Los Angeles Area Chamber of Commerce

SIEMENS

A BLUEPRINT FOR A 21ST CENTURY LOS ANGELES INFRASTRUCTURE

LOS ANGELES BLUEPRINT

The Los Angeles Area Chamber of Commerce has played an instrumental role over the past 127 years in helping transform L.A. from a city of 50,000 people into one of the world's largest population and economic centers. Integral to this transformation was the development of our region's infrastructure. The Chamber and its members worked closely with local, state and federal policymakers to successfully advocate for the construction of some of the world's largest ports, aqueducts, power generating facilities, highway systems and telecommunication networks. The combination of these regional assets enabled the growth that defined L.A. in the 20th century.

L.A.'s infrastructure continues to drive our economic growth today, however, many of our legacy projects are now either in a state of disrepair or not capable of meeting the future needs of our evolving environment and economy. Exacerbating this challenge are public policies that make it more costly and increasingly difficult to build new while also maintaining existing infrastructure. All the while competition is growing from other cities and regions across the world.

In order to maintain our economic competitiveness in the 21st century, L.A.'s private and public sectors will have to come together to build the next generation of infrastructure. *A Blueprint for a 21st Century Los Angeles Infrastructure* helps begin this process by calling upon our local policymakers to develop a long-term, comprehensive regional infrastructure plan that cuts across sectors and silos, and that clearly defines the investments that will be needed over the long-term. This document lays the foundation for such a plan by outlining unique infrastructure challenges and opportunities L.A. faces and by providing examples of how peer cities around the world are responding to similar challenges. We also identify some of the specific investments, policy changes and tools needed to help address this challenge.

Our goal in releasing this document is to seed this critically important conversation between Los Angeles' business and civic leaders.

Sincerely,

Gary Toebben

Gary Toebben
President & CEO
Los Angeles Area Chamber of Commerce

BACKGROUND

On Nov. 12, 2014, the Los Angeles Area Chamber of Commerce co-hosted a "State of L.A. Infrastructure" event, with the *Los Angeles Times*, that brought together leaders of the largest private and public sector organizations in the region to identify the long-term infrastructure challenges and opportunities facing L.A.'s economy. More than 200 business and civic leaders from throughout the region attended the day-long event, which focused on L.A.'s energy, water, transportation and telecommunication sectors.

Several key themes emerged from the event, including: 1) the significant need for increased infrastructure investment across all the aforementioned sectors; 2) the limitations existing local and state policies place on our ability to fund, construct and maintain our core infrastructure; and 3) the lack of awareness across economic sectors and political jurisdictions regarding the regionally significant infrastructure investments needed to remain economically competitive in the 21st century.

In response to the themes that emerged at the event, the L.A. Area Chamber partnered with Siemens — a global infrastructure provider — to develop a report that would assess L.A.'s infrastructure across key global metrics, to identify how our peer cities and regions across the world are responding to similar challenges and to call upon L.A.'s business and civic leaders to develop a comprehensive infrastructure delivery plan for the region.

A Blueprint for a 21st Century Los Angeles Infrastructure is the beginning of an on-going campaign that the Chamber and its members will embark on over the next decade. The primary goal of the campaign is to make a case for increased investment in our economy's most critical infrastructure assets and to provide the private and public sector with the innovative tools to construct and maintain our future infrastructure in a more cost-effective and sustainable manner. As this Blueprint will demonstrate, L.A. is yet again at a crossroads in its history. How our policymakers and business leaders respond to our infrastructure challenges over the next decade will determine how L.A.'s economy will perform over the next century.

WHERE LOS ANGELES STANDS TODAY

A unique and positive environment exists in L.A. today that could secure L.A.'s competitive position as a global economic leader for the coming decades. The City and County of L.A. and the local business community agree that modernizing our infrastructure across the city and its region is critical to maintaining and improving L.A.'s economic competitiveness and environment. The aligned interests to promote L.A. as both an economic and sustainability leader could result in faster delivery of key projects and undertaking more and wider ranging initiatives.

Rapid urbanization has been an issue for L.A. over the last 50 years, and the City and private sector have managed to keep up. However, the challenge today is more significant as L.A.'s future is intertwined with the greater L.A. metropolitan region where connectivity, both physical and virtual, and a high quality of life are a shared expectation. More than ever, regions are realizing that the economic and environmental benefits of delivering truly modern infrastructure need to be linked together, and that new technologies need to be embedded in new infrastructure if regions want to position themselves as a technology leader not just regionally or nationally, but globally. Today in L.A., there is a clear ambition to improve its environment and create economic activity on the back of infrastructure. The L.A. Area Chamber's membership is supportive of both maintaining existing legacy infrastructure and rolling out key projects that benefit the business community at large.

As the world's population continues to rapidly urbanize, cities are competing not only for investment, but also for highly skilled people. Traditional global centers, such as London, Hong Kong, and New York City, now have to compete with cities benefiting from fast-growing local markets, more modern infrastructure, and more affordable housing and labor costs. These are 'rising star' cities, and they include Shanghai, Melbourne, Mumbai and Seoul, as well as cities that are not even recognizable to a global audience. Today, some of these cities offer a living standard that was once thought to be found only in developed, wealthy countries. In short, cities cannot assume that past economic success will continue without a forward-thinking mindset and policy aims.

L.A. is one of these rising star cities. It has the third largest city economy in the world behind Tokyo and New York City, and its five-county metropolitan area is only surpassed by the entire states of California, Texas and New York. The Greater Los Angeles Metropolitan Region is a 'mega region' with a population well over 10 million people. The City of L.A. and its greater metropolitan region is also one of the most densely populated areas in the world. This may come as a surprise given L.A.'s reputation for sprawl, cars and traffic congestion.

L.A. is known for being home to the global entertainment industry. However, it is also home to one of the largest high tech, manufacturing, international trade, tourism and goods movement sectors in the United States. For example, L.A. is home to more manufacturing jobs than the entire state of Michigan. More than three million jobs based in Los Angeles impact the national economy, and the entertainment industry has and continues to influence the world.

THE CHALLENGES OF SUNSHINE

The attractiveness of Southern California, its warm climate and diverse topography, has meant that L.A. and its neighboring communities have had to manage rapid and continuous growth despite having limited natural resources. L.A. also grew during a time when the car was the dominant mode of transportation, and the region built some of the world's largest water, energy and road networks to meet its never-ending housing demand. Water shortages, energy crises, traffic congestion and a digital revolution have all stretched the capacity of local networks; L.A. is a large water and energy importer with an expensive road, water, communication and electric distribution system to maintain. Furthermore, the city has ambitions to replace 70 percent of its energy supplies with more efficient and cleaner technologies and reduce its use of imported water 50 percent over the next decade. These are significant challenges, yet the L.A. region has shown that it can lead.

L.A. is a national and possibly global leader in reducing per capita water consumption; it is incorporating more clean energy supplies into its mix than any other region in the United States; its road network is now complemented by the largest light rail expansion program in the nation; and it's in the process of cultivating a burgeoning global high technology sector. However, the importance and costs of these challenges are regional in scale and cross city, county and town lines. A coordinated, multi-sector, regional approach that clearly outlines the infrastructure investments we need to make to accommodate future population growth and attain already approved policy objectives is required.

> Efficient passenger and freight transport, affordable energy, responsive communication systems, and reliable water supplies are critical in attracting and retaining talent and businesses."

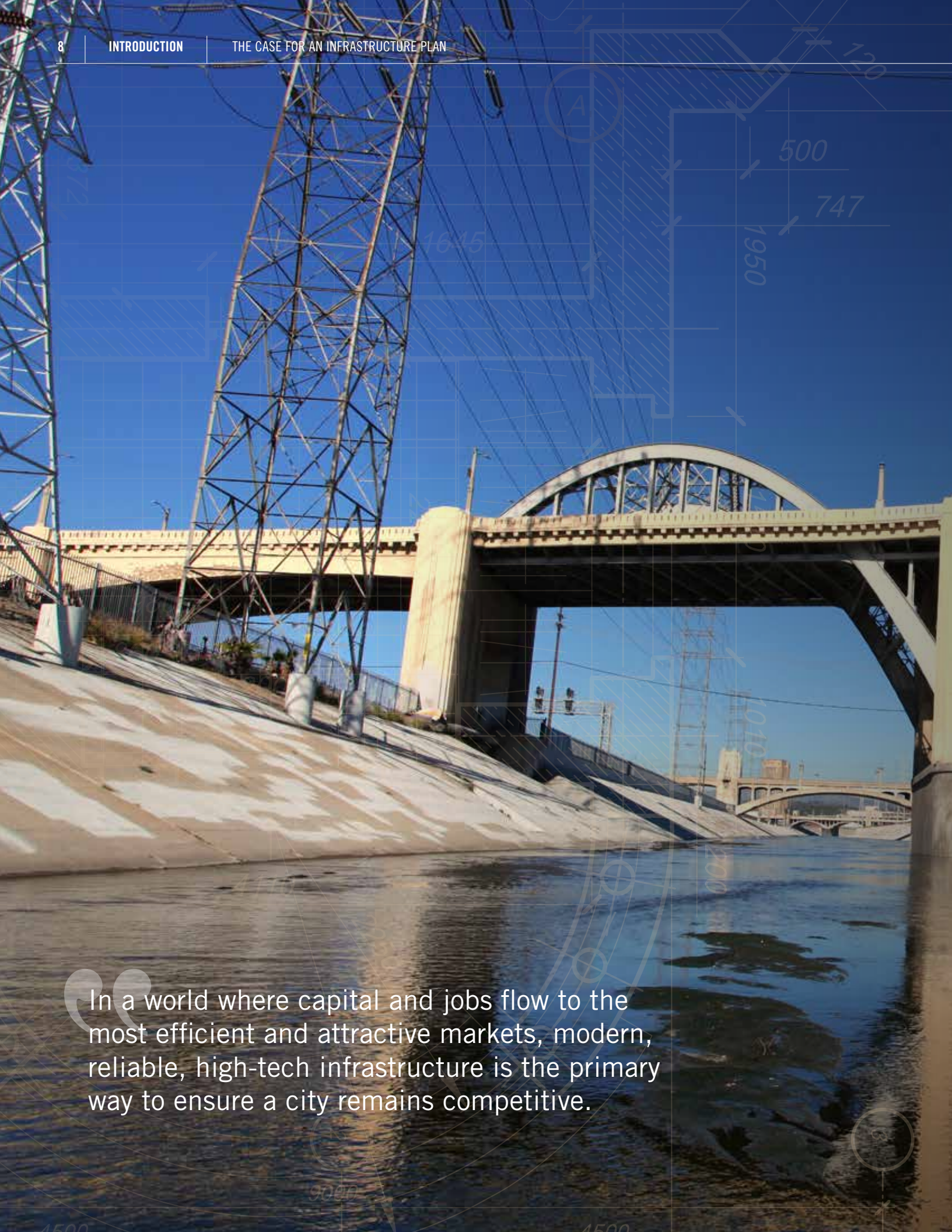
The purpose of this Infrastructure Blueprint is to:

- Outline the benefits associated with developing a regionally based infrastructure plan that can inform the public on the City and County's priorities, and transparently illustrate to the private and public sectors where investment should be targeted.
- Compare and contrast L.A.'s major assets to its peer cities around the world among key infrastructure and economic indicators.
- Provide examples of how peer cities are responding to similar infrastructure challenges via technology and innovation.
- Highlight some of the specific investments, tools and policy changes the L.A. region's business community believes are needed to more effectively build new and maintain existing infrastructure.
- Identify the specific steps and processes L.A.'s businesses, residents and policymakers need to take to develop a regionally based infrastructure plan.

High-quality infrastructure has been proven to improve cities' economic competitiveness in a global market.

Investing in infrastructure technologies, as well as committing to policies that support them, is the primary way in which cities can position themselves as world leaders — both now and in the future. Examples from around the world demonstrate that efficient passenger and freight transport, affordable energy, responsive communication systems and reliable water supplies are critical in attracting and retaining talent and businesses. However, these attributes are today considered to be 'standard' in all developed cities. People and businesses are now asking for high speed communication, enhanced security, cleaner energy, better air quality, affordable homes and higher performing schools. These new standards ensure an even higher quality of life for residents, inducing more people to move to cities and, importantly, to contribute to government coffers.

L.A. is well positioned to compete against other global cities in securing the best jobs and companies of the 21st century and remain a leader in innovation. But to do so, it must ensure that a positive policy in one area is not immediately negated by other policies that limit the region's ability to attract the jobs and businesses of tomorrow. An infrastructure plan, which addresses the large amount of land, diverse industry sectors and populations, and multitude of political jurisdictions in the Greater Los Angeles Metropolitan Region, would be one giant step towards ensuring that L.A. is not only an urban powerhouse of economic growth, but also a city pioneer in regional economic inclusion.



"In a world where capital and jobs flow to the most efficient and attractive markets, modern, reliable, high-tech infrastructure is the primary way to ensure a city remains competitive.

THE CASE FOR AN INFRASTRUCTURE PLAN

The link between infrastructure and economic competitiveness is proven. The strength of any urban economy is based on the productivity of its human capital and its access to natural resources. Infrastructure connects both of these things to the marketplace, increasing mobility for people and goods, facilitating efficiency for businesses and residents, and opening new markets regionally, nationally, and even globally to cities. It enables businesses to obtain supplies, manage inventories, and deliver goods and services to the market quickly. This increases profitability for firms while lowering prices for consumers. This also leads to agglomeration of economic activity, which can accelerate productivity and create 'sticky' industries like the logistics industry in Southern California. Furthermore, infrastructure is a core economic input that ensures people can access jobs, education and other core services. In a world where capital and jobs flow to the most efficient and attractive markets, modern, reliable, high-tech infrastructure is the primary way to ensure a city remains competitive.

Importantly for a city economy, infrastructure projects can also produce positive spillovers in terms of economic development and improvements in quality of life. In the short-term, investing in infrastructure provides good jobs at varying skill levels. Infrastructure investment is a powerful government tool for counteracting an economic downturn like the one experienced in 2009. In the long-term, investing in infrastructure cuts costs, creates value and can benefit the environment. For example, faster transport and more reliable communications systems shorten the distance between businesses and consumers, firms, and employees, both physically and virtually, thereby cutting transaction costs. Studies have shown that property values also tend to rise near infrastructure projects. For example, in Dallas, TX, proximity to the light rail system increased property valuations by 25 percent compared to neighborhoods not near the light rail system. Higher property values, coupled with urban population growth, have resulted in more buoyant property markets and increased local tax revenues. In the United States, the Brookings Institute has found that state and local governments fund 75 percent of all spending on transportation and water infrastructure, and the financial return comes back to local governments predominantly through an increased tax base. A higher tax base typically results in more funds for local schools and services, which then retains and attracts additional businesses, further increasing the tax base and facilitating a positive investment cycle.

Investments in cleaner sources of energy, energy efficiency in buildings, public transit and intermodal freight transport can also have positive environmental benefits. In the South Coast Air Basin, buildings and transport constitute about 80 percent of greenhouse gas (GHG) emissions. Retrofitting older buildings and improving public transit systems can reduce emissions and ameliorate air quality. If planned correctly, many energy, transit and building investments can also have a secondary benefit of improving local resilience to natural disasters and expected changes in climate.

WHY AN INFRASTRUCTURE PLAN?

Places that have benefited from natural advantages and invested in infrastructure as they grew have by and large become the megacities we know and visit. Today, we assume that most successful megacities have both infrastructure and economic strategies and that these strategies are mutually reinforcing. Policymakers certainly have ambitions and targets for the local governments they oversee, but a well-considered infrastructure plan that supports a region's economic goals is rare. Rarer yet is an integrated multijurisdictional strategy delivered in partnership with the local business community. The Los Angeles Area Chamber of Commerce is challenging this norm, and its membership has come together to put forward infrastructure projects with cross-sector support.

There are reasons behind why these strategies do not exist, as many local governments do not have direct control of their entire infrastructure, and the private sector, with control of key services, wants to deliver a cost efficient service that may not fit with local and regional governments' long-term aims. Furthermore, businesses do not want to invest considerable resources in project development only to lose out in a public tender. For all of these reasons, the simple fact that business members from the L.A. Area Chamber have identified projects with cross-sector support is all the more remarkable.

Policymakers across the region now have the opportunity to co-opt this message and create a strategy outlining how they will ensure that the right infrastructure is available to its growing population in five, 10, 25 or even 50 years. The respective cities and county will need to ensure that local utilities and other private sector companies that own and operate private, yet critically important aspects of our regional infrastructure, are also on track to meet predicted future growth. A strategy of this size would require commitment from the City of L.A., L.A. County and the other communities making up the wider economic region. Cities have a long history of managing local politics when fighting for a greater good — and a strategy of this magnitude would need senior level support from public agencies, offices and their private counterparts. The combined win would also have to be significant and include:

- Promoting projects across sectors and identifying investments with the most positive impact across the region. Resilience and sustainability are just two examples of cross-sector initiatives that would benefit from this type of synergistic planning.
- Outlining priorities to the private sector. Infrastructure plans help the private sector identify key investment priorities, thus spurring the private sector to explore mechanisms for public-private collaboration and financing.
- Investment priorities. An integrated strategy would need to compare apples and oranges across municipal project silos, and require agreement on a set of key performance indicators, economic and social — first to prioritize both investments and then to track their returns.
- Transparent public spending. A clear, public strategy will tell people how their city and the wider region are planning to leverage private investment and spend their tax money.
- Signaling stability to potential investors. Infrastructure plans show confidence from city and county government in rising real estate values, as well as in stable political administrations.

Furthermore, they demonstrate that a government is not only business-friendly and interested in building the infrastructure necessary to support economic growth, but also people-friendly, committed to ensuring a high quality of life.

- Justifying funding from state and federal governments. Infrastructure plans can be a helpful lobbying tool for obtaining funding from higher levels of government.

Infrastructure silos are merging and local governments will no longer be able to issue separate strategies. For example, alternative fuel vehicle sales are increasing, and transport and energy strategies will need to reflect these market realities. The energy strategy will need to consider how, when and where these vehicles will be fueled and how demand will be met. To date, London is one of the first cities to have put forward a transparent, cross-sector infrastructure strategy. London 2050 also includes changes to cross sector communication and will require representation from the key infrastructure players, public and private, at future strategy meetings. Changing how local and regional infrastructure managers, public and private, communicate will be integral to improving services, leveraging current investment and potentially attracting future investment into the sector.

Globally speaking, support for infrastructure investment is high, both from the public sector and from the public itself. In the United States, for example, federal policymakers are concerned that the U.S. ranking in the World Economic Forum's competitiveness index has fallen from No. 1 to No. 14; outdated infrastructure was cited as one of the main reasons for the drop. Indeed, The McKinsey Global Institute has estimated that the United States will have to invest $150 billion per year until 2020 to meet infrastructure needs, with most of those investments dedicated to air, freight and passenger transport. A large amount of that funding will be needed to maintain existing infrastructure as opposed to delivering new forms of transport. There are solutions to make beneficiaries pay, and there are inherent subsidies in existing infrastructure that make it difficult to prove the economic case for more mass transit. At some point tough decisions will have to be made. Policymakers at all levels of government are therefore looking to infrastructure investments to increase U.S. competitiveness and to drive short-term job creation. Meanwhile, 84 percent of Americans support greater investment to address infrastructure problems. A study by the Rockefeller Foundation found that four of five Americans agreed with the statement that: "In order for the United States to remain the world's top economic superpower we need to modernize our transportation infrastructure and keep it up to date." Given that household spending on transport is second only to spending on housing, this result comes as no surprise.

L.A. should capitalize on the public and political support for infrastructure investment to develop a long-term infrastructure plan. A collaborative effort to develop such a plan will address some of the major crises L.A. is facing with regards to water supply, energy demand, communication needs, and traffic congestion, and position the metropolitan area to grow in a more strategic and sustainable way.

HOW LOS ANGELES COMPARES

L.A.'S HISTORY OF INFRASTRUCTURE PLANNING

Despite L.A.'s reputation for sprawl, the City and County actually have a long history of leadership in infrastructure planning. For example:

- *The Los Angeles Concept Plan of 1970* was a very modern plan that was influential in developing the multi-centric nature of L.A. today. This may look like sprawl, but there are in fact many cities across the world that are actively trying to create more urban centers, whether it is to attract new employment sectors, create vibrancy or, more practically, to shift traffic patterns and reduce congestion.
- Californian cities are required by law to put forward a General Plan that guides long-term population growth and land development. While L.A.'s Concept Plan was a modern plan when it was originally developed, the City has yet to comprehensively update its Zoning Code since 1946. Over the past 65 years, the constant additions to the Zoning Code have led to a cumbersome, unclear and unnecessarily complicated document, which no longer promotes the best practices in planning. The City of L.A. is currently in the process of updating its General Plan and reforming its Zoning Code. This is a positive step forward for transparency, and it is an opportunity for key projects to be developed and promoted.
- In April 2015, L.A. Mayor Eric Garcetti released the City's first-ever comprehensive sustainability plan. *Sustainable City pLAn* outlines a wide range of short- and long-term economic and environmental policy objectives that have the potential to deliver benefits and cement L.A.'s role as a technology leader. These projects will require substantial infrastructure investments and implementation plans throughout the region and will require widespread support to deliver.
- Every two years, the Los Angeles Department of Water and Power (LADWP) updates its Integrated Resource Plans (IRP), which are roadmaps for providing reliable, affordable, and environmentally responsible electric and water service over a 20-year timeline. The IRP takes into account future demand, regulatory requirements, advances in technology and other factors. The LADWP updated its power IRP in 2015 and is in the process of updating its water IRP.
- In 2009, L.A. County's Metropolitan Transportation Authority (Metro) released its Long Range Transportation Plan (LRTP), which takes a three-decade look ahead to identify what transportation options best serve the County's needs and expectations. The LRTP lists specific public transportation and highway projects that have been approved, funding forecasts over a 30-year timeframe, and project performance measures. Metro is in the process of updating its LRTP and has identified $300 billion in needed projects.

As demonstrated by the plans referenced above, L.A. has several long-range infrastructure plans in place. However, these plans do not account for privately funded infrastructure such as telecommunication, railroads and gas pipelines. These types of existing plans serve as the foundation for a more comprehensive, regional infrastructure plan, but alone do not provide the specificity and aggregated information that L.A.'s businesses community needs to plan long-term.

INFRASTRUCTURE COMPARISON CHART

INDICATOR	LOS ANGELES	NEW YORK	CHICAGO	HOUSTON
CITY POPULATION SIZE (MILLIONS)	3.9	8.4	2.7	2.2
POPULATION SIZE METROPOLITAN AREA (MILLIONS)	13.1	23.5	9.5	6.3
LAND AREA CITY (SQ MILE)	469	304.8	227.2	599.5
LAND AREA METRO (SQ MILE)	12,562	13,318	10,874	10,062
POPULATION DENSITY CITY (PERSON PER SQ MILE)	8,282	27,778	11,864	3,662
POPULATION DENSITY METRO (PERSON PER SQ MILE)	1,042	1,765	874	626
POPULATION SIZE CITY IN 2025 (MILLIONS)	15.6	12.1	11.4	5.8
GDP PER CAPITA (IN DOLLARS)	60,406	63,238	54,953	64,226
PERCENT OF NATIONAL GDP CONTRIBUTED BY THE CITY	5.2	8.6	3.6	2.6
ELECTRICITY CONSUMPTION (PER CAPITA GJ)	27	65	31	50
EIU BEST CITIES REPORT	17	16	15	--
EIU LIVABILITY 2014	42	55	36	46
TRAFFIC CONGESTION INDEX	36	26	22	21
AIR QUALITY (ANNUAL MEAN PM10 UG/M3)	25	21	22	21
RENEWABLE ENERGY (PERCENT OF OVERALL ENERGY MIX)	13.5 (STATE)	11 (STATE)	5 (STATE)	9.5 (STATE)
WATER CONSUMPTION (ANNUALLY PER HEAD IN GALLONS)	29.57	46.36	52.85	57.82
MODAL SHARE	Private transport: 74% Public transport: 20% Non motorized: 6%	Private transport: 33% Public transport: 28% Non motorized: 39%	Private transport: 66% Public transport: 27% Non motorized: 7%	Private transport: 88% Public transport: 6% Non motorized: 6%

SOURCE: SIEMENS CITIES CENTER OF COMPETENCE

PARIS	RIO DE JANEIRO	SEOUL	MOSCOW	LONDON
2.2	6.5	10.1	11.5	8.6
12.2	12.1	25.6	15.7	13.6
40.7	486.5	233.6	970	607
6,631	1,759	4,581	1,800	8,382
54,000	13,930	43,000	11,865	13,870
1,839	6,879	5,588	8,722	1,623
--	13.6	12.7	12.5	10.2
669	16,282	32,155	44,774	51,978
28	8.2	24.1	20.5	22
97	9	36.5	23	77
4	42	20	27	12
16	91	58	73	56
28	55	--	66	27
38	64	64	33	29
13 (NATIONAL)	39 (NATIONAL)	1.6 (METROPOLITAN AREA)	0.8 (NATIONAL)	17.8 (NATIONAL)
28.93	29.02	20.04	29.60	14.82
Private transport: 32% Public transport: 62% Non motorized: 6%	Private transport: 16.5% Public transport: 46.5% Non motorized: 37%	Private transport: 26% Public transport: 69% Non motorized: 5%	Private transport: 20% Public transport: 80% Non motorized: 0%	Private transport: 37% Public transport: 40% Non motorized: 23%

INFRASTRUCTURE COMPARISON CHART

This planning is incredibly important and has had results in physically shaping L.A. while driving economic growth. This section's infrastructure comparison chart compares L.A.'s current infrastructure with some of its main city competitors. Competitor cities were chosen on the basis of many factors: population size, density, climate-related and topographical attributes, GDP and industry mix, and a few other intangibles (cultural attractions, for example). These cities are national or regional logistics hubs, leaders within a larger metropolitan area, global cities in their own right or rising star cities. Although L.A. may not be competing with these cities for geography-dependent products and services, it is certainly competing with them for mobile jobs and investments.

As globalization tightens its hold on the world economy, infrastructure will be a main differentiator in businesses' re-location decisions, and the chart reflects many of the indicators businesses use to compare cities. The size of the existing local economy, the availability of employees, the city's natural attributes, its accessibility and transport networks, how the city is powered, and how invested the local government is in maintaining and growing the city — all of these and more play roles in their choice.

Here are a few key observations from this comparison:

- L.A. ranks third out of four U.S. cities for public transport use; L.A.'s congestion is not the worst.
- Residents of L.A. consume less electricity per person than in the other U.S. cities and wealthier global cities.
- Electricity in L.A. is some of the greenest in the world.
- Air quality in L.A. is the worst amongst U.S. cities, but better than in international cities.

What is striking about the outcomes of the city comparison is that despite L.A.'s reputation for being a sprawling nonsustainable city, its residents use less electricity, more of which is generated from cleaner sources, than the other cities. Some residents are taking advantage of the sunshine by walking or cycling, and city government expects this number to increase.

What this comparison also underscores is that L.A. is not only a relatively dense city, but its public transit system is small when compared to some of its competitors. New York, Paris and London all have large underground metros and suburban rail systems that extend far beyond the city center with both under and over ground sections. These cities took a decision to invest in rail and they are continuing to expand services. London's Crossrail, New York's Second Avenue Subway and le Grand Paris Express illustrate that the economic case for these systems is still strong. These cities are not expecting the systems to be self-financing; however, they are looking for ways to recover a portion of the costs through Tax Incremental Finance or some form of land value gain tax. Delivery of L.A.'s Westside Purple Line Extension would be a positive contribution to the City's growing public transportation network and would start to bridge the gap in rail provision. The extension is expected to increase ridership by 49,000 passengers per day and create 52,500 jobs when completed in 2035.

INDICATORS FOR NOW AND IN THE FUTURE

Cities around the world are being asked to deliver more, and many are rising to the challenge. The idea that cities can do more and can learn from each other is why city-based organizations, such as C40 Cities and ICLEI, have grown so quickly.

While the chart on pages 14 and 15 measures use of public transport and the prevalence of cleaner power, we expect that in the future people will be demanding more from their cities and that quality of life issues may become a key driver for city growth. Cities may distinguish themselves by:

- Average commuting times or ease of the journey
- A city's particular ethos or politics
- Beauty and air quality of a city
- Accessibility to green space
- Entertainment offerings
- Accessibility for the very young and old
- Proactiveness of local government
- Not how much tax you pay, but how tax money is spent
- Whether car ownership is necessary
- Speed and comfort of public transport
- Housing types and styles available
- Speed of data connections
- Security

On these indicators, it is less clear how L.A. would compare to its main city competitors. We expect that L.A. would score incredibly well on its natural beauty, but far less well on how much time people spend commuting to work, the resulting loss of productivity and time spent with family. Because of changes in technology, time spent on public transport today in many large cities is now used to respond to emails or purchase groceries. The flipside of driving door-to-door for the driver is now a loss of productive time; multiplied across a city, that is a real economic cost.

Modern cities are being asked to deliver more services, typically on shrinking budgets. The private sector will be critical to delivering more tasks, and technology will also play an increasing role. We see real value in governments and the private sector putting forward joined-up infrastructure plans looking ahead 20 to even 30 years. There will be a need to look across sectors, and the private sector will be challenged to see how they can best support local government aims, as well as where their individual business interests lie. Technology will play a role and the private sector will be critical in developing platforms that can be integrated across government services. Remaining competitive will be a challenge for regions, and there is an increasing need for leadership as gridlock and ballot requirements in California hinder national and statewide initiatives.

HOW COULD LOS ANGELES DO BETTER?

Investments in transport, energy, water and telecommunications infrastructure drive economic competitiveness among regions, and the regions that have been successful in adapting to the demands of the 21st century global economy have leveraged support from both public and private sectors to do so. The next section considers some of these examples. It draws on case studies from London's transport system, Seoul's high speed network, New York City's green buildings campaign, and other competitor cities' water and energy networks to understand the elements of successful implementation — and to determine how they might inform recommendations to L.A.

This section discusses infrastructure in four sectors: transport, energy, water and telecommunications. We chose these four sectors because they represent areas where the business community in the United States has traditionally been involved with the local government on funding, financing, implementation and operation of infrastructure. However, they are by no means exhaustive, either of the physical infrastructure normally associated with the built environment or of the social infrastructure that supports it and the people who use it. Follow-up discussions from the publication of this Blueprint could include broader consideration of other infrastructure.

TRANSPORT

L.A. has made great strides in improving poor air quality related to vehicular traffic, as well as reducing congestion on its highways. But to many, the City still calls to mind past images of clouds of smog hanging over traffic-stricken streets.

If L.A. wants to be competitive in the future, it will have to address head-on issues surrounding both passenger and freight transport. It will have to do so, not only because congestion costs city inhabitants time, money and personal health, but also because business leaders from around the world consider transport infrastructure to be the number one driver for economic growth. L.A. is the most traffic congested major city in the United States, with Angelenos wasting on average 64 hours in traffic annually according to the INRIX Traffic Scorecard, 2013.

The opportunity costs of congestion, the wasted productivity, and the delayed logistics, among others, are estimated at 1 to 3 percent of metropolitan GDP in U.S. cities and, according to the American Public Transport Association, transportation generates 38 percent of all California's GHG emissions. If L.A. wants to attract businesses to invest and employees to remain, it will have to more efficiently move people and products through L.A.

L.A. is already investing $40 billion in rail, rapid bus and other transit improvements, creating the largest public works project in the United States That investment, in addition to the region's increasing emphasis on active transportation, will likely improve the modal share of walking, cycling and public transit throughout the region.

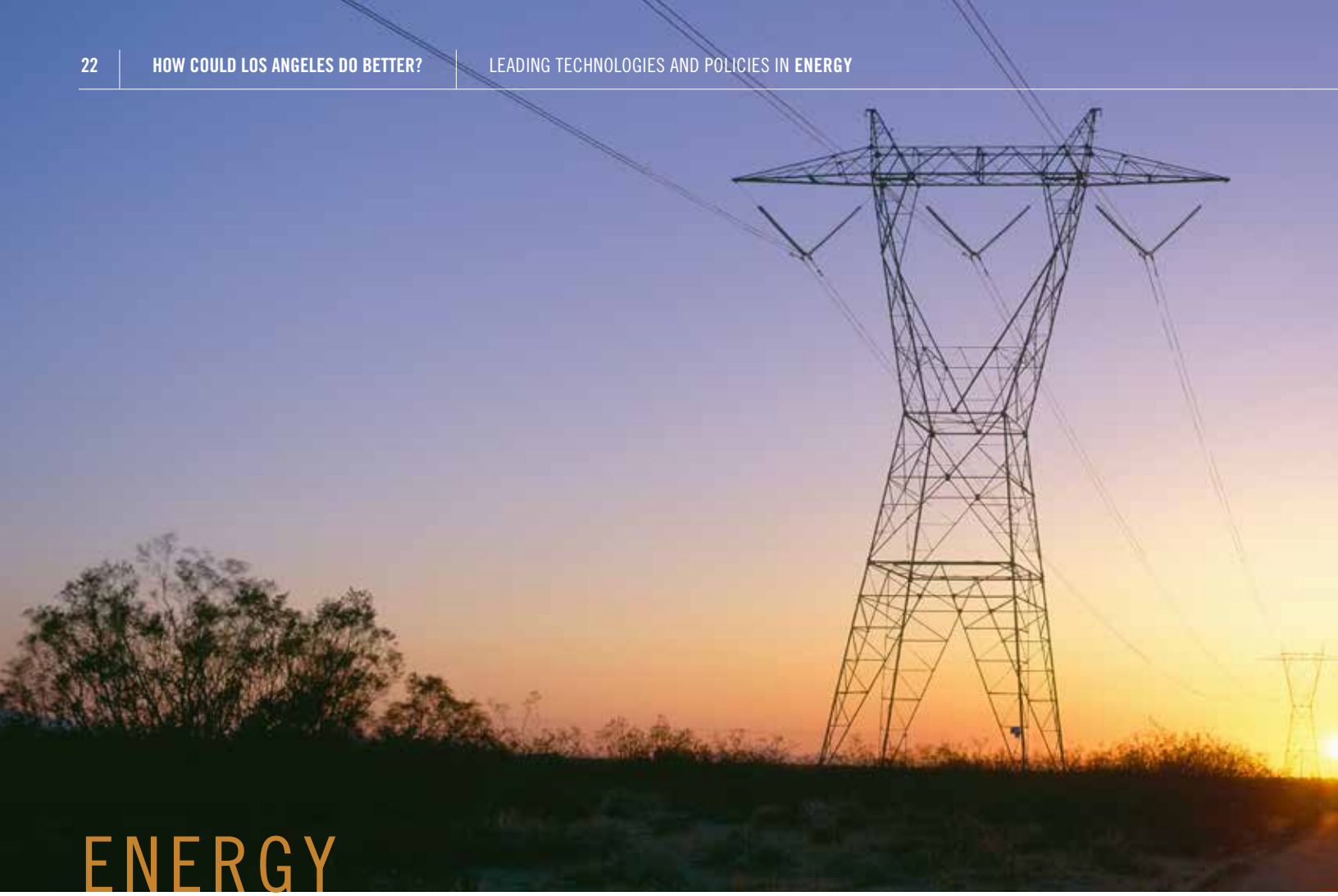
The L.A. Area Chamber's list of member-approved projects supports many of the region's goals for transport. The Westside Purple Line Extension Section 2 and the Los Angeles International Airport (LAX) Landside Access Modernization Program will ensure connectivity for Angelenos, both within the City and to outside markets. The BNSF Railway Company's Southern California International Gateway, Union Pacific's Intermodal Container Transport Facility, and even the newly piloted e-highway concept in Carson, CA, facilitate logistics in the nation's busiest ports, bringing products to market more quickly and with less impact on the environment.

With the support of the private sector, L.A. is finally poised to tackle the challenges of congestion, and to do so, it can look at some of its competitor cities as examples. London has been moving a lot of people around for a long time, and the city has learned some good lessons along the way. One of those lessons is that transport transformation happens when strong executive leadership from the local government is informed by financial and technical inputs from the private sector and aligned with a supportive national government. A good example is London's simultaneous implementation in the early 2000s of the Congestion Charge, the Low Emissions Zone and bus prioritization technologies.

When the first Mayor of London came into office in 2000, he had limited taxation powers, but he did have control over London's Transport Agency, Transport for London (TfL), strategic planning and the environment and waste. Building on the momentum of the newly formed position, his first act was to work with TfL to create an aggressive transit strategy that addressed decades-long underinvestment in existing or new infrastructure, congestion and air pollution.

What they came up with was a series of short-term actions that would build long-term momentum for larger transit investments. The Congestion Charge charged passenger cars for entering into Central London, immediately reducing congestion while providing a steady revenue source for the city. The Low Emissions Zone fined trucks driving within London's boundaries that did not meet a certain European emission standard. Both revenue streams allowed London to gradually replace its outdated bus fleet with hybrid buses, which now run on less congested, cleaner roads — a fact that was well noted by happier commuters. Meanwhile, the Mayor, TfL and the UK government worked closely with the private sector to design Crossrail, an ambitious rail project that would set up London for a bigger and brighter future, increasing capacity on existing Underground lines and connecting outer boroughs of the city. The design included a financial plan; TfL would provide some financing directly, with the private sector contributing to the project by way of the Crossrail Business Rate Supplement and the Community Infrastructure Levy. Lest anyone doubt that London was still a center for people among all of those investments seeming to serve businesses, the City also created the London Cycle Hire Scheme, which now has 10,000 bicycles, and rolled out separated Cycling Superhighways so that cyclists could ride protected across London. It built 1,300 public charging stations for electric vehicles. In short, London bet big that building a transport network that connected the city both internally and to the rest of the world would pay off. Already, experts are estimating that Crossrail alone will add an estimated GBP 42 billion to the UK economy (14 percent of London's economy today).

Like London, the cities that are best tackling the challenges posed by congestion are embracing an integrated approach towards transportation, incorporating pedestrian and cycling strategies with alternative fuel vehicles and bus technologies, as well as longer-term plans for light and heavy rail networks. Importantly, they are also investing in these types of transport infrastructure all at once, leveraging smaller investments in streetlights or sidewalks to gain both political and financial support for larger ticket items.



ENERGY

California has long been regarded as a pioneer in the energy sector in the United States. Los Angeles, in addition to having to adhere to state regulations, has set ambitious targets of its own: increasing installed PV power from 1,500 to 1,800 MW by 2035 and divesting of coal-powered plants completely by 2025.

To accomplish these goals, L.A. will have to consider the spectrum of energy generation technologies, including cleaner conventional sources such as natural gas. Competitor cities have found success in embracing aggressive energy efficiency budgets, building waste-to-energy plants, and retrofitting older plants with new automation and controls or with new turbines so as to increase efficiency.

The L.A. Area Chamber supports the use of natural gas for power generation and Southern California Gas Company's Pipeline Safety Enhance Plan, which will test and replace the pipelines that carry the natural gas that will help replace coal-generated power.

But L.A. must match efficient and cleaner energy generation with efficient transmission and use of energy. This means implementing energy efficiency technologies in homes and offices, incentivizing users to consume less energy, and matching energy supply and demand more closely.

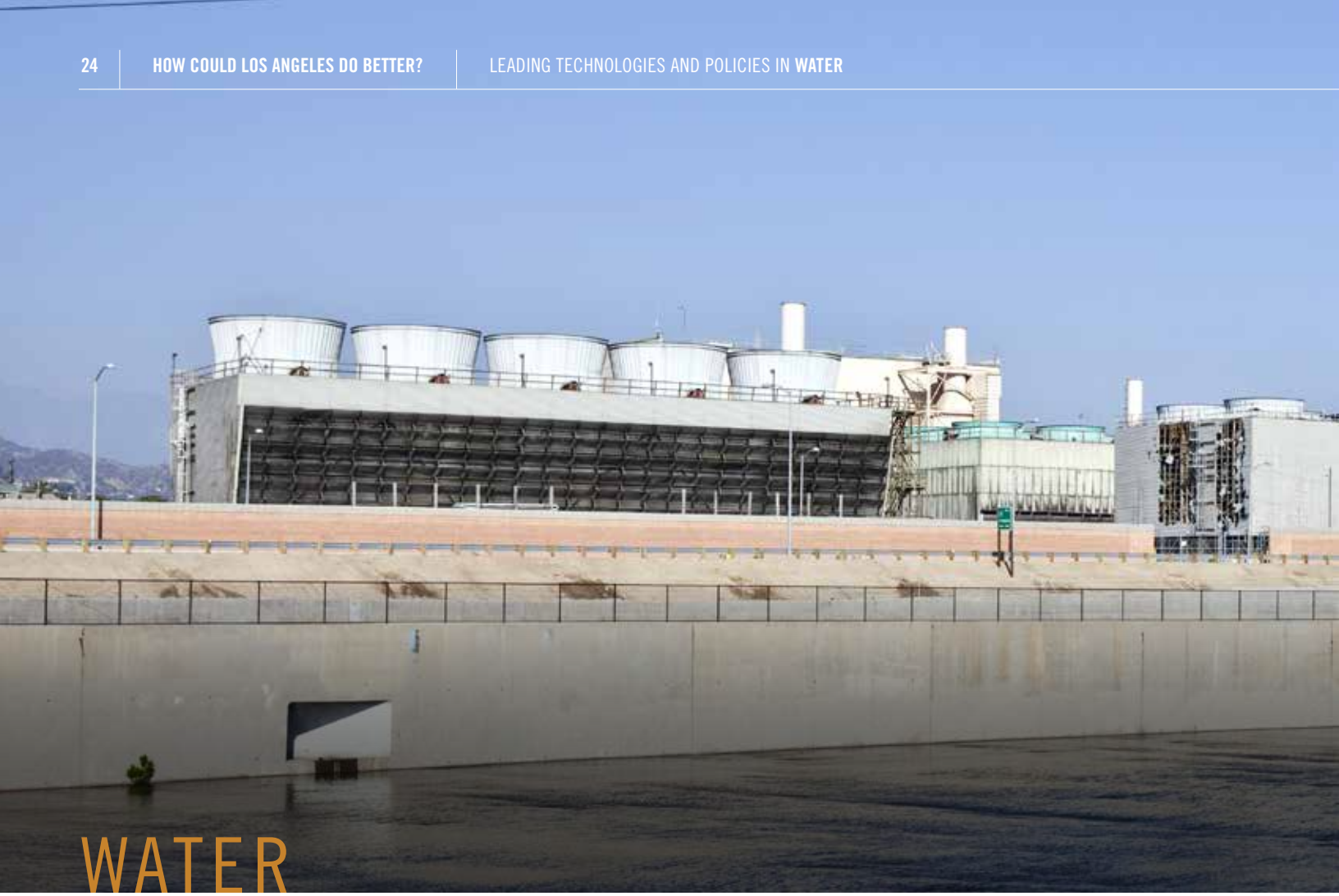
Seventy-five percent of New York City's GHG emissions come from commercial and residential buildings. When Mayor Michael Bloomberg released PlaNYC in 2007, the sustainability plan included a special section on short-term programs and long-term initiatives for reducing emissions from buildings. Passed in 2009, the Greener, Greater Buildings Plan (GGBP) incorporates four regulations. It imposes energy efficiency regulations on homes and businesses. It mandates annual benchmarking for energy and water consumption in large buildings. It enforces compliance with a more stringent energy conservation code. And it creates the New York City Energy Efficiency Corporation (NYCEEC) to help finance energy audits and retro-commissioning. Overall the city is set to benefit over time through energy savings and job creation.

The impacts of GGBP may be easy to measure, but the regulations themselves can be painful to implement. Navigating the complexities posed by owner/tenant relationships, retrofitting costs, permitting systems, a high number of individual owners, and, in some cases, long repayment periods has been challenging. The GGBP requires significant investment from the private sector to retrofit old buildings and to construct new, green ones, and although saving costs to consumers, it may mean that traditional utility companies may lose a portion of their existing revenue base if they do not adapt. Some utilities are creating subsidiary energy service companies in order to win a piece of the new business. However, the sector is changing and because of these challenges, the New York City government has had to work closely with the private sector on methods for collaboration. The NYCEEC, for example, has been integral in unlocking financing mechanisms, which the private sector can leverage to make improvements.

Following New York City, L.A. is launching its own energy efficiency programs for

buildings. Operated in partnership with the Department of Energy, the Better Buildings Challenge addresses emissions in large-scale buildings. The Existing Buildings Stakeholder Group, with the City Energy Project, leverages the knowledge and support of L.A.'s business community to come up with ways of incentivizing energy efficiency.

Whereas New York City faces the challenges of working with a privately-owned utility to adopt energy efficiency and resilience measures, L.A. benefits from having one of a handful of municipally owned utilities in the United States, LADWP. And although other cities may have been first to launch energy efficiency programs, L.A. and LADWP could lead the way in using cutting-edge technologies to facilitate bi-directional energy flow on local grids. Micro grids, smart metering, electric vehicle chargers, energy storage and smart street lights have been shown not only to reduce emissions, but also to increase resilience. A major earthquake in L.A. has the potential of knocking out power for more than two weeks, and among the lessons learned from Hurricane Sandy in New York City was that energy could be more reliably supplied under extreme conditions with micro grids and properly protected substations. L.A. is in the perfect position to use its municipally owned utility to leverage the political momentum from state regulations and the public momentum from Californians' environment-forward attitude to push more experimental approaches towards clean, efficient energy generation and consumption. The L.A. business community would welcome discussions with LADWP on piloting innovative energy technologies across the city.



WATER

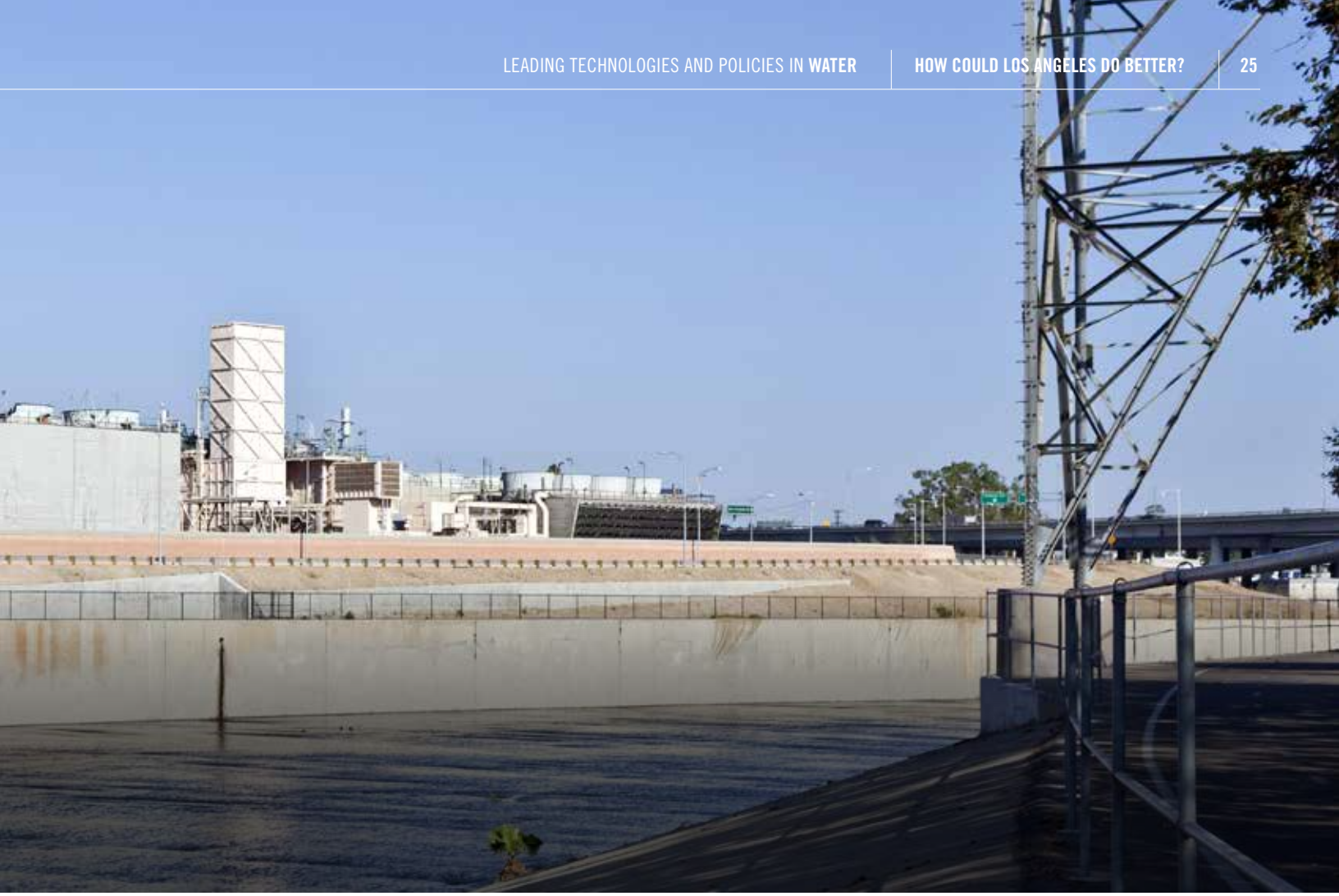
Lack of water is a critical issue for many cities, and expected population growth and more extreme weather conditions will only deepen the complexity of water sourcing, transportation, treatment, and re-use. The first action a city or region can take is to best manage the water that they do have by reducing overall water consumption and leakages across the system. Following water conservation and reduced leakages, utilities can take action on how water is sourced, how it is transported, treated and re-used. Within all of these areas, technology plays a significant role, and there are real opportunities for cities.

Los Angeles has become a national, if not global, leader in water conservation. Records show that the City of Los Angeles now consumes less water than it did in 1970 — despite population growth of more than one third over the same time period. Actual per capita water use varies significantly across the city. Residents served by the LADWP used on average 93 gallons per person per day, and in some parts of the city water usage was as low as 46 or as high as 286. The large difference between average per capita use across the city means there is scope for further reductions, which should help to meet Governor Brown's aim to reduce statewide consumption by 25 percent and Mayor Garcetti's goal to reduce per capita consumption by 20 percent by 2017. It also means that there could be some additional role for smart metering to play in achieving reductions. For example, two-way sensors are relatively easy and inexpensive to install at building sites and enable real-time monitoring of water use, which can be displayed to consumers via web-based platforms and can be used by utilities to determine where leakages may be occurring.

Reducing water leakage seems simple enough; however, it is very expensive to identify the leaks and to repair them as this often means digging up streets and sidewalks. The UN reports leakage loss rates of up to 50 percent in urban water distribution systems, with an estimated 250 to 500 million m^3 of drinking water lost in megacities each year. Many cities are now tackling this problem and they are renewing their aging water network; however, even the wealthiest cities are struggling to deliver.

How water is sourced is a highly contentious issue and good watershed management is critical to preserving water quality as well as the environment and biodiversity. L.A. sources most of its water locally, and two of the projects the Chamber supports, Remediation of the San Fernando Groundwater Basin and California Water Fix, are essential to maintaining a stable supply of clean water. Technology can be enlisted to more efficiently pump water over long distances or to desalinate local sources; however, pumping and desalinating water are energy intensive and expensive. This means that energy efficiency and design measures that decrease energy demand or the distance water is pumped can yield real cost savings along the value chain. The EPA estimates that the supply of treated water and wastewater management consumes 3 percent of total energy use by cities; however, this number jumps to 20 percent in California.

Even for facilities not powered by renewable energy sources, automation and digitization of water treatment processes can improve energy efficiency at the plant level significantly. In the developed world,



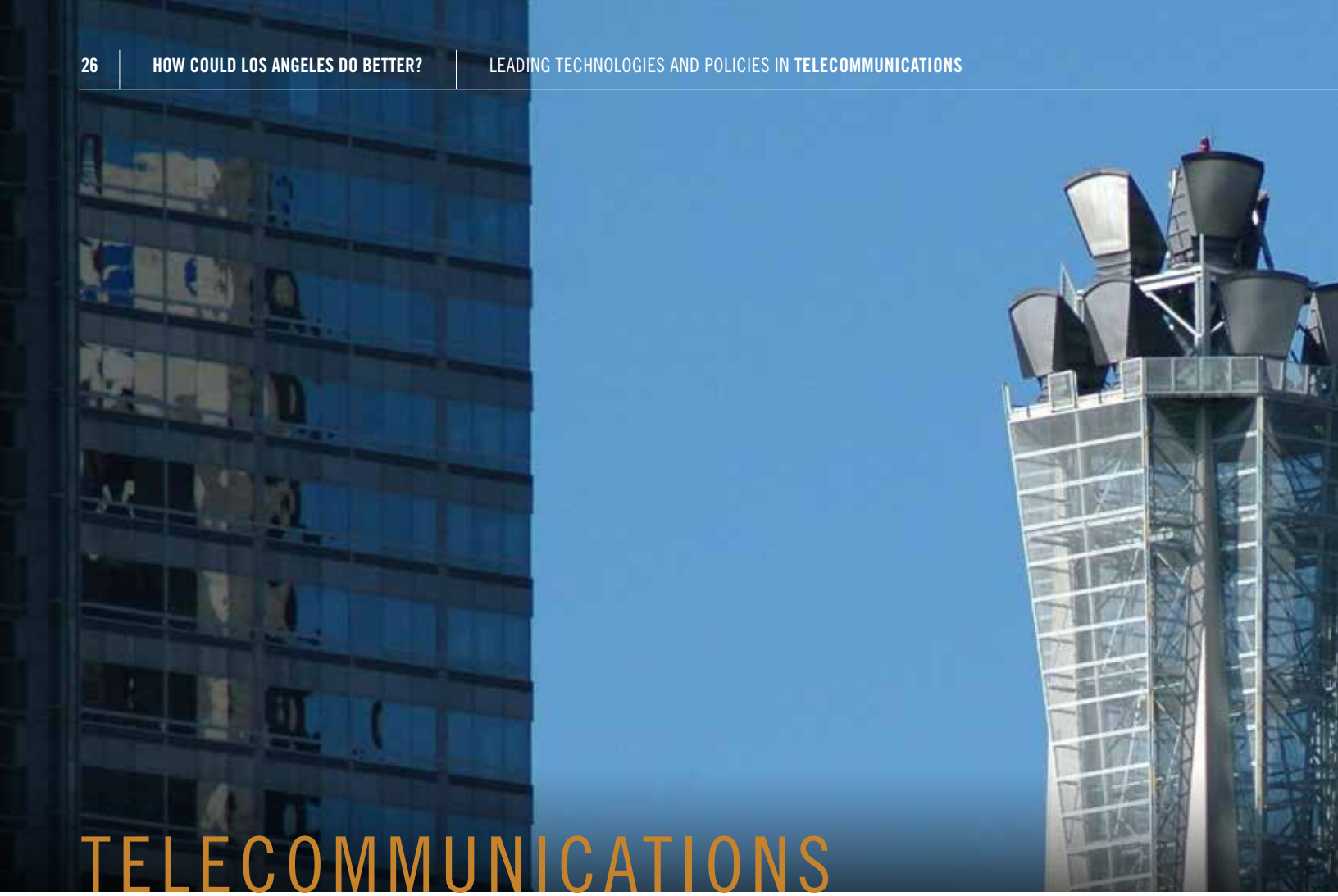
retrofitting water treatment plants with automation and digitization technologies can mean major cost savings for municipal utilities, as treatment often accounts for between 40 and 60 percent of a municipal government's energy consumption. Automation and digitization technologies include sensors, which collect data on water quality and flow. Instruments, such as temperature gauges, then analyze this data, sending signals to control products, which take action based on system data. These control products may shift temperatures or change the balance of chemicals during the process. They also separate potable water ready for residential distribution from nonpotable water, which has lower energy intensity for treatment and can be delivered directly to industrial customers. Displays on distributed control systems in the plants visualize both data and actions, aggregating inputs and outputs into a program easily controlled by individuals either on- or off-site. Combined, these technologies guarantee water quality by purpose and without waste.

Necessity, from a lack of natural freshwater, cost of energy or both, is making many cities rethink their water networks and push the envelope of technology and design. Some examples of forward thinking in water management include:

- A desalinization plant in Perth, Australia, is powered by renewable wind energy and uses reverse osmosis technologies to provide 20 percent of the city's potable water.

- A wastewater treatment plant in Higashinada, Japan, generates energy in the form of biogas from the actual wastewater using an anaerobic digestion process. The treatment plant generates 10,000 normal cubic meters of biogas per day, 45 percent of which is used to power the treatment plant itself. Another 20 percent goes to fuel vehicles, demonstrating that infrastructure investments can address issues in more than one industrial sector simultaneously.

Ideally, cities would have smart pipes and valves with embedded technology to monitor water flow and detect leakages. However, these are expensive and difficult to install and city governments have instead opted for other techniques in order to best target their water investments. Hydraulic modeling is one such technique. It uses statistical and mathematical algorithms to analyze raw data from water utilities and compares results from across the system over time. Changes in pressure and flow are detected and probable causes are provided. This enables utilities to send maintenance crews only to issue areas, directly targeting leaks without having to rip up lots of pavement or repair long lines of pipes. In Antofagasta, Chile, using hydraulic modeling enabled the city to double the reduction in leakages with the same number of repairs. Given the complexity of moving potable water, using technology to provide smart fixes makes sense, especially when L.A. has set a target of replacing 95 miles of water pipe infrastructure by 2017.



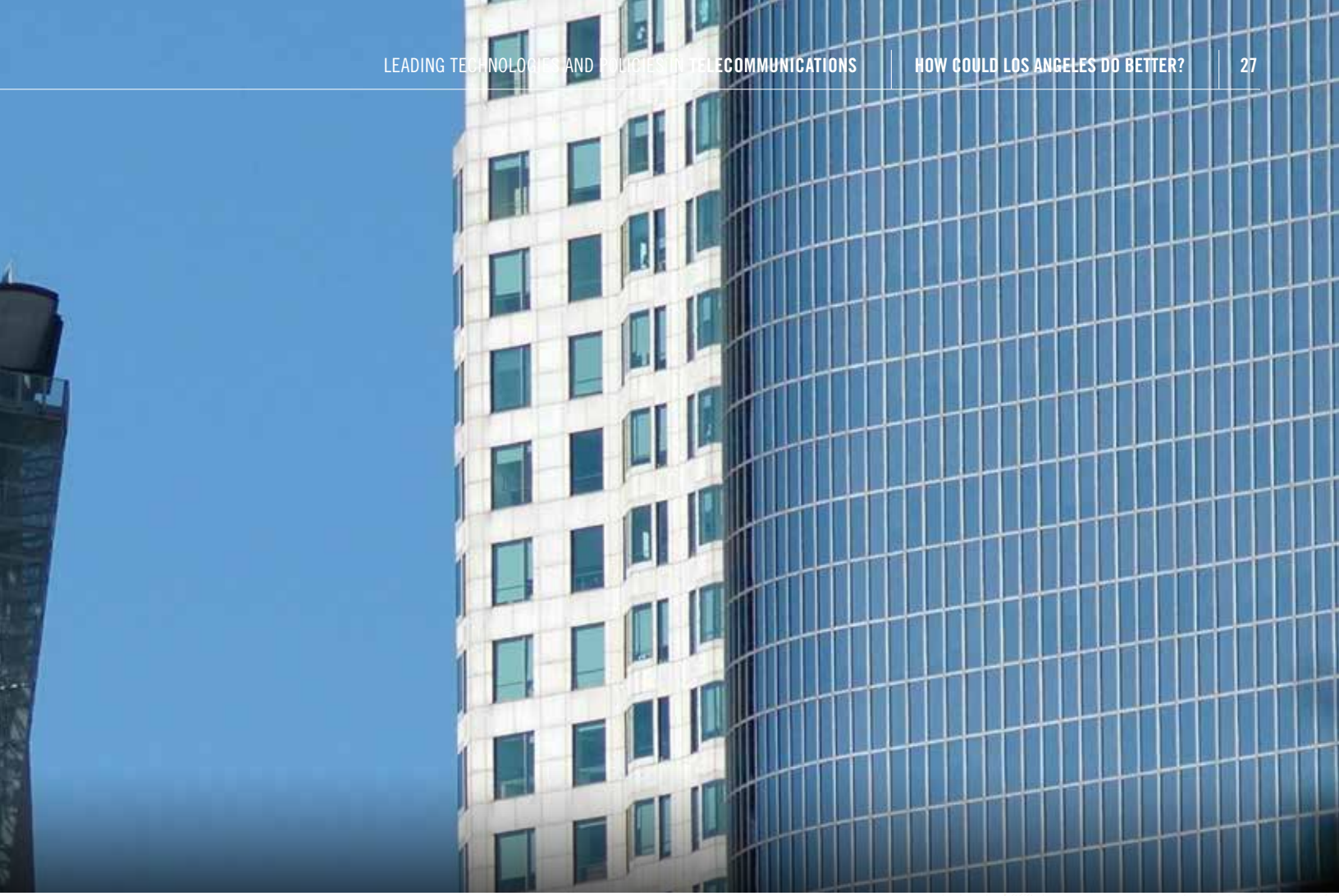
TELECOMMUNICATIONS

Although surveys show that city business leaders and policymakers still rank transport investments highest in terms of contributions to economic competitiveness, there is growing recognition that telecommunications is the glue that ties infrastructure together. With the Internet of Things, sensors, controls, electronics and software are embedded into infrastructure enabling data, analysis of information and the automation of control processes — all by virtue of being connected via Internet. This interconnectivity improves the efficiency and reliability of infrastructure. It enables systems to understand (and then predict) how and when people are using infrastructure, as well as how and when infrastructure starts to break. By doing this, it cuts costs during operation and maintenance.

For example, intelligent traffic management systems, composed of camera-equipped lights and sensor-equipped transit vehicles, can adjust signals based on actual traffic flow and, as a result, can reduce traffic jams, accidents and carbon emissions by up to 20 percent. Smarter building technologies, such as demand-oriented lighting, temperature sensors and room automation, can reduce energy consumption in buildings by 40 percent. Expansions of smart grids, which better match energy supply and demand by using monitors, sensors, and controls to facilitate two-way flow and provide incentives for low usage, cost up to 40 percent less than conventional grid over the lifetime of the technology. For cities increasingly asked to deliver more services on a smaller budget, connecting infrastructure to technology through the Internet of Things is one way to cut costs in the longer term by investing in the short term. It is also a way to ensure competitiveness in the long run, as older infrastructure can be updated with new technology less expensively than complete replacement while still capturing a good portion of the benefits.

In order to embrace the Internet of Things, though, cities must embrace the Internet, and they can so do so by realizing that Internet connectivity has implications not only for infrastructure, but also for residents and businesses. Global cities attribute a growing percentage of gross metropolitan products to high-tech industries. This is particularly true in L.A., where there are more high-tech jobs than any other metropolitan region in the United States. To attract these industries, global cities need high-speed connections for local and global business. They also need a workforce that can utilize and push forward the capabilities of technology.

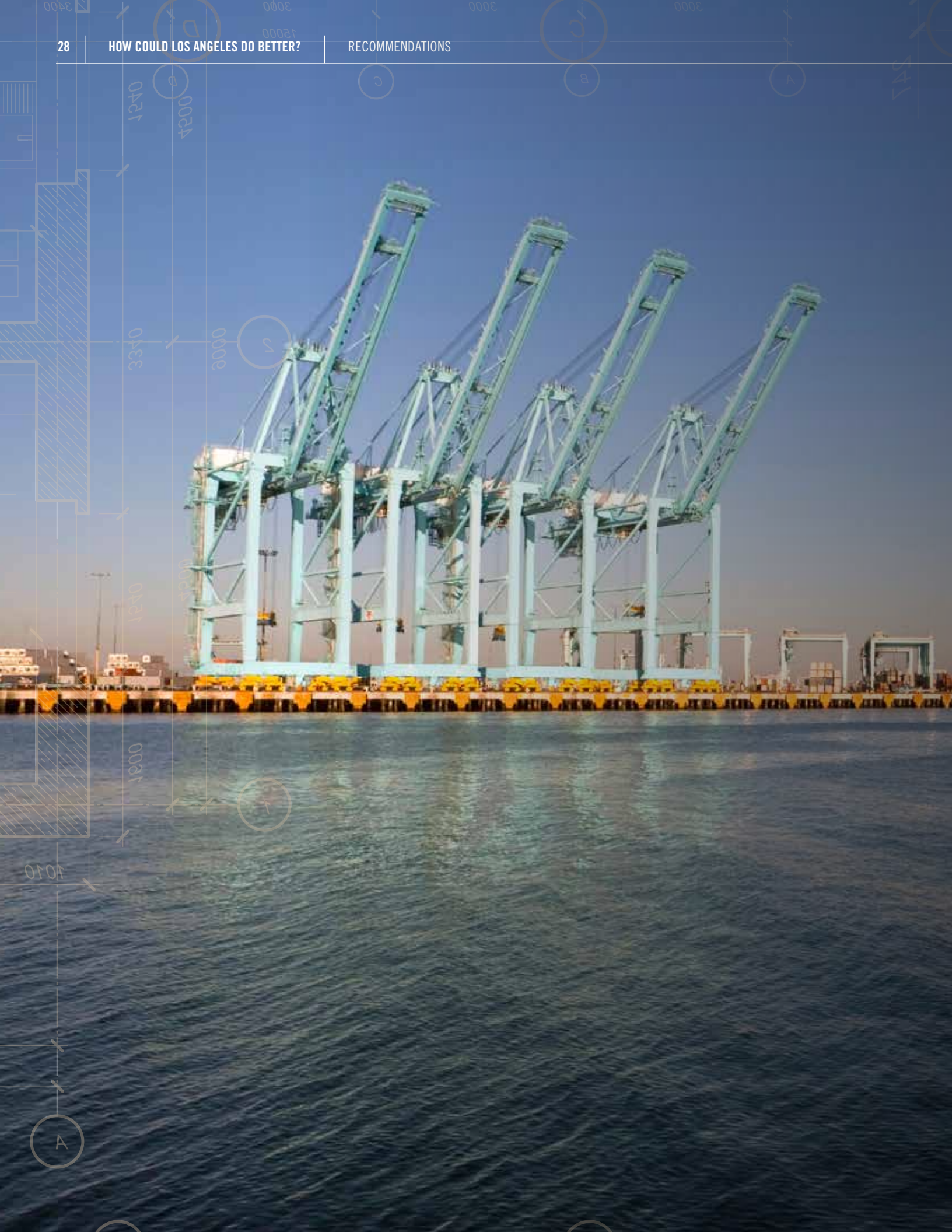
Seoul, South Korea, is the primary example of a city that has embraced both the Internet and the Internet of Things as paths toward economic competitiveness. It is the best connected city in the world in terms of Internet speed, and the local government is now working to connect people to the Internet not just in their houses and businesses and on subway lines, but also at every outdoor space and street corner city-wide. This level of connectivity is helping Seoul deliver government services, such as emergency response, inspectors, maintenance, and even parking meter readers. It is also a main part of Seoul's economic growth strategy. From its collapse in the 1990s, Seoul has risen to be the 4th largest metropolitan economy in the world, home to 15 Fortune 500 companies and the top-ranked city in technology readiness.

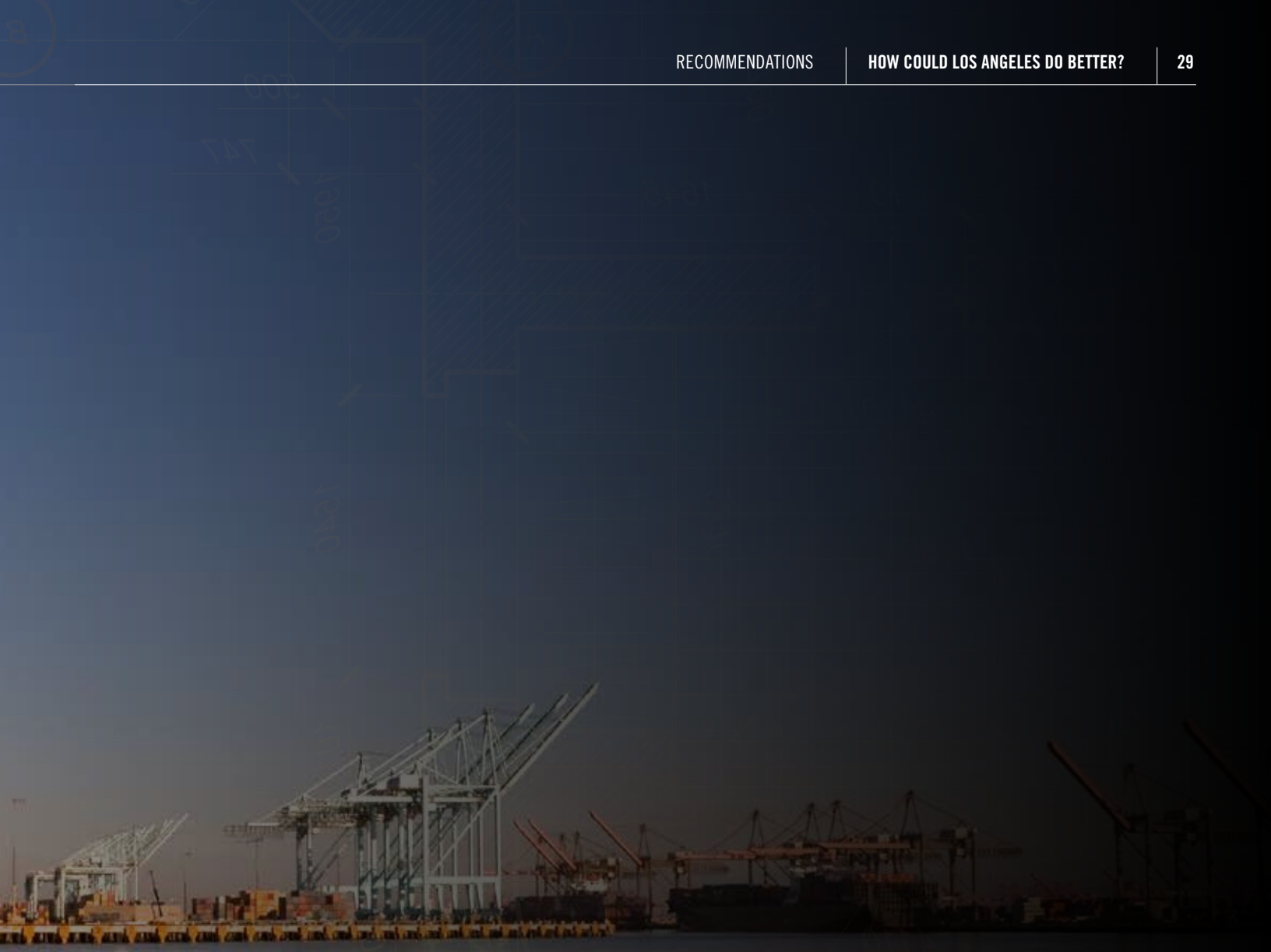


In 2011, the local government announced "Smart Seoul 2015," a plan to bolster sustainability and competitiveness in the city through the implementation of technology. This plan has been the City's primary mechanism for achieving change. It lays out the mechanisms by which the Metropolitan Government shares responsibility with both citizens and businesses for implementing telecommunications infrastructure. For example, Korea Telecom invested in Wi-Fi on all of Seoul's subway trains. Citizens have access to Seoul Open Data, which has aided them in coding city-oriented apps — a particularly helpful way of interacting with the 97 percent of Seoul residents using smart phones.

Like London and its transport projects, the City of Seoul had the support of the national government and of the city's significant business community in adopting and rolling out telecommunications infrastructure. In fact, because becoming an Internet-connected society was perhaps the top priority locally and nationally, Seoul Metropolitan Government faced few hurdles with regards to laying cables and maximizing efficiency of cable routes. Seoul is also four times more dense than Los Angeles, which made the task of connecting homes and businesses with telecom networks a far easier one than in sprawling cities. Seoul succeeded in becoming the fastest connected city in the world partly because of these political and social advantages. But it was also partly because it actively changed its policies to facilitate cable laying, coordinated public-private partnerships, encouraged private investment and drove competition among the private sector to provide service.

To accomplish a similar level of change, L.A. will have to commit to telecommunications as one of its infrastructure priorities, gaining buy-in from the state government to fund projects and collaborate with private sector companies. L.A. will also have to create the right policy environment for rapidly deploying telecommunications infrastructure. By streamlining the permitting process, simplifying standards and outlining conditions for public-private partnerships, local governments can lower costs and expedite construction.





RECOMMENDATIONS

Indicators referenced in this document demonstrate that the L.A. region is very competitive in terms of how much energy and water its citizens utilize. However, it also demonstrates a lack in public transit that can better improve intraregional mobility. L.A. needs to do more to maintain this leadership as other global cities continue to invest significantly in their infrastructure.

Our research has shown that successful implementation of transformative infrastructure investments in regions around the world have depended on two things:

1. That the local governments work closely with the private sector to draft an infrastructure delivery strategy, and that this delivery strategy identifies technologies appropriate for the density and topography of the region.
2. That the region explores more ways of funding projects and sharing risk with the private sector. The private sector will also need to embrace new funding models that may require its commitment over the longer term so that high quality operation/maintenance can be obtained.

The private sector is eager to work with local governments and the county to ensure that L.A. builds and maintains the infrastructure it needs to remain competitive in the long term. Following, we list our three recommendations for how policymakers can collaborate with L.A.'s business community to achieve the vision of an equitable, sustainable and thriving L.A. now and in the future.

DEVELOP A LONG-TERM, MULTI-SECTOR INFRASTRUCTURE DELIVERY PLAN FOR THE REGION

The City of Los Angeles has an ambitious *Sustainable City pLAn*, and along with that plan are several long-term infrastructure plans describing how a governmental or regulated entity will meet the long-term needs of its customers. LADWP has an Integrated Resource Plan that outlines how the Department will fulfill their water and power needs over the next 20 years; the City Planning Department has a General Plan that guides land-use development over the next 30 years in order to manage population growth; and L.A. Metro has a Long Range Transportation Plan and Los Angeles Department of Transportation (LADOT) has a Strategic Plan that describes how the implementation of certain projects and programs will help meet the transportation needs of L.A.'s businesses and residents over the next 30 years.

These types of plans help L.A. businesses and residents better understand how government plans to meet their long-term needs and expectations. These strategies have their strengths and help guide the private sector, but do not include the role and investment of private corporations and more could be done to engage the private sector at the outset, particularly in the sectors that are predominantly private, such as telecommunications. Furthermore, these plans are often for just one city and most of the infrastructure discussed in this Blueprint will go beyond city limits. A lack of regional coordination on infrastructure planning typically results in wasted opportunities and economies of scale. Where cross-cutting issues, like resilience and sustainability, are concerned, this is especially the case.

We recommend that the City and County of L.A. lead the way in writing a comprehensive infrastructure plan for the region. Information in existing plans could be aggregated across sectors and political jurisdictions, augmented with the long-term needs and projects of private corporations, and coupled with long-term funding forecasts so consumers are aware of how much funding is needed and how much prices are likely to increase for core services over a certain period of time. Beyond development of a regional infrastructure strategy, L.A. could also work with the business community to write an infrastructure delivery plan. Such a process would leverage the considerable knowledge the private sector has of the types of infrastructure that meets current needs and future demands and would set a timeline for implementation. Importantly, the inclusive process and resulting cross-cutting document would demonstrate to L.A.'s business community that its policymakers are thinking about and planning for the region's long-term infrastructure needs.

CULTIVATE A POLICY ENVIRONMENT THAT ENABLES PRIVATE COLLABORATION ON INFRASTRUCTURE PROJECTS TO ACCELERATE PUBLIC SECTOR GOALS

One of the main factors infrastructure companies weigh when investing in a city is cost of doing business. Implicit in this cost is time — time needed to respond to a request for proposal, time between acceptance of proposal and actual project kickoff, and delays between start and completion of a project. As these costs rise, companies either choose not to bid on projects or they absorb the costs. Absorbing the costs of unnecessary delays means that they have fewer funds to bid, lowering competition for bids on other projects and affecting the number of projects a city is able to complete in a year. These outcomes are undesirable, particularly for a region wishing to expand and accommodate a rapidly growing population and economy.

Whether it is a new cell tower, advanced meter, solar project or rail yard, infrastructure projects of all types and sizes require some form of local permitting in order to be constructed or installed in L.A. Because L.A.'s zoning code and construction policies and programs are significantly outdated and under-resourced, many basic infrastructure projects—including those that provide core goods and services—are often subject to costly and lengthy delays. These costs are then passed on to consumers, which in turn have discouraged private companies from investing in the region.

The L.A. Area Chamber therefore recommends that cities and the county cultivate a policy environment that facilitates private collaboration on infrastructure projects. Below is a set of policy changes that would lower the cost and expedite the construction of critical infrastructure projects in Los Angeles.

Modernize the permitting process

Cities and the county should expand zoning codes where certain facilities are permitted by right and do not require a Conditional Use Permit. For example, wireless facilities are currently permitted by right in M1, M2 and M3 manufacturing zones and certain rooftops in commercial and industrial zones subject to certain restrictions. By right, consideration should also be given to commercial zones, parking zones and other zones as appropriate. The Chamber recommends that policymakers provide flexible work hours for businesses that are building core infrastructure. The City could exempt infrastructure companies from the prohibition against street cuts within one year of paving if the permittee agrees to resurface the entire block curb face to curb face and/or intersection containing the excavation.

The Chamber also recommends that local governments consider design and location preferences to better guide infrastructure providers. Projects that meet these preference requirements could be granted expedited permits. For example, design and location preference could include stealth designs and stealth type structures in specific zoning districts.

Simplify environmental standards

California is well known for its tough environmental standards. When the California Environmental Quality Act (CEQA) was enacted 40 years ago, the wide array of local, state and federal environmental and land use regulations that are now on the books didn't exist. CEQA was essentially it. In the 40 years since, Congress and the Legislature have adopted more than 120 laws to protect environmental quality in many of the same topical areas required to be independently mitigated under CEQA, including laws like the Clean Air Act, Clean Water Act, Endangered Species Act, GHG emissions reduction standards, SB 375 and more. Despite these environmental laws and local planning requirements, public and private projects throughout the state are commonly challenged under CEQA even when a project meets all other environmental standards of existing laws.

Many lawsuits are brought or threatened for nonenvironmental reasons and often times these lawsuits seek to halt environmentally desirable projects like clean power, infill and transit. It is time to modernize CEQA to conform with California's comprehensive environmental laws and regulations. Thoughtful CEQA reforms can preserve the law's original intent — environmental protection — while preventing special interest CEQA abuses that jeopardize community renewal, job-creation and the environment. Modernizing this outdated law would help reduce construction costs and delays, create thousands of jobs in the process, and ultimately improve the competitiveness of L.A. relative to other cities in the United States and beyond.

Provide diverse mechanisms for funding and financing

Streamlining permitting processes and simplifying environmental standards will reduce the costs of implementing infrastructure in L.A. But they must be supplemented by diverse mechanisms for funding and financing, which recognize that infrastructure projects have different stakeholders, different timelines, different benefits and different challenges.

L.A. is already utilizing some of today's cutting-edge funding and financing mechanisms. Organizations like the West Coast Infrastructure Exchange (WCX), a nonprofit that provides technical advisory and convening services to California, Oregon, Washington and British Columbia, is leading in facilitating public-private partnerships (P3) on infrastructure projects. They assist cities in fostering pipelines, developing standards for development, financing, operations, and pre-screening projects. They can also be helpful in lending objectivity to deciding which projects demonstrate real, long-term benefit, and scale P3s appropriately to the type of infrastructure to be implemented. Government-affiliated organizations, such as Partnerships British Columbia or the newly created Office of Public Private Partnerships in Washington, D.C., go one step further

in facilitating P3s. Through their focus on smaller geographies and fewer political entities, they are able to determine locally how the public and private sectors can share designing, building, operating and maintaining infrastructure projects. City-run infrastructure banks, like the Chicago Infrastructure Trust (CIT), support these types of infrastructure initiatives with funding and financing. The CIT has budget to fund projects directly, and can offer the private sector tax-advantaged loans or issue bonds. It also has access to large-scale investors who can structure deals according to the desired outcomes of the projects. In the future, the CIT will be used to back energy performance contracts like Chicago's streetlight retrofitting program, in which a company makes the initial capital investment in energy efficiency technologies and then is paid back over time by the resulting savings.

Based on the obvious added value of infrastructure exchanges, P3 offices and infrastructure trusts, the L.A. Area Chamber recommends that local governments in the L.A. region do more to facilitate P3s, whether through opening their own office of public-private partnerships, linking more closely to the WCX or setting up an Infrastructure Trust of its own. The existence of more P3s in L.A. has obvious benefits: P3s will help transfer risks from local governments to private companies, reduce the need to impose new fees or taxes, and provide more flexibility in terms of how resources and/or infrastructure is managed.

P3s represent just one piece of the funding and financing puzzle, though, and initiatives related to value capture are becoming popular methods of funding infrastructure. L.A. is familiar with developer fees and increases in sales taxes as funding mechanisms. The recently announced Enhanced Infrastructure Financing District, which diverts some portion of the property taxes in areas under development in order to pay for infrastructure, is another way for L.A. to adopt tax increment financing techniques without relying on redevelopment agencies.

Fees and surcharges are other ways to source stable revenue streams for operating and maintaining infrastructure. Pay-as-you-go models ensure that those who benefit from infrastructure pay their fair share and that core government services are not jeopardized by debt. Furthermore, if infrastructure providers can be more flexible in how they price future goods and services, they can charge a fixed cost to access a system in order to ensure that all users of that system contribute to its maintenance, and then use dynamic pricing to ensure that users pay for what they actually consume. This marginal cost approach to pricing will help ensure that L.A.'s existing infrastructure is adequately funded and maintained.

LEVERAGE TECHNOLOGY TO FIX SHORT-TERM ISSUES AND PREVENT LONG-TERM CHALLENGES

Technology can be used to bridge the gap between what policymakers would do with greenfield developments versus what they are forced to confront as the physical legacies of their predecessors. Dense, mixed-use neighborhoods, with homes of varying values, commercial spaces of various types, and green spaces for recreation, all linked to multi-modal transport options, are the antidotes to many of the issues cities face today: long commutes, poor air quality, unaffordable housing, lack of access to jobs. But most cities are not greenfields, and when policy makers are deciding how to shape their city landscapes, they often have to confront the physical legacies of their predecessors. This is especially true in L.A., where rapid, car-based growth has led to sprawl and car dependency.

The L.A. Area Chamber recommends that local governments use technology to bridge the gap between the L.A. that policymakers envision and the city they face right now. This means leveraging technology to fix short-term issues and prevent long-term challenges. One example of how technology can be useful is L.A.'s recent retrofitting of its streetlights, the largest lighting project in the nation. Another is developing alternative fueling infrastructure, such as the first ever e-highway in the United States, which will improve air quality around L.A.'s ports by greening freight transport by trucks in Carson, CA. L.A. could build on these projects, improving air quality, cutting costs and providing additional sources of revenue by adopting other technologies. Hydraulic modeling uses algorithms and sensors to predict which pipes should be repaired — and when. Other water modeling techniques can also ensure that storm water is properly managed during periods of intense rain — or treated during droughts. Intelligent traffic systems ease traffic flow, prioritizing buses, providing green waves for bicycles, re-routing cars around accidents, facilitating emergency vehicles' paths and optimizing traffic signals during peak congestion periods. Smart meters for energy and water, combined with easy-to-read user interfaces, can quickly incentivize customers to lower consumption and help utilities identify and quickly repair leaks or other problems. Alternative fueling infrastructure, distributed generating facilities and micro grids could have real practical and educational benefits and prepare L.A. for the technology based infrastructure transformation happening in leading cities. The members of the L.A. Area Chamber are open to discussing informally with the City and County, and in a nonbiased way, how they might choose technologies and prioritize investments.

CONCLUSION

As was the case in the mid-1880s, L.A. finds itself at yet another crossroads in its history — its existing infrastructure is not capable of meeting the region's future environmental and economic needs, and growing regions across the nation and world are competing for talent and capital. L.A. policymakers realize this challenge and have put in motion several long-term plans and policy goals to address this issue, but those plans are fragmented by sectors and jurisdictions and will require a significant transformation of L.A.'s regional infrastructure.

As they did over a century ago, local policymakers and business leaders need to work hand-in-hand to develop complementary delivery plans and tools needed to address this long-term and multi-sector challenge. The L.A. Area Chamber and its members stand ready to help the City and region meet this challenge and build the next generation of infrastructure needed to remain economically competitive in the 21st century.

INFRASTRUCTURE PROJECT LIST

Below are examples of infrastructure investments that are critical to Los Angeles's economy. Collectively, these projects total more than $40 billion in investment and would create or preserve a total of more than 130,000 jobs in the L.A. region and 1.3 million jobs throughout the state over the next decade.

SAN FERNANDO GROUNDWATER BASIN

Los Angeles imports more than 50 percent of its water supply. In the City of L.A., imported water can account for up to 90 percent of its total supply, as was the case in 2014 due to historic drought conditions. Unpredictable weather patterns, groundwater contamination, risk of natural disasters, aging conveyance and distribution systems, and deteriorating ecosystems are collectively threatening L.A.'s $1 trillion regional economy. Securing a long-term, reliable baseline supply of affordable water for L.A. is of paramount importance to the Chamber and its members.

Groundwater is one particular local resource in L.A. that has the potential to cost-effectively reduce the use of imported water. Historically, local groundwater has accounted for up to 30 percent of LADWP's total water supply. However, over the past decade, local groundwater has accounted for 12 percent of the City's total supply, primarily due to growing contamination in the San Fernando Groundwater Basin. LADWP estimates the total cost of the proposed cleanup between $600-900 million and anticipates that treatment facilities should be operational by 2021.

CALIFORNIA ECO RESTORE AND WATER FIX

The Chamber supports investments that reduce L.A.'s use of imported water. However, Angelenos have also made significant investments in the state's water conveyance system over the past half century, anticipating that the region will continue to rely on imported water to meet its long-term needs. Given L.A.'s investment in the State's water project, the Chamber supports California Eco Restore and Water Fix — a two pronged approach that will improve the reliability of our state's water supply via the modernization of our state's conveyance system and restoration of 30,000 acres of habitat in the Delta. The total projected cost of the statewide project is $15 billion, which equates to a $2-5 per household per month increase in costs for Angeleno households.

WESTSIDE PURPLE LINE EXTENSION

L.A. has become synonymous with traffic congestion and poor air quality, which inhibits economic growth. L.A. recognizes the value of reducing traffic congestion and is in the process of transforming its transportation infrastructure. For example, Metro's Westside Purple Line Extension (WPLE) is a critically important light rail construction project that when completed will provide a high-capacity, high-speed, dependable alternative mode of transportation for commuters in one of the most densely populated and commercially significant areas of L.A. County. The entire WPLE is scheduled to be constructed in three phases with a total cost of $6.3 billion. It is expected to increase transit ridership on the entire Metro rail system by 49,000 passengers per day and create 52,500 jobs when completed in 2035.

LOS ANGELES INTERNATIONAL AIRPORT LANDSIDE ACCESS MODERNIZATION PROGRAM

LAX is the number one origin and destination airport in the world and third busiest in the United States. It serves more than 70 million passengers, generates more than $40 billion in regional economic activity, and directly and indirectly employs more than 290,000 people in the region annually. Being the busiest origin and destination airport in the world presents many challenges to passengers when trying to access the airport. Critical to LAX's continued success is reducing traffic congestion in its Central Terminal Area and surrounding streets, improving the airport's connectivity to transit and enhancing the overall passenger traveling experience. The Chamber supports LAX's $4 billion Landside Access Modernization Program, which will transform LAX's ground transportation and arrival and departure experience.

BNSF RAILWAY COMPANY'S SOUTHERN CALIFORNIA INTERNATIONAL GATEWAY

Since 1970, containerized shipping through U.S. West Coast ports has increased twentyfold, largely due to the enormous increase in the U.S. trade with Pacific Rim nations. As a result, major West Coast ports, particularly the ports of L.A. and Long Beach, have needed to optimize and expand their facilities to accommodate those increases. Today, L.A.'s two ports handle 40 percent of the total containerized cargo that enters into the United States. While this growth has contributed significantly to L.A.'s economy, it has also contributed to traffic congestion and air quality concerns.

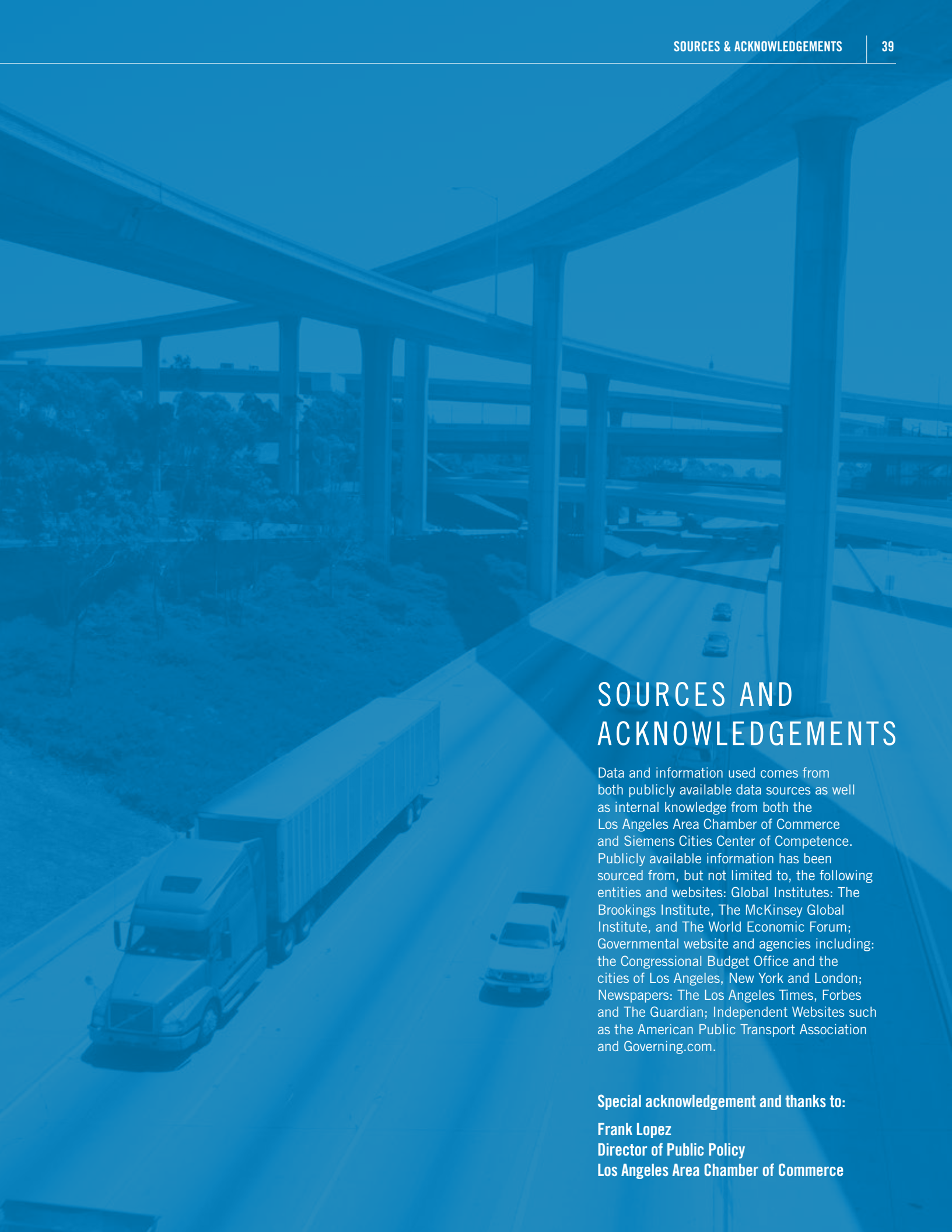
The Southern California International Gateway (SCIG) is a proposed $500 million near-dock intermodal rail facility that would eliminate more than 1.5 million truck trips from the 710 freeway to rail yards east of downtown L.A. by shortening the distance trucks loaded with cargo would need to travel before transferring the containers to rail. When completed, SCIG will be the most advanced and efficient intermodal facility in the United States. The project is expected to create approximately 1,500 construction jobs per year over three years of construction and 22,000 direct and indirect jobs in Southern California by 2036.

UNION PACIFIC RAILROAD'S INTERMODAL CONTAINER TRANSFER FACILITY

Union Pacific Railroad's (UP) Intermodal Container Transfer Facility is also a near-dock railyard located approximately five miles from the Ports of Los Angeles and Long Beach. The facility is used as the relay point between the ports and major railyards near downtown L.A. for the transfer of intermodal containers. UP is in the process of modernizing its ICTF. The $400 million project would enable UP to roughly double capacity at the facility while reducing emissions.

PIPELINE SAFETY ENHANCEMENT PLAN

Southern California Gas Company's Pipeline Safety Enhancement Plan is a multi-year effort to pressure test or replace key natural gas pipelines in SoCalGas' territory. In addition to replacement and testing, the plan calls for retrofitting existing valves so SoCalGas can respond to transmission pipeline incidents more quickly and in multiple locations simultaneously. This effort will generate an economic infusion of more than $2.4 billion in capital overall and generate more than $1.9 billion in economic activity based on direct, indirect and supporting services. State and local governments are expected to see a $9 million boost in tax benefits from PSEP activities in the SoCalGas service territory. 1,800 jobs will be directly created or retained in Southern California.



SOURCES AND ACKNOWLEDGEMENTS

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Frank Lopez
Director of Public Policy
Los Angeles Area Chamber of Commerce

Los Angeles Area Chamber of Commerce
350 S. Bixel St.
Los Angeles, CA 90017
P: 213.580.7500 | F: 213.580.7511
lachamber.com