



PUBLIC HEALTH WHITE PAPER

A. SUMMARY

“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 SANDAG develops regional policies and programs to guide transportation infrastructure investments over the next four decades, an understanding of the public health benefits and impacts of those decisions will support the agency’s efforts in creating a safe, viable, and efficient transportation system for the San Diego region. The investments, in turn should support improved public health outcomes. Public health was an emerging subject area considered in the previous Regional Comprehensive Plan (RCP) adopted in 2004, and the 2050 Regional Transportation Plan and Sustainable Communities Strategy (2050 RTP/SCS), but is currently a focus area in which SANDAG has become more fully involved in through a U.S. Centers for Disease Control (CDC) grant to the County of San Diego. This paper will expand upon previous efforts in defining the most effective approaches for achieving public health objectives.

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 achieve 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 these built environment characteristics and chronic diseases, such as heart disease, diabetes, cancer, and asthma, which account for at least \$4 billion in direct healthcare expenditures in the San Diego region.³ The transportation decisions made as part of the San Diego Forward: The 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 the infectious diseases of the 20th century, which have generally been controlled, toward chronic diseases that 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 pedestrians and bicyclists and health disparities (the difference in health outcomes between people of different ethnicities, education attainment, and/or income levels).

The paper includes the following sections: a brief history of public health and urban planning; why public health matters; the rationale for the link between health outcomes and the built environment; a list of current efforts in the San Diego region; and policy considerations for San Diego Forward: The Regional Plan. This white paper will eventually serve as the basis for developing goals, policies, and actions for the regional plan, as well as establishing measures to evaluate progress over time.

B. 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 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 1977 and 1995, people who walked to their destination declined by more than 42 percent while those driving increased by about 90 percent.⁸ From 1969 to 2001, the number of children who walked or bicycled to school decreased by 68 percent. Concerns about traffic and safety were cited as the key reasons why parents preferred to drive their children to school.⁹ Ironically, between 20 percent to 30 percent of the morning commute-time traffic is generated by parents driving their children to school.¹⁰

C. 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 diseases¹¹ 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 less than 10 percent in 1985 to nearly 25 percent in 2008. The San Diego County Health and Human Services Agency reports that in 2007, 33 percent of county residents were overweight and nearly 22 percent were obese.¹² Childhood obesity in the country has more than tripled in the last 30 years.¹³ In the San Diego region, more than one-quarter of all children are obese.¹⁴ As with the 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 eliminates barriers to 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 2008, there were more than 37,000 traffic-related fatalities in the United States. Despite improvements in vehicle safety such as seat belts and air bags, roadway design changes, and reductions in drunk driving, the per capita traffic fatality rate has changed very little since 1960, in part because of increases in total vehicle miles travelled (VMT).

In the San Diego region, between 250 and 300 people die in crashes on the roadway every year. Of these, approximately 50 to 60 are pedestrians.¹⁵ Bicyclists and pedestrians combined represent nearly one-quarter of all fatalities while they account for only 3 percent of trips in the region. 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.^{16,17} Additionally, the need for safe and accessible bike and pedestrian infrastructure is critical in communities of concern¹⁸ that have low rates of automobile ownerships.

Air Quality

While the region's air quality has improved¹⁹, 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.²⁰ 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, and attained the federal 1997 Eight-Hour Ozone standard in 2011; however, it has not met the more stringent federal 2008 Eight-Hour Ozone Standard. The San Diego region is a non-attainment area for the state ozone and particulate matter standards. According to the California Air Resources Board (CARB), attaining the California standards for particulate matter and ozone would prevent about 28 premature deaths annually in the San Diego region.²¹

At times, air emissions from traffic 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, but short duration exposures typical of park or trail use do not warrant avoiding such physical activity opportunities except for sensitive populations.²²

Cost Implications

Poor health outcomes can often have a significant cost burden on society, in part due to premature deaths and absences from work and school. The CDC estimates that in 2008, obesity-related medical care costs were estimated to be as high as \$147 billion. In 2006, obese people spent \$1,400 more in medical care costs compared to people of normal weight. The California Center for Public Health Advocacy estimated that in 2006, the total annual cost to California from an overweight, obese, and physically inactive population was \$41.2 billion. The estimated cost for the San Diego region was \$3 billion, or nearly \$3,000 per household in annual costs.²³ Identifying opportunities to invest in lower-cost infrastructure, such as bike and pedestrian facilities, could lead to more health conscious decisions, healthier lifestyles, and result in reduced healthcare costs.

D. HOW THE BUILT ENVIRONMENT AFFECTS HEALTH

Land use patterns in many communities today make driving a necessity, and discourage walking and bicycling. A decrease in walking and bicycling 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,²⁴ 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 day²⁵, which is the minimum amount recommended by the US Surgeon General. Some of these strategies are described below.²⁶

Active Transportation and Public Transit

Streets that are designed for the safety of multiple users—including pedestrians of all ages, bicyclists, people with disabilities, buses, and cars— have been shown to reduce the risk of pedestrian and bicycle injuries.²⁷ Walking or biking to school, work, daily errands and public transit also helps people meet the Surgeon General’s recommendation of daily physical activity.²⁸ Physical activity includes moderate-intensity exercise, which varies among individuals depending on fitness level, such as walking and jogging.

Using public transit and active transportation options such as walking and biking reduces vehicle miles traveled, vehicle emissions, respiratory disease, and hypertension from exposure to high decibels of traffic noise.²⁹ Proximity to transit also is associated with improved access to social, medical, employment, and recreational activities.³⁰ San Diego also 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.³¹

Access to Parks and Recreation

Residents with convenient access to parks are more likely to utilize them for recreation and physical activity.³² Quality recreational facilities and programs also can increase physical activity. The health benefits of physical activity include a reduced risk of premature mortality, coronary heart disease, hypertension, stroke, some cancers and diabetes mellitus.³³ Regular participation in physical activity can help reduce depression and anxiety, improve mood and enhance ability to perform daily tasks throughout the life span.³⁴ Contact and exposure to open spaces also can reduce stress, improve mental health and facilitate recovery from illness.³⁵ 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.³⁶

There are a number of potential barriers to accessing parks and recreation, especially in communities of concern, 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 parks are well maintained over time is crucial to on-going use and long-term health benefits.

Complete Neighborhoods

The term “complete neighborhoods” refers to the ability of residents to walk easily to access all of the goods and services needed in daily life. A complete neighborhood encourages walking and bicycling because goods are nearby, and helps contribute to neighborhood safety by ensuring that many pedestrians are on the street throughout the day, helping to keep eyes on the street. Complete neighborhoods also reduce residents’ reliance on cars, with fewer automobile trips required. This in turn leads to reduced air and noise pollution as well as 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 and other appropriate elements, are components of a “complete neighborhood.” Furthermore, 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.

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 (paying more than 30 to 50 percent of their income for housing), and/or living far from their work and commuting long distances, negatively affecting both physical and emotional health.

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 overcrowding³⁷. Conversely, lower housing costs result in more disposable income for essential non-housing needs, allowing a more balanced and healthier lifestyle.

Environmental Quality

Research suggests that communities of concern are more likely to live in close proximity to busy roadways and major highways. 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, and people with illnesses or others who are sensitive to air pollutants. Health risks increase with closer proximity to high-volume roadways. In addition, truck routes on local streets contribute to traffic congestion, which may lead to unsafe conditions for pedestrians and bicyclists. Conversely, in dense communities where mixed-use provides access to goods and services, there is a need for delivery trucks which too can contribute to traffic congestion and sometimes cause conflicts with pedestrians and bicyclists. 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 activation³⁸. With the exception of low emissions and natural gas-powered vehicles, traffic contributes directly to air pollution and greenhouse gas 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 can mitigate some of the negative effects of roads and vehicle emissions and provide multiple benefits. Trees capture air pollution, reduce carbon dioxide and increase oxygen levels.³⁹ 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 health⁴⁰. Speeding vehicles can endanger pedestrians and bicyclists, posing additional safety concerns in neighborhoods.⁴¹ Street trees have shown to have a calming effect on traffic, causing motorists to slow down.

Global climate change and changing weather patterns also have a range of direct and indirect impacts on public health. Extreme temperature fluctuations can lead to deaths from heat strokes and higher temperatures can lead to higher counts of pollen and other aeroallergens that affect an estimated 300 million people with allergies around the world.⁴²

Access to Healthy Food

The health impacts of poor diet are costly. In the United States, it is estimated that healthier diets might prevent \$71 billion per year in medical costs, lost productivity, and the value of premature death.⁴³ In San Diego County, roughly 446,000 residents are food insecure (uncertainty of being able to secure sufficient food for self or family) and nearly 1 in 3 children are overweight or obese.⁴⁴ 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.⁴⁵ 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 (food from local farms to institutions such as schools, government, corporations, hospitals and colleges in the region), and many others. In order to successfully implement any of these strategies, 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 status.

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 recently passed model community garden and urban agriculture zoning regulations. Community gardens are allowed by right in all residential and commercial zones. The urban agriculture zoning ordinance allows for small-scale animal husbandry (beekeeping, chickens, miniature goats), small urban farms (4 acres or fewer), and the sale of local agriculture 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, it creates 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 overweight and obesity and reduces the incidence of hunger and malnutrition.⁴⁶

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.⁴⁷ 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. Communities of concern often have fewer grocery stores but a greater number of corner stores with limited food options, thereby further limiting their ability to access healthy foods. Programs that create opportunities to purchase healthy food options at corner stores can help alleviate the burden to communities with lower concentrations of grocery stores.

Transportation access to healthy food including transit, bicycle and pedestrian facilities also is an important consideration, especially in communities of concern.

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."⁴⁸ 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. Presently, San Diego County lacks its own Regional Food Hub while 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 the 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. Producing 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.⁴⁹

Further economic gains could be made by exploring expanded land use policies and regulations across the county that encourage local procurement; utilizing 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. 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.⁵⁰

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.⁵¹ When neighborhoods are well designed, the resulting social cohesion contributes to lower crime and violence and therefore better health outcomes.⁵²

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, 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.⁵³

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

E. EXISTING REGIONAL AND LOCAL EFFORTS

A number of existing policies, plans, and programs at the regional and local level support planning and implementation for healthy communities in the San Diego region. These are described below.

Regional Plans and Programs

San Diego Forward: The Regional Plan

In May 2012, the SANDAG Board of Directors approved merging the update of the RCP with the next Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS). This new plan, San Diego Forward: The Regional Plan will combine the update of these two major planning efforts giving citizens a single, easily accessible document that includes an overall vision for the San Diego

region and an implementation program to make that vision a reality. In addition, the consolidation will enhance public participation opportunities, as well as save staff time and resources.

Regional Comprehensive Plan

Adopted in July 2004 by SANDAG, the RCP provides a blueprint for managing the region's growth while preserving natural resources and limiting urban sprawl in the San Diego region. A key component of the RCP is the smart growth strategy that promotes compact, mixed-use development in communities that provide a variety of transportation choices. SANDAG supports smart growth development through a Smart Growth Tool Box and a variety of planning and transportation funding programs.

The 2004 RCP states:

Healthy communities are a matter of effective land use distribution, good design, and responsible management of the urban environment. The Centers for Disease Control and Prevention has identified community design as a major contributor to the threefold increase in obesity in the United States over the last 20 years. Healthy communities address this issue by supporting an active lifestyle through zoning that puts commercial and community services within walking and bicycling distances of most residents, and by providing safe, attractive places to walk or ride a bike. Designing for healthy communities also means separating incompatible land uses and providing transition zones and buffers between urban, industrial, and rural lands.

Goal: Create safe, healthy, walkable, and vibrant communities that are designed and built to be accessible to people of all abilities.

Action: Avoid and mitigate incompatible land uses, for example, by establishing buffers or transition zones between housing and industrial uses or major transportation corridors that could pose health risks while encouraging a mix of uses that supports healthy communities such as grocery, community services, office and housing uses.

2050 Regional Transportation Plan/Sustainable Community Strategy (2050 RTP/SCS)

Adopted in October 2011, by SANDAG, the 2050 RTP/SCS is a blueprint for improving mobility in the San Diego region and reducing greenhouse gas (GHG) emissions to meet the targets set by the CARB per Senate Bill 375 (Steinberg, 2008) This long-range plan includes policies, strategies and investments to maintain, manage, and improve the region's transportation system. It also better integrates planning for land use and transportation. The 2050 RTP/SCS included the following public health-related goal and action:

Goal: Increase the use of transit, ridesharing, walking and biking in major corridors and communities

Action: Continue to collaborate with the region's public health professionals to enhance how public health issues are addressed in regional planning, programming, and project development activities.

SANDAG crafted a new vision for public transit as part of the 2050 RTP/SCS through the preparation of the Urban Area Transit Strategy. The goals of the transit strategy were twofold: first, maximize transit ridership in the greater urbanized area of the region; and second, test the role of the transit network to reduce vehicle miles traveled and GHG emissions. The 2050 RTP/SCS also includes a Climate Action Strategy, Regional Energy Strategy, Regional Bicycle Plan, and high-speed rail planning.

Better integrating the connections between land use and transportation into the design of communities provide more opportunities for the development of a variety of modes of travel including light rail, buses, biking and walking. Co-benefits of this integration include reduced VMT, reduced GHG emissions, fuel cost savings, reduced air pollution, decreased obesity, and increased public health through more active transportation.

TransNet Ordinance

TransNet is the half-cent sales tax for local transportation projects that was first approved by voters in 1988, and 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, more than \$17 billion will be generated and distributed among highway, transit, and local road projects in approximately equal thirds.

The *TransNet* extension ordinance approved in 2004 dedicated 2 percent of revenues to the Smart Growth Incentive Program, and 2 percent of revenues to the Bicycle, Pedestrian, Neighborhood Safety and Traffic Calming Program (now the Active Transportation Grant Program). 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, and safety measures. The Smart Growth Incentive Program supports compact, mixed-use development, and more housing and transportation choices in the Smart Growth Opportunity Areas located on the Smart Growth Concept Map through planning and infrastructure grants.

To date, the *TransNet* Smart Growth Incentive Program has committed \$15.6 million to local jurisdictions in support of compact, transit-oriented development. In addition, \$15.3 million from the Active Transportation Grant Program have been dedicated to bicycle and pedestrian improvements.

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.

Since taking effect in 2008, the *TransNet* extension has distributed \$215.6 million to the region's 18 cities and the County of San Diego to fix, maintain, and expand local streets. As with the original *TransNet*, the extension program distributes local road revenue yearly to each jurisdiction using a formula based on population and road miles.

Active Transportation Implementation Strategy Framework

With the adoption of the 2050 RTP/SCS in 2011, the Board of Directors made an unprecedented commitment to Active Transportation. The final action by the Board calls for planning for a broad Active Transportation Program within two years of the 2050 RTP/SCS adoption. Staff has begun identifying a proposed framework for this Implementation Strategy, which incorporates Safe Routes to School, Safe Routes to Transit, the Regional Bike Plan, and other related active transportation efforts at SANDAG. This work will both inform and address active transportation in San Diego Forward: The Regional Plan.

iCommute Transportation Demand Management (TDM) Program

The goal of the iCommute program is to manage and reduce traffic congestion during peak-times, as well as reduce greenhouse gas 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 incentive programs, bicycle programs such as Bike to Work Day, and marketing and outreach efforts such as the Walk, Ride and Roll to School Campaign in 22 schools across the region. A reference guide for local jurisdictions entitled, Integrating Transportation Demand Management into the Planning and Development Process was completed in May 2012.

San Diego Regional Bicycle Plan

The Regional Bike Plan, adopted in May 2010, establishes a network of regional bikeway corridors for intercommunity bicycle travel and proposes a comprehensive set of programs to support bicycling in order to make the bicycle a practical means of transportation in the San Diego region.

Healthy Works Project

In March 2010, the County of San Diego Health and Human Services Agency (HHS) 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 (CPPW). 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 overweight and obesity. To achieve this goal, HHS 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 a \$3 million in grant funds, was completed in March 2012.

In September 2011, HHS received another CDC grant, the Community Transformation Grant, and chose to partner again with SANDAG to build on the successes of the Healthy Works Phase I projects. SANDAG and HHS 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.

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 bicycling to school. For example, the City of Chula Vista collaborated with education, public health and community partners on the Healthy Eating Active Communities (HEAC) campaign with the goal of improving access to healthy food and physical activity in schools and neighborhoods.⁵⁴

SANDAG approved a Regional Safe Routes to School Strategic Plan to guide future SANDAG involvement in promoting walking and bicycling to school as safe and attractive travel choices. The Strategic Plan is guiding work on an implementation program currently underway and funded through Healthy Works.

Safe Routes to Transit

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

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. In addition, Encinitas and Lemon Grove are currently 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 assure 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.⁵⁵

Building Better Health

In 2010, the County Board of Supervisors adopted a comprehensive initiative called *Live Well, San Diego!*. This long-term plan to advance the health, safety and overall well-being of the region is being built with community involvement in three parts. The first component – Building Better Health – was adopted on July 13, 2010, and served as a blueprint for improving community health

and quality of life over the next decade. With input from staff, advisory boards, partners and community stakeholders, Building Better Health 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. A key component in this effort was the CPPW program, mentioned previously.

The second component – Living Safely – was adopted on October 9, 2012, with the overarching goal of protecting residents from crime and abuse, and making communities resilient to disasters and emergencies. To realize a community that is not only healthy and safe, but also economically secure, a third phase – Thriving – will be rolled out in 2014 and will focus on promoting a high quality of life throughout the region.

G. POLICY CONSIDERATIONS

Only recently have urban planners and public health professionals come to understand the extent to which our transportation system, land use patterns, and community design play a role in determining health outcomes in our communities. Therefore, 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 San Diego Forward: The Regional Plan will help achieve the goal of “Healthy Communities and Environment” and track progress over time.

Table 1: Policy Considerations for Healthy Communities

<i>Built Environment Strategies</i>	<i>Policy Considerations</i>	<i>Community Health Outcomes</i>
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 greenhouse gas emissions; improved neighborhood safety; and greater social cohesion.
Access to Parks and Recreation	Support parks, recreation and trails within walking distance of homes/work; and joint use facilities (with school districts and other public agencies).	Increased physical activity; improved mental health; improved neighborhood safety; and greater social cohesion.

<i>Built Environment Strategies</i>	<i>Policy Considerations</i>	<i>Community Health Outcomes</i>
Complete Neighborhoods	Support development of features that create Complete Neighborhoods, which include healthy, walkable, bikeable, and vibrant communities with a variety of housing choices, access to goods, services, recreation and jobs. Neighborhood-serving retail and public amenities within walking distance of homes; and retrofit of underutilized retail centers or corridors into mixed-use development.	Increased physical activity; lower risk of injury; reduced air and noise pollution; lower greenhouse gas emissions; improved neighborhood safety; greater social cohesion; greater access to goods and services; and reductions in VMT.
Access to Affordable Housing	Promoting 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.	Lower housing costs result in more disposable income for essential non-housing needs, allowing a more balanced and healthier lifestyle.
Environmental Quality	Encouragement of the location of major pollution sources (e.g. major regional highways) away from sensitive uses (such as parks, homes and childcare centers); remediation of contaminated sites; habitat and open space (including canyons in urban areas) preservation; and urban forests/greening.	Reduced risk of respiratory diseases; reduced exposure to toxic substances; and improved mental health.
Access to Healthy Food	Improve access to healthy and affordable food and nutrition while also considering transportation access. Farmer's markets, community gardens, and healthier food options in corner stores.	Improved nutrition; increased physical activity; and reduced incidence of hunger.
Access to Regional Food Systems	Explore the development of a Regional Food Hub within San Diego County	Increased food security and lower greenhouse gas emissions.
Designing for Public Safety	Encourage active uses in streets and public space to promote public safety. Crime prevention through environmental design; and street lighting.	Improved neighborhood safety; greater social cohesion; improved mental health; and lower risk of injury.

<i>Built Environment Strategies</i>	<i>Policy Considerations</i>	<i>Community Health Outcomes</i>
Access to Water	Consider access to, affordability, and supply of water and the impacts to local farmers / agriculture, tribal lands, and rural communities relying on groundwater supplies.	Improved access, greater reliability and affordability of water sources, especially to agricultural industries
Access to Tobacco Free Environments	Encourage the identification of opportunities to provide greater access to tobacco free environments	Reduced exposure to second-hand smoke, reduced cases of lung disease
Equity/ Environmental Justice	Encourage healthy environment features that provide communities of concern equal access to green spaces, healthy food, complete neighborhoods, transit, housing, and active transportation options.	Reduced health and social disparities.
Economic Impact/ Development	Identify the direct and indirect public health costs of transportation initiatives; consider an infrastructure funding strategy to ensure that sufficient funds are available for the development of “complete communities;” and identify the economic impacts of health food retail and agricultural tourism	Increased access to healthy food retail environments; improved community prosperity and security; and advancing healthy & complete communities.

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