives.
 - Promote sustainable land-use practices to minimize the impact on natural landscapes and ecosystems.
- **Wetland restoration:**
 - Contribute to wetland restoration projects through volunteerism.
 - Promote tourism activities that are designed to minimize disturbance to wetland ecosystems.
- **Sustainable infrastructure development:**
 - Support design and construction principles in the development of tourism infrastructure to minimize environmental impact.
 - Implement energy-efficient practices, renewable energy technologies and water conservation measures in hotels, resorts and other tourism facilities.
- **Education and awareness:**
 - Offer guided tours and interpretive signage that highlight the significance of protected areas, restoration projects and conservation efforts.

As California's iconic landscapes face growing challenges from climate change and human impact, a crucial partnership must emerge between the tourism industry and environmental restoration efforts. The tourism sector, recognizing its dependence on natural attractions, should continue leading preservation and renewal, transforming visitors from passive observers to engaged conservationists.

Imagine a future where tourism advocacy directly supports ecosystem restoration, where hotels partner with environmental organizations to offer hands-on conservation experiences and where every sightseeing trip becomes an opportunity for environmental education. This collaboration should extend beyond individual projects, shaping policies, driving innovation in sustainable practices and influencing long-term planning for both conservation and tourism development.

As climate change accelerates, this partnership becomes even more essential. Insights from the tourism industry can help inform adaptive management strategies for California's ecosystems, while successful restoration efforts will help ensure the state remains a resilient, world-class destination. By forging this alliance, California has the opportunity to lead globally — demonstrating how tourism and environmental stewardship can work together to build a more sustainable, vibrant future for generations to come.

Conclusion

California's tourism industry faces urgent environmental challenges and opportunities that, if unaddressed, could further harm the state's visitor economy. Managing visitor behavior to reduce strain on communities and ecosystems is essential and can be achieved through capacity management, sustainability guidelines and education, community engagement, conservation initiatives and public awareness efforts. Immediate action is needed to balance economic benefits with the preservation of environmental and cultural resources, ensuring the long-term sustainability of tourism in California.

The state's ongoing efforts to reduce solid waste — through recycling programs and waste reduction strategies — offer a strong foundation for the tourism industry to build upon. Encouraging sustainable business practices, implementing effective waste management systems and promoting eco-friendly tourist experiences are essential steps toward minimizing environmental impacts.

Transportation sustainability also requires focused attention. Supporting alternative modes of travel, advancing transportation technology, encouraging eco-conscious travel choices and collaborating to optimize flight routes can help reduce greenhouse gas emissions and mitigate environmental effects.

Water scarcity and availability demand comprehensive management strategies. Tourism businesses should implement water conservation measures that go beyond local requirements while educating visitors on responsible water use. Partnering with local water agencies can position the tourism industry as a proactive force in addressing water shortages and promoting a culture of environmental responsibility.

The time to act is now. By addressing these critical challenges both regionally and statewide, the tourism industry can help build a sustainable, resilient future for California. Together we can protect the state's natural and cultural assets, support local communities and ensure future generations continue to enjoy the beauty and experiences California has to offer.

It is equally important for the tourism industry to have a seat at the table during conversations and decision-making processes related to sustainability and resilience. JLL's environmental partners participate in numerous statewide meetings focused on these topics — yet they consistently report a lack of tourism industry representation at these discussions.

To foster effective collaboration and comprehensive solutions, the tourism industry must actively engage in these conversations and bring its unique perspective to the table. This participation enables tourism stakeholders to stay informed on emerging developments, policies and initiatives; learn from other sectors facing similar challenges; build strategic partnerships and align efforts around shared goals.

Moreover, active involvement in these spaces gives the tourism industry a voice in shaping the policies and programs that directly impact it. With strong industry engagement and collaboration with environmental partners, meaningful progress can be made toward building a more sustainable and resilient tourism sector in California.

The following chapter of this guidebook outlines clear, actionable guidelines and best practices for tourism businesses committed to environmental responsibility. These strategies are tailored to various sectors of the industry including accommodation providers, tour operators, transportation services and destination management organizations.

Sustainability/resiliency dashboard – a tool for regional engagement

One of the key findings from the regional scorecard assessments is the need for more coordinated, data-driven approaches to managing the growing impacts of climate change — such as wildfires and drought — on tourism infrastructure and services. Across the state, tourism stakeholders often face challenges accessing tourism-related risk data in a clear and actionable format, making it difficult to plan for future climate threats or collaborate effectively on destination resilience strategies. More broadly, advancing destination sustainability requires access to reliable data across a range of key indicators, including environmental conservation and awareness, community well-being and engagement, sustainable tourism growth management and investment in long-term sustainable development.

To support proactive decision-making, a key feature of the Regional Strategic Tourism Plans and the Resiliency and Sustainability Scorecards is the development of an integrated online dashboard. This interactive tool will provide regional tourism teams with real-time, reliable data on key performance indicators — including future climate projections across various emissions scenarios and their potential impacts on tourism assets and infrastructure. The dashboard consolidates resilience and sustainability metrics for all 12 tourism regions, featuring interactive map views alongside region-specific scorecard assessments.

Users can explore more than 460 data inputs that contribute to each region's score, offering insights into risks such as wildfires and drought, as well as broader indicators of sustainability and resilience performance. By centralizing this information in a user-friendly format, the dashboard will strengthen coordination among tourism stakeholders, empowering them to better anticipate challenges, share solutions and plan strategically for the future — both regionally and statewide.



Indian Wells Golf Resort, Palm Springs

Sustainability/resiliency dashboard – a tool for regional engagement (Cont.)

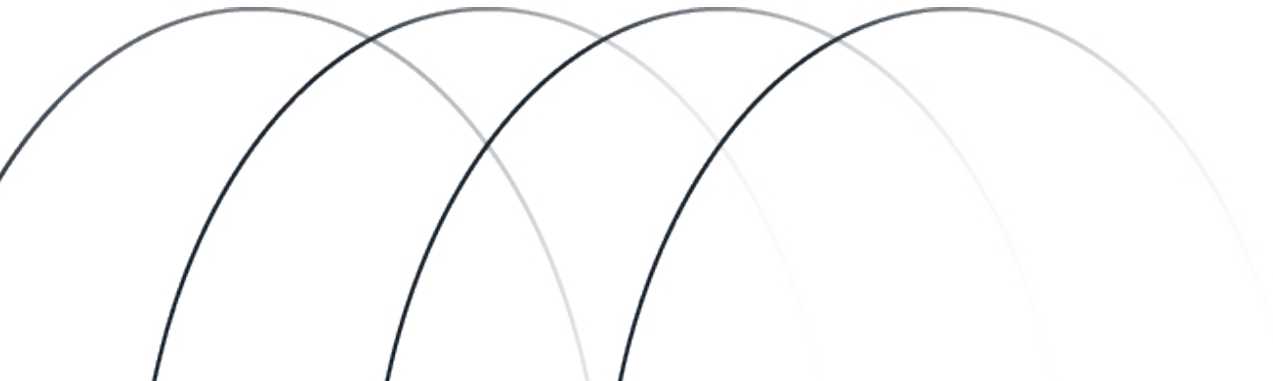
This chapter of the guidebook delineates concrete actions for diverse stakeholders within California’s tourism industry. The objective is to foster widespread adoption of these practices across the State in the coming years. From destination marketing/management organizations (DMOs) to hotels, restaurants to theme parks and transportation providers to tour operators, each plays a crucial role in our collective journey towards sustainability.

We have broken down these measures by sector, providing a comprehensive roadmap for stakeholders at every level. Whether it is implementing energy-efficient practices in hotels, sourcing local ingredients in restaurants or designing eco-friendly attractions, each recommendation contributes to our larger goal of a more sustainable California tourism industry. These measures represent current best practices, but we must remain adaptable and open to innovation as we continue to learn and grow.

Building upon California’s strong foundation of sustainability practices, continued progress is vital to ensuring the long-term success of the state’s hospitality and tourism industry. Imagine walking into a hotel where every light bulb, every air conditioning unit and every washing machine has been carefully chosen to minimize energy use. Picture a restaurant where the tomatoes in your salad were picked just hours ago from a nearby farm, and where your leftover food will be composted to nurture future crops. Envision theme parks where the thrills come not just from the rides, but from knowing that the entire operation is powered by renewable energy.

The shift towards sustainability cannot happen in isolation. It is a collaborative effort involving businesses, local communities, environmental organizations and travelers themselves. Everyone has a role to play, from the hotel manager implementing new recycling programs to the visitors choosing to bring a reusable water bottle on their trip.

The journey towards a fully sustainable tourism industry is ongoing. As new opportunities arise and new technologies emerge, California’s tourism sector remains committed to adapting and improving. It is a testament to the innovative spirit that has always defined this State, facing challenges head-on and turning them into positive change.



Practical measures

Enticing Visitors to Behave Sustainably

Several different approaches have been tested in the past when attempting to entice visitors to behave in more environmentally friendly ways. The following are four different approaches that may be more or less effective depending on the desired outcome.



Nudging

Nudging involves physically changing something in the environment where people display the target behavior. For example, changing the location of bins or reducing the size of plates. It is not always possible to change physical aspects of the behavioral environment, but when it is, nudging approaches are highly effective in changing behavior. This is because they do not require tourists to think about their behavior and because tourists remain free to engage in any behavior they choose.



Enjoyment

Linking the target behavior to enjoyment is not yet a routine approach but is showing very promising results. This is because tourists, by definition, aim to enjoy themselves. Vacations are characterized by the pursuit of pleasure. Linking environmentally friendly behavior with additional enjoyment, therefore, represents an effective way to change behavior without undermining guest satisfaction. An example is a stamp collection game rewarding families for eating up all the food they have taken from the all-you-can-eat buffet.



Social norms

Social norms are rules that determine people's behavior in groups and societies. A behavior is affected by social norms if people engage in it because they think that others in their group or society want them to engage in the behavior and/or approve of it. An example of using social norms to change behavior is to ask guests to make a pledge to behave in environmentally friendly ways and give them a visible sign that makes their pledge publicly noticeable.



Beliefs

A belief is a person's association of an attribute with an object. Beliefs are fundamental to most of the established theories of human behavior, which assume that beliefs affect behavior. Most current practical measures designed to change tourist behavior to be more sustainable aim to change beliefs. For example, hotels typically have a sign in the bathroom informing guests about how much water it takes to wash the towels daily. Despite the wide uptake of belief-based practical measures, this approach has generally not proven to be highly or reliably effective (Demeter, Fechner & Dolnicar, 2023; Greene, Demeter & Dolnicar, 2023).

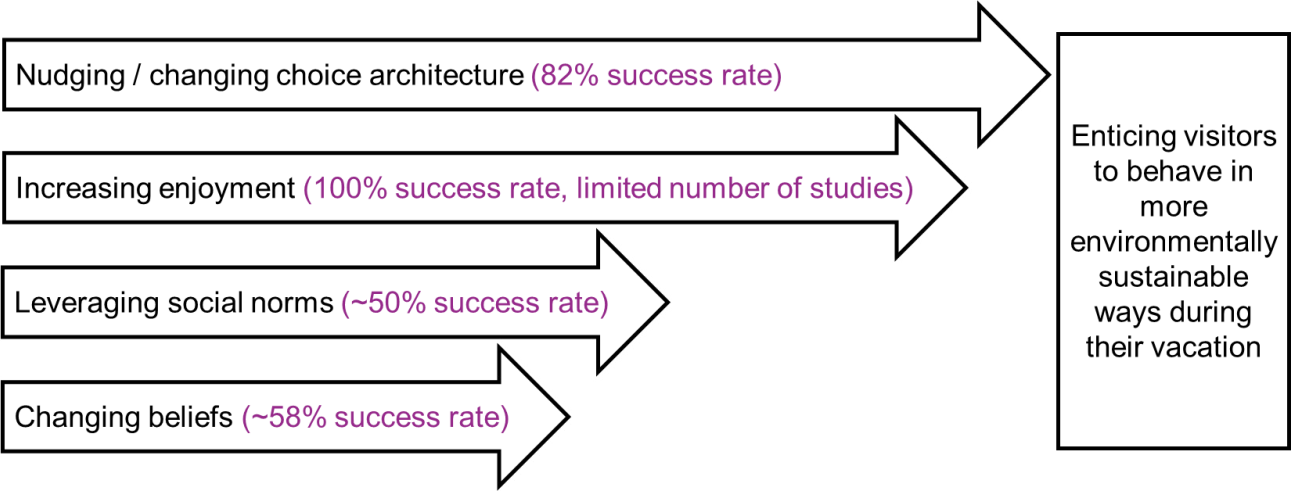


Figure 1. Illustration of the relative effectiveness of different approaches to enticing tourists to behave in more environmentally friendly ways (Sources: Dolnicar, 2020; Demeter et al., 2023). This figure should be interpreted with caution because the number of studies for each approach is different (many belief-based studies, and almost no enjoyment-based studies) and because, in many instances, one practical measure uses elements from more than one of the approaches discussed above.

The following chapter of this report details practical measures that have been developed and tested in real-world settings, rather than relying solely on survey-based studies of stated behavioral intentions. This section recommends implementing the most effective behavior change interventions as part of California’s 10-year Regional Strategic Tourism Planning process. Most of these measures are easy for the tourism industry to adopt, maintain guest satisfaction and are cost-effective to implement. In some cases, they can even generate cost savings for tourism service providers.



Suggested practical measures and achievements milestones

Below is a summary of practical measures that hold substantial promise to transform tourism in California to operate in more environmentally sustainable ways. These strategies build upon California's long-standing role as a global leader in environmental innovation and stewardship, offering a path for the tourism industry to lead by example and inspire sustainable practices worldwide. For more information and clarity, in-depth examples and further detail are laid out in the Appendix 1 chapter of this guidebook.

Regional DMOs:

- Engage, education and consult with stakeholders to help inform and guide future plans and actions.
- Foster partnerships with environmental organizations.
- Advocate for the protection and restoration of natural habitats and biodiversity.
- Set clear destination sustainability goals and identify the specific actions to achieve those goals. Monitor and report on sustainability metrics.
- Engage with tourism businesses to understand where they need the most support and encourage them to undertake their own sustainability analysis on key issues.
- Collaborate with local communities on sustainability projects.
- Educate visitors about responsible tourism practices.
- Promote off-season tourism to reduce overcrowding.
- Support cultural heritage preservation.
- Create eco-tourism experiences and trails.
- Implement carbon offset programs for visitors.
- Develop sustainable event guidelines.
- Encourage the use of reusable products over single-use items.
- Conduct a formal assessment of the destination sustainability practices and obtain a sustainability certification of the destination.



Hotels and hospitality providers:

- Collaborate with local communities to support economic development, cultural preservation and conservation efforts.
- Educate staff on sustainable practices and empower them to contribute ideas.
- Offer guests information on local eco-friendly activities and transportation.
- Participate in local sustainability committees or tourism boards.
- Advocate for an increase in electric vehicle charging stations.
- Offer bike rentals or sharing programs for guests.
- Implement energy-efficient practices such as LED lighting, smart heating, ventilation and air conditioning systems and occupancy sensors.
- Install water-saving fixtures and implement water recycling systems.
- Use native plants in landscaping to reduce water usage.
- Set up recycling programs throughout the property and educate guests on proper waste disposal.
- Use eco-friendly cleaning products and practices.
- Use sustainable and biodegradable toiletries and packaging.
- Offer locally sourced and organic food options, reducing food miles and promoting sustainable agriculture.
- Implement a green purchasing policy for supplies and equipment.
- Implement paperless check-in and billing processes.
- Create green meeting spaces for eco-conscious business travelers.



Osmosis Day Spa Sanctuary, Sebastopol

Restaurants and food providers:

- Source ingredients from local and sustainable suppliers, promoting organic, fair-trade and ethically produced food.
- Engage in community outreach programs that support local farmers and producers.
- Promote plant-based and vegetarian options, encouraging healthier and more sustainable dietary choices.
- Grow herbs and produce on-site where possible.
- Reduce food waste through proper inventory management, composting and donation programs.
- Educate customers about the sustainability efforts and sourcing practices.
- Offer discounts for customers who bring their own reusable containers.
- Support local environmental causes through fundraising or partnerships.
- Participate in local sustainability initiatives or committees.
- Train staff on sustainable practices and food preparation techniques
- Implement an oil recycling program for cooking oils.
- Implement a recycling program for glass, plastic and paper.
- Use energy management systems to optimize power usage.
- Use energy-efficient kitchen appliances and lighting.
- Use eco-friendly cleaning products.
- Implement a green procurement policy for all supplies.
- Obtain sustainability certifications.
- Use reclaimed or sustainable materials in restaurant design and furnishings.



Chez Nori, Carmel

Attractions and theme parks:

- Incorporate eco-friendly practices into the design and construction of new attractions, aiming for LEED or similar green building certifications.
- Adopt renewable energy sources like solar panels or wind turbines to power facilities and reduce reliance on fossil fuels.
- Implement green building practices for new constructions and renovations.
- Optimize ride systems for energy efficiency.
- Develop attractions that showcase renewable energy or sustainable technologies.
- Collaborate with local environmental organizations for conservation education programs and initiatives.
- Implement sustainable landscaping practices (e.g., xeriscaping).
- Use digital ticketing and information systems to reduce paper waste.
- Offer incentives for visitors using public transportation to reach the park.
- Offer eco-friendly transportation options within the park (e.g., electric shuttles).
- Implement water-saving measures, such as using water-efficient technologies, capturing rainwater and promoting responsible water consumption.
- Implement comprehensive recycling and waste management programs.
- Develop and maintain green spaces and natural habitats within the park.
- Implement sustainable food practices in park restaurants and concessions.
- Implement a green purchasing policy for supplies and merchandise.
- Use environmentally friendly cleaning products and practices.
- Create wildlife protection and rehabilitation programs where applicable.
- Develop attractions that highlight local ecology and promote conservation.
- Offer sustainable and locally sourced souvenirs and merchandise.
- Implement strategies to reduce light pollution and protect night skies.
- Implement strategies to reduce noise pollution.
- Use biodegradable or compostable food packaging and utensils.
- Create volunteer programs for visitors to participate in conservation efforts.
- Offer discounts or incentives for eco-friendly behaviors (e.g., bringing reusable water bottles).
- Participate in or initiate local sustainability committees or tourism boards.



Temecula Valley Wine & Balloon Festival

Transportation service providers:

- Work with local communities to reduce congestion and air pollution in popular tourist areas.
- Utilize energy-efficient vehicles or hybrid/electric fleets and invest in low-emission technologies.
- Encourage carpooling and public transportation options for visitors.
- Offer combined tickets with other sustainable transport options or attractions.
- Develop apps that encourage and reward sustainable travel choices.
- Optimize routes to reduce fuel consumption and emissions.
- Educate customers about the environmental impact of different transport modes.
- Offer specialized tours focusing on local ecology and sustainability efforts.
- Use Internet of Things (IoT) and AI technologies to optimize fleet management and reduce idle times.
- Implement a carbon offset program for customers.
- Install solar panels on facilities or depots.
- Implement water recycling systems for vehicle washing.
- Use eco-friendly cleaning products for vehicle maintenance.
- Offer discounts or incentives for using off-peak services to reduce congestion.
- Provide real-time information systems to improve service efficiency.
- Implement noise reduction technologies in vehicles.
- Use sustainable materials in vehicle interiors and company facilities.
- Implement a green procurement policy for all supplies and equipment.
- Implement monitoring systems to optimize fuel consumption, route planning and vehicle maintenance.
- Offer carbon footprint calculators for trips and suggest lower-impact alternatives



San Francisco

Tour operators:

- Encourage sustainable transportation options such as promoting public transportation, cycling tours or electric vehicles.
- Design tours that focus on educating visitors on environmental conservation, cultural heritage and community development.
- Collaborate with local suppliers who prioritize sustainable practices and have a positive impact on the community.
- Engage in partnerships with local conservation organizations to support biodiversity and protect natural resources.
- Educate clients about responsible tourism practices.
- Promote off-season travel and diversify the offered destinations and activities to reduce overcrowding.
- Promote local and authentic experiences that benefit communities.
- Provide information on local customs and etiquette to promote cultural respect.
- Avoid promoting activities that exploit animals or damage ecosystems.
- Support local artisans and fair-trade initiatives.
- Offer volunteer tourism opportunities with reputable organizations.
- Promote slow travel options to reduce carbon footprint.
- Offer training to staff on sustainable tourism practices.
- Support local environmental education programs.
- Engage in responsible wildlife viewing practices.
- Support local food systems by promoting regional cuisine.



Napa Valley Wine Train

Conclusion

This guidebook offers a roadmap for industry stakeholders across the State to embrace and champion proactive sustainability efforts. The vision extends beyond sustainability; we aim to foster regenerative tourism that leaves the Golden State better than we found it.

The goal of this guidebook is multifaceted:

- 1** To create a unified approach for the tourism industry on both statewide and regional levels.
- 2** To empower stakeholders to take specific, measurable actions towards sustainability and resilience.
- 3** To position California as a global leader in regenerative tourism practices.
- 4** To address critical environmental challenges while enhancing visitor experiences and supporting local communities.

At the crossroads of tradition and innovation, all stakeholders — from hoteliers to DMOs, retailers to restaurateurs — are encouraged to reimagine travel as a force for positive change. Through collaboration and shared purpose, California can chart a path where tourism becomes a catalyst for environmental restoration, community empowerment and economic resilience.

The challenges ahead are significant — from the impacts of climate change to managing visitor behavior in high-traffic destinations. However, a collective commitment to addressing these issues head-on will define a new era of California tourism — one that reflects community values, nurtures both residents and visitors and champions the stewardship of the state's awe-inspiring natural wonders.

Every traveler can be a force for good. Every destination can be a source of renewal. Every experience can be a step toward a more prosperous, harmonious and sustainable California.

The future of tourism starts here — and together, through collaboration and shared vision, we can make it extraordinary.

Appendix 1

Death Valley National Park

Step-by-step guide to implementing practical measures proven to entice tourists to behave in more environmentally sustainable ways

The hospitality and tourism industry is evolving rapidly, driven by growing awareness of environmental sustainability and economic efficiency. Businesses, associations and other hospitality and tourism organizations are adopting innovative strategies to reduce their ecological footprint and operational costs as travelers increasingly seek eco-friendly accommodations.

By inviting guests to actively participate in sustainable practices, organizations can significantly impact resource conservation and promote shared environmental responsibility. This approach not only aligns with global sustainability goals but also enhances guest experience by fostering a sense of contribution to ecological preservation. Through initiatives such as voluntary room cleaning waivers, towel reuse programs and the optimization of water and energy use, the industry is setting new standards for responsible hospitality.

Practical measures that have been proven in scholarly research to have a significant effect on tourist behavior in a way that reduces their environmental footprint are presented below, sorted by the behaviors they have been shown to influence. The following are complete implementation steps and in-depth examples for some of the above recommendations and provide details on how hospitality and tourism organizations and businesses can adopt the strategies outlined in the entire guidebook.

1 Regional DMOs:

1.1 Littering

1.1.1 Display a sign encouraging visitors to pick up litter.

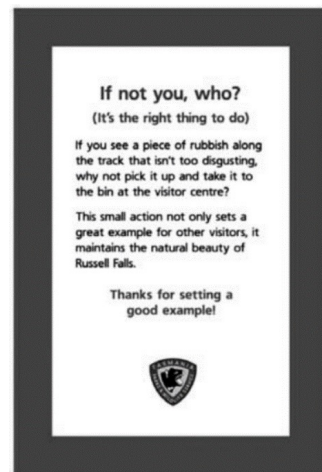


Suitable for destinations, parks and wildlife areas.

Practical measure - Place an A-frame sign beside the walking path with a message asking visitors to create a good example for others by picking up litter.

The original signs used:

Sign A



Sign B



Sign A – “If not you, who? (it’s the right thing to do) If you see a piece of rubbish along the track that isn’t too disgusting, why not pick it up and take it to the visitor centre? This small action not only sets a great example for other visitors, it maintains the natural beauty of Russell Falls. Thanks for deciding to set a good example!”

Sign B – “What will you do when you see it? If you see a piece of rubbish along the track that isn’t too disgusting, why not pick it up and take it to the visitor centre? This small action not only sets a great example for other visitors, it maintains the natural beauty of Russell Falls. Thanks for deciding to set a good example!”

Scientific evidence - Brown et al. (2010) conclude that sign A (“If not you, who?”) increases the number of visitors picking up litter from 17.4% to 36.6%. Sign B is less effective.

1.1.2 Tell guests about the importance of keeping litter off the beach.



Suitable for beach destinations.

Practical measure - On beaches, have a worker/volunteer on-site picking up litter and approaching visitors to tell them the importance of keeping the beach clean (e.g. for the environment and visitor enjoyment). While doing this, the worker/volunteer should also ask visitors to put their litter in the bins when leaving and explain (if applicable) why bins need to be up and off the beach (e.g. due to the tides, flooding etc.).

Scientific evidence - Cingolani et al. (2016) reduced litter on the beach by 35% using this approach.

1.2 Keeping visitors on the trail

1.2.1 Offer visitors a pledge to stay on the trail.



Suitable for national parks and other sensitive natural areas.

Practical measure - Provide visitors with a pledge to commit to simple protective behaviors while they are visiting (for example, taking their trash, staying on the marked trail and leaving nature as they find it).

The original pledge used: .



**The North Greenland
PLEDGE**

Welcome to North Greenland - home of the ice and the midnight sun!
You are about to explore some of our spectacular but fragile wilderness, and we ask that you commit to a few simple behaviours by signing this pledge.

- ☒ I will take all my trash with me.
- ☒ I will keep to the marked paths.
- ☒ I will leave nature as I find it.

Initials _____ Date _____



Pledge reads: "The North Greenland pledge. Welcome to North Greenland – home of the ice and the midnight sun! You are about to explore some of our spectacular but fragile wilderness and we ask that you commit to a few simple behaviors by signing this pledge.

- I will take all my trash with me.*
- I will keep to the marked paths.*
- I will leave nature as I find it.*

Initials: _____ Date: _____

Scientific evidence - Cooper and colleagues (2024) reduced the total proportion of distance travelled off the trail from 6% to 3% and reduced the number of visitors leaving the trail at any point from 96% to 92%.

2 Hotels and hospitality providers:

2.1 Enticing hotel guests to voluntarily waive their room clean

2.1.1 Change the default – clean rooms upon request only.



Suitable for hotels/accommodation providers that offer room cleaning during the stay.

Practical measure - Change from cleaning daily (while enabling guests to opt out) to cleaning upon request only (while enabling guests to request free room cleans, when required).

The original signs used:

Sign A: “We are testing a new room-cleaning program and will be cleaning the rooms upon request in July and August 2017. This means that we will not automatically clean your room every day. But if you would like us to clean your room, we are happy to do so. All you need to do is to place the “Please clean my room today” sign on the outside handle of your door before 10 am.”

Sign B: “We are testing a new room-cleaning program and will be cleaning the rooms upon request in July and August 2017. This means that we will not automatically clean your room every day. But if you would like us to clean your room, we are happy to do so. All you need to do is to place the “Please clean my room today” sign on the outside handle of your door before 10 am. Please note that every time we clean a room, we use 100 ml of chemicals, 35 l of water and 1.5 kWh of electricity, which is not good for the environment. You can make a difference and reduce the environmental burden of your stay by having your room cleaned upon request. Please help us make a difference to the environment.”

Scientific evidence - Dolnicar et al. (2019) decreased the proportion of rooms cleaned from 57% to 28% with sign B. Sign A reduced room cleaning to a lesser extent.

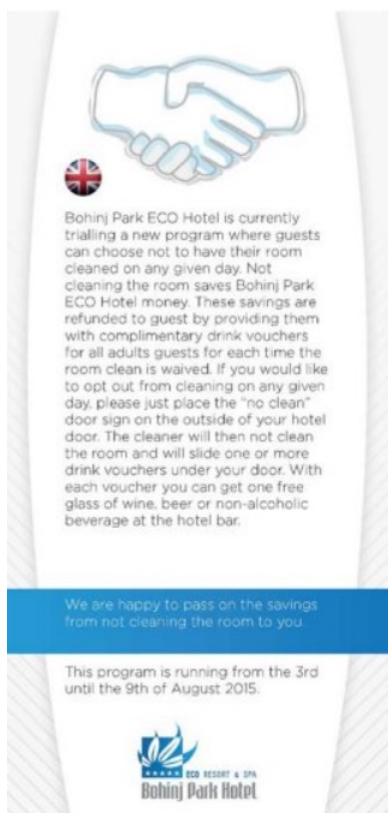
2.1.2 Offer to share savings from not cleaning the room.



Suitable for hotels/accommodation providers that offer room cleaning during the stay.

Practical measure - Offer to share the savings from waiving the room cleaning with guests by offering them a drink voucher (or equivalent) at the hotel bar for each time they waive a daily room clean. It is important that the guests understand that the savings are shared, rather than just being “bribed”. This is because the sharing counteracts suspicions that hotels implement environmental initiatives only to make more profit.

The original signs used:



Sign A - "Bohinj Eco Hotel is currently trialling a new program where guests can choose to not have their room cleaned on any given day. Not cleaning the room saves Bohinj Park ECO Hotel money. These savings are refunded to guests by providing them with complimentary drink vouchers for all adult guests for each time the room clean is waived. If you would like to opt out from cleaning on any given day, please just place the "no clean" door sign on the outside of your hotel door. The cleaner will then not clean the room and will slide one or more drink vouchers under your door. With each voucher you can get one free glass of wine, beer, or non-alcoholic beverage at the hotel bar. We are happy to pass on the savings from not cleaning the room to you."



Sign B - "Bohinj Eco Hotel is currently trialling a new program where guests can choose to not have their room cleaned on any given day. The daily clean of a room has negative environmental impacts. It uses 1.5 kWh of electricity and 100 ml of chemicals which are released into the environment. With one billion tourists per year spending many billion nights in hotels, hotel room cleaning places a massive burden on the environment. Bohinj Park ECO Hotel cares about the environment. We therefore offer you to choose—every day—whether you want your room cleaned or not. You can make a difference. You can reduce the environmental burden of your stay by opting out of daily room cleaning. If you would like to opt out from cleaning on any given day, please just place the "no clean" door sign on the outside of your hotel door. The cleaner will then not clean the room. Please make a difference. Reduce the environmental burden of your hotel stay. Opt out of daily room cleaning." Information about electricity and chemicals use included in this statement has been empirically determined at the hotel in which the study was conducted using electricity meters and manual measurements of chemicals used. These values may differ from those in other four-star hotels."



Sign C - "Bohinj Eco Hotel is currently trialling a new program where guests can choose to not have their room cleaned on any given day. The daily clean of a room has negative environmental impacts. It uses 1.5 kWh of electricity and 100 ml of chemicals which are released into the environment. With one billion tourists per year spending many billion nights in hotels, hotel room cleaning places a massive burden on the environment. Bohinj Park ECO Hotel cares about the environment. We therefore offer you to choose—every day—whether you want your room cleaned or not. You can make a difference. You can reduce the environmental burden of your stay by opting out of daily room cleaning. If you would like to opt out from cleaning on any given day, please just place the "no clean" door sign on the outside of your hotel door. The cleaner will then not clean the room. Please make a difference. Also, cleaning the room saves Bohinj Park ECO Hotel money. These savings are refunded to guests by providing them with complimentary drink vouchers for all adult guests for each time the room clean is waived. If you would like to opt out from cleaning on any given day, please just place the "no clean" door sign on the outside of your hotel door. The cleaner will then not clean the room and will slide one or more drink vouchers under your door. With each voucher you can get one free glass of wine, beer, or non-alcoholic beverage at the hotel bar. Reduce the environmental burden of your hotel stay. Opt out of daily room cleaning. We are happy to pass on the savings from not cleaning the room to you."

Scientific evidence - Dolnicar et al. (2019b) achieved daily room clean waiving rates of 41% with sign A, only 16% for sign B and 32% for sign C. Without any signs, only about 3% of daily routine room cleans were waived in this hotel.

2.2 Towel reuse

2.2.1 Ask guests to commit to reusing their towels.



Suitable for hotels/accommodation providers that replace towels in guest rooms regularly.

Practical measure - Invite guests to commit to towel reuse.

The original signs used:

Sign A – “Dear Guest, in an effort to conserve natural resources, our hotel has implemented a towel reuse program. We can become committed advocates. Only the towels placed in the shower will be replaced.”

Sign B – “Dear Guest, in an effort to conserve natural resources, our hotel has implemented a towel reuse program. We can become committed advocates. Only the towels placed in the shower will be replaced. To support our commitment, please hang this card on your bedroom door.”

Sign C – “Dear Guest, most of our guests express a desire to preserve natural resources. When an opportunity is provided, over 75% of them choose to reuse their bath towels. To respond to this, our hotel has set up a towel reuse program. You can help us become committed actors. Only the towels placed in the shower will be replaced. To support our commitment, please hang this card on your bedroom door.”

Sign D – “Dear Guest, most of our guests express a desire to preserve natural resources. When an opportunity is provided, over 75% of them choose to reuse their bath towels. To respond to this, our hotel has set up a towel reuse program. You can help us become committed actors. Only the towels placed in the shower will be replaced.”

Scientific evidence - Terrier et al. (2025) conclude that signs B, C and D all reduce the number of towels replaced each day (1.55-1.63 towels replaced per day), compared to sign A (1.95 towels replaced per day).

2.2.2 Ask guests to commit and offer them a publicly visible pin.

Suitable for hotels/accommodation providers that replace towels in guest rooms regularly.

Practical measure - Ask guests to commit to reusing their towel and offer them a wearable pin to show their commitment publicly.

The original signs used:

Sign A: “(Hotel Name) has long been a steward of the environment. Here at (hotel name), we have a number of efforts in place to care for our planet ranging from water and energy conservation, recycling and low-emission vehicles to eco-conscious options for resort guests. I care about the environment at home and when I travel. As a friend to the earth, I will do my best to save water and energy by re-using my towels during my stay.” (check yes or no)”

Sign B: “(Hotel Name) has long been a steward of the environment. Here at (hotel name), we have a number of efforts in place to care for our planet ranging from water and energy conservation, recycling and low-emission vehicles to eco-conscious options for resort guests. I care about the environment at home and when I travel. As a friend to the earth, I will do my best to practice environmentally friendly behavior during my stay.” (check yes or no)”

Some guests were offered a pin if they committed and some were not offered a pin.

Scientific evidence - Baca-Motes et al. (2013) conclude that guests who saw sign A (commitment) and received a pin reused their towels 35.4% of the time, compared to a baseline of only 24.4%. Sign A without the pin and sign B with and without the pin also decreased towel reuse, but to a lesser extent.

2.2.3 Designate a specific area for towel reuse/replacement.

Suitable for hotels/accommodation providers that replace towels in guest rooms regularly.

Practical measure - Designate a unique area which is similar to their home habits for guests to place their towels if they want them to be reused or replaced.

The original signs used:

Sign A: “Save Our Planet. Dear Guests: Every day, millions of gallons of water are used to wash towels that have been used only once. You make the choice: A towel on the bathroom door hook means “I will use again”. A towel in the laundry hamper means “Please exchange”. Please decide for yourself. Thank you for helping us to conserve the Earth’s vital resources”.

Sign B: ““Save Our Planet. Dear Guests: Every day, millions of gallons of water are used to wash towels that have been used only once. You make the choice: A towel in the bathtub means “I will use again”. A towel on the towel rack means “Please exchange”. Please decide for yourself. Thank you for helping us to conserve the Earth’s vital resources”.

Scientific evidence - Bapuji et al. (2012) conclude that sign A (designating unique locations for reuse/replacement) reduced towel replacement by 30%, compared to sign B.

2.2.4 Communicate that others are reusing their towels.



Suitable for hotels/accommodation providers that replace towels in guest rooms regularly.

Practical measure - Display a message that tells guests that most other guests (particularly those who stayed in the same room) reused their towels because it's good for the environment.

Example 1

The original signs used:

Sign A: "Dear Guests! Please help us to protect our environment by re-using your towels. Towels you do not want to use again should be put on the floor. Thank you."

Sign B: "Dear Guests! Follow your fellow hotel guests and please help our environment: 75% of our hotel guests re-use their towels. You can join the other hotel guests by also re-using your towel. Towels you do not want to use again should be put on the floor. Thank you."

Sign C: "Dear Guests! Follow your fellow guests and please help us to protect our environment: 75% of our guests who were in this room re-use their towels. You can join the other guests of this room by also re-using your towel. Towels you do not want to use again should be put on the floor. Thank you."

Scientific evidence - Reese et al. (2014) conclude that people who saw sign C (using a norm of guests who stayed in the same room) used less towels per guest per day (1.05 per guest per day) than those who saw sign A (1.32 per guest per day) or B (1.63 per guest per day).

Example 2

The original signs used:

Study 1:

Sign 1A: "Many of our guests have expressed to us their approval of conserving energy. Because so many guests value conservation and are in the habit of conserving, this hotel has initiated a conservation program."

Sign 1B: "Some of our guests have expressed to us their approval of conserving energy. Because some guests value conservation, this hotel has initiated a conservation program."

Sign 1C: "Nearly 75% of hotel guests choose to reuse their towels each day. To support our guests who want to conserve, this hotel has initiated a conservation program."

Sign 1D: "Nearly 25% of guests choose to reuse their towels each day. To support our guests who want to conserve, this hotel has initiated a conservation program."

Sign 1E: "Nearly 75% of hotel guests choose to reuse their towels each day. To support our guests who want to conserve, this hotel has initiated a conservation program. Many of our guests have expressed to us their approval of conserving energy. Because so many guests value conservation and are in the habit of conserving, this hotel has initiated a conservation program."

Sign 1F: "This hotel has initiated a conservation program."

Study 2:

Sign 2A: "Many of our hotel guests have expressed to us their approval of conserving energy. When given the opportunity, nearly 75% of hotel guests choose to reuse their towels each day. Because so many guests value conservation and are in the habit of conserving, this hotel has initiated a conservation program. If you would like your towels replaced, please leave your used towels on the bathroom floor. Towels left hanging on the towel rack tell us that you want to reuse them."

Sign 2B: "If you would like your towels replaced, please leave your used towels on the bathroom floor. Towels left hanging on the towel rack tell us that you want to reuse them."

Study 3:

Sign 3A: “If you would like your towels replaced, please leave your used towels on the bathroom floor. Towels left hanging on the towel rack tell us that you want to reuse them ... PLEASE REUSE YOUR TOWELS.”

Sign 3B: “Many of our guests have expressed to us the importance of conserving energy. When given the opportunity, nearly 75% of hotel guests choose to reuse their towels each day. Because so many guests value conservation and want to conserve, this resort has initiated a conservation program. Washing towels every day uses a lot of energy, so reusing towels is one way you can conserve. If you would like your towels replaced, please leave your used towels on the bathroom floor. Towels left hanging on the towel rack tell us that you want to reuse them ... PLEASE REUSE YOUR TOWELS.”

Sign 3C: “Many of our guests have expressed to us the importance of conserving energy. When given the opportunity, ____% of guests in this room (condo #X) chose to reuse at least one of their towels each day. Because so many guests value conservation and want to conserve, this resort has initiated a conservation program. Washing towels every day uses a lot of energy, so reusing towels is one way you can conserve. If you would like your towels replaced, please leave your used towels on the bathroom floor. Towels left hanging on the towel rack tell us that you want to reuse them...PLEASE REUSE YOUR TOWELS.”

Scientific evidence - Study 1 by Schultz et al. (2008) shows that sign 1E (majority and environmental care norm) reduced towel replacement to 1.51 towels per night, compared to 1.67 towels for the other sign groups combined. In study 2, they replicate this finding with sign 2A (majority and environmental care norm) leading to towel replacement of 1.74 towels per night, compared to 2.32 towels for sign 2B. In study 3, signs 3B (majority and environmental care norm: 2.02 towels per day) and 3C (specific room and environmental care norm: 2.19 towels per day) reduced towel use compared to sign 3A (2.44 towels per day).

Example 3**The original signs used:**

Sign A: “Help to save the environment. Every day we clean a great number of towels, many of them are unused. Please help us to protect the environment. You can join us in this program to help save the environment by reusing your towel during your stay.”

Sign B: “Join your fellow guests in helping to save the environment. In a study currently conducted, 75% of the guests participated in our new resource savings program by using their towel more than once. You can join your fellow guests in this program to help save the environment by reusing your towel during your stay.”

Sign C: “Join your fellow guests in helping to save the environment. In a study currently conducted, 75% of the guests who stayed in this room (room number X) participated in our new resource savings program by using their towel more than once. You can join your fellow guests in this program to help save the environment by reusing your towel during your stay.”

Sign D: “Join your fellow guests in helping to save the environment. In a study conducted in [recent season and year] the fall of 2009, 75% of the guests in our new resource savings program by using their towel more than once. You can join your fellow guests in this program to help save the environment by reusing your towel during your stay.”

Sign E: “Join your fellow guests in helping to save the environment. In a study conducted in the fall of 2009, 75% of the guests who stayed in this room (room number X) participated in our new resource savings program by using their towel more than once. You can join your fellow guests in this program to help save the environment by reusing your towel during your stay.”

Scientific evidence - Study 1 by Bohner et al. (2014) shows that sign B (social norm) increases towel reuse to 86.8%. Signs C, D and E increase reuse rates to a lesser extent.

Example 4

The original signs used:

Study 1:

Sign 1A: “HELP SAVE THE ENVIRONMENT. You can show your respect for nature and help save the environment by reusing your towels during your stay.”

Sign 1B: “JOIN YOUR FELLOW GUESTS IN HELPING TO SAVE THE ENVIRONMENT. Almost 75% of guests who are asked to participate in our new resource savings program do help by using their towels more than once. You can join your fellow guests in this program to help save the environment by reusing your towels during your stay.”

Study 2:

Sign 2A: “HELP SAVE THE ENVIRONMENT. You can show your respect for nature and help save the environment by reusing your towels during your stay.”

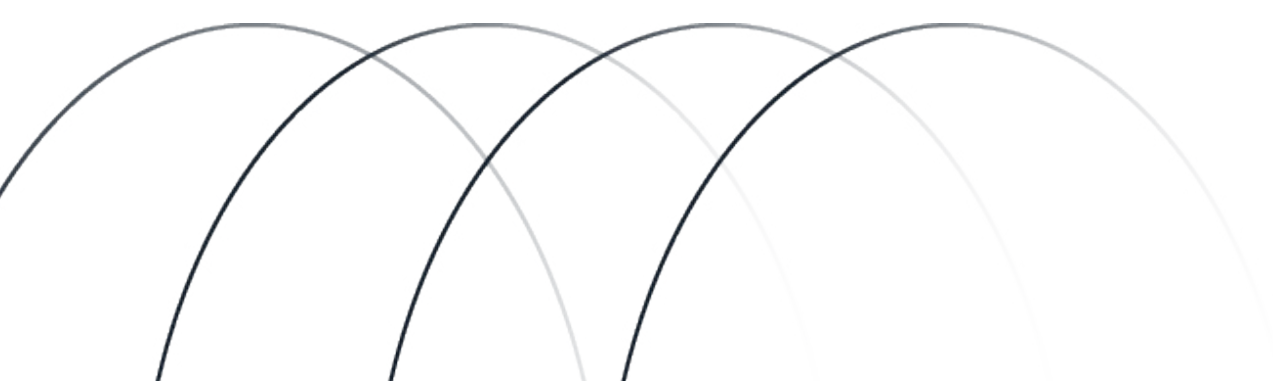
Sign 2B: “JOIN YOUR FELLOW GUESTS IN HELPING TO SAVE THE ENVIRONMENT. In a study conducted in Fall 2003, 75% of the guests participated in our new resource savings program by using their towels more than once. You can join your fellow guests in this program to help save the environment by reusing your towels during your stay.”

Sign 2C: “JOIN YOUR FELLOW GUESTS IN HELPING TO SAVE THE ENVIRONMENT. In a study conducted in Fall 2003, 75% of the guests who stayed in this room (#xxx) participated in our new resource savings program by using their towels more than once. You can join your fellow guests in this program to help save the environment by reusing your towels during your stay.”

Sign 2D: “JOIN THE MEN AND WOMEN WHO ARE HELPING TO SAVE THE ENVIRONMENT. In a study conducted in Fall 2003, 76% of the women and 74% of the men participated in our new resource savings program by using their towels more than once. You can join the other men and women in this program to help save the environment by reusing your towels during your stay.”

Sign 2E: “JOIN YOUR FELLOW CITIZENS IN HELPING TO SAVE THE ENVIRONMENT. In a study conducted in Fall 2003, 75% of the guests participated in our new resource savings program by using their towels more than once. You can join your fellow citizens in this program to help save the environment by reusing your towels during your stay.”

Scientific evidence - Study 1 by Goldstein et al. (2011) shows that sign 1B (general guests’ social norm; 44.1% reuse) produced higher reuse rates than sign 1A (placebo: 35.1% reuse). Study 2 shows that sign 2C (specific guests’ social norm) leads to the highest towel reuse rate (49.3%). Signs 2B, 2D and 2E produced higher rates of towel reuse than sign 2A but are less effective than sign 2C in study 2.



2.2.5 Communicate an environmental message.

Suitable for hotels/accommodation providers that replace towels in guest rooms regularly.

Practical measure - Display a message which tells guests that reusing their towels is good for the environment.

Example 1**The original signs used:**

Sign A: “PLEASE USE YOUR TOWELS MORE THAN ONCE The majority of guests staying in this room hang up their towels for reuse. Hanging up your towels mean, “I’ll use them again.” Towels on the floor mean, “Please exchange them.”

Sign B: “PLEASE USE YOUR TOWELS MORE THAN ONCE This action will decrease water use, energy consumption and chemical detergents on the island. Hanging up your towels mean, “I’ll use them again.” Towels on the floor mean, “Please exchange them.”

Sign C: “PLEASE USE YOUR TOWELS MORE THAN ONCE The majority of guests staying in this room hang up their towels for reuse. This action will decrease water use, energy consumption and chemical detergents on the island. Hanging up your towels mean, “I’ll use them again.” Towels on the floor mean, “Please exchange them.”

Sign D: “PLEASE USE YOUR TOWELS MORE THAN ONCE A 100 Baht discount (about \$3.35 USD) will be deducted from the price of this room if the towels are hung up for re-use. Hanging up your towels mean, “I’ll use them again.” Towels on the floor mean, “Please exchange them.”

Scientific evidence - Morgan et al. (2015) show that sign B increases towel reuse rates from 25.5% to 84.5%. The other signs increased towel reuse to a lesser extent.

Example 2

Scientific evidence - Study 2 by Bohner et al. (2014) shows that sign A (environmental appeal) leads to the highest towel reuse rates (93.3%). Signs B, C and D increased towel reuse to a lesser extent.

2.2.6 Let guests know the hotel is doing their best and guest help is needed.

Suitable for hotels/accommodation providers that replace towels in guest rooms regularly.

Practical measure - Display signs to let guests know that the hotel is trying their best and they need the help of the guests to be environmentally friendly by reusing their towels.

The original signs used:

Sign A: “HELP SAVE THE ENVIRONMENT. You can show your respect for nature and help save the environment by reusing your towels during your stay.”

Sign B: “PARTNER WITH US TO HELP SAVE THE ENVIRONMENT. In exchange for your participation in this program, we at the hotel will donate a percentage of the energy savings to a nonprofit environmental protection organization. The environment deserves our combined efforts. You can join us by reusing your towels during your stay.”

Sign C: “WE’RE DOING OUR PART FOR THE ENVIRONMENT. CAN WE COUNT ON YOU? Because we are committed to preserving the environment, we have made a financial contribution to a nonprofit environmental protection organization on behalf of the hotel and its guests. If you would like to help us in recovering the expense, while conserving natural resources, please reuse your towels during your stay.”

Scientific evidence - Goldstein et al. (2011) show that sign C increased towel reuse from 30.7% to 45.2%. Sign B increased towel reuse to a lesser extent.

2.3 Reducing shower-related water and electricity use in hotels

2.3.1 Provide real-time feedback of shower time.



Suitable for hotels/accommodation providers with shower facilities.

Practical measure - Display the duration of showering in real-time to guests, using a sensor and display screen.

Example 1

Scientific evidence - Pereira-Doel et al. (2019) conclude that displaying shower time live while guests shower reduces shower time by 12%.

Example 2

Scientific evidence - Pereira-Doel et al. (2024) conclude that displaying shower time live reduces shower time by 26%.

2.3.2 Provide real-time feedback of consumption from showering with an illustration.



Suitable for hotels/accommodation providers with shower facilities.

Practical measure - Display the duration of showering in real-time to guests, using a sensor and display screen and invite guests to try and beat the average shower time.

The original signs used in combination with displaying shower time:

Sign A: “Water is essential for life! A typical shower here has water running for 3:30 min. Will you beat the clock? Water conservation starts with you. Make a difference!”

Sign B: “Water is essential for life! A typical shower here has water running for 4:50 min. Will you beat the clock? Water conservation starts with you. Make a difference!”

Sign C: “You can choose to feel great. A typical shower here has water running for 3:30 min. Will you beat the clock? Water conservation starts with you. Be proud!”

Sign D: “You can choose to feel great. A typical shower here has water running for 4:50 min. Will you beat the clock? Water conservation starts with you. Be proud!”

Sign E: “Aguardio informs you how long the water runs for. Turn on the water and the timer starts; turn off the water, the timer stops. Enjoy your shower!”

Scientific evidence - Study 2 by Pereira-Doel et al. (2024) concludes that displaying shower time live and using sign A (inviting guests to beat a short average shower time) reduced shower time by 24%. Notably, signs C and D actually increased shower duration.

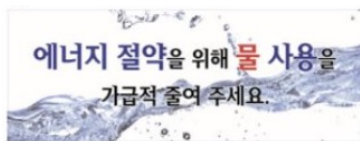
2.3.3 Have guests commit to conserve water.



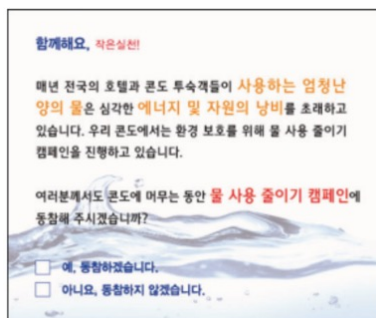
Suitable for hotels/accommodation providers with shower facilities.

Practical measure - Give guests a commitment form to sign that they pledge to save water and help the environment.

The original signs used:



Sign A - translation: “To save water and energy, please use water wisely.”



Sign B - translation: “Please join our campaign! Every year, the huge amount of water used by hotel guests throughout the country causes a serious waste of energy and resources. In this hotel, for the purpose of environmental protection, a water-saving campaign has been launched. Will you participate in the water-saving campaign during your stay?” with sign A on the bathroom mirror reminding them “To save water and energy, please use water wisely.”



Sign C - translation: “Our hotel has launched a water-saving campaign and the savings from the campaign will be used to protect the environment. Many guests who have stayed in the hotel have participated in our campaign, and as a consequence, we achieved the desired water-savings results. Thank you in advance for your cooperation”

Scientific evidence- Joo et al. (2018) conclude that Sign B (commitment and environmental appeal) reduced shower water use by 16 liters. Sign A and C reduced water usage from showers to a lesser extent.

2.4 Reducing in-room electricity use for heating and air conditioning

2.4.1 Give them a timed controller.



Suitable for budget tourist accommodation providers.

Practical measure - Change heater and air conditioner operation to a one-button system only that allows guests to switch the heater or air conditioner on for a limited amount of time. There is no limitation how frequently the guests can press the button.

The original button used: “on/off” buttons were installed for the room-heaters, which were programmed to turn off automatically after two-hours.

Scientific evidence - Dolnicar et al. (2023) produced a 60% reduction in energy consumption by installing these timed buttons.

3 Restaurants and food providers:

3.1 Eating up everything taken from the all-you-can-eat buffet

3.1.1 Reduce plate size.



Suitable for eateries that offer all-you-can-eat buffets.

Practical measure - Offer patrons smaller plates (recommended diameter: 21cm).

Scientific evidence- Kallbekken and Sælen (2013) conclude that reducing the diameter of the breakfast (and if applicable, lunch and dinner) buffet plates from 24cm to 21cm led to 19.5% less total plate waste. Similarly, Wansink et al. (2013) find that increasing the plate diameter from 21cm to 26.5cm increases food waste by 135.2%.

3.1.2 Explain that returning to the buffet for more is better than taking too much at once.



Suitable for eateries that offer all-you-can-eat buffets.

Practical measure - Put a sign on the dining tables that tells patrons that it is better to return to the buffet many times to take food rather than overfilling their plates on the first trip.

The original signs used:

“Welcome back! Again! And again! Visit our buffet many times. That’s better than taking a lot once”

Scientific evidence - Kallbekken and Sælen (2013) achieved a plate waste reduction of 20.5% with this sign.

3.1.3 Avoid rolling carts for buffet service.



Suitable for eateries that offer all-you-can-eat buffets.

Practical measure - Do not use rolling carts. Offer a fixed buffet service instead. You can reduce plate waste by also displaying a sign which appeals to consumers' moral obligation and offers a discount if the table leaves behind zero uneaten food.

The original signs used:

2021 Study 1:



Sign 1A (penalty) translation: "If food is wasted, each customer at the table will be assessed a penalty of 200 New Taiwan Dollars."



Sign 1B (discount) translation: "For every table of 1-4 persons, if no food is wasted, each customer will be given a 20% discount on the cost of the meal."



Sign 1C (moral persuasion) translation: "Cherish the earth; treasure its food."

2021 Study 2, and 2022 Study 1 (same signs, different text):



Sign 2A (penalty plus moral persuasion) translation: "Cherish the Earth, treasure its food. If food is wasted, each customer at the table will be assessed a penalty of 200 new Taiwan dollars."



Sign 2B (discount plus moral persuasion) translation: "Cherish the Earth, treasure its food. For every table of 1-4 persons, if no food is wasted, each customer will be given a 20% discount on the cost of the meal."



Sign 2C (moral persuasion) translation: "Cherish the Earth, treasure its food. Reduce the carbon footprint"

Scientific evidence - Chang et al. (2021) conclude that sign 2B (discount plus moral persuasion) reduced plate waste during the cart service to 121.62 grams per person from 160.44 grams (cart service business-as-usual). For the fixed buffet service, food waste was reduced to 26.31 grams from 123.51 grams (fixed buffet business-as-usual). Signs 1A, 1C, 2A and 2C also reduced plate waste, but to a lesser extent.

3.1.4 Offer a family stamp collection game at the buffet.



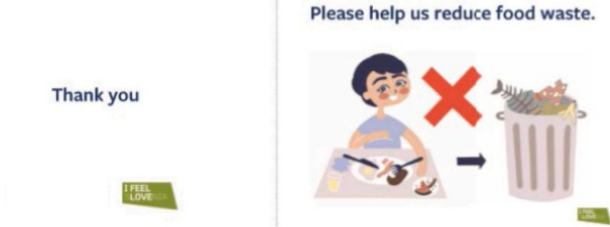
Suitable for eateries that offer all-you-can-eat buffets and have a sizeable proportion of families among their patrons.

Practical measure - At check-in, invite families to participate in a stamp collection game. If they are interested, give them a stamp collection pass booklet. This can be a simple A4 piece of paper with their travel dates. At each meal, if the family eats up everything they have taken from the buffet, they can get a stamp from a waiter. Families that have a stamp for every meal they attended receive a small prize, such as an inflatable ball (the original study’s prize), or a more environmentally sustainable alternative like a free ice cream or drink (preferable).

The original signs used:



Sign 1A



Sign 2A



Combination of 2A and 1A: “(stamp booklet with environmental appeal on the first page)

Scientific evidence - Dolnicar at al. (2020) conclude that stamp booklet 2A reduced plate waste caused by families by 34%. Adding the environmental appeal (2B) led to no additional improvements.

3.1.5 Offer to go in a draw to win a luxury dessert.

Suitable for eateries that offer all-you-can-eat buffets.

Practical measure - At every all-you-can-eat meal inform guests that they can get a ticket to go in the draw to win a luxury dessert if they leave zero food waste behind. Draw one winner at every meal service.

The original signs used:

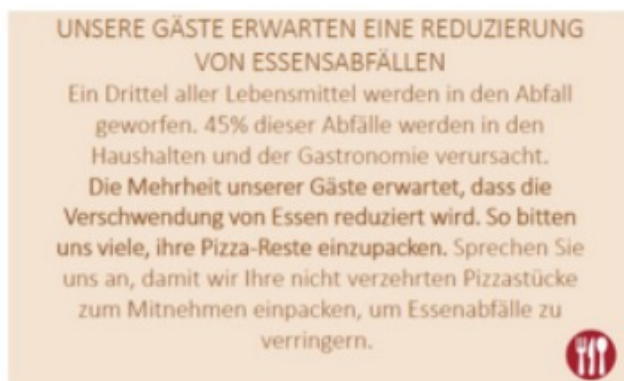
Sign reads: ““Would you enjoy winning a Sweet delight at restaurant Taverna? All you need to do is finish all the food you’ve taken and ask the waiter for a raffle ticket. Fill out the raffle ricket and drop it into a raffle box at the entrance to the restaurant.”

Scientific evidence - Greene et al. (2024) produced a 17% reduction in food waste from the dinner buffet using this sign and raffle.

**3.1.6 Invite guests to request a to-go box.**

Suitable for a la carte dine-in food service providers.

Practical measure - Offer a takeaway box so patrons can take their leftovers home with them and display signs informing patrons of the environmental consequences of food waste.

The original signs used:

Sign A - translation: “Our guests expect a reduction in food waste. A third of all foods are thrown away; 45% of it by households and restaurants. Most of our guests expect that wasteful food behavior should be reduced. Many guests ask us to pack their pizza leftovers. Please ask us to box so you can take your leftover pizza slices home to reduce food waste”



Sign B - translation: “Food waste happens in the restaurant too. A third of all foods are thrown away. 45% of waste occurs in households and restaurants. Please ask us to box your leftover pizza slices for takeaway to avert food waste.”

Scientific evidence - Stockli et al. (2018) increased the proportion of patrons taking leftovers home from 25% to 64%. Sign B is also effective, but to a lesser extent.

3.1.7 Invite guests to request a doggy bag; tell them that many guests do so.



Suitable for a la carte dine-in food service providers.

Practical measure - Offer a bag for patrons to take food leftovers home with them. Display signs informing patrons that an increasing number of patrons asks for a doggy bag.

The original signs used:



Sign A - translation: “An increasing number of Italian restaurant guests are asking for doggy bags to take their leftovers home. If you want, you can ask your waiter for a doggy bag here”



Sign B - translation: “At the end of your meal, the wait staff will give you a doggy bag with your plate leftovers. If you do not want the doggy bag today, please let your waiter know”

Scientific evidence - Giaccherini et al. (2021) showed that sign A increases the number of doggy bags taken from 0.68 per day to 1.41 doggy bags taken per day. Sign B did not work, suggesting it is important to explain that other patrons ask for doggy bags also.

3.2 Food/drink choice

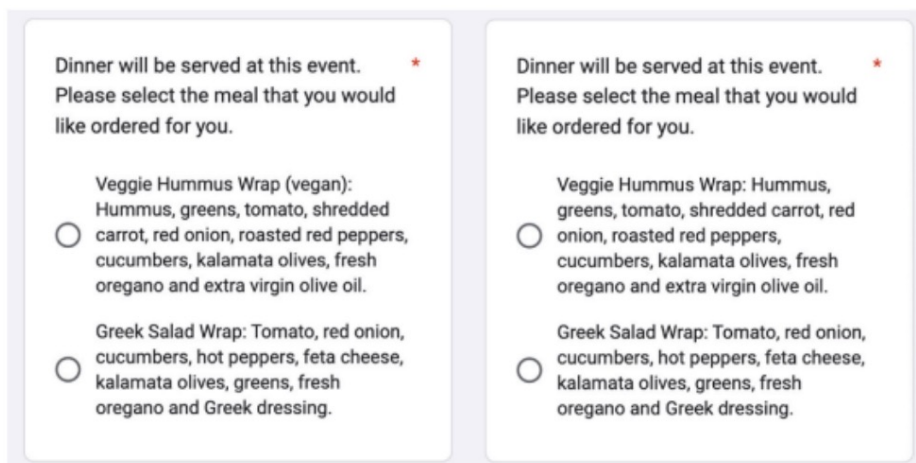
3.2.1 Don't label options as “vegan”.



Suitable for catered events where guests choose their meal from set options.

Practical measure - Avoid labelling the menu items as “vegan” and instead simply describe the dish and its ingredients.

The original signs used:



Sign A – Labeled

Sign B – Unlabeled

Scientific evidence - Study 1 by Berke et al. (2023) shows that Sign A (vegan labelling) led to 36% ordering of the vegan meal, compared to 60.7% when the meal was not labelled as vegan. In study 2, they replicated these findings – only 33.9% ordered the vegan option when it was labelled as vegan, compared to 63.8% when it was not labelled as such.

3.2.2 Label the lowest-emission option from each section of the menu.



Suitable for a la carte dine-in food service providers.

Practical measure - Highlight the low-emissions option on the menu by adding a logo.

The original signs used:

Leaf logo in top left corner signifying low carbon dish.

Scientific evidence - Casati et al. (2023) conclude that guests are 20% more likely to order low-emissions meals when the logo was displayed next to the meal on the menu.



3.2.3 Highlight locally sourced foods.

Suitable for eateries offering all-you-can-eat buffets

Practical measure - Display a message on the buffet informing guests about how local each food item is. Include an endorsement from the general manager (using their photo, name and position).

The original signs used:

Sign 1A: “Enjoy the tastiness and the freshness of our lettuce!”

Sign 1B: “Here you can find information about the nutritional values of our lettuce: For 100 gr (1 portion) – Energy Kcal: 15 Kcal, Saturated fat: 0.01 gr ☺, Protein: 1.4 gr, Sugar: 0.8 gr, Salt: 0.02 gr ☺.”

Sign 1C: “Here you can find information about the environmental impact of our lettuce: For 100gr (1 portion) –Carbon footprint: 0.043 Kg per al KM ☺ The carbon footprint refers to the CO₂ emission attributable to the transportation of lettuce.”

Sign 1D: “Here you can find information about the provenance of our lettuce: Farm name, place, grown [X] meters from the hotel, made in the region.”

Sign 2A: “Enjoy the tastiness and the freshness of our lettuce!” (hotel general manager’s photo, name and position included as endorsement of the message).

Sign 2B: “Here you can find information about the nutritional values of our lettuce: For 100 gr (1 portion) – Energy Kcal: 15 Kcal, Saturated fat: 0.01 gr ☺, Protein: 1.4 gr, Sugar: 0.8 gr, Salt: 0.02 gr ☺.” (hotel general manager’s photo, name and position included as endorsement of the message).

Sign 2C: “Here you can find information about the environmental impact of our lettuce: For 100gr (1 portion) –Carbon footprint: 0.043 Kg per al KM ☺ The carbon footprint refers to the CO₂ emission attributable to the transportation of lettuce.” (hotel general manager’s photo, name and position included as endorsement of the message).

Sign 2D: “Here you can find information about the provenance of our lettuce: Farm name, place, grown [X] meters from the hotel, made in the region.” (hotel general manager’s photo, name and position included as endorsement of the message).

Scientific evidence - Cozzio et al. (2021) conclude that Sign 2D (the local message with general manager endorsement) increased lettuce consumption by 17.08 grams per person, compared to sign 1A (placebo), which had an average of 7.1 grams of per person. Signs 1B, 2B, 1D and 2A also increased lettuce consumption to lesser extent.

3.2.4 Donate for reforestation to entice ordering of vegetarian dishes.



Suitable for a la carte dine-in food service providers.

Practical measure - Display signs to let customers know that the restaurant will donate to a reforestation charity for every vegetarian dish ordered.

The original signs used:



Sign A - “Want to save the environment while eating delicious pasta? Choose a vegetarian option! Every dish can make a difference.”



Sign B - “Want to save the environment while eating delicious pasta? Choose a vegetarian option! For every vegetarian pasta dish ordered, we will plant a tree in cooperation with Eden Reforestation Projects.” At the bottom of the poster was the following information: “Eden Reforestation Projects is an environmental nonprofit organization that plants trees at a price of \$0.10 per tree.”



Sign C - “Want to save the environment while eating delicious pasta? Choose a vegetarian option! For every vegetarian pasta dish ordered, we will make a donation of 10 cents to Eden Reforestation Projects.” At the bottom of the poster was the following information: “Eden Reforestation Projects is an environmental nonprofit organization that plants trees at a price of \$0.10 per tree.”

Scientific evidence - Lange et al. (2023) conclude that guests are more likely to order vegetarian dishes with sign B (money donation: 45%) and sign C (planting a tree: 41%) compared to ordering without any signs (30%).

3.2.5 Highlight how tasty environmentally sustainable food options are.

Suitable for a la carte dine-in food service providers.

Practical measure - Highlight the enjoyment of environmentally friendly options on the menu, by displaying a message letting the guests know the green option tastes good.

The original signs used (The vegetarian items were positioned first on the menu):



Sign A – translation:
“Many here choose green!”



Sign B – translation:
“The green option tastes good!”



Sign C – translation:
“The green option feels good!”

Scientific evidence - Reinoldsson et al. (2022) conclude that sign B (enjoyment reminder) increased vegetarian ordering by 10% compared to the baseline. The other manipulations did not increase vegetarian ordering.

3.2.6 Show the carbon footprint and increase the price accordingly.

Suitable for a la carte dine-in food services offering a wine selection.

Practical measure - Give guests a card showing the carbon footprint of different wines on the menu and adjust wine prices proportionately higher for the wine’s carbon footprint.

The original signs used:

Card 1 information: price (10 euros).

Card 2 information: price (10 euros), CO₂ emissions per bottle

Card 3 information: CO₂ emissions per bottle, final price (increased relative to CO₂ emissions per bottle).

Card 4 information: price (10 euros), CO₂ emissions per bottle, price contribution due to CO₂ value, final price (increased relative to CO₂ emissions per bottle).

Scientific evidence - Soregaroli et al. (2021) conclude that card 3 (CO₂ footprint and a relative price increase) increased low-emission wine ordering. Card 4 (CO₂ footprint and an explicit increase due to CO₂ emissions) actually increased high-emission wine ordering.

3.2.7 Show that other people are ordering vegetarian.



Suitable for low to mid-range a la carte dine-in food service providers.

Practical measure - Display a message highlighting that other customers are ordering vegetarian dishes.

The original signs used:

"We've noticed that our customers are starting to order our meatless dishes for lunch more often. We delight in bringing you the best of Italian food inspired by California's bounty: all of our dishes feature carefully sourced ingredients and fresh produce."

Scientific evidence - Sparkman et al. (2020) conclude that the sign increased vegetarian ordering by 2.2% at lunch. At dinner, the sign actually decreased vegetarian ordering.

3.2.8 Change the default to vegetarian.



Suitable for dine-in food service providers with a menu.

Practical measure - Change the default dishes to vegetarian and offer meat upon request.

The original signs used:



Sign 1A – text reads: “Richly filled wrap with chicken, grilled vegetables and guacamole. Rather have a richly filled wrap with beans (v)? This is also possible on request.”



Sign 1B – text reads: “Richly filled wrap with beans, grilled vegetables and guacamole (v). Rather have a richly filled wrap with chicken? This is also possible on request.”



Sign 2A – text reads: “Richly filled wrap with chicken, grilled vegetables and guacamole. Rather have a richly filled wrap with seaweed (v)? This is also possible on request.”



Sign 2B – text reads: “Richly filled wrap with seaweed (v), grilled vegetables and guacamole. Rather have a richly filled wrap with chicken? This is also possible on request.”

Scientific evidence - Taufik et al. (2022) conclude that presenting vegetarian meals as the default substantially increased vegetarian ordering. Sign 1A (bean default) led to 80% vegetarian ordering, compared to sign 1B (chicken default: 8.6% vegetarian ordering). Sign 2A (seaweed default) had a similar effect, producing 53.8% vegetarian ordering, compared to sign 2B (chicken default: 16.1% vegetarian ordering).

3.3 Avoiding single-use plastic bags.

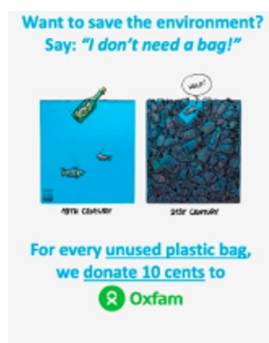
3.3.1 Offer to make a donation for each plastic bag refused.



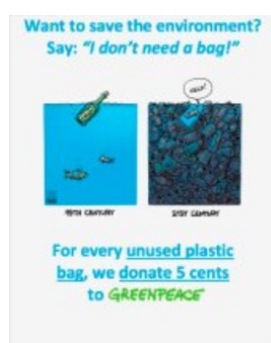
Suitable for takeaway food outlets.

Practical measure - Place a sign at the checkout counter, which appeals to the environment and shows that the restaurant donates a small sum for each unused plastic bag, for example, a 10-cent donation to Oxfam for every unused plastic bag.

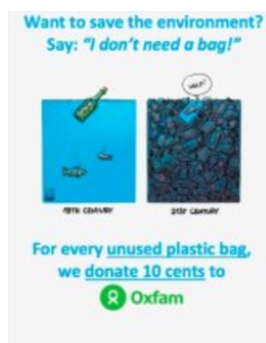
The original signs used:



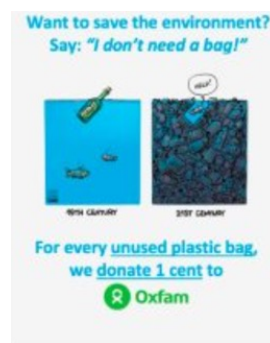
Sign A



Sign B



Sign C



Sign D



Sign E

Scientific evidence - Lange et al. (2021) conclude that sign A (10 cent donation to Oxfam) reduced plastic bag use from 32% to 10%. Signs B, C and D reduced plastic bag use to a lesser extent.

3.4 Reducing the use of thick cotton serviettes

3.4.1 Change the default to recycled single-use serviettes.



Suitable for la carte dine-in food service providers and all-you-can-eat buffet restaurants.

Practical measure - Provide environmentally friendly recycled paper serviettes on dining tables instead of white, thick cotton serviettes that need to be washed and ironed after each use. Make thick cotton serviettes available upon request, to preserve guest satisfaction.

The original message used:

"Washing and ironing cloth serviettes is bad for the environment. We therefore offer paper serviettes at breakfast. But if you would like to use a cloth serviette, please feel welcome to get one from the buffet table."

Scientific evidence - Dolnicar et al. (2019a) reduced the use of thick cotton serviettes by 95% with this approach.

4 Attractions and theme parks:

4.1 Preventing harmful snorkeling behavior

4.1.1 Educate, then offer a pledge to reef-friendly behavior.



Suitable for boat operators.

Practical measure - Before snorkelers are allowed to enter the reef, require them to 1) watch a short informational video before boarding the vessel and 2) sign a pledge to behave responsibly around the coral.

The original video used:



The original pledge used:

“Most visitors to coral reefs never touch, kick, or stand on the coral. They are careful not to stir up the sand near the coral with their fins. Corals are fragile and, if injured, are slow to recover. Keeping a safe distance from the reef is the best way to ensure these beautiful reefs are here for future generations. If you need to fix your mask or snorkel, it is best to swim away from the reef first. I pledge to be a responsible visitor to the reef by:

- *Being aware of where my fins are at so I don't kick the coral*
- *Treading water instead of standing on the reef*
- *Not stirring up silt near the reef*
- *Keeping a safe distance from all marine organisms.”*

Scientific evidence - Webler and Jakubowski (2016) required snorkelers to watch the information video and sign a pledge before entering the reef. This reduced potentially harmful behaviors from 0.3/minute to 0.06/minute for men and 0.16/minute to 0.04/minute for women.

5 Transportation service providers:

5.1 Increasing public transport

5.1.1 Offer visitors a free trial ticket/transport card.



Suitable for destinations.

Practical measure - Offer people new to the area (recently moved or visiting) a free trial travel card, to entice them to try public transport and form a habit of using it while they visit.

The original offers used:

Offer A main text (translation) reads: “New place to live means new ways to travel and new habits. Our hope is that during the two weeks you’ll travel with us for free you will discover the genius of collective travel. With 1180 buses and trains, 67 stations, 3350 stops and more than 14000 daily routes, Skånetrafiken connected borough with borough, city with countryside and the area with the rest of the world. Don’t miss the chance to travel with Skånetrafiken for free during two weeks.”

For you who just moved in

Güner

Two weeks free travel

Welcome! We hope you are comfortable in your new home. Did you know that most people living in Skåne travel with us? 72% of us living in Skåne travel by public transport occasionally. So join your new neighbours and try it out. Don't miss the chance to travel with Skånetrafiken for free during two weeks, 29 Jan-12 Feb. Go to skanetrafiken.se/justmovedin and order your travel pass today. The card is valid for trips within Skåne. Search for your trip on our homepage or in the Skånetrafiken-app where you can see all the stops, connections and departure times.

Have a nice trip!

PS. The offer is worth 625 SEK

Skånetrafiken

2 weeks FREE 29/1-12/2

Do this:

- 1 Go to skanetrafiken.se/justmovedin
- 2 Type in your personal code
- 3 Receive a confirmation email
- 4 We'll send you your travel card the week before the trial period begins

Your personal code: 9PDNCMZ3

Last reply date: 14/1

jojo Skånetrafiken 1234567890 5

Customer service 0771 77 77 77, use the keyword "campaign"

Offer B main text (translation) reads – “Welcome! We hope you are comfortable in your new home. Did you know that most people in Skåne travel with us? 72% of us living in Skåne travel by public transport occasionally. So join your neighbors and try it out. Don't miss the chance to travel with Skånetrafiken for free during two weeks.”

For you who just moved in

Güner

Four weeks free travel

New place to live means new ways to travel and new habits. Our hope is that during the two weeks you'll travel with us for free will discover the genius of collective travel. With 1180 buses and trains, 67 stations, 3350 stops and more than 14 000 daily routes, Skånetrafiken connects borough with borough, city with countryside and the area with the rest of the world.

Don't miss the chance to travel with Skånetrafiken for free during two weeks, 29 Jan-12 Feb. Go to skanetrafiken.se/justmovedin and order your travel pass today. The card is valid for trips within Skåne. Search for your trip on our homepage or in the Skånetrafiken-app where you can see all the stops, connections and departure times.

Have a nice trip!

PS. The offer is worth 1250 SEK

Skånetrafiken

4 weeks FREE 29/1-12/2

Do this:

- 1 Go to skanetrafiken.se/justmovedin
- 2 Type in your personal code
- 3 Receive a confirmation email
- 4 We'll send you your travel card the week before the trial period begins

Your personal code: 9PDNCMZ3

Last reply date: 14/1

jojo Skånetrafiken 1234567890 5

Customer service 0771 77 77 77, use the keyword "campaign"

Offer C main text (translation) reads – “New place to live means new ways to travel and new habits. Our hope is that during the two weeks you'll travel with us for free you will discover the genius of collective travel. With 1180 buses and trains, 67 stations, 3350 stops and more than 14000 daily routes, Skånetrafiken connected borough with borough, city with countryside and the area with the rest of the world. Don't miss the chance to travel with Skånetrafiken for free during two [sic] -weeks.”

Scientific evidence - Gravert et al. (2021) found that offering any of the information packs/free trial to those who had recently moved had a high claim rate: 44.6% responded to the offer and 84% of those activated their travel cards. Offer C (a 4-week trial) was the most effective and those who received this offer were 15.89% more likely to respond. After the free trial period, Offer C was also the most effective, with 5.63% of cards still active (meaning people were putting money on and using those cards) compared to 3.76% for Offer A and 3.91% for Offer B.

Appendix 2

Oceanside

Assessment of sustainability studies throughout the state

JLL assessed over 500 sustainability studies from various city and regional general plans in California, a clear picture emerges of how communities are approaching sustainability and long-term development. The following observations were made from this research:

- California cities are taking a comprehensive, integrated approach to planning for sustainability. General Plans typically address a wide range of interconnected issues, including land use, transportation, housing, environmental conservation, economic development, public safety and community character.
- A central focus for many cities is managing growth in a sustainable way. This often involves promoting infill development and higher densities in existing urban areas, while preserving open spaces, agricultural lands and natural resources. Many plans emphasize creating compact, walkable neighborhoods with mixed-use development, especially near transit hubs. This approach aims to reduce sprawl, protect the environment and create more vibrant, livable communities.
- Transportation planning is increasingly focused on reducing reliance on private automobiles and promoting alternative modes of travel. Cities are planning for improved public transit systems, expanded bicycle networks and enhanced pedestrian infrastructure. The goal is to create multi-modal transportation systems that improve mobility while reducing traffic congestion and greenhouse gas emissions.
- Housing affordability and diversity is a major concern across California. Plans frequently include strategies to provide a range of housing types and price points to accommodate residents of all income levels and life stages. There's often an emphasis on creating affordable housing near job centers and transit.
- Environmental protection and sustainability are key priorities. Plans commonly include measures to conserve natural resources, protect open spaces and sensitive habitats, improve air and water quality and reduce greenhouse gas emissions. Many cities are also developing specific climate action plans to address the challenges of climate change.
- Economic development strategies focus on creating diverse, resilient local economies. Cities aim to attract and retain businesses, create high-quality jobs and maintain fiscal sustainability. There's often an emphasis on supporting small businesses and enhancing downtown areas or commercial corridors.
- Community character and quality of life are important considerations. Many plans emphasize preserving the unique identity of neighborhoods, protecting historic resources and enhancing public spaces. There's a recognition that a city's character and livability are important factors in its overall sustainability.
- Public health and safety are increasingly integrated into planning efforts. This includes traditional concerns like emergency preparedness and hazard mitigation, as well as newer focus areas like promoting active lifestyles, access to healthy food and environmental justice.

Overall, these plans reflect a holistic approach to sustainability that considers environmental, economic and social factors. While specific priorities and approaches vary based on local conditions, there's a consistent focus on creating livable, resilient communities that can thrive in the long term while addressing pressing challenges like climate change, housing affordability and economic inequality.

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Beverly Wilshire Hotel

