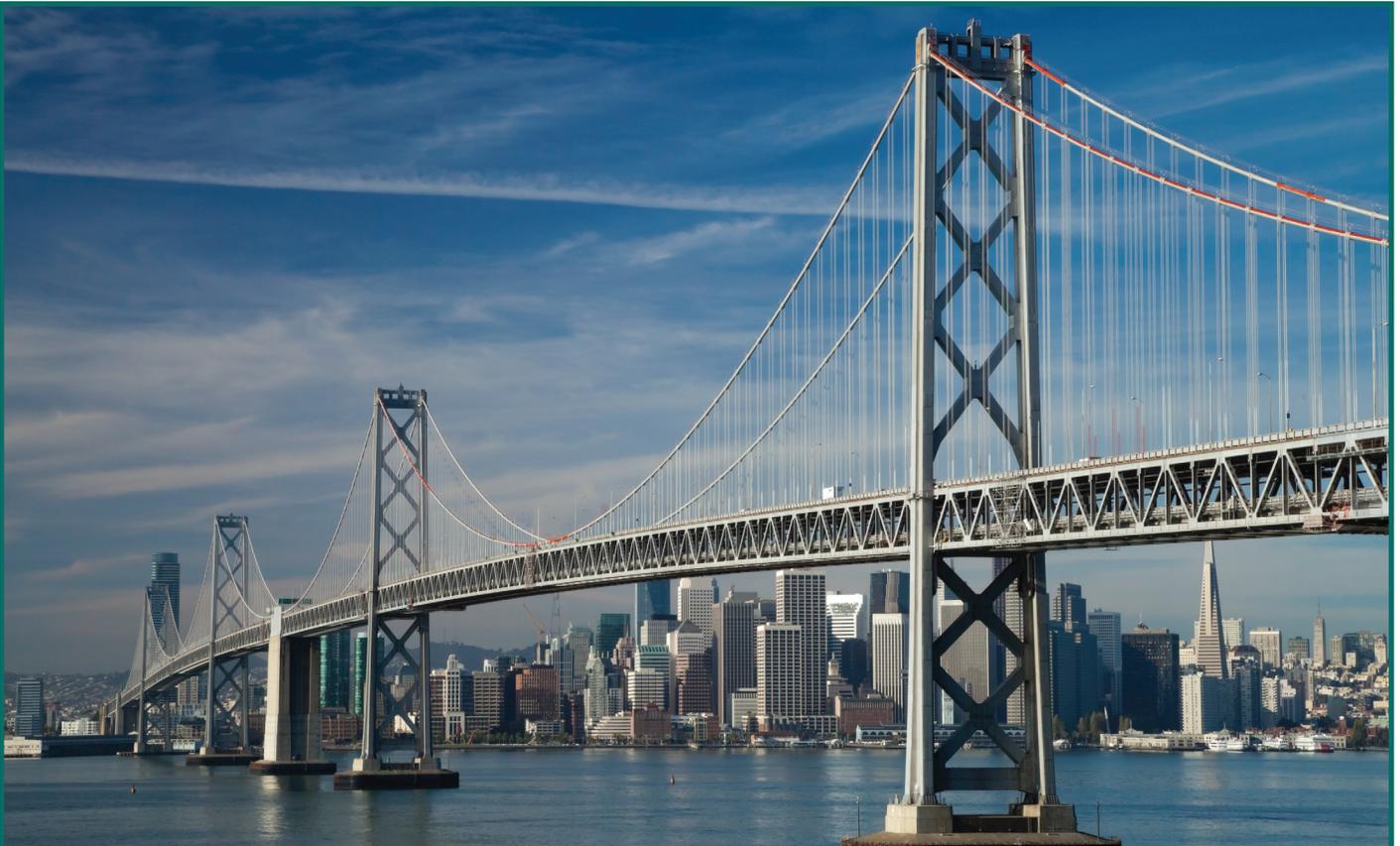


The Economic Impacts of Highway, Street, Bridge, & Transit Investment in California

SUPPORTING \$200 BILLION IN ANNUAL ECONOMIC ACTIVITY



Commissioned by

The California Alliance for Jobs • The California Transit Association
The California State Association of Counties • The League of California Cities

Prepared by



American Road
& Transportation
Builders Association

JULY 2021

About the Author

This research was conducted for the California Alliance for Jobs by the economics and research team at the Washington, D.C.-based American Road & Transportation Builders Association (ARTBA). This analysis was conducted by Dr. Alison Premo Black, the association's senior vice president and chief economist.

Since joining ARTBA in 2000, Dr. Black has led teams and authored over 100 studies examining state transportation funding and investment patterns. Dr. Black also leads the operation of the Transportation Investment Advocacy Center™. She has a Ph.D. in economics from the George Washington University and a master's in international economics and Latin American Studies from the Johns Hopkins School of Advanced International Studies.

About the American Road & Transportation Builders Association

ARTBA is a federation whose primary goal is to aggressively grow and protect transportation infrastructure investment to meet the public and business demand for safe and efficient travel. In support of this mission, ARTBA also provides programs and services designed to give its more than 8,000 public and private sector members a global competitive edge.

ARTBA's Transportation Investment Advocacy Center™ (TIAC) is a first-of-its kind, dynamic education program and internet-based information resource designed to help private citizens, legislators, organizations and businesses successfully grow transportation investment at the state and local levels through the legislative and ballot initiative processes. It's powered by: transportationinvestment.org.

About The California Alliance for Jobs

The California Alliance for Jobs is a unique labor-management partnership that advocates for responsible investments in public infrastructure projects. Representing over 2,000 heavy construction companies and 80,000 union construction workers, the Alliance focuses on the core of what keeps California's people and economy moving as the state's population grows: transportation networks, water systems, and increasing the quality of infrastructure for all Californians.

About The California Transit Association

The California Transit Association represents more than 200 member organizations, including public transit agencies, passenger rail and ferry operators, transit allies/support groups, and transit industry suppliers. The Association advocates for the creation of transit-friendly policy, the protection and increase of transit funding, and in support of a balanced transportation system.

About The California State Association of Counties

The primary purpose of CSAC is to represent county government before the California Legislature, administrative agencies and the federal government. CSAC places a strong emphasis on educating the public about the value and need for county programs and services.

About The League of California Cities

The League of California Cities has been shaping the Golden State's political landscape since the association was founded in 1898. We defend and expand local control through advocacy efforts in the Legislature, at the ballot box, in the courts, and through strategic outreach that informs and educates the public, policymakers, and opinion leaders. Cal Cities also offers education and training programs designed to teach city officials about new developments in their field and exchange solutions to common challenges facing their cities.

The Economic Impacts of Highway, Street, Bridge, & Transit Investment in California

TABLE OF CONTENTS

I. Executive Summary	4
II. Economic Impact of Transportation Investment in California.....	6
Additional User Benefits and Savings for California Drivers and Businesses	9
Benefits for California Businesses	9
Transportation Investment and Economic Development.....	12
III. Economic Impact of Highway, Street, Bridge & Transit Investment on Major Industry Sectors	14
Accommodation and Food Services.....	18
Administrative and waste management services	19
Agriculture, forestry, fishing, and hunting	20
Arts, entertainment, and recreation.....	21
Construction	22
Educational services	23
Finance and insurance	24
Health care and social assistance.....	25
Information	26
Management of companies and enterprises.....	27
Manufacturing	28
Mining	29
Other services	30
Professional, scientific, and technical services.....	31
Real estate and rental and leasing	32
Retail trade.....	33
Transportation and warehousing	34
Utilities	35
Wholesale trade	36
Methodology and Sources	37

I. Executive Summary

The construction, maintenance, and operation of California's highway, street, bridge, and transit infrastructure is a major economic driver that will support an average of **\$200 billion in annual economic output, earnings, tax revenue, and user benefits over the next decade—providing a return of \$4.30 for every \$1 spent on the system. Every \$1 billion spent supports over 15,000 jobs throughout the economy.**

Total investment will support an average of 700,000 jobs each year and contribute \$52 billion annually to California's Gross State Product (GSP), accounting for nearly 2 percent of total economic activity.

In addition to the economic impact quantified in this report, there are additional benefits for California residents and businesses, such as gains in business productivity from greater access to labor, suppliers, and customers, which are not included in this analysis.

This suggests that **the benefits of \$2 trillion in this report are just the minimum.**

Total highway, street, bridge, and transit investment in California is expected to grow from \$40.4 billion in 2021 to \$52.6 billion in 2030, not including any additional spending included in the 2021 federal infrastructure bill being negotiated in Congress. This includes revenues from federal, state, and local government sources to spend on capital outlays, maintenance, system improvements, and operations.

Based on the expected mix of capital projects and operations, the benefits of state highway, street, bridge, and transit investments include:

- Sales and revenue by state businesses of nearly **\$101.5 billion each year**, totaling \$1 trillion over 10 years. This is across all sectors of the economy.
- This will support an average of **700,000 jobs** each year, with growing investment over the next decade adding over 200,000 new jobs.

Highway, street, bridge, and transit investment has a positive economic impact on the state in three ways:

- 1) Transportation agencies, construction firms, and supplier industries purchase goods and services, and hire employees to operate, maintain, and improve the infrastructure network.
- 2) Employees of these firms spend their wages and support additional demand throughout the economy.
- 3) As improvements to the system are made, drivers, shippers, and transit riders will save money through lower operating costs and travel times, improved safety, and greater network access.

How does the economic ripple effect work? The highway, street, bridge, and transit investments support **business sales and output** across all sectors of the economy, which in turn allows firms to hire more **employees**.

The **earnings** from those workers are part of the value each industry contributes to California's **Gross State Product (GSP)**, which is a measure of overall economic output.

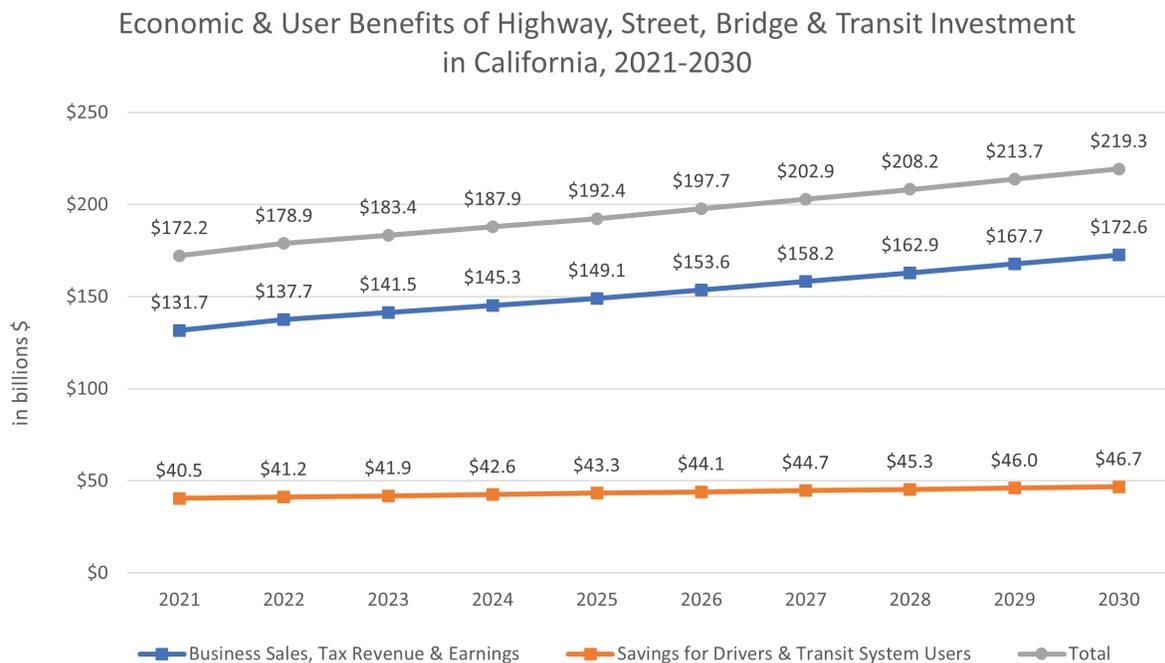
Tax revenue is collected from businesses and individuals through state, federal, and local income taxes, sales and use taxes, and corporate taxes. These funds are available to support additional investments in the community.

With improved service and infrastructure, **users of the system** benefit as they save time and money. Safety improvements help reduce crash costs and save lives.

Businesses become more productive as transportation costs decrease and they have greater access to more employees, inputs, services, and customers.

- Those workers will **earn an average of \$30.3 billion per year**, resulting in \$303 billion in additional earnings over 10 years.
- These earnings are part of the **\$52 billion per year value-added** that these businesses contribute to the state GSP, accounting for 2 percent of the state total.
- Federal, state, and local government **tax revenue from the economic activity will average \$21.2 billion per year**, for a total of \$212.2 billion over the decade. This includes estimated revenues from individual income, business, corporate, and sales and use taxes.

Economic Activity Supported by Highway, Street, Bridge & Transit Investment in California, 2021-2030		
	Total	Annual Average
Savings for Users of the System		
Highway, Street & Bridge	\$205.3 billion	\$20.5 billion
Transit	\$231.0 billion	\$23.1 billion
Economic Impacts		
Business Sales & Output	\$1,015.0 billion	\$101.5 billion
Employee Earnings	\$302.9 billion	\$30.3 billion
Tax Revenue	\$212.2 billion	\$21.2 billion
Total Economic Benefits	\$1,966.4 billion	\$196.6 billion
Number of Jobs	6,990,478 job-years	699,048
Contribution to GSP	\$520.3 billion	\$52.0 billion



II. Economic Impact of Transportation Investment in California

Transportation investment has a significant impact on all sectors of the state's economy. Transportation capital investments triggers immediate economic activity that creates and sustains jobs and tax revenues while yielding long-lived capital assets that facilitate economic growth for the next generation by providing access to jobs, services, materials, and markets.

California highway, street, bridge, and transit investment will support the following benefits over the next decade:

- Generate nearly \$101.5 billion annually in economic output as businesses throughout the economy sell goods and services to both other businesses and consumers, totaling \$1 trillion over 10 years.
- Contribute \$52 billion per year of state GSP, adding up to \$520 billion over 10 years. This accounts for nearly 2 percent of total GSP.
- Support nearly 700,000 jobs on average each year throughout the economy, with 86 percent of the employment outside of the construction industry. This includes an estimated 220,000 jobs in transportation and warehousing, 80,000 jobs in manufacturing and trade, and 68,000 jobs in professional and business services. This will add up to over 7 million job-years supported or created over the next 10 years.
- These workers will earn nearly \$30.3 billion in wages annually, totaling \$303 billion over 10 years.
- \$21.2 billion in additional tax revenues each year, adding up to \$212.2 billion over 10 years. This includes:
 - \$6 billion in annual state and local tax revenue from payroll, business, income, sales and use taxes, totaling \$60.9 billion over 10 years, and
 - \$15 billion in annual federal payroll, income, and business taxes, totaling \$151.3 billion over 10 years.

This economic activity is broken down by four different types of transportation spending.

- Highway, street, and bridge construction and maintenance activity include major investments to improve the infrastructure.
- Transit construction is comprised of improvements to the physical infrastructure and the purchase of other capital, such as rolling stock.
- Other highway, street, and bridge spending encompasses additional investments by state and local governments on operations, planning and design work, right of way purchases, administration, research, and overhead.
- Transit operations include spending to run transit agencies and deliver services to California residents.

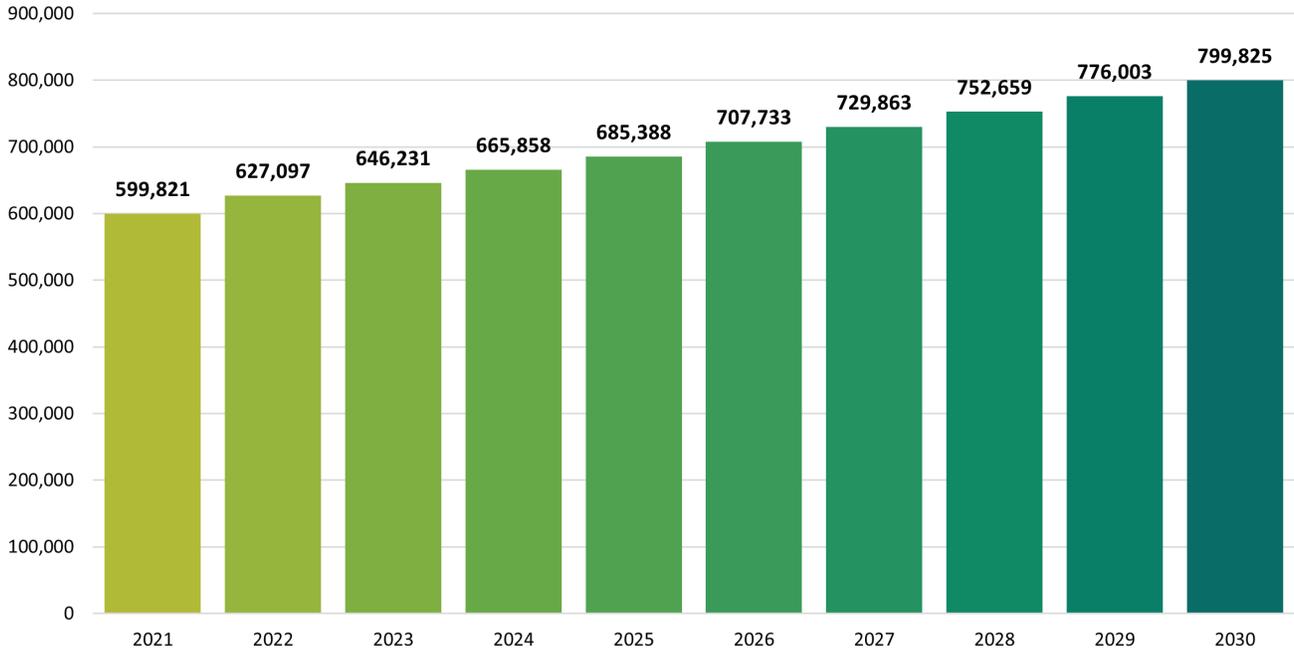
**Total Economic Impact of Highway, Bridge, Street and Transit Investment
in California Over 10 Years (in billions \$)**

	Impact of Highway, Bridge and Street Construction	Impact of Transit Construction	Impact of Transit Operations & Other Activity	Impact of Design, Engineering, Right of Way, Project Support and Administration	Total Impact
Total Output	\$218.8	\$99.9	\$212.3	\$484.2	\$1,015.2
Total Value Added (GSP)	\$115.7	\$54.6	\$108.5	\$241.5	\$520.3
Earnings	\$62.3	\$33.1	\$75.4	\$132.0	\$302.9
Employment (Job-Years)	1,125,502	633,559	2,802,696	2,428,721	6,990,478
Total Tax Revenues	\$42.3	\$16.7	\$89.1	\$64.1	\$212.2
Federal Tax Revenue	\$30.1	\$12.0	\$63.9	\$45.3	\$151.3
State & Local Tax Revenue	\$12.2	\$4.7	\$25.3	\$18.8	\$60.9

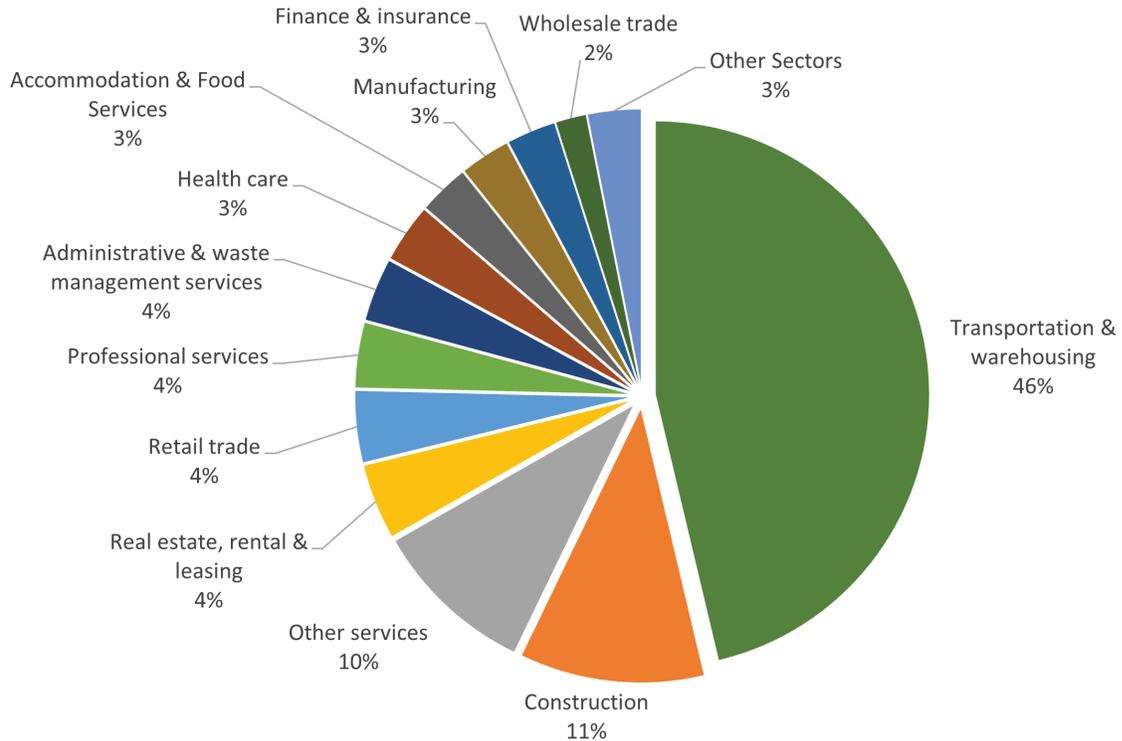
**Annual Average Economic Impact of Highway, Bridge, Street and Transit Investment
in California (in billions \$)**

	Impact of Highway, Bridge and Street Construction	Impact of Transit Construction	Impact of Transit Operations & Other Activity	Impact of Design, Engineering, Right of Way, Project Support and Administration	Total Annual Impact
Total Output	\$21.9	\$10.0	\$21.2	\$48.4	\$101.5
Total Value Added (GSP)	\$11.6	\$5.5	\$10.9	\$24.2	\$52.0
Earnings	\$6.2	\$3.3	\$7.5	\$13.2	\$30.3
Employment	112,550	63,356	280,270	242,872	699,048
Total Tax Revenues	\$4.2	\$1.7	\$8.9	\$6.4	\$21.2
Federal Tax Revenue	\$3.0	\$1.2	\$6.4	\$4.5	\$15.1
State & Local Tax Revenue	\$1.2	\$0.5	\$2.5	\$1.9	\$6.1

Jobs Supported/Created in California by Highway, Street, Bridge, & Transit Investment



Breakdown of Jobs Supported/Created in California by Highway, Street, Bridge, & Transit Investment



Additional User Benefits and Savings for California Drivers and Businesses

As improvements are made to California's highway, street, bridge, and transit network, users of the system will save time and money through improved safety, lower operating costs, reduced congestion, and an increase in mobility and efficiency.

Businesses productivity will increase as transportation costs are lowered and there is greater access to a larger pool of labor, suppliers, and customers. By saving on operating costs, businesses will be able to hire new workers, or invest in other capital outlays.

Depending on the mix of projects, some of the potential user benefits over the next decade include:

- Annual savings of \$25 billion for transit users and \$22.2 billion for drivers. This comes from greater access to goods and services, safety improvements, and lower costs.
- Total benefits would average \$1,540 per year for each California driver.
 - This includes an average of \$1,120 in travel time savings as congestion is reduced.
 - With improved conditions, California drivers would save an estimated \$412 per year on repair costs.
 - Improved safety conditions would save an average of \$15 per driver each year as the number and severity of crashes is reduced.
- Better roads also mean safer roads—annual savings from improved conditions, updated alignments, and other safety features would add up to \$385 million. These improvements would reduce the crash and injury rate from motor vehicle accidents.

- With improved mobility, emissions costs could decline by as much as one-third, even as travel increases. Depending on the mix of projects, the cost of emissions per 1,000 vehicle miles traveled could decline from \$8.80 to \$5.70 over a ten-year period.
- Under the model, improvements to over 20,000 miles of roads in California. Some of the most beneficial projects would include improving nearly 2,000 miles of urban and 1,200 miles of rural Interstates.
- Delays in repairing roads cause costs to rise substantially. As roads are maintained and fixed before they need major reconstruction work, total maintenance costs for Caltrans and local governments will decrease by an average of \$18 million per year, or \$183 million over 10 years.

Benefits for California Businesses

The reduced costs in travel time and operating costs for truck drivers in California will be significant as improvements are made to the highway network.

Freight trucks account for about 12 percent of all miles traveled on California's Interstate Highway System, according to data from the Federal Highway Administration (FHWA). Truck shipments account for nearly 72 percent of the \$1.6 trillion in domestic freight that moves through California each year.

The cost of highway freight bottlenecks reached \$6.2 billion in 2019.

Additional benefits from strategic road improvements would add up to nearly \$15.1 billion in savings over ten years for the nearly 15 million private and commercial trucks registered in the state.

The importance of a robust transportation network has been well documented by business analysts, economists, and the research community.¹ Overall estimates are that every \$1 increase in the highway, street and bridge capital stock generates a total of 30 cents in business savings.²

In addition to these savings, California businesses would see additional benefits. Some of these specific benefits include:

■ **Access to Labor**

Investment in highway, street, bridge, and transit allows businesses to benefit from an expanded labor pool of specialized workers, which means access to more productive employees. Investing in a high-quality transit system specifically allows density to develop and business clusters to grow.³ Downtown office district locations, which are often focused on financial services and related business sectors, usually coincide with the location of higher availability and usage of public transportation.⁴

■ **Increased Market Share & More Customers**

California businesses can reach a greater pool of customers. Local industries will benefit from these larger markets and reduced transaction costs.⁵

■ **Business Expansion**

Reducing congestion has an impact on shipping volumes and prices, with a rate of return of about 10 percent a year, as a conservative estimate.⁶ Lower transport costs also have a quantifiable effect on firm choices with respect to suppliers and relatively improve firm hiring ability.

■ **Increase in Demand for Inputs**

As the economy expands, businesses will purchase more goods from their suppliers and will increase their demand for private capital. This includes buying more vehicles, equipment, office supplies or even building new plants and factories.⁷

■ **Reducing Production Costs**

Economic studies show that reduced costs for inputs is one of the main business benefits from an increase in transportation investment. Typically, businesses pay less for inputs when they have access to larger markets.⁸

■ **Agglomeration Economies**

Firms benefit by locating near one another, even if they are competitors. This is known as the agglomeration of market activity. This happens because a group of firms will attract a greater number of suppliers and customers than one company alone. Lower transportation costs are a key factor for agglomeration and will be important in attracting new firms to an area.⁹

¹ Glen Weisbrod, Don Very, & George Treyz, "Measuring Economic Costs of Urban Traffic Congestion to Business."

² Nadiri, M. Ishaq and Theofanis P. Mamuneas, "Contribution of Highway Capital to Output and Productivity Growth in the U.S. Economy and Industries," Federal Highway Administration, 1998.

³ Daniel Graham, "Agglomeration Economies and Transport Investments," Imperial College, December 2007.

⁴ Weisbrod, 20.

⁵ McQuaid, 29.

⁶ Zhigang Li and Yu Chen, "Estimating the Social Return to Transport Infrastructure: A Price-Difference Approach Applied to a Quasi-Experiment," 2013, *Journal of Comparative Economics*, Vol. 41 (3), pp. 669-683.

⁷ The magnitude of the effect of highway capital on output will differ by industry, with the largest difference observed between manufacturing and non-manufacturing industries.

⁸ It is an industry standard to use elasticities of supply and demand for materials as a measure of the impact of a change in transportation infrastructure investment. Based on a study conducted by the FHWA, the output elasticity of materials is usually the largest. The elasticity of labor and capital inputs is the second largest.

⁹ Jean-Paul Rodrigue, "Transport and Location," *The Geography of Transport Systems*, 2017, <<https://people.hofstra.edu/geotrans/eng/ch2en/conc2en/ch2c4en.html>>.

Agglomeration effects are seen in public transportation as well, with clustering of economic activity around station stops. This clustering results in a smaller distance that California residents must travel to access job opportunities. Subsequently, job seekers can expand the geographic area in which they can search for jobs, making a greater number of jobs available to them.¹⁰ Additionally, by locating near public transit, businesses save money since they can build less parking infrastructure. A Washington Metropolitan Area Transit Authority study estimates that building parking for the federal employees who take the Metro instead each day will cost the government \$2.4 billion.¹¹

■ **More Efficient Operations**

With an efficient transportation system, businesses can make better decisions about their products, inputs, and workforce without worrying about poor roadways or congestion. Businesses respond in a variety of ways to congestion. Some businesses may change their mix of labor and capital, reduce the daily deliveries made by a driver or serve a smaller, more specialized market. All these adjustments can mean a loss for business productivity and market share.¹²

■ **Fostering Innovation**

Transportation infrastructure investment is closely linked with economic competitiveness. Research suggests that highway investment results in industry growth and innovation.¹³ Innovation results from infrastructure better supporting business activity. Infrastructure also attracts research and development firms for the large return on investment it offers.

In addition to business benefits, households also see significant benefits from transit investment:

■ **Reducing Household Expenditures**

Research by the American Public Transportation Association (APTA) estimates that a two-car family living in a transit-rich area can eliminate one of its vehicles, saving over \$9,900 a year. These savings are significant to families, and will likely shift household spending to more productive uses, which will in turn stimulate the local economy.¹⁴ The Center for Neighborhood Technology also found that households that have access to high quality public transit spend less on housing and transportation as a percentage of their income.¹⁵

In addition, Weisbrod and Reno (2009) estimate that each person traveling by public transportation generates cost savings to both themselves and drivers of \$1,505 to \$2,455 per year. The average public transportation user who does not drive saves about \$905 per year in costs (in 2008 dollars). Additionally, non-transit users will see a benefit from reduced congestion of \$1.20 to \$3.10 per public transportation trip, or \$600 to \$1,550 per year.¹⁶

¹⁰ Anthony Venables, "Evaluating Urban Transport Improvements: Cost-Benefit Analysis in the Presence of Agglomeration and Income Taxation," September 2004.

¹¹ "Making the Case for Transit: WMATA Regional Benefits of Transit," WMATA, November 2011: 4.

¹² Weisbrod, 4.

¹³ Katherine Bell. "Investing in Infrastructure Means Investing in Innovation." *Harvard Business Review*, March 2012. In 2011, researchers at the University of Texas A&M found a critical link between the forecasted growth of the industry and investment in the transportation infrastructure system, using standard supply and demand analysis (Rosson 2011)

¹⁴ APTA, "Commuters Who Resolve to Save Money in 2012 Take Note: Transit Riders Save More As Gas Prices Increase."

¹⁵ "Penny Wise, Pound Foolish," *Center for Neighborhood Technology*, March 2010.

¹⁶ Glen Weisbrod and Arlee Reno, "Economic Impact of Public Transportation Investment," APTA, October 2009.

- **Increasing Access to Jobs, Particularly for Disadvantaged Residents**

Investment in public transportation provides better and more consistent access to jobs, particularly for service and entry level employees with limited mobility options, as well as the more than 51 million Americans with disabilities. Eighty three percent of older Americans say public transit provides them with easy access to everyday necessities.¹⁷

- **Travel Time Savings for Transit Users**

An increase in more direct or frequent service will mean transit users spend less time waiting and have faster travel times for their commute or travel.

- **Benefits of Decreased Congestion & Improved Reliability**

With an improved system, more residents will use the transit system. This will result in fewer cars on the roads, and therefore less congestion for households traveling by car and by bus. A reduction in congestion levels has a positive effect on air quality, the quality of life and household costs, as cars waste less gasoline by idling in traffic. Workers benefit from a more reliable commute.

Transportation Investment and Economic Development

In the longer-run, the overall economic benefits of transportation investment to a state's economic activity are well documented in the economics literature. There are numerous studies that have found a positive correlation between transportation infrastructure investment and economic development. Although the exact impact of the investment has varied among studies, the fact that there is a positive relationship is widely accepted.¹⁸

Some of the main findings include:

- A recent paper by Ian Herzog published in the Journal of Urban Economics found that improving a county's market access through **connections to the Interstate Highway System increased employment and income in the long run**. He concludes that "highways improved market access in counties that would have otherwise grown less than average."¹⁹
- A long-run analysis conducted by the American Public Transportation Association estimates that higher investment in public transportation over a 20-year period adds an additional **\$5 billion in GDP per \$1 billion invested annually**. This is from long-term cost savings and investment spending effects.

¹⁷ APTA, "Economic Recovery: Promoting Growth."

¹⁸ Economic studies have found output elasticities ranging from as high as 0.56 (Aschauer 1989) to a low of 0.04 (Garcia-Mila and McGuire 1992). This means that a 1 percent increase in highway investment will result in between 0.04 to 0.56 percent increase in output. Most of this variation is because studies have a different focus—looking at different types of investment measures and output at either the national, state or county level.

¹⁹ Ian Herzog, "National Transportation Networks, Market Access, and Regional Economic Growth," Journal of Urban Economics, Vol 122, March 2021.

- A 2020 working paper by Treb Allen and Costas Arkolakis, of the National Bureau of Economic Research, found improvements on the U.S. Interstate Highway System are “well-worth the investment” with an **average return of over 108 percent**. They noted that there was a wide variance based on the location of the investment, with some returns on individual segments higher than 400 percent.²⁰
- A study commissioned by the U.S. Treasury Department found that for every **\$1 in capital spent on select projects, the net economic benefit ranged between \$3.50 and \$7.00**.²¹ Released in December 2016, “40 Proposed U.S. Transportation and Water Infrastructure Projects of Major Economic Significance” also explores some of the challenges of completing the work. The report found that a lack of public funding was “by far the most common factor hindering the completion” of the projects.
- A 2005 report by Dr. Robert Shapiro and Dr. Kevin Hassett found that the U.S. transportation network provides more than **\$4 in direct benefits for every \$1 in direct costs** that taxpayers pay to build, operate, and maintain this system.²²
- According to an analysis by TRIP, a national transportation research group, the average **return to every \$1 spent on highway, street and bridge investment is \$5.20**, which takes the form of lower maintenance costs, fewer delays, improved safety, and less congestions. This analysis is based on the U.S. Department of Transportation’s Conditions and Performance Report.
- A study by Dr. Alicia Munnell of the Federal Reserve Bank of Boston concluded that states that invested more in infrastructure tended to have greater output, more private investment, and more employment growth.²³ Her work found that a **1 percent increase in public capital will raise national output by 0.15 percent**.²⁴
- Federal Highway Administration economist Theresa Smith reached similar conclusions, finding that a **10 percent increase in highway capital stock will increase a state’s gross state product by 1.2 to 1.3 percent**.²⁵ This means a \$1 billion increase in California’s highway capital stock will increase state productivity between \$1.21 million to \$1.27 million.
- Additional studies have found that transportation infrastructure investments have an impact on the attractiveness of local communities, which helps determine local economic activity and land values. In general, most studies find that locations close to large transportation infrastructure investment have higher land values.²⁶

Overall, the benefits from investing to maintain and improve a state’s transportation network are greater than the cost and can help support economic growth throughout the economy for years to come.

²⁰ Treb Allen & Costas Arkolakis, “The Welfare Effects of Transportation Infrastructure Improvements,” National Bureau of Economic Research, Working Paper 25487, December 2020.

²¹ Report available at <https://www.treasury.gov/connect/blog/Pages/Importance-of-Infrastructure-Investment-for-Spurring-Growth-.aspx> as of February 2017.

²² R. Shapiro and K. Hassett, “Healthy Returns: The Economic Impact of Public Investment in Surface Transportation,” 2005.

²³ Alicia Munnell, “How Does Public Infrastructure Affect Regional Economic Performance,” *New England Economic Review*, September/October 1990.

²⁴ Munnell’s elasticity for private capital is 0.31, so that a 1 percent increase in private capital will raise national output by 0.31 percent. This is in line with other studies of returns from private capital investment.

²⁵ Theresa Smith, “The Impact of Highway Infrastructure on Economic Performance,” *Public Roads* Vol. 57 – No. 4 (Spring 1994).

²⁶ A synopsis of these studies are available in the Transportation Research Board’s *Expanding Metropolitan Highways: Implications for Air Quality and Energy Use – Special Report 245*, 1995

III. Economic Impact of Highway, Street, Bridge & Transit Investment on Major Industry Sectors

Highway, street, bridge, and transit investment has an impact across all sectors of the California economy. This comes from spending on capital projects, system upgrades, maintenance, administration, research, safety, and other spending that supports the operation, maintenance, and upgrades to the transportation system.

The following section calculates the economic impact of highway, street, bridge, and transit investment for major industry sectors in the state.

These sectors include:

Accommodation and Food Services

The Accommodation and Food Services sector comprises establishments providing customers with lodging and/or preparing meals, snacks, and beverages for immediate consumption.

Administrative and Support and Waste Management and Remediation Services

The Administrative and Support and Waste Management and Remediation Services sector comprises establishments performing routine support activities for the day-to-day operations of other organizations.

Agriculture, Forestry, Fishing, and Hunting

The Agriculture, Forestry, Fishing and Hunting sector comprises establishments primarily engaged in growing crops, raising animals, harvesting timber, and harvesting fish and other animals from a farm, ranch, or their natural habitats.

Arts, Entertainment, and Recreation

The Arts, Entertainment, and Recreation sector includes a wide range of establishments that operate facilities or provide services to meet varied cultural, entertainment, and recreational interests of their patrons.

Construction

Construction sector comprises establishments primarily engaged in the construction of buildings or engineering projects (e.g., highways and utility systems).

Educational Services

The Educational Services sector comprises establishments that provide instruction and training in a wide variety of subjects.

Finance and Insurance

The Finance and Insurance sector comprises establishments primarily engaged in financial transactions (transactions involving the creation, liquidation, or change in ownership of financial assets) and/or in facilitating financial transactions.

Health Care and Social Assistance

The Health Care and Social Assistance sector comprises establishments providing health care and social assistance for individuals.

Information

The Information sector comprises establishments engaged in the following processes: (a) producing and distributing information and cultural products, (b) providing the means to transmit or distribute these products as well as data or communications, and (c) processing data.

Management of Companies and Enterprises

The Management of Companies and Enterprises sector comprises (1) establishments that hold the securities of (or other equity interests in) companies and enterprises for the purpose of owning a controlling interest or influencing management decisions or (2) establishments (except government establishments) that administer, oversee, and manage establishments of the company or enterprise and that normally undertake the strategic or organizational planning and decision-making role of the company or enterprise.

Manufacturing

Manufacturing sector comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products.

Mining

Mining, Quarrying, and Oil and Gas Extraction sector comprises establishments that extract naturally occurring mineral solids, such as coal and ores; liquid minerals, such as crude petroleum; and gases, such as natural gas.

Other Services

The Other Services (except Public Administration) sector comprises establishments engaged in providing services not specifically provided for elsewhere in the classification system.

Professional, Scientific, and Technical Services

The Professional, Scientific, and Technical Services sector comprises establishments that specialize in performing professional, scientific, and technical activities for others.

Real Estate and Rental and Leasing

The Real Estate and Rental and Leasing sector comprises establishments primarily engaged in renting, leasing, or otherwise allowing the use of tangible or intangible assets, and establishments providing related services.

Retail Trade

Retail Trade sector comprises establishments engaged in retailing merchandise, generally without transformation, and rendering services incidental to the sale of merchandise.

Transportation and Warehousing

The Transportation and Warehousing sector include industries providing transportation of passengers and cargo, warehousing and storage for goods, scenic and sightseeing transportation, and support activities related to modes of transportation.

Utilities

Utilities sector comprises establishments engaged in the provision of the following utility services: electric power, natural gas, steam supply, water supply, and sewage removal.

Wholesale Trade

Wholesale Trade sector comprises establishments engaged in wholesaling merchandise, generally without transformation, and rendering services incidental to the sale of merchandise.

Total Economic Impact of Highway, Bridge, Street & Transit Investment in California

Industry	Impact on Industry Output (in millions)	Jobs Supported or Created (job-years)	Earnings (in millions)	Tax Revenues (in millions)
Accommodation and Food Services	\$18,220	249,384	\$5,844	\$6,859
Administrative and waste management services	\$24,500	336,985	\$10,600	\$10,930
Agriculture, forestry, fishing, and hunting	\$2,590	20,201	\$758	\$653
Arts, entertainment, and recreation	\$5,850	66,816	\$1,883	\$1,253
Construction	\$192,700	986,656	\$61,900	\$40,840
Educational services	\$4,870	71,145	\$2,300	\$1,688
Finance and insurance	\$56,220	226,026	\$15,360	\$5,397
Health care and social assistance	\$31,640	299,698	\$14,530	\$12,570
Information	\$23,690	67,070	\$5,275	\$1,636
Management of companies and enterprises	\$7,975	29,144	\$3,343	\$1,120
Manufacturing	\$95,730	256,402	\$17,470	\$6,636
Mining	\$11,200	26,483	\$1,998	\$625
Other services	\$237,100	915,857	\$57,720	\$12,690
Professional, scientific, and technical services	\$50,880	312,754	\$22,540	\$12,080
Real estate and rental and leasing	\$68,190	364,188	\$10,970	\$10,010
Retail trade	\$34,020	402,717	\$12,300	\$10,530
Transportation and warehousing	\$109,600	2,203,764	\$46,750	\$72,780
Utilities	\$9,499	12,348	\$1,460	\$180
Wholesale trade	\$30,660	142,839	\$9,847	\$3,712
Total industry impact	\$1,015,134	6,990,478	\$302,848	\$212,189

Average Annual Economic Impact of Highway, Bridge, Street & Transit Investment in California

Industry	Impact on Industry Output (in millions)	Jobs Supported or Created	Earnings (in millions)	Tax Revenues (in millions)
Accommodation and Food Services	\$1,822	24,938	\$584	\$686
Administrative and waste management services	\$2,450	33,698	\$1,060	\$1,093
Agriculture, forestry, fishing, and hunting	\$259	2,020	\$76	\$65
Arts, entertainment, and recreation	\$585	6,682	\$188	\$125
Construction	\$19,270	98,666	\$6,190	\$4,084
Educational services	\$487	7,115	\$230	\$169
Finance and insurance	\$5,622	22,603	\$1,536	\$540
Health care and social assistance	\$3,164	29,970	\$1,453	\$1,257
Information	\$2,369	6,707	\$528	\$164
Management of companies and enterprises	\$798	2,914	\$334	\$112
Manufacturing	\$9,573	25,640	\$1,747	\$664
Mining	\$1,120	2,648	\$200	\$62
Other services	\$23,710	91,586	\$5,772	\$1,269
Professional, scientific, and technical services	\$5,088	31,275	\$2,254	\$1,208
Real estate and rental and leasing	\$6,819	36,419	\$1,097	\$1,001
Retail trade	\$3,402	40,272	\$1,230	\$1,053
Transportation and warehousing	\$10,960	220,376	\$4,675	\$7,278
Utilities	\$950	1,235	\$146	\$18
Wholesale trade	\$3,066	14,284	\$985	\$371
Total industry impact	\$101,513	699,048	\$30,285	\$21,219

Accommodation and Food Services

Highway, street, bridge, and transit investment in California will support \$18 billion in business output for this industry over the next decade.

This sector currently includes 88,427 establishments that employ 1,734,535 people in California. These employees earn \$47 billion in wages.

The average annual economic activity supported by highway, street, bridge, and transit investment include:

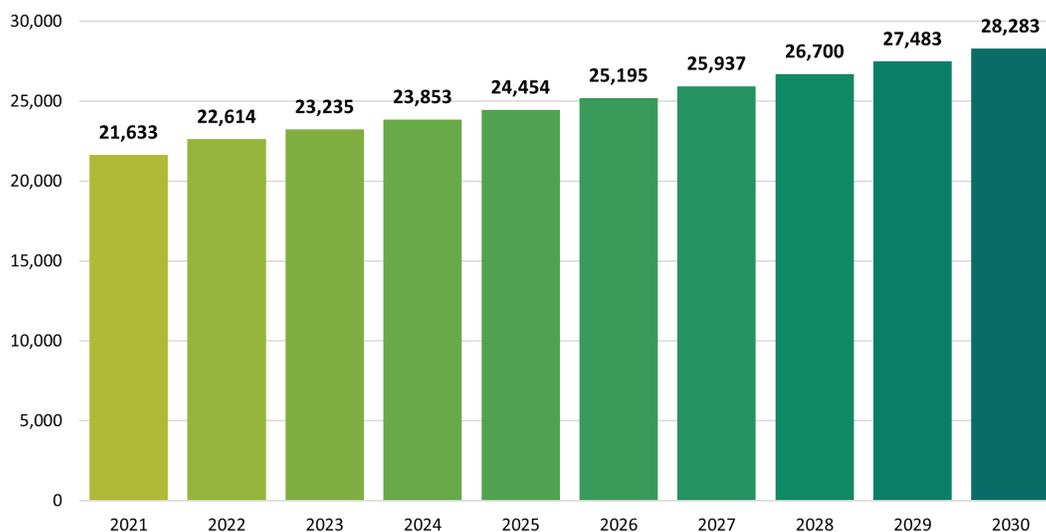
- \$1.8 million in business output
- \$1.0 million in gross state product (GSP)
- 24,938 jobs either supported or created
- \$685.9 million in federal, state, and local tax revenue

Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area's infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Accommodation and Food Services sector comprises establishments providing customers with lodging and/or repairing meals, snacks, and beverages for immediate consumption.

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$1.8 billion	\$18.2 billion
GSP	\$1.0 billion	\$10.1 billion
Employment	24,938 jobs	249,384 jobs-years*
Payroll	\$584.4 million	\$5.8 billion
Tax Revenue	\$685.9 million	\$6.9 billion

Accommodation and Food Services: Industry Jobs Supported by Highway, Street, Bridge, & Transit Investment



*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Administrative and Waste Management Services

Highway, street, bridge, and transit investment in California will support \$25 billion in business output for this industry over the next decade.

This sector currently includes 54,826 establishments that employ 1,139,794 people in California. These employees earn \$55 billion in wages.

The average annual economic activity supported by highway, street, bridge, and transit investment include:

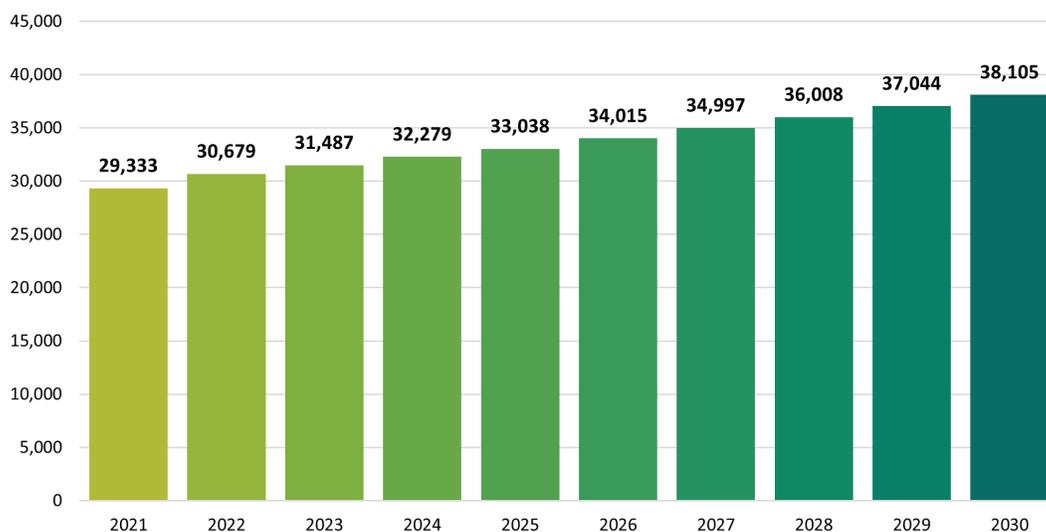
- \$2.5 billion in business output
- \$1.5 billion in gross state product (GSP)
- 33,698 jobs either supported or created
- \$1.1 billion in federal, state, and local tax revenue

Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area's infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Administrative and Support and Waste Management and Remediation Services sector comprises establishments performing routine support activities for the day-to-day operations of other organizations.

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$2.5 billion	\$24.5 billion
GSP	\$1.5 billion	\$15.4 billion
Employment	33,698 jobs	336,985 jobs-years*
Payroll	\$1.1 billion	\$10.6 billion
Tax Revenue	\$1.1 billion	\$10.9 billion

Administrative and Waste Management Services: Industry Jobs Supported by Highway, Street, Bridge, & Transit Investment



*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Agriculture, Forestry, Fishing, and Hunting

Highway, street, bridge, and transit investment in California will support \$3 billion in business output for this industry over the next decade.

This sector currently includes 16,874 establishments that employ 423,250 people in California. These employees earn \$15 billion in wages.

The average annual economic activity supported by highway, street, bridge, and transit investment include:

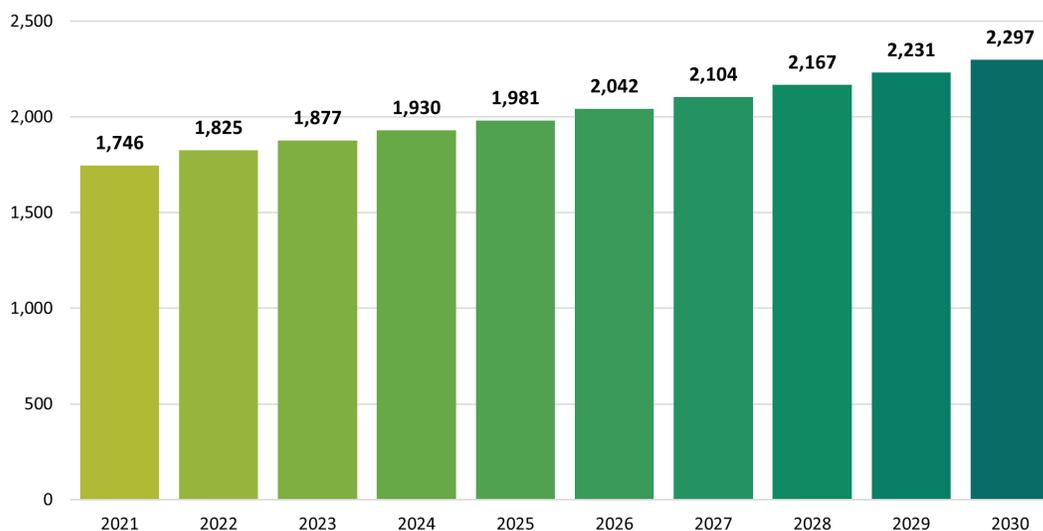
- \$259.0 million in business output
- \$125.4 million in gross state product (GSP)
- 2,020 jobs either supported or created
- \$65.3 million in federal, state, and local tax revenue

Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area's infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Agriculture, Forestry, Fishing and Hunting sector comprises establishments primarily engaged in growing crops, raising animals, harvesting timber, and harvesting fish and other animals from a farm, ranch, or their natural habitats.

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$259.0 million	\$2.6 billion
GSP	\$125.4 million	\$1.3 billion
Employment	2,020 jobs	20,201 jobs-years*
Payroll	\$75.8 million	\$758.4 million
Tax Revenue	\$65.3 million	\$653.1 million

Agriculture, Forestry, Fishing, and Hunting: Industry Jobs Supported by Highway, Street, Bridge, & Transit Investment



*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Arts, Entertainment, and Recreation

Highway, street, bridge, and transit investment in California will support \$6 billion in business output for this industry over the next decade.

This sector currently includes 28,343 establishments that employ 385,029 people in California. These employees earn \$23 billion in wages.

The average annual economic activity supported by highway, street, bridge, and transit investment include:

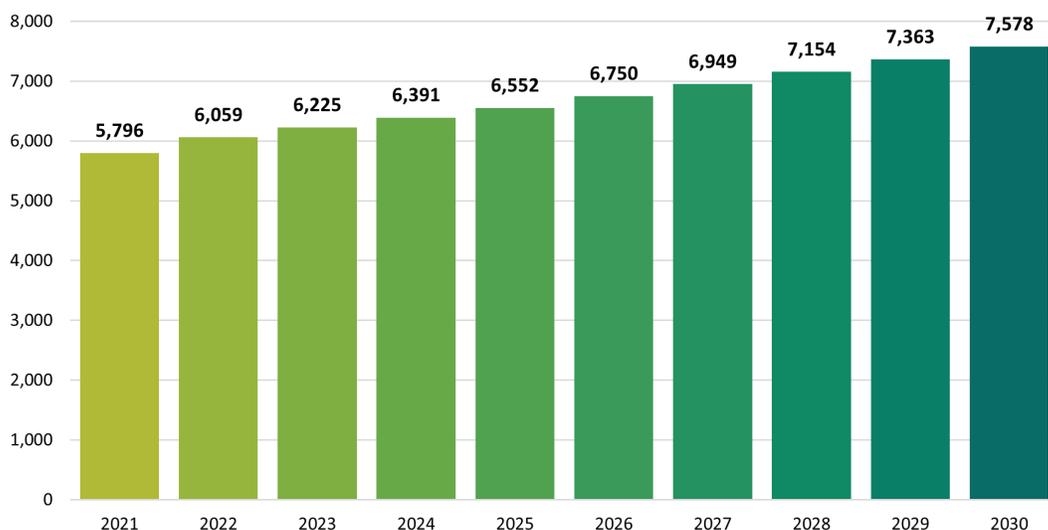
- \$585.0 million in business output
- \$337.7 million in gross state product (GSP)
- 6,682 jobs either supported or created
- \$125.3 million in federal, state, and local tax revenue

Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area's infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Arts, Entertainment, and Recreation sector includes a wide range of establishments that operate facilities or provide services to meet varied cultural, entertainment, and recreational interests of their patrons.

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$585.0 million	\$5.9 billion
GSP	\$337.7 million	\$3.4 billion
Employment	6,682 jobs	66,816 jobs-years*
Payroll	\$188.3 million	\$1.9 billion
Tax Revenue	\$125.3 million	\$1.3 billion

Arts, Entertainment, and Recreation: Industry Jobs Supported by Highway, Street, Bridge, & Transit Investment



*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Construction

Highway, street, bridge, and transit investment in California will support \$193 billion in business output for this industry over the next decade.

This sector currently includes 84,354 establishments that employ 895,918 people in California. These employees earn \$66 billion in wages.

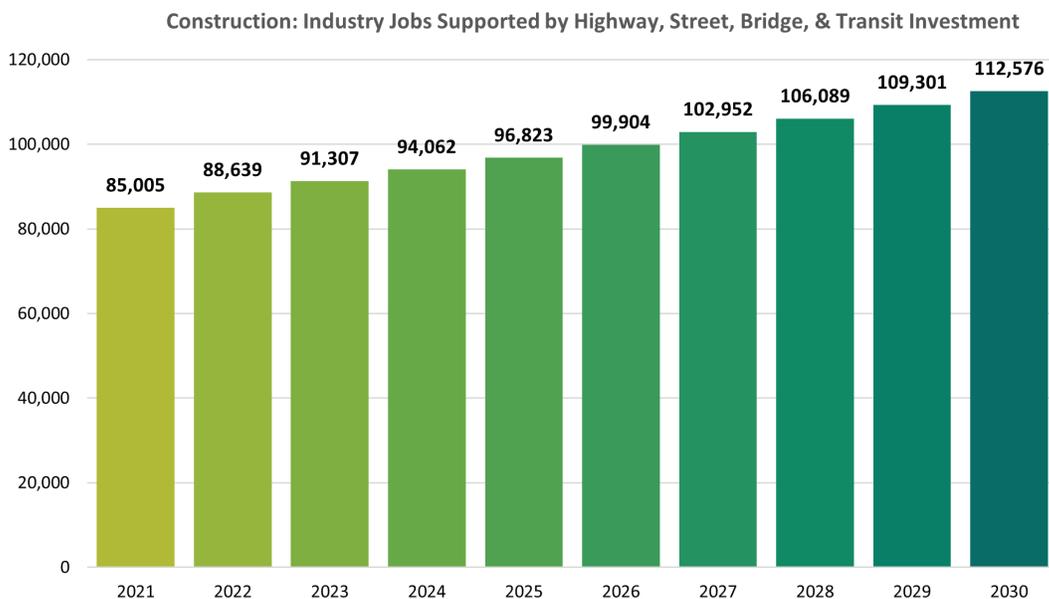
The average annual economic activity supported by highway, street, bridge, and transit investment include:

- \$19.3 million in business output
- \$10.2 million in gross state product (GSP)
- 98,666 jobs either supported or created
- \$4.1 million in federal, state, and local tax revenue

Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area's infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Construction sector comprises establishments primarily engaged in the construction of buildings or engineering projects (e.g., highways and utility systems).

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$19.3 billion	\$192.7 billion
GSP	\$10.2 billion	\$101.9 billion
Employment	98,666 jobs	986,656 jobs-years*
Payroll	\$6.2 billion	\$61.9 billion
Tax Revenue	\$4.1 billion	\$40.8 billion



*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Educational Services

Highway, street, bridge, and transit investment in California will support \$5 billion in business output for this industry over the next decade.

This sector currently includes 33,957 establishments that employ 1,465,230 people in California. These employees earn \$88 billion in wages.

The average annual economic activity supported by highway, street, bridge, and transit investment include:

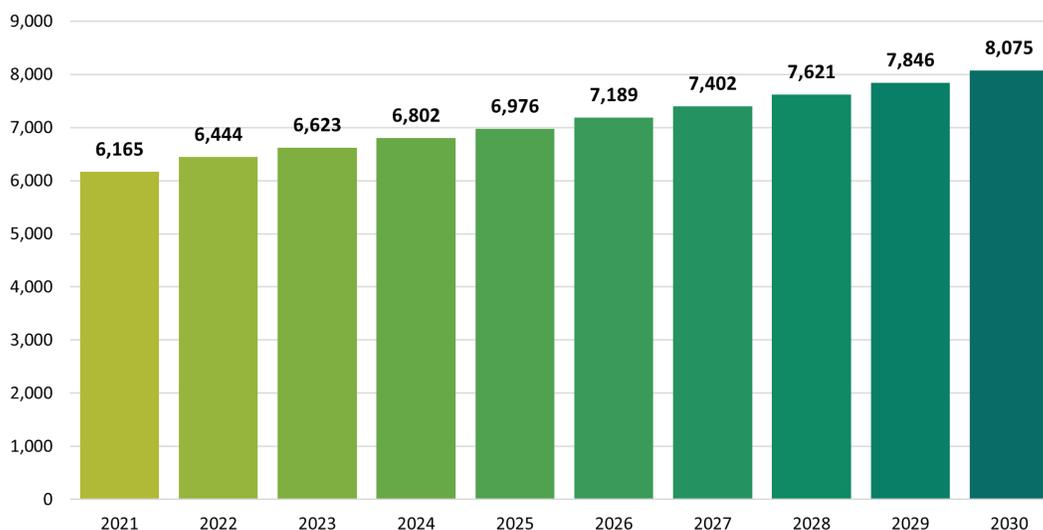
- \$487.0 million in business output
- \$297.8 million in gross state product (GSP)
- 7,115 jobs either supported or created
- \$168.8 million in federal, state, and local tax revenue

Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area's infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Educational Services sector comprises establishments that provide instruction and training in a wide variety of subjects.

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$487.0 million	\$4.9 billion
GSP	\$297.8 million	\$3.0 billion
Employment	7,115 jobs	71,145 jobs-years*
Payroll	\$230.0 million	\$2.3 billion
Tax Revenue	\$168.8 million	\$1.7 billion

Educational Services: Industry Jobs Supported by Highway, Street, Bridge, & Transit Investment



*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Finance and Insurance

Highway, street, bridge, and transit investment in California will support \$56 billion in business output for this industry over the next decade.

This sector currently includes 52,404 establishments that employ 543,174 people in California. These employees earn \$73 billion in wages.

The average annual economic activity supported by highway, street, bridge, and transit investment include:

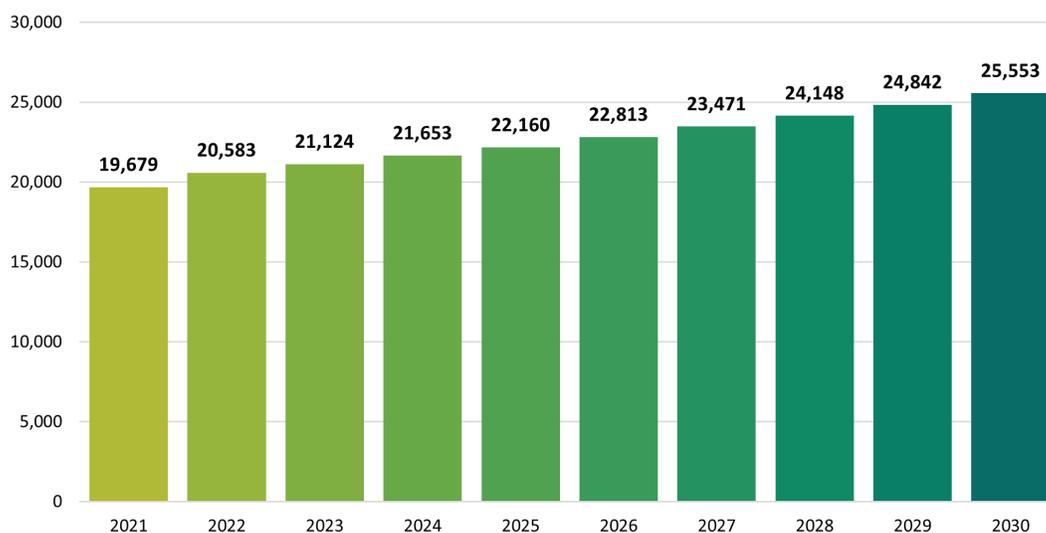
- \$5.6 billion in business output
- \$2.9 billion in gross state product (GSP)
- 22,603 jobs either supported or created
- \$539.7 million in federal, state, and local tax revenue

Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area's infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Finance and Insurance sector comprises establishments primarily engaged in financial transactions (transactions involving the creation, liquidation, or change in ownership of financial assets) and/or in facilitating financial transactions.

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$5.6 billion	\$56.2 billion
GSP	\$2.9 billion	\$28.8 billion
Employment	22,603 jobs	226,026 jobs-years*
Payroll	\$1.5 billion	\$15.4 billion
Tax Revenue	\$539.7 million	\$5.4 billion

Finance and Insurance: Industry Jobs Supported by Highway, Street, Bridge, & Transit Investment



*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Health Care and Social Assistance

Highway, street, bridge, and transit investment in California will support \$32 billion in business output for this industry over the next decade.

This sector currently includes 625,130 establishments that employ 2,611,256 people in California. These employees earn \$147 billion in wages.

The average annual economic activity supported by highway, street, bridge, and transit investment include:

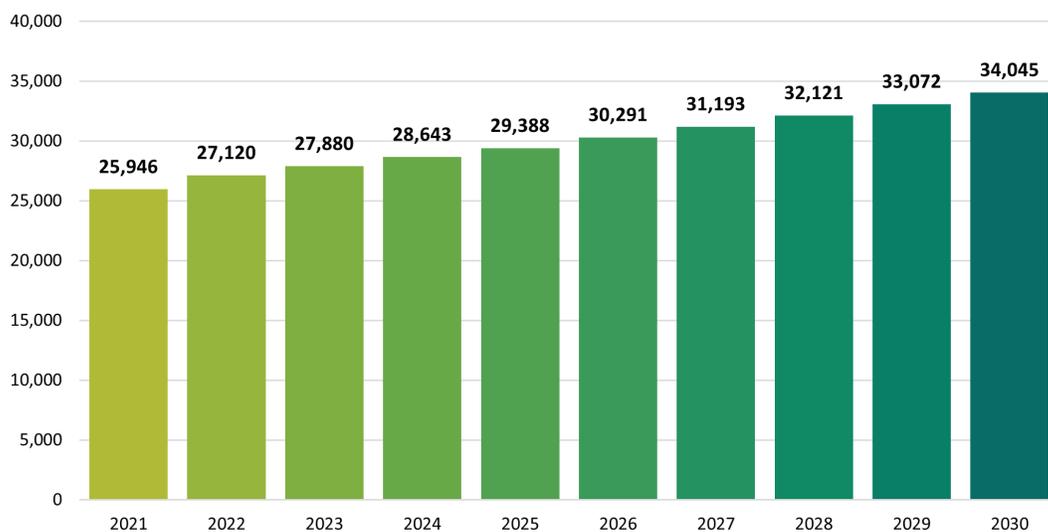
- \$3.2 billion in business output
- \$1.9 billion in gross state product (GSP)
- 29,970 jobs either supported or created
- \$1.3 billion in federal, state, and local tax revenue

Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area’s infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Health Care and Social Assistance sector comprises establishments providing health care and social assistance for individuals.

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$3.2 billion	\$31.6 billion
GSP	\$1.9 billion	\$18.9 billion
Employment	29,970 jobs	299,698 jobs-years*
Payroll	\$1.5 billion	\$14.5 billion
Tax Revenue	\$1.3 billion	\$12.6 billion

Health Care and Social Assistance: Industry Jobs Supported by Highway, Street, Bridge, & Transit Investment



*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Information

Highway, street, bridge, and transit investment in California will support \$24 billion in business output for this industry over the next decade.

This sector currently includes 28,745 establishments that employ 564,777 people in California. These employees earn \$106 billion in wages.

The average annual economic activity supported by highway, street, bridge, and transit investment include:

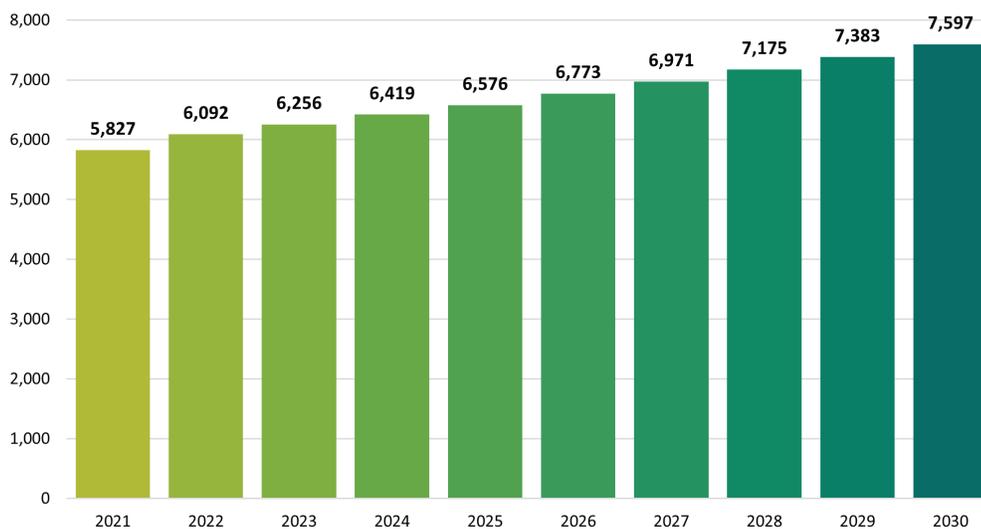
- \$2.4 billion in business output
- \$1.4 billion in gross state product (GSP)
- 6,707 jobs either supported or created
- \$163.6 million in federal, state, and local tax revenue

Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area's infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Information sector comprises establishments engaged in the following processes: (a) producing and distributing information and cultural products, (b) providing the means to transmit or distribute these products as well as data or communications, and (c) processing data.

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$2.4 billion	\$23.7 billion
GSP	\$1.4 billion	\$13.5 billion
Employment	6,707 jobs	67,070 jobs-years*
Payroll	\$527.5 million	\$5.3 billion
Tax Revenue	\$163.6 million	\$1.6 billion

Information: Industry Jobs Supported by Highway, Street, Bridge, & Transit Investment



*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Management of Companies and Enterprises

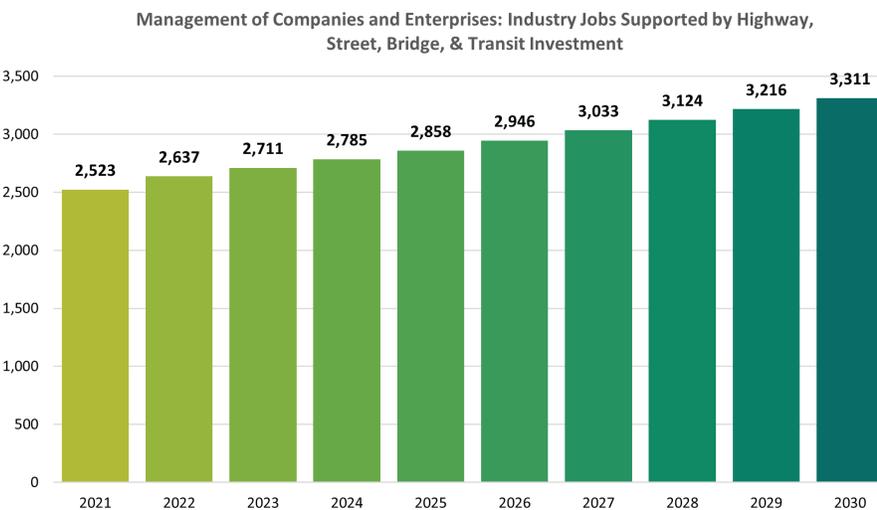
Highway, street, bridge, and transit investment in California will support \$8 billion in business output for this industry over the next decade.

This sector currently includes 4,702 establishments that employ 255,434 people in California. These employees earn \$35 billion in wages.

The average annual economic activity supported by highway, street, bridge, and transit investment include:

- \$797.5 million in business output
- \$479.5 million in gross state product (GSP)
- 2,914 jobs either supported or created
- \$112.0 million in federal, state, and local tax revenue

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$797.5 million	\$8.0 billion
GSP	\$479.5 million	\$4.8 billion
Employment	2,914 jobs	29,144 jobs-years*
Payroll	\$334.3 million	\$3.3 billion
Tax Revenue	\$112.0 million	\$1.1 billion



Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area’s infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Management of Companies and Enterprises sector comprises (1) establishments that hold the securities of (or other equity interests in) companies and enterprises for the purpose of owning a controlling interest or influencing management decisions or (2) establishments (except government establishments) that administer, oversee, and manage establishments of the company or enterprise and that normally undertake the strategic or organizational planning and decision making role of the company or enterprise.

*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Manufacturing

Highway, street, bridge, and transit investment in California will support \$96 billion in business output for this industry over the next decade.

This sector currently includes 44,542 establishments that employ 1,322,456 people in California. These employees earn \$130 billion in wages.

The average annual economic activity supported by highway, street, bridge, and transit investment include:

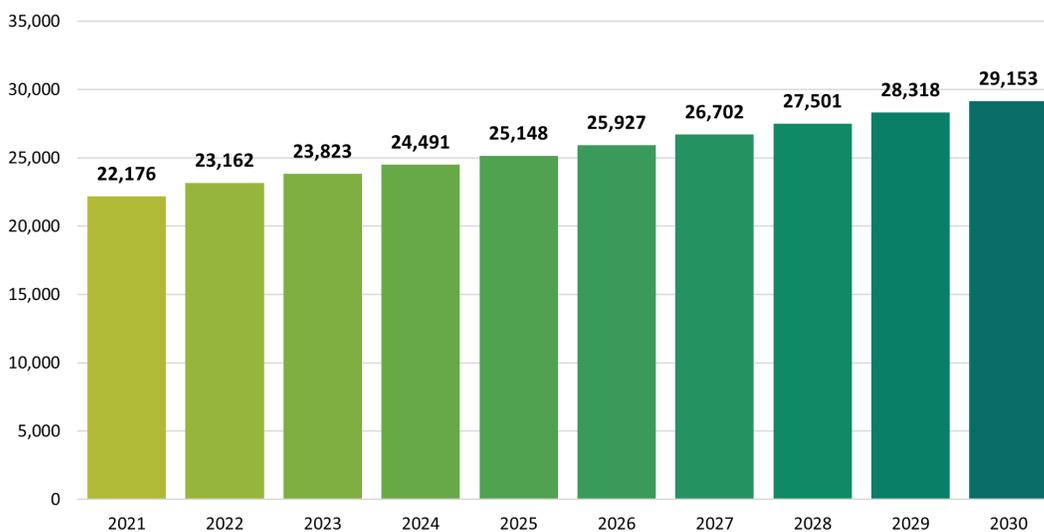
- \$9.6 billion in business output
- \$3.2 billion in gross state product (GSP)
- 25,640 jobs either supported or created
- \$663.6 million in federal, state, and local tax revenue

Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area's infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Manufacturing sector comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products.

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$9.6 billion	\$95.7 billion
GSP	\$3.2 billion	\$31.5 billion
Employment	25,640 jobs	256,402 jobs-years*
Payroll	\$1.7 billion	\$17.5 billion
Tax Revenue	\$663.6 million	\$6.6 billion

Manufacturing: Industry Jobs Supported by Highway, Street, Bridge, & Transit Investment



*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Mining

Highway, street, bridge, and transit investment in California will support \$11 billion in business output for this industry over the next decade.

This sector currently includes 797 establishments that employ 20,331 people in California. These employees earn \$3 billion in wages.

The average annual economic activity supported by highway, street, bridge, and transit investment include:

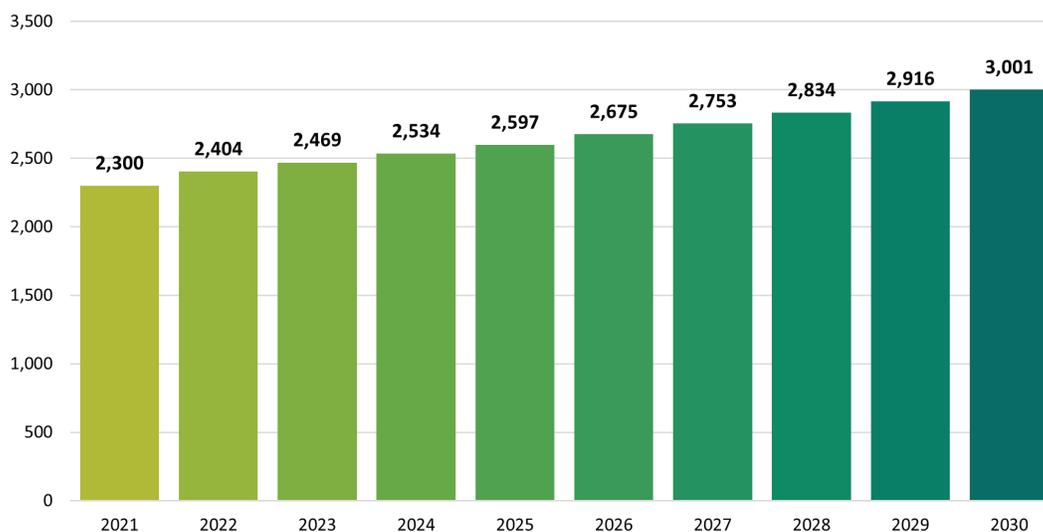
- \$1.1 million in business output
- \$767.2 million in gross state product (GSP)
- 2,648 jobs either supported or created
- \$62.5 million in federal, state, and local tax revenue

Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area’s infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Mining, Quarrying, and Oil and Gas Extraction sector comprises establishments that extract naturally occurring mineral solids, such as coal and ores; liquid minerals, such as crude petroleum; and gases, such as natural gas.

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$1.1 billion	\$11.2 billion
GSP	\$767.2 million	\$7.7 billion
Employment	2,648 jobs	26,483 jobs-years*
Payroll	\$199.8 million	\$2.0 billion
Tax Revenue	\$62.5 million	\$624.7 million

Mining: Industry Jobs Supported by Highway, Street, Bridge, & Transit Investment



*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Other Services

Highway, street, bridge, and transit investment in California will support \$237 billion in business output for this industry over the next decade.

This sector currently includes 97,721 establishments that employ 554,042 people in California. These employees earn \$24 billion in wages.

The average annual economic activity supported by highway, street, bridge, and transit investment include:

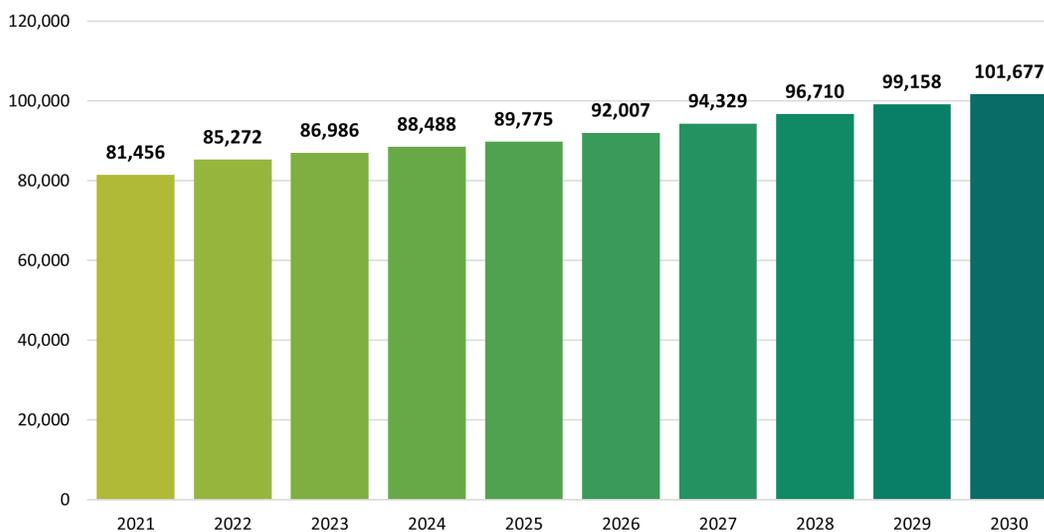
- \$23.7 million in business output
- \$10.2 million in gross state product (GSP)
- 91,586 jobs either supported or created
- \$1.3 million in federal, state, and local tax revenue

Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area's infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Other Services (except Public Administration) sector comprises establishments engaged in providing services not specifically provided for elsewhere in the classification system.

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$23.7 billion	\$237.1 billion
GSP	\$10.2 billion	\$101.7 billion
Employment	91,586 jobs	915,857 jobs-years*
Payroll	\$5.8 billion	\$57.7 billion
Tax Revenue	\$1.3 billion	\$12.7 billion

Other Services: Industry Jobs Supported by Highway, Street, Bridge, & Transit Investment



*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Professional, Scientific, and Technical Services

Highway, street, bridge, and transit investment in California will support \$51 billion in business output for this industry over the next decade.

This sector currently includes 156,534 establishments that employ 1,346,746 people in California. These employees earn \$172 billion in wages.

The average annual economic activity supported by highway, street, bridge, and transit investment include:

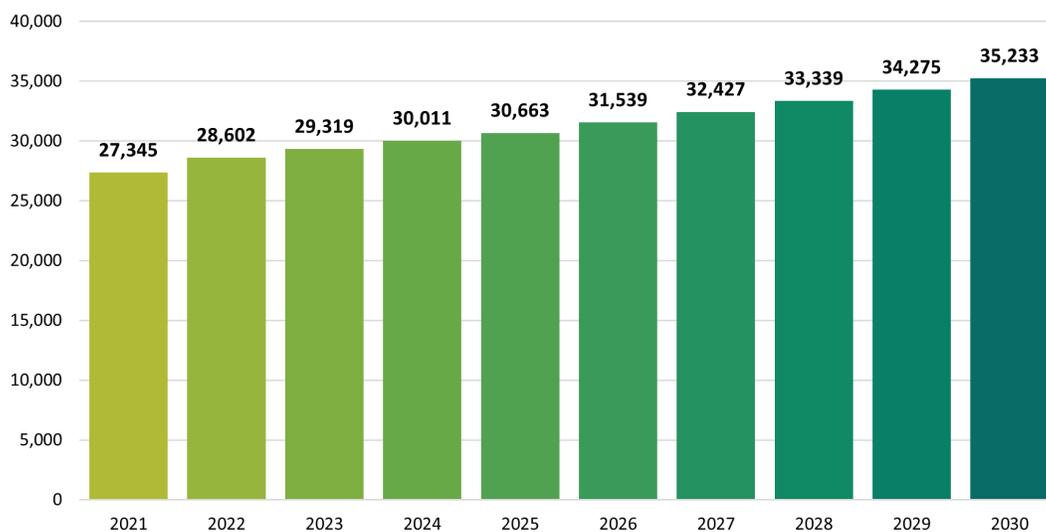
- \$5.1 billion in business output
- \$3.1 billion in gross state product (GSP)
- 31,275 jobs either supported or created
- \$1.2 billion in federal, state, and local tax revenue

Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area’s infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Professional, Scientific, and Technical Services sector comprises establishments that specialize in performing professional, scientific, and technical activities for others.

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$5.1 billion	\$50.9 billion
GSP	\$3.1 billion	\$31.4 billion
Employment	31,275 jobs	312,754 jobs-years*
Payroll	\$2.3 billion	\$22.5 billion
Tax Revenue	\$1.2 billion	\$12.1 billion

Professional, Scientific, and Technical Services: Industry Jobs Supported by Highway, Street, Bridge, & Transit Investment



*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Real Estate and Rental and Leasing

Highway, street, bridge, and transit investment in California will support \$68 billion in business output for this industry over the next decade.

This sector currently includes 57,712 establishments that employ 304,981 people in California. These employees earn \$22 billion in wages.

The average annual economic activity supported by highway, street, bridge, and transit investment include:

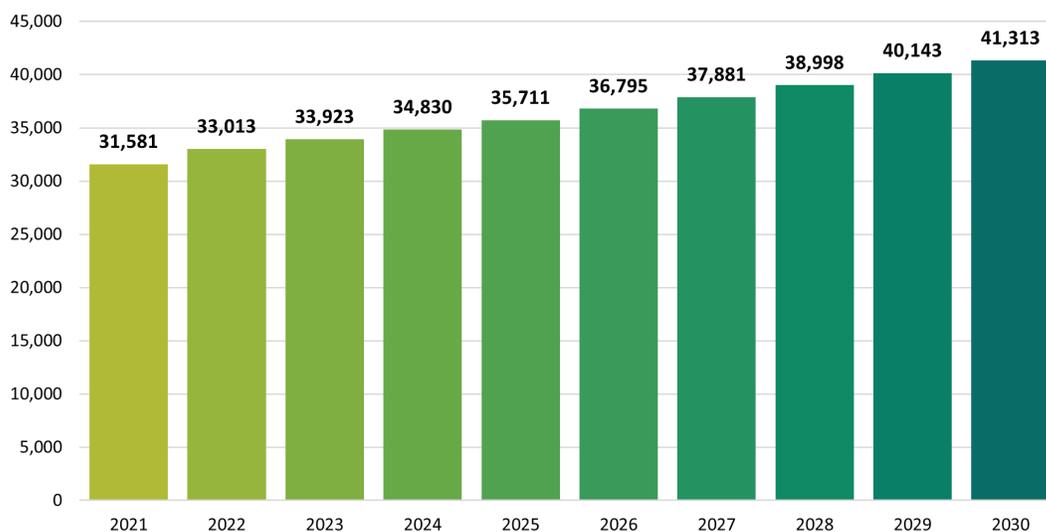
- \$6.8 million in business output
- \$4.8 million in gross state product (GSP)
- 36,419 jobs either supported or created
- \$1.0 million in federal, state, and local tax revenue

Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area’s infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Real Estate and Rental and Leasing sector comprises establishments primarily engaged in renting, leasing, or otherwise allowing the use of tangible or intangible assets, and establishments providing related services.

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$6.8 billion	\$68.2 billion
GSP	\$4.8 billion	\$47.5 billion
Employment	36,419 jobs	364,188 jobs-years*
Payroll	\$1.1 billion	\$11.0 billion
Tax Revenue	\$1.0 billion	\$10.0 billion

Real Estate and Rental and Leasing: Industry Jobs Supported by Highway, Street, Bridge, & Transit Investment



*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Retail Trade

Highway, street, bridge, and transit investment in California will support \$34 billion in business output for this industry over the next decade.

This sector currently includes 106,100 establishments that employ 1,664,775 people in California. These employees earn \$63 billion in wages.

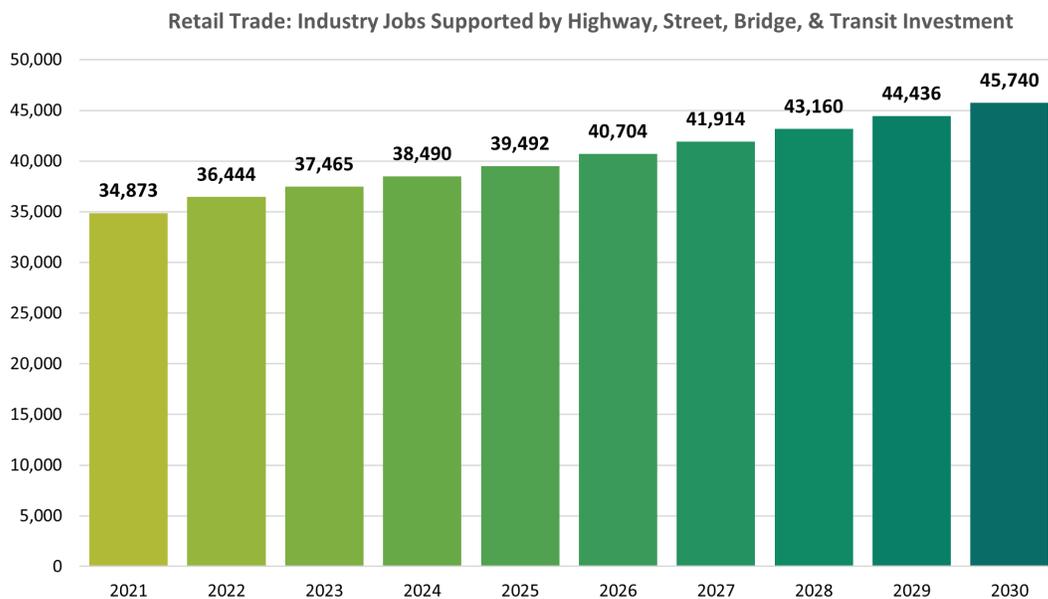
The average annual economic activity supported by highway, street, bridge, and transit investment include:

- \$3.4 million in business output
- \$2.2 million in gross state product (GSP)
- 40,272 jobs either supported or created
- \$1.1 million in federal, state, and local tax revenue

Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area’s infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Retail Trade sector comprises establishments engaged in retailing merchandise, generally without transformation, and rendering services incidental to the sale of merchandise.

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$3.4 billion	\$34.0 billion
GSP	\$2.2 billion	\$22.5 billion
Employment	40,272 jobs	402,717 jobs-years*
Payroll	\$1.2 billion	\$12.3 billion
Tax Revenue	\$1.1 billion	\$10.5 billion



*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Transportation and Warehousing

Highway, street, bridge, and transit investment in California will support \$110 billion in business output for this industry over the next decade.

This sector currently includes 28,699 establishments that employ 746,599 people in California. These employees earn \$48 billion in wages.

The average annual economic activity supported by highway, street, bridge, and transit investment include:

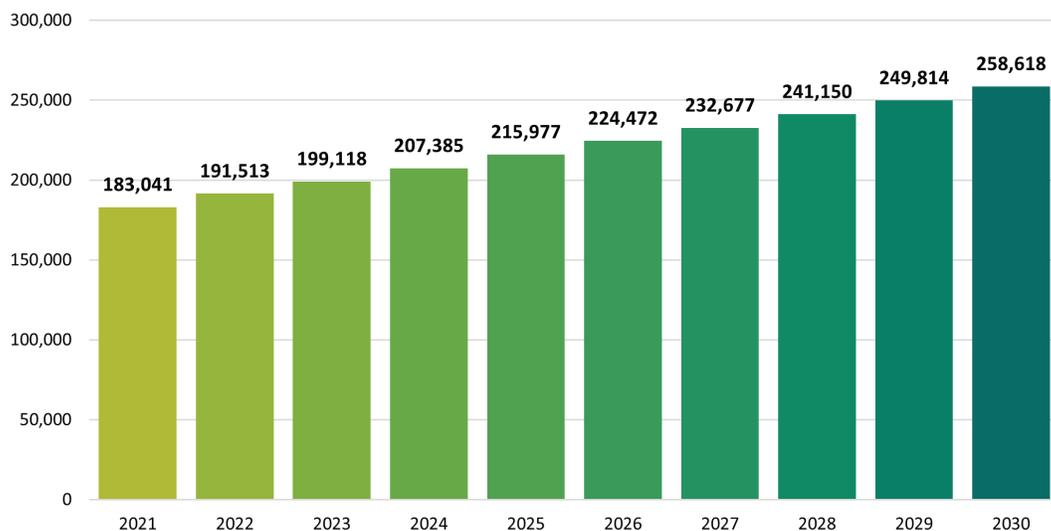
- \$11.0 billion in business output
- \$5.1 billion in gross state product (GSP)
- 220,376 jobs either supported or created
- \$7.3 million in federal, state, and local tax revenue

Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area’s infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Transportation and Warehousing sector includes industries providing transportation of passengers and cargo, warehousing and storage for goods, scenic and sightseeing transportation, and support activities related to modes of transportation.

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$11.0 billion	\$109.6 billion
GSP	\$5.1 billion	\$51.0 billion
Employment	220,376 jobs	2,203,764 jobs-years*
Payroll	\$4.7 billion	\$46.8 billion
Tax Revenue	\$7.3 billion	\$72.8 billion

Transportation and Warehousing: Industry Jobs Supported by Highway, Street, Bridge, & Transit Investment



*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Utilities

Highway, street, bridge, and transit investment in California will support \$9 billion in business output for this industry over the next decade.

This sector currently includes 2,010 establishments that employ 106,095 people in California. These employees earn \$13 billion in wages.

The average annual economic activity supported by highway, street, bridge, and transit investment include:

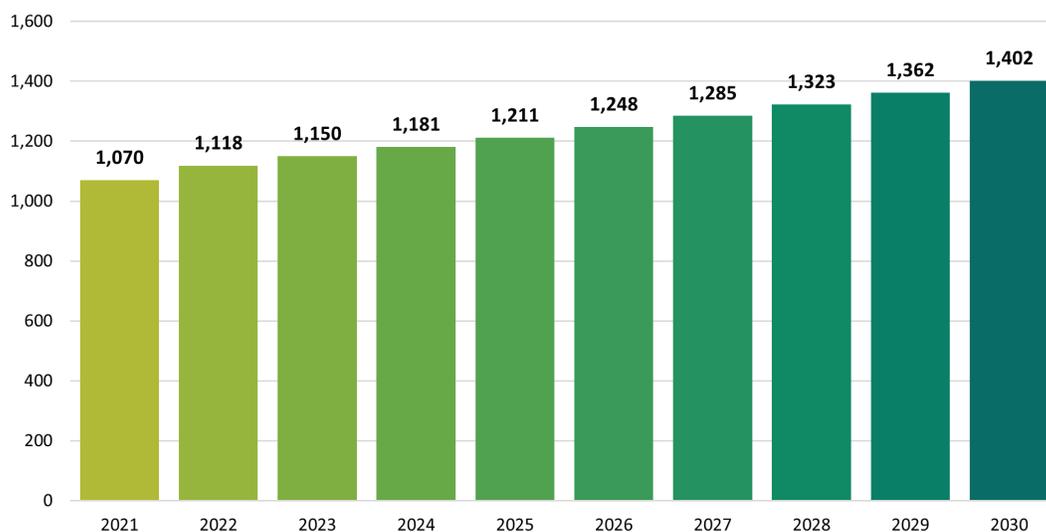
- \$949.9 million in business output
- \$498.0 million in gross state product (GSP)
- 1,235 jobs either supported or created
- \$18.0 million in federal, state, and local tax revenue

Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area's infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Utilities sector comprises establishments engaged in the provision of the following utility services: electric power, natural gas, steam supply, water supply, and sewage removal.

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$949.9 million	\$9.5 billion
GSP	\$498.0 million	\$5.0 billion
Employment	1,235 jobs	12,348 jobs-years*
Payroll	\$146.0 million	\$1.5 billion
Tax Revenue	\$18.0 million	\$180.4 million

Utilities: Industry Jobs Supported by Highway, Street, Bridge, & Transit Investment



*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Wholesale Trade

Highway, street, bridge, and transit investment in California will support \$31 billion in business output for this industry over the next decade.

This sector currently includes 64,801 establishments that employ 694,227 people in California. These employees earn \$56 billion in wages.

The average annual economic activity supported by highway, street, bridge, and transit investment include:

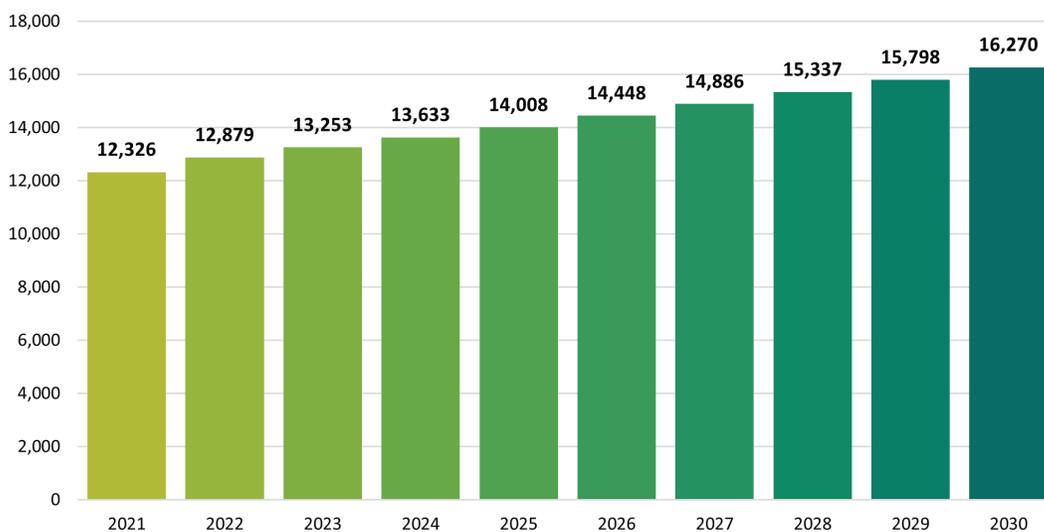
- \$3.1 billion in business output
- \$2.1 billion in gross state product (GSP)
- 14,284 jobs either supported or created
- \$371.2 million in federal, state, and local tax revenue

Highway, street, bridge, and transit investment has a positive economic impact on this sector in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building, maintaining, and operating the area's infrastructure systems. The second effect is when employees of transportation and supplier firms spend their wages and make purchases throughout the economy.

The Wholesale Trade sector comprises establishments engaged in wholesaling merchandise, generally without transformation, and rendering services incidental to the sale of merchandise.

	Average Annual Impact	Total Economic Impact, 10 Years
Business Output	\$3.1 billion	\$30.7 billion
GSP	\$2.1 billion	\$20.8 billion
Employment	14,284 jobs	142,839 jobs-years*
Payroll	\$984.7 million	\$9.8 billion
Tax Revenue	\$371.2 million	\$3.7 billion

Wholesale Trade: Industry Jobs Supported by Highway, Street, Bridge, & Transit Investment



*A job-year of employment is defined as employment for one person for one year. Thus, this number will include people whose jobs are supported over multiple years. For example, if a person is hired in this sector and remains in her position for five years, this is counted as five job-years.

Methodology and Sources

This report uses the U.S. Department of Commerce Regional Input–Output Modeling System (RIMS II) and the Federal Highway Administration’s Highway Economic Reporting System (HERS–ST) to quantify short and long–run economic benefits of transportation investment in California. RIMS II is based on input output (I–O) tables. For a given industry, the I–O tables show the industrial distribution of inputs purchased and outputs sold. In this analysis, four separate multipliers specific to California were used to estimate the impacts of highway, street, bridge, and transit construction and non–construction investment.

According to the U.S. Department of Commerce, RIMS multipliers have been used to estimate such things as the regional impact of military base closings, tourist expenditures, new energy facilities, offshore drilling and the opening or closing of manufacturing plants and other facilities. These multipliers are also used frequently to analyze the impact of new construction projects, including transportation construction.

Current investment levels are based on expenditure data from the California state budget, the Federal Highway Administration’s (FHWA) Highway Statistics Series, and the Federal Transit Administration’s (FTA) National Transit Database. Future spending levels are assumed to increase in line with revenue estimates from the California Transportation Commission, the federal–aid surface transportation program, and local government revenues. Breaking the state spending down to the county and regional investment levels is based on a combination of historical spending in each location and planned expenditures in the SHOPP and STIP. Tax revenue estimates are based on historical per employee tax contributions by industry and location for federal, state, and local income, business, corporate, and sales and use taxes, using data from the U.S. Census Bureau and the California Department of Tax and Fee Administration.

The FHWA HERS–ST model is used to estimate highway investment needs for California, using the same modeling techniques as those employed by FHWA when preparing the Needs and Conditions Report on the nation’s transportation infrastructure. HERS–ST selects a set of optimal improvements based on funding constraints over a given time–period to the state roads that are part of the federal aid system. Thus, the results are illustrative, and one example of possible user benefits based on the most optimal investments. All data used in the HERS–ST model is submitted by Caltrans to FHWA as part of the Highway Performance Monitoring System. Benefits are extrapolated to account for additional state and local investment.

Baseline employment and establishment data for each industry is from the U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages.