

MARKET INTELLIGENCE

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Highway Congestion, “FAST” and Demographics

During the past 25 years, investment in the nation's highways and roads has not kept pace with demographic changes. During this period, the number of licensed drivers increased by nearly 50 million (an increase of roughly 30%), the number of vehicles on the road increased by 65 million (an increase of 35%), and total vehicle miles travelled increased 45%. These increases coincided with an expansion of lane miles in the highway system by a meager 7.7%.

Given this track record, it is not surprising that the recently released Urban Mobility Report shows significant increases in congestion levels on United States' highways¹. Increased congestion has led to increases in travel delays, wasted fuel, and CO2 emissions. Consider the following:

- Delays facing the average traveler increased from 25 hours per year in 1989 to 42 hours per year in 2014 – nearly a 70% increase.
- Fuel “wasted” due to congestion increased from 1 billion gallons in 1989 to 3.1 billion gallons in 2014.
- At a ratio of 20 pounds of CO2 per gallon of fuel, roughly 30 million metric tons of CO2 could be credited to highway congestion – or roughly 2% of all CO2 emissions attached to motor fuel consumption, and this represents a 210% increase over 1989 levels.

Congestion also reduced the efficient connection of suppliers to consumers. Vibrant logistical systems are critical to economic growth and some long-term economic growth may be unrealized without expansion of critical and already overstressed infrastructure such as ports, roads, railroads, and airports. More than 80% of all commercial freight, for example, is transported by truck. These added logistical costs, as well as quality of life issues related to congestion, translate into an annual economic cost of nearly \$160 billion annually at prevailing gasoline prices, according to the Urban Mobility Report.

The demographic trends encountered during the past 25 years are expected to more or less continue during the next 25 years. By 2040, population is expected to increase by 60 million persons – a 19% increase. The number of licensed drivers is expected to increase by another 41 million drivers compared to 2015 levels. Vehicles on the road is expected to increase by 50 million and annual vehicle miles traveled is expected to increase by one half billion miles.

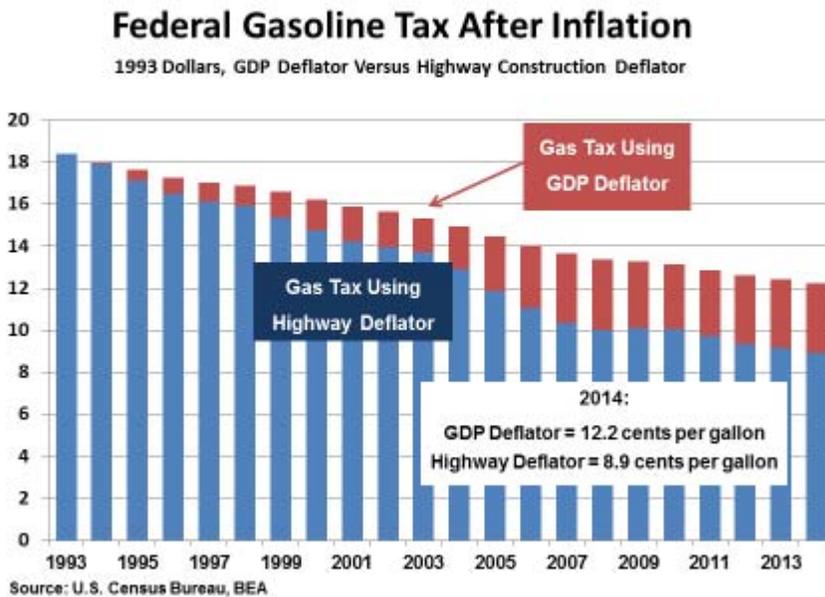
Road congestion could rise dramatically and spread beyond large cities, lacking acceleration in highway expansion. Overlaying the expected demographic movement with **existing** highway lane mileage suggests delays facing the average traveler increased to 72 hours per year, wasting

¹ Texas Transportation Institute, “2015 Urban Mobility Scorecard,” August 2015

roughly 5.3 billion gallons per year, adding nearly 50 million metric tons of CO₂ by 2040. If highway lane miles are expanded at the **same rate** as the past 25 years, demographic movements suggest delays facing the average traveler increased to 60 hours per year, wasting roughly 4.4 billion gallons per year, adding nearly 43 million metric tons of CO₂ by 2040.

Without increased emphasis on infrastructure spending, traffic congestion will worsen leading to increases in wasted fuel, CO₂ emissions and to overall cost to the nation's economy. If climate change policies are developed in the future, a comprehensive approach must take into consideration all factors that contribute to greenhouse gas emissions – including our nation's roadways.

Congress recently passed a new, five year surface transportation spending program named "Fix America's Surface Transportation" act (FAST). While the program increases nominal annual spending, real inflation adjusted spending is held roughly constant throughout the program at 2015 levels. Such restraint in spending is due largely to a faulty funding model. The highway trust fund is based on the federal fuel tax that has not been increased since 1993. There has been resistance by Congress to increase the fuel tax even in the context of inflation and gains in motor vehicles fuel efficiency. The highway funding model has increasingly relied on supplementary contributions from the general fund to meet spending obligations. Lacking a modification to the highway funding model, it is likely that future surface transportation programs will be constrained to modest increases in spending.



According to many, there is significant resistance from Congress to solve the problems of highway funding by simply raising the federal fuel tax. An increase in the federal fuel tax is highly visible and as a result politically sensitive. Modest highway spending programs, such as FAST, are likely to be repeated and do little to prepare for the demographic changes that are likely to unfold during the next 25 years. The results of such programs are the costs to the economy associated with congestion.

The economic costs associated with current and future highway congestion levels far outweigh costs associated with even robust increases in the federal fuel tax. Currently, there are slightly more than 250 million vehicles on the road, each travelling an average of roughly 12,000 miles annually. That translates into slightly more than 3 trillion vehicle miles travelled. The fleet of vehicles on the road averages 17.5 miles per gallon which translates into more than 170 billion gallons of fuel consumed. The Urban Mobility Report estimates current congestion levels cost the economy \$160 billion in 2014. That translates into a cost of congestion of 93 cents per gallon of fuel consumed. PCA estimates that lacking accelerated investment, congestion could increase significantly in the years ahead – adding to the calculated costs of congestion per gallon of fuel consumed.