

**THE TRANSPORTATION PLANNING AT THE SOUTHERN  
CALIFORNIA MEGA-REGION ACCORDING TO THE SOUTHERN  
CALIFORNIA ASSOCIATION OF GOVERNMENTS RECORDS\***

**GÜNEY KALİFORNİYA HÜKÜMETLER BİRLİĞİ KAYITLARINA  
GÖRE GÜNEY KALİFORNİYA MEGA-BÖLGESİ'NDE ULAŞIM  
PLANLAMASI**

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**ABSTRACT**

*SoCal, the second largest urbanized region in the U.S., is a major economic system for California. Having some of the nation's largest ports such as Los Angeles and Long Beach ports, SoCal economy stands out with logistics and goods movement industry. As a region which creates its own prosperity, SoCal is providing opportunities for its fast growing native-born and immigrant populations while taking aggressive action to build infrastructure that enhances its role as a global gateway. SoCal as multi-centered urban corridor has a well-developed infrastructure, but when compared to the other mega-regions of the U.S., this region has underdeveloped public transportation systems. This study is concerned with the transportation policy and administration of the SoCal megalopolis.*

**Key Words:** Southern California Mega-region, Transportation, Southern California Association of Governments.

**Jel Codes:** R40, R41, R58.

**ÖZET**

*ABD'deki ikinci en büyük kentleşen bölgelerden biri olarak SoCal, Kaliforniya için büyük bir ekonomik merkez konumundadır. Los Angeles ve Long Beach gibi ülkenin en büyük limanlarından bazılarında sahip olan SoCal ekonomisi, lojistik ve mal dolaşım endüstrisiyle öne çıkmaktadır. Kendi refahını üreten bu bölge, bir taraftan hızla artan yerli ve göçmen nüfusu için fırsatlar sunarken, diğer taraftan bir küresel geçit olarak rolünü güçlendiren altyapısını inşa eden girişimci eylemler sunmaktadır. Çok merkezli bir kent koridoru olan SoCal, iyi gelişmiş bir altyapıya sahiptir, ancak ülkedeki diğer mega-bölgeler karşılaştırıldığında bu bölgenin az gelişmiş bir toplu ulaşım sistemine sahip olduğu görülecektir. Bu çalışmada, SoCal mega-bölgesinin ulaşım politikası ve yönetimi incelenmektedir.*

**Anahtar Kelimeler:** Güney Kaliforniya Mega-Bölgesi, Ulaşım, Güney Kaliforniya Hükümetler Birliği.

**Jel Kodları:** R40, R41, R58.

**1. INTRODUCTION**

With over 18 million people, constituting nearly half of the total state population, *SoCal* is a mega-region in the southern area of the U.S. state of the California. Large urban areas include the greater Los Angeles and the greater San Diego regions. This urban area

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stretches along the coast from Ventura through the Southland and Inland Empire to San Diego. The international US-Mexico border makes up the mega-region's southern border. *SoCal* is a multi-centered urban corridor and is the second largest urbanized region in the U.S. Metropolitan areas included within this mega-region are Los Angeles, Riverside-San Bernardino, San Diego, Oxnard-Thousand Oaks-Ventura and El Centro. With the 17<sup>th</sup> largest economy in the world, *SoCal* has well-developed infrastructure, but underdeveloped public transportation systems, especially when compared to the other new mega-regions of the U.S.

Los Angeles, Riverside-San Bernardino, and San Diego are three major metropolitan areas. Environmental systems and topography, infrastructure systems, economic linkages, settlement patterns and land use, and shared culture and history are among the leading reasons for this. At the center is the greater Los Angeles region, which is strong six-county government (Ventura, Los Angeles, San Diego, Riverside, San Bernardino, El Centro) containing a current population of about 10 million people, with the majority of these county populations considered urbanized (Saltzstein, 1996: 51, 53). The County seat is the city of Los Angeles, the largest city in CA and the second-largest city, after New York City, in the nation (Wikipedia, 2012b). Los Angeles, today, is one of the largest of the world's megacities (United Nations Department of Economic and Social Affairs, 2012: 6-7); it is an especially core area within a worldwide network of urban and regional economies. To the south is San Diego County, which is the southwestern most county in the 48 contiguous U.S., and its County seat and largest city is San Diego (Wikipedia, 2012e). Riverside and San Bernardino Counties are the other metropolitan areas and regions of *SoCal* and situated directly east of the Greater Los Angeles region, with over 4 million people (Wikipedia, 2012a).

With some of the largest ports in the nation, the economy of *SoCal* is closely tied to the logistics and goods movement industry. Thus, to enhance its wealth producing capabilities, this region is taking aggressive action to build infrastructure that enhances its role as a global gateway while providing opportunities for its fast growing native-born and immigrant populations. Also, *SoCal* as a global entertainment center, is a world leader in the cinema, television and music sectors, and is one of the world's largest tourism industries by means of the famous beaches, the amusement parks such as Los Angeles Live and Sunset Boulevard, recreational facilities such as Disneyland, Knott'un Berry Farm, SeaWorld and Six Flags Magic Mountain (Wikipedia, California Megapolitan Areas, 2011). According to the year 2005 data, the *SoCal* Megalopolis constitutes 7% of the U.S.'s gross domestic product (GDP) and has been a source of income worth 710 million U.S. Dollars (Florida, Gulden and Mellander, 2008: 468; America 2050, 2011). This study is concerned with the transportation administration of the city region of the *SoCal* megalopolis. We examine mega-regional urbanization in *SoCal* and its transportation policy in the context of the role of state and local government associated with mega-regional development. To address this issue, we will evaluate the Southern California Association of Governments (*SCAG*) as the largest metropolitan planning organization in the nation, and its ability to manage transportation politics, and limit our analysis to *SCAG*. *SCAG* is a legal entity engaging in cooperative and continuing transportation planning for the *SoCal* region. This is one of the fifteen metropolitan planning organizations in California<sup>2</sup>, representing each of the regions of the state classified as urbanized areas

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<sup>2</sup> "Regional planning in California is performed by numerous associations of governments, created largely because of strong federal requirements. The associations are completely voluntary in nature and operate under agreements adopted by each of their members"; (Marks and Taber, 1973: 125).

(Lewis and Sprague, 1997: v, vi). In this paper, under the mega-regional approach, we will try to shed some light on the region's transportation system with *SCAG*.

## **2. REGIONAL TRANSPORTATION GOVERNANCE AND COORDINATION IN *SOCAL* AND *SCAG***

There are many organizations, which are jointly liable for *SoCal*'s transportation planning and programming. The region comprises of four district offices of the state department of transportation, 14 sub-regional councils of government, six county transportation commissions that program transportation funds, and 184 cities. Obviously, in this institutional complexity, it is an extremely difficult environment within which to plan for freight transportation systems that transcend multiple jurisdictional boundaries within the region. Four different district offices of the California Department of Transportation (Caltrans) are responsible for planning, design, construction, maintenance, and operation of the *SCAG*'s state highways. *SCAG* as a metropolitan planning organization, which is also evaluated in more detail in our study, develops regional transportation plans and provides funding for a great number regional transportation studies. Six county transportation commission (CTCs) in *SoCal* are responsible for funding and programming all transportation projects in the region. Tasked with the assignment of allocating federal transportation funds, these have been a major source of funding for *SCAG* and other agencies involved in freight planning and project implementation. There are also 14 sub-regions, represented by councils of government and sub-regional planning agencies that work with *SCAG* and the CTCs to carry out transportation planning within the region. 184 cities have critical roles in permitting roadway construction projects and operating and maintaining much of the regional roadway network. (U.S. Department of Transportation Federal Highway Administration, 2012)

### **2.1. Organizational Structure of *SCAG*: An Overview**

*SCAG* is the largest metropolitan planning organization in the U.S., (Ikhrata and Michell, 1997: 103) representing six counties (Los Angeles, Orange, San Bernardino, Riverside, Ventura and Imperial), 191 cities and more than 18 million residents, in an area of more than 38000 square miles, for over 40 years. *SCAG* undertakes a variety of planning and policy initiatives to encourage more sustainability in *SoCal*. As a public agency, *SCAG*'s policies have been implemented by the Regional Council which is the 83-member, local elected, official governing board and meets monthly. There are also a few tasks of this Association at the federal and state levels, including Council of Government and Regional Transportation Planning Agency. (Southern California Association of Governments, 2012d)

In *SoCal*, *SCAG* also serves as the forum by local politicians (Southern California Association of Governments, 2008: 4) to develop solutions to common concerns and challenges facing the region in transportation, housing, growth management, hazardous waste management, and air quality and the others for the region's sustainability. (Southern California Association of Governments, 2011a) In all these tasks, *SCAG* especially is responsible for identifying *SoCal*'s transportation priorities with regional transportation plans. *SCAG* is the determined Regional Transportation Planning Agency under state law (Southern California Association of Governments, 2012d); *SoCal* has invested heavily in a multimodal transportation system which serves for the region's economic well-being for years (Southern California Association of Governments, 2012d). Since 1976, *SCAG* has prepared the regional transportation plan (RTP) with the main goal of increasing mobility for the region's residents, and the RTP is updated and adopted by every four years. The

RTP provides a vision for transportation investments throughout the region, and also develops a financial plan for this. It is also the main vehicle SCAG uses to achieve the region's transportation system planning goals and objectives (Southern California Association of Governments, 2012d). Considering growth forecasts and economic trends that project out over a 20-year period, the RTP deals with the role of transportation in the broader context of economic, environmental, and quality of life goals for the future, identifying regional transportation strategies to handle the region's mobility needs. (Southern California Association of Governments, 2012a) The last plan adopted by the Regional Council on April 4, 2012 was under a broader greenhouse gas emissions reduction strategy. SCAG plans to address the challenges SoCal faces, evaluating the six-county region's mobility, safety, air quality and financial challenges and addressing them through the 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) if they present an imposing threat to life quality (Southern California Association of Governments, 2012d). SCAG also has been given the added responsibility of developing a Sustainable Communities Strategy (SCS) to address greenhouse gas emissions as a part of the RTP, with the recent passage of Senate Bill 375 into law (Southern California Association of Governments, 2011b). Unlike previous plans SCAG has begun to incorporate, for the first time, climate change issues into its transportation planning process.

Founded in 1965, SCAG is responsible for developing a transportation plan for SoCal, determining accommodation to clean air standards, developing waste treatment plans, assessing environmental impact reports for regionally significant projects and determining local government's share of regional housing needs. (Gainsborough, 2001: 507) SCAG up until now has performed as the tool for pass-through of federal financial assistance from the Federal Highway Administration (FHWA) and Federal Transit Administration. (Bollens, 1997: 115) According to the 2009 Strategic Plan, the main goal was both to obtain regional transportation infrastructure funding and to promote legislative solutions for regional planning priorities. The main objectives within this goal are identifying new infrastructure for the most appropriate funding with state, federal and private partners; identifying and supporting legislative initiatives; and maximizing the use of existing funding by working with state and federal authorities to streamline project delivery requirements. (Southern California Association of Governments, 2009: 4) SCAG committees provide opportunities for involvement in regional programs. Some subcommittees, task forces, and working groups report to the standing committees responsible for policy direction and review, and the others are instituted on an *ad hoc* basis to assist with determined projects. Also, SCAG has a number of organizational responsibilities which include: continuation of a maintained, comprehensive, and coordinated planning process resulting in a Regional Transportation Plan and a Regional Transportation Improvement Program; development of demographic estimates, integrated land use, housing, employment, transportation programs, measures, and strategies for the South Coast Air Quality Management Plan; serving as a co-lead agency for air quality planning for the Central Coast and Southeast Desert air basin districts; revising environmental impact reports for projects having regional importance for coherence with regional plans; and preparing the Regional Housing Needs Assessment. (Southern California Association of Governments, About..., 2011)

## **2.2. Transportation Planning Trends and Mobility in SoCal**

SoCal has one of the most urbanized and most productive economies in the nation. Concordantly, over the past few decades, the region has invested heavily in a multimodal transportation system. In the region, nine out of 10 trips use broad highway and arterial network, which support lots of modes, including the automobile, transit, and active transportation, e.g. bicycle. SoCal is also home to several growing passenger rail lines,

none of which existed 20 years ago, as well the nation's largest and most complex region in regard to number of airports and aircrafts. In addition, the region's goods movement industry plays a critical role in sustaining the regional economy. However, as *SoCal* moves into the new global economy, especially due to global trends of changing markets, the struggles facing the region are increasingly and tightly linked. When combined, the mobility, air quality, and funding struggles are a threat to the life for Southern Californians. (Southern California Association of Governments, 2012d) Thus, this section describes and analyzes regional trends that pose significant transportation struggles in order to look at the possible consequences of future infrastructure, within the framework of development and growth policies carried out by SCAG.

### **2.2.1. The Transit System Under Stress: Highway Congestion and Railway Services**

*SoCal* is one of the world's most dynamic regions, and its urban core spreading from the Los Angeles to the San Diego is the densest in the nation (Kern County Council of Governments, San Diego Association of Governments and Southern California Association of Governments, 2005: 8), with more than 18 million residents, or 49 percent of the state's population (The California Department of Finance, 2014). It has continued to experience population growth in recent years, with international immigration playing an especially important role, eventually causing problems as land far from the planned employment center is being consumed (Kern County Council of Governments, San Diego Association of Governments and Southern California Association of Governments, 2005: 9). For the time period between 2012 and 2030, it is estimated that its population will grow by 18 percent, about 4 million people, mainly in the suburban inland counties of Riverside and San Bernardino (Southern California Association of Governments, 2012d). *SoCal*'s population is projected to grow by 18 percent by the year 2030. According to population projections conducted by the California Department of Finance, the population of the *SoCal* mega-region would increase to over 24 million by 2050, a 32 percent increase from today. (The California Department of Finance, 2012) At this time, although the *SoCal* population growth rates will eventually decline, road traffic congestion in the *SoCal* region has grown much worse and poses a challenge for all surrounding large and growing urban areas. 446 million miles are currently driven each day (Southern California Association of Governments, 2012d). Automobile ownership and related hidden costs, e.g. air pollution, death and injury from accidents, a more scattered pattern of land use that results in increased costs of public services, (Levy, 2009: 228) in the *SoCal* mega-region also has increased in parallel with the growth of the population, just as the nation. SCAG conducted a study in which they found that licensed drivers surpass 9 million in 2000 for the *SoCal* mega-region (Southern California Association of Governments, 2003: 3). But today about 2 million people have been added to this number (Southern California Association of Governments, 2011b). During the US\$1 billion widening project of LA's Interstate 405 freeway—the north-south spine of the West Side of Los Angeles, which carries 500,000 cars every weekend over the Sepulveda Pass into the San Fernando Valley—an 11 mile shutdown of the most congested section of the busiest freeway in the Los Angeles for 53 hours on July 16<sup>th</sup> and 17<sup>th</sup> in 2011, lead to subsequent traffic jams on alternative major routes, now referred to as Carmageddon (Nagourney, 2012; Sonuparlak, 2012; L. A. Now, 2012). Considering this, it should not be surprising that the Los Angeles has four of the 10 most congested highway locations in the nation alone: the I-405 at the I-10 interchange, U.S. 101 at the I-405 interchange, State Route 55 at the State Route 22 Interchange, and the I-10 at the I-5 interchange each average 10 minutes of delay per vehicle per trip during peak hours (U.S. Department of Transportation Federal Highway Administration, 2012). As

*SoCal* and its population grow, increased demand for transport will lead to more congestion and pollution.

Table 1: Population Projections for *SoCal* and Its Counties

				Projections	
	2000	2010	2012	2030	2050
<b>The State of California</b>	34.000.835	37.312.510	37.678.563	44.574.756	51.013.984
<i>Los Angeles County</i>	9.543.983	9.825.496	9.8884.632	11.138.280	11.567.914
<i>Riverside County</i>	1.557.271	2.191.449	2.227.577	3.145.948	4.137.882
<i>San Bernardino County</i>	1.719.190	2.038.445	2.063.919	2.588.990	3.159.003
<i>San Diego County</i>	2.828.374	3.104.084	3.143.429	3.665.358	4.081.292
<i>Ventura County</i>	756.902	825.246	832.920	956.324	1.085.882
<i>El Centro (is the largest city in Imperial County)</i>	-	42.598	43.396	-	-
<b>SoCal</b>	16.405.639	18.027.318	18.195.873	21.494.900	24.031.973

Source: (The California Department of Finance, 2014; The California Department of Finance, 2012).

According to a study by the Texas Transportation Institute, core urban areas of the *SoCal* mega-region, such as the Harbor Freeway—which is a three mile area of the northbound 110 Freeway in the Los Angeles, have consistently ranked worst in congestion in the nation since 1982. The study discovered that six of the seven most congested stretches of highway in the U.S. could be found in and around the Los Angeles area. Therefore, centered on the Los Angeles, the *SoCal* mega-region loses US\$13.8 billion due to congestion in every year; an estimated 768 million hours are spent by drivers sitting in traffic and 509 million gallons of excess fuel are consumed. According to the 2010 Urban Mobility Report on the basis of the travel time index, the average peak period traveler in LA travels about 22 miles (20 miles for San Diego) daily and spends 213 hours (193 hours for San Diego) per year traveling in the peak period. According to the SCAG, every 10 percent decrease in this congestion can bring an employment increase of about 132,000 jobs (Southern California Association of Governments, 2012d). Safety challenges also continue. The health impacts of the accidents, air pollution, and physical inactivity alone add hundreds of billions of dollars in costs. For example, the health expenditure reductions from meeting federal air quality standards for NOx and ozone could reach US\$22 billion per year within the South Coast Air Basin. This area has the worst air quality in the nation, with the costs of air pollution of US\$1,250 per person, according to the 2008 year figures provided by the American Public Health Association (The American Public Health Association, 2010: 6), and automobile emissions considerably increase the region's air pollution. In the same year, over 1,500 people died and just fewer than 125,000 were injured in traffic accidents in the SCAG region, officials said. (Southern California Association of Governments, 2012d) Taking all input into account, such as healthcare costs, lost wages, property damage and travel delay, the total cost of these accidents was US\$12.54 billion alone for the Los Angeles-Long Beach-Santa Ana metropolitan region (Cambridge Systematics, 2011: A2). These trends, consequently, show that use of personal cars will continue to outpace population growth, thus increasing the pressure on an already constrained system. (Eisele, Schrank and Lomax, 2011: 18-19, A-21- A-39; Ehline Law Legal News, 2012; Kern County Council of Governments, San Diego Association of Governments and Southern California Association of Governments, 2005: 10)

Actually, *SoCal* today has over 10,500 lane-miles of freeway, which function as the base for the large local distribution network that serves the regional economy (U.S. Department of Transportation Federal Highway Administration, 2012). But *SoCal* has also some limitations which make it prohibitively expensive to build any more highways, including community opposition to negative neighborhood, environmental impacts, and the combined

effect of inflation in construction costs with declining sources of income. Highway congestion increases the risks of accidents and localized pollutants, such as particulate matter, and it also wastes time and money. While state and federal gas taxes have not changed in nearly 20 years, highway construction costs have grown by 82 percent. Several major roadways and bridges have fallen into a state of disrepair due to underinvestment. It is estimated that rail operating costs have increased by over 40 percent in the past decade. (Southern California Association of Governments, 2012d). It is worth noting however those transportation planners understand that the growing congestion problem cannot simply be overcome by expanding capacity to the highway system. Therefore, other operational and innovative strategies to improve the performance and efficiency of this system have been adopted, instead. *SoCal* has, for instance, one of the highest carpool rates, at the 15.8 percent, in the nation (Kern County Council of Governments, San Diego Association of Governments and Southern California Association of Governments, 2005: 10), although this rate dropped from about 20 percent in 1980 to 10 percent in 2010 (Southern California Association of Governments, 2012d). During this same time period, between 1989-2011, the ten public private partnership (PPP) transportation projects executed in the LA-Long Beach-Santa Ana metropolitan area are worth US\$ 6.7 billion in total (Istrate and Puentes, 2011: 19).

Despite an obvious and rising trend towards a car culture, the *SoCal*'s transit system also consists of a great network of services provided by dozens of operators that includes fixed-route local buses, community circulations, express buses, bus rapid transit (BRT), demand response, commuter rail, heavy rail, and light rail. According to the *SCAG*, bus ridership and urban rail ridership increased respectively by 17 percent, and 50 percent. Amtrak operates interregional and intercity passenger rail services, and four of Amtrak's fifteen long-distance routes serve the *SoCal* region. Also, there was an 81 percent growth in Metrolink ridership. The Southern California Regional Rail Authority is the unique operator of the Metrolink system and it provides service on 512 track miles along seven routes in the region. But still, the system is not efficient or fast enough. *SCAG* indicates that one potential solution is high-speed rail. Thus, voters in CA passed Proposition 1A, authorizing about US\$9 billion in bonds to build a statewide high-speed train (HST) system and an additional US\$950 million to upgrade connectivity of existing rail services to the proposed HST. Afterwards, the federal government committed US\$3.6 billion through the American Recovery and Reinvestment Act of 2009 (Southern California Association of Governments, 2012d). In Los Angeles, for example, in spite of the city's budget cuts, about US\$2.5 million was allocated for the construction and implementation of an extensive light-rail system, projected to be completely built by 2015. The first phase of downtown Los Angeles-to-Culver City Expo light-rail line opened in April 2012 after costing about US\$1 billion. Phase two is a further extension from Culver City to Santa Monica, projected to cost US\$1.5 billion, is under construction and scheduled to open in four years (Miller, Myerson and MacCleery, 2012: 31).

### **2.2.2. *SoCal*'s Seaports**

An incredible amount of complex freight movements take place in *SoCal*, which serves as a large gateway for international trade. *SoCal* has ports in Los Angeles, Long Beach and San Diego. The ports of Los Angeles and Long Beach occupy contiguous spaces on San Pedro Bay (Haveman and Hummels, 2004: 10), which are two of the busiest ports in the U.S., measured by container traffic and, combined, the fifth busiest port complex in the world. The port of Los Angeles adjoins the separate Port of Long Beach, which services over

16,000 people, and a container volume of 7.8 million TEUs<sup>3</sup>, reaching a value of US\$ 236.4 billion, in 2010 (Wikipedia, 2012c). Also known as Long Beach's Harbor Department, the Port of Long Beach conducts approximately US\$ 100 billion in trade, provides more than 316,000 jobs and generates close to US\$ 5.6 billion a year in state and local tax revenues in *SoCal* (Wikipedia, 2012d). In particular, the Port of Long Beach has been competing for cargo since it was founded. The port moved more than 5 million TEUs in 2009 and the value of this cargo was more than US\$ 120 billion (Cargo Business News - Tools for the Transport Trade, 2011: 53). These ports receive about 40 percent of U.S. containerized imports from Asia. Both ports experienced an 11 percent combined growth of cargo resulting in over 13 million TEUs, from 2003 to 2004. This increase alone represented about 60 percent of the total annual volume of the port of Oakland. Estimates indicate that the ports will overcome about 44 million TEUs by 2030. (Kern County Council of Governments, San Diego Association of Governments and Southern California Association of Governments, 2005: 10) The ports add value to cargo services through large, modern container terminals, extensive on-dock and near-dock rail yards and efficient intermodal rail service to the rest of the country, even though the ports charges and land lease rates are among the nation's highest. Therefore, the Long Beach Port plans to invest US\$4.5 billion in infrastructure development during the next eight years both to accommodate growing cargo volumes, and to enhance the ability of terminal operators, shipping lines, railroads, motor carriers and distribution warehouses to increase the velocity of moving discretionary cargo to inland destinations. (Mongelluzzo, 2012) The Port of San Diego, the other port in *SoCal*, is the fourth largest port in CA. This port, since it is founding by the state legislature in 1962, has invested US\$1.7 billion in public improvements in its region. (Gilmore, 2012) The port has generated 77.000 jobs by business on Port tidelands. Also, it imports and exports 500,000 cars and 50,000 reefer containers annually. (Cargo Business News - Tools for the Transport Trade, 2011: 71) Freight transportation demand is projected to increase by 80 percent between 1995 and 2020 (U.S. Department of Transportation Federal Highway Administration, 2012).

Unfortunately since 2009, these ports have suffered a serious drop in container shipments, due to slower business (Ward, 2012) and higher costs, as well delays for all users of the system. These ports have been in danger of losing their competitive edge to other ports in the U.S. and Canada for the first time since 1945 (White, 2012). The Port of Long Beach's annual container volume, for example, declined steeply by 27 percent (3.65 TEUs) and therefore, its total value cargo experienced also suffered a considerable decline by about 53 percent (US\$56.7 billion), given the 2010 data (Wikipedia, 2012d). However, economic improvements have been observed through the increased business of the port recently. In the first three months of the 2012 year, container traffic through both ports was up just 0.6% compared with the first quarter of 2011, largely because of slowing shipments from China (Pierson, 2012).

In addition, the shipping volumes of the ports come with a hidden cost externality, which is air pollution. Quantified daily emissions of NOx and SOx from ships on air quality in *SoCal* are 38.4 and 22.8 ton, respectively, in 2002 but are also predicted to increase significantly due to an increase in ship traffic. Ship emissions are estimated to contribute approximately 25 percent (97.9 ton) and 40 percent (59.1 ton) total emissions in 2020, respectively, a dramatic increase from 2002 levels. (Vutukuru and Dabdub, 2008: 3755, 3762) The reason that the ports will remain a major threat to air quality is that marine vessels are the largest source of this pollution operating in *SoCal*. As a result, ship emission control regulations for the region have become a recurring topic of discussion.

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<sup>3</sup> Twenty-Foot Equivalent Units.

About US\$17 billion of the Los Angeles and Long Beach (along with Santa Ana) ports assets are at risk today, a sum expected to reach US\$121 billion by 2070, according to a study which reviews the 20 port cities most vulnerable to climate extremes, ranked by assets at risk, by the Organization of Economic Cooperation and Development (Roston, 2012; Nicholls *et al.*, 2008: 57).

### 2.2.3. Aviation Congestion: The SoCal's Airports

The *SoCal* mega-region has 93 public use airports, comprising 13 active commercial service airports, as listed in the following Table 1. (Kern County Council of Governments, San Diego Association of Governments and Southern California Association of Governments, 2005: 12) All of these airports further enable the mega-region to be the busiest of all regions in the nation. In 2010, these ports handled US\$78 billion in air cargo (Southern California Association of Governments, 2012d). The data of *SoCal*'s counties estimates that the number of domestic passengers would reach 128.1 million passengers annually from 77.6 million in 1996, while international travelers would increase from 14.2 million in 1996 to 50.5 million by 2020.

Table 2: Enplanements at Primary Airports (Rank Order) CY10

Rank	RO	Locid	City	Airport Name	CY 10 Enplanements	CY 09 Enplanements	% Change
3	WP	LAX	Los Angeles	Los Angeles International	28,857,755	27,439,897	5.17%
28	WP	SAN	San Diego	San Diego International	8,430,509	8,453,854	-0.28%
41	WP	SNA	Santa Ana	John Wayne Airport-Orange County	4,278,623	4,311,329	-0.76%
59	WP	ONT	Ontario	Ontario International	2,380,881	2,416,872	-1.49%
61	WP	BUR	Burbank	Bob Hope	2,239,804	2,294,991	-2.40%
72	WP	LGB	Long Beach	Long Beach /Daugherty Field/	1,451,404	1,401,903	3.53%
99	WP	PSP	Palm Springs	Palm Springs International	751,068	739,349	1.59%
132	WP	SBA	Santa Barbara	Santa Barbara Municipal	382,894	379,777	0.82%
214	WP	BFL	Bakersfield	Meadows Field	111,699	103,067	8.38%
304	WP	VCV	Victorville	Southern California Logistics	32,385	43,137	-24.93%
290	WP	RIV	Riverside	March ARB (March Inland Port)	37,332	27,217	37.16%
#	WP	PMD	Palmdale	Palmdale Regional/ USAF Plant 42	0	0	0.00%
#	WP	SBD	San Bernardino	San Bernardino International	6	8	-25.00%

Source: (Federal Aviation Administration, 2011).

Los Angeles International Airport (LAX) is the primary gateway for most domestic and international travelers to the *SoCal* region and the largest airport in *SoCal*, shuffling through nearly 60 million passengers annually, with a total of nine air terminals, and construction and expansion are ongoing. In 1999, for example, approximately 28 percent of departures including freight and passenger flights were delayed due to air traffic volumes at LAX. Therefore, especially to accommodate future demand, it is argued to be necessary that the region must balance between expanding the 6.1 million square feet of dedicated cargo space in the LAX local area (over two million of which are on LAX property) and expanding air cargo facilities at other local airports. (U.S. Department of Transportation Federal Highway Administration, 2012) However, the overall cost of expanding the airport to meet demand is higher than expanding services at underused airports within the region. This also takes into account the political cost, as community groups around airports organize to oppose airport expansion and building new roads, frequently due to noise and the other environmental pollutions caused during and after construction. (Kern County Council of Governments, San Diego Association of Governments and Southern California Association of Governments, 2005: 12) These community groups have also challenged in court the planned expansion of LAX, questioning whether the operators of LAX have violated the 2006 LAX Settlement Agreement (LANext, 2012) that limited growth at the U.S.'s third-busiest airport (L.A. Now, 2012).

The other airports in *SoCal* have struggled with similar challenges as LAX because they are located in built-out urban environments. But much of the traffic at these non-primary commercial airports is short-haul. The morning and afternoon flights between *SoCal* and Northern California airports place great strains on these airports during rush hours. The airspace between Los Angeles and San Francisco is considered one of the busiest in the U.S. (Kern County Council of Governments, San Diego Association of Governments and Southern California Association of Governments, 2005: 12).

On the other hand, the problem of air pollution is widespread, like the airports in the nation, and is currently projected to increase after a number of years. In 2002, the number of days exceeding the federal one-hour standard for ozone increased to 49 days from 36 days in 2001, in the South Coast Air Basin, and the number of days for health advisories also increased from 15 or 18 days between 2001 and 2002 (Kern County Council of Governments, San Diego Association of Governments and Southern California Association of Governments, 2005: 20-21). Moreover, at the same basin, it is estimated that NO<sub>x</sub> emissions will need to be reduced by approximately two-thirds in 2023 and three-quarters in 2030 (Southern California Association of Governments, 2012d). LAX is, as an example, the largest point source for carbon monoxide in the state of CA, and also the largest point source of NO<sub>x</sub>, the seventh largest emitter of volatile organic compounds (VOCs), and the 41<sup>st</sup> largest polluter of SO<sub>2</sub>. Emissions from airport ground congestion constitute a significant share of this burden. At the congested airports, airplanes only enter the queue for takeoff after being pushed from the gate and starting the engine and then, sit with idling engines on the airfield in a queue that requires repeated acceleration from a standing position. Therefore, pollution levels around airports are significantly impacted by taxi time at an airport. According to a study, a single standard deviation change in ground congestion (i.e. taxi time) at LAX is responsible for an increase in carbon monoxide of 141 parts per billion 5 kilometers from an airport (23 percent of a standard deviation). These estimates imply total health costs of a standard deviation increase in LAX ground congestion are in excess of US\$200,000 for the pollutant CO alone. (Schlenker and Walker, 2012) It is also worth noting that the SCAG mega-region continually fails to meet national air quality standards with air pollution responsible for thousands of premature deaths and other serious

adverse health effects such as asthma, costing the US\$14.6 billion, every year. (South Coast Air Quality Management District, 2012)

Therefore, *SoCal* has actively applied and pursued programs, legal and policy measures to reduce emissions of greenhouse gas emissions. The *SCAG* region is a significant player interpreting, applying, enforcing, and regulating beyond the scope of federal law in reducing emissions. Also, in the period of this regional transportation plan to be implemented for the first time, California's Sustainable Communities and Climate Protection Act, or Senate Bill 375, requires *SCAG* to direct the development of the Sustainable Communities Strategy that reduces greenhouse gas emissions from passenger vehicles by 8 percent per head by 2020 and 13 percent per head by 2035 compared to 2005, (Southern California Association of Governments, 2012d) for the region.

### 2.3. SCAG's Transportation Investments and Financial Plan for the Region

The RTP/SCS for *SoCal*'s multimodal transportation system sets forth a number of improvements and includes a financial plan for this. These improvements consist of both closures of critical gaps in the network that prevent access to certain parts of the region, and the strategic expansions of its transportation system. These are generally summarized in the Table 2 below. For the region's transportation investments, a financial plan must also be prepared. The plan consists of a main revenue forecast of existing local, state, and federal resources, as well as new funding sources which include adjustments to state and federal gas tax rates based on historical trends and recommendations from two national commissions (The National Surface Transportation Policy and Revenue Study Commission, and The National Surface Transportation Infrastructure Financing Commission). These commissions are created by the U.S. Congress, further leveraging existing local sales tax measures, value capture strategies, potential national freight program/freight fees, as well as passenger and commercial vehicle tools for specific facilities. Also, innovative financing strategies, i.e. private equity participation, are covered by these sources. (Southern California Association of Governments, 2012d) However, most of *SCAG*'s funding, approximately 89 percent, comes from the federal government (Moore, 2011: 21) and thus, federal assistance has played a key role in supporting and shaping the transportation system and has focused on the maintenance of existing infrastructure in the *SoCal* mega-region.

Table 2: Transportation investments for the *SoCal* mega-region (nominal dollars, billions)

Component	Description	Cost (US\$)
<b>Transit</b>		55.0 billion
Bus Rapid Transit ( <i>BRT</i> )	Enhanced incident management, advanced ramp metering, traffic signal synchronization, advanced traveler information, improved data collection, universal transit fare cards (Smart Cards), and Transit Automatic Vehicle Location ( <i>AVL</i> ) to increase traffic flow and reduce congestion	4.6 billion
Light Rail Transit ( <i>LRT</i> )	Interchange improvements to and closures of critical gaps in the highway network to provide access to all parts of the region	16.9 billion
Heavy Rail Transit ( <i>HRT</i> )	Closure of gaps in the high-occupancy vehicle ( <i>HOV</i> ) lane network and the addition of freeway-to-freeway direct <i>HOV</i> connectors to complete Southern California's <i>HOV</i> network A connected network of Express/ <i>HOT</i> lanes	11.8 billion
Bus	Closure of critical gaps in the highway network to provide access to all parts of the region	21.7 billion
<b>Passenger and High-Speed Rail</b>		51.8 billion
Commuter Rail	Metrolink extensions in Riverside County and Metrolink system-wide improvements to provide higher speeds	4.1 billion
High-Speed	Improvements to the Los Angeles to San Diego ( <i>LOSSAN</i> ) Rail	47.7 billion

Rail	Corridor with an ultimate goal of providing San Diego-Los Angeles express service in under two hours Phase I of the California High-Speed Train ( <i>HST</i> ) project that would provide high-speed service from Los Angeles to the Antelope Valley	
<b>Active Transportation</b>		6.7 billion
Various Active Transportation Strategies	Increase our bikeways from 4,315 miles to 10,122 miles, bring significant amount of sidewalks into compliance with the Americans with Disabilities Act ( <i>ADA</i> ), safety improvements, and various other strategies	6.7 billion
<b>Transportation Demand Management (TDM)</b>		4.5 billion
Various <i>TDM</i> Strategies	Strategies to incentivize drivers to reduce solo driving: <ul style="list-style-type: none"> <li>• Increase carpooling and vanpooling</li> <li>• Increase the use of transit, bicycling, and walking</li> <li>• Redistribute vehicle trips from peak periods to non-peak periods by shifting work times/days/locations</li> <li>• Encourage greater use of telecommuting</li> <li>• Other “first mile/last mile” strategies to allow travelers to easily connect to and from transit service at their origin and destination. These strategies include the development of mobility hubs around major transit stations, the integration of bicycling and transit through folding-bikes-on-buses programs, triple bike racks on buses, and dedicated racks on light and heavy rail vehicles</li> </ul>	4.5 billion
<b>Transportation Systems Management (TSM)</b>		7.6 billion
Various <i>TSM</i> Strategies	Enhanced incident management, advanced ramp metering, traffic signal synchronization, advanced traveler information, improved data collection, universal transit fare cards (Smart Cards), and Transit Automatic Vehicle Location ( <i>AVL</i> ) to increase traffic flow and reduce congestion	7.6 billion
<b>Highways</b>		64.2 billion
Mixed Flow	Interchange improvements to and closures of critical gaps in the highway network to provide access to all parts of the region	16.0 billion
High-Occupancy Vehicle( <i>HOV</i> )/High-Occupancy Toll ( <i>HOT</i> )	Closure of gaps in the high-occupancy vehicle ( <i>HOV</i> ) lane network and the addition of freeway-to-freeway direct <i>HOV</i> connectors to complete Southern California’s <i>HOV</i> network A connected network of Express/ <i>HOT</i> lanes	20.9 billion
Toll Facilities	Closure of critical gaps in the highway network to provide access to all parts of the region	27.3 billion
<b>Arterials</b>		22.1 billion
Various Arterial Improvements	Spot widenings, signal prioritization, driveway consolidations and relocations, grade separations at high-volume intersections, new bicycle lanes, and other design features such as lighting, landscaping, and modified roadway, parking, and sidewalk widths	22.1 billion
<b>Goods Movement</b>		48.4 billion
Various Goods Movement Strategies	Port access improvements, freight rail enhancements, grade separations, truck mobility improvements, intermodal facilities, and emission-reduction strategies	48.4 billion
<b>Aviation and Airport Ground Access</b>		Included in modal investments
Various Airport Ground Access Improvements	Rail extensions and improvements to provide easier access to airports, and new express bus service from remote terminals to airports	Included in modal investments

<b>Operations and Maintenance</b>		216.9 billion
Transit	Operations and maintenance to preserve our multimodal system in a good state of repair	139.3 billion
Highways		56.7 billion
Arterials		20.9 billion
<b>Total</b>		477,2 billion

Source: (Southern California Association of Governments, 2012d).

Ensuring good and reliable transport systems in *SoCal* will benefit the economy and prosperity of its residents. For this reason, the budget allocated for the region for the next 25 years totals over US\$524.7 billion. According to the SCAG, these investments in this particular RTP/SCS, with this budget plan, are expected to provide the region with economic mobility and job creation (over 500,000 jobs per year), sustainability, and environmental justice while focusing on improved transportation and mobility, as well reductions in greenhouse gas emissions. For the Overall Work Program which will be completed during the SCAG fiscal year 2012/13, the total budget allocated is about US\$1,300 for *SoCal*, as one of the priorities to coordinate and monitor implementation of the adopted 2012 RTP/SCS (Southern California Association of Governments, 2012c: 4). SCAG, which is also responsible for developing the Federal Transportation Improvement Program (FTIP) for submittal to Caltrans and the federal funding agencies, has prepared the Draft 2013 FTIP in compliance with the adopted 2012-2035 RTP/SCS and all federal and state requirements. The 2013 FTIP will generate an annual average of approximately 79,000 jobs, which includes projects and programs to be implemented totaling \$32.5 billion over the six-year period. (Southern California Association of Governments, 2012b) In other words, transportation is vital for *SoCal*'s economy and productivity growth. Its transportation sector is experiencing challenges such as population growth, congestion, accessibility and air pollution. With new investments in transit-oriented development, and better management of growth associated with new transportation infrastructure, this sector impacts on the economy in a number of ways, as mentioned.

On the other hand, at first glance, it can be considered that this budget may create new taxes or debts, or lead to an increase in the rate of existing taxes in the short or long term. Because, facing fiscal constraints, *SoCal* may seek to invest more efficiently in infrastructure. However, 2012-2035 RTP/SCS explains that (Southern California Association of Governments, 2012d) this budget substantially relies on local initiatives (74 percent of core revenues) to meet transportation needs because of a total of seven sales tax measures throughout the region, including the passage of Measure R in Los Angeles County since the adaptation of the 2008 RTP. Therefore SCAG claims that there will not be any problems regarding this issue, and that it has sufficient institutional capacity.

### 3. CONCLUSION

*SoCal* is a mega-region of tremendous economic, social, and environmental diversity, as indicated in this paper. *SoCal*, which is a multi-centered urban corridor, has one of the most urbanized and most productive economies in the nation. However, taken together, the new challenges facing *SoCal*'s regions are indeed daunting and therefore, the regional perspective has become increasingly important. Of the numerous problems which do exist in *SoCal*, we discussed reducing traffic congestion and increasing mobility in the region, as well the other key issues facing the transportation and logistics industry within the

framework of SCAG's policies. SCAG often play leading roles in the development of the region's transportation policy and project proposals.

*SoCal* is known to be the worst congested area in the U.S. with increasingly inadequate highways and very compacted traffic at peak travel times. Given the region's strong population growth in urban centers, the existing traffic congestion, pressures on natural resources, and other negative externalities associated with sprawling urban growth, conditions are expected to worsen due to projected growth in population and travel demand. Therefore, pressing issues and trends related to transportation sector are expected to be a priority problem for the *SoCal* mega-region in the coming decades. For this, short and long-term challenges, demographics and market demands today require expanding available land use, housing, and transportation choices for the region. Since its establishment, the SCAG functions as the regional transportation planning authority, which includes the preparation of long-termed transportation programs and the allocation of state and federal funds for transportation related measures, together with the other stakeholders. To a great extent, SCAG has accomplished its goal regarding the planning and construction of major infrastructure investments, in spite of the size and diversity of its jurisdiction. But there is still a tremendous amount of work to be done to transform *SoCal* mega-region into an environmentally sustainable place for all of its residents, and to reduce congestion and provide mobility options.

On the other hand, the final 23-year transportation plan of SCAG, a coherent region-wide transportation improvement program, provides a vision for transportation investments throughout the region, and also develops a financial plan for this. If the plan is successfully completed, it is thought to provide for efficient mobility of people, goods and information; enhance economic growth and international trade; and improve environment and life quality for all Southern Californians. SCAG provides a comprehensive road map for the region; however, this regional transportation plan is certainly not enough to solve current problems related to *SoCal*, which is also complex and multi-centered and further plans and regulations providing concrete steps are necessary. At this point, the efforts of SCAG as a long-range planning organization which has an active role in transportation policy and funding becomes important; rising transportation problems is an inescapable condition in nearly all large and growing metropolitan areas throughout the world— from Los Angeles to Tokyo, from Washington to Paris, from Atlanta to Istanbul.

## REFERENCES

- America 2050 (2008). *An Infrastructure Vision for 21<sup>st</sup> Century America*, New York.
- America 2050 (2011). "Southern California", [http://www.america2050.org/southern\\_california.html](http://www.america2050.org/southern_california.html), 06.25.2011.
- BOLLENS, S. A. (1997). "Fragments of Regionalism: The Limits of Southern California Governance", *Journal of Urban Affairs*, 19(1): 105-122.
- Cambridge Systematics (2011). *Crashes vs. Congestion – What's the Cost to Society?*, The American Automobile Association, Maryland.
- Cargo Business News - Tools for the Transport Trade (2011). *Southern California 2011 Ports Handbook*, Northwest Publishing Center, Seattle.
- Ehline Law Legal News (2012). "Study Shows Most Congested Stretch of Highway in The U.S. Los Angeles Harbor Freeway", <http://www.ehlinelaw.com/pages/100376/los-angeles-traffic-congestion-study.htm#>, 07.01.2012.

- EISELE, B., SCHRANK, D. and LOMAX, T. (2011). 2011 Congested Corridors Report: Powered by INRIX Traffic Data, Texas Transportation Institute and the Texas A&M University System.
- Federal Aviation Administration (2011). "Passenger Boarding (Enplanement) and All-Cargo Data for U.S. Airports, [http://www.faa.gov/airports/planning\\_capacity/passenger\\_allcargo\\_stats/passenger/index.cfm?year=2010](http://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/index.cfm?year=2010), 07.08.2012.
- FLORIDA, R., GULDEN, T. and MELLANDER, C. (2008). "The Rise of the Mega-Region", *Cambridge Journal of Regions, Economy and Society* (1) 459-476.
- GAINSBOROUGH, J. F. (2001). "Bridging the City-Suburb Divide: States and Politics of Regional Cooperation", *Journal of Urban Affairs*. 23(5): 497-512.
- GILMORE, J. (2012). "Community Leaders Support Maritime Focus At Port of San Diego Marine Terminals", <http://www.portofsandiego.org/maritime/2909-community-leaders-support-maritime-focus-at-port-of-san-diego-marine-terminals.html>, 07.07.2012.
- HAVEMAN, J. D. and HUMMELS, D. (2004). *California's Global Gateways: Trends and Issues*, Public Policy Institute of California, San Francisco.
- IKHRATA, H. and MICHELL, P. (1997). "Technical Report of Southern California Association of Governments' Transportation Performance Indicators", *Transportation Research Record*, 606(1): 103-114.
- ISTRATE, E. and PUENTES, R. (2011). *Moving Forward on Public Private Partnerships: U.S. and International Experience with PPP Units*, Brookings-Rockefeller (Project on State and Metropolitan Innovation), Washington, D.C.
- Kern County Council of Governments, San Diego Association of Governments and Southern California Association of Governments (2005). *The Southern California Mega-Region, A Case Study of Global Gateway Regions: America's Third Century Strategy*.
- LANext (2006). "Feb 2006 > The LAX Settlement Agreement", <http://www.la-next-mobile.com/portfolio/feb-2006-the-lax-settlement-agreement>, 28.06.2014.
- L.A. Now (2012). "LAX's commitment to expansion-control agreement questioned", <http://latimesblogs.latimes.com/lanow/2012/06/lax-legal-dispute.html>, 28.06.2012.
- LEVY, J. M. (2009). *Contemporary Urban Planning*, Pearson Education, Inc., New Jersey.
- LEWIS, P. G. and SPRAGUE, M. (1997). *Federal Transportation Policy and the Role of Metropolitan Planning Organizations in California*, Public Policy Institute of California, San Francisco, CA.
- MARKS, M. and TABER, S. L. (1973). "Prospects for Regional Planning in California", *Pacific Law Journal*, (4): 117-143.
- MILLER, J. D., MYERSON, D. and MACCLEERY, R. (2012). *Infrastructure 2012: Spotlight on Leadership*, The Urban Land Institute and Ernest & Young, Washington, D.C.
- MONGELLUZZO, B. (2012). "Southern California Ports, Logistics Firms Focus on Efficiency (Mar 12, 2012), *The Journal of Commerce*", <http://www.joc.com/portsterminals/southern-california-ports-logistics-firms-focus-efficiency>, 07.06.2012.
- MOORE, W. (2011). *Comprehensive Annual Financial Report 2011, Year Ended June 30, 2011*, Southern California Association of Governments, Los Angeles.

- NAGOURNEY, A. (2011). "L.A. Prepares for Worst and Hopes for Best in Freeway Shutdown", [http://www.nytimes.com/2011/07/07/us/07freeway.html?\\_r=1](http://www.nytimes.com/2011/07/07/us/07freeway.html?_r=1), 07.02.2012.
- NICHOLLS, R. J., HANSON, S., HERWEIJER, C., PATMORE, N., HALLEGATTE, S., CORFEE-MORLOT, J., CHATEAU, J. and MUIR-WOOD, R. (2008). OECD Environment Working Papers: Ranking Port Cities with High Exposure Estimates, no. 1, OECD Publishing.
- PIERSON, D. (2012). "After slamming brakes on growth, China reaches for stimulus", <http://articles.latimes.com/2012/may/15/business/la-fi-china-slowdown-20120515>, 07.06.2012.
- ROSTON, E. (2012). "Top 20 Cities with Billions at Risk from Climate Change", <http://www.bloomberg.com/slideshow/2012-07-06/top-20-cities-with-billions-at-risk-from-climate-change.html>, 22.07.2012.
- SALTZSTEIN, A. L. (1996). "Los Angeles: Politics without Governance", (Ed.) SAVITCH H.V. and VOGEL R. K., Regional Politics: America in a Post-City Age (Urban Affairs Annual Reviews 45), Sage Publications, Inc., Thousand Oaks; 51-71.
- WOLFRAM, S. and WALKER, W. R. (2010). "Air Pollution and Contemporaneous Health: Evidence from Random Variation in Pollution Shocks from Airports", [http://www.webmeets.com/files/papers/WCERE/2010/899/airport\\_2010\\_05\\_28.pdf](http://www.webmeets.com/files/papers/WCERE/2010/899/airport_2010_05_28.pdf), 07.12.2012.
- SONUPARLAK, I. (2011). "Carmageddon! Los Angeles Braces for Traffic Chaos", <http://thecityfix.com/blog/carmageddon-los-angeles-braces-for-traffic-chaos/>, 07.02.2012.
- South Coast Air Quality Management District (2011). "Powering the Future: A Vision for Clean Energy, Clear Skies, and a Growing Economy in Southern California", [http://www.arb.ca.gov/newsrel/2011/powering\\_the\\_future.pdf](http://www.arb.ca.gov/newsrel/2011/powering_the_future.pdf), 07.12.2012.
- Southern California Association of Governments (2012a). "About the RTP", <http://rtpscs.scag.ca.gov/Pages/About-the-RTP.aspx>, 07.18.2012.
- Southern California Association of Governments (2011a), "About Us", <http://www.scag.ca.gov/about.htm>, 06.07.2011.
- Southern California Association of Governments (2009). A Guide to the Future Strategic Plan, Los Angeles.
- Southern California Association of Governments (2012b). "Federal Transportation Improvement Program (FTIP)", <http://www.scag.ca.gov/ftip/index.htm>, 07.30.2012.
- Southern California Association of Governments (2012c). Fiscal Year 2012-2013: Overall Work Program.
- Southern California Association of Governments (2010). "Framework and Guidelines for Subregional Sustainable Communities Strategy (Approved by Regional Council – April 1, 2010)", [http://www.scag.ca.gov/sb375/pdfs/SB375\\_FrameworkGuidelines040110.pdf](http://www.scag.ca.gov/sb375/pdfs/SB375_FrameworkGuidelines040110.pdf), 07.23.2012.
- Southern California Association of Governments (2012d), "Regional Transportation Plan (2012-2035): Sustainable Communities Strategy towards a Sustainable Future (Adopted April 2012)", <http://rtpscs.scag.ca.gov/Documents/2012/final/f2012RTPSCS.pdf>, 06.28.2012.

- Southern California Association of Governments (2011b). "SCAG General Fact Sheet", <http://www.scag.ca.gov/factsheets/pdf/2011/scagGeneral2011.pdf>, 07.22.2012.
- Southern California Association of Governments (2008). The Benefits of Membership (Brochure), Los Angeles.
- Southern California Association of Governments (2003). Year 2000 Post Census Regional Travel Survey: Final Report of Survey Results, Austin.
- The American Public Health Association (2010). The Hidden Health Costs of Transportation, Washington, D.C.
- The California Department of Finance (2014). "E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2014 with 2010 Census Benchmark", <http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php>, 29.06.2014.
- The California Department of Finance (2012). "Interim Population Projections for California and Its Counties 2010-2050", <http://www.dof.ca.gov/research/demographic/reports/projections/interim/view.php>, 07.01.2012.
- United Nations Department of Economic and Social Affairs (2012). World Urbanization Prospects The 2011 Revision (Highlights) (ESA/P/WP/224), New York.
- U.S. Department of Transportation Federal Highway Administration (2012). "Southern California Regional Freight Study (Executive Summary)", [http://www.ops.fhwa.dot.gov/freight/freight\\_analysis/reg\\_ind\\_studies/so\\_cal\\_study.htm](http://www.ops.fhwa.dot.gov/freight/freight_analysis/reg_ind_studies/so_cal_study.htm), 07.10.2012.
- WARD, A. (2012). "Southern California Ports Post Positive Numbers", [http://www.bondbuyer.com/issues/119\\_273/southern-california-port-long-beach-1006902-1.html](http://www.bondbuyer.com/issues/119_273/southern-california-port-long-beach-1006902-1.html), 07.06.2012.
- WHITE, R. D. (2009). "Southern California ports may see calmer waters by year's end", <http://articles.latimes.com/2009/mar/26/business/fi-ports26>, 07.06.2012.
- Wikipedia (2011). "California Megapolitan Areas", [http://en.wikipedia.org/wiki/California\\_megapolitan\\_areas#Southern\\_California](http://en.wikipedia.org/wiki/California_megapolitan_areas#Southern_California), 06.25.2011.
- Wikipedia (2012a). "Inland Empire (California)", [http://en.wikipedia.org/wiki/Inland\\_Empire\\_\(California\)](http://en.wikipedia.org/wiki/Inland_Empire_(California)), 04.07.2012.
- Wikipedia (2012b). "Los Angeles County, California", [http://en.wikipedia.org/wiki/Los\\_Angeles\\_County,\\_California](http://en.wikipedia.org/wiki/Los_Angeles_County,_California), 07.04.2012.
- Wikipedia (2012c). "Port of Los Angeles", [http://en.wikipedia.org/wiki/Port\\_of\\_Los\\_Angeles](http://en.wikipedia.org/wiki/Port_of_Los_Angeles), 07.05.2012.
- Wikipedia (2012d). "Port of Long Beach", [http://en.wikipedia.org/wiki/Port\\_of\\_Long\\_Beach](http://en.wikipedia.org/wiki/Port_of_Long_Beach), 07.05.2012.
- Wikipedia (2012e) "San Diego County, California", [http://en.wikipedia.org/wiki/San\\_Diego\\_County,\\_California](http://en.wikipedia.org/wiki/San_Diego_County,_California), 07.04.2012.
- VUTUKURU, S. and DABDUB, D. (2008). "Modeling the effects of ship emissions on Coastal Air Quality: A Case Study of Southern California", Atmospheric Environment, (42): 3751-3764.