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Public Health

WHITE PAPER

SAN DIEGO ASSOCIATION OF GOVERNMENTS

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Introduction

> "Transportation impacts more than just how Americans get from place to place. It influences physical activity, accessibility to goods and services, air pollution, greenhouse gases, stress levels, family budgets, and our amount of leisure time, as well as a host of other lifestyle and health variables…While transportation may not immediately be thought of as a key determinant of health, transportation policies and accompanying land use patterns have far-reaching implications for our risk of disease and injury"[1] – Robert Wood Johnson Foundation's Center to Prevent Childhood Obesity Working Group

As the San Diego Association of Governments (SANDAG) develops regional policies and programs to guide transportation infrastructure investments over the next three decades, an understanding of the public health benefits and impacts of those decisions will support the agency's efforts to create a safe, viable, and efficient transportation system for the San Diego region. The investments, in turn, should support improved public health outcomes.

Public health has been considered in various large-scale SANDAG planning efforts over the years. During the development of San Diego Forward: The Regional Plan (2015 Regional Plan), SANDAG became more fully involved in working to connect the regional planning process to the public health domain through a U.S. Centers for Disease Control (CDC) grant to the County of San Diego. This white paper expands upon previous efforts to identify approaches for achieving public health objectives, and will inform the development of San Diego Forward: The 2019-2050 Regional Plan (2019 Regional Plan).

According to the World Health Organization, health is a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity. Emphasizing the health benefits derived by improved mobility and access can better realize this comprehensive notion of health.

Evidence suggests that land use and transportation planning and policy have a direct impact on public health. Studies have consistently shown that people who live in compact, mixed-use, and walkable communities are less likely to be obese and hypertensive compared to people who live in auto-oriented communities.[2] Research also has established a clear connection between built environment characteristics and chronic diseases such as heart disease, diabetes, cancer, and asthma, which, in 2007, accounted for at least $4 billion in direct healthcare expenditures in the San Diego region. These costs are projected to rise to $25 billion by 2050 if changes are not made.[3] The transportation decisions made as part of the 2019 Regional Plan provide a significant opportunity to support changes to the built environment that can result in improved health outcomes.

The focus of public health practitioners has shifted away from 20th century infectious diseases, which generally have been controlled, toward chronic diseases, which now account for seven out of every ten deaths in the United States.[4] Land use and transportation planning and policy decisions can influence public health outcomes related to a variety of factors, such as air quality, opportunities for physical activity, risk of injury, jobs, education, and access to everyday necessities such as grocery stores. In addition, both urban planners and public health practitioners are becoming increasingly aware of the need to reduce the incidence of traffic injuries involving people walking and biking as well as health disparities (the difference in health outcomes between people of varying ethnicities, education attainment, and/or income levels).

Over the past several years, there has been an increasing swell of support from a variety of professional organizations and government agencies, ranging from the local to the national levels, to incorporate public health considerations into the planning and development process. As a result, numerous cities, counties, Metropolitan Planning Organizations, other government entities, professional organizations, and non-profits have worked to incorporate techniques that focus on improving public health outcomes into their planning policies, programs, and projects.

This paper includes the following sections: a brief history of public health and urban planning; why public health matters; how the built environment affects public health; a list of current national, state, regional, and local efforts in the San Diego region; a list of available public health data and tools; a summary of the interrelationships between public health and climate change, social equity/environmental justice, economic prosperity, and emerging technologies; and policy considerations for the 2019 Regional Plan. This white paper serves as the basis for further integrating public health considerations into San Diego Forward: The 2019-2050 Regional Plan.

History of Public Health and Urban Planning

Modern urban planning grew out of concerns for public health in early 20th century cities where people lived next to farm animals, butcher shops, and heavy industries. In response to frequent outbreaks of contagious diseases such as tuberculosis and cholera, planners and health advocates established zoning regulations to separate incompatible uses and activities such as tanneries and butcher shops from residential neighborhoods. Shops, restaurants, and schools, however, remained integrated in the neighborhood, and people could still live relatively close to where they worked.[5]

After World War II, many factors, including a growing population, rising standards of living, the increasing popularity of the private automobile as the primary mode of transportation, and federal policies that encouraged homeownership led to a housing boom in the outskirts of existing cities. The construction of the national highway system further fueled a more dispersed land development pattern with employment and other uses leaving the inner cities as well. Single-family suburban homes on large lots became a reality for many middle-class families.

While highways provided convenient access to the suburbs, many of them cut through inner cities, separating and isolating many traditional neighborhoods. Lack of infrastructure investment and a declining population base in the central cities convinced many families that suburban neighborhoods were safer and healthier with cleaner air, lack of crime and blight, wide streets, and new homes.

As a predominant model for urban development, the walkable, compact, mixed-use neighborhoods, built on a grid street pattern with public facilities such as a school or a park at its core, were being replaced by the automobile-oriented suburbs, connected to consolidated retail and employment centers or public facilities by parkways or arterial streets with fast-moving traffic.[6] Today, many people in the United States live in such neighborhoods.[7]

Traffic patterns are in line with this trend. Between 2008 and 2012, across the nation, people who walked to work declined from 5.6 percent to 2.8 percent while those who drove comprised nearly 90 percent.[8] From 1969 to 2009, the number of children who walked or biked to school decreased from 48 percent to 13 percent. This drastic decline in children walking or biking to school may be directly related to growing obesity rates among children in the United States – now more than 33 percent. Parents cited concerns about traffic and safety as the key reasons they preferred to drive

their children to school.[9] Ironically, between 10 percent to 14 percent of the morning commute-time traffic is generated by parents driving their children to school.[10]

Why Public Health Matters

Chronic Diseases

Chronic disease rates among adults and children have reached epidemic levels. Seven out of ten deaths each year are from chronic diseases[11] which include heart disease, asthma, diabetes, and cancer. Both obesity and being overweight are major risk factors for chronic diseases. According to the CDC, the percentage of the population in California that is obese increased from 18.7 percent in 2000 to 25 percent in 2016.[12] The Open Data Network reported that in 2015, 22.6 percent of San Diego County residents were obese.[13] Childhood obesity in the country has more than doubled in the last 30 years.[14] In the San Diego region, more than one-third of fifth, seventh, and ninth grade children enrolled in public schools during the 2014 to 2015 academic year were overweight or obese.[15] As with adults, poor nutrition and a lack of physical activity are cited as the primary causes. The built environment can contribute to obesity when it lacks places where people can be physically active or have access to healthy foods. Therefore, designing a built environment that reduces people's barriers to making healthy choices is a key strategy for addressing the chronic disease epidemic in the San Diego region.

Traffic Fatalities

In addition to chronic diseases, traffic fatalities also have become a major public health issue. In 2016, there were more than 37,000 traffic-related fatalities in the United States.[16]

In 2016, 239 people died in crashes on the roadway in the San Diego region. Of these, 71 were pedestrians.[17] Bicyclists and pedestrians combined represent nearly one-third of all fatalities while they account for only three percent of trips in the region[18] [19]. This disparity has added significance since safety is a primary concern for people when they choose a mode of travel, especially for children travelling to school, or seniors who are dependent upon public transportation.[20] Additionally, the need for safe and accessible bike and pedestrian infrastructure is critical in low-income and minority communities that have low rates of automobile ownership.[21]

Air Quality

While the region's air quality has improved,[22] the health impacts of transportation-related pollutants remain a concern and can have a direct impact on rates of chronic diseases such as asthma and other respiratory diseases, including lung disease, coronary heart disease, and cancer. Children are particularly susceptible to developing respiratory illnesses, especially when exposed to pollutants early in life.[23] Internal combustion engines in vehicles emit a number of air-borne pollutants, which are regulated by state and federal air quality standards to protect public health and safety. The San Diego region has met the federal standards for carbon monoxide, nitrogen dioxide, particulate matter, sulfur dioxide, and lead,[24] and attained the federal 1997 Eight-Hour Ozone standard in 2013; additionally, the region has made progress in attaining the federal 2008 Eight-Hour Ozone Standard—in 2015, eight out of the nine monitoring sites in the County met the standard.[25] The San Diego region is a non-attainment area for the state ozone and particulate matter standards.

At times, air emissions from traffic may become a concern for siting new recreational facilities, such as a trail alongside a freeway or a neighborhood park served by a busy arterial road. In general, the

health benefits of physical activity usually far outweigh the risks from ambient air pollution. Guidelines from the federal Centers for Disease Control and Prevention state that, except for sensitive populations with chronic lung conditions, physical activity should be avoided entirely only under the worst air quality conditions, which rarely occur in the San Diego region. For recreational facilities, emissions from point sources such as roadways should be minimized to the extent possible, however short duration exposures typical of park or trail use do not warrant avoiding such physical activity opportunities except for sensitive populations.[26]

Cost Implications

Poor health outcomes often can have a significant cost burden on society, in part due to premature deaths and absences from work and school. Obesity-related medical care costs are estimated to be 21 percent of total national healthcare spending annually.[27] By 2030, healthcare costs associated with obesity are expected to rise by $48 billion to $66 billion.[28] The California Department of Public Health estimates that obese people spent $1,429 more in medical care costs compared to people of normal weight. In addition, it is estimated that in 2014, the total annual cost to California from obesity-related conditions was $36.2 billion.[29] In 2006, the estimated cost for the San Diego region was approximately $3 billion, or nearly $3,000 per household in annual costs.[30] Identifying opportunities to invest in lower-cost infrastructure, such as bike and pedestrian facilities, could lead to more health-conscious decisions and healthier lifestyles and result in reduced healthcare costs.

How the Built Environment Affects Health

Land-use patterns in many communities make driving a necessity and discourage walking and biking. A decrease in walking and biking results in a decrease in daily physical activity, which is considered a critical factor in the rising obesity epidemic across the United States, especially among children. In light of growing evidence that links land use patterns and transportation infrastructure with public health outcomes,[31] urban planners and public health practitioners have begun collaborating to develop strategies that improve community health and wellness through the design of the built environment. For example, people who live in neighborhoods with sidewalks on most streets are 47 percent more likely to be physically active for at least 30 minutes a day,[32] which is the minimum amount recommended by the U.S. Surgeon General.[33] Some of these strategies are described below.

Active Transportation and Public Transit

Streets that are designed for the safety of multiple users—including pedestrians of all ages, bike riders, people with disabilities, buses, and cars—have been shown to reduce the risk of pedestrian and bike rider injuries.[34] Community design and development patterns that encourage physical activity and educational institutions that support walk and bike to school programs help people meet the Surgeon General's recommendation for daily physical activity.[35] Physical activity includes moderate-intensity exercise such as walking and jogging and varies among individuals depending on age and fitness level.

Using public transit and active transportation options such as walking and biking reduces vehicle miles traveled, vehicle emissions, respiratory disease associated with sedentary lifestyles, and healthcare costs.[36] Proximity to transit also is associated with improved access to healthy food as well as social, medical, employment, and recreational activities, particularly for physically and economically disadvantaged people.[37] Additionally, the nation is experiencing a demographic shift that is resulting in a greater demand by consumers, young professionals in particular, to live in walkable, dense

neighborhoods with active transportation options and easy access to a range of retail and services, public transit, and jobs.[38]

Access to Parks and Recreation

Residents with convenient access to parks are more likely to use them for recreation and physical activity.[39] Quality recreational facilities and programs also can increase physical activity. The health benefits of physical activity include a reduced risk of premature mortality, cardiovascular disease, some cancers, and type 2 diabetes and metabolic syndrome.[40] Regular participation in physical activity can help reduce depression and anxiety, improve mental health and mood, strengthen bones and muscles, and enhance ability to perform daily tasks throughout the life span. [41] Contact and exposure to open spaces also can reduce stress, improve mental health, and facilitate recovery from illness.[42] Furthermore, studies show that increased access to open areas such as parks, recreation space, and wilderness areas is associated with a decreased prevalence of obesity. [43, 44]

There are a number of potential barriers to accessing parks and recreation, especially in low-income and minority communities and including proximity and safety, that if addressed could increase the levels of physical activity and decrease chronic disease and other related negative health impacts within communities. Additionally, ensuring that parks are well-maintained over time is crucial to ongoing use and long-term health benefits.

Complete Neighborhoods

The term "complete neighborhoods" refers to the ability of residents to easily access all of the goods and services needed in daily life by walking. A complete neighborhood encourages walking and biking because goods are nearby, and helps contribute to neighborhood safety by ensuring that many people are out and about throughout the day and into the evenings, helping to keep eyes on the street. Complete neighborhoods also reduce residents' reliance on cars, resulting in fewer automobile trips required. This, in turn, leads to reduced air and noise pollution as well as reduced risk of collisions and injuries.

The availability of medical services throughout the community can reduce vehicle trips with benefits to air quality, community noise, and injuries. The availability of primary medical care has a role in preserving good health and preventing morbidity and hospitalizations from chronic and communicable diseases, including asthma and diabetes.

A combination of land-use and transportation considerations, such as mixed-use or transit-oriented developments that include schools, parks, retail, job access, affordable housing, medical facilities, and other appropriate elements, are components of a complete neighborhood. Complete neighborhoods could strengthen local economies, provide greater access to jobs, and reduce interregional commutes and air pollution, which are key predictors of health status.[45]

Access to Affordable Housing

In a healthy community, residents have access to safe and affordable housing. The lack of adequate affordable housing may result in families living in substandard housing, overcrowded situations, overpaying (i.e., paying more than 30 to 50% of their income for housing), and/or living far from their work and commuting long distances, negatively affecting both physical and emotional health.[46]

Residents of substandard housing are at increased risk for fire, electrical injuries, lead poisoning, rodent infestation, mold, childhood asthma, and other illnesses and injuries. Overcrowded housing conditions can contribute to higher mortality rates, infectious disease, inhibited childhood development, and stress. Excessive rent or housing cost burdens contribute to emotional stress, hunger, and overcrowding.[47] Conversely, lower housing costs result in more disposable income for essential non-housing needs, allowing a more balanced and healthier lifestyle.

Homelessness

Homelessness can lead to exposure of communicable diseases, violence, and malnutrition, and is closely connected to declines in physical and mental health due to lack of access to food and protection from harmful weather, limited resources, and barriers to care. High-stress, unhealthy and dangerous environments and an inability to control food intake often results in visits to emergency rooms and hospitalization.[48]

In San Diego County, homelessness increased by 5 percent from 2016 to 2017, with an approximate 9,116 homeless people countywide in 2017.[49] To address growing concerns of widespread homelessness, the San Diego Regional Task Force on the Homeless administered nearly $3.2 million in grants in the last fiscal year and more than $960,000 to support rapid rehousing programs. Additionally, the San Diego Housing Commission established the "Housing First" initiative over three fiscal years (FY 2018 to FY 2020) to direct $79.7 million in resources for six programs that will provide permanent housing opportunities for 3,000 homeless persons in San Diego.[50]

Environmental Quality

Research suggests that low-income and minority communities are more likely to live near busy roadways and major highways.[51] Studies also have found consistent associations between living in proximity to a busy roadway and respiratory disease symptoms, including asthma and poor lung function. Diesel particulate matter from truck and train engine exhaust has acute short-term impacts and disproportionate effects on the elderly, children, people with illnesses, and others who are sensitive to air pollutants. Health risks increase with closer proximity to high-volume roadways.[52] In addition, truck routes on local streets contribute to traffic congestion, which may lead to unsafe conditions for pedestrians and bike riders. Conversely, in dense communities where mixed use provides access to goods and services, there is a need for delivery trucks which can contribute to traffic congestion and sometimes cause conflicts with pedestrians and bike riders. Trade-offs in the decision-making process for physical health benefits or smart growth developments can sometimes outweigh location near or next to busy roadways.

Traffic also is a significant source of environmental noise. Chronic noise exposure can result in sleep disturbance, cognitive impairment in children and adults, adult hypertension, and stress hormone activation.[53] Except for low-emission and natural gas-powered vehicles, traffic directly contributes to air pollution and greenhouse gas (GHG) emissions. These emissions and other air pollutants, including ozone and particulate matter, are risk factors for cardiovascular mortality and respiratory disease and illness.

Street trees provide multiple benefits and can mitigate some of the negative effects of roads and vehicle emissions. Trees capture air pollution, reduce carbon dioxide, and increase oxygen levels.[54] Trees close to traffic have been found to absorb nine times more pollutants than distant trees. In addition to the numerous environmental benefits, trees in urban areas also provide social benefits.

Studies show that urban street trees can facilitate stress reduction and better mental health.[55] Speeding vehicles can endanger pedestrians and bike riders, posing additional safety concerns in neighborhoods.[56] Street trees have shown to have a calming effect on traffic, causing motorists to slow down.

Access to Healthy Food

The health impacts of a poor diet are costly. In the United States, it is estimated that healthier diets might prevent $84.2 billion per year in medical costs.[57] In San Diego County, 494,439 residents—and one in five children—currently are food insecure (i.e., uncertain of being able to secure sufficient food for self or family).[58] A growing body of research points to the neighborhood food environment as a major contributor to poor dietary choices and ultimately, the poor health of a community. [59] Land-use practices and policies can help increase access to healthy food and improve public health.

There are many strategies for the development of healthy food environments: farmers' markets and farm stands, grocery stores, healthy corner store conversions (modifying existing neighborhood retail establishments to carry a wider variety of healthy foods), community gardens and urban farms, farmland protection, farm-to-institution (i.e., food from local farms to institutions such as schools, government, corporations, hospitals, and colleges in the region), and many other strategies. In order to implement any of these strategies successfully, a community must have supportive business, economic, and land-use policies and regulations. Additionally, policies and regulations should allow for both individual and commercial food production in order to foster community resilience and greater food access for individuals of all backgrounds, cultures, and socioeconomic statuses.

Community gardens and urban agriculture can provide a source of fresh fruits and vegetables for users, increase physical activity, and provide opportunities for social interaction. Locally produced food helps attain other benefits, such as sustaining the local economy and reducing long-distance shipping, thereby decreasing vehicle emissions, which are associated with chronic diseases and global climate change.

The City of San Diego passed model community garden and urban agriculture zoning regulations in 2012. Community gardens are allowed by right in all residential and commercial zones. The urban agriculture zoning ordinance allows for small-scale animal husbandry (i.e., beekeeping or the keeping of chickens or miniature goats), small urban farms of four acres or less, and the sale of local agricultural goods. Regulation changes allow for on-site community garden sales, farmers' markets on both public and private property, and the sale of locally unprocessed, non-valued products in commercial zones on both public and private property.

These practices allow for community residents of all income levels to produce foods in an affordable manner that protects and promotes public health. Additionally, they create economic opportunities for small and medium sized growers.

Farmers' markets can provide another source of fresh, locally produced fruits and vegetables that can help residents meet the recommended daily servings of healthy food. Healthy food is generally low in fat and saturated fat, contains limited amounts of cholesterol and sodium, and provides natural vitamins. Farmers' markets may be particularly important in areas lacking full-service grocery stores.

The presence of a grocery store or food market in a neighborhood correlates with higher fruit and vegetable consumption, reduces the prevalence of being overweight and of obesity, and reduces the incidence of hunger and malnutrition.[60]

Neighborhood studies demonstrate that where there are high numbers of fast food restaurants compared to grocery stores, there also are higher rates of diabetes, cardiovascular disease, and cancer.[61] Increasing the number of full-service grocery stores relative to fast food restaurants in neighborhoods can help to combat these health conditions. The concentration of grocery stores varies throughout the San Diego region. Programs that create opportunities to purchase healthy food options at corner stores can help alleviate the burden to communities with fewer full-scale grocery stores.

For example, Project New Village is a non-profit organization that works to improve fresh food access in southeastern San Diego as part of a broad-based movement to build healthy neighborhoods. Project New Village uses neighborhood-based agricultural cooperatives as strategies of resistance to food insecurity and aims to remove barriers that impede universal access to good food through community/civic engagement and building alternative food ecosystems. Project New Village also operates a farmers' market and community garden to improve access to healthy, fresh foods for residents of southeastern San Diego.[62]

Transportation access to healthy food, including transit, bike, and pedestrian facilities, also is an important consideration, especially in low-income and minority communities.

Access to Regional Food Systems

The development of regional food systems, or "food hubs," supports locally grown and healthy food. Regional Food Hubs are defined as "integrated food distribution systems that address agricultural production and the aggregation, storage, processing, distribution, and marketing of locally or regionally produced food products."[63] Local food hubs have been shown to reduce the redundancy inherent in small-scale food systems by providing a platform for producers to collectively meet consumer demand within a region—primarily prior to the product entering the global market. Although studies have been conducted to examine the feasibility of regional food hubs[64] and advocate for the establishment of more localized food hubs,[65] San Diego County presently lacks its own Regional Food Hub. Instead, the Los Angeles terminal market acts as a proxy wholesale distribution center. A San Diego Regional Food Hub could reduce the redundant transportation miles that are accrued by producers and distributors alike.

San Diego County's propensity toward organic fruit and vegetable production and small farms presents a unique opportunity in the advancement of the local economy, the environment, and public health. Though San Diego County produces more than 200 types of fruit and vegetable crops, each year valued at $630 million, it is estimated that only 10 percent of the fruits and vegetables grown in San Diego County are consumed locally as of 2010.[66]

Further economic gains could be made by exploring expanded land-use policies and regulations across the county that encourage local procurement, using and renovating existing infrastructure, and investing in new technologies to create new market opportunities. Simultaneously, these efforts help increase access to healthy, locally produced foods. Studies continually link farm-to-institution programs with increases in school meal participation and fruit and vegetable selection by students.

In addition to a Regional Food Hub, other food-related businesses such as food processing facilities, commercial kitchens, and shared programs such as "kitchen incubators" have been implemented in other regions to facilitate a more diverse local food system while creating more jobs and entrepreneurial opportunities. These types of businesses also are materializing in the San Diego region.[67] Kitchen incubator programs can lower the cost of entry for entrepreneurs by providing shared kitchen facilities and equipment on an as needed basis to small catering companies, pushcart vendors, bakers, specialty-food makers, and other food-based businesses.[68]

Access to Healthcare Facilities

In a healthy community, residents have adequate transportation access to healthcare facilities. People need to be able to get to many places, including to the doctor, regardless of income or background. The availability of medical services throughout the community, paired with a variety of transportation options to access those services, helps increase access to healthcare facilities. As the region's population continues to age,[69] the need for adequate transportation access to healthcare facilities will continue to grow. Many Metropolitan Planning Organizations, including SANDAG, work with Consolidated Transportation Service Agencies and other specialized transportation providers to coordinate transportation services for seniors and individuals with disabilities, and provide grants for specialized transportation programs to expand mobility options for seniors and the disabled. These programs provide critical services that enhance access to healthcare facilities for our most vulnerable populations.[70] As part of its 2018 Coordinated Plan update, SANDAG is in the process of developing a long-term Specialized Transportation Strategic Plan to address the increasing specialized service needs of seniors and persons with disabilities. This plan was identified as a Near-Term Action for implementation in the 2015 Regional Plan.

The 2015 Regional Plan included a Social Equity Analysis that analyzed the percentage of the population within 15 minutes goods and services (by driving alone, carpooling, taking public transit, and walking) including hospitals, community clinics, and medical offices. The analysis showed that the transportation investments included in the 2015 Regional Plan provided better access to healthcare for seniors, low-income, and minority populations via all transportation modes than without the investments.[71] A similar analysis, as well as continued implementation of specialized transportation services and programs, will be important in the development of the 2019 Regional Plan.

Public Safety

Community design affects social interactions, which in turn may affect violence. Violence has a negative effect on the physical and mental health of victims and their families, friends, and neighbors. It also negatively impacts the social and economic well-being of the neighborhood, influencing business investment, job and housing security, educational attainment, resident participation in community development, and community integration.[72] When neighborhoods are well designed, the resulting social cohesion contributes to lower rates of crime and violence and, therefore, better health outcomes.[73]

Design factors associated with levels of perceived and actual neighborhood safety include sidewalk cleanliness and width, street design for pedestrian safety and speed control, street lighting and street trees, number of liquor stores, degree of community isolation, and access to services and housing for low-income persons. Other factors include the presence of drugs or gangs, police presence, availability of weapons, employment, and access to community activities for families and youth.[74]

Many communities are adopting a multi-disciplinary approach, known as "crime prevention through environmental design," to help make their neighborhoods safer through environmental design.[75]

A table discussing built environment strategies, policy considerations, and community health outcomes is included at the end of this white paper.

Existing National, State, Regional, and Local Efforts

A number of existing policies, plans, and programs at the national, state, regional, and local levels support planning and implementation for healthy communities in the San Diego region. Some of the major efforts are described below.

National Plans and Programs

Joint Call to Action to Promote Healthy Communities

The Joint Call to Action brings together eight national organizations and calls on members to collaborate with one another to create healthier, more equitable communities. Signatories include the American Institute of Architects, the American Planning Association, the American Public Health Association, the American Society of Civil Engineers, the American Society of Landscape Architects, the National Recreation and Park Association, the U.S. Green Building Council, and the Urban Land Institute. As signatories, the national organizations work to build relationships, establish health goals, implement strategies to improve health, and share expertise.[76]

American Planning Association, Plan4Health, and Planners4Health Programs

Plan4Health is a partnership between the American Planning Association (APA) and the American Public Health Association that leverages planners' roles as collaborators and conveners to improve health outcomes. Plan4Health includes 35 local coalitions of public health and planners supporting place-based work.[77] Planners4Health is the final iteration of the Plan4Health program and is focused on integrating health into the planning process via local APA chapters. Planners4Health includes more than two dozen local APA chapters, including the local San Diego APA section, building capacity to address health at the chapter level.[78]

American Association of Retired Persons and World Health Organization Network of Age-Friendly Cities and Communities

Nationally, trends show that our country's population is aging. According to the American Association of Retired Persons (AARP), one-third of the population is currently 50 years or older, and by 2030, 20 percent of our nation's population will be 65 years or older. Local trends line up with the national trends. Currently, about 12 percent of the San Diego region's population is 65 or over. By 2050, it is expected that nearly 20 percent of the population will be ages 65 and over.[79] The AARP Network of Age-Friendly Cities includes more than 200 communities in which elected leaders have made the commitment to actively work towards making their city or county a great place for people of all ages. The AARP Network of Age-Friendly Communities is an affiliate of the World Health Organization (WHO) Age-Friendly Cities and Communities Program which was launched internationally in 2006 to help cities prepare for growing aging populations. Local jurisdiction members include the City of Chula Vista and San Diego County.[80] In light of the needs of the aging population, the AARP and the WHO provide toolkits, fact sheets, books, and other resources to help communities become more livable and more age-friendly for all.[81]

State Plans and Programs

General Plan Guidelines

The California Governor's Office of Planning and Research published its updated 2017 General Plan Guidelines that serves as a resource for local cities and counties. The updated guidelines contain significant changes, including a new section on healthy communities that provides strategies and approaches for incorporating health considerations into general plans. In addition, the 2017 General Plan Guidelines emphasize correlations between healthy communities and other required elements in the general plan.[82]

Health in All Policies

Health in All Policies was established by the Public Health Institute to incorporate health considerations into decision-making across sectors and policy areas. The Public Health Institute works with local governments to support the incorporation of a Health in All Policies approach through one-time consultations, trainings, and in-depth partnerships. In 2010, the California Department of Public Health and the Public Health Institute established the Health in All Policies Task Force, which brings together 22 departments, agencies, and offices from across California State Government to identify priority programs, policies, and strategies to improve the health of Californians.[83]

Regional Plans and Programs

San Diego Forward: The Regional Plan

The SANDAG Board of Directors adopted the 2015 Regional Plan on October 9, 2015. The 2015 Regional Plan combines the big-picture vision for how the San Diego region will grow by 2050 with an implementation program to help make that vision a reality.

In an effort to bring greater focus to the new and emerging topic areas of the 2015 Regional Plan, SANDAG staff prepared a series of white papers to help inform the development of the plan. The intent of the white papers was to support and provide background information for the 2015 Regional Plan and to serve as its appendices. Four white papers, focusing on issues related to public health and the built environment, economy, climate change, and technology, were prepared. These topics were consistent with the vision and goals approved by the SANDAG Board of Directors, which centered around Vibrant Economy, Healthy Environment and Communities, and Innovative Mobility and Planning. All of the white papers, including the Public Health White Paper, can be found in Appendix Q of the 2015 Regional Plan. The Public Health White Paper for the 2015 Regional Plan was the first SANDAG-prepared white paper focused on public health, and it included input from the Public Health Stakeholders Working Group, which was established during the development of the 2015 Regional Plan to provide a broad-based foundation for the inclusion of health issues in the regional planning context. This current white paper, prepared in 2018, builds on that first white paper and incorporates information that is new since 2014 in order to help inform development of the 2019 Regional Plan.

TransNet Sales Tax Ordinance

TransNet is the half-cent sales tax for local transportation projects that was first approved by voters in 1988, then extended in 2004 for another 40 years beginning in 2008. Administered by SANDAG, the program has been instrumental in expanding the region's transportation system, reducing traffic congestion, and bringing critical transportation programs to life. During the 60-year life of the

program, billions of dollars will be generated and allocated toward highway, transit, and local road projects in the region.

The *TransNet* extension ordinance approved in 2004 dedicated 2 percent of revenues to the Smart Growth Incentive Program (SGIP) and 2 percent of revenues to the Bicycle, Pedestrian, Neighborhood Safety, and Traffic Calming Program (now the Active Transportation Grant Program, or ATGP). These grant programs provide funding for the planning and construction of street improvements along local corridors and intersections, such as sidewalks, crosswalks, streetscape enhancements, and other pedestrian upgrades, traffic calming measures, and safety measures. The SGIP supports compact, mixed-use development and more housing and transportation choices in the Smart Growth Opportunity Areas located on the SANDAG Smart Growth Concept Map through planning and infrastructure grants.

Since these two programs were launched in 2009, the Board of Directors has awarded more than $50 million in *TransNet* funds, leveraging more than $34 million in local matching funds, for a total investment of more than $80 million throughout the San Diego region. Through the three funding cycles issued to date, more than 100 SGIP and ATGP projects have been awarded funding, including 43 SGIP grants (23 capital grants and 20 planning grants) and 64 ATGP grants (34 capital grants and 30 planning, bike parking, and educational grants). More than 70 percent of the projects have been completed.

A fourth cycle of funding will be awarded in mid-2018, with more than $30 million of funding for allocation. The fourth cycle includes two new eligibility requirements for local jurisdictions. In order to receive funding for smart growth and active transportation projects, jurisdictions need to have adopted Climate Action Plans and Complete Streets Policies. The fourth cycle provides funding to assist jurisdictions to finalize these documents if they have not already adopted them. These new eligibility requirements help the region move toward a more comprehensive network of complete streets, and supports the preparation of local policy documents that further statewide climate planning goals.

Board Policy No. 31: *TransNet* Ordinance and Expenditure Plan Rules, Rule 21, provides guidance on section 4(E)(3) of the Ordinance, which requires routine accommodation of bicyclists and pedestrians in all *TransNet*-funded projects. The guidelines address all aspects of the program, including highways, public transit, and local roads.

Regional Complete Streets Policy

The SANDAG Board of Directors adopted a Regional Complete Streets Policy in 2014. Complete streets planning efforts provide a process to ensure that the transportation system is safe, useful, and attractive for all users of the transportation network. The policy was incorporated into the 2015 Regional Plan. Since the adoption of the policy and its incorporation into the 2015 Regional Plan, SANDAG created a complete streets web page, drafted a certification form template to use when assessing regional transportation projects for compliance with the Regional Complete Streets Policy, developed an initial database/mapping tool for use in completing the certification forms, and prepared a complete streets checklist as an optional resource for use by local jurisdictions.

Active Transportation Implementation Strategy Framework

With the adoption of the 2050 RTP/SCS in 2011, the SANDAG Board of Directors made an unprecedented commitment to Active Transportation. The plan included Safe Routes to School and

Safe Routes to Transit strategies, the Regional Bike Plan, and other related active transportation efforts at SANDAG. Work completed to date, described below, will both inform and address active transportation in the 2019 Regional Plan.

Safe Routes to School Programs

At the local level, a number of jurisdictions have initiated comprehensive Safe Routes to School programs in order to encourage more walking and biking to school. For example, the City of Chula Vista collaborated with education, public health, and community partners on the Healthy Eating Active Communities campaign with the goal of improving access to healthy food and physical activity in schools and neighborhoods.[84] SANDAG approved a Regional Safe Routes to School Strategic Plan to guide future agency involvement in promoting walking and biking to school as safe and attractive travel choices.

Safe Routes to Transit

The Safe Routes to Transit Program identifies projects and programs that provide bike and pedestrian access around existing and planned transit stops and stations. SANDAG will work closely with local jurisdictions to identify opportunities to complement projects and programs identified in their bike and pedestrian plans.

San Diego Regional Bike Plan

The Regional Bike Plan, adopted in May 2010, establishes a network of regional bikeway corridors for intercommunity bike travel and proposes a comprehensive set of programs to support biking in order to make riding a bike a practical transportation choice in the San Diego region. In 2013, the Board of Directors adopted the Regional Bike Early Action Program, which authorized borrowing up to $200 million against future *TransNet* Active Transportation Program funds to accelerate development of the highest priority project in the Regional Bike Plan.

iCommute Transportation Demand Management Program

The goal of the iCommute program is to manage and reduce traffic congestion during peak-times, as well as to reduce GHG emissions and other environmental pollutants that result from commuters driving to work each day alone. iCommute plays a vital role in promoting active transportation through employer outreach; administering the regional bike parking program and regional bike map; bike education programs for schools, community organizations, and employers; and marketing and outreach efforts such as Bike to Work Day. In addition, iCommute administers the GO by BIKE mini-grant program, wherein grants of up to $3,000 are available for programs or projects that promote biking through education and outreach. A reference guide for local jurisdictions, entitled "Integrating Transportation Demand Management into the Planning and Development Process," was completed in May 2012.

Regional Mobility Hub Implementation Strategy

The 2015 Regional Plan included a Near-Term Action to develop a Regional Mobility Hub Implementation Strategy. Mobility hubs are places of connectivity where different modes of travel—walking, biking, transit, and shared mobility—converge, and where there is a concentration of employment, housing, shopping, and/or recreation. Mobility hubs provide an integrated suite of mobility services, amenities, and technologies to bridge the distance between high-frequency transit and an individual's origin or destination. Mobility hubs can promote active forms of travel to and from high-frequency transit services by offering safe and convenient walkways, crossings, and

bikeways; bike parking options; and shared mobility modes like bikeshare and rideables (e.g., electric scooters and motorized boards).

SANDAG recently completed key deliverables of the Regional Mobility Hub Implementation Strategy, which can be found at SDForward.com/RegionalMobilityHub. These deliverables include a Mobility Hub Features Catalog, technical memos that provide guidance on mobility hub implementation and equity considerations, profile sheets for eight mobility hub prototype locations in the region, and conceptual designs for three of the prototype locations. The catalog illustrates the types of services, amenities, and technologies that can work together to make it easier for people to connect to transit while also providing enhanced mobility options. The catalog serves as a resource for jurisdictions, transit operators, and private mobility service providers as they collaborate to design and implement mobility hubs around the region. The prototypes demonstrate how mobility hub services and amenities can be tailored to meet specific community needs. SANDAG is working with the City of Oceanside to develop a three-dimensional mobility hub visual simulation for the Oceanside Transit Center prototype location. Analysis also will be performed to identify a regionwide mobility hub network.

Healthy Works Project

In March 2010, the County of San Diego Health and Human Services Agency (HHSA) received $16.1 million from the federal Centers for Disease Control and Prevention through the American Recovery and Reinvestment Act for the Healthy Works I project/Communities Putting Prevention to Work. The overarching goal of the program was to expand the use of evidence-based, community-wide strategies that focused on environmental systems and policy changes, resulting in increased levels of physical activity, improved nutrition, and decreased prevalence of being overweight and of obesity. To achieve this goal, HHSA partnered with SANDAG on a variety of projects aimed at increasing levels of physical activity and access to healthy food and nutrition. Phase I of the Healthy Works program, which was supported by $3 million in grant funds, was completed in March 2012.

In September 2011, HHSA received another CDC grant, the Community Transformation Grant, and chose to partner with SANDAG again to build on the successes of the Healthy Works Phase I projects. SANDAG and HHSA initiated the Healthy Works Phase II projects in July 2012 to implement a Safe Routes to School Strategic Plan and a Regional Complete Streets Policy, refine the Public Health and Wellness Policy Framework and Performance Measures for consideration in the current regional plan update, establish a monitoring and evaluation program to assist in quantifying outcomes of active transportation projects and programs, and explore and develop new tools and resources to assist agencies throughout the region in conducting health analyses on transportation and land use-related projects.

Public Health Elements for General Plans

A number of jurisdictions in the San Diego region have adopted public health elements as part of their general plan updates. These include the Cities of Chula Vista, Escondido, La Mesa, National City, San Marcos, and Vista. Encinitas and Lemon Grove currently are in the process of developing public health elements for their general plans.

San Diego County Childhood Obesity Initiative

In 2006, the County Board of Supervisors launched the Call to Action: Childhood Obesity Action Plan for San Diego County. Representing a collaborative effort of numerous partners and stakeholders,

the Action Plan paved the way for the funding and formation of the San Diego County Childhood Obesity Initiative (COI), which serves to engage partners and ensure the effective implementation of the strategies outlined in the Call to Action.

The initiative, funded by the County of San Diego and coordinated by Community Health Improvement Partners, is a public/private partnership whose mission is to reduce and prevent childhood obesity in San Diego County by creating healthy environments for all children and families through advocacy, education, policy development and environmental change. COI consists of seven domains, including government, healthcare, schools and after-school, early childhood, community, media, and business. The government domain component addresses health in the built environment.[85]

Live Well San Diego

Live Well San Diego (LWSD) is the County of San Diego's roadmap for the future to achieve the vision of a safe, healthy, and thriving county. To achieve this vision, the County created a framework embracing four main themes: building a better service delivery system, supporting healthy choices, pursuing policy and environmental changes, and changing the culture from within the organization to support positive health outcomes. LWSD is a shared agenda for collaboration and action involving partner organizations in all sectors including government agencies, businesses, schools, healthcare providers, and faith-based and community organizations. The County Board of Supervisors recognizes partners who demonstrate a strong commitment to LWSD principles and who put that commitment into action. SANDAG is a recognized partner of the *Live Well San Diego* vision.

Border Health Program

The County Office of Border Health was established in February 1993 with the goal of facilitating communication and collaboration among local, state, and federal organizations working in the United States-Mexico border region. Local and cross-border health activities include coordinating binational meetings among public health officials and practitioners, organizing binational symposiums on a variety of shared health topics, facilitating communication around communicable disease control and prevention, and preparing for public health emergencies and threats. The Border Health Program's mission is to promote a healthy California-Baja California border region by working together with partners to address the needs of the shared community through streamlined communication, education, resource sharing, and partnerships to prevent disease, empower communities, and assist in responding to health threats and disasters.[86]

Public Health Data and Tools

The California Communities Environmental Health Screening Tool

Senate Bill 535 (De Leon, 2012) directs the California Environmental Protection Agency (CalEPA) to identify disadvantaged communities based on geographic, socioeconomic, public health, and environmental hazard criteria. In order to accomplish this, CalEPA utilizes the California Communities Environmental Health Screening Tool (CalEnviroScreen) to map out environmental, health, and socioeconomic data at a census-tract level across the state. The most recent version, CalEnviroScreen 3.0, includes updates related to information on pollution along the California-Mexico border and the addition of new indicators reflecting health and socioeconomic vulnerability to pollution.[87] Several state agencies use CalEnviroScreen in the implementation of various grant programs. Many of these programs are funded from California's Greenhouse Gas Reduction Fund.

Examples of some statewide grant programs that require the use of CalEnviroScreen to identify disadvantaged communities include the Sustainable Communities Planning Grants and Incentives Program; Affordable Housing and Sustainable Communities Program; and Transit and Intercity Rail Capital Program.

Healthy Communities Data and Indicators Project

The Healthy Communities Data and Indicators project is a collaboration between the California Department of Public Health and the University of California San Francisco, with funding from the Strategic Growth Council, that provides a standardized set of statistical measures and tools that a diverse array of sectors can use for planning healthy communities and evaluating the impacts of plans, projects, and policies on community health. The indicators for this project were based on the Healthy Community Framework developed by the Health in All Policies Task Force.[88]

Live Well San Diego Data Access Portal and Open Performance Dashboard

The *Live Well San Diego* data access portal was developed by the San Diego County Health and Human Services Agency to provide information on the most recent demographic, economic, behavioral, and health data available by communities in the San Diego County. The open performance dashboard is an interactive data tracking and visualization tool that reports progress over time on *Live Well San Diego's* top ten indicators and related measures.[89]

Health-Related Performance Measures in San Diego Forward: The 2015 Regional Plan

The 2015 Regional Plan used performance measures to help evaluate multimodal transportation network scenarios against one another, which were used to show the performance of the network included in the final version of the Regional Plan. For the 2015 Regional Plan, two new performance measures that examined transportation-related physical activity were added to the performance measures included in prior plans. Additional metrics highlight housing and employment near transit and bicycle facilities, access to jobs and higher education, medical care, parks and other destinations, and air quality and climate change measures. The performance measures currently are being updated for the 2019 Regional Plan.

Interrelationships to Other Policy Areas

Public health is related to several other policy areas of the Regional Plan. The following sections describe how public health is interrelated to climate change, social equity/environmental justice, economic, and emerging technology considerations.

Public Health and Climate Change

It is well recognized that global climate change and changing weather patterns have a range of direct and indirect impacts on public health. Health effects from climate drivers such as rising sea-level, changes in precipitation patterns, and rising temperatures include increased injuries and premature deaths related to extreme weather events, changes in the prevalence and geographical distribution of foodborne and waterborne illnesses, and increased respiratory and cardiovascular diseases.[90] Severe weather fluctuations and more intense temperatures worsen drought, wildfire, and air pollution risks. Extreme weather and rising sea levels can result in higher counts of pollen and other aeroallergens that affect an estimated 300 million people with allergies around the world.[91]

San Diego County is expected to see rising temperatures and more frequent heat waves, as well as less frequent and more intense rainfall. It is anticipated that temperatures in 2050 will be 4.8 degrees Fahrenheit hotter than in 1985. Extended heatwaves and less nighttime cooling increase health risks associated with heat-related illness and cardiovascular disease and have greater impacts on vulnerable populations such as the elderly, children, low-income residents, and the chronically ill.[92]

Public Health and Social Equity/Environmental Justice

Health is determined in part by access to social and economic opportunities. Social and economic opportunities impact the resources that are available in communities, the quality of schooling, safety of workplaces, and cleanliness of air, water, and food. Social determinants of health are the conditions in which people are born, live, learn, work, play, and age that affect a wide range of health, functioning, and quality of life outcomes. Resources that enhance quality of life can have a significant influence on population health outcomes. Examples of these resources include safe and affordable housing, access to education, access to healthy foods, and access to emergency and health services.[93]

In San Diego County, substantial differences in health indicators and health-related behaviors exist in different socioeconomic groups. Low-income residents have a life expectancy below the county average, at 78 and 80 years, while residents of all other income groups have a life expectancy greater than the county average of 81 years. In comparison to the overall county, low-income communities are disproportionately affected by injury, chronic disease, communicable disease, maternal and child health indicators, and behavioral health outcomes.[94] The State of Childhood Obesity in San Diego County Report indicated wide disparities in childhood obesity rates by both race/ethnicity and economic status. In the 2014 to 2015 academic year, the childhood obesity rate for Hispanic students (23.1%) was more than double the rate for non-Hispanic students (10.8%) and almost 2.5 times higher than childhood obesity rates among white students (8.9%). In the same year, the prevalence of obesity for economically disadvantaged students (22.9%) was more than twice the rate than for students who were not economically disadvantaged (10.0%). These findings are important because Hispanic students represent approximately half of all public-school students in San Diego County with respect to race/ethnicity; similarly, low-income students account for half of all public-school students in San Diego County with respect to socioeconomic status.

Public Health and Economic Prosperity

The Economic Prosperity White Paper discusses economic conditions and trends in the San Diego region. In addition to the information included in the white paper, it is worth noting that the socioeconomic status of individuals and neighborhoods are intertwined with individual and community health because the local economy affects access to jobs, commerce, schools, healthcare facilities, and other resources that enable families to enjoy economic success and place-based health benefits. Therefore, health is influenced not only by the economic well-being of individuals and households but also by the economic well-being of communities.[95]

The population of San Diego is younger, better-educated, and earns more than the national average.[96] In addition, the region offers a diverse employment base, with the tourism, military, and innovation sectors making up one-third of the economy. Although San Diego offers an attractive economy, associated high costs of living, especially housing costs compared to wages earned, impact residents' quality of life. In the past five years, housing costs have continued to rise sharply while median household income has remained relatively flat, resulting in greater disparities between the

cost of living and income.[97] As such, San Diego County residents are spending more of their income on housing, approximately 28 percent, and have lower rates of homeownership as compared to other major metropolitan areas.[98] Housing affordability is a critical piece of the puzzle when it comes to public health, as well as in relation to the broader economic health of the region.

Public Health and Emerging Technologies

The Emerging Technologies White Paper provides a robust overview of technological and societal trends that have the potential to radically change how the region's transportation system is used in the future, and outlines potential policy considerations that could enable the region to harness the benefits and reduce the negative aspects of these trends. It presents research that demonstrates how technological advancements have the potential to improve safety, mobility, and efficiency, but recognizes that without proactive planning and policy interventions, the technologies could move the region away from its objectives by increasing sprawl, vehicle miles traveled (VMT), and GHG emissions, and by limiting access for disadvantaged communities. The paper also discusses some of the public safety benefits of connected and autonomous vehicle technology for people that walk and ride bikes, as well as the potential benefits of improved air quality with the expansion of Zero Emission Vehicles (ZEVs). Shared mobility options, like bikeshare and rideables, also present opportunities to increase physical activity levels and improve public health.

Additional research beyond the Emerging Technologies White Paper shows that the impact of single-occupancy vehicles on our health is costly. Non-ZEVs produce carbon emissions that pollute our air, contribute to rising GHG emissions, and impact the lives of more than 3,600 people per year in California alone.[99] More than 90 percent of the negative health impacts from cars result from the effects of physical inactivity, sitting, and chronic disease.[100] Urban-design and land-use policies that create disconnected street networks and land uses that reinforce automobile dependency have been shown to cause numerous physical, mental, and social health problems.

Connected and autonomous vehicles, or driverless cars, are an emerging technology that have the potential to remove human error, reduce traffic accidents, and significantly improve safety for all road users. The transition to autonomous vehicles is an opportunity to create more walkable, bikeable, sustainable, and safer cities that provide benefits for both residents and businesses with the right policies in place to guide their deployment. The main health impacts associated with driverless cars are likely to be based on how cities and regions change to accommodate them. In order to capitalize fully on this unique opportunity to create healthier, more sustainable cities, a diverse spectrum of professionals, including public health specialists, should be involved in the planning process.[101]

Policy Considerations

Now more than ever, urban planners and public health professionals understand the extent to which our transportation system, land-use patterns, and community design play a role in determining health outcomes in our communities. How SANDAG invests in transportation infrastructure that maximizes public health benefits, social interaction, and community cohesion is an important policy consideration. The integration of public health policy issues and performance measures into the 2019 Regional Plan will support achievement of the goal of "Healthy Communities and Environment" and track progress over time. Table 1 includes policy considerations for healthy communities.

Table 1: Policy Considerations for Healthy Communities

Built Environment Strategies	Policy Considerations	Community Health Outcomes
Access to active transportation and public transit	• Invest in transportation infrastructure that maximizes public health benefits, social interaction, and community cohesion • Complete streets, pedestrian- and bicycle-friendly neighborhoods, regional and local bicycle routes, safe routes to school and other destinations, traffic calming on neighborhood streets, and safe and convenient public transit within walking distance of homes/work	• Increased physical activity • Lower risk of traffic-related injury, • Reduced air and noise pollution • Lower GHG emissions • Improved neighborhood safety • Greater social cohesion
Access to parks and recreation	• Support parks, recreation, and trails within walking distance of homes/work • Joint-use facilities with school districts and other public agencies	• Increased physical activity • Improved mental health • Improved neighborhood safety • Greater social cohesion
Complete Neighborhoods	• Support development of features that create Complete Neighborhoods, which include healthy, walkable, bikeable, and vibrant communities with a variety of housing choices and access to goods, services, medical facilities, recreation, and jobs • Neighborhood-serving retail and public amenities within walking distance of homes • Retrofit of underutilized retail centers or corridors into mixed-use development	• Increased physical activity • Lower risk of injury • Reduced air and noise pollution • Lower GHG emissions • Improved neighborhood safety • Greater social cohesion • Greater access to goods and services • Reductions in vehicle miles travelled

Built Environment Strategies	Policy Considerations	Community Health Outcomes
Access to affordable housing and support for the homeless	• Promote the availability of a diverse range of housing types close to major job centers to reduce the length of commute trips and combined cost of housing and transportation, especially for lower- and moderate-income households • Continue to support the County of San Diego's efforts to reduce homelessness	• Lower housing costs result in more disposable income for essential non-housing needs, allowing a more balanced and healthier lifestyle • Lower homelessness rates reduce communicable diseases, violence, and malnutrition, as well as declines in physical and mental health
Environmental quality	• Encourage the location of major pollution sources away from sensitive uses, such as parks, homes, and childcare centers • Remediation of contaminated sites • Habitat and open-space preservation, including canyons in urban areas • Urban forests/greening	• Reduced risk of respiratory diseases • Reduced exposure to toxic substances • Improved mental health
Access to healthy food	• Improve access to healthy and affordable food and nutrition while also considering transportation access • Farmers' markets, community gardens, and healthier food options in corner stores	• Improved nutrition • Increased physical activity • Reduced incidence of hunger
Access to regional food systems	• Explore the development of a Regional Food Hub within San Diego County	• Increased food security • Lower GHG emissions
Designing for public safety	• Encourage active uses in streets and public space to promote public safety • Encourage use of crime-prevention through environmental design principles, including adequate street lighting	• Improved neighborhood safety • Greater social cohesion • Improved mental health • Lower risk of injury

Built Environment Strategies	Policy Considerations	Community Health Outcomes
Climate change	• Support efforts to protect residents, especially vulnerable populations such as the elderly, children, low-income residents, and the chronically ill, from health risks such as heat-related illnesses, cardiovascular disease, and premature deaths related to extreme weather events caused by climate change	• Reduced health and social disparities • Lower GHG emissions
Equity/ environmental justice	• Encourage healthy environment features that provide low-income and minority communities equitable access to green spaces, healthy food, complete neighborhoods, transit, housing, and active transportation options	• Reduced health and social disparities • Increased access to healthy food retail environments • Healthy and complete communities
Economic impact/ development	• Encourage greater housing affordability • Consider funding strategies that ensure funds for the development of "complete communities" • Identify the economic impacts of health food retail and agricultural tourism	• Economic well-being of individuals, households, and communities • Increased access to healthy food retail environments • Healthy and complete communities
Emerging technologies	• Involve a diverse spectrum of professionals, including public health specialists, in the transportation planning process	• Increased levels of physical activity • Reduced traffic accidents • Improved safety for all road users

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