California Transportation by the Numbers

MEETING THE STATE'S NEED FOR SAFE, SMOOTH AND EFFICIENT MOBILITY

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TRIP
a national transportation research group

TRIPNET.ORG

Founded in 1971, TRIP ® of Washington, DC, is a nonprofit organization that researches, evaluates and distributes economic and technical data on surface transportation issues. TRIP is sponsored by insurance companies, equipment manufacturers, distributors and suppliers; businesses involved in highway and transit engineering and construction; labor unions; and organizations concerned with efficient and safe surface transportation.

CALIFORNIA KEY TRANSPORTATION FACTS

THE HIDDEN COSTS OF DEFICIENT ROADS

Driving on California roads that are deteriorated, congested, and that lack some desirable safety features costs California drivers a total of $61 billion each year. TRIP has calculated the cost to the average motorist in the state's largest urban areas in the form of additional vehicle operating costs (VOC) as a result of driving on rough roads, the cost of lost time and wasted fuel due to congestion, and the financial cost of traffic crashes.

Location	VOC	Safety	Congestion	TOTAL
Bakersfield	$ 579	$ 668	$ 531	$ 1,778
Central Valley	$ 737	$ 625	$ 403	$ 1,765
Chico-Redding	$ 485	$ 743	$ 299	$ 1,526
Concord	$ 923	$ 265	$ 780	$ 1,968
Fresno-Madera-Visalia-Hanford	$ 673	$ 617	$ 375	$ 1,665
Los Angeles	$ 921	$ 299	$ 1,774	$ 2,995
Riverside-San Bernardino	$ 795	$ 515	$ 1,365	$ 2,675
Sacramento	$ 754	$ 419	$ 993	$ 2,166
San Diego	$ 694	$ 327	$ 920	$ 1,941
San Francisco-Oakland	$ 1,049	$ 206	$ 1,737	$ 2,992
San Jose	$ 983	$ 287	$ 1,475	$ 2,745
Santa Barbara-Santa Maria-San Luis Obispo	$ 655	$ 395	$ 368	$ 1,419
California- Statewide	**$22.1 Billion**	**$9.8 Billion**	**$29.1 Billion**	**$61 Billion**

An urban area is defined as a region's municipalities and surrounding suburbs for pavement condition and congestion data; bridge and traffic fatality data include a region's major counties.

CALIFORNIA ROADS PROVIDE A ROUGH RIDE

Due to inadequate state and local funding, 68 percent of major roads and highways in California are in poor or mediocre condition costing the average state driver an extra $843 annually in additional vehicle operating costs as a result of driving on rough roads – a total of $22.1 billion statewide

Location	Poor	Mediocre	Fair	Good
Bakersfield	26%	27%	19%	28%
Central Valley	40%	26%	14%	20%
Chico-Redding	22%	20%	15%	42%
Concord	56%	27%	10%	8%
Fresno-Madera-Visalia-Hanford	34%	27%	15%	24%
Los Angeles	57%	22%	11%	10%
Riverside-San Bernardino	40%	38%	12%	9%
Sacramento	41%	29%	12%	18%
San Diego	34%	30%	19%	17%
San Francisco-Oakland	71%	16%	6%	6%
San Jose	64%	18%	9%	9%
Santa Barbara-Santa Maria-San Luis Obispo	33%	25%	19%	23%
California- Statewide	**44%**	**24%**	**13%**	**19%**

CALIFORNIA BRIDGE CONDITIONS

More than 1,500 of California's bridges (20 feet or longer) are structurally deficient, meaning there is significant deterioration of the bridge deck, supports or other major components. More than half – 56 percent – of California's bridges are at least 50 years old – the eighth highest rate in the nation.

Location	Number Structurally Deficient	Total Bridges
Bakersfield	19	661
Central Valley	158	1,550
Chico-Redding	105	1,384
Concord	38	601
Fresno-Madera-Visalia-Hanford	146	1,905
Los Angeles	176	4,703
Riverside-San Bernardino	142	2,503
Sacramento	72	1,530
San Diego	64	1,591
San Francisco-Oakland	77	1,343
San Jose	98	1,029
Santa Barbara-Santa Maria-San Luis Obispo	42	811
California- Statewide	**1,603**	**25,657**

CALIFORNIA ROADS ARE INCREASINGLY CONGESTED

Congested roads choke commuting and commerce and cost California drivers $29.1 billion each year in the form of lost time and wasted fuel. In the most congested areas, drivers lose up to $1,774 and spend nearly three and a half full days each year in congestion.

Location	Hours Lost to Congestion	Annual Cost Per Driver
Bakersfield	19	$ 531
Central Valley	15	$ 403
Chico-Redding	14	$ 299
Concord	36	$ 780
Fresno-Madera-Visalia-Hanford	17	$ 375
Los Angeles	82	$ 1,774
Riverside-San Bernardino	60	$ 1,365
Sacramento	44	$ 993
San Diego	43	$ 920
San Francisco-Oakland	80	$ 1,737
San Jose	68	$ 1,475
Santa Barbara-Santa Maria-San Luis Obispo	16	$ 368

CALIFORNIA TRAFFIC SAFETY AND FATALITIES

Over the last five years, 15,730 people were killed in traffic crashes in California. Traffic crashes in California in 2016 imposed a total of $29.4 billion in economic costs. Traffic crashes in which roadway features were likely a contributing factor imposed $9.8 billion in economic costs in 2016.

Location	Average Fatalities 2014-2016	Average Crash Costs
Bakersfield	131	$ 668
Central Valley	215	$ 625
Chico-Redding	77	$ 743
Concord	67	$ 265
Fresno-Madera-Visalia-Hanford	238	$ 617
Los Angeles	876	$ 299
Riverside-San Bernardino	517	$ 515
Sacramento	213	$ 419
San Diego	239	$ 327
San Francisco-Oakland	162	$ 206
San Jose	126	$ 287
Santa Barbara-Santa Maria-San Luis Obispo	63	$ 395
California - Statewide	**3,291**	**$9.8 Billion**

TRANSPORTATION AND ECONOMIC DEVELOPMENT

The health and future growth of California's economy rides on its transportation system. Each year, $2.8 trillion in goods are shipped to and from sites in California, mostly by truck. Increases in passenger and freight movement will place further burdens on the state's already deteriorated and congested network of roads and bridges.

The design, construction and maintenance of transportation infrastructure in California supports 419,790 full-time jobs across all sectors of the state economy. These workers earn $17.8 billion annually. Approximately 7.1 million full-time jobs in California in key industries like tourism, retail sales, agriculture and manufacturing are completely dependent on the state's transportation network.

SB 1 INCREASES CALIFORNIA TRANSPORTATION INVESTMENT

In April 2017, the California legislature enacted SB 1 -- the Road Repair and Accountability Act. SB 1 increased state revenues for transportation by increasing the state's gasoline and diesel taxes, implementing a transportation investment fee on vehicles and initiating an annual fee on zero emission vehicles. It is estimated that SB 1 will increase state revenues for California's transportation system by an average of $5.2 billion annually over the next decade. On November 6, 2018, Californians will vote on Proposition 6, which, if approved, would repeal SB 1. The elimination of SB 1 revenues would reduce funds available in California for transportation projects to improve road, highway and bridge conditions, improve traffic safety, enhance pedestrian and bicycle facilities, improve public transit and relieve traffic congestion.

INTRODUCTION

California's roads, highways and bridges form vital transportation links for the state's residents, visitors and businesses, providing daily access to homes, jobs, shopping, natural resources and recreation. Modernizing California's transportation system is critical to quality of life and economic competitiveness in the Golden State. Inadequate transportation investment, which will result in deteriorated transportation facilities and diminished access, will negatively affect economic competitiveness and quality of life in California.

To accommodate population and economic growth, maintain its level of economic competitiveness and achieve further economic growth, California will need to maintain and modernize its roads, highways and bridges by improving the physical condition of its transportation network and enhancing the system's ability to provide efficient, reliable and safe mobility for residents, visitors and businesses. Making needed improvements to California's roads, highways, bridges and transit systems could also provide a significant boost to the state's economy by creating jobs in the short term and stimulating long-term economic growth as a result of enhanced mobility and access.

This report examines the condition, use and safety of California's roads, highways and bridges, and the state's future mobility needs. Sources of information for this report include the Federal Highway Administration (FHWA), the American Association of State Highway and Transportation Officials (AASHTO), the Bureau of Transportation Statistics (BTS), the U.S. Census Bureau, the Texas Transportation Institute (TTI), the American Road & Transportation Builders Association (ARTBA) and the National Highway Traffic Safety Administration (NHTSA).

Corresponding reports for the state of California, and the following urban areas can be accessed by clicking on these links: Bakersfield, Central Valley, Chico-Redding, Concord, Fresno-Madera-Visalia-Hanford, Los Angeles, Riverside-San Bernardino, Sacramento, San Diego, San Francisco-Oakland, San Jose and Santa Barbara-Santa Maria- San Louis Obispo.

An urban area is defined as a region's municipalities and surrounding suburbs for pavement condition and congestion data; bridge and traffic fatality data include a region's major counties.[1]

POPULATION, TRAVEL AND ECONOMIC TRENDS IN CALIFORNIA

California motorists and businesses require a high level of personal and commercial mobility. To foster quality of life and spur continued economic growth, it is critical that the state provide a safe

and modern transportation system that can accommodate future growth in population, vehicle travel, tourism, business and recreation.

California's population grew to approximately 39.5 million residents in 2017, a 17 percent increase since 2000.[2] California had approximately 26.2 million licensed drivers in 2016.[3] From 2000 to 2016, California's gross domestic product (GDP), a measure of the state's economic output, increased by 42 percent, when adjusted for inflation.[4] U.S. GDP increased 30 percent during the same period.[5]

From 2000 to 2016, annual vehicle miles of travel (VMT) in California increased by 11 percent, from 307 billion miles traveled annually to 340 billion miles traveled annually.[6] Vehicle travel in California increased three percent from 2013 to 2016.[7]

CONDITION OF CALIFORNIA ROADS

The life cycle of California's roads is greatly affected by the state and local governments' ability to perform timely maintenance and upgrades to ensure that road and highway surfaces last as long as possible.

The pavement data in this report, which is for all arterial and collector roads and highways, is provided by the Federal Highway Administration (FHWA), based on data submitted annually by the California Department of Transportation on the condition of major state and locally maintained roads and highways. Pavement data for Interstate highways and other principal arterials is collected for all system mileage, whereas pavement data for minor arterial and all collector roads and highways is based on sampling portions of roadways as prescribed by FHWA to insure the data collected is adequate to provide an accurate assessment of pavement conditions on these roads and highways.

Statewide, 68 percent of California's major roads are in poor or mediocre condition. Forty-four percent of California's major locally and state-maintained roads are in poor condition and 24 percent are in mediocre condition.[8] Thirteen percent of California's major roads are in fair condition and the remaining 19 percent are in good condition.[9]

Fifty-three percent of California's major locally and state-maintained urban roads and highways have pavements rated in poor condition and 25 percent are in mediocre condition.[10] Eleven percent of California's major urban roads are rated in fair condition and the remaining 12 percent are rated in good condition.[11]

Thirty percent of California's major locally and state-maintained rural roads and highways have pavements rated in poor condition and 24 percent are in mediocre condition.[12] Sixteen percent of California's major rural roads are rated in fair condition and the remaining 30 percent are rated in good condition.[13] The chart below details pavement conditions on major urban roads in the state's largest urban areas.[14]

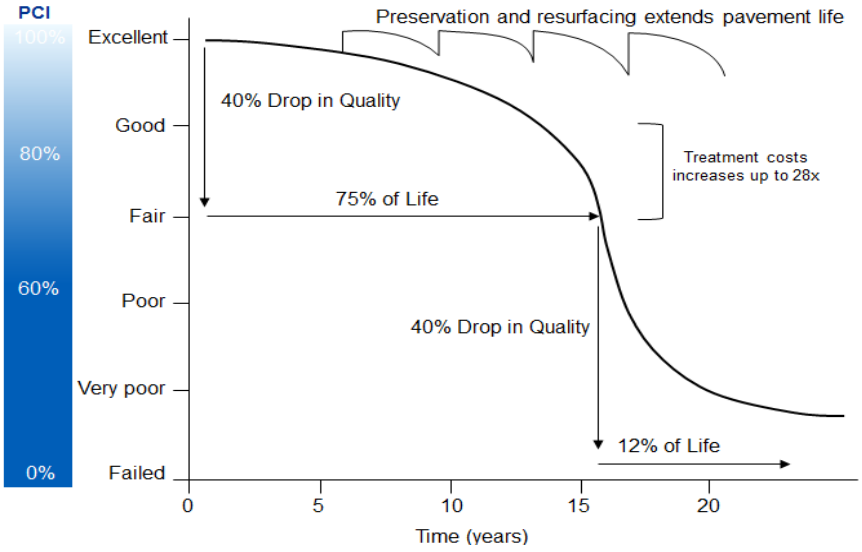
Chart 1. Pavement conditions on major roads in California's largest urban areas and statewide.

Location	Poor	Mediocre	Fair	Good
Bakersfield	26%	27%	19%	28%
Central Valley	40%	26%	14%	20%
Chico-Redding	22%	20%	15%	42%
Concord	56%	27%	10%	8%
Fresno-Madera-Visalia-Hanford	34%	27%	15%	24%
Los Angeles	57%	22%	11%	10%
Riverside-San Bernardino	40%	38%	12%	9%
Sacramento	41%	29%	12%	18%
San Diego	34%	30%	19%	17%
San Francisco-Oakland	71%	16%	6%	6%
San Jose	64%	18%	9%	9%
Santa Barbara-Santa Maria-San Luis Obispo	33%	25%	19%	23%
California- Statewide	**44%**	**24%**	**13%**	**19%**

Source: TRIP analysis of Federal Highway Administration data.

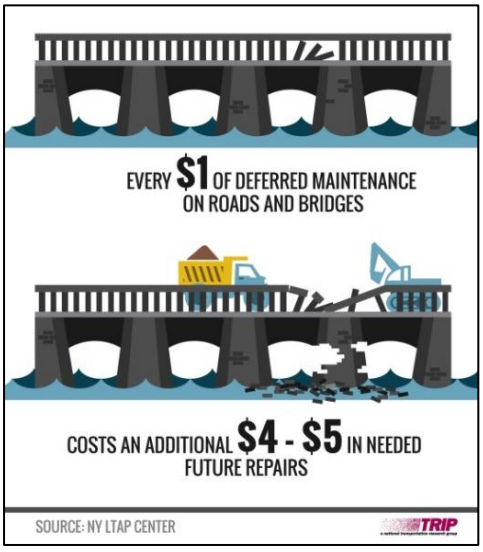
Pavement failure is caused by a combination of traffic, moisture and climate. Moisture often works its way into road surfaces and the materials that form the road's foundation. Road surfaces at intersections are more prone to deterioration because the slow-moving or standing loads occurring at these sites subject the pavement to higher levels of stress. It is critical that roads are fixed before they require major repairs because reconstructing roads costs significantly more than resurfacing them.[15] As roads and highways continue to age, they will reach a point of deterioration where routine paving and maintenance will not be adequate to keep pavement surfaces in good condition and costly reconstruction of the roadway and its underlying surfaces will become necessary.

Chart 2. Pavement Condition Cycle Time with Treatment and Cost



Source: North Carolina Department of Transportation (2016). 2016 Maintenance Operations and Performance Analysis Report

Long-term repair costs increase significantly when road and bridge maintenance is deferred, as road and bridge deterioration accelerate later in the service life of a transportation facility and requires more costly repairs. A report on maintaining pavements found that every $1 of deferred maintenance on roads and bridges costs an additional $4 to $5 in needed future repairs.[16]



THE COST TO MOTORISTS OF ROADS IN INADEQUATE CONDITION

TRIP has calculated the additional cost to motorists of driving on roads in poor, mediocre or fair condition. When roads are in poor, mediocre or fair condition – which may include potholes, rutting or rough surfaces – the cost to operate and maintain a vehicle increases. These additional vehicle operating costs (VOC) include accelerated vehicle depreciation which can reduce the lifespan of a vehicle, additional vehicle repair costs such as alignments, shocks and struts, increased fuel

consumption and accelerated tire wear. TRIP estimates that additional VOC borne by the state's motorists as a result of rough roads is $22.1 billion annually -- an average of $843 per driver statewide.[17] The chart below details additional VOC per motorist in the state's largest urban areas.

Chart 3. Vehicle operating costs per motorist as a result of driving on deteriorated roads.

Location	VOC
Bakersfield	$ 579
Central Valley	$ 737
Chico-Redding	$ 485
Concord	$ 923
Fresno-Madera-Visalia-Hanford	$ 673
Los Angeles	$ 921
Riverside-San Bernardino	$ 795
Sacramento	$ 754
San Diego	$ 694
San Francisco-Oakland	$ 1,049
San Jose	$ 983
Santa Barbara-Santa Maria-San Luis Obispo	$ 655
California- Statewide	**$ 843**

Source: TRIP estimates.

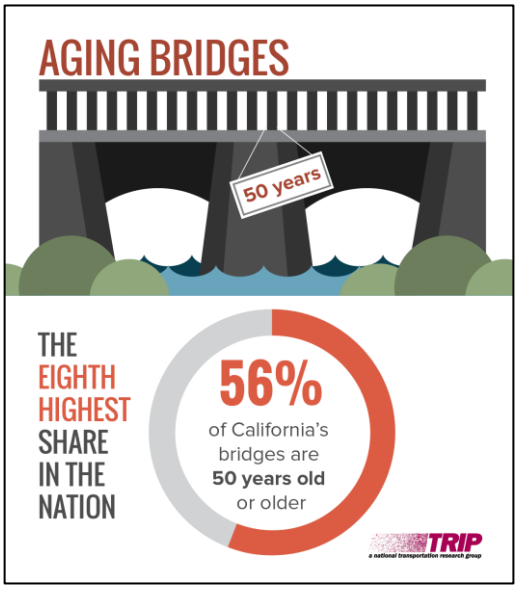
Additional vehicle operating costs have been calculated in the Highway Development and Management Model (HDM), which is recognized by the U.S. Department of Transportation and more than 100 other countries as the definitive analysis of the impact of road conditions on vehicle operating costs. The HDM report is based on numerous studies that have measured the impact of various factors, including road conditions, on vehicle operating costs.[18] The HDM study found that road deterioration increases ownership, repair, fuel and tire costs. The report found that deteriorated roads accelerate the pace of depreciation of vehicles and the need for repairs because the stress on the vehicle increases in proportion to the level of roughness of the pavement surface. Similarly, tire wear and fuel consumption increase as roads deteriorate since there is less efficient transfer of power to the drive train and additional friction between the road and the tires.

TRIP's additional VOC estimate is based on taking the average number of miles driven annually by a motorist, calculating current VOC based on AAA's 2017 VOC and then using the HDM model to estimate the additional VOC paid by drivers as a result of substandard roads.[19] Additional research on

the impact of road conditions on fuel consumption by the Texas Transportation Institute (TTI) is also factored in to TRIP's vehicle operating cost methodology.

BRIDGE CONDITIONS IN CALIFORNIA

California's bridges form key links in the state's highway system, providing communities and individuals access to employment, schools, shopping and medical facilities, and facilitating commerce and access for emergency vehicles.



California's bridges are showing signs of their age. A significant number of California's bridges have surpassed or are approaching 50 years old, which is typically the intended design life for bridges of that age. Fifty-six percent of the state's bridges are 50 years or older, the eighth highest share in the nation.[20] The cost of repairing and preserving bridges increases as they age and as they reach the end of their intended design life.

More than 1,500 of California's locally and state-maintained bridges (20 feet or longer) are rated as structurally deficient.[21] A bridge is structurally deficient if there is significant deterioration of the bridge deck, supports or other major components.

Bridges that are structurally deficient may be posted for lower weight limits or closed if their condition warrants such action. Deteriorated bridges can have a significant impact on daily life. Restrictions on vehicle weight may cause many vehicles – especially emergency vehicles, commercial trucks, school buses and farm equipment – to use alternate routes to avoid posted bridges. Redirected trips also lengthen travel time, waste fuel and reduce the efficiency of the local economy.

The chart below details the number of bridges in the state's largest urban areas and statewide that rate as being structurally deficient.

Chart 4. Number of structurally deficient bridges statewide and in California's largest urban areas.

Location	Number Structurally Deficient	Total Bridges
Bakersfield	19	661
Central Valley	158	1,550
Chico-Redding	105	1,384
Concord	38	601
Fresno-Madera-Visalia-Hanford	146	1,905
Los Angeles	176	4,703
Riverside-San Bernardino	142	2,503
Sacramento	72	1,530
San Diego	64	1,591
San Francisco-Oakland	77	1,343
San Jose	98	1,029
Santa Barbara-Santa Maria-San Luis Obispo	42	811
California- Statewide	**1,603**	**25,657**

Source: TRIP analysis of Federal Highway Administration National Bridge Inventory (2017).

The service life of bridges can be extended by performing routine maintenance such as resurfacing decks, painting surfaces, insuring that a facility has good drainage and replacing deteriorating components. But, most bridges will eventually require more costly reconstruction or major rehabilitation to remain operable.

TRAFFIC SAFETY IN CALIFORNIA

A total of 15,730 people were killed in California traffic crashes from 2012 to 2016, an average of 3,146 fatalities per year.[22] Traffic crashes in which roadway features were likely a contributing factor imposed $9.8 billion in economic costs in 2016.[23]

Chart 5. Traffic Fatalities in California 2012 – 2016

Year	Fatalities
2012	2,857
2013	3,000
2014	3,074
2015	3,176
2016	3,623
TOTAL	**15,730**

Source: National Highway Traffic Safety Administration.

Three major factors are associated with fatal vehicle crashes: driver behavior, vehicle characteristics and roadway features. It is estimated that roadway features are likely a contributing factor in approximately one-third of fatal traffic crashes. Roadway features that impact safety include: the number of lanes, lane widths, lighting, lane markings, rumble strips, shoulders, guard rails, other shielding devices, median barriers and intersection design.

California's overall traffic fatality rate of 1.07 fatalities per 100 million vehicle miles of travel in 2016 is lower than the national average of 1.18.[24] The traffic fatality rate on the state's rural roads is disproportionately high. The fatality rate on California's non-interstate rural roads is approximately four and a half times higher than on all other roads in the state (3.48 fatalities per 100 million vehicle miles of travel vs. 0.76).[25]

The chart below details the number of people killed in traffic crashes in the state's largest urban areas and statewide between 2014 and 2016 and the cost of traffic crashes per driver and statewide.

Chart 6. Average fatalities between 2014 and 2016 and crash cost per driver.

Location	Average Fatalities 2014-2016	Average Crash Costs
Bakersfield	131	$ 668
Central Valley	215	$ 625
Chico-Redding	77	$ 743
Concord	67	$ 265
Fresno-Madera-Visalia-Hanford	238	$ 617
Los Angeles	876	$ 299
Riverside-San Bernardino	517	$ 515
Sacramento	213	$ 419
San Diego	239	$ 327
San Francisco-Oakland	162	$ 206
San Jose	126	$ 287
Santa Barbara-Santa Maria-San Luis Obispo	63	$ 395
California - Statewide	**3,291**	**$9.8 Billion**

Source: TRIP analysis.

Traffic crashes in California imposed a total of $29.4 billion in economic costs in 2016.[26] TRIP estimates that the lack of adequate roadway safety features were likely a contributing factor in approximately one-third of all fatal traffic crashes, resulting in $9.8 billion in economic costs in 2016.[27]

According to a 2015 National Highway Traffic Safety Administration (NHTSA) report, the economic costs of traffic crashes includes work and household productivity losses, property damage, medical costs, rehabilitation costs, legal and court costs, congestion costs and emergency services.[28]

Improving safety on California's roadways can be achieved through further improvements in vehicle safety; improvements in driver, pedestrian, and bicyclist behavior; and, a variety of improvements in roadway safety features.

The severity of serious traffic crashes could be reduced through roadway improvements, where appropriate, such as adding turn lanes, removing or shielding obstacles, adding or improving medians, widening lanes, widening and paving shoulders, improving intersection layout, and providing better road markings and upgrading or installing traffic signals. Roads with poor geometry, with insufficient clear distances, without turn lanes, having inadequate shoulders for the posted speed limits, or poorly laid out intersections or interchanges, pose greater risks to motorists, pedestrians and bicyclists.

Investments in rural traffic safety have been found to result in significant reductions in serious traffic crashes. A 2012 report by TTI found that improvements completed recently by TxDOT that widened lanes, improved shoulders and made other safety improvements on 1,159 miles of rural state roadways resulted in 133 fewer fatalities on these roads in the first three years after the improvements were completed (as compared to the three years prior).[29] TTI estimates that the improvements on these roads are likely to save 880 lives over 20 years.[30]

TRAFFIC CONGESTION IN CALIFORNIA

Increasing levels of traffic congestion cause significant delays in California, particularly in its larger urban areas, choking commuting and commerce. Traffic congestion robs commuters of time and money and imposes increased costs on businesses, shippers, and manufacturers - which are often passed along to the consumer. Increased levels of congestion can also reduce the attractiveness of a location to a company when considering expansion or where to locate a new facility.

Eighty-five percent of California's urban Interstates are congested.[31] Based on TTI methodology, TRIP estimates the value of lost time and wasted fuel in California is approximately $29.1 billion per year. The chart below details the number of hours lost annually for each driver in the state's largest urban areas, and the per-driver cost of lost time and wasted fuel due to congestion.

Chart 7. Annual hours lost to congestion and congestion costs per driver.

Location	Hours Lost to Congestion	Annual Cost Per Driver
Bakersfield	19	$ 531
Central Valley	15	$ 403
Chico-Redding	14	$ 299
Concord	36	$ 780
Fresno-Madera-Visalia-Hanford	17	$ 375
Los Angeles	82	$ 1,774
Riverside-San Bernardino	60	$ 1,365
Sacramento	44	$ 993
San Diego	43	$ 920
San Francisco-Oakland	80	$ 1,737
San Jose	68	$ 1,475
Santa Barbara-Santa Maria-San Luis Obispo	16	$ 368

Source: TRIP estimates based on Texas Transportation Institute Urban Mobility Report.

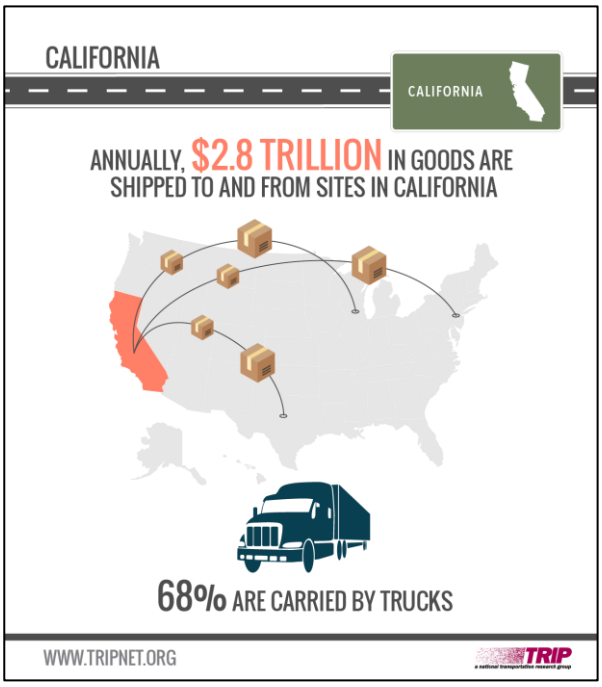
TRANSPORTATION AND ECONOMIC GROWTH

Today's culture of business demands that an area have well-maintained and efficient roads, highways and bridges if it is to remain economically competitive. Global communications and the impact of free trade in North America and elsewhere have resulted in a significant increase in freight movement, making the quality of a region's transportation system a key component in a business' ability to compete locally, nationally and internationally.

Businesses have responded to improved communications and the need to cut costs with a variety of innovations including just-in-time delivery, increased small package delivery, demand-side inventory management and e-commerce. The result of these changes has been a significant improvement in logistics efficiency as firms move from a push-style distribution system, which relies on large-scale warehousing of materials, to a pull-style distribution system, which relies on smaller, more strategic movement of goods. These improvements have made mobile inventories the norm, resulting in the nation's trucks literally becoming rolling warehouses.

Highways are vitally important to continued economic development in California. As the economy expands, creating more jobs and increasing consumer confidence, the demand for consumer and business products grows. In turn, manufacturers ship greater quantities of goods to market to meet this demand, a process that adds to truck traffic on the state's highways and major arterial roads.

Every year, $2.8 trillion in goods are shipped to and from sites in California, mostly by trucks.[32] Sixty-eight percent of the goods shipped annually to and from sites in California are carried by trucks and another 19 percent are carried by courier services or multiple-mode deliveries, which include trucking.[33]



The design, construction and maintenance of transportation infrastructure in California play a critical role in the state's economy, supporting the equivalent of 419,790 full-time jobs across all sectors of the state economy, earning these workers approximately $17.8 billion annually.[34] These jobs include 209,126 full-time jobs directly involved in transportation infrastructure construction and related activities as well as 210,665 full-time

jobs as a result of spending by employees and companies in the transportation design and construction industry.[35]

Transportation construction in California annually contributes an estimated $3.2 million in state and local income, corporate and unemployment insurance taxes and the federal payroll tax.[36]

Nearly 7.1 million full-time jobs in California in key industries like tourism, retail sales, agriculture and manufacturing are dependent on the quality, safety and reliability of the state's transportation infrastructure network. These workers earn $319 billion in wages and contribute an estimated $58.2 billion in state and local income, corporate and unemployment insurance taxes and the federal payroll tax.[37]

Local, regional and state economic performance is improved when a region's surface transportation system is expanded or repaired. This improvement comes as a result of the initial job creation and increased employment created over the long-term because of improved access, reduced transport costs and improved safety.

Increasingly, companies are looking at the quality of a region's transportation system when deciding where to re-locate or expand. Regions with congested or poorly maintained roads may see businesses relocate to areas with a smoother, more efficient and more modern transportation system. Highway accessibility was ranked the number one site selection factor in a 2017 survey of corporate executives by Area Development Magazine. Labor costs and the availability of skilled labor, which are both impacted by a site's level of accessibility, were rated second and third, respectively.[38]

TRANSPORTATION FUNDING

Investment in California's roads, highways and bridges is funded by local, state and federal governments. A lack of sufficient funding at all levels will make it difficult to adequately maintain and improve the state's existing transportation system.

In April 2017, the California legislature enacted SB 1 -- the Road Repair and Accountability Act. SB 1 increased state revenues for transportation by increasing the state's gasoline and diesel taxes, implementing a transportation investment fee on vehicles and initiating an annual fee on zero emission vehicles.[39] It is estimated that SB 1 will increase state revenues for California's transportation system by an average of $5.2 billion annually over the next decade.[40] Each year, the SB 1 funding

package is expected to provide an additional: $1.8 billion for the maintenance and rehabilitation of state-maintained highways; $1.7 billion for the maintenance and rehabilitation of locally maintained roads and streets; $750 million for improvements to public transit; $380 million for traffic congestion relief including roadway capacity expansion; $310 million for improvements to freight corridors; $100 million for improved pedestrian and bicycling facilities; and, $25 million for freeway service patrols.[41] On November 6, 2018, Californians will vote on Proposition 6, which, if approved, would repeal SB 1. The elimination of SB 1 revenues would reduce funds available in California for transportation projects to improve road, highway and bridge conditions, improve traffic safety, enhance pedestrian and bicycle facilities, improve public transit and relieve traffic congestion.

CONCLUSION

As California works to build and enhance a thriving, growing and dynamic state, it will be critical that it is able to address the state's most significant transportation issues by providing a 21st century network of roads, highways, bridges and transit that can accommodate the mobility demands of a modern society.

California will need to modernize its surface transportation system by improving the physical condition of its transportation network and enhancing the system's ability to provide efficient, safe and reliable mobility for residents, visitors and businesses. Making needed improvements to the state's roads, highways, bridges and transit systems would provide a significant boost to the economy by creating jobs in the short term and stimulating long-term economic growth as a result of enhanced mobility and access.

The approval of SB 1 in 2017 has allowed California to increase its annual investment in roads, bridges, highways, transit systems, bike paths and pedestrian facilities by $5.2 billion annually. Maintaining this higher level of transportation funding will be critical in allowing the state to improve road and bridge conditions, relieve traffic congestion and improve traffic safety. If California is unable to maintain its current level of transportation investment, the cost to the public of deficient roads, traffic congestion, and a lack of adequate roadway safety will increase and economic development opportunities and quality of life in the Golden State will be diminished.

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ENDNOTES

[1] Bridge condition data and safety data for each urban area includes the counties noted: Bakersfield: Bakersfield County; Central Valley: Merced, San Joaquin and Stanislaus Counties; Chico-Redding: Butte, Shasta and Tehama Counties; Concord: Contra Costa County; Fresno-Madera-Visalia: Fresno, Kings, Madera and Tulare Counties; Los Angeles: Los Angeles and Orange Counties; Riverside-San Bernardino: Riverside and San Bernardino Counties; Sacramento: El Dorado, Placer, Sacramento and Yolo Counties; San Diego: San Diego County; San Francisco-Oakland: Alameda, Marin, San Francisco and San Mateo Counties; San Jose: San Benito and Santa Clara Counties; Santa Barbara-Santa Maria-San Luis Obispo: Santa Barbara and San Luis Obispo Counties.
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[5] Ibid.
[6] U.S. Department of Transportation - Federal Highway Administration: Highway Statistics 2000 and 2016 and analysis of Federal Highway Administration Traffic Volume Trends (2016) https://www.fhwa.dot.gov/policyinformation/travel_monitoring/tvt.cfm
[7] U.S. Department of Transportation - Federal Highway Administration: Highway Statistics 2013 and analysis of Federal Highway Administration Traffic Volume Trends (2016) https://www.fhwa.dot.gov/policyinformation/travel_monitoring/tvt.cfm
[8] Federal Highway Administration (2017). Pavement condition data is for 2016.
[9] Ibid.
[10] Ibid.
[11] Ibid.
[12] Ibid.
[13] Ibid.
[14] Ibid.
[15] Selecting a Preventative Maintenance Treatment for Flexible Pavements. R. Hicks, J. Moulthrop. Transportation Research Board. 1999. Figure 1.
[16] Pavement Maintenance, by David P. Orr, PE Senior Engineer, Cornell Local Roads Program, March 2006.
[17] TRIP calculation.
[18] Highway Development and Management: Volume Seven. Modeling Road User and Environmental Effects in HDM-4. Bennett, C. and Greenwood, I. 2000.
[19] Your Driving Costs. American Automobile Association. 2017.
[20] Ibid.
[21] Federal Highway Administration National Bridge Inventory. 2017.
[22] Federal Highway Administration National Highway Traffic Safety Administration, 2012-2016.
[23] TRIP estimate based on NHTSA report "The Economic and Societal Impact of Motor Vehicle Crashes, 2010 (Revised), 2016. P. 146.
[24] TRIP analysis of National Highway Traffic Safety Administration and Federal Highway Administration data (2017). Data is for 2016.
[25] TRIP analysis of National Highway Traffic Safety Administration and Federal Highway Administration data (2016).
[26] TRIP estimate based on NHTSA report "The Economic and Societal Impact of Motor Vehicle Crashes, 2010 (Revised), 2016. P. 146.
[27] Ibid.
[28] The Economic and Societal Impact of Motor Vehicle Crashes, 2010 (Revised) (2015). National Highway Traffic Safety Administration. P. 1. https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812013
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[30] Ibid.

[31] Federal Highway Administration Highway Statistics 2016.
[32] TRIP analysis of Bureau of Transportation Statistics, U.S. Department of Transportation. 2012 Commodity Flow Survey, State Summaries.
[33] Ibid.
[34] American Road & Transportation Builders Association (2015). The 2015 U.S. Transportation Construction Industry Profile. https://www.transportationcreatesjobs.org/pdf/Economic_Profile.pdf
[35] Ibid.
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[39] Legislative Analyst's Office (2018). Overview of the 2017 Transportation Funding Package. http://lao.ca.gov/Publications/Report/3688
[40] Ibid.
[41] Ibid.