

# CALIFORNIA

# TRANSPORTATION



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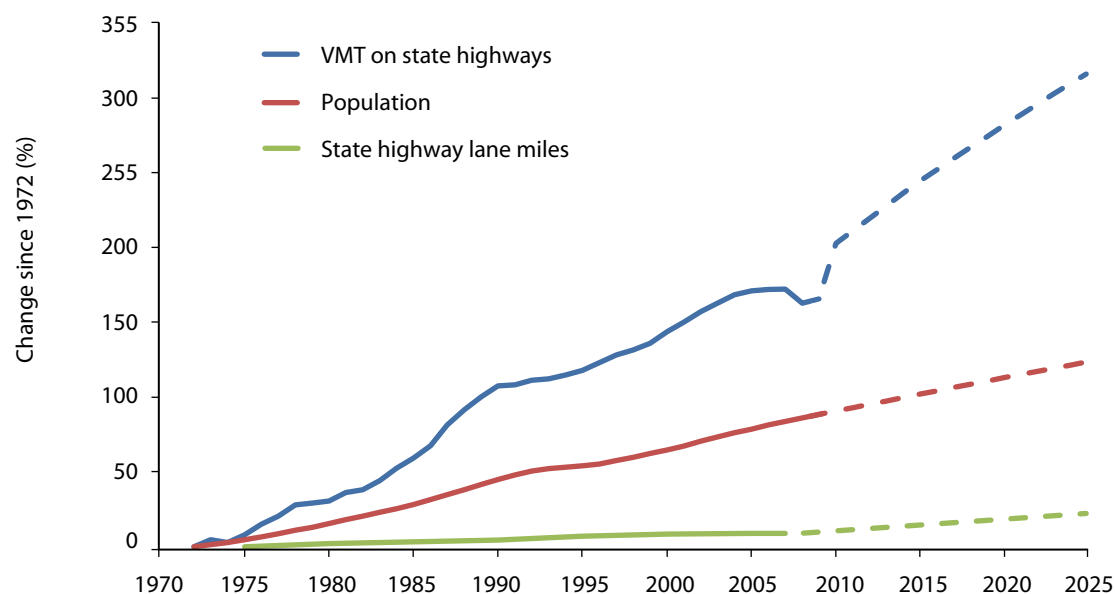
## CALIFORNIA MUST REDUCE POLLUTION, IMPROVE MOVEMENT OF PEOPLE AND GOODS

California's love affair with the car is legendary. But the state suffers from some of the worst air quality in the nation, and transportation is a major culprit. Not only is it the state's largest source of greenhouse gas (GHG) emissions, it also contributes the most smog-forming pollutants to the air, causing high rates of respiratory illness.

The state is not ignoring this problem. For instance, California must reduce smog-forming emissions to bring its regions into compliance with federal and state air quality standards. In addition, the transportation sector is expected to generate the largest reductions in GHGs under California's plan for meeting the targets established in the Global Warming Solutions Act of 2006 (Assembly Bill 32). Both reductions will demand great changes from the transportation sector.

On state highways in the coming decades, vehicle miles traveled (VMT) are expected to continue to outstrip population growth under "business as usual" scenarios. In addition, goods movement on California's roads, spurred by the growth in port traffic, will continue to contribute significantly to the growth in VMT. Meanwhile, the number of state highway lane miles grew by only 6 percent between 1980 and 2006, contributing to increased congestion in the state's metropolitan areas. Congestion not only costs the economy in lost time, but by raising fuel consumption it also contributes to higher emissions.

## DESPITE A RECENT DECLINE, VMT ARE PROJECTED TO RISE FASTER THAN POPULATION



SOURCES: VMT and highway lane mile data are from Caltrans and population data are from the California Department of Finance. NOTE: Dashed lines indicate projections.

Declining revenues from traditional funding sources (notably the gas tax) have hampered the state's ability to invest in transportation networks. Looking ahead, California needs to reduce the environmental effects of the transportation sector while improving mobility. To achieve both goals simultaneously, technological, organizational, and funding innovations will be needed.

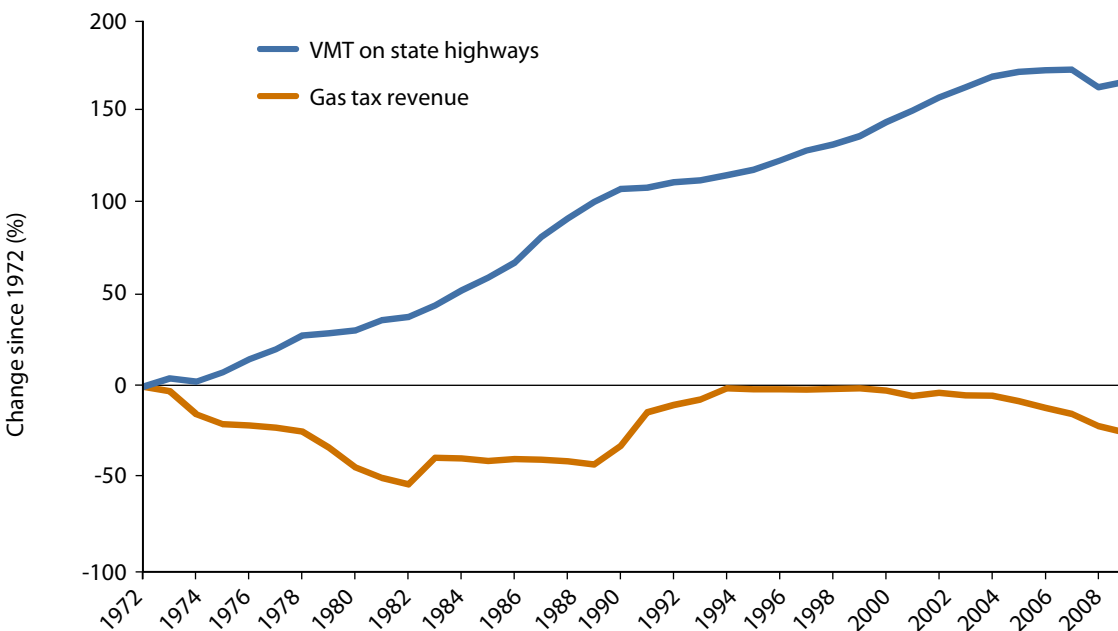
### **PAYING FOR TRANSPORTATION INVESTMENTS IS A GROWING CHALLENGE**

Accommodating growth in transportation demand will require new investments in roads and other transportation alternatives, particularly public transit. New infrastructure will also be needed as the state explores new fuel and technology options. But California's transportation funding system is broken. Although general obligation bonds and federal stimulus funds can help in the near term, new funding strategies will be needed to meet future demands.

- **Gas taxes can no longer fund all transportation needs.**

California's gas tax has been \$0.18 per gallon since 1994, yet raising it is politically difficult. User fees such as the gas tax provide multiple benefits—in addition to raising revenues, they encourage more efficient use of infrastructure, thereby lowering overall investment needs and reducing harmful emissions. Surveys indicate that high fuel costs affect driving patterns and may influence vehicle purchase decisions, suggesting that the public weighs its choices differently when driving costs are higher. And transit ridership increases when driving costs are higher.

### **FUEL TAX REVENUE HAS NOT KEPT PACE WITH THE INCREASE IN HIGHWAY USE**



SOURCES: Gasoline and diesel sales data are from the California Department of Finance and VMT estimates are from Caltrans.

- **Local agencies have filled some of the gap with sales taxes.**

Nineteen counties now use county sales taxes to support local road and transit projects. Sales taxes are a useful stop-gap measure, but they do not provide the same incentives as user fees, because everyone pays irrespective of how much they use transportation infrastructure.

- **State general obligation bonds have also become a major revenue source.**

In 2006, Californians approved \$20 billion in state general obligation bonds for transportation projects. Although useful, this is not a durable source of funding, because it puts pressure on the state's General Fund without increasing revenues. As with county sales taxes, general obligation bonds, which are repaid through general tax revenues, do not provide incentives to use facilities more efficiently.

- **Toll roads can raise revenues while managing congestion.**

New electronic toll collection (ETC) technology makes it possible to collect fees for actual miles traveled—an improvement over the gas tax. Transportation experts foresee widespread use of this technology within one to two decades. In the near term, ETC facilitates the expanded use of “express” or HOT (high-occupancy toll) lanes on California's highways. On these roads, solo drivers can pay to drive in the less-congested managed lanes, which carpoolers and buses use free. Several express lanes in Southern California have already proved successful, and many more are planned both there and in the Bay Area.

### **CONGESTION CHALLENGES: LAGGING INVESTMENTS AND LOW PUBLIC TRANSIT RIDERSHIP**

- **California's cities consistently rank among the most congested in the nation.**

The Los Angeles metropolitan area has been at the top of the list for over a decade, and the San Francisco Bay Area is not far behind. Traffic delays have also been on the rise in the rapidly growing inland areas of the state. Californians living in all of these areas routinely identify traffic congestion as a major problem. Reducing bottlenecks can save time and lessen the environmental effects of driving, since fuel use and emissions are generally higher when traffic is backed up. Investment per VMT on state highways declined 79 percent between 1965 and 1980 and has remained relatively constant since then.

- **Public transit has not caught on.**

The share of the workforce commuting on public transit in the state's four largest metropolitan areas barely increased from 5.5 percent in 1990 to 5.6 percent in 2006, despite the introduction and expansion of several light rail and commuter rail systems.

### **REDUCING EMISSIONS IS THE KEY TO MEETING STATE ENVIRONMENTAL GOALS**

Emissions of hydrocarbons and oxides of nitrogen contribute to smog formation. Greenhouse gas emissions contribute to global warming. Although some strategies can reduce both types of pollutants (such as electric vehicles powered with clean sources), others can lead to conflicts (for example, some biofuels reduce GHGs but increase smog).

California is a leader in designing policies to reduce emissions from transportation sources. Many states have chosen to follow California's emissions standards for passenger vehicles, which are more stringent than federal standards. More recently, the state has launched programs to limit emissions by reducing the carbon content of transportation fuels and by encouraging people to drive less.

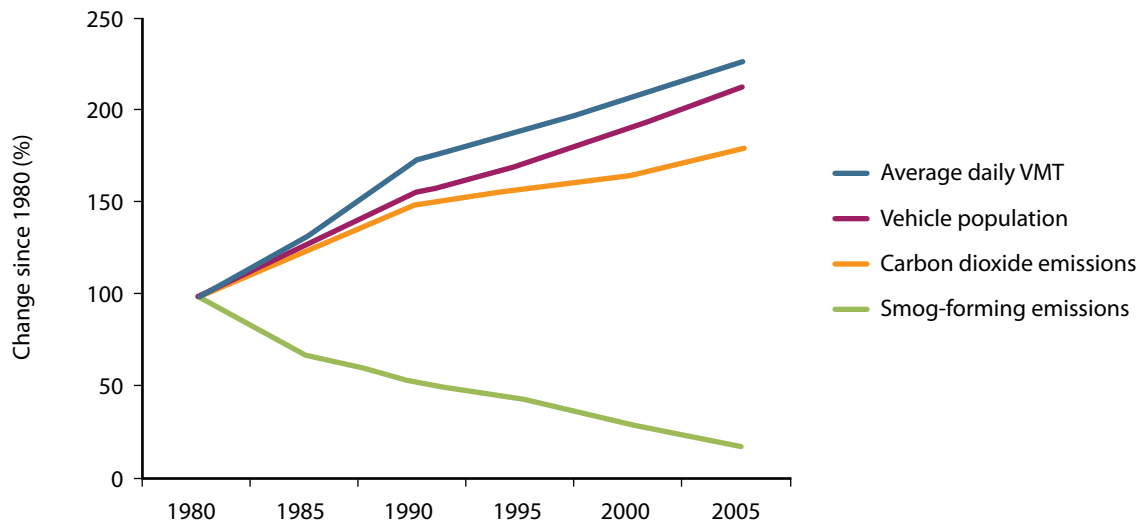
- **California's passenger vehicle regulations have helped reduce smog.**

The state's Low Emission Vehicle programs have been very successful in reducing smog-forming emissions from passenger vehicles. Even as vehicle miles traveled have increased, these emissions have been reduced substantially. These improvements are largely attributable to improved vehicle emissions control technology. However, greenhouse gas emissions from passenger vehicles have increased as VMT and the vehicle stock have grown. New regulations will reduce GHG emissions from new passenger vehicles by 30 percent by 2016.

- **Passenger vehicles are no longer the biggest polluters.**

Heavy-duty vehicles (trucks and buses) and off-road sources (construction equipment, trains, farm equipment, and the like) are now the largest contributors to transportation-related smog-forming emissions. These sources have been less-regulated than passenger vehicles, and their emissions have been growing. A leading source of growth is

## SMOG-FORMING EMISSIONS HAVE DECLINED, BUT GHG EMISSIONS HAVE CONTINUED TO INCREASE



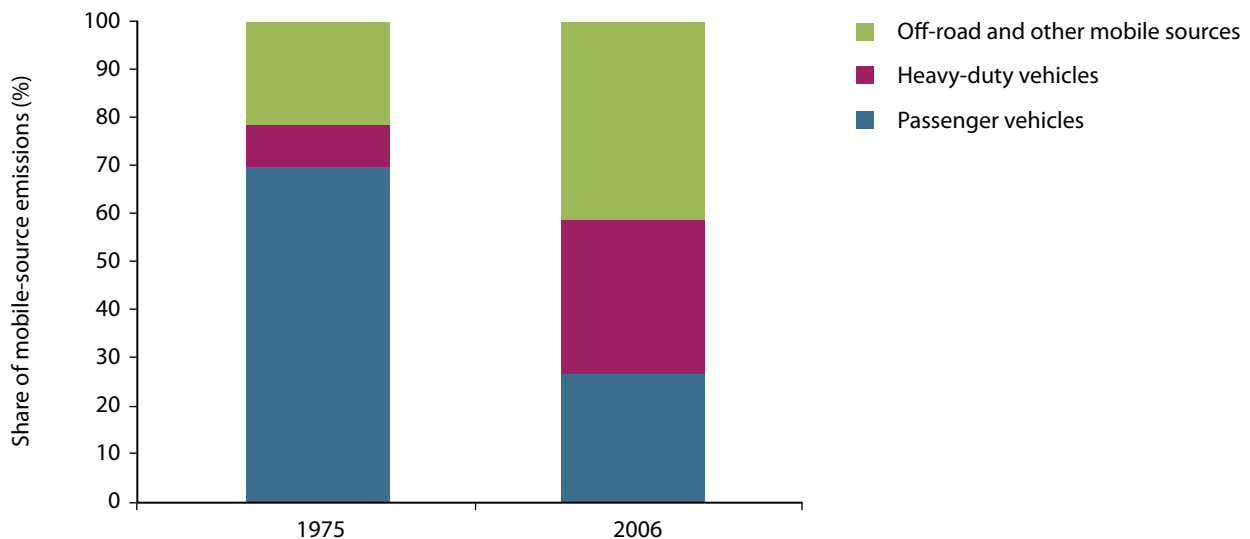
SOURCES: Vehicle population data are from the California Air Resources Board, 2009 Almanac. Emissions and VMT data are from the state's mobile source emission factor model. NOTES: All data are for passenger vehicles only. Carbon dioxide is the predominant greenhouse gas emitted by vehicles.

increased goods movement through the state's ports and along its freeways. New regulations set tighter emission standards for on- and off-road heavy-duty vehicles, and efforts are under way to reduce emissions from the state's ports.

- **New fuels can reduce emissions from the entire vehicle fleet.**

California is developing a low-carbon fuel standard. Some of these fuels, such as blends of gas or diesel with sustainable biofuels, can be used in existing cars and trucks, which would immediately reduce GHGs. Others, such as electricity, will require new types of vehicles. The transition to low-carbon fuels will likely require investment in new refueling infrastructure.

## HEAVY-DUTY AND OFF-ROAD SOURCES NOW CONTRIBUTE 80 PERCENT OF SMOG-FORMING EMISSIONS



SOURCE: Emissions data are from the California Air Resources Board. NOTE: Graph includes transportation emissions only.

- **Groundbreaking new legislation encourages regional action.**

Under Senate Bill 375, the California Air Resources Board is adopting regional greenhouse gas emission reduction targets for 2020 and 2035. The targets will be finalized by late September 2010 and will be met through reductions in VMT. These reductions can be achieved through changes in land use, investments in transit and other alternatives to driving, and pricing programs that discourage driving.

- **Californians support the state's efforts to limit emissions from transportation ...**

Close to 80 percent of Californians support efforts to reduce emissions from vehicles and 78 percent of Californians support requiring local governments to change land-use patterns so that residents can drive less.

- **... but strong environmental support conflicts with other preferences.**

When asked about housing and infrastructure spending, many Californians continue to prefer single-family homes and freeway expansion over construction of denser, more transit-friendly housing that would reduce VMT. In January 2006, top-ranked transportation investment choices were freeways and highways (38%), followed by transit (29%), local roads (34%), and carpool lanes (7%).

## **LOOKING AHEAD**

A well-functioning transportation system is vital for California's future. Finding the appropriate mix of investment, pricing, and regulatory solutions will be key to meeting the state's environmental and mobility goals.

- **Experiment with new user-based transportation funding tools.**

After years of hesitation, California is finally making progress in implementing toll-based express lanes. The state should also begin experimenting with broader use of electronic toll collection on all roads, following the lead of Oregon and some European countries.

- **Increase the gasoline tax.**

Raising the gas tax is an important near-term solution for increasing transportation revenues. A higher gas tax will also reinforce state efforts to reduce emissions by sending a price signal to drivers.

- **Look for win-win policies for controlling emissions.**

Policies should be made with full consideration of all emission effects and efforts should be made to maximize the benefits for both air quality improvement and mitigation of climate change.

- **Design policies to encourage innovation.**

Addressing the environmental and infrastructure challenges faced by the transportation sector will require innovations in technologies for vehicles and fuels and in transportation and land-use planning. Regulatory and financial incentives are needed to encourage and facilitate this innovation.

**We invite you to dig deeper at [ppic.org](http://ppic.org). Related PPIC resources include:**

*Climate Change Challenges: Vehicle Emissions and Public Health in California*

*Paying for Infrastructure: California's Choices*

*Learning from California's Zero-Emission Vehicle Program*

*Time to Work: Commuting Times and Modes of Transportation of California Workers*

*Sizing Up the Challenge: California's Infrastructure Needs and Tradeoffs*

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