



CALIFORNIA STATE
ASSOCIATION OF COUNTIES

ROAD CHARGE AND THE FUTURE OF TRANSPORTATION

Jim Madaffer

Commissioner

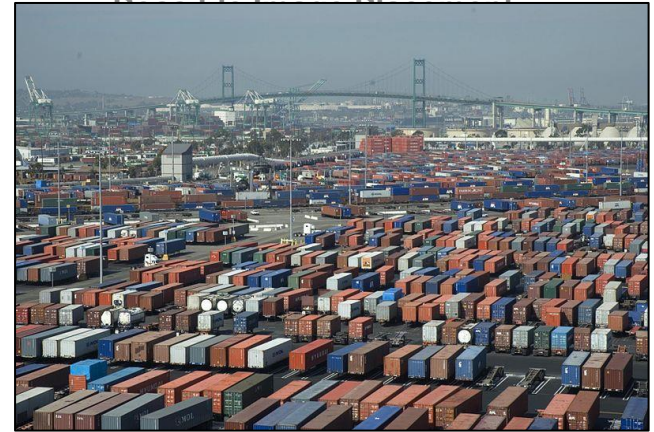
California Transportation Commission

September 3, 2015

An efficient transportation system is critical to California's economy and quality of life...

Pay By The Mile – Road Charge – Mileage Based User Fee

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California Infrastructure Report Card

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✓ **\$59 Billion** - Deferred Transportation Maintenance

Source: Governor Brown's 2015 Five-Year Infrastructure Plan

✓ **45th** - State Ranking for Overall Highway Performance

Source: Reason Foundation's 21st Annual Report on the Performance of State Highway Systems

✓ **\$296 Billion** - Ten-Year Project Funding Shortfall

Source: California Transportation Commission's 2011 Statewide Transportation Needs Assessment

58% of California Roadways Require Rehabilitation or Pavement Maintenance

87% of California's Counties have an Average Pavement Rating of "At Risk" or "Poor"

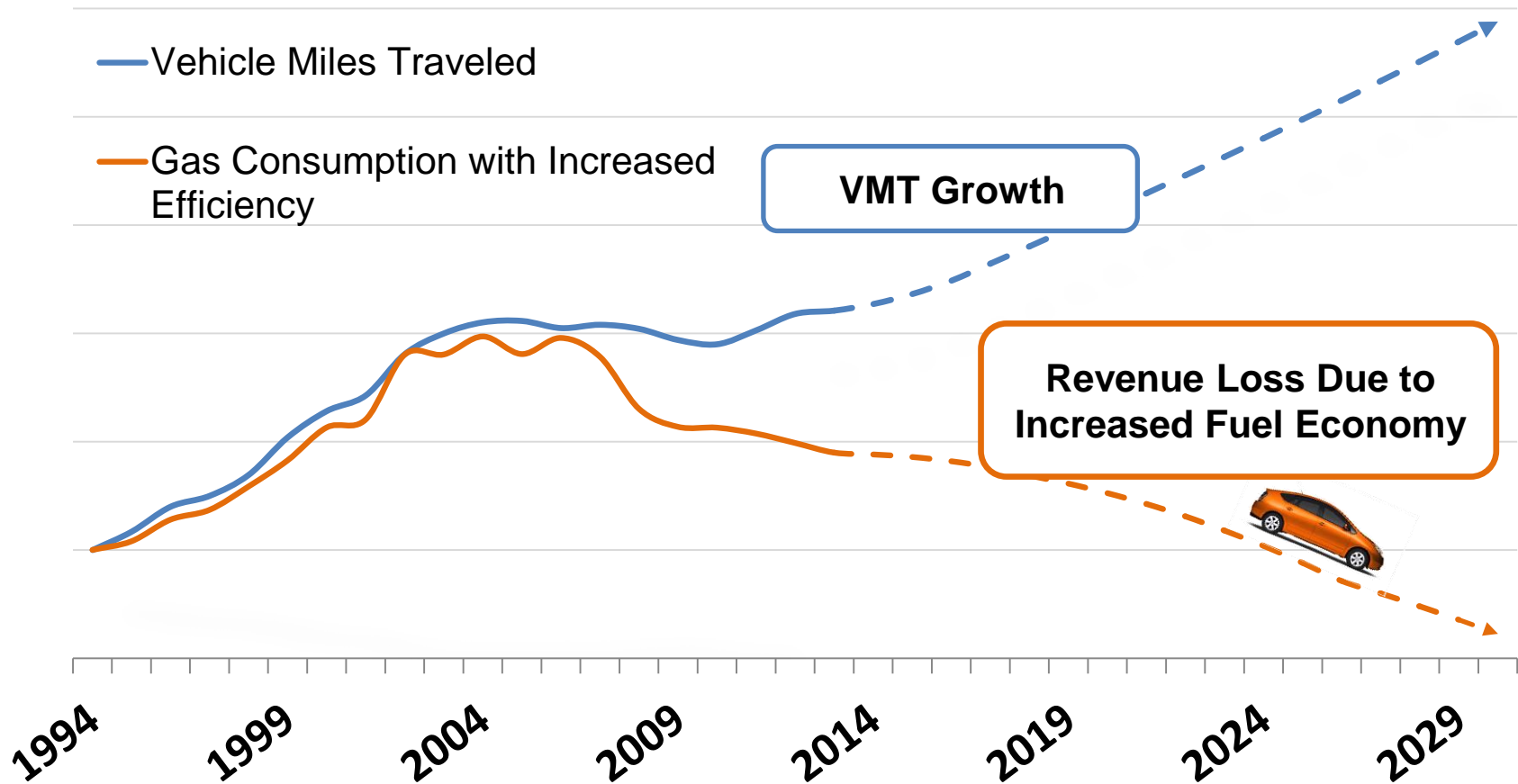
25% of Local Streets and Roads will be in "Failed" Condition by 2022 under our Current Funding Levels

6 of the Nation's 10 Worst Urban Area Pavement Conditions

...But our transportation system is in financial crisis

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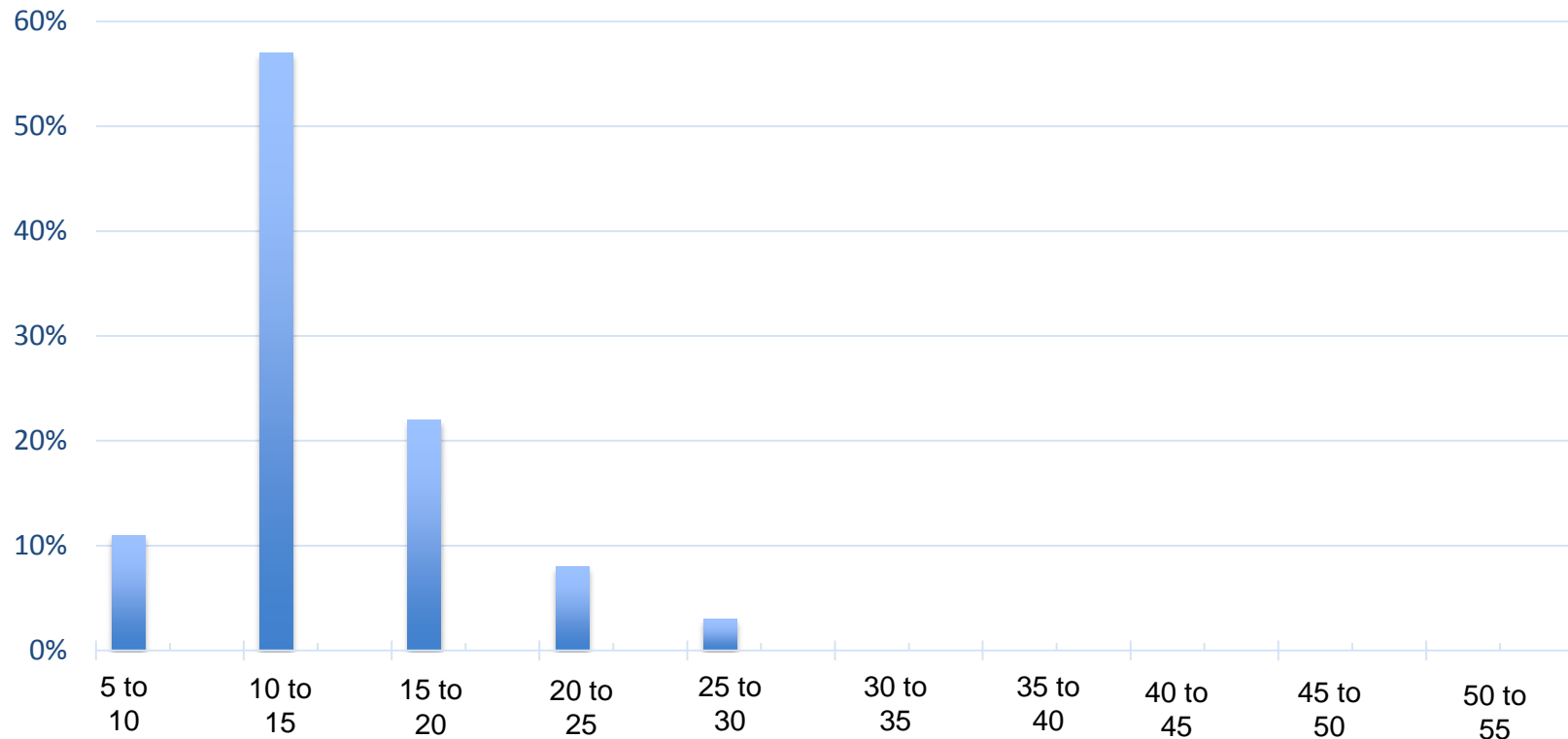


Evolution of Light-Duty Fleet Fuel Economy

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Model Year 1975

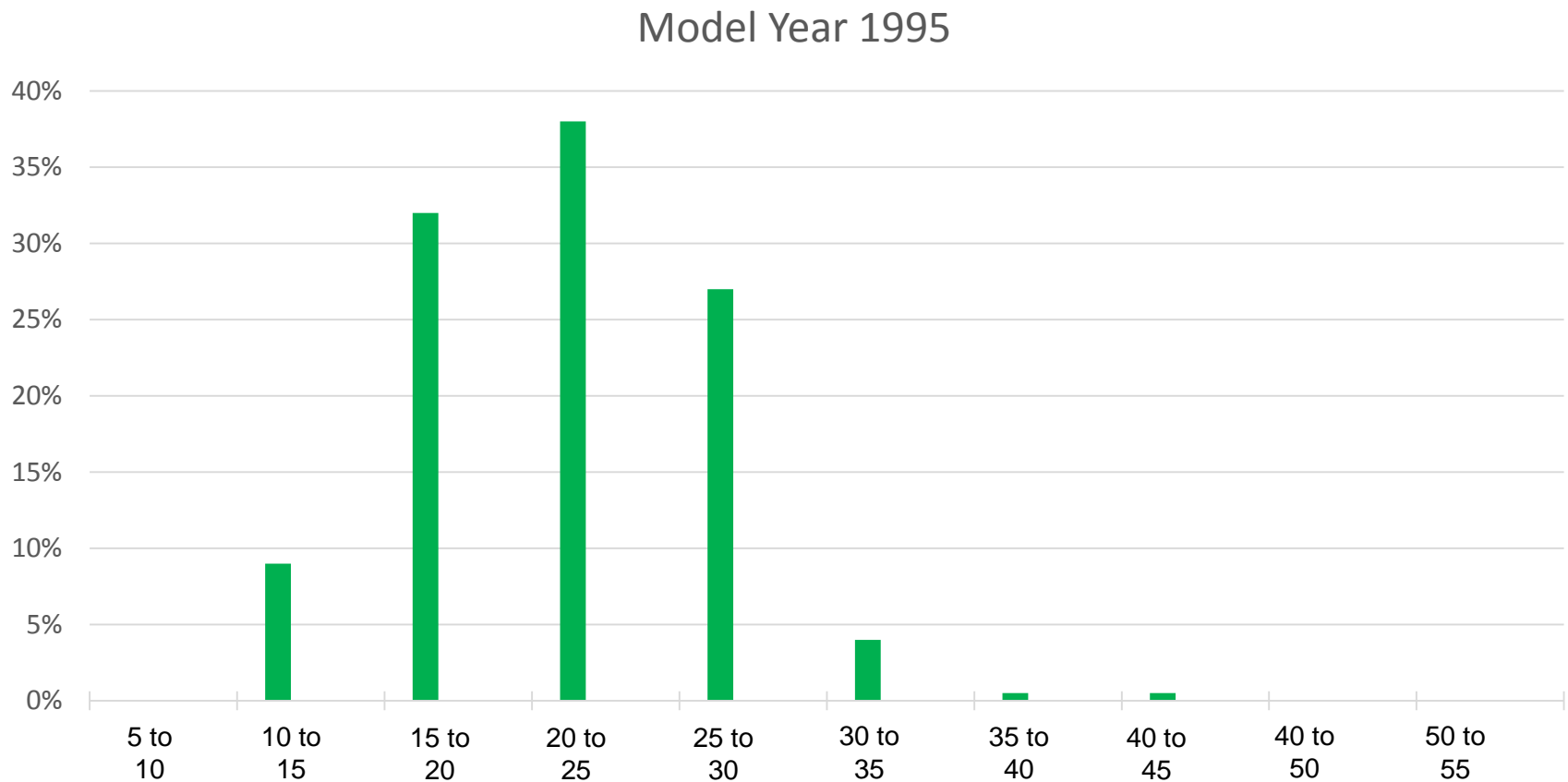


Source: EPA, *Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2014*

Evolution of Light-Duty Fleet Fuel Economy

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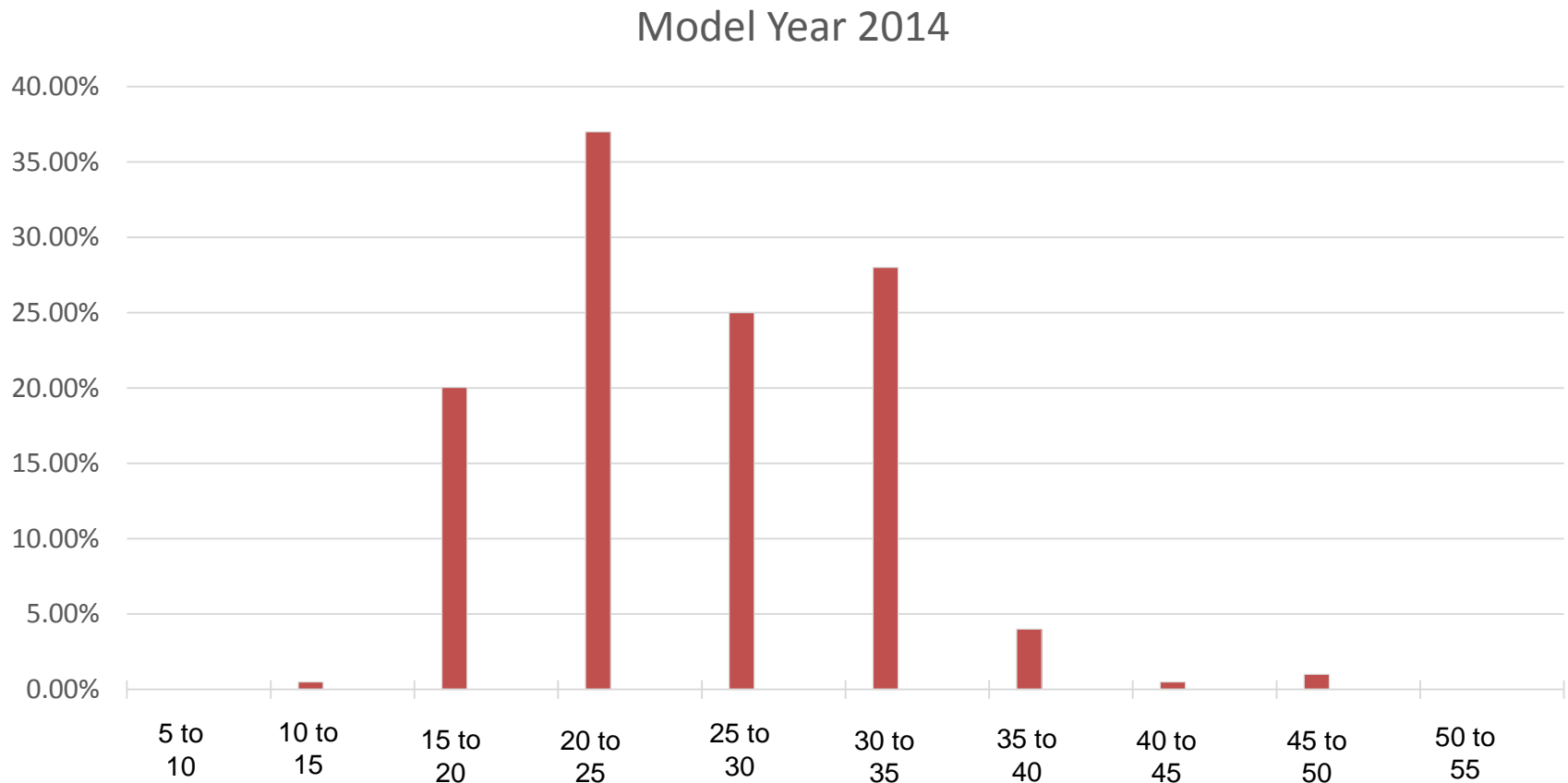


Source: EPA, *Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2014*

Evolution of Light-Duty Fleet Fuel Economy

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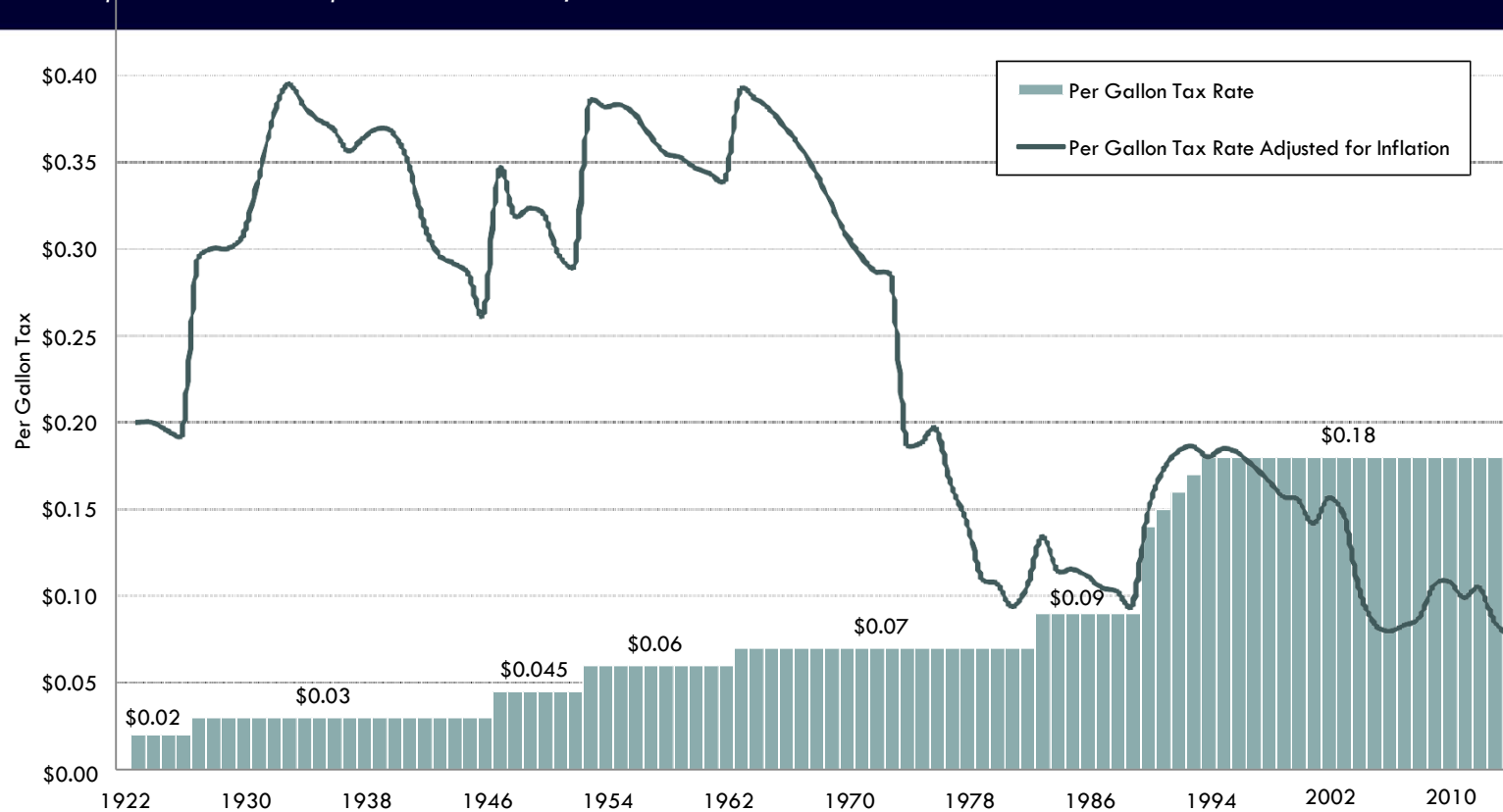
Source: EPA, Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2014

Inflation Erodes Value of Tax Over Time

History of the Base Gasoline Excise Tax Rate

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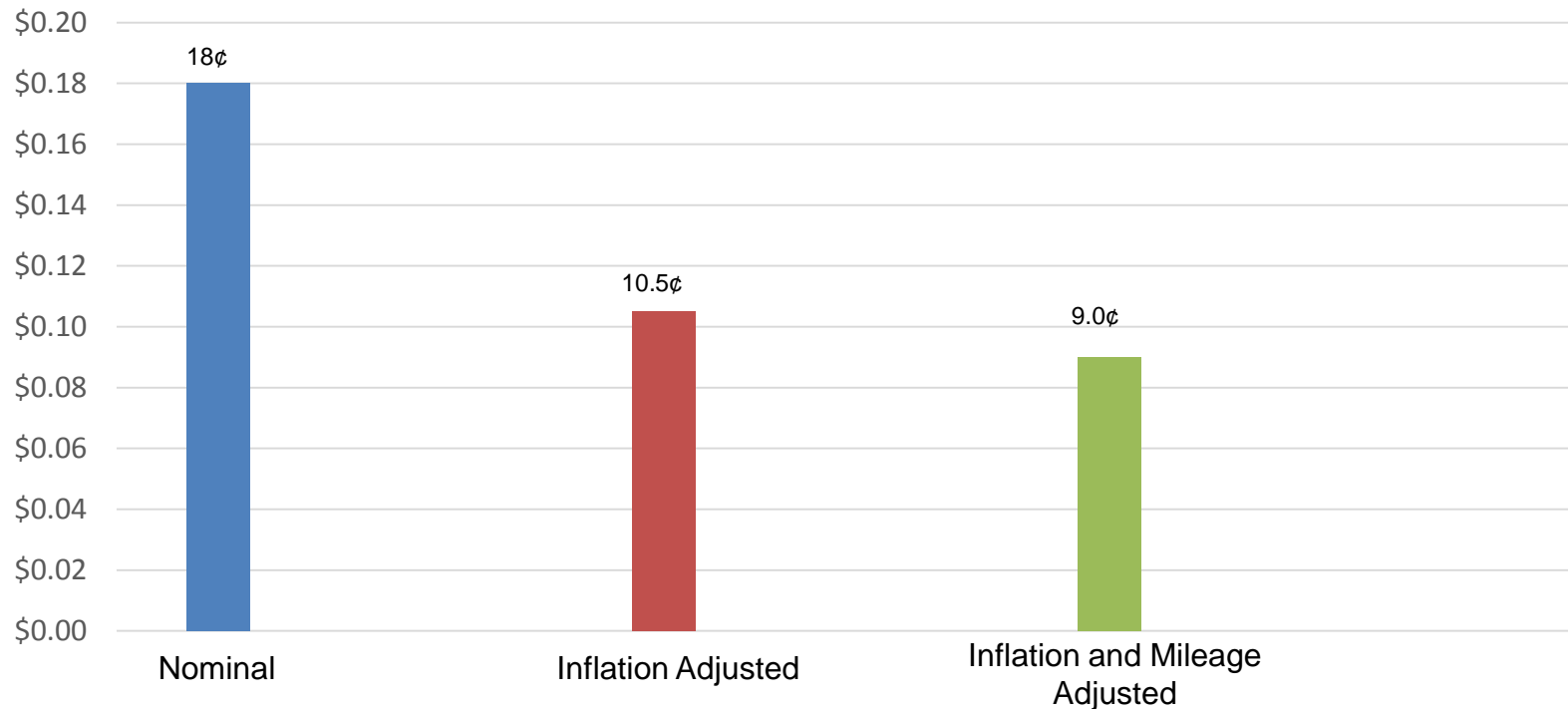
Source: Board of Equalization. Escalation based on California State Highway Construction Cost Index and Consumer Price Index

Inflation and Mileage Adjusted Value of the Excise Tax

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Inflation and Mileage Adjusted Value of State Fuel Excise Tax
(as of 2012)



This chart shows the relationship between the excise tax in 1994 and in 2012. The excise tax has remained at 18 CPG since 1994, despite significant increases in construction costs. In addition, the increase in vehicle fuel efficiency from 1994 to 2012 further decreases the value of the excise tax.

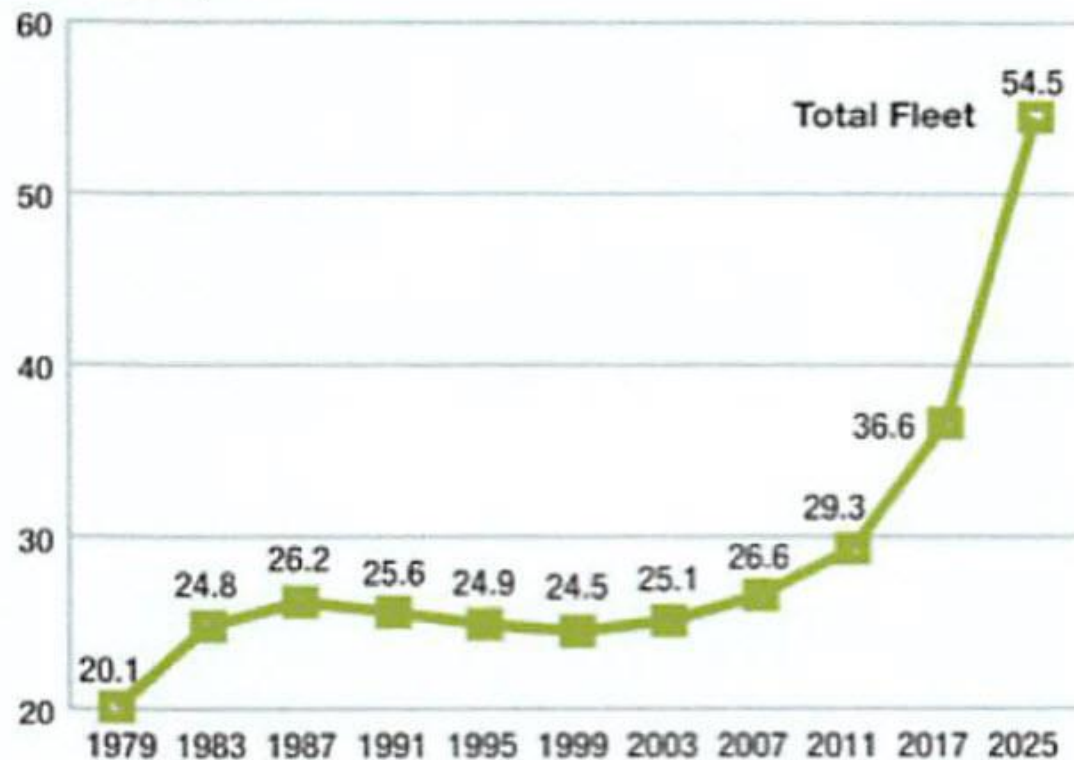
CAFÉ Standards

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CAFÉ Standards

Rising Federal Fuel Efficiency Standards for Passenger Vehicles and Light Trucks



Source: National Highway Transit Administration

State Motorist Taxes and Fees

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- Gasoline Excise Taxes
- Diesel Taxes
- Commercial Vehicle Weight Fees
- Motor Vehicle Fees

Note: The figures contained in this presentation are derived from the Fiscal Year 2015-16 Proposed Governor's Budget.

Base Excise Tax (Gasoline)



\$2.8 Billion

36%
Local Streets & Roads

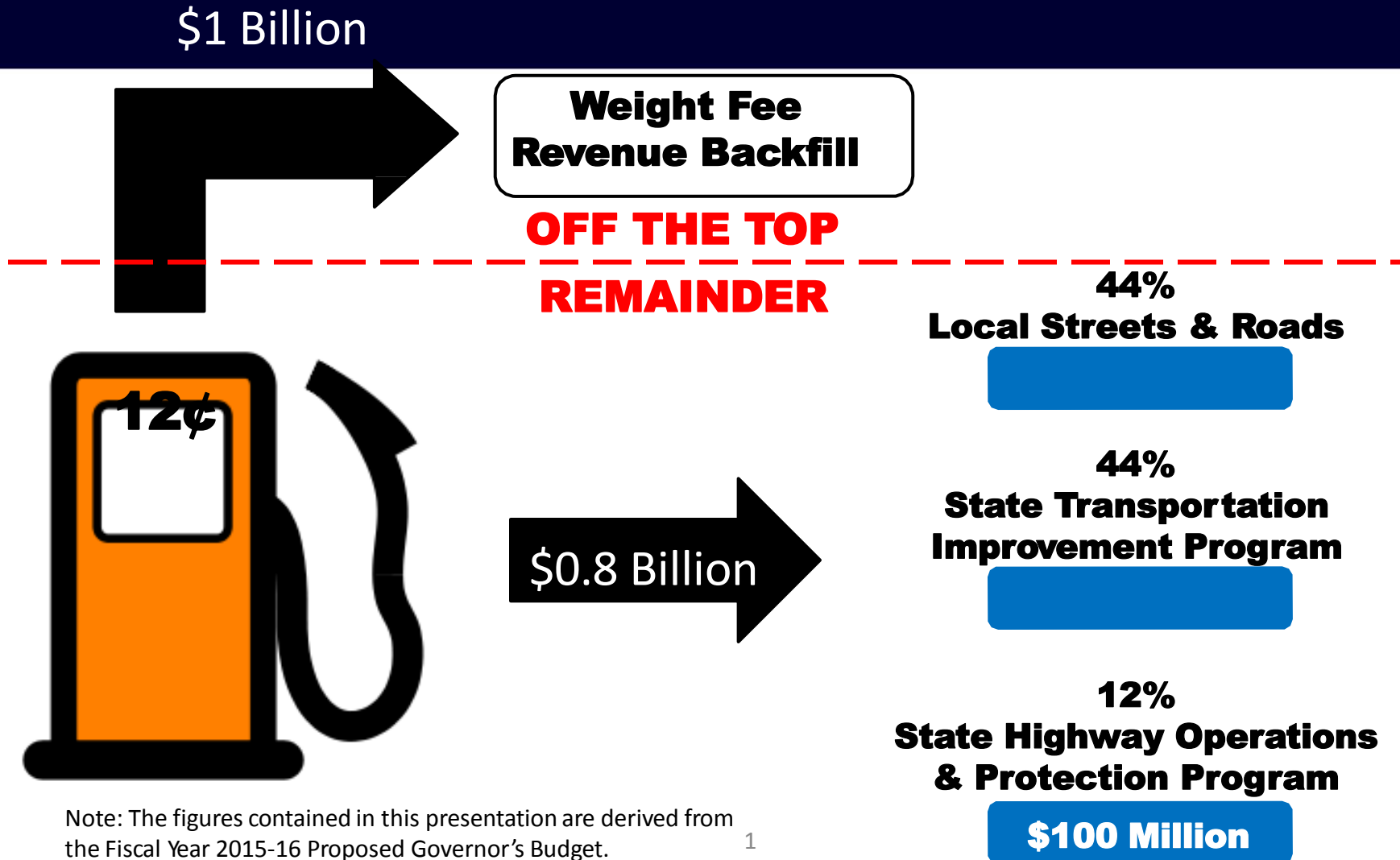
\$1.0 Billion

64%
State Highway Account

\$1.8 Billion

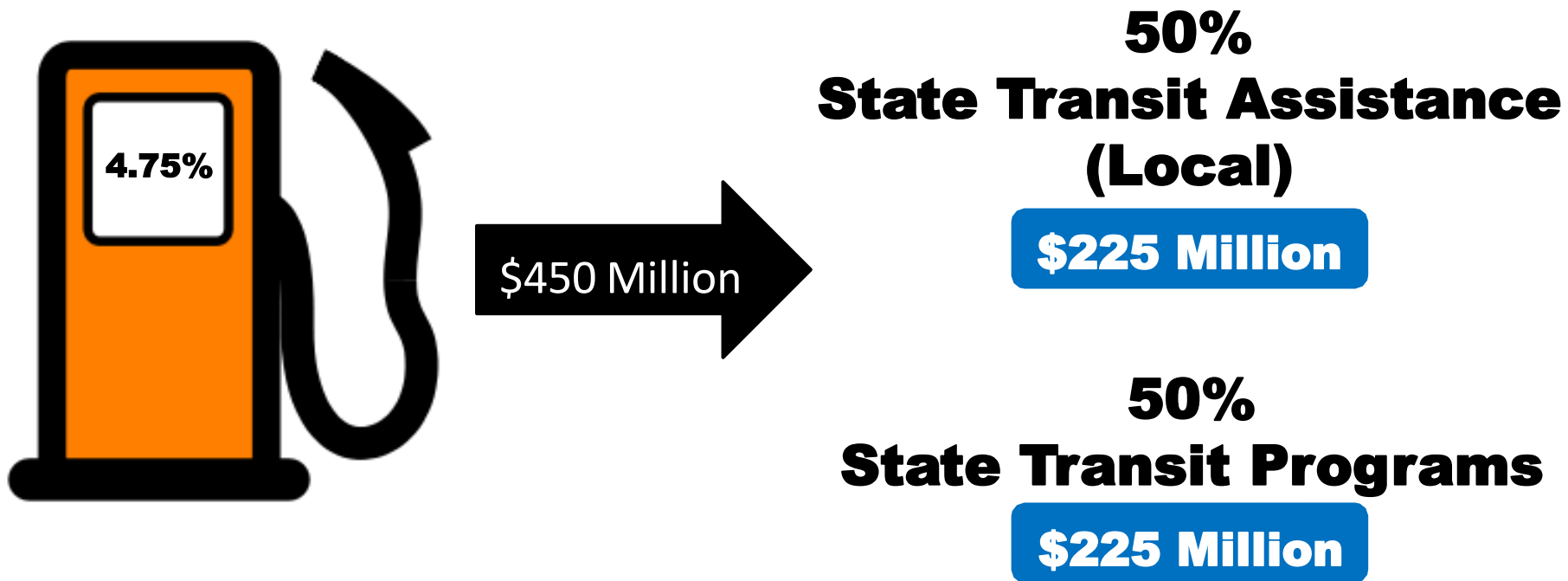
Note: The figures contained in this presentation are derived from the Fiscal Year 2015-16 Proposed Governor's Budget.

Swap Excise Tax (Gasoline)



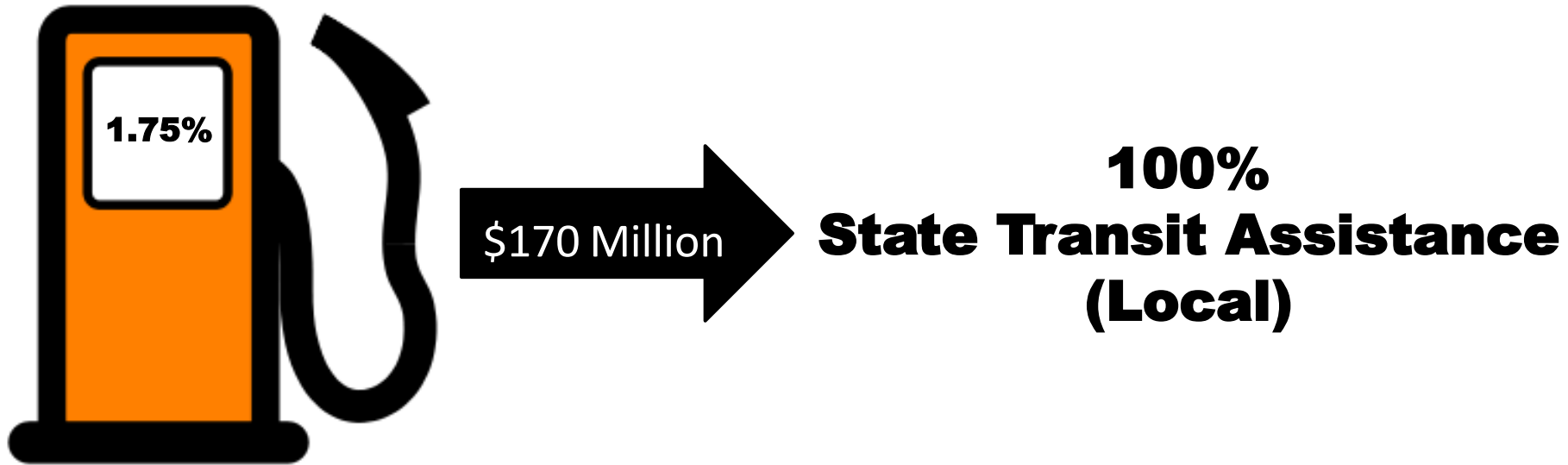
Note: The figures contained in this presentation are derived from the Fiscal Year 2015-16 Proposed Governor's Budget.

Base Sales Tax (Diesel)



Note: The figures contained in this presentation are derived from the Fiscal Year 2015-16 Proposed Governor's Budget.

Swap Sales Tax (Diesel)



Note: The figures contained in this presentation are derived from the Fiscal Year 2015-16 Proposed Governor's Budget.

Excise Tax (Diesel)



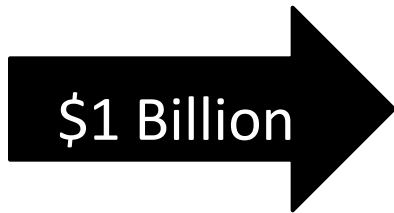
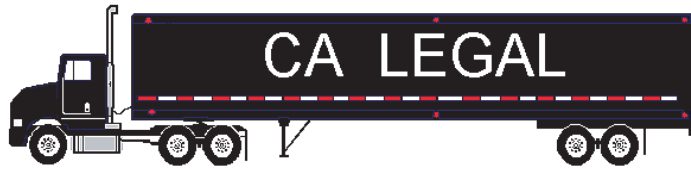
\$420 Million

52%
Local Streets & Roads
\$218 Million

48%
State Highway Account
\$202 Million

Note: The figures contained in this presentation are derived from the Fiscal Year 2015-16 Proposed Governor's Budget.

Commercial Vehicle Weight Fees



100%
State General Fund
for
Transportation Bond
Debt-Service

Note: The figures contained in this presentation are derived from the Fiscal Year 2015-16 Proposed Governor's Budget.

Motor Vehicle Fees

Driver's License



Vehicle Registration



\$3.1 Billion

California Highway Patrol

Department of Motor Vehicles

Other Agencies

~~Roads~~

Note: The figures contained in this presentation are derived from the Fiscal Year 2015-16 Proposed Governor's Budget.

Motor Vehicle Fees (Continued)



Note: The figures contained in this presentation are derived from the Fiscal Year 2015-16 Proposed Governor's Budget.

Summary

Total State Revenue	\$10.3 Billion
- Other State Agencies	\$3.7B
- Debt-Service	\$1.0B
- Transit	\$0.6B
- Capacity Increasing Projects	\$0.4B

Road Maintenance,
Rehabilitation, & Operations **\$4.6 Billion**

Note: The figures contained in this presentation are derived from the Fiscal Year 2015-16 Proposed Governor's Budget. Does not include federal funds, local measure funds, general sales tax that goes to locals, and reimbursements.

Revenue Solutions

- **Near-Term Solutions**

- Truck Weight Fees
- Excise Tax
- VLF/VRF
- Early Loan Repayments
- Cap & Trade
- New legislation . . . Speaker Atkins & Senator Beall



- **Long-Term Sustainable Solutions**

- Congestion Pricing/Tolling
- Public Private Partnerships (P3's)
- Road Charge Program (SB 1077)

Proposed Funding Legislation - Assembly

- AB1x1 - Accelerates loan repayments/returns weight fees.
- AB1x2 - Eliminates the sunset date for P3's
- AB1x3 & AB1x-4 – Spot bills to establish permanent funding
- ABx6 –Utilizing Cap & Trade funding for housing projects in rural areas
- AB1x7 - Increases Cap & Trade funding for transit
- AB1x8 – Triples the sales tax on diesel to be dedicated to Transit Funding (STA)



Proposed Funding Legislation - Senate

- SB1x1 – Transportation Funding
 - Increases gas excise tax: \$0.12/gallon.
 - Increases diesel excise tax: \$0.22/gallon (\$0.12 to be made available to TCIF).
 - Annual Road Access Fee of \$35 per vehicle
 - Repay transportation accounts for past year loans to general fund over three years beginning in 2016
 - “Price-Based” excise tax goes back to the original 17.3 cents.
 - Eliminates the annual rate adjustment to maintain revenue neutrality for the gasoline and diesel excise tax rates.
 - Increase on Vehicle Registration Fee of \$35, and \$100 increase for zero-emission vehicles
- SB1x2 – Dedicates Cap & Trade paid from gasoline production to improving infrastructure
- SB1x3 – new revenues from High-Speed Rail bonds must be used for road construction & repair
- SB1x4 & 5 – Spot bills for transportation
- SB1x6 – Prohibits use of Cap & Trade proceeds on high-speed rail, redirecting to highways, local streets & roads, and transit.

Proposed Funding Legislation – Senate

(continued...)

- SB1x7 – Triples sales tax on diesel, dedicated to transit funding
- SB1x8 – Doubles Cap & Trade appropriation for transit & intercity rail and local carbon transit program
- SB1x9 – Prohibits Caltrans from using temporary funding to support positions
- SB1x10 – Converts STIP to block grants
- SB1x11 – CEQA exemption on road repair & maintenance on existing rights of way.
- SB1x12 – Make CTC independent and authorizes CTC to approve Caltrans' individual repair & maintenance projects.
- SB1x13 – Creates an Inspector General to assure that Caltrans and High-Speed Rail Authority operate efficiently
- SB1x14 – Eliminates the sunset date for Public Private Partnership procurements.
- SCA1x1 – Guarantees that transportation taxes are used for transportation purposes.

Possible Proposed Funding Legislation – Governor (as of today)

- \$3.6 billion dollar a year funding package
- Augmented during the first three years by a payback of \$879 million in loans.
- \$500 million in cap and trade revenue will be made available for the program, with \$400 million going to transit and \$100 million for complete streets.
- \$3.6 billion to be split 50-50 between the state and local needs and \$200 million of the state share will go for freight improvements plus some of the loan payback money.
- The remainder will go to SHOPP.
- Funds will be raised through a vehicle fee of \$65 plus a fix to the gas tax swap plus indexing of the excise tax going forward.

In 2014, Senate Bill 1077 was signed into law

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- Directs the California Transportation Commission (CTC) to establish a Technical Advisory Committee
- TAC to report recommendations to the California State Transportation Agency (CalSTA)
- Requires CalSTA to implement a pilot program by January 2017
- Purpose of pilot = study road charge as a replacement for the gas tax
- Requires a report of findings and recommendations by June 2018

Road Charging is ...

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- A policy whereby motorists pay for use based on the distance they travel on the roadway network.
- A “User Pays” principle – the more you drive, the more you pay.
- Similar to other utilities such as electricity, water, telephone.



Road Charge Technical Advisory Committee Composition

Pay By The Mile – Road Charge – Mileage Based User Fee

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- 15 members:
 - Telecommunications Industry
 - Data Security & Privacy Industry
 - Privacy Rights Advocacy Organizations
 - Regional Transportation Agencies
 - Members of the Legislature
 - Highway User Groups
 - National Research & Policymaking Bodies
 - Social Equity Advocacy
 - Other Relevant Stakeholders

Work Group Members

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- Riverside County Transportation Commission
- Alliance of Automobile Manufacturers
- San Joaquin County Farm Bureau
- Lyft
- California Department of Motor Vehicles
- California State Council of Laborers
- Electric Drive Transportation Association
- Downs Energy
- California Building Industry Association
- Plug In America
- Native American Advisory Council
- Inland Empire Economic Partnership
- UPS – Central California
- California Tax Foundation (Cal Tax)
- Sonoma County
- California Business Roundtable
- Southern California Assoc. of Governments
- Western States Petroleum Association
- Rural Counties Task Force
- Transform
- Self Help Counties Coalition
- Port of Long Beach

The Technical Advisory Committee is examining all dimensions of a Road Charge

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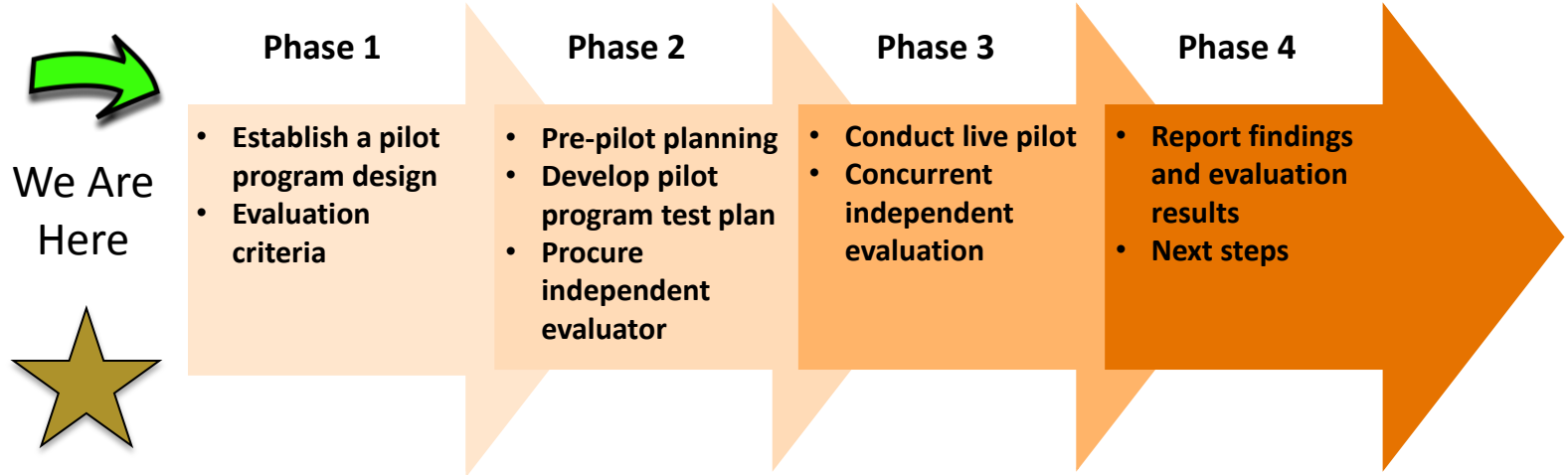
- Privacy protection
- Technology alternatives
- Revenue sustainability
- Equity implications
- Environmental sustainability
- Out-of-state travelers
- Communications & public outreach
- Organizational framework



As we design the pilot test, we want the public to participate

Pay By The Mile – Road Charge – Mileage Based User Fee

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Input from California residents and businesses is integral to our effort

Pay By The Mile – Road Charge – Mileage Based User Fee

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- Focus Groups
- Telephone surveys
- Website
- Online Questionnaire
- Twitter
- Facebook
- Public Meetings



TAC Design Decisions to Date

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The pilot will offer drivers a choice in account managers

More than one non-state account manager will be available for pilot participants to choose from.

The pilot will offer drivers a choice in mileage recording methods

Methods under consideration for the pilot include time permits, mileage permits, odometer charges (prepay and postpay), automated distance charging without location information, and automated distance charging with location information.

Out-of-state vehicles will be included in the pilot and simulate payment for driving on California roads

Drivers from neighboring states who drive regularly in California will be recruited to participate in the pilot.

The pilot will test an open system design

Security standards and privacy protections will be required, and data content messaging formats between service providers and the state may be defined. However, the system will otherwise be designed in a way that is technology neutral and allows entry of multiple operational concepts, technologies, and service providers.

The pilot will test the interoperability of California's system with that of other states

In the event another state does not have a pilot operational concurrent with California's, interoperability will be simulated using account managers.

TAC Design Decisions to Date

(continued)

Pay By The Mile – Road Charge – Mileage Based User Fee

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The pilot will include individuals, households, businesses, and at least one government agency

This represents the diversity of vehicle ownership types most common in California.

The pilot will include a cross-section of vehicles that are reflective of the fleet currently using California's public road network

The pilot will recruit a variety of vehicles with the goal of forming a vehicle pool that reflects the diversity of the fleet currently using California roads.

The pilot will offer methods to exempt miles driven on private roads or out of state

Both manual and automated options for claiming mileage exemptions will be tested.

The pilot will feature three approaches for protecting privacy: governance, accountability, and legal protection

The TAC will adopt privacy principles (governance), evaluation criteria (accountability), and recommended privacy protection provisions (legal protection).

The pilot will be evaluated according to criteria recommended by the TAC

The 50 evaluation criteria adopted by the TAC in June span 8 categories.

Road Charge Implementation Scenarios

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Scenario 1: Near-Term Road Charge

- 40% mileage meter, 35% smartphone mileage meter, 5% everything else
- Payment locations and methods break down same as DMV today

Scenario 2: Intermediate Road Charge

- 25% telematics, 25% mileage meter, 30% smartphone mileage meter, 5% everything else
- Online payments increase to 75% of total

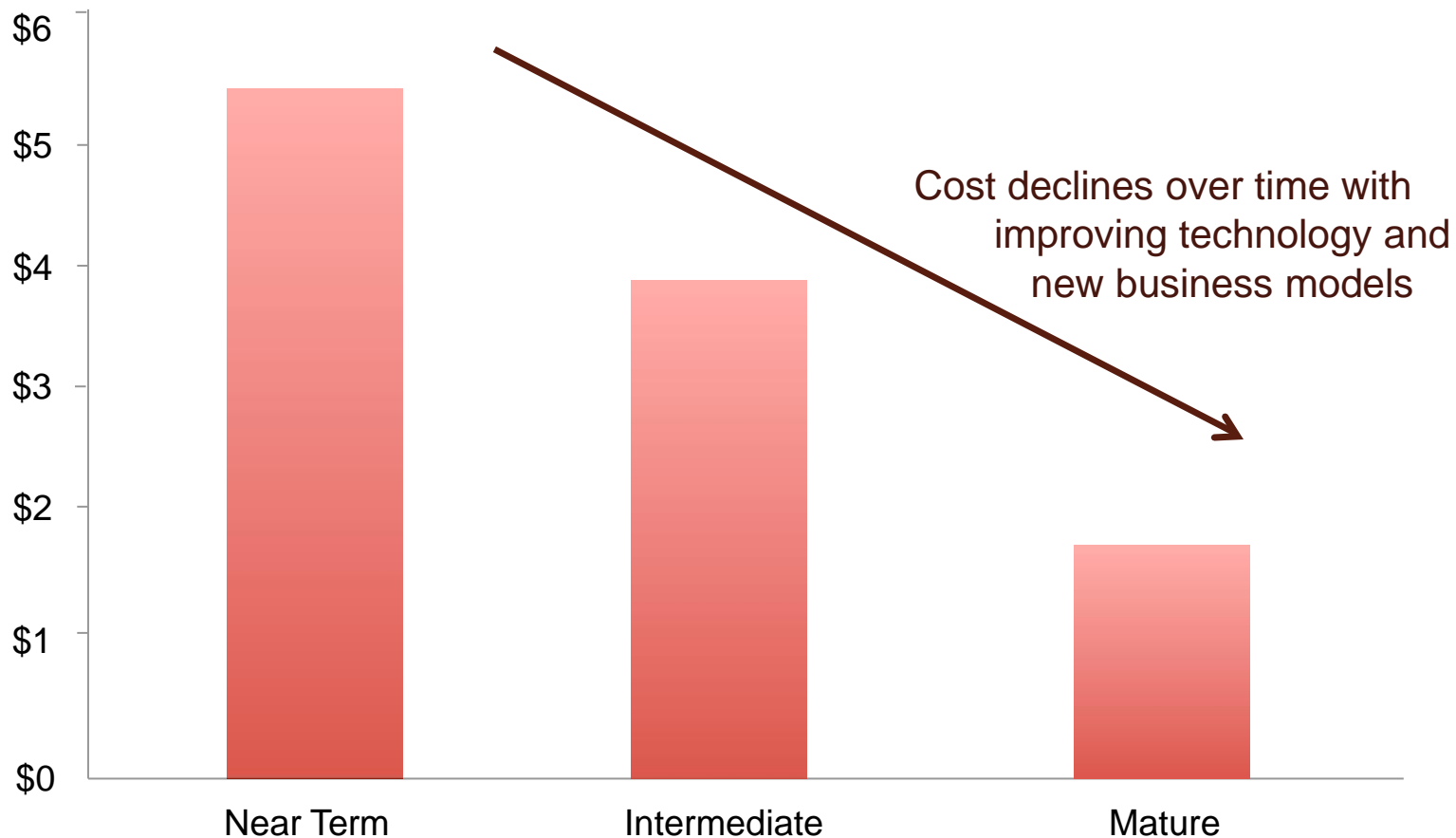
Scenario 3: Mature Road Charge

- 90% telematics
- Online payments increase to 90% of total

Initial Road Charge Account Management Cost Estimates for Three Scenarios

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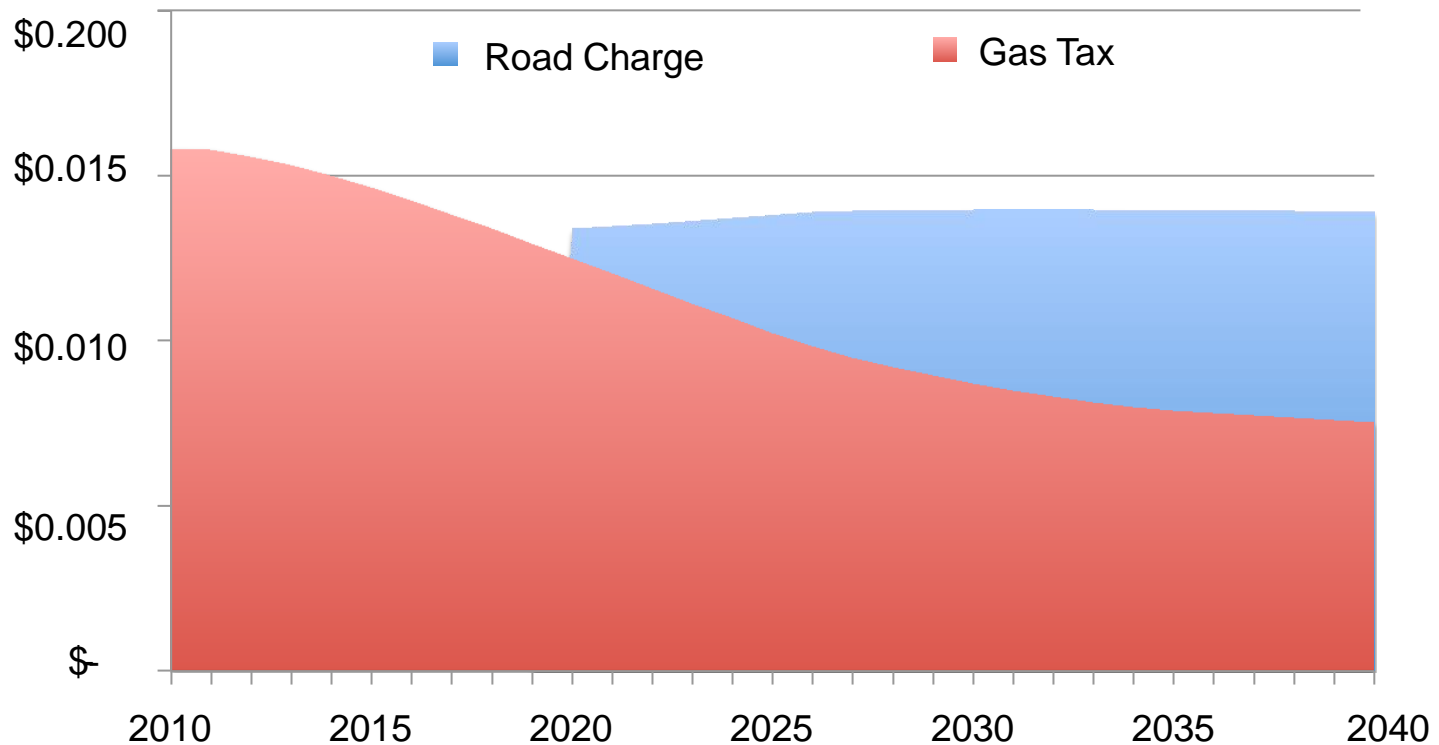
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Preview of Next Steps: Net Revenue Analysis

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**assumes Road Charge begins in 2020 at 1.4 cents/mile (gross revenue neutral with gas tax in 2016/2017)*

TAC Monthly Meetings

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Meeting Date	Meeting Location
September 25	North State
October 23	Bay Area
November 20	Los Angeles
December 11	Riverside

Road Charge Pilot Program Timeline

Pay By The Mile – Road Charge – Mileage Based User Fee

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The TAC work now underway is only to support a pilot project. No decision to move forward with a full-scale permanent road charge program has been made, or will be made, without public participation, input from stakeholders and approval from the Legislature. The timing of the process is expected to be:

- **December 2015:** The TAC will finalize the parameters of the road charge pilot program.
- **Summer 2016:** Road charge pilot program will begin.
- **Summer 2017:** The pilot project will be complete and its results will be reported back to the TAC, the California Transportation Commission (CTC) and the Legislature.
- **December 2017:** The CTC will provide commentary and recommendations to the Legislature.



2007 DARPA Urban Challenge



'Boss' CMU Tartan Racing, 60 miles urban, 4h:10m

2008 Levandowski's Pribot



Delivered pizza across SF Bay bridge

2010 Audi 'Pikes Peak'



12 mile hill climb, 156 turns, 27min (cf 11m48s)

2011 AutoNOMOS Labs Berlin drive



50 miles of autonomous driving on Berlin roads

2013 Vislab BRAiVE, Parma



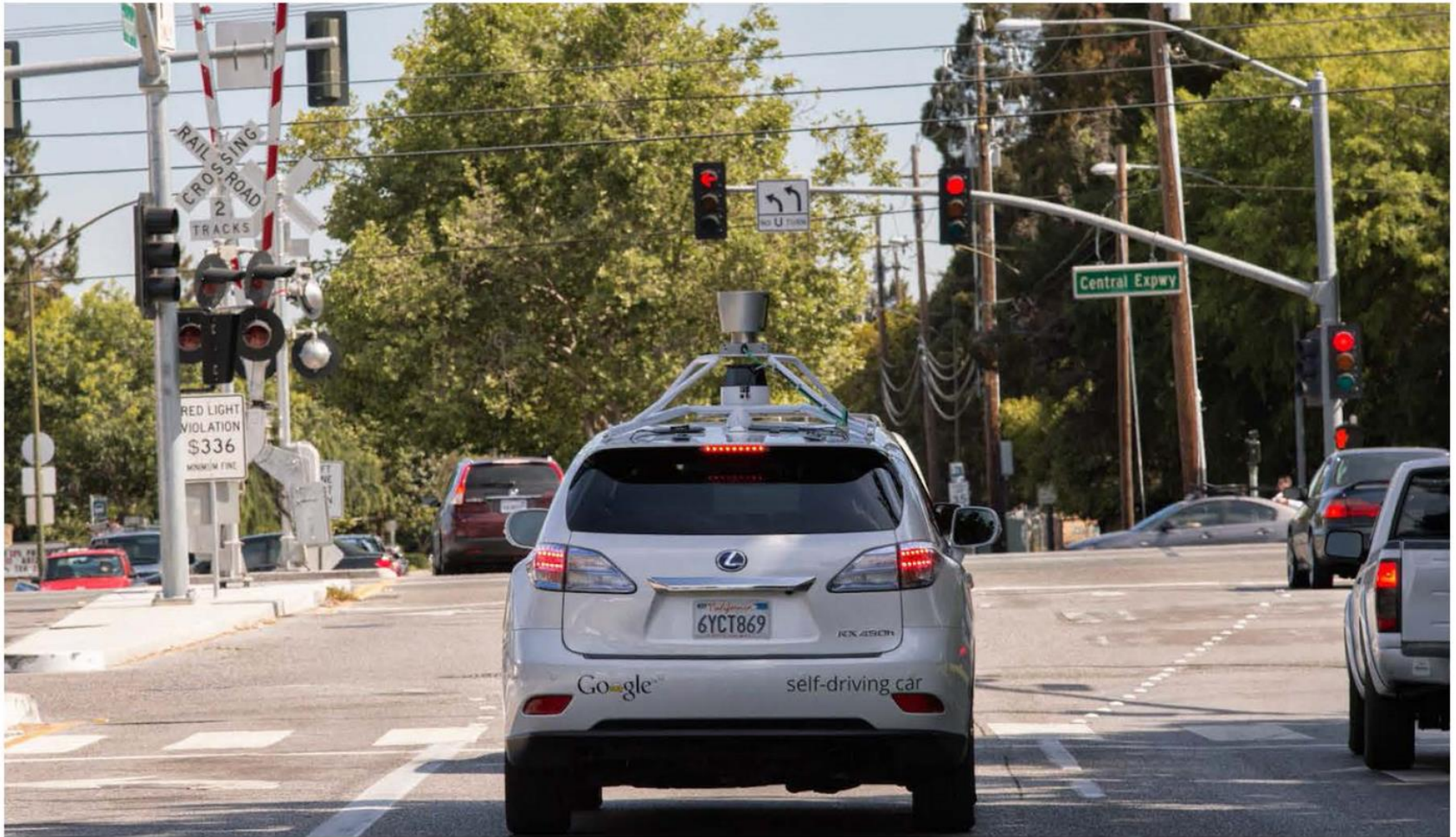
Rural-urban demo, in real, complex traffic, vision

2013 Daimler/Mercedes Bertha Benz Road Trip



60 mile rural-urban demo, vision based

2014 Google 'mastering city street driving'



700k miles, cyclists signals, construction zones

2014-2016 Google Prototype 'Vehicle' (NEV)



25mph, 100 pilot project CA for 2yrs. 2017-2019?...

2015 Tesla 'Autopilot' (Autonomous 2023)



'will go from on-ramp to off-ramp autonomously'

2015 Mercedes Benz F 015 Concept



“Innovative perspective into the future of mobility.”



Mercedes Benz Future Truck 2025



Many technological elements already available

2020-2025 Nissan Autonomous Drive



Range of Commercially viable AVs on road





California PATH

A close-up, angled view of a speedometer. The needle is red and points to the 180 mark. The speedometer face is black with white markings and numbers. The text 'DRIVING SELF.' is overlaid in large, white, bold, sans-serif font, slanted to follow the curve of the dial.

DRIVING SELF.

180

160

140

120

100

80

60

40









New York City – April 2015

 **enterprise**
CarShare



\$10.00

IN DRIVING CREDITS*

Plus

\$0 MEMBERSHIP FEE
\$10 APPLICATION FEE

Limited-time offer!



Join Now!
EnterpriseCarShare.com/JoinNYC





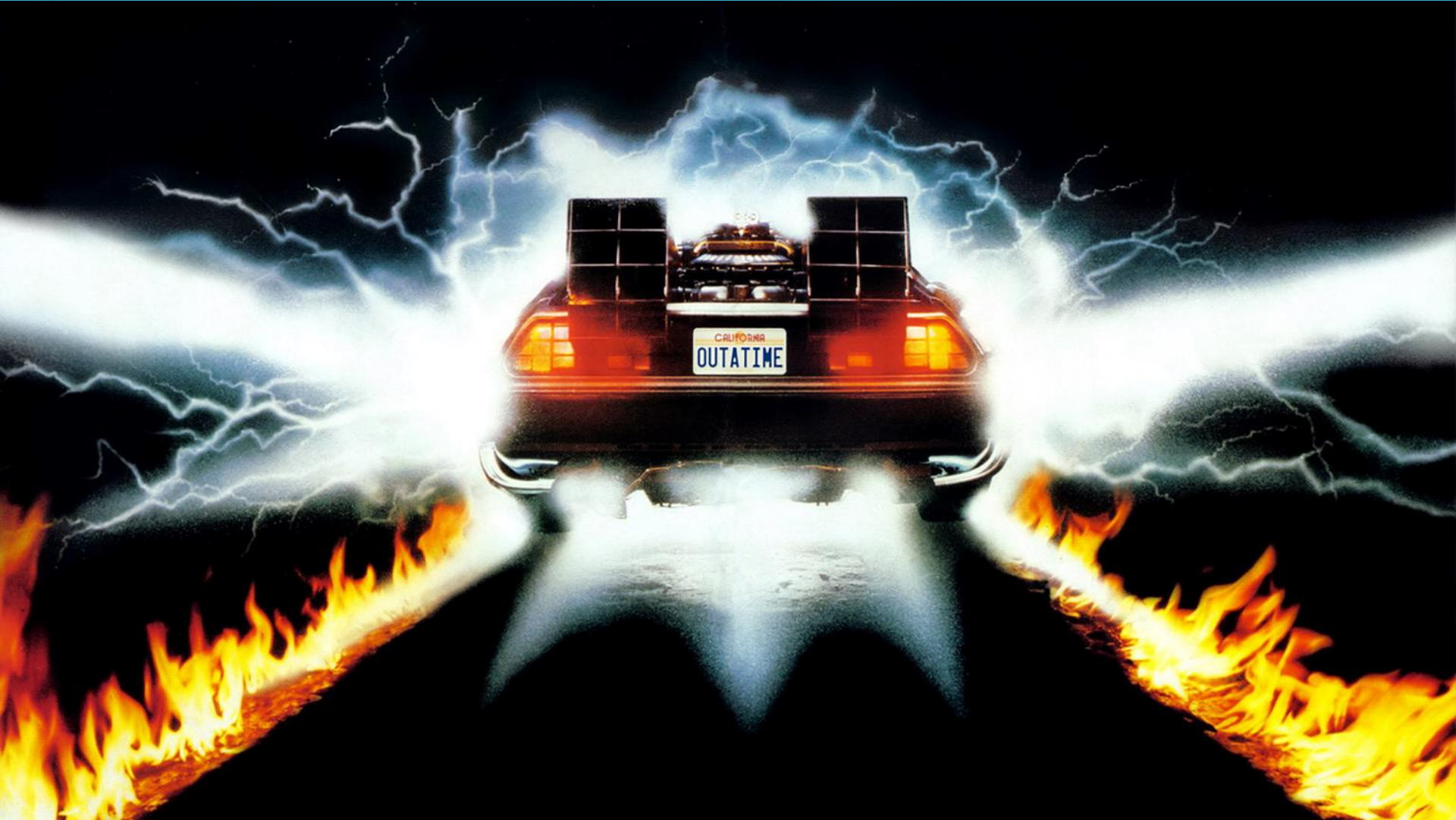












The Future is now!

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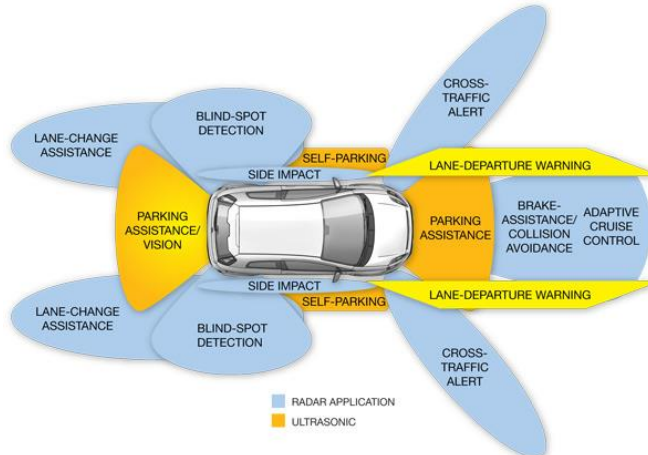
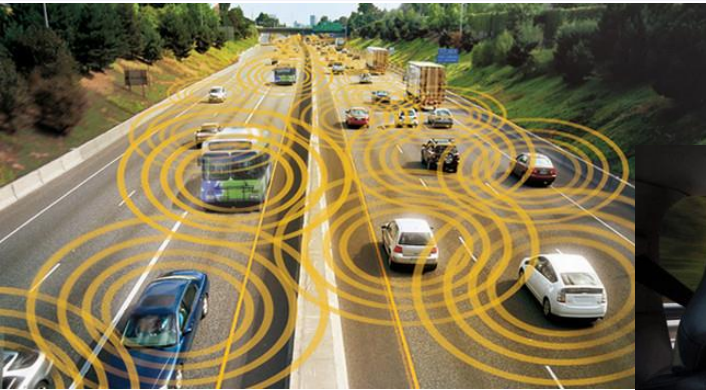


Figure 2 Several driver-assistance systems are currently using radar technology to provide blind-spot detection, parking assistance, collision avoidance, and other driver aids (courtesy Analog Devices).



A green rectangular sign with rounded corners and a white border is mounted on two wooden posts. The sign features the text "Welcome To The Future" in white, bold, sans-serif font. The background is a bright blue sky filled with scattered white, fluffy clouds.

Welcome To
The Future



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ASSOCIATION OF COUNTIES

ROAD CHARGE AND THE FUTURE OF TRANSPORTATION

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Commissioner

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www.CaliforniaRoadChargePilot.com