28th Annual CTS Transportation Research Conference


November 2, 2017

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#CTSResConf
HOW WE PAY FOR TRANSPORTATION INFRASTRUCTURE: WHAT’S THE VALUE PROPOSITION?

Joung Lee
Policy Director
American Association of State Highway and Transportation Officials
SETTING THE CONTEXT:
THE FEDERAL FUNDING CLIFF
PURCHASING POWER LOSS OF GAS TAX DUE TO INFLATION

- Historical CPI-U
- Estimated CPI-U Based on 23-year Average from 1994-2016

40% Purchasing Power Loss by 2016
52% Purchasing Power Loss by 2026
# FEDERAL GAS TAX HEADWIND:
## SIGNIFICANT LOSS OF PURCHASING POWER

## Sample of Nomical Price Changes Relative to Federal Gas Tax

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>1993</th>
<th>2015</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Tuition</td>
<td>Average Tuition &amp; Fees at Public 4-year Universities</td>
<td>$1,908</td>
<td>$9,145</td>
<td>379%</td>
</tr>
<tr>
<td>Healthcare</td>
<td>National Expenediture Per Capita</td>
<td>$3,402</td>
<td>$9,523</td>
<td>180%</td>
</tr>
<tr>
<td>House</td>
<td>Median New Home Price</td>
<td>$118,000</td>
<td>$292,000</td>
<td>147%</td>
</tr>
<tr>
<td>Gas</td>
<td>Per Gallon</td>
<td>$1.08</td>
<td>$2.56</td>
<td>137%</td>
</tr>
<tr>
<td>Beef</td>
<td>Per Pound of Ground Beef</td>
<td>$1.97</td>
<td>$4.38</td>
<td>122%</td>
</tr>
<tr>
<td>Movie Ticket</td>
<td>Average Ticket Price</td>
<td>$4.14</td>
<td>$8.43</td>
<td>104%</td>
</tr>
<tr>
<td>Bread</td>
<td>Per Pound of White Bread</td>
<td>$0.75</td>
<td>$1.48</td>
<td>98%</td>
</tr>
<tr>
<td>Income</td>
<td>National Median Household</td>
<td>$31,241</td>
<td>$56,516</td>
<td>81%</td>
</tr>
<tr>
<td>Stamp</td>
<td>One First-Class Stamp</td>
<td>$0.29</td>
<td>$0.49</td>
<td>69%</td>
</tr>
<tr>
<td>Car</td>
<td>Average New Car</td>
<td>$16,871</td>
<td>$25,487</td>
<td>51%</td>
</tr>
<tr>
<td>Federal Gas Tax</td>
<td>Per Gallon</td>
<td>$0.18</td>
<td>$0.18</td>
<td>0%</td>
</tr>
</tbody>
</table>

### Figure 1: The Federal Gasoline Tax Has Now Gone Longer Than Ever Before Without an Adjustment in Rate

<table>
<thead>
<tr>
<th>Gasoline Tax Rate*</th>
<th>Start Date</th>
<th>End Date</th>
<th>Days Since Last Adjustment</th>
<th>Years Since Last Adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>21-Jun-32</td>
<td>16-Jun-33</td>
<td>361</td>
<td>1.0</td>
</tr>
<tr>
<td>1.5</td>
<td>17-Jun-33</td>
<td>31-Dec-33</td>
<td>198</td>
<td>0.5</td>
</tr>
<tr>
<td>1</td>
<td>1-Jan-34</td>
<td>30-Jun-40</td>
<td>2,373</td>
<td>6.5</td>
</tr>
<tr>
<td>1.5</td>
<td>1-Jul-40</td>
<td>31-Oct-51</td>
<td>4,140</td>
<td>11.3</td>
</tr>
<tr>
<td>2</td>
<td>1-Nov-51</td>
<td>30-Jun-56</td>
<td>1,704</td>
<td>4.7</td>
</tr>
<tr>
<td>3</td>
<td>1-Jul-56</td>
<td>30-Sep-59</td>
<td>1,187</td>
<td>3.3</td>
</tr>
<tr>
<td>4</td>
<td>1-Oct-59</td>
<td>31-Mar-83</td>
<td>8,583</td>
<td>23.5</td>
</tr>
<tr>
<td>9</td>
<td>1-Apr-83</td>
<td>30-Nov-90</td>
<td>2,801</td>
<td>7.7</td>
</tr>
<tr>
<td>14</td>
<td>1-Dec-90</td>
<td>30-Sep-93</td>
<td>1,035</td>
<td>2.8</td>
</tr>
<tr>
<td>18.3</td>
<td>1-Oct-93</td>
<td>Ongoing</td>
<td>8,584**</td>
<td>23.5</td>
</tr>
</tbody>
</table>

* Cents per gallon. Reported tax rates do not include the 0.1 cent Leaking Underground Storage Tank (LUST) fee, which has occasionally been allowed to lapse.

** As of April 1, 2017

**Source:** Institute on Taxation and Economic Policy (ITEP) analysis of information from the Congressional Research Service (CRS).
For illustrative purposes, this scenario assumes maintenance of a "minimum prudence balance" of $4 billion in the Highway Account and $1 billion in the Mass Transit Account.

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### Matrix of Illustrative Surface Transportation Revenue Options

<table>
<thead>
<tr>
<th>Existing Highway Trust Fund Revenue Mechanisms</th>
<th>Illustrative Rate or Percentage Increase</th>
<th>Definition of Mechanism/Increase</th>
<th>$ in Billions</th>
<th>Assumed 2014 Yield</th>
<th>Total Forecast Yield 2015–2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Fuel Tax—Diesel</td>
<td>15.0¢</td>
<td>¢/gal increase in current rate (approx. 10% increase in total rate)</td>
<td>$6.54</td>
<td>$41.79</td>
<td></td>
</tr>
<tr>
<td>Motor Fuel Tax—Gas</td>
<td>10.0¢</td>
<td>¢/gal increase in current rate (approx. 10% increase in total rate)</td>
<td>$13.21</td>
<td>$78.12</td>
<td></td>
</tr>
<tr>
<td>Heavy Vehicle Use Tax</td>
<td>50%</td>
<td>Increase in current revenues, structure not defined</td>
<td>$0.55</td>
<td>$3.42</td>
<td></td>
</tr>
<tr>
<td>Sales Tax—Trucks and Trailers</td>
<td>10%</td>
<td>Increase in current revenues, structure not defined</td>
<td>$0.33</td>
<td>$2.19</td>
<td></td>
</tr>
<tr>
<td>Tire Tax—Trucks</td>
<td>10%</td>
<td>Increase in current revenues, structure not defined</td>
<td>$0.04</td>
<td>$0.23</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Potential Highway Trust Fund Revenue Mechanisms</th>
<th>Illustrative Rate or Percentage Increase</th>
<th>Definition of Mechanism/Increase</th>
<th>$ in Billions</th>
<th>Assumed 2014 Yield*</th>
<th>Total Escalated Yield 2015–2020*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Container Tax</td>
<td>$15.00</td>
<td>Dollar per TEU</td>
<td>$0.66</td>
<td>$4.26</td>
<td></td>
</tr>
<tr>
<td>Customs Revenues</td>
<td>5.0%</td>
<td>Increase in/reallocation of current revenues, structure not defined</td>
<td>$1.80</td>
<td>$11.66</td>
<td></td>
</tr>
<tr>
<td>Drivers License Surcharge</td>
<td>$5.00</td>
<td>Dollar annually</td>
<td>$1.08</td>
<td>$6.98</td>
<td></td>
</tr>
<tr>
<td>Freight Bill—Truck Only</td>
<td>0.5%</td>
<td>Percent of gross freight revenues (primary shipments only)</td>
<td>$3.07</td>
<td>$19.90</td>
<td></td>
</tr>
<tr>
<td>Freight Bill—All Modes</td>
<td>0.5%</td>
<td>Percent of gross freight revenues (primary shipments only)</td>
<td>$3.80</td>
<td>$24.60</td>
<td></td>
</tr>
<tr>
<td>Freight Charge—Ton (Truck Only)</td>
<td>10.0¢</td>
<td>¢/ton of domestic shipments</td>
<td>$1.17</td>
<td>$7.54</td>
<td></td>
</tr>
<tr>
<td>Freight Charge—Ton (All Modes)</td>
<td>10.0¢</td>
<td>¢/ton of domestic shipments</td>
<td>$1.44</td>
<td>$9.29</td>
<td></td>
</tr>
<tr>
<td>Freight Charge—Ton-Mile (Truck Only)</td>
<td>0.10¢</td>
<td>¢/ton-mile of domestic shipments</td>
<td>$1.41</td>
<td>$9.15</td>
<td></td>
</tr>
<tr>
<td>Freight Charge—Ton-Mile (All Modes)</td>
<td>0.10¢</td>
<td>¢/ton-mile of domestic shipments</td>
<td>$3.48</td>
<td>$22.52</td>
<td></td>
</tr>
<tr>
<td>Harbor Maintenance Tax</td>
<td>25.0%</td>
<td>Increase in/reallocation of current revenues, structure not defined</td>
<td>$0.43</td>
<td>$2.79</td>
<td></td>
</tr>
<tr>
<td>Imported Oil Tax</td>
<td>$2.50</td>
<td>Dollar/barrel</td>
<td>$5.76</td>
<td>$37.28</td>
<td></td>
</tr>
<tr>
<td>Income Tax—Business</td>
<td>1.0%</td>
<td>Increase in/reallocation of current revenues, structure not defined</td>
<td>$2.79</td>
<td>$18.06</td>
<td></td>
</tr>
<tr>
<td>Income Tax—Personal</td>
<td>0.5%</td>
<td>Increase in/reallocation of current revenues, structure not defined</td>
<td>$6.70</td>
<td>$43.36</td>
<td></td>
</tr>
<tr>
<td>Motor Fuel Tax Indexing to CPI—Diesel</td>
<td>—</td>
<td>¢/gal excise tax</td>
<td>—</td>
<td>—</td>
<td>$5.22</td>
</tr>
<tr>
<td>Motor Fuel Tax Indexing to CPI—Gas</td>
<td>—</td>
<td>¢/gal excise tax</td>
<td>—</td>
<td>—</td>
<td>$10.87</td>
</tr>
</tbody>
</table>
## Matrix of Illustrative Surface Transportation Revenue Options

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<tr>
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<th>Definition of Mechanism/Increase</th>
<th>Assumed 2014 Yield*</th>
<th>Total Escalated Yield 2015–2020*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil, Gas, and Minerals Receipts</td>
<td>25.0%</td>
<td>Increase in/realloc of current revenues, structure not defined</td>
<td>$2.20</td>
<td>$14.25</td>
</tr>
<tr>
<td>Registration Fee—Electric LDVs</td>
<td>$100.00</td>
<td>Dollar annually</td>
<td>$0.01</td>
<td>$0.06</td>
</tr>
<tr>
<td>Registration Fee—Hybrid LDVs</td>
<td>$50.00</td>
<td>Dollar annually</td>
<td>$0.17</td>
<td>$1.12</td>
</tr>
<tr>
<td>Registration Fee—Light Duty Vehicles</td>
<td>$15.00</td>
<td>Dollar annually</td>
<td>$3.57</td>
<td>$23.11</td>
</tr>
<tr>
<td>Registration Fee—Trucks</td>
<td>$150.00</td>
<td>Dollar annually</td>
<td>$1.63</td>
<td>$10.64</td>
</tr>
<tr>
<td>Registration Fee—All vehicles</td>
<td>$20.00</td>
<td>Dollar annually</td>
<td>$4.98</td>
<td>$32.21</td>
</tr>
<tr>
<td>Sales Tax—Auto-related Parts &amp; Services</td>
<td>1.0%</td>
<td>Percent of sales</td>
<td>$2.32</td>
<td>$15.04</td>
</tr>
<tr>
<td>Sales Tax—Bicycles</td>
<td>1.0%</td>
<td>Percent of sales</td>
<td>$0.06</td>
<td>$0.38</td>
</tr>
<tr>
<td>Sales Tax—Diesel</td>
<td>7.6%</td>
<td>Percent of sales (excl. excise taxes)</td>
<td>$9.65</td>
<td>$62.50</td>
</tr>
<tr>
<td>Sales Tax—Gas</td>
<td>5.6%</td>
<td>Percent of sales (excl. excise taxes)</td>
<td>$24.05</td>
<td>$155.66</td>
</tr>
<tr>
<td>Sales Tax—New Light Duty Vehicles</td>
<td>1.0%</td>
<td>Percent of sales</td>
<td>$2.41</td>
<td>$15.61</td>
</tr>
<tr>
<td>Sales Tax—New and Used Light Duty Vehicles</td>
<td>1.0%</td>
<td>Percent of sales</td>
<td>$3.46</td>
<td>$22.40</td>
</tr>
<tr>
<td>Tire Tax—Bicycles</td>
<td>$2.50</td>
<td>Dollar per bicycle tire</td>
<td>$0.08</td>
<td>$0.53</td>
</tr>
<tr>
<td>Tire Tax—Light Duty Vehicles</td>
<td>1.0%</td>
<td>Of sales of LDV tires</td>
<td>$0.33</td>
<td>$2.12</td>
</tr>
<tr>
<td>Transit Passenger Miles Traveled Fee</td>
<td>1.5¢</td>
<td>¢/passenger mile traveled on all transit modes</td>
<td>$0.04</td>
<td>$5.45</td>
</tr>
<tr>
<td>Vehicle Miles Traveled Fee—Light Duty Vehicles</td>
<td>1.0¢</td>
<td>¢/LDV vehicle mile traveled on all roads</td>
<td>$27.12</td>
<td>$175.58</td>
</tr>
<tr>
<td>Vehicle Miles Traveled Fee—Trucks</td>
<td>4.0¢</td>
<td>¢/truck vehicle mile traveled on all roads</td>
<td>$10.93</td>
<td>$70.73</td>
</tr>
<tr>
<td>Vehicle Miles Traveled Fee—All Vehicles</td>
<td>0¢</td>
<td>¢/vehicle mile traveled on all roads</td>
<td>$38.05</td>
<td>$246.31</td>
</tr>
</tbody>
</table>

* Base annual yield escalated using CPI-U.
Surface Transportation Revenue Options: Illustrative Annual Estimated Yields ($ in billions) *

- Existing Revenue Mechanisms
- Potential Revenue Mechanisms

* Based on the illustrative rate or percentage increase assumed in the summary matrix.
THE INFRASTRUCTURE PACKAGE
That’s why Hillary Clinton is announcing a five-year $275 billion dollar infrastructure plan.

Clinton would increase federal infrastructure funding by $275 billion over a five-year period, fully paying for these investments through business tax reform. Of these funds, she would allocate $250 billion to direct public investment. She would allocate the other $25 billion to a national infrastructure bank, dedicated to advancing our competitive advantage for the 21st century economy. The bank would leverage its $25 billion in funds to support up to an additional $225 billion in direct loans, loan guarantees, and other forms of credit enhancement—meaning that Clinton’s infrastructure plan would in total result in up to $500 billion in federally supported investment. The bank would also administer part of a renewed and expanded Build American Bonds program, and would look for opportunities to work with partners in the private sector to get the best possible outcomes for the American people.
HOW WE GOT HERE
August 2016
$550 billion proposal

Donald Trump Proposes to Double Hillary Clinton’s Spending on Infrastructure

By ALAN RAPPEPORT  AUG. 2, 2016
An analysis by Wilbur Ross, a private equity investor, and Peter Navarro, UC-Irvine business professor. Both are senior policy advisors to the Trump campaign.

We believe that this tax credit-assisted program could help finance up to a trillion dollars’ worth of projects over a ten-year period. This innovative financing option would serve as a critical supplement to existing financing programs, public-private partnerships, Build America Bonds, and other prudent funding opportunities.
REBUILD AMERICA’S Infrastructure

BY THE NUMBERS

✓ $200 Billion
  Infrastructure Funding

✓ 8 Year Reduction
  In Permit Process Time

✓ $25 Billion
  For Rural Infrastructure

✓ $15 Billion
  For Transformative Projects

✓ $100 Billion
  For Local Prioritization of Infrastructure Needs

✓ 1 Million Apprentices
  In 2 Years
INFRASTRUCTURE ASSET CLASSES

AIR TRAFFIC CONTROL
DAMS AND LEVEES
ROADS AND BRIDGES
PASSENGER RAIL AND TRANSIT
WATER AND WASTEWATER
AIRPORTS
GOVERNMENT HOUSING AND BUILDINGS
TELECOM
ELECTRIC TRANSMISSION
PIPELINES
FREIGHT RAIL
PORTS AND WATERWAYS
BROADBAND
PRISONS
SOCIAL INFRASTRUCTURE: SCHOOLS, HOSPITALS, PARKS
REAL ESTATE
POWER GENERATION
OIL EXPLORATION AND PRODUCTION

TRANSPORTATION.ORG
TRUMP ADMINISTRATION’S PRINCIPLES

• Make Targeted Federal Investments
• Encourage Self-Help
• Align Infrastructure Investment with Entities Best Suited to Provide Sustained and Efficient Investment
• Leverage the Private Sector
THE IDEAL PACKAGE

• Fix the Highway Trust Fund for the long term
• Provide substantial share of the package to transportation infrastructure
• Provide direct funding and not just financing tools
• Streamline project delivery by assigning federal authorities to states wherever appropriate
• Focus on projects with long-term economic and quality of life benefits and not just “shovel-ready” projects
• Rely on the existing program framework rather than a top-down structure where the federal government picks projects
STATE EFFORTS TO INCREASE TRANSPORTATION INVESTMENT
All Levels of Government Fund Highways and Transit
Average annual own-source spending by level of government, 2008-12

- **Federal**: 25% of $54 billion
- **State**: 40% of $84 billion
- **Local**: 35% of $75 billion

Source: Pew’s analysis of U.S. Census Bureau’s Annual Survey of State and Local Government Finances, 2008-12; U.S. Office of Management and Budget, Public Budget Database
© 2015 The Pew Charitable Trusts
Successful state plans to raise additional transportation revenue, 2012-

Source: Transportation for America
Years Since Last Gasoline Tax Increase
As of January 1, 2017

Source: Institute on Taxation and Economic Policy (ITEP)
# 54 State Revenue Sources

- Fuel Taxes
- Sales Taxes on Fuel
- Vehicle or Rental Car Sales Tax
- Vehicle Registration
- Weight Fees
- Traffic Camera Fees
- Tolls
- General Funds
- Interest Income
- Inspection Fees
- Advertising
- Impact Fees
- License or Permit Fees
- State Lottery
- Excise Taxes
- Board Funding Obligations
- Ad Valorem Taxes
- Sales Tax
- Congestion Pricing
- Oil Company Taxes
- Fares
- Documentary Stamp Revenue
- Logo Signing
- Situs Tax
- Rail Service Fees
- Toll Road Leases
- Use Tax
- Weight-distance Tax Fines
- Corporate Taxes
- Container Fees
- Land Sales
- Advertising Revenue
- Service Payments
- Contractor’s Tax
- Oil Tax
- Rail Regulation Fees
- Investment Income
- Trail-mile Tax
- Surcharge Fees
- Payroll Tax
- Right-of-way
- Service Concessions
- Loan Repayment
- Loan Fees
- Private Contributions
- Tobacco Tax
- Mass-Transit Tax
- VMT Fees
- Highway Litter Control Fund
- Mineral Royalties
- Short-term Lease/Borrowing
- Public space Revenue
- Parking Meters
MAKING THE VALUE PROPOSITION FOR TRANSPORTATION INVESTMENT
MAKING THE VALUE PROPOSITION

Question: How much does the typical vehicle pay in gas tax in a year?

Probably six thousand, seven thousand dollars a year
Question: How much does the typical vehicle pay in gas tax in a year?

Answer: $293 in federal and state gas taxes per vehicle per year
Question: How much does the typical vehicle pay in gas tax in a year?

Another way to put it...
Average household pays $46 in federal and state gas tax per month. This is less than per monthly cost of:

- Electricity and gas: $160
- Cell phone: $161
- Cable and internet access: $124
SOME COMMON THEMES BEHIND STATE SUCCESS STORIES

• Transportation problems are clearly demonstrated and relatable to the public
• Benefits of proposed investment are made clear
• Broad coalition of support beyond self-interest groups
• Commitment to accountability and performance, aka “Reform”
• Agenda prioritization from the executive branch and legislative branch
MONTHLY COSTS OF ADDITIONAL BENEFITS

The average driver in Missouri pays $29.91 per month in federal and state taxes/fees to support Missouri’s system of roads and bridges.

Based on 13,476 miles driven per year at 21.4 mpg, plus the average motor vehicle sales tax per driver.

Additional Investments Needed to Improve Missouri’s Transportation System

- **$3.30/month**
  - Per licensed driver
  - **$170 million**
  - Improve Road and Bridge Conditions

- **$5.34/month**
  - Per licensed driver
  - **$275 million**
  - Invest in projects that increase economic growth and improve safety

- **$5.82/month**
  - Per licensed driver
  - **$300 million**
  - Major Interstate Reconstruction

- **$1.55/month**
  - Per licensed driver
  - **$80 million**
  - Improve Multimodal Transportation Options
How does the road usage charge compare with paying the fuel tax? Let’s take a look!

We compared these two models:

2014 Toyota Prius
- 50 mpg
- Combined fuel economy

2014 Ford F-150
- 18 mpg
- Combined fuel economy

The average Oregonian drives 12,962 miles each year. The average price of gas in Oregon (including tax) is $2.876.*

Amount of fuel used annually:

- Toyota Prius: 259.24 gallons
- Ford F-150: 720.11 gallons

Total costs with fuel tax:

- Toyota Prius: $745.57
  - Includes $77.77 state fuel tax
- Ford F-150: $2,071.04
  - Includes $216.03 state fuel tax

Total costs with road usage charge:

- Toyota Prius: $862.23
  - Includes $194.43 road usage charge
- Ford F-150: $2,049.43
  - Includes $194.43 road usage charge

Difference: +$116.66
- The owner of the Prius pays a little more in road usage charge — $9.72 per month — which is offset by significant savings in fuel, using 460.87 gallons less per year.

Difference: -$21.60
- If enrolled in the Road Usage Charge Program, the owner of the F-150 would earn a rebate of $1.80 per month because fuels tax paid at the pump exceeds the road usage charge.

Find out more at myOReGO.org

YOU TOO CAN GO FROM THIS...

State senator calls for criminal probe of Bay Bridge construction problems

Outcry Grows for More Pedestrian Safety on Morganton Road

Reform WSDOT now to avoid an increase in the gas tax

Audit shows major supervision problems at Metro-North

Miami Central Station Project Mistake Costing Taxpayers Millions

DOT admits Pilot Mountain bridge project mistakes

DOT mistake will cost taxpayers $98,000

Seattle DOT botched snow response
TO THIS!

Maintaining Colorado's Roads a Science

Texas DOT Achieves Historic Savings in Bond Refinancing

California DOT Reports on How It's Providing Safer Mobility for All Transportation System Users

On Time and Under Budget, Maine Opens Veterans Memorial Bridge

The Iowa DOT’s behind-the-scenes safety team

Idaho Transportation Department Director Straightens Out Agency

New Report Shows Wisconsin DMV Wait Times Are Down, Online Services Are Up

Georgia DOT Rolls Out Smarter, Revamped Website for Travelers
DISCUSSION
28th Annual CTS Transportation Research Conference


November 2, 2017

Join the conversation!

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