

MEMORANDUM

DATE March 15, 2024

SUBJECT Laguna Beach CAAP – Gap Analysis and Recommendations

Introduction

PlaceWorks is working with the City of Laguna Beach (City) to prepare the City's Climate Action and Adaptation Plan (CAAP), a comprehensive plan to assess and reduce Laguna Beach's greenhouse gas (GHG) emissions and adapt to climate change-related hazards. The CAAP project team recently completed community-wide and government operations GHG inventories for 2018 and 2021, a Climate Change Vulnerability Assessment, and a memo identifying recommended GHG reduction targets. The project team also conducted multiple community engagement activities, including a community-wide open house and discussions with several key stakeholders. Based on the results of these analyses and engagement events, this memo:

- Identifies key climate action and resilience issues.
- Identifies gaps in existing initiatives that fail to address the key challenges in Laguna Beach.
- Proposes several problem statements to initiate strategy development for the CAAP.
- Identifies next steps in the planning process.
- Provides a summary of existing state, regional, and local initiatives, programs, and resources aimed at mitigating GHG emissions and reducing risks from climate hazards (in **Appendix A**).

The goal of this analysis is to provide recommendations for strategy solutions to increase sustainability, reduce GHGs, and increase resilience and adaptation citywide. These recommendations are based on an understanding of the technical climate change-related issues in Laguna Beach as well as the concerns, priorities, and values from community members.

Key Climate Action and Resilience Issues

GHG INVENTORY KEY FINDINGS

The City prepared community-wide and City operations GHG inventories for the calendar years 2018 and 2021 to determine the sources and volume of GHG emissions in Laguna Beach. Based on the assessed activities, the **total community-wide GHG emissions in 2021 were 189,410 metric tons of carbon dioxide equivalent (MTCO_{2e})**, which is a 5 percent increase from 179,610 MTCO_{2e} in 2018 (shown in **Figure 1**). Some of the major sources of community-wide emissions in Laguna Beach include the following.

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- On-road transportation, which includes personal vehicles, commercial vehicles, regional buses, and local trolleys, was the largest source of emissions in 2018 and 2021 at 54 percent of total emissions each year. Vehicle miles traveled (VMT) increased by approximately 9 percent during this period, with a 6 percent increase in GHG emissions.
- Residential energy use was the second-largest contributor to GHG emissions, making up roughly 25 percent of total emissions in 2018 and 2021. Nonresidential energy use was smaller but similarly consistent, making up roughly 12 percent of community-wide emissions. Both residential and nonresidential buildings saw a decline in electricity use between 2018 and 2021. Natural gas use increased over this period in residential buildings but fell in nonresidential structures. Southern California Edison (SCE), the city's main power supplier, sourced a higher proportion of energy from nonrenewable sources, mainly natural gas, in 2021 than in 2018. Fossil fuel-derived energy drives up GHG emissions from all sectors that use electricity, including powering homes and businesses, public facilities and lighting, and water and wastewater treatment.

GHG emissions from City operations totaled 3,070 MTCO₂e in 2021, a 13 percent decline from 3,480 MTCO₂e in 2018, as shown below in **Figure 2**. Below are the key highlights from the City operations inventory.

- Transportation-related GHG emissions, including those associated with the City fleet, transit operations, and employee commute, are among the largest sources of GHG emissions for City operations. Collectively, these sources accounted for 59 percent of City operations emissions in 2018 and 53 percent in 2021. Transit operations and commute emissions declined during this period, likely primarily a result of the City transitioning to an on-demand transit system using smaller vehicles, along with decreased ridership from the COVID-19 pandemic. Trolley fuel use fell 88 percent from 2018 to 2021. Fleet emissions increased, although this is likely a difference in the method used to assess these emissions rather than an increase in fleet activity.
- GHG emissions from electricity and natural gas use at City facilities were the second-largest source of emissions and remained largely unchanged from 2018 to 2021. There was virtually no change in electricity use, while natural gas use decreased by 14 percent. However, the City's sources of electricity became more carbon-intensive in 2021, canceling out the decreased emissions from natural gas.
- GHG emissions from solid waste fell 27 percent, likely due to fewer employees working at City facilities each day due to the COVID-19 pandemic. Similarly, both water use and wastewater generation at City facilities each declined by approximately 7 percent.

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Figure 1: Community-wide GHG Emissions (MTCO₂e) 2018 and 2021

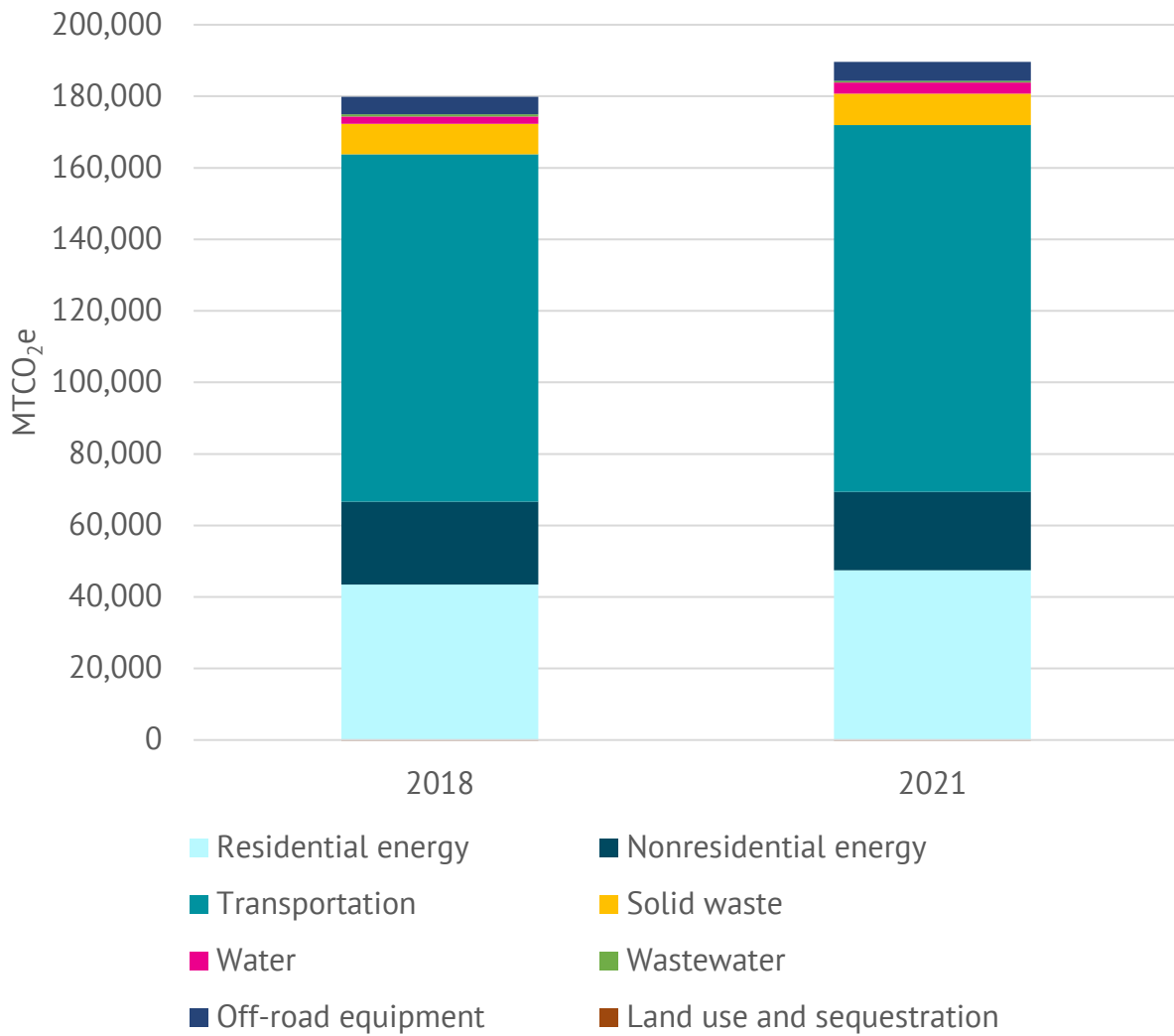
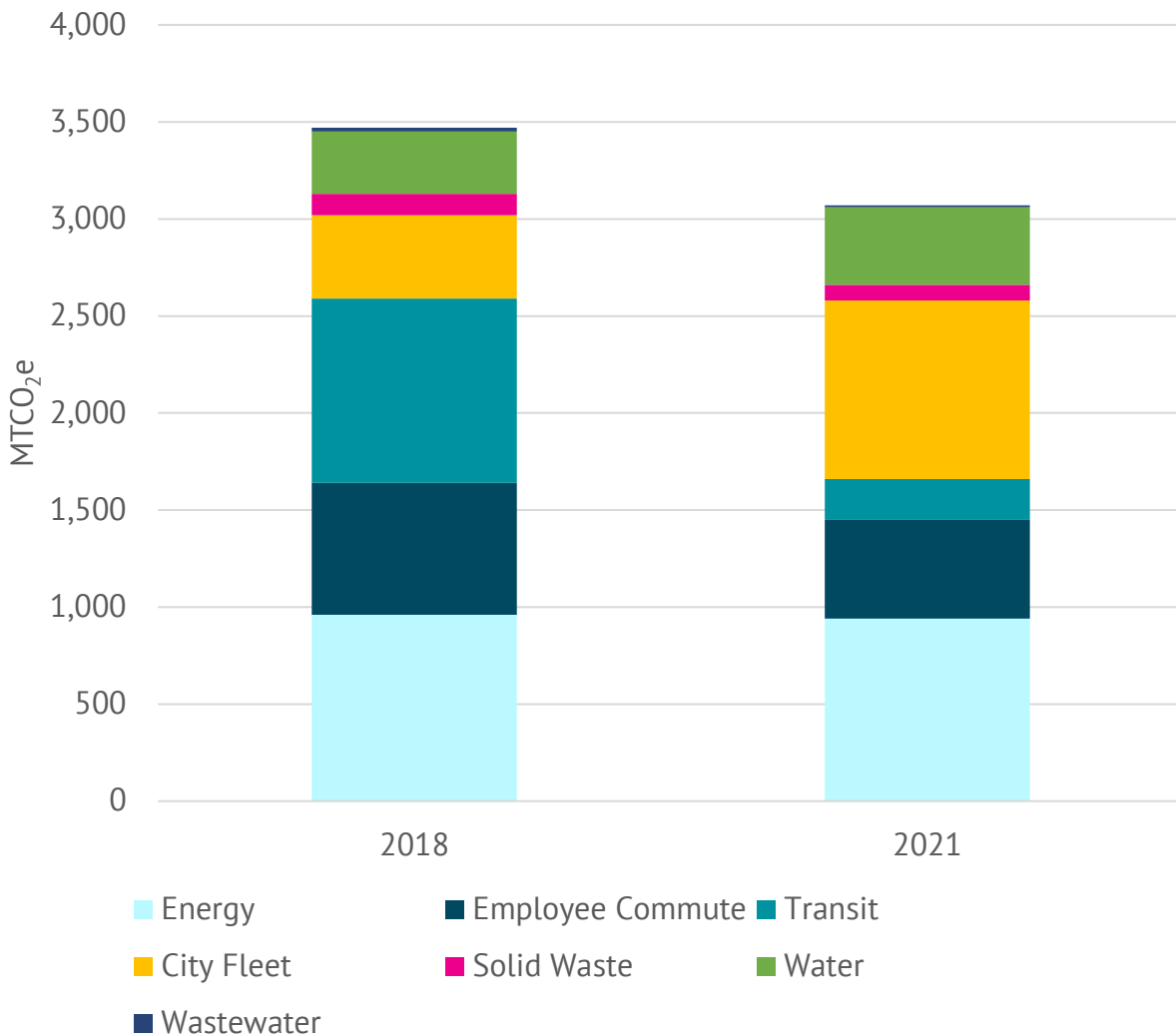


Figure 2: City operations GHG Emissions (MTCO₂e) 2018 and 2021



VULNERABILITY ASSESSMENT KEY FINDINGS

The project team prepared a Climate Change Vulnerability Assessment to analyze the impacts and adaptive capacity of Laguna Beach to climate change hazards. The Vulnerability Assessment identified 13 distinct hazards that pose a threat to Laguna Beach and evaluated the degree to which population groups, aspects of community identity, and community assets are vulnerable to these hazards to identify priority vulnerabilities. Priority vulnerabilities are the people, natural systems, buildings, infrastructure, and community activities that will be the City’s priorities for adaptation and resilience planning based on their level of vulnerability and importance to the community. Given Laguna Beach’s economic reliance on outdoor recreation and tourism and its unique natural features, climate change-related hazards pose a threat to vulnerable populations as well as the economic vitality of the community. Selected key insights from the Vulnerability Assessment are listed below.

- **Wildfire and smoke** create the largest number of priority vulnerabilities in Laguna Beach, and can impact virtually all aspects of the community, including community identity and quality

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of life. Nearly all of the City of Laguna Beach and its surrounding 16,000 acres of open space are designated by CalFire as a Very High Fire Hazard Severity Zone. This designation underscores the significant wildfire risk in the City. The City has a hilly terrain, significant vegetation that is fuel for wildfires and is subject to hot, dry summer and fall seasons and high-speed Santa Ana winds. These conditions are frequently involved in the most destructive fires in the region. Laguna Canyon in particular is severely vulnerable to wildfire given its steep topography, and large areas of Laguna Beach face an elevated risk. Laguna Canyon Road/Highway 133, which serves as a critical evacuation route, may be compromised in the event of a fire. Many artists live in studio spaces in Laguna Canyon due to a lack of affordable housing elsewhere in the community, which not only exposes them to a greater risk of wildfire, but can complicate evacuation efforts, since these spaces are not designated residential units and may not receive adequate evacuation or emergency notifications. Wildfire smoke affects populations with pre-existing health conditions like asthma, as well as workers that spend most of their workday outdoors. Laguna Beach is a coastal community whose beach and outdoor activities serve as a focal point for community identity and a critical component of the local economy, which could be impaired by wildfire smoke.

Tourism and vulnerability

Tourism is a major economic engine for Laguna Beach. The community attracts an estimated 6 million visitors annually, and almost a third of local jobs are in hospitality industries. Visitors come to Laguna Beach for world-renowned beaches, a thriving arts scene, major cultural festivals, and many other reasons.

Many natural hazards can harm Laguna Beach's tourism economy by damaging the community's major attractions, creating widespread economic impacts. A key goal of the CAAP is to help support the Laguna Beach economy so it can continue to thrive in future conditions.

- Given the topography of Laguna Beach, the community is at high risk for **mudflows and landslides**, which is compounded by other hazards like severe storms, drought, and wildfire. According to Laguna Beach's LHMP, approximately a third of community residents live in a landslide hazard zone, exposing them to risks of injury or property damage. Laguna Canyon Road and Pacific Coast Highway run through landslide zones, creating the risk that a landslide may block these roads and restrict ingress and egress to and from Laguna Beach. Landslides in coastal areas can also impact beaches and therefore the economy.
- **Inland flooding** due to consistent moderate or heavy rain places people and infrastructure at risk. The areas considered flood-prone are likely to expand due to climate change as heavy rainfall events are projected to occur more frequently and intensely. Laguna Beach's most prominent flood hazard zones are along Rim Rock Drive and Laguna Canyon Road. These areas face a higher risk of flood-related injury and property damage as a result. Flooding can also exacerbate landslide risk in these zones.
- **Severe weather**, such as intense winds, lightning, and hail, can have severe impacts to populations and infrastructure as well as secondary effects such as scheduled or unplanned

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power outages. Severe weather is projected to occur more frequently and intensely due to climate change, damaging buildings and infrastructure and disrupting the services that depend on these structures. This can include loss of communication and economic harm. Power outages can also harm residents who depend on medical devices and interrupt electric vehicle charging, which may in turn hinder evacuation efforts if needed.

- The frequency of **extreme heat days** and warm nights are expected to increase with climate change. Extreme heat can cause heat-related illnesses, such as heat cramps, heat exhaustion, and heat stroke, and worsen respiratory and cardiovascular conditions. Over a quarter of Laguna Beach's population is aged 65 or older, a population more vulnerable to health complications from heat exposure.
- **Emergent groundwater due to sea level rise** will likely flood low-lying inland areas, such as downtown Laguna Beach and areas near Aliso Creek. Emerging groundwater can damage buried infrastructure, flood below-grade structures, reduce storm and sanitary sewer capacity, release subsurface contaminants, compromise foundations, and create an urban flood hazard that can amplify overland storm flooding. This can block access and force buildings to close, resulting in economic harm to the community.
- **Beach and bluff erosion** due to sea level rise and severe storms affects infrastructure, homes, and the local economy. Shrinking beaches due to erosion would likely reduce overall quality of life in Laguna Beach and coastal tourism activity, jeopardizing the well-being of the local economy. Bluff erosion due to sea level rise and storms also impacts infrastructure and housing. By 2050, sea level rise may cause approximately 190 residential structures to be impacted by bluff erosion.

Gap Analysis

Laguna Beach is a well-resourced community with a unique geography. While the coastal landscape and separation from other urban areas is a focal point for local quality of life and an important economic driver, it presents challenges for adapting to climate change hazards and reducing some GHG emissions. Laguna Beach's community characteristics and local economy also result in somewhat higher GHG emissions per person than many other cities. The City, State, and regional agencies have already established initiatives and conducted many analyses that may help reduce GHG emissions and improve climate resilience in Laguna Beach, and more are currently underway. These efforts are listed in **Appendix A**. However, there are still gaps in community planning efforts to address climate change and the challenges discussed in the previous section, which inform the focus of the CAAP strategies. This section identifies the primary gaps identified by the CAAP project team based on the team's past work and understanding of relevant issues, although the team understands there may be additional gaps not included here.

GHG REDUCTION

This section discusses gaps and issues associated with GHG emissions in Laguna Beach based on the results of the GHG inventory and forecast, a review of existing programs, and conversations with City staff, the CAAP Working Group, community members and key stakeholders.

Vehicle miles traveled

While vehicles are becoming more fuel-efficient or transitioning to zero-emission fuel sources such as electric vehicles (EVs), these emission savings are being partially offset by an increase in vehicle miles traveled (VMT) from both residents and visitors. Rising VMT not only contributes to increased GHG emissions and other forms of air pollution, but it is directly connected with increased traffic congestion and travel times. The jobs-housing imbalance (87 percent of residents travel outside the city for work) and limited public transit options for traveling within, to, and from Laguna Beach present challenges for reducing VMT as most workers drive alone to work and residents tend to favor personal vehicles over public transit. Additionally, local transit serves a limited area in the community and in surrounding areas, has been operating on reduced service since the COVID-19 shelter-in-place period, and offers reduced service outside of the peak summer tourism months. Laguna Beach has seen a decline in transit system use despite robust awareness campaigns and financial incentives. While a more robust transit network with a focus on serving both residents and seasonal tourists could encourage transit over personal vehicle use and therefore reduce VMT, especially coupled with other efforts that make transit more appealing than personal vehicles, the fragmented, seasonal nature of existing transit service makes it an unreliable means of primary transportation for residents. A popular topic amongst residents at engagement events was the need for more bike lanes, complete streets, and expanded local transit options.

Encouraging the use of public transit or active modes of transportation, including walking and biking, to replace personal vehicle trips can reduce GHG emissions from the transportation sector. The Enhanced Mobility and Complete Streets Transition Plan (2015) identifies several actions the City can take to expand pedestrian and bicycle facilities and enhance transit. There are approximately three miles of bike lanes in Laguna Beach currently, with plans to add approximately one mile more in 2024. However, some streets are too narrow to incorporate bike lanes and widen sidewalks. In many hillside areas and South Laguna, many neighborhoods lack a grid of small, connected blocks, which is conducive to walking, and steep hills present a challenge to biking. Reducing VMT through a transition to active modes of transportation therefore requires innovative solutions to address the physical barriers to a connected active transportation network. The City lacks a dedicated active transportation plan, or supplementary pedestrian and bicycle master plans, to address VMT reduction as is recommended in the Enhanced Mobility and Complete Streets Transition Plan (2015).

Mobility and electric vehicle infrastructure

Although reducing VMT should be a priority for the community, regional land use patterns, political considerations, and cultural behaviors pose challenges for local VMT reduction. In cases where it is not feasible for the community to reduce VMT, Laguna Beach should consider ways to decrease the emissions associated with these vehicle trips. As of the beginning of 2023, approximately 11 percent of light-duty vehicles in Laguna Beach were zero-emission or plug-in hybrids, compared to approximately 5.5 percent for all of Orange County. This is an encouraging sign, but there is significant potential to increase zero-emission vehicle (ZEV) adoption in the community. Adding publicly accessible EV chargers supports this transition. The Fleet Electrification and Electric Vehicle Charging Infrastructure Master Plan (2023) proposes adding approximately 430 publicly accessible chargers by 2035 to support the transition to EVs. At the time of the study, the City had 32 public charging ports. The plan also provides a roadmap for transitioning the City's operational fleet to EVs

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by 2030. It is likely that the community will need many more EV chargers to support widespread EV adoption. Federal records show 11 publicly accessible EV chargers in Laguna Beach with room for 28 vehicles at a single time. The City has direct control of the decision to install publicly accessible chargers on City-owned properties. The City can elect to incentivize or mandate the installation of EV charging infrastructure in new and existing development beyond State requirements, including single-family homes (owner and renter occupied), visitor-serving properties (motels, hotels, and vacation home rentals), multifamily buildings, and commercial and office centers. Buildings installing chargers may need to upgrade their electrical systems to support the increased power demand, particularly for older buildings, increasing costs and complexity. ZEVs also remain expensive, and while subsidies and tax credits are available, there may be further opportunities to make these vehicles more accessible.

Building energy use

While homes in Laguna Beach used slightly less electricity in 2021 versus 2018 (6 percent), they used more natural gas (13 percent) between those same years. Natural gas use in nonresidential buildings declined 11 percent during this period, but GHG emissions from natural gas use community-wide remained a major source of community emissions (18 percent in 2021).

Reducing the use of natural gas and transitioning to renewable forms of energy, such as solar and wind, can contribute significantly to lower GHG emissions in the community. The older housing stock in Laguna Beach (over 75 percent of homes were built prior to 1980) and older commercial buildings present a challenge for transitioning natural gas appliances to electric ones. Older buildings often have less powerful electrical panels requiring more significant and expensive retrofits if panels must be upgraded. Residents at outreach events expressed a desire for more education on how they can reduce GHG emissions at their homes and businesses, which includes guidance on accessing financial incentives to perform building retrofits as cost was the primary barrier identified.

Building energy supply

Even if all homes and businesses in Laguna Beach become all-electric, Laguna Beach has little control over the sources of power for the community. Currently, all of Laguna Beach receives its power from one of two large investor-owned utility companies: Southern California Edison (SCE, serving central and north Laguna Beach) and San Diego Gas and Electric (SDG&E, serving south Laguna

How is natural gas used in Laguna Beach?

Natural gas is mostly used for water and space heating, cooking, and drying clothes, although some of these activities use more natural gas than others. According to State studies, buildings in the region use natural gas as follows.

Residential buildings:

- Water heating: 64%
- Space heating: 24%
- Cooking: 7%
- Pool and spa heating: 3%
- Clothes drying: 2%
- Other uses: 1%

Commercial buildings (average, these vary significantly by type):

- Water heating: 34%
- Space heating: 29%
- Cooking: 27%
- Process: 6%
- Other uses: 4%

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Beach). Laguna Beach lacks energy autonomy and therefore control over the sources of power for the community. While the State's Renewables Portfolio Standard (RPS) will reduce GHG emissions from energy production to zero by 2045, this could be achieved sooner through the procurement of 100 percent renewable power prior to 2045. As of 2022, SCE sourced 36 percent of its power from renewable sources, while SDG&E sourced 59 percent. Both companies do allow customers to opt-in to receive 100 percent of their electricity from renewable options for a small price increase, but participation in these programs is very low.

Given the reliance on large, investor-owned utilities, the City does not have control over the sources of power and is unable to influence emissions derived from non-renewable sources of electricity, which impacts all sectors. This was a popular topic amongst residents and stakeholders at the community engagement events, as many expressed a desire for Laguna Beach to join a community choice energy program to allow for greater local control over energy procurement. If the City installs microgrids at City facilities, as advised by the Draft Microgrid Resilience Study, they will increase the amount of renewable energy created in the community. This will reduce overall emissions and increase community resilience in the event of an outage by allowing key City facilities to remain in operation. The City can also support increased adoption of solar panels and battery electric storage systems at private homes and businesses to promote greater community-wide energy resilience.

Offroad equipment emissions

Growth in offroad equipment emissions (up 10 percent from 2018 to 2021) is driven by an increase in the subsectors of industrial, lawn and garden, and light commercial equipment. These types of equipment often run on nonrenewable fuel sources like diesel and present a challenge as the City does not currently regulate off-road equipment use. New State regulations went into effect at the beginning of 2024 that ban the sale of some new gasoline and diesel equipment, including lawn mowers, leaf blowers, hedge trimmers, string trimmers, and some types of generators and power washers. However, most GHG emissions from this sector come from equipment not covered by these rules, such as larger commercial and industrial equipment. Emissions from this sector will likely continue to grow if development continues or will remain steady without concerted efforts to reduce them.

Solid waste emissions

Recent State regulations enacted in response to SB 1383 require that California compost 75 percent of its organic waste, such as food scraps and yard waste, by 2025. Laguna Beach residents and businesses must throw all organic waste in their green bin for curbside pickup, which will help to reduce these emissions by keeping organic waste out of landfills. However, there are still opportunities for the community to reduce solid waste emissions through improved education around waste sorting, encouraging community members to reduce their overall waste generation, and supporting efforts to expand the scope of recycling programs.

Water and wastewater emissions

Emissions from the transport and treatment of water and wastewater make up the remaining GHG emissions in Laguna Beach. Many of these emissions are the result of electricity needed to move and

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treat the water and wastewater, and so can be addressed by programs to increase renewable energy supplies discussed above. For the remaining GHG emissions, there are chances for Laguna Beach to work with the community's wastewater provider, the South Orange County Wastewater Authority, to increase the efficiency of its wastewater treatment methods. This could create opportunities for reduced emissions associated with wastewater processing, including emissions caused by the hauling of wastewater treatment by-products.

ADAPTATION AND RESILIENCE

This section discusses the identified gaps in adaptation and resilience based on the results of the vulnerability assessment, input and feedback from community members, and conversations with key community stakeholders.

Wildfire

There are several efforts underway to increase Laguna Beach's resilience to wildfire, including the undergrounding of power lines, widening of evacuation routes, and enforcement of the defensible space requirements in high-risk areas. However, there is less planning for the secondary impacts of wildfire and the severe weather that creates wildfire risk. Public Safety Power Shutoffs often occur in the region and across the state during events of extreme heat, high winds, and low humidity to prevent wildfires. This interrupts daily activities and commerce in the area and can be dangerous for individuals with health conditions that require medical equipment powered by electricity from the grid. The Microgrid Resiliency Study will propose sites for microgrids on public facilities to improve resiliency in the event of a Public Safety Power Shutoff. While these microgrids will help to keep key community facilities operational during a power outage, private homes and businesses will likely still be affected. Smoke, a secondary impact from wildfires, is also dangerous for the community and economy as it impairs air quality, puts outdoor workers at risk, and hinders tourism. Smoke also affects recreational spaces and activities, which impacts resident quality of life and tourism. Given that wildfire and smoke impact all priority vulnerabilities in Laguna Beach, strategies must go beyond preventing wildfires locally and seek to protect vulnerable populations and assets from harmful air quality due to fires outside the City boundary.

Evacuating Vulnerable Populations

The City lacks targeted programs and resources for vulnerable populations, including older adults, persons with disabilities, low-income households, those with pre-existing health conditions, children, linguistically isolated individuals, and outdoor workers. These populations are at a greater risk of exposure to some hazards and/or struggle to implement adaptation strategies at the household level. Laguna Beach's local artists are also vulnerable, since many of them live in studio spaces in Laguna Canyon (a high-risk area for hazards) that are not registered as residential spaces, which may make it harder for them to receive evacuation or other emergency notifications. The City of Laguna Beach Evacuation Plan states that buses and paratransit vehicles will be used to evacuate people with disabilities and those with access and/or functional needs. The plan states that Laguna Beach Transit will be the first option for evacuation transportation. Most drivers are part-time and depending on the time of day and year, they may need to be called from home. This extra step could

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complicate evacuation efforts, leaving vulnerable members of the community trapped. Targeted outreach and assistance programs ensure the unique needs of these populations are accounted for.

Short-Term Visitors

The approximately 6 million visitors to Laguna Beach each year are likely not aware of the various potential hazards in the area and proper emergency procedures. Tourists unfamiliar with the City could inadvertently be placed in hazardous conditions or hazards can limit the number of visitors to Laguna Beach, ultimately affecting the local economy. Outreach and engagement specifically for tourists can ensure all visitors to Laguna Beach are prepared. During peak times, the large number of short-term visitors can create logistical difficulties for emergency managers and responders if a hazardous situation occurs. For example, the community has already encountered challenges with lightning storms during summer months, requiring the City to evacuate approximately 40,000 to 60,000 (close to two to three times the total resident population of Laguna Beach) from local beaches. Short-term visitors are impacted by coastal and inland flooding, wildfires and smoke, landslides and mudflows, beach and bluff erosion, severe weather, and extreme heat both directly and indirectly as hazards impact the assets that attract tourists. Hazards affect the ability to hold arts and cultural events, an important aspect of the tourism economy in Laguna Beach, as well as recreational facilities at beaches and other scenic areas. Given the large influx of visitors and therefore the fluctuating population size of the city, it is imperative to consider these 6 million additional people in planning for adaptation. It is also critical to consider impacts to local events and recreational assets as they pose a risk to the tourism industry.

Flooding

Most of the commercial and civic activities in Laguna Beach are concentrated in the downtown area, which is vulnerable to coastal flooding from severe weather and emergent groundwater due to sea level rise. Flooding impacts infrastructure, such as roads, vehicle fueling stations, and public transit facilities, as well as events and commerce that occur in flood zones. The locations of the Sawdust Festival and Festival of Arts are in a flood hazard zone. Damage to roads could prevent visitors from accessing art venues and events or cause events to be canceled. Vehicle fueling stations and EV charging infrastructure may be rendered unusable in the event of flooding, as water and mud can disrupt access and operations. Laguna Canyon Road, a main arterial roadway through the community and therefore a main evacuation route, is also prone to flooding. This concentration of community amenities, paired with limited roadways, creates dangerous evacuation conditions in the event of a disaster or extreme weather, which is a top concern for residents. In addition to hampering evacuation efforts, flooding along Laguna Canyon Road and in the downtown area can also make it more challenging for emergency responders and other key service providers to reach affected areas. by isolating different neighborhoods and cutting off access. The City is addressing traffic and parking concerns in popular areas through several studies and ordinances, but the City lacks a comprehensive plan to address traffic issues downtown and citywide.

Transit systems, which often serve as an evacuation tool, are also impacted by flooding. The Laguna Beach Transit Center is in a flood-prone area. The concurrence of Laguna Canyon Road in a flood-prone area severely impacts the integrity of roadways and transportation infrastructure in the community and could prevent public transit from providing services along this roadway. Roadway

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closures could also result in Orange County Transportation Authority (OCTA) bus routes to/from inland Orange County being suspended, impacting households without vehicles (4 percent of Laguna Beach households). To protect structures, the City can consider revisions to building codes, zoning, or ordinances tailored to address potential impacts from flooding. While the City has done extensive planning and analysis of wildfire impact on transportation systems and evacuation routes, this level of planning has not been completed for flooding.

Extreme Heat

Extreme heat and the desire for more trees to cool neighborhoods was a common topic amongst residents during recent engagement efforts. The City lacks a local plan to address extreme heat beyond the establishment of two local cooling centers. While cooling centers are an important component to a comprehensive strategy in an extreme heat event, more can be done for vulnerable populations that may not be able to get to a cooling center independently or may be required to work outside regardless of conditions. Laguna Beach can also be impacted by extreme heat events outside of the city in warmer, inland areas as people may travel to coastal areas to cool off. A sudden increase in the visitor population can create traffic congestion and impact recreational facilities and services and the quality of life for residents.

Beach and Bluff Erosion

Laguna Beach's natural environment, which includes beaches, bluffs, and steep hillsides, is a major draw to residents and visitors alike. Outdoor activities at beaches and other natural areas and the scenic beauty of the community are main drivers for quality of life and the local economy. However, many climate change hazards put these beaches, blufftops, and hillside areas at risk. Erosion can also pose a serious safety hazard from falling rocks and other debris. In recent years, two landslides resulted in large rocks falling onto the beach, which could have caused serious injuries or fatalities if they occurred at times when people were on the beach. While there are many studies and planning efforts to increase Laguna Beach's resilience to hazards, most planning efforts focus on the physical environment that is under the City's jurisdiction or provide educational materials for residents to mitigate the impacts of disasters. At community outreach events, residents' main concerns with these hazards were how they may affect their property insurance, either by increasing insurance costs or causing insurers to withdraw coverage. Residents were also concerned about beach and bluff erosion due to sea level rise, which jeopardizes many structures, economic activities, and local quality of life. Higher sea levels may also reduce the width of beaches in the community, and there are not currently policies or studies on shrinking beaches in Laguna Beach. Finally, bluff erosion and steep hillsides can create the conditions for more extreme landslides and mudflows.

Problem Statements

Based on these gaps in Laguna Beach's GHG emission reduction and climate adaptation efforts, there are a number of relevant topics that the CAAP should address. This is not a critique of the City and community's existing efforts, which have been extensive (see **Appendix A**), but a recognition of how complex it is to comprehensively address climate change. These relevant topics are distilled into the

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problem statements below. The GHG reduction and climate adaptation strategies in the CAAP will specifically target the issues identified in these statements.

GHG Reduction

- Most residents travel outside of Laguna Beach for work, and there are limited public transit options for traveling within, to, and from the city. The fragmented, seasonal nature of local transit hinders residents' ability to replace personal car use for local trips to meaningfully reduce VMT.
- Laguna Beach's topography and existing street design pose a challenge to creating a connected and safe active transportation network to encourage walking and biking.
- While the community has made significant strides in increasing EV adoption rates, further action on this topic will require a significant increase in EV charging infrastructure. This is especially the case in multifamily and rental properties. The high cost of EVs remains a barrier for Laguna Beach residents with financial constraints.
- The older buildings in Laguna Beach pose a challenge for electrification retrofits. Most homes and businesses require upgrades to electric panels to accommodate more electric appliances and EV charging capacity. This can result in more extensive and expensive retrofits.
- Community members desire more education and information on what financial incentives are available to them for energy-efficiency retrofits.
- Laguna Beach procures its power from large, investor-owned utilities, which means the City does not have control over the sources of power and is unable to influence emissions derived from electricity generated by non-renewable sources, which impacts all sectors. This also reduces the adaptive capacity of the local power system.
- The City does not currently have programs or practices in place to address GHGs and other pollutants from diesel and gasoline use of offroad equipment. Despite new State regulations, these emissions will likely increase or remain static without action.
- Laguna Beach will continue to send waste to landfills, especially with expected continued growth of online purchasing. In the absence of specific programs to reduce waste generation and improve waste sorting, emissions associated with waste are likely to remain.
- Laguna Beach lacks direct control over its wastewater processing activities, making it challenging to address the emissions associated with these activities. Transportation of wastewater by-products also remains an issue for the community, given the absence of local options to reuse or dispose of these materials.

Adaptation and Resilience

- Much of Laguna Beach and its surrounding open space areas are a designated wildfire hazard zone. This zone is home to most of the city's residents, as well as numerous buildings and infrastructure networks. Despite a number of local programs to reduce the threat of wildfires, it remains the hazard that poses the most substantial threat to many aspects of the community, including critical sections of the local economy.

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- The secondary impacts of wildfire, including Public Safety Power Shutoffs and smoke, impact vulnerable populations, quality of life, and the local economy. While existing planning for wildfire mitigation also mitigates the risk of secondary hazards, having protections and procedures in place for when power is shut off or the air quality is poor is also critical for community resilience.
- Over a quarter of residents are over the age of 65. Localized extreme heat poses a risk to vulnerable populations like older adults, children, or those with pre-existing health conditions. Regional extreme heat events outside of Laguna Beach can impact local facilities, roads, and resident quality of life as people from inland areas go to the coast for relief. The lack of a cohesive plan for extreme heat beyond two established cooling centers compounds these impacts.
- Many artists in Laguna Beach have been priced out of traditional housing, and instead choose to live in studio spaces in Laguna Canyon rather than leave the community. Laguna Canyon faces an increased risk of wildfire and other hazards, and studio spaces may lack the safety features of conventional housing. Additionally, these spaces are not registered as residential buildings, which means artists in these spaces may not receive notifications about emergency conditions or evacuations of Laguna Canyon.
- Short-term visitors pose a unique challenge as they are impacted by almost all hazards but are not as familiar with the area or emergency procedures and precautions. Laguna Beach receives nearly 6 million visitors annually who may not be considered in adaptation planning, but they support the local economy and are a vulnerable population. Impacts to recreational facilities, arts and cultural events, and beaches also affect seasonal tourism and therefore the local economy.
- Many homes in Laguna Beach are in or adjacent to a landslide hazard zone of at least moderate severity. The risk for mudflows and landslides is compounded by other hazards like severe storms, bluff erosion, drought, and wildfire.
- Laguna Beach's downtown area and main roadways are in flood-prone areas. Coastal flooding and emergent groundwater from sea level rise can therefore impact traffic flow, the local economy, transit systems, and evacuation operations. Planning and analysis for wildfire mitigation address evacuation risks, but the City lacks planning and measures specifically for flooding throughout the community.
- Beach and bluff erosion threaten homes, infrastructure, the local economy, and residents' quality of life. Plans to prevent beach erosion through such measures as sand nourishment are lacking and over 150 homes stand to be impacted by bluff erosion by 2050.

Next Steps

This memo summarizes the key outcomes of the GHG inventories and Vulnerability Assessment, provides an overview of existing activities and efforts to address GHG emissions and adaptive capacity, identifies gaps in the existing efforts to inform a set of priority problems in Laguna Beach, and lists a set of problem statements to lay the foundation of sustainability and resilience strategies. Following City staff review of the identified gaps and problems, the project team will develop

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strategy concepts that will be added to the CAAP. The policy concepts will be short-term and long-term, high-level actions the City and community members can take to reduce GHG emissions and increase resilience, potentially in partnership with community-based organizations and external agencies. The strategy concepts will provide another opportunity to engage with the community to understand what approaches and strategies community members prefer.

Appendix A: State and Regional Initiatives

State and regional agencies have enacted regulations and programs to reduce GHG emissions and help local jurisdictions plan for climate change hazards. Although state- or region-wide in scope, these actions affect several sources of Laguna Beach’s emissions and therefore support the achievement of the City’s GHG reduction goals. State- and region-wide adaptation programs and efforts also impact local geographies. The CAAP will “credit” Laguna Beach for local GHG reductions achieved by these initiatives, even if the City or community members do not need to take any action to implement these efforts. The CAAP will also build on these initiatives, both those focused on GHG reduction and climate adaptation, to go beyond what these initiatives achieve and to address issues that these initiatives do not.

GHG REDUCTION

Renewables Portfolio Standard

The State established the RPS in 2002 and has amended it several times, most recently by Senate Bill (SB) 100 in 2018. RPS requires all electricity providers in the state to obtain at least 33 percent of their electricity from eligible renewable resources by the end of 2020 (mostly met, including by both of Laguna Beach’s electric providers), 60 percent of their electricity from eligible renewable resources by the end of 2030, and all of their electricity from carbon-free (although not necessarily eligible renewable) resources by the end of 2045. This policy reduces GHG emissions from electricity use, including electricity used to transport and process water and wastewater, and electricity used for electric vehicles. The City’s electricity providers, SCE and SDG&E, are required to comply with RPS and report on their progress. The CAAP will explore opportunities to increase the supply of renewable electricity in Laguna Beach.

Clean Car Standards

In 2002, California adopted Assembly Bill (AB) 1493, the New Passenger Motor Vehicle Greenhouse Gas Emission Standards, which require a reduction in tailpipe GHG emissions from new vehicles produced from 2009 to 2015. The State has adopted a series of extensions to these standards that require increased levels of GHG reductions. Most recently, in 2022, the State adopted the Advanced Clean Cars II standards, which applies to vehicles produced from 2026 to 2035, and requires that all new light-duty vehicles sold in California be zero-emission by 2035. Similar standards, known as the Advanced Clean Trucks, Advanced Clean Fleets, and Innovative Clean Transit regulations, require GHG reductions for larger vehicles and organizations that operate vehicle fleets. These standards reduce GHG emissions from on-road transportation. The CAAP will support implementation of these standards and look to ways to increase local zero-emission vehicle adoption.

Title 24 Energy-Efficiency Standards

Title 24, Part 6, *Energy Code*, and Part 11, CALGreen, of the California Code of Regulations includes California’s energy-efficiency standards for new buildings, applied at the local level through the project review process. The standards are strengthened every three years. The most recent set of Title 24 standards went into effect on January 1, 2023. This policy will reduce GHG emissions from

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electricity and natural gas use in new homes and nonresidential buildings. The CAAP will consider ways to increase the energy efficiency of new buildings and reduce their GHG reductions beyond the minimum state standards.

California's Short-Lived Climate Pollutant Reduction Strategy

California's SB 1383 aims to reduce GHG emissions from organic waste by requiring businesses and residents to separate their organic waste from other waste streams for recycling or composting. The law sets targets for reducing organic waste disposal in landfills by 75 percent by 2025 and requires local jurisdictions to implement organic waste recycling programs to meet these goals. The CAAP will help implement these standards and explore ways that Laguna Beach can exceed the minimum targets for reducing organic waste.

Connect SoCal: 2020 – 2045 Regional Transportation Plan/Sustainable Communities Strategy

Connect SoCal is a long-range visioning plan that builds on and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern. It charts a path toward a more mobile, sustainable, and prosperous region by making connections between transportation networks, between planning strategies, and between the people whose collaboration can improve the quality of life for Southern Californians. Through the accompanying Sustainable Communities Program, Southern California Association of Governments (SCAG) offers local technical assistance in support of Connect SoCal implementation. The CAAP will help to channel funding and other assistance provided by Connect SoCal to Laguna Beach in a manner that supports the community's goals and priorities.

Caltrans District 12 Active Transportation Plan

The Caltrans 2022 Active Transportation Plan for District 12 identifies pedestrian and bicycle needs on and across the State Highway System and prioritizes highway segments and crossings to influence future investments. It also notes the significant lack of a bicycle network in Laguna Beach and the lack of connections to surrounding communities. The plan provides lists and maps of location-based needs and prioritizes highway segments highway crossings. Although this plan does not prioritize projects in Laguna Beach, the CAAP can support locally prioritized projects to improve internal and external walking and biking connectivity.

South Coast Air Quality Management District Proposed Amended Rules 1111 and 1121

The South Coast Air Quality Management District (AQMD), which regulates air pollution in Orange County and many other parts of the Southern California region, is considering a set of rules that would phase out space and water heating units in homes and small businesses that produce air pollutants known as NO_x. These proposed regulations would require sellers and installers to replace old units that produce NO_x with zero-emitting units when the old units reach their end of life. Since devices that emit NO_x burn natural gas and zero-emitting units run off electricity, this regulation (if adopted) would reduce natural gas use and the resulting GHG emissions in Laguna Beach. South Coast AQMD intends to consider these regulations in the second half of 2024.

ADAPTATION AND RESILIENCE

California 2021 Climate Adaptation Strategy

The California Climate Adaptation Strategy provides state-level adaptation priorities, goals, and actions, which are updated every three years. The 2021 update to the Climate Adaptation Strategy provides actionable strategies and includes a success metric for each action, a timeframe, identification of a responsible agency, and a progress indicator. Since 2021, the State has provided yearly implementation progress reports and has updated the progress indicator for each action as the success metric is met. State-level plans and strategies ultimately impact local geographies, including Laguna Beach. The CAAP can adapt many of these plans and strategies to be locally relevant and can use them as a foundation for increased location action.

California Extreme Heat Action Plan

The California Governor's Office prepared the Extreme Heat Action Plan, published in 2022, which details the State's strategy for addressing extreme heat. The plan's actions are organized into four tracks, including building public awareness, strengthening community services and response, increasing the resilience of the built environment, and using nature-based solutions. The plan highlights the various technical assistance resources and grant opportunities available to Laguna Beach. The CAAP can help the City take advantage of many of these resources and supports efforts to source funding from opportunities identified in the Extreme Heat Action Plan.

Listos California

A part of the Governor's Office of Emergency Services, Listos California works with a network of community-based organizations, tribal governments, and Community Emergency Response Teams across the state to provide culturally appropriate education programs for wildfire, flood, drought, extreme heat, and other types of disasters. This organization provides accessible information to advance a culture of disaster preparedness that Laguna Beach can use to bolster community resilience. The CAAP can incorporate efforts from these education programs to increase the effectiveness of local awareness efforts.

Fire Hazard Planning Technical Advisory

The Governor's Office of Planning and Research, in partnership with the Board of Forestry and Fire Protection and the California Department of Forestry and Fire Protection (CAL FIRE) published the *Fire Hazard Planning Technical Advisory* in 2022. This guidance document contains an overview of important challenges created by wildfire, the State's wildfire management regulatory framework for the State responsibility areas, guidance for fire hazard planning, and a set of example policies to reduce wildfire risks. These resources create an overarching framework for the CAAP and related plans to improve community resilience to wildfires.

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Exhausted! Workers Confront Extreme Heat and Wildfire Smoke in California

Climate Resolve, a nonprofit organization focused on reducing climate pollution and preparing for climate impacts, published *Exhausted! Workers Confront Extreme Heat and Wildfire Smoke in California* in 2022. This report documents the conditions for both outdoor and indoor workers, provides an overview of existing regulations, and assesses the policy gap for workers. The report also provides policy and program recommendations for protecting both indoor and outdoor workers through both State and local actions. Many of these actions can be used in the CAAP to increase local resilience to extreme heat and wildfire smoke.

Making Equity Real in Climate Adaptation and Community Resilience Policies and Programs

The Greenlining Institute, a nonprofit organization focused on working towards a future where communities of color can build wealth, live in healthy places, have economic opportunities, and meet the challenges posed by climate change, released the *Making Equity Real in Climate Adaptation and Community Resilience Policies and Programs* in 2019. The Guidebook provides specific recommendations on how local governments can operationalize social equity in the goals, process, implementation, and analysis of policies and grant programs focused on climate adaptation. The report includes examples from existing policies and grant programs to illustrate what the recommendations look like in practice, including increasing adaptive capacity, quality of life, economic development, and community inclusion, while also addressing climate change hazards. The CAAP can use many of these examples to inform local adaptation and resilience strategies.

Mapping Resilience

The Asian Pacific Environmental Network, an environmental justice organization focused on making communities healthier and just places for people to thrive, released the *Mapping Resilience Report* in 2019. This report provides an overview of the community impacts from climate change; especially on the most vulnerable communities; summarizes existing vulnerability assessment frameworks, gaps, and data limitations; and lists a set of policy applications to protect the most vulnerable populations from climate change hazards. This is a tool Laguna Beach can use in the CAAP to craft policies and strategies specifically for vulnerable populations.

Southern California Association of Governments Climate Equity Compendium

The Climate Equity Compendium provides resources for local planners in the Southern California Association of Governments (SCAG) region to advocate for and implement equitable and actionable solutions for their jurisdictions' climate adaptation efforts. SCAG developed the Compendium in partnership with more than 60 local jurisdictions, focusing on the major climate adaptation concerns for local agencies: providing resources to assist with staff and funding shortages, removing barriers to relevant data and resources, and overcoming the challenges of effective, equitable outreach. SCAG will continue to update the Climate Equity Compendium as the challenges of climate equity evolve. Much of the information in the Climate Equity Compendium is locally relevant to Laguna Beach and will inform the development of adaptation and resilience strategies in the CAAP.

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Regional Climate Adaptation Framework and Guide

SCAG developed the Regional Climate Adaptation Framework (Framework) to assist local and regional jurisdictions in managing the negative impacts of climate change. The Framework provides an overview of how jurisdictions in the Southern California region can work together to plan and prepare for the impacts of sea level rise, extreme heat, increasingly frequent and damaging wildfires, and other climate-related issues. As the CAAP will help Laguna Beach plan and prepare for these and other hazards, it will rely on information in this Framework to help craft adaptation and resilience strategies.

Orange County Community Wildfire Protection Plan

The 2017 Orange County Community Wildfire Protection Plan (CWPP) addresses wildfire mitigation, including vegetation management, ignition prevention, community education and outreach, and firefighting initiatives in the State Responsibility Area. Over 90 percent of Laguna Beach is in the CWPP boundary, including Laguna Coast Wilderness Park, Crystal Cove State Park, and Aliso and Wood Canyons Wilderness Park, which are rated Very High Fire Hazard Severity. The CAAP will build on these existing efforts to further improve community resilience to wildfire events.

Southern California Green Region Initiative Maps

The Green Region Initiative (GRI) Maps are a series of maps for jurisdictions in the SCAG region to measure and track sustainability progress in the region across 12 categories and 29 sustainability indicators. These maps are designed to provide helpful information on the status of adaptation planning in the Southern California region and the degree to which policies address various climate change risks, from “acknowledgement of climate risks” to “adopting a stand-alone plan or general plan that addresses numerous relevant climate risks”. The CAAP can use these maps to identify successful efforts in other communities that can be adapted to Laguna Beach.

California Coastal Commission Sea Level Rise Policy Guidance

The California Coastal Commission Sea Level Rise Policy Guidance provides an overview of the best available science on sea level rise for California and recommended methodology for addressing sea level rise in Coastal Commission planning and regulatory actions. It is intended to serve as a comprehensive, multipurpose resource for a variety of audiences, including local governments in the California Coastal Zone. The current guidance was released in 2018. In January 2024, the State released an updated version of this guidance document. The Coastal Commission will formally review and adopt this updated document to replace the 2018 version. The CAAP will integrate these recommendations into the sea level rise adaptation strategies.

Climate Action and Adaptation Initiatives in Laguna Beach

In addition to state and regional activities, Laguna Beach has several existing local programs, policies, and tools to address GHG emissions and increase resilience throughout the city.

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GHG REDUCTION

City of Laguna Beach Climate Protection Action Plan (2009)

The Climate Protection Action Plan (CPAP) is Laguna Beach's first comprehensive strategy to reduce GHG emissions community-wide. Key initiatives include promoting energy-efficient building practices, encouraging public transportation and alternative modes of transportation to internal combustion engine vehicles, and increasing the use of renewable energy. It sets specific goals for reducing emissions and enhancing overall sustainability, aiming to create a more resilient and environmentally conscious community. The plan also emphasizes community engagement and education to raise awareness about climate change issues and foster a sense of responsibility among residents and businesses in Laguna Beach. As of 2017, Laguna Beach has implemented 92 of the 94 actions in the CPAP, which include several water conservation efforts, expanded sidewalks and bicycle lanes, and installation of EV charging stations. The CAAP can build on the successful efforts of the CPAP, expanding the scope of these initiatives to increase their effectiveness and ensure their continued relevance.

City of Laguna Beach Enhanced Mobility and Complete Streets Transition Plan (2015)

A plan to provide an assessment of the existing transportation environment and identify opportunities for enhanced mobility and complete streets. The recommendations are intended to improve the effectiveness of Laguna Beach's street and sidewalk system for biking, walking, and transit, which can motivate residents and visitors to choose more sustainable modes of transportation that reduce VMT and therefore transportation-related emissions.

Residential Organics Recycling Service (ongoing)

The City launched organics recycling service in 2022. Residents can now throw food scraps and other compostable materials into the bin previously reserved only for yard waste, allowing all organic materials to be composted rather than sent to a landfill. Composting organic waste reduces GHG emissions from solid waste.

Fleet Electrification and Electric Vehicle Charging Infrastructure Master Plan (2023)

A study and plan to convert 147 City operations vehicles to electric power by 2032 as well as an analysis of the necessary number of electric vehicle (EV) chargers to support the transition to EVs mandated by the Advanced Clean Cars II regulations and modeled in the 2022 California Scoping Plan update. Converting City operations vehicles to electric reduces GHG emissions from municipal operations and symbolizes the City's commitment to sustainability. Increasing the number of publicly available EV chargers removes barriers to EV ownership for community members as they can charge vehicles away from their homes and reduces emissions from the transportation sector.

Parking and Transportation Demand Management Report (2023)

An analysis and report to recommend strategies and actions that will help to alleviate some of the adverse impacts on mobility in the City's commercial zones and on the quality of life in residential

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neighborhoods resulting from visitors and employees in need of parking. The report includes recommendations to increase the City's supply of public parking, add additional transportation demand management strategies, and update the City's parking regulations.

Summer Parking Management Plan and Transit Services Update (2023)

An ordinance to authorize the operation of summer trolley service on the Coastal, Canyon, and Summer Breeze routes, and expand Laguna Local on-demand service hours. Increasing the availability and reliability of transit services can increase ridership, therefore reducing VMT if people opt for transit over a personal vehicle trip.

ADAPTATION AND RESILIENCE

Fuel Break Program (1991)

The Laguna Beach Fire Department began the fuel break program in 1991 and has since continued to maintain and expand an extensive fuel break, encompassing over 360 acres around most exterior portions of the city and in many interior canyons. A fuel break is an area where vegetation is reduced between 50 and 90 percent to separate the wildland from developed portions of the city and thereby reduce wildfire risk to developed areas. Fuel breaks vary in width from 100 to 200 feet, depending on location and terrain.

Weed Abatement Ordinance (2009)

The Laguna Beach Fire Department manages the City's weed abatement program for privately and publicly owned properties. The program was created to reduce the threat of fire starting on weedy properties in the developed portion of the city, and to reduce the ability of fire to spread rapidly through weedy vegetation. The primary focus is on removal of annual grasses and invasives to limit ignition and reduce flame length and radiant heat from a surface fire. The program was authorized by and is enforced through a Nuisance Abatement Ordinance and codified in Laguna Beach Municipal Code Section 12.12.

Emergency Management Plan (2018)

A plan developed by the Laguna Beach Office of Emergency Management that establishes procedures and evacuation guidelines in the event of an emergency. The Emergency Management Plan (EMP) provides guidance for City employees, government agencies, and volunteer groups on what to do in the case of a major emergency, including fires, flooding/storms, tsunamis, and earthquakes. The EMP is mainly focused on logistics and operations and is meant to be read and studied prior to an emergency to reduce damage and ensure efficient operations in the event of an emergency.

Aliso Creek Estuary Restoration Plan (2018)

The Aliso Creek Estuary Restoration Plan seeks to restore the estuary ecosystem by expanding the channelized estuary, creating new wetland habitats, reducing dry-weather creek inflows, improving water quality, and reducing artificial breaching of the estuary mouth. These restoration actions are expected to restore the estuary ecosystem such that it will support native estuary plants and wildlife

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and a range of estuary ecosystem functions. Improving the health and functionality of estuary ecosystems may improve their resilience to several climate change hazards, including severe weather, flooding, extreme heat, and drought.

Wildfire Mitigation and Fire Safety Report (2018)

This report includes an analysis of wildfire risk in Laguna Beach and a comprehensive list of actions to mitigate the risk and impacts of wildfire in the city should one occur. These possible actions fall into several primary categories: (1) emergency alert systems, (2) evacuation plans and improvements, (3) fuel modification zones, (4) public infrastructure improvements, and (5) undergrounding utilities. Implementation of these risk mitigation measures improve wildfire resilience by reducing wildfire risk and making it easier for members of the public to learn about emerging wildfire conditions and safely evacuate.

Fuel Modification Program (2019)

On December 17, 2019, the City Council adopted Ordinance Nos. 1640 and 1641, which amended the Fire Code and Building Code provisions of the Municipal Code to establish fuel modification guidelines for development projects. Under the City's fuel modification guidelines, all new construction and major remodel projects that are within the Fuel Modification Zone (FMZ) (as designated by the City) are required to comply with the 2019 Laguna Beach Fire Department Landscape/Fuel Modification Standards and Maintenance Program. The document is a guideline on fire-wise planting to provide protection for occupants and the structure from an approaching wildfire. Treatment of FMZs to achieve at least an average 75 percent reduction in potential wildfire fire line intensity. FMZs are limited to those areas within 100 feet of developed properties or structures. Treatments outside of these areas will be limited to removal of targeted invasive plant species, general non-native weeds control, or tree thinning and dead branch removal. The primary goal of these fuel modification guidelines is to slow the spread of wildfires by treating wildland habitats near neighborhoods. This practice helps provide time for residents to evacuate and for fire personnel to respond during wildfires.

Wildfire Egress Study (2021)

The City prepared a Wildfire Egress Study to analyze how long it might take to evacuate the community during a wildfire event. Laguna Beach faces substantial evacuation constraints since the only ways out of the community are the Pacific Coast Highway and Laguna Canyon Road leading to State Route 73, any of which may be blocked during a wildfire or other emergency. The study considers the time needed to evacuate different zones of Laguna Beach at different times of the day and year. Overall, the study notes that under normal roadway conditions, it could take over four hours to evacuate all of Laguna Beach, although this can increase significantly if primary evacuation routes are blocked. The study found that Canyon Acres Drive, Bluebird Canyon, and the Diamond Street/Crestview Drive neighborhoods were particularly evacuation constrained.

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General Plan Safety Element (2021)

The Safety Element contains policies that address hazards from fire and flood, shoreline protection, climate adaptation and resilience, and disaster and emergency preparedness, including evacuation. Key Safety Element goals include promoting a culture of preparedness among all Laguna Beach community members through comprehensive emergency management practices, reducing the threat of wildfire hazards, reducing flood impacts and adapting to changing flood conditions, and ensuring that Laguna Beach is ready to address the impacts of climate change.

Moss Street Beach Access Rehabilitation (2021)

A capital improvement project to facilitate access to the beach and public viewing of the beach/ocean environment at Moss Street. This initiative helps repair and improve the safety of access facilities that have been damaged by erosion, thereby improving the resilience of Laguna Beach's coastal activities and community identity that may be threatened by coastal erosion.

Defensible Space Ordinance (2021)

Defensible space refers to the area between a house and an oncoming wildfire where the vegetation has been modified to reduce the wildfire threat and which provides an opportunity for firefighters to effectively defend the house. The Laguna Beach City Council passed Ordinance 1664 on October 5, 2021, adopting the Defensible Space Guideline for Existing Structures in the Very High Fire Hazard Severity Zone. This ordinance improves wildfire resilience by requiring all existing habitable buildings and structures in the Very High Fire Hazard Severity Zone to maintain defensible space in the form of managed vegetation to prevent ignition from wildfires.

Local Hazard Mitigation Plan (2023)

The Local Hazard Mitigation Plan (LHMP) is a plan to make the community more resilient to disasters, reduce the risk of damage in the case of an emergency, and reduce the time and resources to recover. The LHMP provides a comprehensive assessment of the threats that the city faces from natural and human-caused hazards and a coordinated strategy to reduce these threats. The LHMP also contains a comprehensive set of mitigation actions to support community preparedness, address coastal hazards, manage pests and diseases, address extreme weather, manage flooding, address landslides and mudflow, and address wildfire.

Cleo Street Beach Access Rehabilitation (2023)

A capital improvement project to redesign the Cleo Street Beach Access stairway, including preserving its alignment, maintaining access to the existing sewer pump station, and adjusting the profile to address unsafe access conditions at the beach level. Episodic and long-term erosion are persistent issues at this site, which periodically leaves the end of the stairwell exposed and above the existing beach surface, resulting in potentially unsafe access conditions.

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Bluebird Canyon Drive Evacuation Route Widening (2023)

A capital improvement project to widen Bluebird Canyon Drive and underground 20 utility poles to improve evacuation operations and reduce risk of fire in Laguna Canyon.

Community Emergency Response Team (CERT) Program

The Laguna Beach Fire Department offers training to community volunteers who wish to assist in the event of a disaster. The program covers disaster preparedness, fire safety, disaster medical operations, light search and rescue, CERT organization, disaster psychology, terrorism, traffic control, and scene management. CERT activities promote resilience by increasing average community awareness of emergency response and preparation procedures and increase the City's capacity to respond in the event of an emergency.

AlertOC Emergency Notification System

Notifications from AlertOC via the smartphone app Nixle are sent to anyone registered regardless of where the incident is in the city. Notifications and the program are managed by the Laguna Beach Emergency Management Department. Emergency notification systems improve resilience by alerting members of the community about unfolding or fast-approaching emergency conditions, giving them additional time to prepare or evacuate.

Laguna Beach Greenbelt and Open Space

Laguna Beach is surrounded by an extensive network of parks and open space areas, including several that are managed by state and regional agencies. While these areas are key community assets, they also support adaptation in their own right. Healthy hillside vegetation can help to hold slopes together and slow down runoff during heavy or constant rainfall, reducing the risk of landslides/mudflows or floods. Robust vegetation management strategies can also decrease the risk of catastrophic wildfire spreading through open space areas.

Water Infrastructure Improvements

The Laguna Beach County Water District and the South Coast Water District have made a series of improvements to their infrastructure network so as to better resist the effects of wildfire. The City has also recommended that these agencies increase the resilience of their water pumps and generators, and install additional generators as needed.

Floodplain Management Ordinance Updates

The City recently updated its Floodplain Management Ordinance to require that businesses and other property owners in mapped floodplains across Laguna Beach install contingency flood-proofing devices, which are designed to seal doors, windows, or other openings in a building against floodwaters. The City has required similar devices for buildings in the downtown floodplains.

Emergency Preparedness Guide

An educational guide for residents that includes protocol for preparing for a disaster, including wildfire, and what to do in the event of a disaster. This guide improves resilience by showing residents how to prepare for and respond to disasters.

Utility Undergrounding Program

Section 21.24.040 of the Laguna Beach Municipal Code allows the City Council to designate underground utility districts if utility undergrounding will improve public health and safety. The City, in partnership with residents, SCE, and SDG&E, has done extensive work over the past decade to expedite moving dangerous and obstructive overhead utility wires underground. The City continues to identify projects to promote the undergrounding of utility lines to mitigate the threat of wildfires, improve critical evacuation routes, and improve service reliability throughout the community.

There are generally three methods to undergrounding utilities:

- Rule 20A – The City collaborates with the utility companies to underground overhead facilities that provide the greatest benefit to the public. These projects are funded through annually allocated credits provided by the utility companies.
- Rule 20B – A project that is developed and funded by the City. The City may fund such programs out of its General Fund or dedicated funds for capital improvements, or it may pursue grant funding to support undergrounding, which can be a lengthy and time-consuming process for City staff. Alternatively, property owners in a specific area vote to form an Assessment District to underground facilities within their neighborhood.
- Rule 20C – Property owners work directly with the utility companies to privately underground facilities adjacent to their property. The City generally does not participate in this type of project since it is typically funded and managed by one or more property owners. However, the project design must be submitted to the Community Development Department for Design Review, construction requires a Public Works permit, and the conversion of individual meters to underground service requires electrical permits from the City’s Building Division.

Each method provides a mechanism for financing and implementing the underground projects. Utility undergrounding projects are currently underway at Woods Cove, Coast Highway (Agate Street – Arch Street), Coast Highway (Cajon Street – Agate Street), Bluebird Canyon Drive, Diamond Street, Park Avenue, West Street, and Fairview/La Brea.

Microgrid Resiliency Plan

The City is currently studying the feasibility of installing solar energy and battery storage systems (microgrids) at municipal buildings and facilities. The establishment of these microgrids will provide backup power in the event of an outage, allowing critical operations to continue.