

2016 Road Use Tax Fund (RUTF) Study

**A report to the Iowa Legislature, pursuant to 2016 Iowa Code
Section 307.31**

Prepared by Iowa Department of Transportation

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INTRODUCTION

A key component of Iowa's transportation system is the public roadway system owned and maintained by the state, cities and counties. In order to regularly evaluate the conditions of Iowa's public roadway infrastructure and assess the ability of existing revenues to meet the needs of the system, the Iowa Department of Transportation's 2006 Road Use Tax Fund (RUTF) report to the legislature included a recommendation that a study be conducted every five years. That recommendation was included in legislation adopted in 2007 and signed into law. The law specifically requires the following (2016 Iowa Code Section 307.31):

- *"The department shall periodically review the current revenue levels of the road use tax fund and the sufficiency of those revenues for the projected construction and maintenance needs of city, county, and state governments in the future. The department shall submit a written report to the general assembly regarding its findings by December 31 every five years, beginning in 2011. The report may include recommendations concerning funding levels needed to support the future mobility and accessibility for users of Iowa's public road system."*
- *"The department shall evaluate alternative funding sources for road maintenance and construction and report to the general assembly at least every five years on the advantages and disadvantages and the viability of alternative funding mechanisms."*

To comply with this requirement, the Iowa Department of Transportation (DOT) prepared a 2011 RUTF Study (www.iowadot.gov/pdf_files/RUTFStudy2011.pdf). This study relied heavily on the work of the Governor's Transportation 2020 Citizen Advisory Commission (CAC), established by Governor Terry E. Branstad to assist the Iowa DOT as it assessed the condition of Iowa's roadway system and evaluated current and future funding available to best address system needs.

The 2011 RUTF Study ultimately led to the passage of Senate File 257 in the 2015 legislative session that was signed into law on February 25, 2015. The major component of this bill was the increase of the state fuel tax rate on March 1, 2015, in order to meet the critical need funding shortfall identified in the study.

With the recent increase in the state fuel tax rate, jurisdictions across Iowa are now putting those additional funds into road and bridge construction projects. With one full construction season complete following the increase in funding, it is difficult to accurately assess the long-term impact on construction needs. Therefore, this 2016 RUTF Study focuses on the actions taken since the 2011 RUTF Study and on alternative funding mechanisms.

BACKGROUND

As part of any study of RUTF revenue and needs, it is important to review background information regarding past studies, conditions, funding and other issues that impact Iowa's public roadway system.

Status of Recommendations from the 2011 RUTF Study

The 2011 RUTF Study included many recommendations, including the recommendation to increase funding to meet the critical need funding shortfall. Below is a list of the recommendations along with the status.

- **Recommendation 1 - Through a combination of efficiency savings and increased revenue, a minimum of \$215 million of revenue per year should be generated to meet Iowa's critical roadway needs.** On February 25, 2015, Senate File 257 (www.legis.iowa.gov/legislation/BillBook?ga=86&ba=sf257) was signed into law increasing Iowa's motor fuel excise tax rates for the first time since 1989. The increased fuel tax rates went into effect on March 1, 2015, and is estimated to generate approximately \$215 million in additional transportation revenue annually. A full summary of Senate File 257 is included in the next section.
- **Recommendation 2 - The Code of Iowa should be changed to require the study of the sufficiency of the state's road funds to meet the road system's needs every two years instead of every five years to coincide with the biennial legislative budget appropriation schedule.** This recommendation has not been implemented. However, the Iowa DOT regularly analyzes system condition and funding and shares that information with the legislature and other interested parties.
- **Recommendation 3 - Modify the current registration fee for electric vehicles to be based on weight and value using the same formula that applies to most passenger vehicles.** Since 1927 registration fees for electric vehicles had been set at \$25 if less than five model years old and \$15 if more than five model years old. Section 162 of Senate File 452 (www.legis.iowa.gov/legislation/BillBook?ga=85&ba=SF%20452), signed into law on June 20, 2013, repealed these registration fees and made electric vehicles subject to the same weight and value formula as other vehicles. The weight and value registration fee applies to electric motor vehicles registered on or after January 1, 2014.
- **Recommendation 4 - Consistent with existing Code of Iowa requirements, any new funding should go to the TIME-21 Fund up to the cap (\$225 million) and remaining new funding should be distributed consistent with the Road Use Tax Fund distribution formula.** As part of stakeholder and legislative discussion leading up to passage of the fuel tax increase, there was extensive discussion about where the additional funding should be allocated. This is important because the formula allocations of state road funding to the cities, counties and the Iowa DOT is different between the TIME-21 Fund and the Road Use Tax Fund. Those discussions led to the conclusion that given the significant funding shortfall across all jurisdictions, it was important that any new funds go into the Road Use Tax Fund instead of the TIME-21 Fund. This was reflected in the fuel tax increase legislation.
- **Recommendation 5 - The CAC recommended the Iowa DOT at least annually convene meetings with cities and counties to review the operation, maintenance and improvement of Iowa's public roadway system to identify ways to jointly increase efficiency. In direct response to this recommendation, Governor Branstad directed the Iowa DOT to begin this effort immediately with a target of identifying \$50 million of efficiency savings that can be captured from the over \$1 billion of state revenue already provided to the Iowa DOT and Iowa's cities and counties to administer, maintain and improve Iowa's public roadway system. This would build upon past joint and**

individual actions that have reduced administrative costs and resulted in increased funding for improvement of Iowa's public roadway system. Efficiency actions should be quantified, measured and reported to the public on a regular basis. In response to this recommendation, the Iowa DOT has regularly reported to the legislature the results of their efficiency actions. In addition, the fuel tax increase legislation directed Iowa DOT to identify \$10 million of additional efficiencies in FY 2016 and another \$10 million in FY 2017. The total amount of efficiencies has exceeded the level directed by Governor Branstad and the level directed by the fuel tax increase legislation.

The Iowa DOT, cities and counties continue to meet regularly to identify ways to jointly increase efficiency. As one example, a Local Public Agency (LPA) Stakeholder Partnering Committee was established to more effectively deliver projects that include federal funding. This committee includes members from cities, counties, Iowa DOT and the Federal Highway Administration.

- **Recommendation 6 - By June 30, 2012, Iowa DOT should complete a study of vehicles and equipment that use Iowa's public roadway system but pay no user fees or substantially lower user fees than other vehicles and equipment.** The Iowa DOT completed its Analysis of Road Use Tax Fund User Fee Generation study in October 2012. The study included a comprehensive review of vehicles and equipment that use Iowa's Public Roadway System. The study can be found at www.iowadot.gov/transportation2020/pdfs/RUTF%20User%20Fee%20Analysis.pdf. Recommendations from the analysis included improving the process by which vehicle values are determined as part of the fee for new registration calculation. The study also recommended eliminating the discounted registration fees for electric vehicles. As noted above under recommendation 3 the reduced registration fees were eliminated as part of legislation passed in 2013. Annual registration fees for electric vehicles are now set based on the same weight and value formula that is used for non-electric vehicles.

In addition, the study noted that the Iowa DOT would continue to evaluate fuel tax rates to ensure equity among all excise tax rates, specifically those rates for Liquefied Natural Gas (LNG), Liquefied Petroleum Gas (LPG), and Compressed Natural Gas (CNG). The Iowa DOT evaluation of these rates led to legislation signed into law on March 26, 2014 (www.legis.iowa.gov/legislation/BillBook?ga=85&ba=SF 2338) that made LNG, LPG, and CNG rates consistent with tax rates levied on other motor fuels.

Summary of Senate File 257

As already documented, the most significant action to address the funding shortfall for Iowa's most critical roadway needs was the passage of Senate File 257. The most significant action from this bill was the increase in fuel tax rates of ten cents per gallon. However, there were many other provisions in the bill and they are summarized below.

- Effective March 1, 2015
 - Ten cent per gallon (cpg) fuel tax increase
 - Gasoline (21 cpg to 31 cpg)
 - Ethanol-blended gasoline (19 cpg to 29 cpg)
 - Taxable diesel fuel (22.5 cpg to 32.5 cpg)
 - Liquefied Petroleum Gas (20 cpg to 30 cpg)
 - Compressed Natural Gas (21 cpg to 31 cpg)
 - Liquefied Natural Gas (22.5 cpg to 32.5 cpg)
 - Two cpg jet fuel tax increase (3 cpg to 5 cpg)

- Variable tax rate for ethanol-blended fuels extended until June 30, 2020.
- Effective July 1, 2015 - variable tax rate for diesel fuel established
 - Varies based on share of all diesel fuel sales that are biodiesel at 11 percent or greater blends (B-11+)
 - At less than 50 percent share:
 - B-11+: 29.5 cpg
 - All other taxable diesel: 32.5 cpg
- Effective January 1, 2016 - increases to some oversize/overweight permit fees
 - Annual Permit (from \$25 to \$50)
 - Annual with Weight Permit (from \$300 to \$400)
 - Single-Trip Permit (from \$10 to \$35)
 - All Systems Permit (from \$120 to \$160)
- Other miscellaneous provisions
 - Legislative intent language
 - 100 percent of additional funding goes to critical road and bridge projects.
 - Iowa DOT shall identify additional projects in the Five-Year Program.
 - Iowa DOT will identify \$10 million of efficiencies for FY 2016 and another \$10 million for FY 2017 and document in RUTF Efficiency Report to the legislature.
 - County road funds from the state cannot be used to service new debt if the terms exceed the useful life of the asset being improved.
 - Legislative interim committee appointed to review variable tax rate formulas.
 - First review is due January 1, 2020
 - Subsequent reviews every six years
- Fiscal Year 2016 Revenue Estimate
 - Fuel tax increase: Approximately \$213 million
 - Deposited into the Road Use Tax Fund (RUTF)
 - Iowa DOT: 47.5 percent (\$101 million)
 - County: 32.5 percent (\$69 million)
 - City: 20 percent (\$43 million)
 - Oversize/overweight permit fee increase: Approximately \$1.5 million (half of a year)
 - Jet fuel tax increase: Approximately \$765,000

As required by the legislation, the projects programmed by the Iowa Transportation Commission as a result of the funding increase are specifically identified in the Five-Year Program. In addition, at the end of calendar year 2015, the Iowa DOT conducted a survey of cities and counties to identify projects they planned to implement as a result of the funding increase. A similar survey is currently underway again at the end of calendar year 2016.

Iowa's Public Roadway System

Iowa's public roadway system is comprised of over 114,000 miles of roads with approximately 25,000 bridges. Table 1 is a summary of mileage and vehicle miles of travel (VMT) by jurisdictional responsibility.

Table 1 - Mileage and Vehicle Miles of Travel (VMT) by System

	Mileage* (as of January 1, 2016)	% of Total Mileage	2015 Total VMT (Millions)	% of Total VMT	2015 Large Truck VMT (Millions)	% of Total Large Truck VMT
Primary	9,402.49	8.2%	20,879	63.1%	2,741	91.9%
Secondary	89,781.14	78.6%	5,326	16.1%	222	7.4%
Municipal	15,066.91	13.2%	6,904	20.8%	19	0.7%
Total	114,250.54		33,109		2,982	

*This table and study do not include the small amount of mileage within Iowa’s parks and institutions.

Source: Iowa DOT

While the size of Iowa’s public roadway system has not increased significantly over the years, the infrastructure burden on Iowans remains significant. Nationally, Iowa ranks fifth in number of bridges and 12th in miles of roadway, yet the state ranks 30th in population and 23rd in land area.

Funding

State RUTF/TIME-21

State revenue to the RUTF and TIME-21 Fund comes from various sources as summarized in Table 2 below.

Table 2 – State Road Funding

Funding Source	FY 2017 (estimated)	Percent of Total	State Constitution Requires Funds be Used Only for Roads?
Fuel Tax	\$671 million	41 percent	Yes
Annual Registration Fee	\$550 million	34 percent	Yes
Fee for New Registration	\$340 million	21 percent	Yes
Other*	\$75 million	4 percent	No
Total	\$1.636 billion		

* Driver’s license fees, title fees, trailer registration fees, and other miscellaneous fees.

Source: Iowa DOT – Offices of Program Management and Systems Planning

It is important to note that 96 percent of all the revenue that flows into the RUTF/TIME-21 Fund is required by the Iowa Constitution to be spent on Iowa’s public roadways and cannot be diverted for non-roadway programs.

Of these funding sources, only fuel tax and pro-rated annual registration fees from commercial vehicles generate funding from out-of-state drivers. In the 2008 TIME-21 Study, the Iowa DOT estimated that out-of-state drivers generate 20 percent of total travel on Iowa’s roadways, but provide only 13 percent of state road revenue. Iowa drivers produce 80 percent of the total travel on Iowa’s roadways, but provide 87 percent of state road revenue.

Impact of Inflation

Throughout the 1980s and 1990s, state road funding saw relatively high growth from year to year. This was due to rapid growth in travel, little change in fuel efficiency, and elimination of non-roadway appropriations from road funds. From 2000 through 2009 (see Table 3 and Figure 1), road funding remained relatively flat,

even experiencing one year where funding fell from the previous year. However, construction cost inflation has had a dramatically negative impact on the buying power of road funding. Over the five-year period from 2004 to 2008, the construction cost index in Iowa (based on actual awarded contracts for excavation, surfacing and structures) grew by 67 percent, the largest five-year increase in construction costs since 1986 when the measure began being tracked.

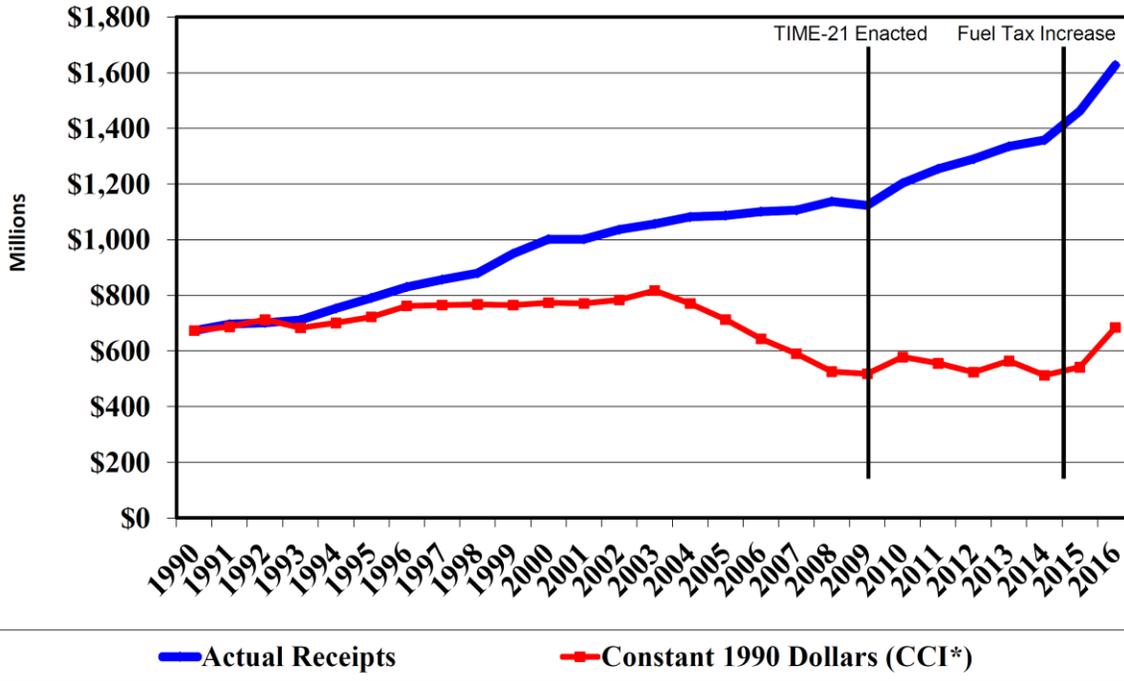
Fiscal year 2010 saw growth in actual road funding due to the phase in of TIME-21 revenue changes adopted by the legislature in 2008 (as noted in Figure 1). However, the buying power remained relatively flat until the fuel tax increase passed in 2015 which generated enough revenue to increase buying power.

Table 3 – RUTF/TIME-21 Revenue History

Year	RUTF/TIME-21 Revenue Actual Receipts (Millions)	Percent Change from Previous Year	RUTF/TIME-21 Revenue Adjusted to Constant 1990 Dollars Based on Iowa Construction Cost Index (Millions)	Percent Change from Previous Year
1990	\$674		\$674	
1991	\$696	3.3%	\$687	2.0%
1992	\$702	0.8%	\$713	3.7%
1993	\$712	1.4%	\$683	-4.1%
1994	\$753	5.8%	\$701	2.6%
1995	\$791	5.0%	\$722	3.1%
1996	\$830	5.0%	\$762	5.5%
1997	\$856	3.1%	\$765	0.4%
1998	\$880	2.7%	\$767	0.3%
1999	\$950	7.9%	\$765	-0.3%
2000	\$1,002	5.5%	\$774	1.1%
2001	\$1,002	0.0%	\$771	-0.4%
2002	\$1,036	3.4%	\$783	1.6%
2003	\$1,057	2.0%	\$817	4.3%
2004	\$1,082	2.4%	\$770	-5.7%
2005	\$1,087	0.5%	\$713	-7.4%
2006	\$1,101	1.3%	\$644	-9.7%
2007	\$1,106	0.4%	\$591	-8.3%
2008	\$1,138	2.9%	\$526	-11.0%
2009	\$1,123	-1.3%	\$518	-1.5%
2010	\$1,203	7.1%	\$578	11.6%
2011	\$1,255	4.3%	\$556	-3.9%
2012	\$1,290	2.8%	\$524	-5.8%
2013	\$1,335	3.5%	\$565	7.8%
2014	\$1,358	1.7%	\$513	-9.2%
2015	\$1,462	7.7%	\$542	5.7%
2016	\$1,627	11.3%	\$684	26.3%

Source: Iowa DOT – Offices of Program Management and Systems Planning

Figure 1 – History of RUTF and TIME-21 Revenue (FY 1990 to FY 2016)



* CCI = Iowa Construction Cost Index. This reflects the inflation of roadway construction costs in Iowa and corresponding change in buying power.

Source: Iowa DOT – Offices of Program Management and Systems Planning

With the fuel tax increase taking effect on March 1, 2015, the increased revenue begins to be reflected in the actual receipts for FY 2015 (as noted in Figure 1). The full impact is reflected in FY 2016 revenue. In terms of constant buying power, the FY 2016 revenue gets back to the level of funding experienced following the last fuel tax increase.

Federal Funding

The 2011 RUTF Study documented the significant concern with federal funding for roads and bridges due to the insolvency of the federal Highway Trust Fund and lack of a long-term authorization bill that caused great uncertainty. However, 2015 also was a significant year in road and bridge funding from a federal perspective. On December 4, 2015, the Fixing America’s Surface Transportation (FAST) Act was signed into law. For the first time in many years, this authorization bill provides federal funding certainty through September 30, 2020. In addition to providing funding certainty over this time period, the FAST Act provides for a modest increase in funding.

Table 4 – Federal Highway Apportionments for Iowa

Year	Amount (Millions)	Annual Increase
2015	\$474.3	
2016	\$498.5	5.1%
2017	\$508.8	2.1%
2018	\$519.8	2.2%
2019	\$531.5	2.3%
2020	\$544.3	2.4%

Source: Iowa DOT – Office of Program Management

Over the life of the FAST Act, federal funding for roads and bridges in Iowa is expected to increase 14.7 percent.

Status of Funding Shortfall

As part of the 2011 RUTF Study, Iowa DOT assessed the total twenty-year needs to address all administration, maintenance and construction costs for Iowa’s public roadway system. In addition, the analysis looked at the subset of most critical needs necessary to support and grow Iowa’s economy along with a forecast of revenue. Following is a summary of the needs analysis.

Table 5 – Total Funding Shortfall from 2011 RUTF Study

	Twenty-Year Total (in millions)	Average Annual (in millions)
Needs	\$79,800	\$3,990
Revenue*	\$47,300	\$2,365
Shortfall	(\$32,500)	(\$1,625)

* Includes forecasted TIME-21 revenue

As shown in Table 5, over a twenty-year period the funding shortfall to meet all current and future needs of Iowa’s city, county and state roadway system was projected at \$32.5 billion. On an annual basis, the funding shortfall was over \$1.6 billion. The estimate of total needs of the roadway system did not take into account the fact that some of the needs have a cost that exceeds the benefits to the state. In an effort to take into consideration the economic benefits of different types of improvements on roadways with different traffic levels, the total needs were further refined to determine critical needs on the system.

The critical need level is the amount of funding necessary to meet the most critical pavement and bridge preservation needs that exist on Iowa’s Interstate system, Commercial and Industrial Network, Farm-to-Market Network, and key city streets. In addition, the critical need level partially supports the following categories of need:

- Capacity improvements on high-volume and CIN roads.
- Reconstruction of high-volume roads with poor pavement.
- Repair/replacement of functionally obsolete bridges on high-volume roads.
- Repair/replacement of structurally deficient bridges on low-volume roads.
- Resurfacing of low-volume roads.

At the Iowa DOT, current and needed investments in stewardship (i.e. construction projects to extend the life and modernize existing infrastructure without adding capacity) and investments to complete currently programmed corridor completion projects were not able to done as scheduled. At the local level, funding was not available to meet the most critical stewardship needs on the existing infrastructure.

Based on this evaluation of needs and revenues, the shortfall in meeting Iowa’s most critical public roadway needs was estimated to be \$215 million, in addition to TIME-21 revenues were still phasing in, as shown in Table 6.

Table 6 – Critical Funding Shortfall from the 2011 RUTF Study

	Twenty-Year Total (in millions)	Average Annual (in millions)
Needs	\$51,600	\$2,580
Revenue*	\$47,300	\$2,365
Shortfall	(\$4,300)	(\$215)

* Includes forecasted TIME-21 revenue

As described earlier in this study, the state fuel tax alone generated approximately \$215 million in additional revenue – for all practical purposes, eliminating the critical funding shortfall. In addition, as described earlier, federal funding for roads and bridges in Iowa increased by nearly \$50 million from 2015 to 2016, with an approximate annual \$10 million increase per year through 2020. With the increased federal funding, the critical funding shortfall has been addressed, even if lost buying power from 2011 through 2016 is considered. As stated in previous studies, it is important to note that even though the critical need shortfall has been eliminated, large portions of the system will still continue to experience deteriorating pavement and bridge conditions. By funding the critical need shortfall, improvements can be made on the roadways that will have the greatest impact on sustaining and growing Iowa’s economy.

Impact of Alternative Fuel Vehicles and Increasing Fuel Efficiency

While road and bridge funding has increased at both the state and federal level, there are still challenges in the future due to more alternative fuel vehicles on the road and increasing fuel efficiency. Today, state fuel taxes make up about 41 percent of state road revenue and federal fuel taxes make up about 90 percent of receipts allocated to the federal Highway Trust Fund.

Both increasing fuel economy and alternatively fueled vehicles are impacting fuel tax revenue collections. Since the year 2000 average fleet fuel economy has increased from 24.8 miles per gallon (MPG) to 31.5 in 2014. Corporate Average Fuel Economy (CAFE) standards require that passenger cars and light trucks manufactured between 2017 and 2021 achieve an average combined fleet-wide fuel economy of 40.3-41.0 mpg. This is set to increase to 48.7-49.7 mpg for model years 2022-2025. In addition, the nation’s fleet of medium and heavy duty vehicles were subject to meet fuel efficiency standards beginning in 2014. By 2018, reductions of 10 to 20 percent in fuel use are required for vocational, heavy-duty trucks/vans, and combination tractors (semi-trucks).

Finally, increasing market share for alternative fuel vehicles such as electric vehicles and plug-in hybrid vehicles will continue to negatively impact fuel tax collections. While charging infrastructure is currently limited, expansion and use of refueling options could have a significant impact on the amount of fuel tax collected for transportation investments.

The state of Iowa has better diversity of RUTF revenue sources, thus reducing the negative impact on overall revenues due to decreasing fuel tax revenue. However, the federal program dependence on federal fuel tax has made the federal funding challenges significant, resulting in Congress transferring over \$140 billion to the federal Highway Trust Fund to meet authorized funding levels.

CONCLUSIONS

Due to the increase in road and bridge funding at the state and federal level, the critical funding shortfall identified in the 2011 RUTF Study has been eliminated. Because investments of these funding increases are just beginning to be implemented, the full impact on future roadway needs are difficult to estimate at this time. With the elimination of the critical funding shortfall, this study does not include any recommendations for changes to funding mechanisms.

However, as with the 2011 RUTF Study, this study includes an updated analysis of existing revenue sources (see Appendix A) and potential revenue sources (see Appendix B). This analysis is required by the Code of Iowa requirements associated with this study. The legislature added this requirement to the study recognizing there are challenges with existing funding mechanisms including the ability to keep pace with construction cost inflation, changes occurring with alternative fuel vehicles, and increasing vehicle fuel efficiency. These challenges are not unique to Iowa; therefore, there are ongoing efforts nationally and in other states to study the issue. Three areas, in particular, are being studied and/or implemented in other states.

Indexing Fuel Tax Rates

In addition to increasing fuel economy and increased use of alternative fuel vehicles, transportation revenues are also being further strained due to inflation. To address this issue, some states have implemented legislation that indexes fuel tax rates to inflation or the wholesale price of fuel. These adjustments are typically applied on an annual basis and boost fuel tax revenues to account for increases in construction costs.

A review of states shows that Florida, Georgia, North Carolina, Michigan, Rhode Island, Utah, and Maryland have laws in place, or will in the future, that adjust fuel tax rates based on the Consumer Price Index.

In addition, in the state of Nevada, the indexing of fuel tax rates has been performed within two counties. An upcoming ballot measure could allow indexing to be allowed in all counties on a county by county basis. Indexing would be based on a highway and street construction cost inflation factor and be averaged over 10 years.

Other states including Kentucky, Utah, Vermont, Virginia, and the District of Columbia have passed legislation indexing fuel tax rates to the wholesale price of fuel. It is important to note that with either of these indexing methods most states have included language that sets a baseline level to ensure revenues aren't subject to deflation or declines in the price of fuel. A summary of fuel tax indexing by state is shown below in Table 7.

Table 7 – Fuel Tax Indexing by State

State	Index Type	Notes
Florida	Consumer Price Index	National CPI
Michigan	Consumer Price Index	Begins 1/1/2022. Lesser of \$0.05 or inflation rate. No negative adjustments
Nevada	Consumer Price Index	Levied for certain counties
Rhode Island	Consumer Price Index	All Urban Consumers CPI. Minimum fuel tax of \$0.32.
Georgia	Consumer Price Index and Corporate Average Fuel Economy	CPI adjustments sunset after July 1, 2018
North Carolina	Consumer Price Index and Population Growth	Begins 1/1/2018. Index is CPI (25%) and population growth (75%)
Maryland	Consumer Price Index and Wholesale Fuel Price	Indexing limited to 8% increase annually. No negative adjustments.
Utah	Consumer Price Index and Wholesale Fuel Price	12% tax rate. Maximum fuel tax of \$0.40.
California	Wholesale Fuel Price	2.25% tax rate
Connecticut	Wholesale Fuel Price	8.1% tax rate
District of Columbia	Wholesale Fuel Price	8% tax rate. Minimum W.F.P. of \$2.94. Maximum increase of 10%.
Kentucky	Wholesale Fuel Price	9% tax rate. Minimum fuel tax of \$0.26. Maximum increase of \$0.10 annually
Nebraska	Wholesale Fuel Price	Variable rate applied to W.F.P. so revenue funds appropriations
New York	Wholesale Fuel Price	Maximum increase of 5%
Pennsylvania	Wholesale Fuel Price	Minimum W.F.P. of \$2.99 on 1/1/2017
Vermont	Wholesale Fuel Price	4% tax rate. Minimum of \$0.134 and maximum of \$0.18.
Virginia	Wholesale Fuel Price	5.1% tax rate. Minimum W.F.P. of \$3.19
West Virginia	Wholesale Fuel Price	Maximum increase of 5%. Minimum W.F.P. of \$2.34

Alternative Fuel Vehicle Registration Fee

As noted earlier, the largest component of federal and state transportation revenue is derived from excise taxes on motor fuel. Reliance on this source of funds is challenging for many reasons including the expected transition from fossil fuel vehicles to alternative fuel vehicles. Alternative fuel vehicles, such as electric vehicles and plug in hybrid vehicles, use no, or very little, motor fuel upon which excise taxes are levied.

An alternative fuel vehicle registration fee is meant to capture a user fee from alternative fuel vehicles to replace the reduced or eliminated fuel tax revenue. Multiple states have, or are considering, implementing an alternative fuel vehicle registration fee that is in addition to annual registration fees. As of the end of 2015, a total of ten states have passed legislation that implemented an additional fee on electric vehicles. Most fees are levied on an annual basis and have a range of costs. Fees range from \$50 in Colorado and Wyoming to \$200 in Georgia and Michigan (vehicles over 8,000 pounds). A summary of passenger vehicle alternative fuel fees is provided below in Table 8.

Table 8 – Alternative Fuel Vehicle Registration Fees by State

State	Vehicle Types	Fee	Year Enacted
Colorado	Electric Vehicles Only	\$50	2013
Georgia	Electric Vehicles Only	\$200	2015
Idaho	Electric and Hybrid Vehicles	\$140/\$75	2015
Michigan	Electric and Hybrid Vehicles	\$100/\$30	2015
Missouri	Electric and Alternative Fuel Vehicles	\$75	2014
Nebraska	Electric and Alternative Fuel Vehicles	\$75	2011
North Carolina	Electric Vehicles Only	\$100	2013
Virginia	Electric and Alternative Fuel Vehicles	\$64	2013
Washington	Electric Vehicles Only	\$100	2012
Wyoming	Electric Vehicles Only	\$50	2015

Source: National Conference of State Legislatures – December 2015

Per Mile Tax

The shortfall in transportation revenues, as discussed above, is in part due to the inability of fuel taxes to offset increases in inflation, increases in vehicular fuel economy, and the shift to more alternative fueled vehicles. The fuel tax was first implemented to act as a user fee where those who most used the transportation network were most responsible for paying for its maintenance and construction. Over time, this link between system use and tax paid has been diminished as a result of alternatively fueled vehicles and increases in fuel economy. This issue is likely to continue to increase in the future as both alternative fuel vehicles continue to gain market share and CAFÉ standards are set to require an increase in passenger vehicle fuel economy of more than 50 percent between 2014 to 2025.

As a result many states have given consideration to implementing a new transportation user fee. These states are most interested in a system that would charge a tax on the number of vehicle miles traveled rather than a fixed amount of tax per gallon of fuel. By levying a tax upon the number of miles traveled, issues such as alternative fuel vehicle technology and increases in fuel economy no longer pose a risk to transportation revenues. As such, a per mile tax could provide a more stable source of transportation revenue for the future.

While the benefits of a per mile tax are clear, significant challenges exist surrounding the implementation of such a tax. Some collection options for a per mile tax involve the tracking of a vehicle’s location. While this could facilitate revenue distribution and varying policy options it raises serious concerns regarding privacy and security. Another challenge is the cost of implementing and administering the per mile tax. Transitioning from the fuel tax to a per mile tax would involve transitioning from collecting fuel tax from relatively few fuel

distribution facilities to collecting mileage information from unique vehicles or drivers. This change would result in an increase in the cost of administering the tax.

Collection of mileage data could be accomplished through a number of different methods each with a varying level of technological reliance. Options range from odometer inspections to vehicular on-board unit devices to methodologies capable of tracking location using cellular or GPS technology. Options which do not rely on vehicle tracking address privacy concerns but prove challenging when considered on a regional or national level.

As part of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) transportation bill passed in 2005, Congress authorized researchers from the University of Iowa to conduct a field test for implementing mileage based highway user fees. The study tested more than 2,600 vehicles over the span of two years and concentrated on the technical feasibility and user acceptance of implementing a per mile tax. The study found that both GPS and onboard diagnostics systems measured approximately 92.5 percent of all miles driven. In addition the study found that, upon conclusion, 71 percent of survey participants had a highly or somewhat positive view of the per mile tax.

In addition to the University of Iowa study, a number of other studies have been completed focused on a per mile tax and associated issues. Studies have been conducted in Georgia, Minnesota, Nevada, Oregon, Texas, California, and Washington among others. In addition to evaluating the feasibility of a per mile tax these studies also dealt with issues such as evaluating implementation technology, payment options, enforcement, willingness to change travel patterns based on variable per mile taxes rates, urban versus rural issues, and privacy concerns among others.

The State of Oregon has conducted multiple studies with regard to the implementation of a per mile tax. Oregon has advanced the idea of a per mile tax from a recommendation identified in a 2001 Road User Fee Task Force report to the implementation of two user fee pilot programs which were conducted in 2007 and 2013. Following the conclusion of those efforts, the Oregon Legislature passed legislation requiring the implementation of a fully functional road usage charge program. The program, called OReGO, began, July 1, 2015. Approximately 1,000 of the 5,000 vehicles permitted by law to participate in the OReGO program are currently enrolled. Participants pay a fee of 1.5 cents per mile and are reimbursed for fuel tax paid. The program is implemented via multiple vendors and allows participants to choose a GPS or non-GPS based method of collecting mileage information.

Interest in implementing a per mile tax continues to expand throughout the country. Authorized as part of the FAST Act, the Surface Transportation System Funding Alternatives grant program provides funding to states or groups of states to demonstrate user based alternative revenue mechanisms. The FAST Act authorized a total of \$95,000,000 over the five year period from 2016 to 2020.

Fiscal year funding for 2016 was awarded on August 30, 2016. Funds totaling \$14,200,000 were awarded to eight projects in seven states to evaluate alternative revenue mechanisms. Among others, grants were awarded to the state of Hawaii to test a per mile tax based on manual and automated odometer readings, to the state of Delaware to implement a multistate pilot study in collaboration with members of the Interstate 95 Corridor Coalition, and to the states of Oregon and Washington to, among other things, study interoperability of per mile taxes in collaboration with members of the Western Road User Charge Consortium. A summary of all awards funded with 2016 appropriations is provided in Table 9.

Table 9 – FY 2016 Surface Transportation System Funding Alternative Program Awards

Recipient state and partners	Project Description	Funding
California Department of Transportation	Road User Charge (RUC) using pay-at-the-pump/charging stations	\$750,000
Delaware Department of Transportation	User fees based with on-board mileage counters in collaboration with members of the I-95 Corridor Coalition	\$1,490,000
Hawaii Department of Transportation	User fee collection based on manual and automated odometer readings at the inspection stations	\$3,998,000
Minnesota Department of Transportation	Use of Mobility-as-a-Service providers (MaaS) as the revenue collection mechanism	\$300,000
Missouri Department of Transportation	Implementation of a new registration fee schedule based on estimated miles per gallon	\$250,000
Oregon Department of Transportation	Improvements to Oregon's existing road usage charge program	\$2,100,000
Oregon Department of Transportation	Establishing the consistency, compatibility and interoperability in road user charging for a regional system in collaboration with members of the Western Road User Charge Consortium	\$1,500,000
Washington Department of Transportation	Testing critical elements of interoperable, multi-jurisdictional alternative user-based revenue collection systems. Piloting methods of road usage reporting with Washington drivers	\$3,847,000

The Iowa DOT is following these studies closely and participating in regional and national efforts to monitor impacts on roadway revenues. In addition, Iowa DOT will continue to monitor the implementation of Senate File 257 and the impact on roadway needs across Iowa.

APPENDIX A

EXISTING REVENUE SOURCES

(Based on CY 2015 Data)

Type of Financing	Description/Mechanism	Estimated Amount Generated	Advantages	Disadvantages	Collected from out-of-state drivers?
Fuel Tax (452A.3)	<p>Cents per gallon tax on motor fuels, including some alternative fuels.</p> <p>Current rate (as of July 1, 2016): not including the one cent per gallon fee for underground storage tanks.</p> <ul style="list-style-type: none"> • Gasoline: 30.7 cents per gallon • Ethanol-blended gasoline: 29.0 cents per gallon • Diesel (B10 and lower): 32.5 cents per gallon • Diesel (B11 and higher): 29.5 cents per gallon <p>The fuel tax is the only significant current source of RUTF revenue that is applied to out-of-state drivers as well as Iowans. The Iowa DOT has estimated that 35 percent of large truck travel in Iowa is from out-of-state trucks and 15 percent of passenger car/small truck travel in Iowa is from out-of-state drivers. In total, approximately 13 percent of RUTF revenue is estimated to be paid by out-of-state drivers primarily due to fuel tax payments.</p>		<ul style="list-style-type: none"> • Collection and administration process already in place. • Generally proportional to system usage. • Generates revenue from out-of-state drivers. • Paid by all users of the highway system. 	<ul style="list-style-type: none"> • Increased fuel efficiency results in lower revenue. • Higher fuel prices lead to reduced driving and reduced fuel tax collections. • Fees are fixed and do not adjust for inflation. 	<ul style="list-style-type: none"> • Yes (see description)
	<p>Mechanism: Add automatic annual adjustment to fuel tax rates based on an inflation index such as the Consumer Price Index or Iowa's Construction Cost Index</p> <p>Amount of additional revenue generated is dependent on rate of inflation.</p>	<ul style="list-style-type: none"> • Variable. A three percent adjustment would generate \$19.5 million per year. 	<ul style="list-style-type: none"> • Automatically addresses loss of buying power. 	<ul style="list-style-type: none"> • Could result in significant revenue variations as fuel price changes. • Makes forecasting for programming difficult. 	
Fee for New Registration (321.105A)	<p>Five percent fee that is imposed on the sale of new and used motor vehicles and trailers</p>		<ul style="list-style-type: none"> • Collection and administration process already in place. • Provides revenue source based on ability to pay. • Proportional to cost of vehicle. 	<ul style="list-style-type: none"> • Not proportional to system usage. • May discourage sales of motor vehicles. • Fluctuates with economic cycles. 	<ul style="list-style-type: none"> • No
	<p>Mechanism: Increase to six percent.</p>	<ul style="list-style-type: none"> • Approximately \$70 million per year 	<ul style="list-style-type: none"> • Brings fee in line with state sales tax rate. 		
Driver's License Fee (321.191)	<p>A fee charged for the privilege to operate a motor vehicle.</p> <p>\$4 per year (non-commercial) \$8 per year (commercial)</p>		<ul style="list-style-type: none"> • Collection and administration process already in place. • Does not fluctuate with economic cycles. 	<ul style="list-style-type: none"> • Not proportional to system usage. 	<ul style="list-style-type: none"> • No
	<p>Mechanism: Double driver's license fee</p>	<ul style="list-style-type: none"> • Approximately \$13 million per year on average 			

Type of Financing	Description/Mechanism	Estimated Amount Generated	Advantages	Disadvantages	Collected from out-of-state drivers?
Registration Fees	<p>Fees charged to register and license vehicles and trailers</p> <p>Fees vary according to the weight and value of the vehicle.</p>		<ul style="list-style-type: none"> Collection and administration process already in place. 	<ul style="list-style-type: none"> Not proportional to system usage. Higher administrative and enforcement costs. Encourages retention of older vehicles. 	<ul style="list-style-type: none"> Only commercial vehicles that pay a prorated fee based on travel within Iowa.

APPENDIX B

POTENTIAL REVENUE SOURCES

Type of Financing	Description	Advantages	Disadvantages	Collected from out-of-state drivers?
Local Option Vehicle Tax	<p>A vehicle registration fee approved and levied at the local level in addition to vehicle registration fees levied by the state.</p> <p>Amount collected would vary based on the registration fee amount and jurisdictions in which the tax was applied.</p>	<ul style="list-style-type: none"> Enabling legislation already in place. Revenue generated locally and available for local transportation priorities. 	<ul style="list-style-type: none"> Not proportional to system usage. 	<ul style="list-style-type: none"> No
Sales Tax	<p>Assess sales tax on fuel purchases.</p> <p>A one percent sales tax on fuel would generate approximately \$57 million per year based on 2015 fuel usage and prices.</p>	<ul style="list-style-type: none"> Provides a mechanism to apply local option sales tax on the purchase of fuel. Requires less frequent legislative action on fuel tax because revenues will increase as the price of fuel increases. 	<ul style="list-style-type: none"> Requires enabling legislation. Administration and collection system would need to be developed. Because tax is tied to the price of fuel, the amount of tax could change significantly if fuel prices experience large fluctuations. 	<ul style="list-style-type: none"> Yes
Severance Tax on Ethanol	<p>A tax collected by the state either based on a percent of value or a volume-based fee on resources extracted from the earth. Typically charged to producer or first purchaser. To minimize the impact on Iowa drivers, the added cost of the severance tax could be offset with a reduction in fuel tax rate on ethanol-blended fuel.</p> <p>Potential revenue is dependent on rate set and volume produced. Assuming the fuel tax rate is lowered for ethanol-blended fuels to offset the addition of a severance tax, an estimate can be developed. Based on 2015 data, a severance tax of one cent per gallon would have generated \$42 million.</p>	<ul style="list-style-type: none"> Creates opportunity to generate revenue from sources outside of Iowa. Compensates for roadway deterioration resulting from usage of system for the production of ethanol. 	<ul style="list-style-type: none"> Requires enabling legislation. Administration and collection system would need to be developed. Potential regulatory issues. Could put the producer at competitive disadvantage. 	<ul style="list-style-type: none"> Yes
Per-Mile Tax	<p>Tax based on the vehicle miles traveled within a state.</p> <p>Based on the vehicle miles traveled in Iowa in 2015, a one cent per-mile fee would generate \$331 million per year.</p>	<ul style="list-style-type: none"> Direct measure of actual costs incurred. Highly related to needs for capacity and system preservation because as travel and revenue increases, the need for capacity and preservation improvements increase. May be graduated based on vehicle size, weight, emissions or other characteristics. 	<ul style="list-style-type: none"> Requires enabling legislation. Administration and collection system would need to be developed. Potentially high administrative, compliance and infrastructure costs. Technology needs to mature. Privacy concerns. 	<ul style="list-style-type: none"> Yes
Transportation Improvement District	<p>Geographic areas are defined and tax imposed within the area to fund transportation improvements with voter approval.</p> <p>Revenue potential varies.</p>	<ul style="list-style-type: none"> Satisfies urgent infrastructure needs, which exceed available finances. Encourages state, local and private-sector partnerships. Users of the system decide to implement. 	<ul style="list-style-type: none"> Requires enabling legislation. Administration and collection system would need to be developed. May be seen as an equity issue. 	<ul style="list-style-type: none"> Yes, if out-of-state driver makes taxable purchases within geographic area.

Type of Financing	Description	Advantages	Disadvantages	Collected from out-of-state drivers?
Tolling	<p>Implementing fees to travel on road segments.</p> <p>Revenue potential varies based on length of tolled segment and toll rate, but a typical rate is seven cents per mile.</p>	<ul style="list-style-type: none"> • Specific road segments/corridors generate their own revenue. 	<ul style="list-style-type: none"> • Requires enabling legislation. • Expensive to initiate due to needed capital investment. • Ongoing administrative costs. • Requires sufficient traffic levels to generate enough revenue to pay for the costs of tolling, along with the maintenance and construction cost; Iowa may not have any reasonable corridors meeting requirements. • Public resistance may lead to adjustments in travel patterns to avoid tolls. • There are federal restrictions in some cases. 	<ul style="list-style-type: none"> • Yes
Development Impact Fees	<p>A fee charged to developers for off-site infrastructure needs that arise as a result of new development.</p>	<ul style="list-style-type: none"> • Additional source of funding to off-set increased needs due to new development. • Places the cost of improvement on the development that caused the need. 	<ul style="list-style-type: none"> • Typically a local jurisdiction fee and is difficult to apply statewide. • Potential negative impact on future development. • Can be difficult to establish and administer. • Can be an equity issue when costs are passed on to homeowners in the case of a housing development. 	<ul style="list-style-type: none"> • No
Bonds for Primary Road System Improvements	<p>A written promise to repay borrowed money at a fixed rate on a fixed schedule. Can be limited to very specific situations, such as projects that exceed a certain dollar threshold, projects that cannot easily be phased over time (border bridges) and/or projects that can reasonably generate sufficient revenue (tolls) to service their own bond debts.</p> <p>Revenue potential varies.</p>	<ul style="list-style-type: none"> • Allows earlier and faster construction of some facilities. • Satisfies urgent infrastructure need, which exceeds available finances. • Avoids inflationary construction costs. 	<ul style="list-style-type: none"> • Requires enabling legislation. • Requires state or community to extend payments for long periods of time. • Does not generate new money. • May cost more over time due to bond interest. • Requires existing annual resources be used for debt service rather than new needs. • May have a negative impact on statewide transportation decision-making. • Poses staffing issues for government road agencies and road consultants/contractors due to significantly changing annual project expenditure levels and cyclical nature. 	<ul style="list-style-type: none"> • Depends on funding mechanism that funds bond repayments.

Type of Financing	Description	Advantages	Disadvantages	Collected from out-of-state drivers?
Public-Private Partnerships (PPPs)	<p>Contractual agreements formed between a public agency and private sector entity that allow private participation in the delivery of transportation projects in one or more of the following areas: project design, construction, finance, operations, and maintenance. Can either be user-fee based (tolls) or non-user-fee based. The non-user-fee based types of PPPs are most viable in Iowa and include design-build and design-build-finance.</p> <p>Revenue potential varies.</p>	<ul style="list-style-type: none"> • Expedited completion compared to conventional delivery methods. • Avoids inflationary construction costs. • Delivery of new technology developed by private entities. • Purchase of private resources and personnel instead of using constrained public resources. 	<ul style="list-style-type: none"> • Requires enabling legislation. • May be less efficient. • If user-fee based, could lead to higher tolling than under a public-only project. • May limit ability for in-state contractors to participate in construction depending on type of project. 	<ul style="list-style-type: none"> • Depends on mechanism implemented by private owner but would likely generate funding from out-of-state drivers
	<p>Mechanism: Privatization of infrastructure. Typically involves the long-term leasing of toll roads to private sector for up-front payment.</p> <p>Revenue potential varies.</p>	<ul style="list-style-type: none"> • Influx of one-time capital. • Shifts responsibility to contractor. 	<ul style="list-style-type: none"> • Requires enabling legislation. • Administrative process needed to let, execute, contract, and monitor performance. • Requires high-usage corridor to be marketable; Iowa may not have any candidates. • Built-in toll increases. • Potentially higher tolls to make project profitable. These tolls may result in system inefficiencies as traffic utilizes non-toll roads in lieu of using toll roads. • Requires very long-term decision that removes flexibility. • Very limited ability for in-state contractors to participate in construction. 	<ul style="list-style-type: none"> • Depends on funding mechanism implemented by private owner but would likely generate funding from out-of-state drivers.
	<p>Mechanism: Enable design-build contracting. Design-build involves contractual agreements whereby a single bid is accepted for both the design and construction of a project. A variation of this is the design-build-operate-maintain contract whereby a private contractor is also responsible for operation and future maintenance. 45 states have statutory or administrative provisions that authorize design-build fully or with certain limitations.</p>	<ul style="list-style-type: none"> • Intended to accelerate construction schedule since some activities can occur simultaneously. • Intended to allow construction to begin sooner • Reduces administrative burden by having one contract and point-of-contact. • Can result in reduced construction costs. 	<ul style="list-style-type: none"> • Requires enabling legislation. • May impact ability of in-state contractors to participate in construction. • Not appropriate for all types of projects. • Potential for cost overruns if scope of work is not properly defined up front. 	<ul style="list-style-type: none"> • N/A

Type of Financing	Description	Advantages	Disadvantages	Collected from out-of-state drivers?
Container Tax	<p>Fee imposed on containers moving through a designated geographic area.</p> <p>Revenue potential varies based on chosen rate and transportation modes to which the container tax would be applied.</p>	<ul style="list-style-type: none"> Creates opportunity to generate revenue on shipments passing through the state. 	<ul style="list-style-type: none"> Requires enabling legislation. Does little to promote efficiency Ongoing administrative costs. 	<ul style="list-style-type: none"> Yes
Imported Oil Tax	<p>A tax charged on imported oil based on either the volume or value of the imported oil.</p> <p>Revenue potential varies.</p>	<ul style="list-style-type: none"> Could help promote U.S. energy production. 	<ul style="list-style-type: none"> Requires enabling legislation. Imported oil can be used for purposes other than transportation. Could result in larger free trade issues. 	<ul style="list-style-type: none"> Yes
Tire Tax on Light Duty Vehicles	<p>A tax on light-duty vehicle tires. Could be applied to both new vehicle tires and replacement tires.</p> <p>Revenue potential varies.</p>	<ul style="list-style-type: none"> Sustainable source of funds. Under normal circumstance, a strong link exists between tire wear and system usage. 	<ul style="list-style-type: none"> Requires enabling legislation. Would not generate significant revenues. May have safety ramifications by discouraging the replacement of worn tires. 	<ul style="list-style-type: none"> Yes
Alternative Fuel/High Fuel Efficiency Vehicle Tax	<p>A tax or additional registration fee charged on alternatively fueled vehicles, plug-in hybrids, and/or high-fuel efficiency vehicles. Replaces lost fuel tax revenues associated with the use of these vehicles.</p> <p>A \$150 fee charged on electric vehicles and plug-in hybrid vehicles would generate approximately \$175,000 based on 2016 vehicle registration data.</p>	<ul style="list-style-type: none"> Ensures that electric vehicles and high fuel efficiency vehicles pay towards operations and maintenance of the highway system. 	<ul style="list-style-type: none"> Requires enabling legislation. Potentially discourages the use of emerging efficient vehicle technologies. 	<ul style="list-style-type: none"> No
Interstate Logo Sign Fees	<p>Annual fee charged for logo signs paid for by businesses advertising their location off an interstate interchange.</p> <p>A 100 percent increase in annual fees, from \$230 to \$460, would generate approximately \$700,000 in additional funds.</p>	<ul style="list-style-type: none"> Would be easily implemented. 	<ul style="list-style-type: none"> Would require enabling legislation for funds to be placed in the road use tax fund. No link to highway use. Signs are intended to be a service to drivers rather than a source of revenue 	<ul style="list-style-type: none"> No
Agriculture Bushel Tax	<p>A tax charged on each bushel of agriculture based products.</p> <p>Based on estimated 2015 production levels and on-farm grain usage, a \$0.01 a bushel tax would generate approximately \$30,000,000.</p>	<ul style="list-style-type: none"> Creates new source of sustainable revenues. If products are shipped by road, a strong link exists between agriculture production and system usage. 	<ul style="list-style-type: none"> Requires enabling legislation. Revenues would fluctuate based on production levels. Administration and collection system would need to be implemented. 	<ul style="list-style-type: none"> No