



ECONOMIC PROSPERITY WHITE PAPER

July 2014

A. INTRODUCTION

As SANDAG develops regional policies and programs to guide transportation infrastructure investments over the next several decades, an understanding of the economic implications 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, will help improve economic prosperity for the region. Emerging from the most severe economic crisis since the Great Depression, economic issues are in particular focus. This white paper will provide some background for examining economic issues in the context of San Diego Forward: The Regional Plan.

Economies are dynamic; they change, and change constantly. The nature of the San Diego economic system has always been linked to our physical environment: the seaport brought the fishermen and the Navy; the Navy and the quality of life brought the high-tech sector; the proximity to the border enhanced international competitiveness; the beaches and weather brought the tourists. In turn, these industries helped shape the built environment of the region: the industrial waterfront, the military bases, the resorts, convention center, the border crossings, and beach communities and cities. Overlaid on the local economic framework are factors outside local control. Globalization affects the structure of our economy, and national political decisions affect military and research expenditures and our relationship with Mexico.

The residents and policymakers of San Diego influence much of the region's economy, particularly the decisions that shape the built environment in which the economy functions. As we have come to understand the natural world better, the concept of "habitat" for plants and animals has become familiar. In many ways the infrastructure of our cities and towns – the transportation system, downtowns, industrial areas, public spaces – act as the habitat for our business community. And different businesses, like different species, thrive in various built habitats. These habitats are shaped by cities, planning agencies, counties, states, and the federal government, using tools such as zoning, tax policy, transportation investment, and other means.

San Diego Forward presents an opportunity to shape our business habitat for the 21st century. Over the next three and a half decades, hundreds of billions of dollars will be invested in the San Diego region to create, maintain, and improve transportation and other infrastructure. San Diego Forward will do two things to help this; one, it will provide a framework for much of the transportation infrastructure in the region by prioritizing 35 years of regional transportation projects, and second it will provide a cooperative roadmap for the region as a whole to address the way the San Diego region will grow and evolve.

This economic white paper will begin by surveying current economic conditions and economic plans in San Diego, and look at some new ideas in economic development. Next, it will explore the interrelationship between the economy, transportation, and regional planning, with consideration of “communities of concern” (for the purposes of this paper, low income populations¹), and the relationship between the economy and the environment. Lastly we will look at the ways in which San Diego Forward might influence the regional economy, and what questions remain to be explored.

B. CURRENT ECONOMIC CONDITIONS IN SAN DIEGO

Existing Setting

The San Diego region is in an enviable economic position. The population of San Diego is younger, better educated, and earns more than the national average. (Average age is about 35, versus 37.4 for the U.S. as a whole; a higher percentage of San Diegans have Bachelor’s degrees, Master’s degrees, professional degrees, and PhDs than the U.S. generally; Median household income is over \$60,000, \$9,000 higher than the U.S. median.²) San Diego’s unemployment rate is about at the national average, but our economy is diversified with sizable high-tech, education, health, military, and tourism sectors. The region also boasts a high quality of life, with excellent weather and one of the shortest average commute times of any major metro area in the U.S.³ San Diego also has a diverse and multi-cultural population, and the busiest land border crossing in the world connecting us to a rapidly-developing economic partner, Baja California, Mexico.

Of course, the San Diego region also has its share of challenges, the high cost of living -- particularly housing -- compared to prevailing wages, and wait times at the border that were estimated in 2006 to cost the region \$6 billion annually in lost output.⁴ San Diego has an “hourglass economy” with many higher-paying jobs and many lower-paying jobs, and relatively few in between; this type of divergence has been found in the national economy as well.

San Diego is also changing demographically. The region is forecast to get older, and more ethnically diverse, with the white population expected to go from roughly half of San Diego today to less than a third by 2050. By 2050, the region is expected to add roughly a million residents, half a million new jobs, and a third of a million new housing units. Population growth will primarily be natural increase (births greater than deaths) and international immigration; net domestic migration is expected to be negative.⁵

SANDAG, and other institutions around the region, study the performance of the San Diego region’s economy, and offer strategies for improvement. SANDAG, for example, produced the *Regional Economic Prosperity Study* (REPS) most recently in 2008, with the help of a diverse and knowledgeable advisory committee made up of business and government leaders. The REPS identified the major economic challenge of the San Diego region in that the cost of living is outpacing the growth in wages. Cost of living is high due primarily to high housing costs, and the

¹ “Communities of Concern” also include ethnic and racial minority populations and those over 75 years old, but this paper is focused specifically on economic disadvantages.

² San Diego Regional Economic Development Corporation, “Economic Indicator Dashboard”;
<http://www.sandiegobusiness.org/research>

³ Ibid; <http://www.sandiegobusiness.org/research>

⁴ “Economic Impacts of Wait Times at the San Diego–Baja California Border”; SANDAG, January 19, 2006.
http://www.sandag.org/programs/borders/binational/projects/2006_border_wait_impacts_execsum.pdf

⁵ SANDAG Series 13 forecast

growth of lower-wage jobs has been faster than those in higher-wage industries. The REPS identified 10 strategic goals (and 27 recommended actions intended to accomplish them) to help ensure a prosperous regional economy. The actions included policies to encourage housing growth and education/job training that would help raise the standard of living in the area. Since the REPS was issued in 2008, San Diego and the nation endured a severe economic downturn, and a slow recovery. The effect of the Great Recession was more severe in San Diego than the nation in general primarily due to the collapse of the housing market, which has been a mainstay of the local economy. Reliance on the federal government, particularly defense, for 18 percent of the local gross domestic product (GDP), initially buffered the region from the worst of the recession, but as government spending declined during the recovery, San Diego's regional economy suffered proportionally more than the nation's, despite the relatively strong recovery of housing and tourism.⁶ While the recession may have changed both economic perceptions and realities for many San Diegans, the fundamental needs of the economy, and the goals of the REPS, have not altered materially.

SANDAG also produced a study of *Traded Industry Clusters in the San Diego Region* (2012), which examined the interrelated, export-oriented industries that offer higher-wage jobs on average, as well as improve San Diego's ability to thrive in a global marketplace. The *Indicators of Sustainable Competitiveness* (2002 and 2005) report compares San Diego to 19 other metropolitan areas in the "three E's" of economy, environment, and equity, finding that while San Diego does well in environmental measures, and better than average in economic metrics, San Diego is near the bottom in measures of equity.

While studies of the San Diego regional economy generally are revealing, it is important to note that the San Diego region is diverse and physically large, with 3.2 million residents; 18 municipalities and the County of San Diego; 17 Native American Tribes; a metropolitan area that shares an international boundary with Mexico; a region with military bases spanning north, central, and southern San Diego; and an area with an abundance of endangered species and sensitive habitat lands. The policies and economic issues that guide downtown San Diego, for example, differ from those most relevant to the rural east or the beach communities. North County has different challenges than South County and the border area, and the Tribes have unique economic and cultural concerns.

Existing Plans, Programs, and Policies

While SANDAG has many responsibilities as the Metropolitan Planning Organization, its primary responsibilities are in regional transportation planning. SANDAG influences local land use and economic policies through regional transportation investments in transit, highways, bike infrastructure, freight corridors, transportation demand management, transportation system management, and supporting programs, and through financial incentives such as grants from the *TransNet* Smart Growth Incentive Program, Active Transportation Grant Program, and Environmental Mitigation Program. SANDAG also influences land use and economic policies through technical assistance via the Smart Growth Toolbox and through localized and customized modeling and forecasting work. As a regional agency, SANDAG is uniquely positioned to bring together decision-makers from all areas of the region to discuss issues of mutual concern and coordination.

⁶ National University System Institute for Policy Research, *Economic Ledger*, February 2014; http://www.nusinstitute.org/assets/resources/pageResources/Economic_Ledger_Forecast2014_Feb2014.pdf

In both economic research and policy, SANDAG collaborates with a variety of partners, including regional economic development corporations, chambers of commerce, municipal economic development departments, partners in Baja California, tribal nations, and neighboring counties to strengthen the economy of the region. In addition, many of these groups, and the local universities, also work to understand the structure of the San Diego regional economy, and explore ways to improve. The strategy isn't about creating a specific economic plan, but of collaboration between stakeholders. These organizations research the region's economic strengths and shortcomings, and identify the tools needed to reshape the economy, as well as conduct economic studies such as industry cluster and sector analyses, cross-border and export trade reports, infrastructure plans, and workforce and job training programs.

The San Diego Regional Economic Development Corporation (EDC) enhances regional economic competitiveness and supports the San Diego region's key industries, with policy priorities to improve the region's emerging industries, workforce, infrastructure, transportation, housing, and access to capital. Recent initiatives include a regional strategy to protect and grow San Diego's defense assets; a partnership between San Diego, Imperial County, and Baja California, Mexico, to promote and enhance R&D and manufacturing; a plan to boost exports; a program focused on attracting and retaining top talent. The San Diego Regional EDC also works with other regional and local organizations to support research initiatives, including studies on the region's key industries, such as telecommunications and action sports.⁷

The San Diego Workforce Partnership funds job training programs to meet the region's demand for qualified workers, and creates a Five-Year Strategic Plan to identify goals and strategies designed to address workforce challenges in San Diego County.

The San Diego Regional Chamber of Commerce coordinates with other regional and local agencies on economic development and business policies, and produces San Diego Regional Economic Indicators to track the regional economic performance. The Regional Chamber also joined with the City of San Diego to form a Climate Mitigation and Adaption Plan, Water Plans, a Mexico Business Center, and infrastructure priority workshops.

The sub-regional EDCs have economic development plans, programs, and policies that build on regional initiatives. For example, the South County Economic Development Council is leading a Visioning Project in partnership with the San Diego Foundation to determine the key economic strategies for the South County and binational region over the next five years. They are also working with the East County Economic Development Council to qualify for federal Economic Development Administration (EDA) grants, which support business development and entrepreneurship, education and workforce development, and infrastructure in areas that meet unemployment and per-capita income requirements. The East County EDC also supports the strategic Aerotropolis Roadmap, a proposed mixed-use job center surrounding the Gillespie Field Airport, as well as the Connector.com, a jobs buyer-supplier database used for economic development. Likewise, the San Diego North Economic Development Council has participated in sub-regional visioning and completed a report in 2013 called "Prosperity on Purpose". All sub-regional EDCs also support localized cluster and sector studies as well as targeted business outreach to those clusters and sectors that support sub-regional and regional growth.

⁷ San Diego Regional Economic Development Corporation, "Initiatives"; <http://www.sandiegobusiness.org/services/initiatives>

Although most municipal economic development organizations focus on local and site-specific strategies, many of their plans and policies align with regional plans and initiatives. For example, the City of San Diego recently presented a new draft economic development plan, “Economic Development Strategy 2014-2016,” including objectives intended to “grow the economy’s ‘base sectors’, increase middle-income jobs, and increase neighborhood business activity, especially in underserved neighborhoods.”⁸ The City also completed its General Plan in 2008, which included an element on economic prosperity, with broad main goals.⁹ The City of Chula Vista is working to leverage its business assets by determining the business clusters that drive its economic growth, recommend strategies to enhance its growth, and coordinate with other regional, binational, and local entities. The County of San Diego’s Strategic Plan for Fiscal Years 2013-2018 provides a vision, strategic snapshot, strategic initiatives, and required disciplines for excellence to guide the growth and economic prosperity of the County.

One critical factor that will affect the pace and nature of economic development in the San Diego region is the recent dissolution of California’s redevelopment agencies. These agencies, including over a dozen in the San Diego region, received earmarked local property tax revenue to reinvest in communities that lack sufficient traction to attract private development without additional incentives. With redevelopment ending in 2013, new ways to assist underdeveloped neighborhoods are needed. Redevelopment funding and bond financing have historically supported extensive investment in infrastructure, public facilities, rehabilitation of commercial/industrial and residential blocks, and affordable housing development.

Emerging Concepts

Much of the current research in regional planning economics seems to be focused on the effects of and issues around what is often termed “smart growth” or sustainable development, and specifically on the trends that are reinvigorating the centers of many American cities and metropolitan areas, as well as creating new development in communities and neighborhoods of all sizes. This is of particular relevance to the urbanized areas of the San Diego region, which grew outward during the era in which automobile transportation was the most accessible option; now local jurisdictions are seeking to redevelop many neighborhoods to accommodate population growth.

By and large, it is thought that the several trends of “new urbanism” – compact communities of mixed-use “walkable” development served by public transit and allowing for active transportation such as walking and cycling – are a positive for the economy, potentially reducing transportation, environmental, and even health costs, while creating economic choice and a “quality of life” that is seen as attractive, especially to younger, high-skill workers.¹⁰ This type of growth can allow for the growth of the next 35 years without significant additional congestion and a diminishment of both quality of life and economic prosperity, including for the increasing number of older regional residents who may have varied transportation needs. In developing and redeveloping areas that are served by multiple modes of transportation, it is important to note that the benefits are not simply social or environmental, but economic; multiple transportation options provide improved access to

⁸ “Draft Community and Economic Development Strategy 2014-2016”, City of San Diego, December 2, 2013;

http://docs.sandiego.gov/councilcomm_agendas_attach/2013/Rules_131211_4.pdf

⁹ City of San Diego General Plan, 2008, <http://www.sandiego.gov/planning/genplan/pdf/generalplan/adoptedepelem.pdf>

¹⁰ “Companies Say Goodbye to the ‘Burbs”; Wall Street Journal, December 4, 2013;

<http://online.wsj.com/news/articles/SB10001424052702304281004579222442197428538>

jobs, education, entertainment, and retail for residents, and provide many types of businesses with an improved business climate.

Emerging transportation technologies will also play an increasing role in the transportation system. Technologies, both private and public, such as all electric vehicles and automated roadways could have effects on development patterns, greenhouse gas emissions, infrastructure investments, as well as the structure of the economy, considering that many of the high-tech firms who will develop these technologies are local. These innovations include those that facilitate the “sharing economy,” such as ZipCar or Uber, which are changing both transportation and the wider economy.

The key point is that development patterns have economic consequences on housing prices, municipal revenues, business location decisions, and residential opportunities. Development patterns also influence transportation options, which have economic consequences, such as the relative costs and benefits of highways and transit, accessibility of jobs and residential areas, traffic congestion and time consumed in commuting, health effects of transportation modes, and business development. Spatial patterns and associated transportation systems also have environmental impacts that have economic ramifications, such as the costs of pollution generated by differing transportation modes, and open-space and habitat conservation needs. The effects of these patterns need to be analyzed, so that municipalities and economic development professionals can have the best information available to make complex decisions that affect land use and transportation investments.

By 2050, SANDAG forecasts roughly a million more residents of San Diego County, half a million new jobs, and a third of a million new housing units.¹¹ These growth numbers are substantially lower than previous estimates, and depend less on an influx of new residents, and more on natural increase (births greater than deaths) of current residents. How these people, jobs, and houses fit into San Diego will determine the physical shape of the region, the transportation system, and the economy.

Local general plans have been modified significantly over the last decade to accommodate growth within the most urbanized areas of the region where there is existing and planned public transit. These changes in local plans support and reinforce investments in transportation and housing options for the region’s residents.

So a key question of the San Diego regional economy in the coming years is will we successfully invest in transportation to connect the population in San Diego with an adequate supply of well-paying jobs for which they are prepared, and to an adequate supply of housing they can afford?

C. INTERRELATIONSHIPS

How Transportation and Regional Planning Can Influence the San Diego Economy

As noted, the infrastructure of a region, including the transportation infrastructure that is a primary concern for SANDAG, form part the economic “habitat” in which businesses engage in their fight for survival. As different animal and plant species thrive in different conditions, so do different businesses require a variety of conditions, and as thriving ecosystems that support many types of

¹¹ SANDAG Series 13 forecast

adaptable species are more resilient and rich in a biological sense, diversified economies are also likely to be resilient and prosperous.

In economic terms, public infrastructure is a “public good,” in that it loosely meets the definition of being both non-excludable (difficult to stop people from using the good) and non-rivalrous (one person’s use of the good doesn’t inhibit another’s). In economic theory the private market does not provide optimal levels of public goods, and the common solution for this market failure is government provision of the good. As governments seek to make sound investments in provision of public goods, they must weigh, as businesses do, competing projects and the expected rates of return (which are difficult to measure in this context), as well as generally gauging the optimal level of the resource overall.

The transportation system acts as the economic circulatory system, allowing businesses to access raw materials, ship finished goods, reach customers, and providing a way for employees to get from home to work. A healthy economy requires a healthy circulatory system, and the San Diego region is fortunate to have a system that includes robust freeways and arterials, multiple airports, a seaport, expanding bikeways and active transportation options, a growing transit system, and shared-use mobility services. It also includes connection to a critical trading partner in Mexico, as well as the surrounding counties and 17 Native American Tribes.

The transportation system doesn’t simply support the economic activity in a region: transportation – and related land-use decisions – *influence* the economy. To explore these inter-relationships, it is instructive to look at several types of development in the San Diego region, the economic activity transportation and land use decisions generate, and the challenges and opportunities they face.

- **Suburban job centers** are major residential and commercial/light industrial areas for which significant jobs and housing growth is likely. Yet often areas such as these already see significant traffic delays. The challenge is to accommodate this economic growth and still improve traffic, with additional transit and active transportation options. New transportation options can be enhanced by Transit-Oriented Development (TOD), specifically designed to take maximum advantage of the transit, but policies must be in place to allow and encourage TOD.
- **Areas with significant development potential** are areas for which big increases in intensity of use, be it residential, commercial or industrial, are envisioned. Areas like these, often somewhat distant from the urban core, offer lower land costs and can become major employment centers and home to a greater number of residents. The critical issue in areas such as these is to create transportation infrastructure that works for a variety of needs, and also to balance plans for industry, residents, protection of the natural environment, as well as the needs of current residents. Otay Mesa, for example, is a rapidly developing area in the southern portion of the City of San Diego, for which variety of transit and highway projects, including a new border crossing, are proposed.
- **Redeveloping urban neighborhoods** are seeing a reversal of the “urban blight” that was common in the latter half of the twentieth century. These areas are often well-served by transit and highways both existing and planned, and are attractive to residents that desire compact, walkable communities and minimal commuting hassle. Significant economic development both small (shops, bistros) and large (convention centers, stadia, shopping centers) characterize such areas, and the challenges of development in these areas are often tied to the difficulty of permitting and financing in often-crowded city areas, and in assessing the needs of existing

residents and neighboring communities. The East Village section of the City of San Diego, just east of Downtown and the Gaslamp Quarter is an example of this type of area, with up to 70 percent of the blocks in the neighborhood having the potential for new uses.¹²

Clearly different areas in the San Diego region have different economic needs, goals, and outlooks. The challenge to the region is to plan for a transportation system that facilitates all types of economic development.

Transit allows for density of activity because the large physical space needs of automobiles can be reduced. Transit also allows access to jobs for people who cannot or prefer not to drive: the young, the elderly, and increasingly, professionals attracted to urban-style living. Shared-use mobility services can also supplement transit by improving access to transit.

The **highways and road network** must be maintained, expanded, and optimized. The road system will continue to be the main mover of people and goods. Given the spatial constraints, highway projects will involve more efficient use of limited space, either through the construction of “Managed Lanes” or through the implementation of advanced technologies, or both. The local road system will need to be designed to optimize traffic flow, while accommodating various types of business development.

While highways and regional arterial roads are critical to economic needs like goods movement and general measures of accessibility, local and neighborhood-level economic development may depend less on maximizing traffic flow and more on creating and maintaining attractive public spaces. The development of thriving mixed-use areas will require a careful analysis of how best to spend public funds on physical infrastructure.

Encouraging and building infrastructure for **active transportation**, such as walking and cycling, has several benefits. Active transportation can reduce congestion on roads, have a positive effect on public health and associated costs, and is seen as an amenity that can help develop neighborhoods. In addition, active transportation provides options and connections to transit for residents that lack automobiles. In this way, active transportation can complement and improve other transit investments.

The San Diego region is home to 12 **airports** that can serve as regional or local economic development generators, though only two are Federal Aviation Administration (FAA) certified for commercial service, and all have physical limitations. The economics of air travel are generally not under local control, and smaller airports have seen airline traffic cuts, but the airports will continue to be essential economic hubs, especially for tourism-heavy San Diego.¹³ A crossborder facility that will link the Otay Mesa area and Tijuana International Airport is scheduled to open in 2015.

While 98 percent of freight movement in the San Diego region is by truck, the **Port of San Diego** and the **rail** system are also planning to improve to meet growing demand for freight in an increasingly international economy, and yet both are up against significant physical restraints. The importance of the region’s “traded clusters” in providing high-wage jobs that bring investment

¹²Civic San Diego; “Downtown Community Plan”;

http://www.civicsd.com/images/stories/downloads/planning/dcp/06_Neighborhoods_and_Districts.pdf

¹³ “Smaller Airports Take Bigger Hit As Airlines Cut Flights”, NPR, May 8, 2013; <http://www.npr.org/blogs/thetwo-way/2013/05/08/182262805/smaller-airports-take-bigger-hit-as-airlines-cut-flights>

and revenue from outside of the region means that it is critical to continue to improve the connections of the region to both the southern California “megaregion” and the global economy.

Transportation and land-use decisions can influence economic growth, and can be considered an economic development tool. There is evidence that the physical “clustering” of types businesses can have positive effects on growth, innovation, and entrepreneurship.¹⁴ ¹⁵ The life sciences and brewing industries in San Diego provide ready evidence of this effect. If for example, the San Diego region wants to be a high-tech hub, it must encourage the type of atmosphere that tech firms are seeking. Economic activity such as retail, manufacturing, freight movement, and residential construction need their optimal transportation and land-use habitats as well. Businesses depend on roadways, rails, and ports, but they also depend on our sidewalks and parks to attract customers and employees. They also depend on our educational system to produce viable employees and educated customers. The economic effects of public investment must be properly considered in an economic sense for policy-makers to make effective decisions. These economic effects include environmental effects, public health effects, social effects, and others in our interconnected economic system.

To help measure the economic effects of San Diego Forward: the Regional Plan, SANDAG is preparing an economic analysis with three areas of focus. The first is a Benefit-Cost analysis to measure, using the most up-to-date tools, the economic effect of the transportation improvements planned. The benefits will include travel-time savings, safety improvements, emissions reductions, health effects, and auto ownership costs. The second facet will attempt to capture the effects of transportation investment on economic competitiveness; examining how different transportation improvements influence economic development. For this analysis, we propose to analyze the spatial relationship of jobs and households for key industries to gauge the jobs/housing relationships, as well as stakeholder interviews and case studies to consider potential future trends. The third analysis will measure the economic impact of the construction and operations activity of the Plan on the regional economy.

There are limitations to any economic analysis, and in many ways the analytical tools that help us define the impacts of transportation investments are in their infancy. But with this economic analysis, the goal is to present information that will help inform and influence the choices the region will make over the next 35 years.

Communities of Concern from an Economic Perspective

The critical issue for economic communities of concern¹⁶ is access. Low-income residents in areas without adequate public transit often have to spend disproportionate amounts of time and money to access education, jobs, and recreation. A strategy to address the “hourglass economy” is to improve transportation options for communities of concern. Access is equally important to

¹⁴ “Why Today’s Start-Ups Are Choosing Urban Lofts Over Suburban Office Parks”, Atlantic Cities, September 4, 2013; <http://www.theatlanticcities.com/jobs-and-economy/2013/09/why-todays-startups-are-choosing-urban-lofts-over-suburban-office-parks/6311/>

¹⁵ Harvard Business School Institute for Strategies and Competitiveness; <http://www.isc.hbs.edu/econ-clusters.htm>

¹⁶ SANDAG is using 200% of federal poverty level as the threshold for communities of concern in analyzing certain effects of San Diego Forward; other communities of concern include ethnic and racial minorities, and the elderly. The 200% of federal poverty threshold was chosen for the “low income” category of the communities of concern defined in the Regional Plan in recognition of the relatively high cost of living in the San Diego region as compared to the nation as a whole, with input from the SANDAG network of community-based organizations who serve low income populations whose representatives advised using 200 percent of the federal poverty line for analysis.

employers who want to be able to draw from a wide pool of potential employees of varying skill levels. Failing to encourage the economic integration of “communities of concern” today can even have generational impacts and reduce economic mobility in the long run.¹⁷ The importance of transportation options to the economically disadvantaged is difficult to overstate; without access to transportation, it is extremely difficult for individuals living in poverty to improve their economic prospects as the cost of owning a private vehicle are often prohibitive. With investment in better transportation options, economic opportunity is increased, and these communities can thrive.

While the mandated social equity analysis of the economic impacts of San Diego Forward is yet to be conducted, it is evident that lower-income communities in the San Diego region have need and potential for economic development. Many of these communities are relatively close to the core of San Diego, Escondido, and other communities in San Diego County. And like other metropolitan areas around the country, the San Diego region has seen resurgence in development in the central cities and surrounding neighborhoods, a trend likely to continue. Some are concerned that this type of development can lead to “gentrification” and argue that it displaces the economically disadvantaged and weakens community identity, but recent research indicates that residents in neighborhoods that have seen substantial increases in housing prices enjoyed improved economic health.¹⁸ The same study indicates that despite high overall costs of housing San Diego has not experienced a high degree of neighborhoods changing from low-cost to high-cost, though increases are possible, and rapid development is often seen in neighborhoods with good access to public transit.¹⁹

Relationships between the Economy and Environment

In economic theory, the inputs to economic production are usually referred to as “land, labor, capital, and raw materials.” The “environment” is not generally considered beyond the land and raw materials nature can provide. But as the science of economics has advanced, concepts such as pollution as an “externality”, or of “ecosystem services” have become more generally understood, and a healthy natural environment is known to be both a cause and a result of economic health; a cause in that economic damage is a hindrance to economic development, and a result in that wealthier economies demand greater environmental quality.

In the San Diego region, we are fortunate to have both a quality environment and a healthy economy that is based, in many ways, on that environment. SANDAG’s 2011 *Index of Sustainable Competitiveness* report ranked San Diego against 19 other metropolitan economies in measures of economy, environment and equity, with San Diego near the top in environmental indicators, with only air quality holding San Diego back. And while our tourism economy relies heavily on the environment, the “quality-of-life” issues that make San Diego such an attractive place to live also hinge on environmental factors.

Technologies and techniques exist and are being developed that will allow the San Diego region to meet the current needs of its residents without sacrificing the ability of future residents to meet their own needs, which is a commonly used definition of “sustainable.” In an economic sense, this sometimes means balancing the needs of industry with the environment. But frequently, in San Diego

¹⁷ Harvard University Equality of Opportunity Project; <http://www.equality-of-opportunity.org/>

¹⁸ Hartley, Daniel, “Gentrification and Financial Health”, Federal Reserve Bank of Cleveland, November 6, 2013; <http://www.clevelandfed.org/research/trends/2013/1113/01regeco.cfm>

¹⁹ “The Gentrification Puzzle”, Atlantic Cities, November 21, 2013; <http://www.theatlanticcities.com/neighborhoods/2013/11/why-some-places-gentrify-more-others/7588/>

and elsewhere, the technologies and approaches that benefit the environment are also beneficial to the economic bottom line, when costs and benefits are properly understood.

Environmental regulations have costs and benefits. While costs can be obvious, the benefits of considering the environment in an economic context are two-fold. First, the economy as a whole can become more efficient when costs of environmental degradation are reduced with policies that have proven to be strikingly cost-effective for the economy as a whole,²⁰ and sometimes for the private sector, as in the case of energy efficiency.²¹

The second way in which environmental consideration can be economically beneficial is for a region to become a leader in environmental technologies or strategies that can lead it to develop a comparative advantage over other regions in these products. This is the case in the San Diego region, where roughly 8,000 jobs, with an average wage of over \$87,000, are in the “Cleantech” sector that produces products and services related to renewable energy, alternative energy, and energy efficiency.²² As an example, Qualcomm is working on wireless electric vehicle charging.²³ The general outlook for these environmental services and technologies is positive as environmental problems increase globally with population growth.²⁴

Many of the region’s environmental challenges, while complex, can be dealt with effectively on a case-by-case basis, though cooperative solutions may be preferable. The issue of global climate change, however, is interwoven not simply with most other environmental issues, but with the structure of the economy and the physical infrastructure of the region.

Climate change has the potential to present substantial costs to the San Diego region, from impacts of sea-level rise and increased storm activity on the region’s high-value oceanfront and vulnerable transportation infrastructure, to the impact on energy needs, agricultural disruption, and public health. There is considerable uncertainty as to the timing and severity of these impacts, and to our ability to avoid or mitigate them, and/or adapt to them should they occur to any substantial degree. Technological and engineering solutions, of varying cost and effectiveness, could mitigate or avoid many of the effects, but it is likely that behavioral changes may be required as well.

The plus side of taking steps to avoid or mitigate climate change is that they assist with many of the other objectives in San Diego Forward, and can have substantial economic benefits in that way. For example, a push to improve energy and water efficiency, if well-designed, can have positive benefits to the San Diego economy, independent of the effect on climate change, by saving money and encouraging efficiency in markets that have historically not had strong conservation incentives. The same is true for air quality; a reduction in CO2 emissions is likely to have associated reductions in pollutants that result in positive health effects. Land use regulations, zoning, and transportation

²⁰ The Benefits and Costs of the Clean Air Act from 1990 to 2020, U.S. EPA, March 2011; <http://www.epa.gov/air/sect812/feb11/summaryreport.pdf>

²¹ Gillingham, Kenneth, et al., “Energy Efficiency Economics and Policy”, Resources for the Future, April 2009; <http://www.rff.org/RFF/Documents/RFF-DP-09-13.pdf>

²² “Traded Industry Clusters in the San Diego Region”, SANDAG, December 2012; http://www.sandag.org/uploads/publicationid/publicationid_1715_15318.pdf

²³ Qualcomm Halo; <http://www.qualcommhalo.com/>

²⁴ “Opportunities for Growth and the Outlook for the Environmental Sector”, The AIC, October 17, 2013; <http://www.theaic.co.uk/aic/news/commentary/opportunities-for-growth-and-the-outlook-for-the-environmental-sector> and *Occupational Outlook Handbook*, U.S. Bureau of Labor Statistics, January 8, 2014; <http://www.bls.gov/ooh/architecture-and-engineering/environmental-engineering-technicians.htm> and *Occupational Outlook Handbook*, U.S. Bureau of Labor Statistics, January 8, 2014; <http://www.bls.gov/ooh/life-physical-and-social-science/environmental-scientists-and-specialists.htm>.

infrastructure intended to reduce transportation CO2 emissions can create denser, mixed-use communities that can be more desirable to the growing populations of younger professionals, singles, and seniors. These steps can also lead to better health outcomes, and improved access to schools, jobs, and recreation for those with limited resources, increasing economic opportunity. Assessing and preparing for vulnerabilities of drought and severe weather can have substantial economic benefits, even if the frequency and intensity of these natural phenomena does not increase.

The cost-effectiveness of any climate-change or environmental mitigation strategy may be difficult to quantify using existing analytical tools, but as with all environmental concerns, it is important to remember that the environment and the economy are not separate but intertwined. To get the most accurate picture of the economic effects of policy decisions concerning transportation and land use, it is critical to analyze their impact on the environment.

SANDAG is engaged in planning for climate change. On October 28, 2011, the SANDAG Board of Directors approved the Sustainable Communities Strategy (SCS) as part of the 2050 Regional Transportation Plan (RTP) for the San Diego region, becoming the first large region in California to prepare an RTP under California climate change legislation (SB 375). The 2050 SCS demonstrates how development patterns and the transportation network, policies, and programs will work together to achieve the greenhouse gas (GHG) emission reduction targets set by the California Air Resources Board for cars and light trucks, and provide a more sustainable future for the region.

The strategy set forth in the 2050 RTP/SCS is to: focus housing and job growth in the urbanized areas where there is existing and planned infrastructure; protect sensitive habitat and open space; invest in a network that gives residents and workers transportation options that reduce GHG emissions; promote equity; and implement the plan through incentives and collaboration.

Future Funding, Trends, and Possibilities

SANDAG's ability to directly influence the region's economy is limited. While transportation planning is critical to the future economic health of the San Diego region, the economy is an amalgam of federal, state, and local rules that guide the complex interactions among the thousands of businesses that call the region home, and between the businesses in our region and the wider economic world. Decisions, issues, and conditions far from here have large impacts in our region, and few of these factors are within control of the residents of the San Diego region.

Despite this, SANDAG, as a region-wide agency, can help the San Diego region succeed in the coming economy. That economy will be more global, with barriers (governmental and technical) to international trade likely to continue to be reduced. But the economy may also be more local, as the value of community economic development expands.

In addition to helping provide a varied and efficient transportation infrastructure that provides the access to the local and global economy, SANDAG should continue to bring together the San Diego region's business and academic leadership to study the regional economy, and recommend actions that can lead to continued economic growth. Meanwhile, it is important to understand that the traditional economic metrics often cited cannot, or don't yet, provide an accurate accounting of the quality of life residents are striving for in terms of social or environmental conditions. By bringing the tools of economic analysis to bear on issues once considered outside the realm of economics, we can make better decisions.

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