



Transportation Committee
Meeting Date: 5/3/2018
Agenda Item No.: 2018-May-9.

Subject: Market-Based Pricing to Manage Congestion and Generate Revenue
(Est. time: 10 minutes)

Information

Prepared by: Bruce Griesenbeck

Approved by: Matt Carpenter

Attachments: Yes

1. Issue:

What is the potential role pricing can play in the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy?

2. Recommendation:

None, this is for information only.

3. Background/Analysis:

The purpose of this item is to provide advanced information on issues related to the fuel tax, and potential replacements to the fuel tax, that could affect both the revenue side of the plan, and the future management and use of the region's transportation system. The Policy Framework adopted by the board last December, directed staff to "identify strategies to offset the projected long-term decline in driving costs and loss of fuel revenues that create challenges for maintaining infrastructure, managing congestion, and meeting greenhouse gas reduction targets." Staff seeks input from the committee on this issue, and on the schedule of upcoming opportunities to explore the issue further.

The main points of this staff report are:

- The fuel tax as a means of generating revenues has a structural problem: over time, fewer and fewer vehicles require fuel, and those that do buy less and less.
- The fuel tax is also unfair as a way of sharing costs—drivers of vehicles that burn more fuel pay too much, and drivers of fuel-efficient or non-fuel-burning vehicles pay too little.
- At the same time, the quality of service provided by our roadways is worsening over time—congestion is increasing and the roadways themselves are deteriorating. Declining costs of driving exacerbate both congestion and roadway deterioration by making driving more attractive.

For all of these reasons, it is prudent to consider fair, sustainable alternatives to the fuel

excise tax as a mechanism for funding and managing our transportation system.

Upcoming opportunities for consideration and dialogue on this subject in the coming months are:

May Board Workshop on “Market-Based Pricing to Manage Congestion and Generate Revenue”: Three speakers will be present at the May Board meeting: Tyler Duvall, McKinsey; David Ungemuh, WSP; and Ray Traynor, SANDAG. Brief bios of the three speakers are provided in Attachment A. All three are engaged in various ways in projects and programs transitioning other regions to more sustainable, manageable models of pricing access to transportation facilities. The workshop will provide Board members with an opportunity to hear about the range of strategies in play now around the country, as well as hear about some of the new, innovative ideas that are being piloted in California, Oregon, and elsewhere.

June MTP/SCS Discussion Draft Scenario Framework action. In April, staff presented an approach to developing the a first cut of land use assumptions for the plan update. This discussion draft land use scenario is currently being reviewed by local planning staff. At the June committee meetings, staff will follow-up with an approach for honing in on a set of transportation investments, programs, and management strategies to support the draft land use forecast. As part of June's Discussion Draft Scenario Framework for the 2020 MTP/SCS, committees will consider the policy options for addressing the factors and trends outlined above through revised approaches for pricing access to transportation. The options will relate to various approaches to pricing, timeframes for implementation, and areas of emphasis on outcomes and goals.

The Board's input and discussion leading up to the June Framework will help guide whether, how, and when pricing analysis could play a significant role in a completed Discussion Draft Preferred Scenario that will be presented later in the fall.

4. Discussion/Analysis:

In the U.S., fuel excise taxes have been a major component of revenue used to develop and maintain roadway infrastructure. Recent changes to private vehicles, like increasing prevalence of electric vehicles and more efficient fuel-burning vehicles, have played a part in eroding the fuel excise tax as a sustainable source of revenues for this purpose. The real value of fuel excise tax revenue in California declined from 2011 to 2016, even as VMT increased (see Figure 1). The reasons for the declines are several: (1) inflation eroding the real value of the excise tax; (2) increasing percentage of electric vehicles in the fleet; and (3) vehicle efficiency and miles per gallon (MPG) increasing over time. The first and second factors are partially addressed by SB1, through indexing the added excise tax to inflation, and adding vehicle fees applied to electric vehicles. However, SB1 does not address the third factor at all. Historically, vehicles miles traveled (VMT) growth has outstripped growth in gasoline consumption, through higher MPG. Based on growing market share and projections of electrification of the vehicle fleet, this trend is likely to accelerate over the next decade. The California Air Resources Board *Scoping Plan*, for example, projects that by 2040 nearly 100 percent of new private vehicle sales will be zero-emission (plug-in hybrid, battery electric, fuel cell), and about one-fifth of all vehicle travel would be zero-emission vehicles by 2040 (see Figure 2). Though SB1 has

increased fuel tax revenues in 2018, overall reduction in reliance on fuel will again reduce those revenues over time.

In addition to the erosion of fuel taxes as a revenue source, fuel taxes will become an increasingly unfair way to share the cost of using the roadways. Drivers of fuel-efficient vehicles pay far less on a per mile basis than drivers of vehicles that are less efficient. For example, an average driver in California pays about \$650 per year if their needs require them to drive a pick-up truck—but a driver who could afford a typical newer hybrid, and whose travel needs were met by that vehicle, would pay about \$150 for the same mileage driven (see Figure 3). A driver of a typical battery electric vehicle would also pay less—only the annual vehicle registration and ZEV fees earmarked for transportation improvements in SB1. The type of vehicle one is able to use, and able to afford, determines to a large extent the amount of fuel and vehicle tax paid. With the range of very-high MPG vehicles, battery-electric vehicles, and soon, hydrogen fuel cell vehicles, in the marketplace expanding every year, there will be more and more options for avoiding the payment of fuel excise taxes.

The realistic option for more and more drivers to avoid fuel taxes has another consequence, which was discussed during the SB 375 greenhouse gas (GHG) reduction target dialogue over the last year-and-a-half. The electrification of the vehicle fleet, and the increasing MPG for gas/diesel vehicles, reduces the amount of GHGs emitted from tailpipes. It also reduces the cost of driving. One complicating factor in achieving the higher GHG reductions called for by ARB (19 percent, up from 16 percent) is this reduction in driving cost. As the cost of anything decreases, including driving, people do more of it. It is likely that the reduction in the cost of driving will make the higher target more difficult to achieve. For purposes of SB 375, SACOG and the other MPOs in the state must estimate the future cost of driving, stated as an average cost per mile for the passenger vehicle fleet. For the first SCS adopted in 2012, passenger vehicle auto operating cost was set at \$0.31 per mile, reducing to \$0.28 per mile for the second SCS (see Figure 4). For the third SCS, the cost will be lower still, although it is not yet known by how much. Based on available sources, it would be \$0.23. Each decline in this cost requires additional offsetting land use and transportation measures to achieve the SB 375 greenhouse gas reduction targets.

The service quality provided by roadways has also declined over time, as measured by state of good repair and by congestion. Pavement conditions in the SACOG region, on average, have declined from a rating of 70 (with 100 being new pavement) to 63 (see Figure 5). Generally, ratings of 85 are considered to be “adequate”, and ratings below 60 on freeways, and below 56 on arterial roadways are considered to be in immediate need of rehabilitation. The numbers and the trend-line are alarming: in 2014, the most recent year of available data, congestion in the Sacramento region reached historic highs of over 60 million hours of delay (see Figure 6). Anecdotal data shows significant increases in congestion since 2014, as both the Sacramento region and the Bay Area rebound from the recession and more travelers and trucks are on the roadways.

5. Fiscal Impact/Grant Information:

This item has no fiscal impact to the agency’s operating budget, other than what is already

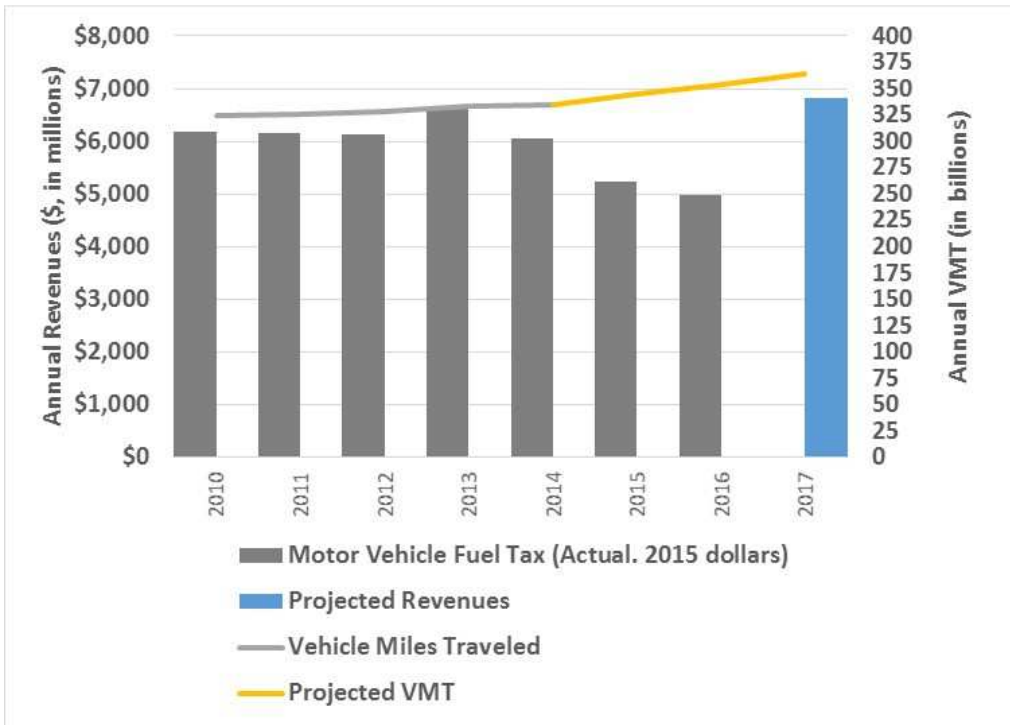
budgeted.

ATTACHMENTS:

Description

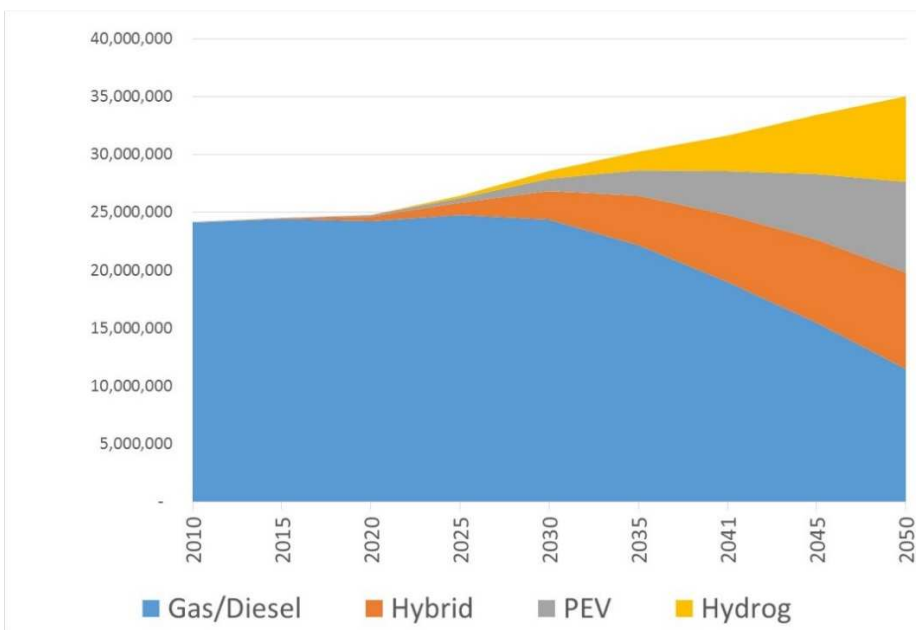
Attachment - Graphics

Figure 1. California Vehicle Miles Traveled and Motor Vehicle Fuel Tax Revenue, 2011-2018



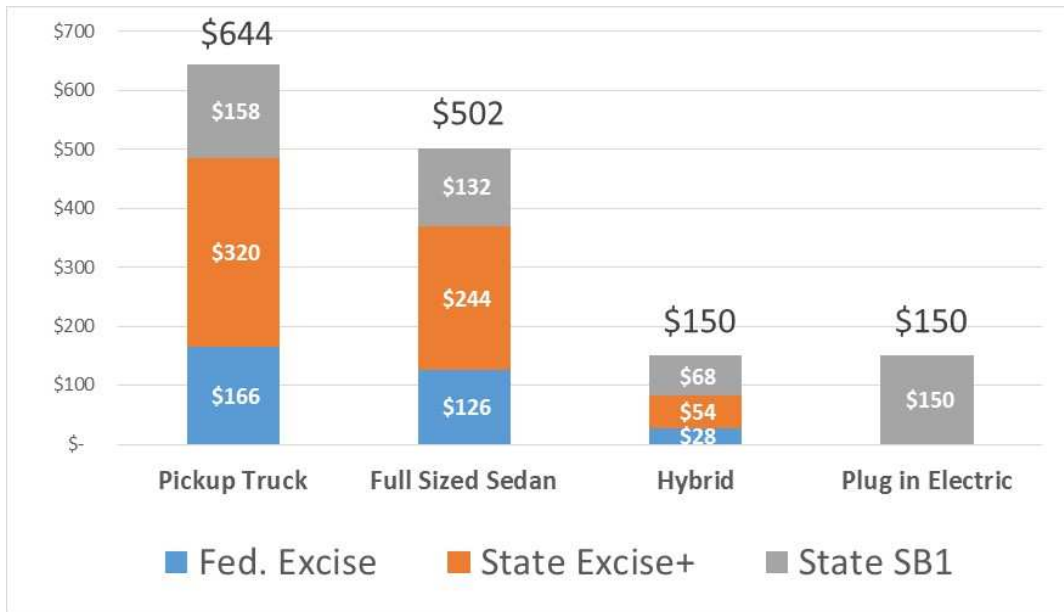
Source: SACOG, based on State budget documents for revenues, and FHWA for VMT. Projected VMT by SACOG (trendline); revenue projection from FY18-19 State budget revenue estimates.

Figure 2. California Vehicle Fleet Forecast, 2010 - 2050



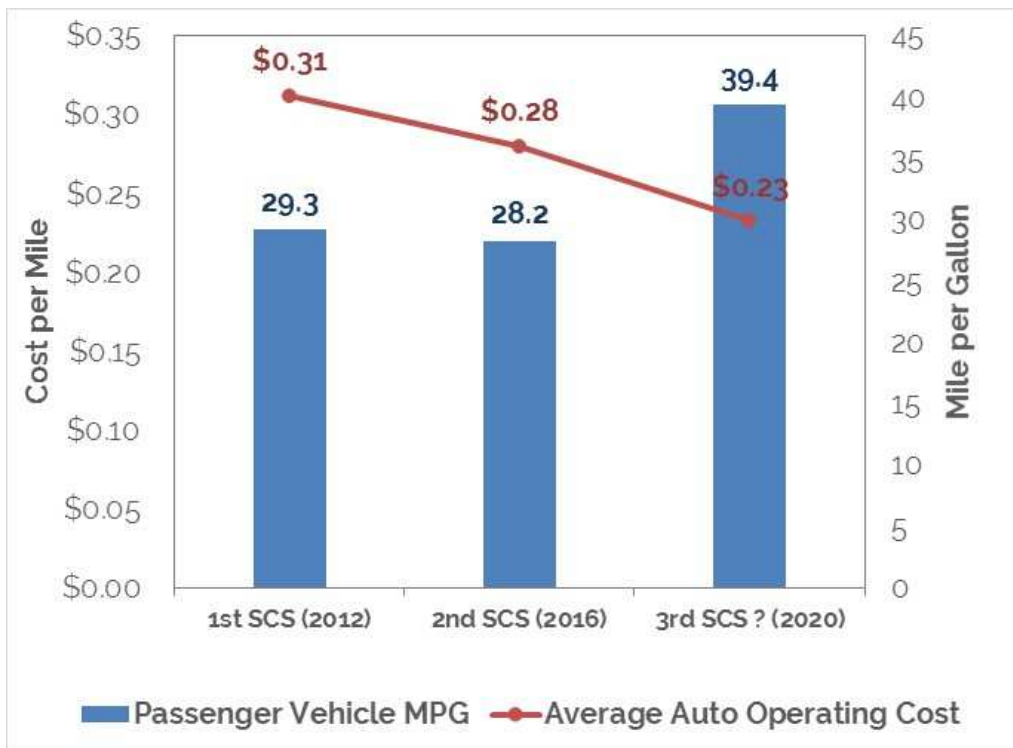
Source: SACOG, based on data from CARB Scoping Plan

Figure 3. Annual Fuel and Vehicle Use Tax Payments for Average Driver by Vehicle Type



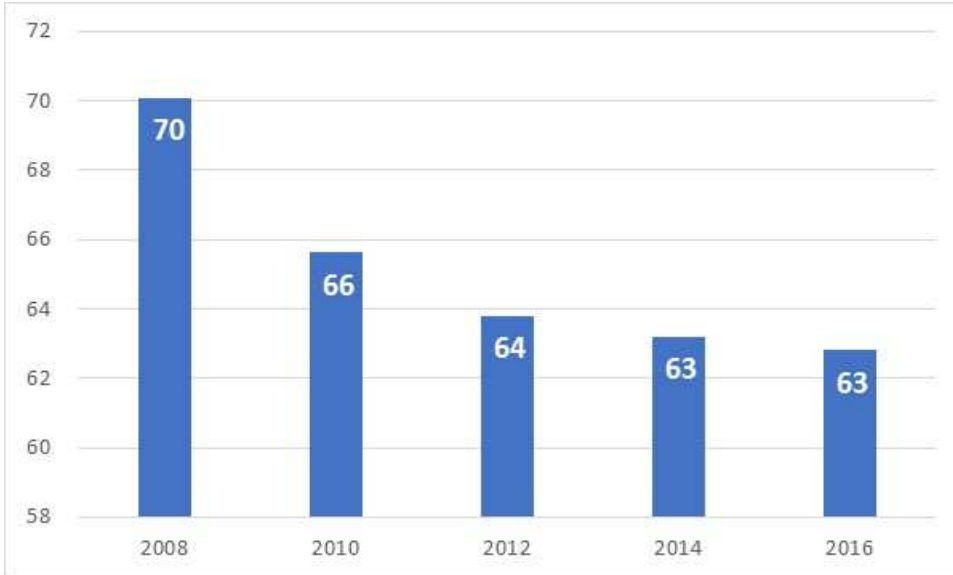
Source: SACOG, based on: 14,400 miles driven; EPA estimates of model year MPG; Kelly Blue Book estimates of model year valuation of vehicles.

Figure 4. Horizon Year Auto Operating Costs for SACOG MTP/SCSs



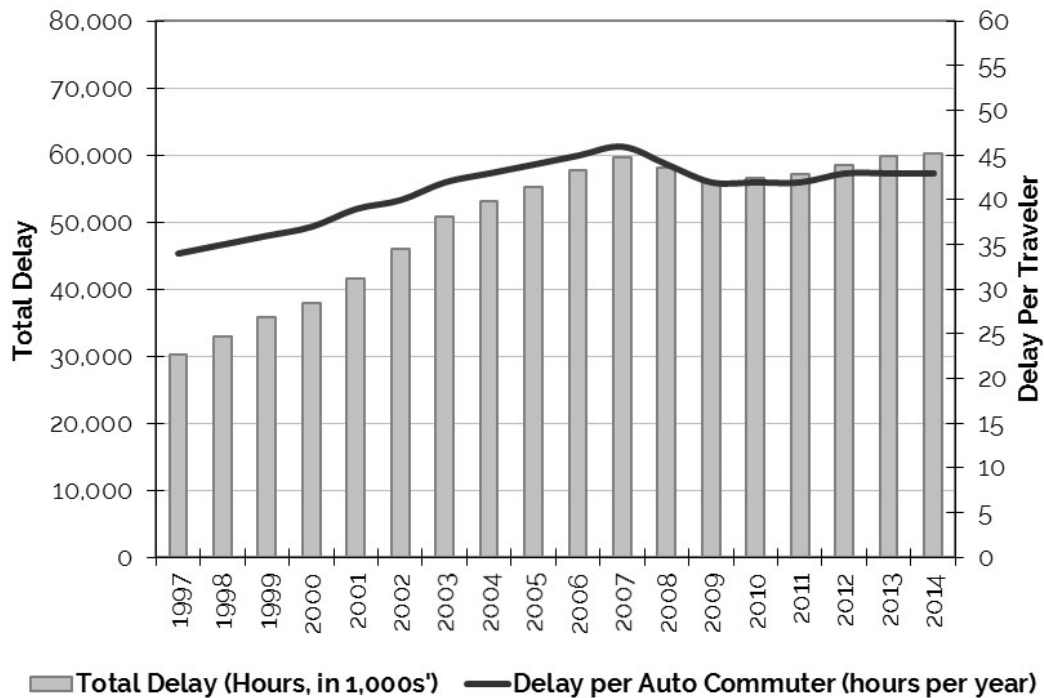
Source: SACOG, based on 2012 and 2016 adopted MTP/SCS. 2020 estimate based on current available data—subject to change prior to SCS adoption.

Figure 5. Average Pavement Condition in SACOG Region, 2008-2016



Source: SACOG, based on the 2016 “California Statewide Local Streets & Roads Needs Assessment”.

Figure 6. Congestion in Sacramento Area



Source: SACOG, based on Texas Transportation Institute, 2015 *Urban Mobility Report* data.

Attachment A: Invited Speakers at May Workshop “Market-Based Pricing to Manage Congestion and Generate Revenue”

Tyler Duvall

Tyler’s client work includes advising large capital project and infrastructure owners and operators, including governments, on improving decision making, enhancing the efficiency, and reducing the operating costs of infrastructure, as well as undertaking strategic reviews of investment.

His recent projects include the following:

- assisting a major North American transit operator to reduce costs
- conducting asset due diligence for infrastructure investors
- advising a Latin American country on developing an economic-growth strategy with a major infrastructure focus
- working with a Middle Eastern government to develop an aviation-policy framework

Tyler has also presented on transportation trends and issues to a variety of private-sector client workshops, and speaks regularly on infrastructure and opportunities.

Before joining McKinsey, Tyler was Under Secretary (Acting) and Assistant Secretary for Transportation Policy at the US Department for Transportation following his nomination by the President and confirmation by the US Senate in 2006.

Before joining the US Department of Transportation, Tyler worked for Hogan & Hartson LLP (now Hogan Lovells) as a business and finance lawyer focused on mergers and acquisitions.

David Ungemah

Since 1994, David Ungemah has provided consulting experience in managed lanes policy, planning, and facility development; congestion pricing programs; Transportation Demand Management (TDM) analysis and development; and highway management and operations development, including Active Traffic Management (ATM) systems. David has extensive managed lanes experience from planning through operations, and is a nationally recognized expert in managed lanes and congestion pricing systems. He is the current co-chair of the TRB Congestion Pricing Committee and immediate past-chair of the TRB Multimodal Pricing Implementation Joint Subcommittee.

Ray Traynor

Ray is the Director of Operations at the San Diego Association of Governments (SANDAG). His current activities include: Toll Operations - I-15 Express Lanes & SR 125 Toll Road; Transportation Systems Management and Operations; Autonomous Vehicle Proving Grounds; Smart Cities and Intelligent Transportation Systems; Shared Mobility/MaaS and Mobility Hubs; Motorist Aid Services/ Freeway Service Patrol; Information Technology Service Management.