

# 2021 Road Use Tax Fund (RUTF) Study

A REPORT TO THE IOWA LEGISLATURE, PER IOWA CODE 307.31  
PREPARED BY THE IOWA DEPARTMENT OF TRANSPORTATION

December 30, 2021

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## Introduction

A key component of Iowa's transportation system is the public roadway system owned and operated by the cities, counties, and state of Iowa. In order to routinely 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 (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 RUTF studies in 2011 and 2016. The 2011 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 primary 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 a decade prior.

When the 2016 RUTF Study was initiated, only one full construction season had been completed following the increase in funding, making it difficult to accurately assess the long-term impact on construction needs. Therefore, the 2016 RUTF Study focused on the actions taken since the 2011 RUTF Study and on alternative funding mechanisms. This 2021 RUTF Study represents a more comprehensive reevaluation of Iowa's public roadway needs and the ability of existing revenues to meet those needs.

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## Executive Summary

An efficient transportation system is essential for the future economic health of the state. Improvements to our public roadway system lower costs for both producers and consumers and make Iowa more attractive in a highly competitive market for jobs and industry. Failure to maintain our public roadway system will result in lost jobs and opportunities for economic development to other states.

Transportation investments enhance mobility and our quality of life, support economic development, and protect our environment.

### Status of conclusions from the 2016 RUTF Study

The 2016 RUTF Study included three specific conclusions that warranted further monitoring and potential action for how Iowa could move forward to meet future funding shortfalls. The following is a summary of the status of those conclusions.

#### Conclusion 1: Indexing fuel tax rates

No legislative action pertaining to indexing fuel tax rates has been passed in Iowa since the 2016 RUTF study was published. The Iowa DOT has continued to evaluate the subject and additional detail can be found on pages 23-24 of this study.

#### Conclusion 2: Alternative Fuel Vehicle Registration Fee

On May 16, 2019, [House File 767](#) was signed into law creating supplemental registration fees on certain electric vehicles in Iowa. Implementation of the supplemental fees began on January 1, 2020 with fees increasing on January 1, 2021 and January 1, 2022. Final supplemental registration fees on January 1, 2022 will be \$130 for battery electric motor vehicles, \$65 for plug-in hybrid electric motor vehicles, and \$9 for electric or plug-in hybrid electric motorcycles.

House File 767 also created an excise tax on electric fuel. That excise tax is \$0.026 per kilowatt hour of electricity used to fuel electric vehicles at nonresidential locations. The excise tax on electric fuel is set to be implemented on July 1, 2023. Finally, House File 767 created an excise tax on hydrogen used as a special fuel. The excise tax rate was set at \$0.65 per gallon and was implemented on January 1, 2020.

#### Conclusion 3: Mileage-Based User Fee (MBUF)

No legislative action pertaining to implementing a mileage-based user fee has been passed in Iowa since the 2016 RUTF study was published. The Iowa DOT has continued to evaluate the subject and additional detail can be found on pages 24-26 of this study.

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## Findings and recommendations

The conclusion of this 2021 RUTF Study is that current revenue levels are not sufficient for meeting the projected needs of the public roadway system in the Iowa. The 20-year projected total needs for the city, county, and state systems is \$87.649 billion, with projected revenues over that time totaling \$72,029 billion. This amounts to a total shortfall of \$15,620 billion, or an average annual shortfall of \$781 million.

To mitigate this shortfall and growing financial challenges posed by construction cost inflation, alternative fuel vehicles, and increasing fuel efficiency, the Iowa DOT recommends the following.

### **Recommendation 1: Indexing Fuel Tax Rates**

The Iowa DOT recommends the legislature consider implementing indexing of state fuel tax rates based on the national Consumer Price Index for all urban consumers (CPI-U). To ensure that reasonable revenue forecasts can be produced, the Iowa DOT recommends that indexing be implemented with minimum fuel tax rates (no negative adjustments), but also recommends capping annual inflation adjustments at 3%. Implementing a cap on annual increases will ensure that fuel tax rates do not increase excessively in any one year in the future.

### **Recommendation 2: Monitor Mileage-Based User Fee Mechanism**

A mileage-based user fee (MBUF) continues to be the best long-term solution to addressing transportation revenue challenges. However, given the challenges of implementation and need for interoperability between states, a national level MBUF is required. The Iowa DOT will continue to monitor the development of MBUFs nationally as solutions to implementation challenges are addressed moving forward.



## Factors Impacting Transportation

There are many factors that influence the transportation system in Iowa. To understand how the system may be affected, it is important to understand past, current, and projected trends. This section highlights some key demographic and economic trends that should be considered.

### Demographic Trends

#### Iowa's population continues to grow, but at a slow pace

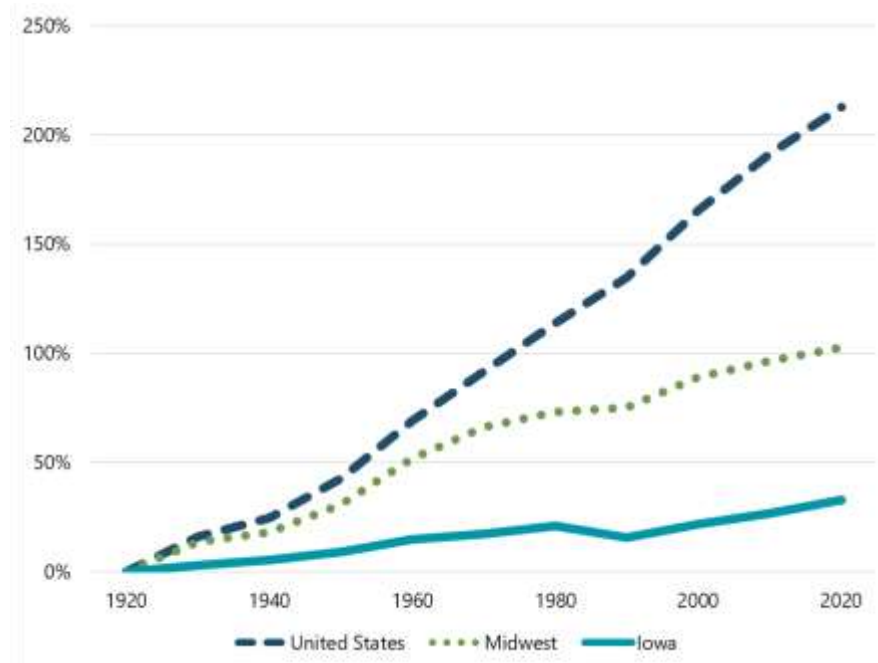
Iowa's population has grown slowly over time. The figure on the right shows the magnitude of change for Iowa, the Midwest, and the U.S. over the past 100 years, and how much less Iowa has grown relative to the broader region and country. Iowa's 2020 population is 3,190,369, which is just under 1% of the nation's population. Iowa did grow by 4.7% from 2010-2020, which is higher than the Midwest rate of 3.1% but lower than the national rate of 7.4%.

Long-term projections have decreased over time. Iowa's 2050 population is estimated to be 3,381,217, which is only 6.0% growth from 2020. Slow growth could make it more difficult for transportation revenues to keep up with the growing maintenance and operation needs of the state's transportation system.

#### Iowa's population is increasingly urbanized

In the last 30 years, Iowa's overall population has grown, but 63 out of 99 Iowa counties have lost population. Iowa's population has become increasingly urbanized and population growth has primarily been concentrated around the state's nine metropolitan areas. As of the 2020 Census, the majority of Iowans now live in the 10 largest counties. The associated loss in local revenue can exacerbate the increasing maintenance needs for rural cities and counties.

Figure 1: Percent growth since 1920 (U.S. Census Bureau)



## Iowa's population is aging overall

The percent of Iowa's population that is 65 and older continues to increase, but not as quickly as some other states. Iowa had been in the top ten states for percent of population 65 and older, but is now ranked 16th. The percent of the population that is 19 and younger has dropped over the past few decades but is anticipated to stay relatively stable in the future.

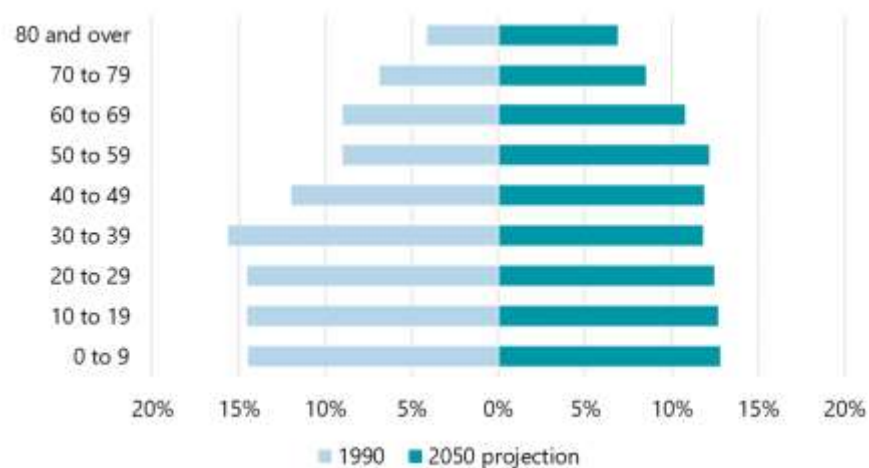
The aging population is evident when looking at a population pyramid of Iowa's population 30 years ago compared to the forecasted population in 2050, where the population will become more evenly divided among age groups (see Figure 2).

The aging population requires special considerations in transportation, from providing infrastructure that is more accommodating to older drivers to providing other modal options. At the same time, younger generations have shown an increased interest in non-driving options, including other modes, usage of shared mobility services, and micromobility options.

## Iowa's population is not aging evenly across the state

Iowa's median age has increased steadily over time to 38.2 in 2020. This is on par with the national median age of 38.1. The age of the population varies geographically; rural areas tend to be older and metropolitan areas tend to be younger. Rural areas often have more limited transportation options, which is an issue that could be exacerbated as the rural population continues to age.

Figure 2: Iowa population by age group, 1990 and 2050 (Woods and Poole Economics, Inc.)





## A significant number of Iowans have one or more disabilities

More than one in ten Iowans has at least one type of disability, which can include hearing, vision, cognitive, ambulatory, self-care, or independent living disabilities. In a few counties, close to one in five individuals have one or more disabilities, representing a sizeable portion of the population. Disabilities can significantly impact an individual's ability to fully utilize the transportation system.

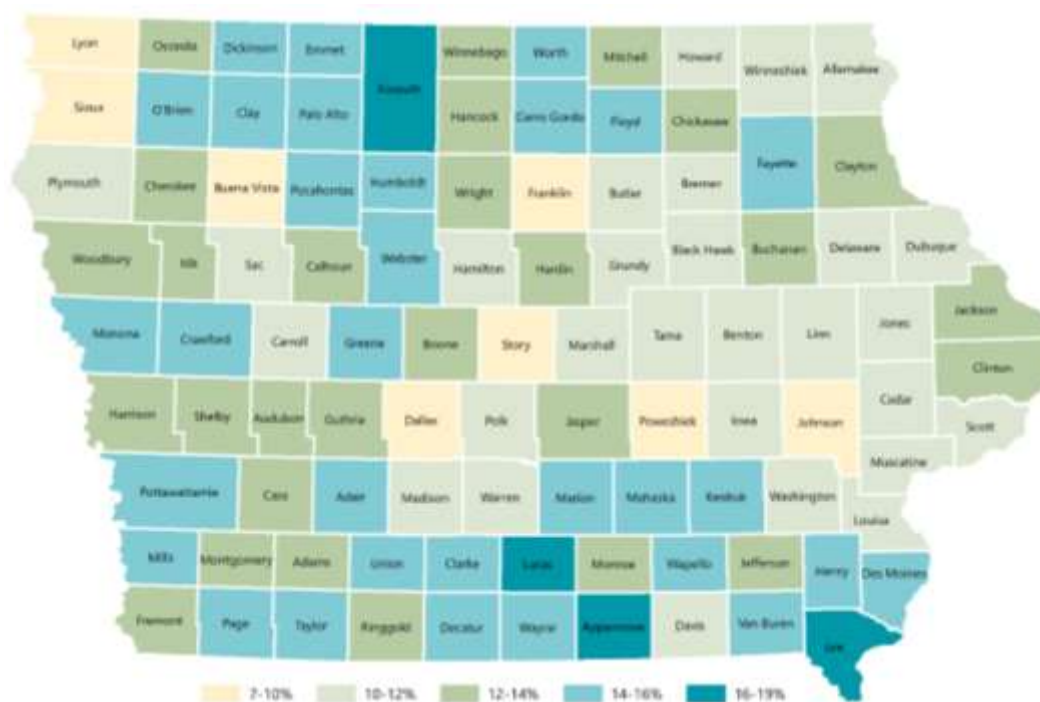
## Iowa is becoming more diverse

Iowa continues to grow more diverse, with increasing percentages of minority individuals. This trend will continue into the future, with more than one in four Iowans projected to be a non-White race and/or Hispanic or Latino by 2050. However, this is much lower than the nation overall, where more than half the population will be non-White by 2050.

English is the dominant language in Iowa, and is the sole language of 91.7% of the population. Almost 5% of the population speaks at least one other language as well as English. The remaining 3.4% of the population has limited English proficiency and may need additional consideration or accommodation to fully use the transportation system.

Of the dozens of other languages spoken in Iowa, Spanish accounts for over half of the individuals who do not speak English at home. Other top languages include Chinese, German, Arabic, Vietnamese, and Serbo-Croatian.

Figure 3: Percent of the population with one or more disability (U.S. Census Bureau)



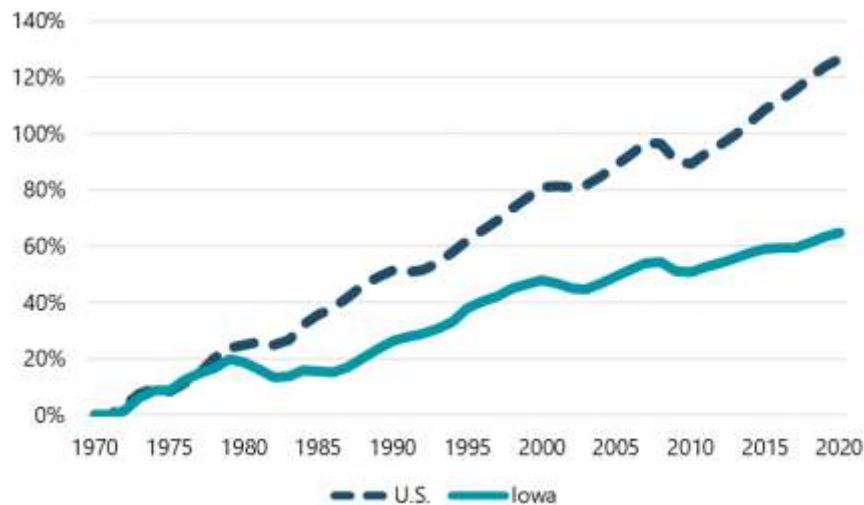
## Economic Trends

### Iowa's total employment continues to increase

Iowa's employment has grown steadily over time. The figure below shows the magnitude of change for Iowa and the U.S. over the past 50 years, and how jobs in Iowa have increased more slowly than the nation as a whole.

The annual growth or decline in the number of jobs can vary substantially, but overall has shown a decreasing trend for annual growth rate. These job numbers include part-time and self-employed jobs, which may be part of the reason the number of jobs in the state is growing more quickly than Iowa's population.

Figure 4: Percent change in jobs since 1970 (U.S. Census Bureau)  
(Woods and Poole Economics, Inc.)

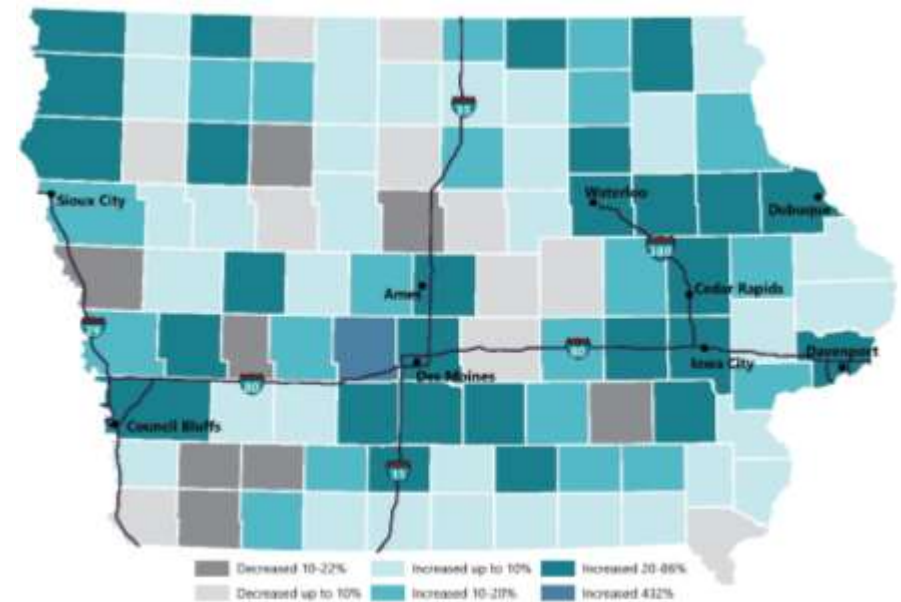


### Where Iowans work and where jobs are being added varies across the state

In the last 30 years, jobs in Iowa have increased steadily. While fewer counties lost jobs compared to population, there were still declines in the number of jobs for 19 out of 99 Iowa counties.

Similar to population, the densest employment growth has primarily been concentrated around the state's nine metropolitan areas, noted on the map below. Where people live and work can have significant impacts for the transportation system, as commuters have varying needs for infrastructure and services throughout the state.

Figure 5: County employment change, 1990-2020  
(Woods and Poole Economics, Inc.)



## Iowa's traditional employment sectors have changed

Traditionally, farming and manufacturing have been two of the primary employment sectors in Iowa. Technological advancements and economic diversification have changed this in recent years. Since 1990, the farm sector has decreased by more than 40,000 jobs, which represents a decline of 33% in total farm employment in Iowa. The number of manufacturing jobs is about the same in 2020 as it was in 1990, but manufacturing's share of Iowa jobs has decreased as other categories have gained. Despite these trends, farm and manufacturing jobs remain critical to the state, and account for the largest percentage of jobs in 54 of Iowa's counties. These industries can also have a major impact on the transportation system, as heavy trucks and equipment can cause operational and maintenance issues on highways.

## Iowa's gross domestic product continues to increase

Gross domestic product (GDP) is the total market value of all goods and services produced in the economy. In 2000, Iowa's GDP was \$93 billion; by 2020, Iowa's current-dollar GDP had grown by 107% to \$193 billion and ranked 30th among states. The real-dollar GDP growth during this time, which accounts for inflation by using constant 2012 dollars, was 38.5%, or less than 2% per year. However, some industries have seen significant growth in real GDP since 2000, including agriculture, information, professional and business services, and finance and real estate. The current breakdown of Iowa's GDP is 61.5% private services-producing, 26.6% private goods-producing, and 11.8% government; the proportions are detailed by industry on the figure to the right. While the goods-producing sectors are forecast to continue to make up a smaller percentage of Iowa jobs over time, they will continue to have significant transportation infrastructure needs in order to move raw materials and finished products.

Figure 6: GDP by industry in 2020, current dollars  
(U.S. Bureau of Economic Analysis)



# Iowa's Public Roadways

Iowa's public roadway system is comprised of over 114,000 miles of road and nearly 25,000 bridges. Nationally, Iowa ranks 13<sup>th</sup> in miles of roadway and 7<sup>th</sup> in number of bridges, yet ranks 31<sup>st</sup> in total population. This creates a significant infrastructure burden for Iowans.

## Existing System

The Iowa DOT has responsibility over the Primary Road System, which includes Interstate highways, Commercial and Industrial Network highways, and other highway routes. Iowa's 99 counties have jurisdiction over the Farm-to-Market and Secondary Road Systems, which includes non-primary public roadways outside of city corporate limits and Farm-to-Market Road System extensions within cities having a population less than 500. Cities have responsibility for the Municipal Street System, which includes those streets within their corporate limits that are not primary roadways or Farm-to-Market extensions.

The table and figure on this page provide summary information for each system, including mileage and vehicle miles of travel (VMT).

Figure 7: Mileage and VMT by System (Iowa DOT)

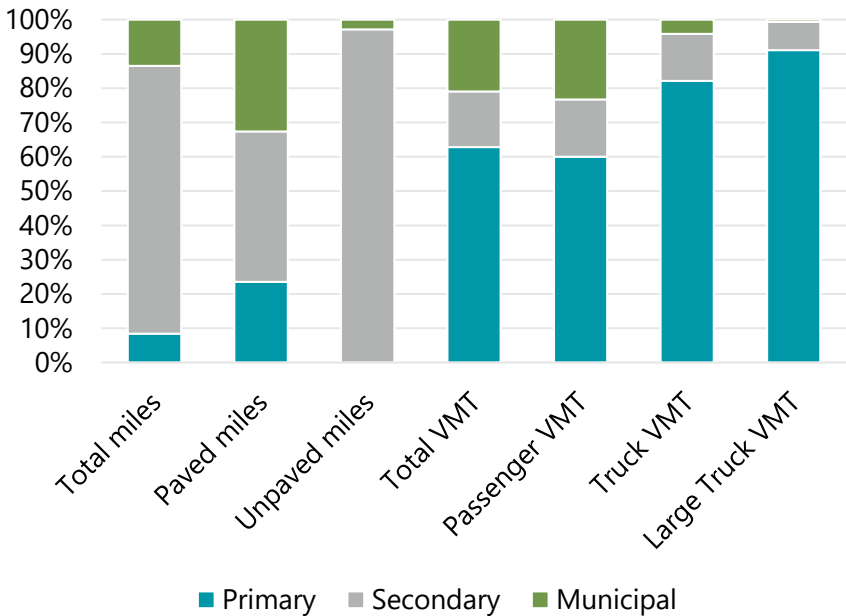


Table 1: Mileage and VMT by System (Iowa DOT)

	Mileage	Percent of Total Mileage	Total VMT (millions)	Percent of Total VMT	Large Truck VMT (millions)	Percent of Large Truck VMT
Primary	9,616.89	8.38%	21,216	62.81%	2,743	91.10%
Secondary	89,698.27	78.16%	5,501	16.28%	248	8.24%
Municipal	15,441.87	13.46%	7,062	20.91%	20	0.66%
<b>Total</b>	<b>114,757.03</b>	<b>100%</b>	<b>33,779</b>	<b>100%</b>	<b>3,011</b>	<b>100%</b>

Mileage as of 2020 and VMT as of 2019.

## Passenger Trends

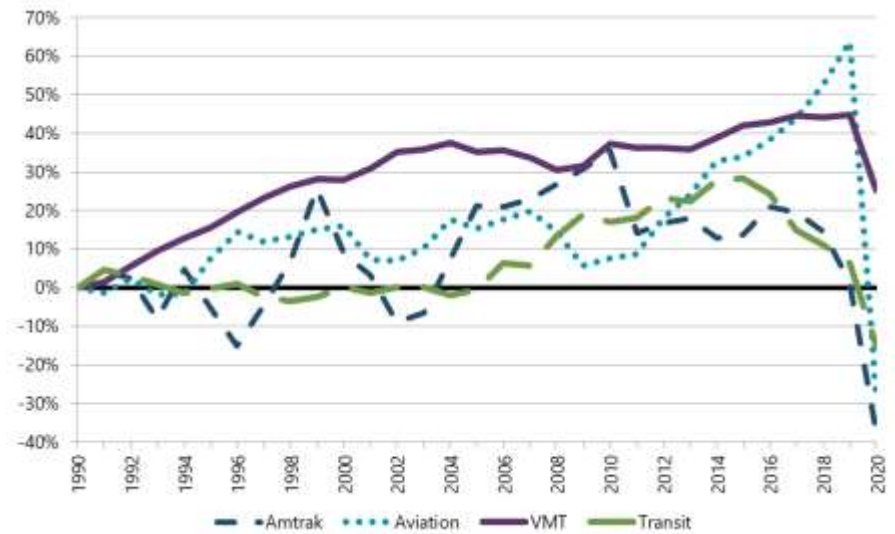
### Iowans are traveling more, and growth is most steady on Iowa's highways

From 1990 to 2019, passenger travel increased by varying degrees across Amtrak, aviation, public transit, and highways (measured by passenger vehicle miles traveled (VMT)). Passenger VMT was the only mode with a relatively consistent increase during those 30 years, while the other modes showed more variability. The COVID-19 pandemic in 2020 had significant impacts on all passenger transportation modes, much more so than 9/11 or the Great Recession. However, travel has recovered quickly across most modes in 2021.

While the length of the recovery period from the COVID-19 pandemic impacts is uncertain, it seems likely that passenger travel modes will continue to increase, but at varying rates. Passenger travel trends are influenced by many factors, which can create some uncertainty in forecasting future travel trends. The price of fuel has perhaps been the most dominant of these factors in recent years; for example, when fuel prices exceeded \$4 per gallon, there was a noticeable decrease in VMT and an increase in public transit ridership.

Other emerging trends will likely become more impactful in coming years and it may not be only the price of fuel that influences travel demand. These trends include increasing market share and use of electric vehicles, changes in travel patterns such as increased telecommuting, shared mobility and Mobility as a Service options, and potentially automated vehicles. These trends will not only influence travel, but also associated revenue generation.

Figure 8: Iowa passenger travel trends by mode, indexed to 1990 (Iowa DOT; Amtrak; Federal Aviation Administration)



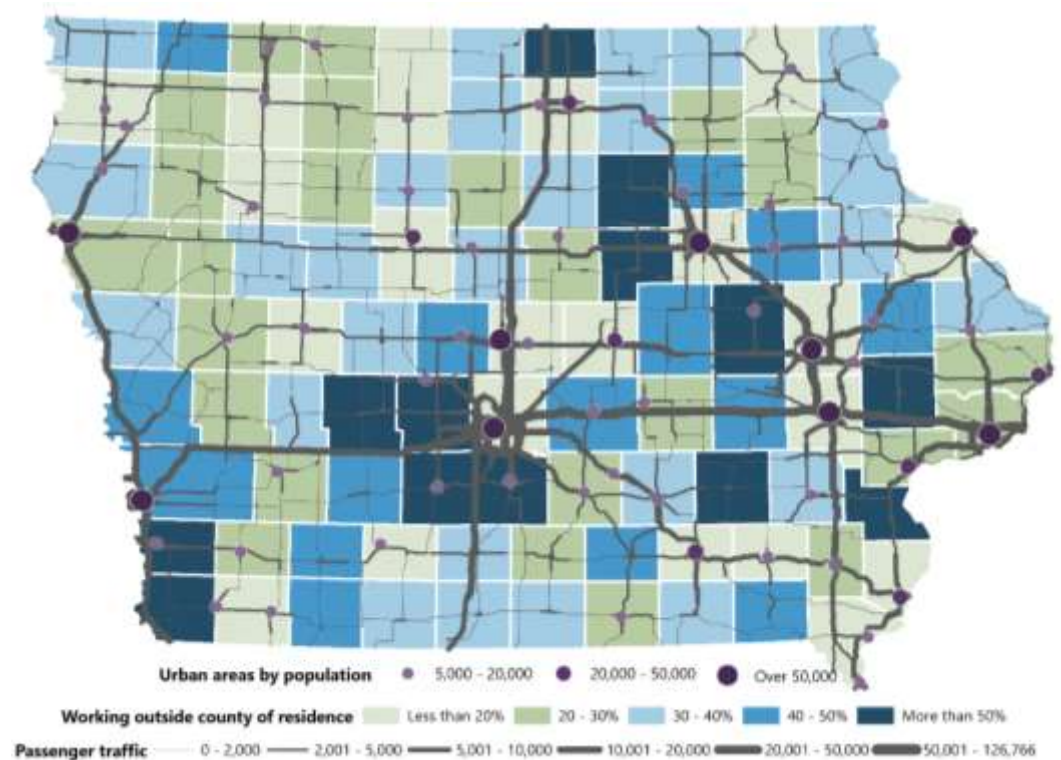
## Iowans are commuting farther to work

More Iowans are commuting to work locations outside their county of residence, which has also contributed to increased travel times. In 1990, approximately 17% of workers commuted to a job outside their county of residence; by 2015-2019, this increased to 25%. In 2015-2019, more than 50% of the residents in 13 Iowa counties traveled to jobs outside their home county, compared to only two counties in 1990.

The map to the right helps visualize statewide commuting patterns, highlighting the passenger vehicle annual average daily traffic (AADT) on primary highways, along with the percentage of the workforce leaving their county of residence for work. There is a clear pattern of fewer workers leaving counties with larger urban areas, while surrounding counties often have high rates of workers traveling out of county for work.

With jobs continuing to migrate toward Iowa's metropolitan areas, commuting has taken on more of a role to support the labor force necessary for these areas. The influence of a metropolitan area is not just on the urbanized area it encompasses, but on surrounding counties as well. An example of this is Polk County and the surrounding region. The U.S. Census Bureau's 2015-2019 American Community Survey estimated Polk County had approximately 253,000 workers age 16 and older, only 12% of which commute to a different county for work. Two neighboring counties, Dallas and Warren, both have more than 50% of their workers traveling to Polk County for work.

Figure 9: Passenger AADT and percent of workforce leaving county of residence to work, 2015-2019 (U.S. Census Bureau; Iowa DOT)



**Most Iowans drive to work alone**

The overwhelming majority of Iowans drive to work alone rather than carpooling or using another mode. From 1990 to 2015-2019, this trend continued to increase, while carpooling and walking to work saw the largest percentage decreases. Interestingly, the percentage of individuals working from home decreased during this time – a trend which reversed sharply during the COVID-19 pandemic in 2020. It remains to be seen whether the percentage of people working from home will return to closer to a pre-pandemic level or remain substantially higher into the future.

In total, over 81% of Iowans drive themselves to work. Another 13% carpool or work from home. Other modes account for less than 6% of the total. Driving alone has increased and carpooling has decreased over the last few decades, but other modes have remained fairly constant. However, many Iowans have greater usage of and/or dependence on carpooling and other modes, such as those with a disability or households with no vehicle available. This helps highlight the need for multiple travel options, beyond single occupant vehicles.

Table 2: Iowans’ mode of transportation to work, 1990 and 2015-2019 (U.S. Census Bureau)

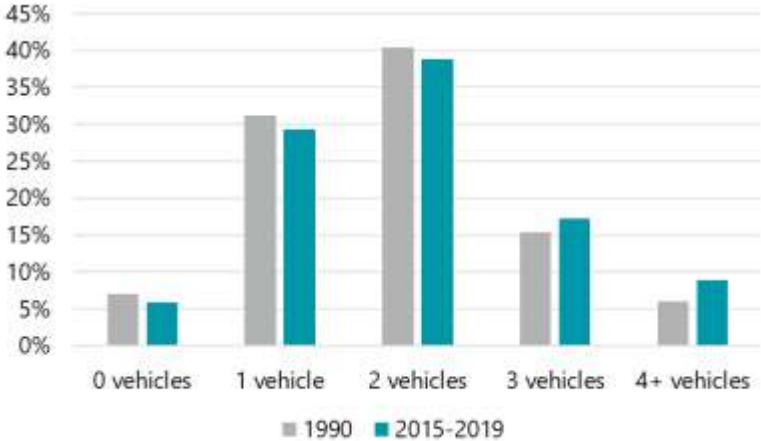
	1990	2015-2019
Drove alone	73.4%	81.1%
Carpooled	11.9%	8.3%
Public transportation	1.2%	1.1%
Bicycled	0.3%	0.5%
Walked	5.8%	3.3%
Other (includes motorcycle and taxi)	0.7%	0.9%
Worked from home	6.7%	4.9%

**The number of vehicles per household has increased**

Between 1990 and 2015-2019, the number of households with three or more vehicles increased 68%, while the number of households without any vehicles decreased 2%. As in 1990, the majority of households still have one or two vehicles. When comparing the number of vehicles and people in a household, over 60% of households have at least as many vehicles as people (of any age).

Overall, approximately 6% of Iowa households do not have a vehicle. In some counties, it is as high as 13%, or more than one in ten households; there are also several counties where more than 40% of households have either one or no vehicles. While the statewide percentage of households without vehicles may seem relatively small, it represents a significant multimodal planning issue. Households with one or less vehicle utilize non-driving modes for travel at a much higher rate than households with 2 or more vehicles.

Figure 10: Number of vehicles per household in Iowa, 1990 and 2015-2019 (U.S. Census Bureau)



# Freight Trends

## Iowa's freight movements have steadily increased

Iowa's transportation system facilitates the movement of over 600 million tons of freight annually, with an estimated value nearing \$400 billion. These numbers are expected to continue to grow into the future. Table 3 illustrates the tonnage for freight movements between 1997 and 2017. While all categories of movements have increased significantly, goods exported from Iowa have grown much more than goods imported into the state or those moving solely within the state.

- The weight of goods exported from Iowa grew 84% from 1997 to 2017.
- The weight of goods being imported into Iowa grew 25% from 1997 to 2017.
- The weight of goods that have both an origin and destination in Iowa grew 60% from 1997 to 2017.



If these trends continue, it will have a significant impact on the condition and reliability of Iowa's public roadway system.

Table 3: Iowa commodity flow by tonnage, 1997-2017 (FHWA Freight Analysis Framework)

	1997 Tons (millions)	2002 Tons (millions)	2007 Tons (millions)	2012 Tons (millions)	2017 Tons (millions)	Percent Change 1997-2017
From Iowa	101.57	152.02	141.12	154.30	186.83	83.9%
To Iowa	117.27	133.03	122.50	143.01	146.75	25.1%
Within Iowa	207.42	169.76	255.66	244.13	332.71	60.4%
<b>Total</b>	<b>426.25</b>	<b>454.82</b>	<b>519.28</b>	<b>541.44</b>	<b>666.28</b>	<b>56.3%</b>



**Freight movement is not uniform across modes and most moves by truck**

Truck is the dominant mode used for transporting freight in Iowa, handling nearly 70% of the total freight tonnage. The share of total tonnage is much greater if you exclude pipeline commodities. Overall, pipeline and rail are the next largest contributors, handling 15.9% and 9.2% of the total tonnage, respectively. Table 4 shows tonnage and value by mode for 2017.

Commodity movement by truck in Iowa is heavily concentrated on the Interstate Highway System and Commercial and Industrial Network (CIN), which comprise the majority of the National Highway System in the state. As illustrated previously, over 90% of the state’s large truck traffic is carried on the state-owned primary highway system.



Table 4: Freight tonnage and value by mode, 2017 (FHWA Freight Analysis Framework)

	2017 Tons (millions)	Percent of Total Tons	2017 Value (\$ millions)	Percent of Total Value
Truck	454.63	68.2%	\$292,470	76.3%
Rail	61.35	9.2%	\$14,759	3.9%
Water	8.59	1.3%	\$1,809	0.5%
Air (includes truck-air)	0.07	0.0%	\$3,791	1.0%
Multiple modes & mail	35.76	5.4%	\$49,758	13.0%
Pipeline	105.85	15.9%	\$20,548	5.4%
Other/unknown	0.03	0.0%	\$64	0.0%
<b>Total</b>	<b>666.28</b>	<b>100%</b>	<b>\$383,199</b>	<b>100%</b>

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## Projected Future Needs

For the purposes of this report, the Iowa DOT estimated the 20-year needs of the public roadway system in Iowa, covering the period from 2021 through 2040. To provide a full estimate of needs requires an evaluation of the administration costs, maintenance costs, and construction costs for all public roadways. The needs estimates are shown in future year dollars, meaning costs have been inflated using historic construction cost growth. An annual cost inflation of 4.5% linear growth was used.

### Needs Estimations

To estimate and validate future needs, various resources were consulted, including but not limited to Iowa State University's Institute for Transportation, the Iowa County Engineers Association Service Bureau, the Iowa Chapter of the American Public Works Association, and various units within the Iowa DOT. These resources leveraged the best available tools and analyses in support of the needs estimations, including the Deighton Total Infrastructure Management System (dTIMS), IDS Bridge Optimizer, the TR-608 financial needs assessment, and various financial reports and programs of projects.

### Administration Needs

Administrative costs include all expenses incurred by an agency related to roadway management that are not directly assignable to specific construction or maintenance operations. Examples of administrative costs include salaries, equipment, insurance, facilities, etc.

In addition to the standard highway administrative costs that cities and counties incur, the Iowa DOT also has administrative costs associated with motor vehicle enforcement, driver licensing, modal programs, and other non-highway construction or maintenance activities. These non-highway administrative costs are included in the Iowa DOT's

administrative cost figures as they are funded with RUTF and Primary Road Fund revenues.

Many cities and some counties in Iowa have used bonding to support their road and bridge improvement needs. The debt service associated with current bonding and future bonding is an administrative cost and has been included in this report.

To estimate future administrative needs, recent administrative cost history was evaluated for cities, counties, and Iowa DOT, and forecasted for 20 years.

### Maintenance Needs

Maintenance needs include costs associated with maintaining roads and bridges. Typical maintenance activities include snow clearing, grading, crack-sealing, pavement patching, bridge painting, guardrail repair, and many other comparable activities.

Current maintenance expenditures among the cities, counties, and Iowa DOT have not been able to adequately meet increasing maintenance needs with recent spending levels. The estimate of future maintenance costs was developed by evaluating recent trends in maintenance expenditures and applying the best available estimating method for each jurisdiction.

### Construction Needs

Construction needs include costs associated with construction activities required to correct condition deficiencies or perhaps operational deficiencies, such as rehabilitating or replacing pavements or bridges. As with maintenance costs, the estimate of future construction costs was developed by leveraging the best available estimating method for each jurisdiction. This involved the use of the various tools and analyses referenced earlier in this section.

Generally, these tools and analyses evaluate existing conditions and then forecast future conditions based on traffic, deterioration of pavements and bridges, and other factors. The models then estimate future deficiencies in the system and identify construction activities required to correct the deficiencies. Deficiencies can occur due to condition (e.g., poor pavements or structural components), geometry (e.g., narrow lanes or shoulders, tight curves), or traffic congestion and other operational issues.

### Summary of Projected Needs

The 20-year projected total needs for Iowa’s public roadway system are \$87.649 billion. Table 5 is a summary of those needs for the municipal (city), secondary (county), and primary (state) systems.

To prioritize these needs, costs to maintain the public roadway system in its current form have been highlighted as **stewardship needs** in Table 5. This would reflect only future investments in stewardship, or **projects that extend the life and modernize existing infrastructure without adding capacity**. The projected stewardship needs for Iowa’s public roadway system total \$77.783 billion. While maintaining the existing public roadway system is most critical, an inability to deliver capacity improvements where needed would limit the efficiency and reliability of the transportation system and its ability to support the state’s economy.



Table 5: Projected Needs for Iowa’s Public Roadway System, 2021-2040 (Iowa DOT)

	City (millions)	County (millions)	State (millions)	20-Year Total (millions)	Average Annual (millions)
Projected total needs	\$26,830	\$28,062	\$32,757	<b>\$87,649</b>	<b>\$4,382</b>
Projected stewardship needs				<b>\$77,783</b>	<b>\$3,889</b>

# Projected Future Revenues

Iowa’s public roadway system is supported by revenue from federal, state, and local governments.

## Federal

Federal revenues for public roadways in Iowa are primarily generated from the federal fuel tax. Table 6 summarizes the total Federal revenue to Iowa and the percent change, year to year. The Fixing America’s Surface Transportation (FAST) Act, after a one-year extension, expired on September 30, 2021, and its successor, the Infrastructure and Investment Jobs Act (IIJA), was passed through Congress and signed into law on November 15, 2021. Over the five-year life of IIJA, the bill provides an increase in federal funds of approximately 30% over 2021 amounts, as well as year-over-year increases through 2026.

Table 6: Federal Transportation Revenue to Iowa, 2012-2021 (Iowa DOT)

	Amount (millions)	Percent Change from Previous Year
2012	\$467.6	2.8%
2013	\$456.7	-2.3%
2014	\$475.7	4.2%
2015	\$483.3	1.6%
2016	\$499.4	3.3%
2017	\$507.1	1.5%
2018	\$544.0	7.3%
2019	\$567.5	4.3%
2020	\$596.5	5.1%
2021	\$584.7	-2.0%

## State

State revenues for public roadways come from Iowa’s Road Use Tax Fund (RUTF) and TIME-21 Fund. Combined, those two funds consist of revenues from fuel tax, registration fees, use tax, driver’s license fees, and other miscellaneous sources. In FY 2022 it is estimated state revenues will provide approximately \$1.8 billion, with around 38% coming from fuel tax, 36% from registration fees, and 21% from use tax (see Table 7).

Table 7: State Revenue Estimate by Funding Source, FY 2022 (Iowa DOT)

	Amount (millions)	Percent of Total
Fuel Tax*	\$669	38%
Annual Registration Fee*	\$651	36%
Fee for New Registration*	\$384	21%
Other**	\$93	5%
<b>Total</b>	<b>\$1,797</b>	<b>100%</b>

\* State Constitution requires funds to be used to support the public roadway system  
 \*\* Driver’s license fees, title fees, trailer registration fees, and other miscellaneous fees

After some off-the-top allocations for programs such as Revitalize Iowa’s Sound Economy (RISE), motorcycle education, the Living Roadway Trust Fund, and state park and institutional roads, state revenue is distributed by formula to the Iowa DOT for use on the Primary Road System, to counties for use on the Secondary Road System and Farm-to-Market Road System, and to cities for use on the Municipal Street System (see Table 8).

Table 8: Distribution of State Revenue (Iowa DOT)

	% of RUTF	% of TIME-21
State – Primary Road Fund*	47.5%	60.0%
Counties – Secondary Road Fund	24.5%	20.0%
Counties – Farm-to-Market Road Fund	8.0%	--
Cities - Street Construction Fund of the Cities**	20.0%	20.0%

\* 1.75% of the Primary Road Fund is allocated to counties and cities as compensation for assuming jurisdiction of primary highways as a result of SF 451.

\*\* A portion of the Street Construction Fund of the Cities allocated to cities with population less than 500 is directed to the county as compensation for assuming jurisdiction of Farm-to-Market Road System extensions within those cities.

In general, state revenues distributed through the formulas can be used for construction and maintenance activities, except for the Farm-to-Market Fund, which can only be used for construction. Primary Road Fund (PRF) revenues are used by the Iowa DOT to fund statewide improvements on the Primary Road System both outside of and within cities. The Secondary Road Fund (SRF) is distributed among Iowa’s counties for use on all secondary roads. The Farm-to-Market Road Fund (FM) is distributed among the 99 counties for construction improvements on the Farm-to-Market Road System. Both the SRF and FM funds are distributed to counties through a formula based on roadway miles, traffic, area, rural population, and bridge data. The Street Construction Fund of the Cities is distributed based on each city’s share of total statewide city population for use on the Municipal Street System.

In the early stages of the COVID-19 pandemic, there were significant impacts to transportation and corresponding impacts to funding. Travel on Iowa’s public roadways dropped significantly, which resulted in reduced fuel tax revenue. While the impacts of COVID-19 cannot be understated, the diversity of the RUTF revenue streams played an

important role in limiting the impact to transportation revenues. While other states that rely wholly on fuel tax receipts were delaying projects and cutting programs, the state of Iowa was able to continue with planned transportation investments with minor adjustments.

As we continue to progress through the pandemic, traffic has returned to near pre-pandemic levels. In addition, while we have seen a reduction in the number of new vehicles available, a robust used vehicle market has made up for the reduction in new vehicle purchases.

### Local

Cities and counties also receive funding for their roadways from local revenue sources. Typical sources include property taxes, local option sales tax (LOST), tax increment financing districts, and bonding and assessments (primarily used by cities). The amount of local revenue that each city and county receive varies based on local taxing decisions.

## Funding Issues

As described earlier, there are three major funding sources for public roadway improvements: federal revenue, state revenue, and local revenue. All three funding sources are facing issues that will impact every jurisdiction's ability to adequately maintain and improve the public roadway system.

### Federal

Federal funding is generally restricted to construction improvements and is not available to support maintenance activities. Historically, federal funding for public roadways has increased over time. From 2012 to 2021, average annual growth was 2.5%. As discussed previously, federal funding is dependent on the enactment of reauthorization bills. While each new bill has resulted in increased funding, they have also required significant influxes of non-Highway Trust Fund (HTF) revenues, as HTF revenues have been insufficient to meet federal transportation funding needs for some time. Without a solution to this ongoing issue, there will continue to be potential for cuts to the federal highway program in the future.

### State

Iowa's state revenue has historically been able to keep up with inflation due to increased traffic on the system and number of vehicles purchased, which lead to increased revenue from fuel taxes, use taxes, and vehicle registration fees. However, as shown in Table 9, in recent years the rate of growth of the state revenue has not kept pace with inflation and the purchasing power of state revenues has declined.

Table 9: State Revenue, Actual and Adjusted to Constant 1997 Dollars (Iowa DOT)

	Actual Revenue (millions)	% Change from Previous Year	Adjusted Revenue (millions)	% Change from Previous Year
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	\$1,658	13.4%	\$686	26.6%
2017	\$1,729	4.3%	\$699	1.9%
2018	\$1,687	-2.4%	\$632	-9.6%
2019	\$1,749	3.7%	\$535	-15.4%
2020	\$1,816	3.8%	\$578	8.1%
2021	\$1,881	3.6%	\$517	-10.5%

### Local

Cities rely heavily on state revenue and, to a lesser extent, on federal funds for Municipal Street System needs. In addition, cities also rely on local funding sources. These include General Fund property taxes, LOST revenue, and general obligation bonds. However, as cities struggle to meet all basic service needs, local funding is inadequate to address roadway system needs. For counties, a specific limitation is that property tax levies (general and rural basic) have a minimum and maximum threshold that can be deposited into the Secondary Road Fund. The balancing of local budgets has in many cases required city and county governments to reduce their labor forces, defer maintenance, and cancel major reconstruction programs.

## Evaluation of Future Revenues

Earlier in this report, the primary sources of revenues were discussed, as well as some of the critical issues facing each of the sources. This section examines the future of those revenue sources.

### Federal

Federal funding revenue for core construction programs for public roadways has experienced moderate growth over the past several years. Although there has been moderate growth, it has been accompanied by increases in construction costs. For purposes of forecasting revenues for this study, it has been assumed that future federal funding will continue to increase at a moderate rate.

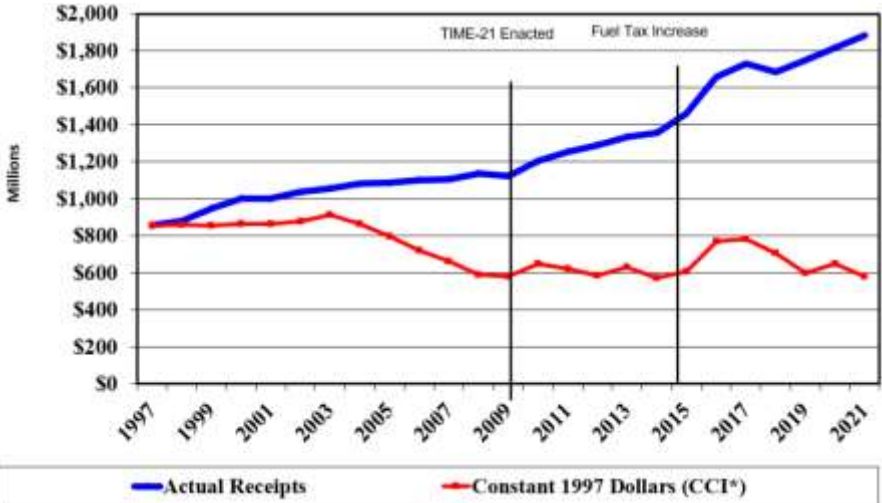
### State

Historically, state revenue has increased nearly every year due to increased travel and new vehicle purchases. Enactment of TIME-21 legislation, along with passage of the fuel tax increase, provided increases in revenue in 2009 and 2015. From FY 2012 to FY 2021, the average annual growth of the state revenue was 4.3 percent. As with federal funding, state funding has seen modest growth recently, but buying power has diminished due to construction cost increases (see Figure 11). Based on forecasts of future travel, vehicle purchases, and other factors that affect the state revenue, the level of state revenue will continue to increase slightly each year, but also continue to lose significant buying power.

### Local

Local revenues, including bonding for cities, are forecast to stay flat in terms of actual dollars from year to year. Considering cost inflation, this will result in a significant loss of buying power over the 20-year period of this study.

Figure 11: Historic Trend in RUTF Revenue Buying Power (Iowa DOT)



\* Iowa Construction Cost Index, which reflects the inflation of roadway costs in Iowa and corresponding loss in buying power

## Loss of Buying Power

As mentioned in the discussion of all funding sources, a major impact on the ability to meet future needs is the loss of buying power due to increased construction costs. This has been a continuing impact on all jurisdictions. Since 2003, state revenue has lost over a half billion dollars in buying power, with a loss of \$260 million in 2006 alone (when compared to the 2003 funding level). Put simply, the Iowa DOT, cities, and counties are spending more on Iowa's roadway system, but buying less for their money.

## Summary of Future Revenues

The 20-year projected revenues for Iowa's public roadway system are \$72.029 billion (see Table 10). The projections are based on the following assumptions.

- After accounting for the increases in federal revenue from the IIJA, federal funding will increase slightly (0.5% annually) over the remaining years of the 20 year study period, resulting in a continuing loss of buying power.
- State revenue will grow about one percent annually, which will result in a continuing loss of buying power.
- Local revenue will remain constant over the 20 years, resulting in a continuing loss of buying power.



Table 10: Projected Revenues for Iowa's Public Roadway System, 2021-2040 (Iowa DOT)

	City (millions)	County (millions)	State (millions)	20-Year Total (millions)	Average Annual (millions)
Projected total revenues	\$24,691	\$18,793	\$28,545	<b>\$72,029</b>	<b>\$3,601</b>



## Sufficiency of Revenue and Funding Shortfall

Using the methodology described earlier in this study, the Iowa DOT has assessed the total 20-year needs to address all administration, maintenance, and construction needs for Iowa's public roadway system. This assessment also prioritized these needs, identifying the subset of the most critical needs that reflect only future investment in stewardship of existing infrastructure.

These needs have been compared to anticipated revenues over the same 20-year period. The conclusion of this study is that forecasted revenue levels are not sufficient for meeting the projected needs of the public roadway system. These findings are summarized in Table 11 below.

Table 11: Projected Shortfall for Iowa's Public Roadway System, 2021-2040 (Iowa DOT)

	City (millions)	County (millions)	State (millions)	20-Year Total (millions)	Average Annual (millions)
Projected total needs	\$26,830	\$28,062	\$32,757	<b>\$87,649</b>	<b>\$4,382</b>
Projected total revenues	\$24,691	\$18,793	\$28,545	<b>\$72,029</b>	<b>\$3,601</b>
Projected total shortfall	<b>(\$2,139)</b>	<b>(\$9,269)</b>	<b>(\$4,212)</b>	<b>(\$15,620)</b>	<b>(\$781)</b>
Projected stewardship needs				<b>\$77,783</b>	<b>\$3,889</b>
Projected stewardship shortfall				<b>(\$5,754)</b>	<b>(\$288)</b>

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## Alternative Funding Sources & Recommendations

This study includes an analysis of existing funding sources (Appendix 1) and alternative funding sources (Appendix 2) and was conducted as required by the Code of Iowa. The requirement to evaluate current and potential revenue sources was added by the legislature in recognition of the challenge that existing funding mechanisms face 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 related to these issues. The Iowa DOT recommends continued study or implementation of the following to mitigate these challenges in the future.

### Recommendation 1: Indexing Fuel Tax Rates


As noted above, many factors, including increasing fuel economy and construction cost inflation, continue to impact transportation revenues and their ability to meet system needs. One mitigation effort that many states have implemented to partially address this issue is to index fuel tax rates. Rates are indexed upon many different factors and vary from state to state. Examples include indexing fuel tax rates to the consumer price index (CPI), corporate average fuel economy (CAFE) standards, fuel price, construction cost data, and others. These adjustments are typically applied on an annual basis and, in part, mitigate losses in buying power due to increasing construction costs.

The most common metric used to index fuel tax rates is the consumer price index. A review of states that currently index or have legislation in place to index in the future shows that thirteen states or areas index based on consumer price index data. Index values include California CPI, National CPI, and the CPI energy index.

Eleven others currently, or will, index fuel tax rates based on different index values. For example, Alabama and Colorado have legislation in place to index fuel tax rates in the future based on changes in highway construction cost indexes. Many other states index fuel tax rates based on the wholesale price of fuel.

Regardless of the method of indexing, most states have included legislative language that controls the amount of growth the tax rate can experience due to these indexing metrics. For example, many states set a baseline level to ensure revenues are not subject to deflation or declines in the price of fuel. Additionally, many states have set a cap on the amount fuel tax rates can increase on an annual, or overall, basis. A summary of fuel tax indexing by state is shown in Table 12 on page 27.

Implementation of fuel tax indexing in Iowa would be an effective way to, in part, mitigate continuing increases in highway construction costs. Implementing an indexing method that is easily administered and calculated is a priority. Additionally, based on the review of indexing methods implemented by other states, having an index that is not subject to significant annual fluctuations is of value.



“The Iowa DOT recommends the legislature consider implementing indexing of state fuel tax rates based on the national Consumer Price Index for all urban Consumers.”

As a result, the Iowa DOT recommends the legislature consider implementing indexing of state fuel tax rates based on the national Consumer Price Index for all urban consumers (CPI-U). To ensure that reasonable revenue forecasts can be produced, it is recommended that indexing be implemented with minimum fuel tax rates (no negative adjustments), but also recommend capping annual inflation

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adjustments at 3%. Implementing a cap on annual increases will ensure that fuel tax rates do not increase excessively in any one year in the future.

This recommendation of indexing by the greater amount of 0% or CPI-U (capped at 3%) is similar to indexing processes used in other areas. For example, the District of Columbia, Florida, and Rhode Island implement similar indexing processes. Each of these regions utilize CPI data as the basis for their indexing and do not allow for negative adjustments from their selected base rate.

## Recommendation 2: Monitor Mileage-Based User Fee Mechanism

As noted above, shortfalls in transportation revenues exist for many reasons, including the inability to offset increases in inflation, increases in fleet fuel economy, and the shift to more alternative fuel vehicles. As a major component of transportation revenue, fuel taxes were first implemented to serve 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 taxes paid has been diminished due to alternative fuel vehicles and increases in fuel economy. This imbalance between fuel tax collections and system use is likely to continue to increase in the future due to growth of alternative fuel vehicles. Furthermore, CAFE standards are required by law to increase by approximately 10% from model year 2021 to model year 2026. Proposed rulemaking is currently underway that require even greater increases in fuel economy between 2024 and 2026, further exacerbating this reliance on fuel taxes to pay for transportation maintenance and improvements.

Given these ongoing issues, many states continue to evaluate alternatives to address transportation funding shortfalls. An option being considered by many states is implementing a system that would

charge a tax based on the number of vehicle miles traveled rather than a fixed tax per gallon of fuel. Implementing a mileage-based user fee (MBUF) mitigates issues such as alternative fuel vehicle technology and increases in fuel economy. By mitigating those issues that degrade the amount of tax collected per mile driven, an MBUF could provide a more stable source of transportation revenue for the future.

While implementation of an MBUF would address many issues related to transportation revenues, it cannot be accomplished without addressing several significant challenges. For example, many MBUF implementation options would rely on tracking of a vehicle's location. While location information would be of significant value in facilitating revenue distribution and in allowing for various policy options, it raises concerns regarding privacy and security. Another challenge is the cost of implementing and administering the MBUF. Transitioning from a fuel tax to an MBUF would result in moving from a system that collects taxes 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 fee.

Collection of mileage data could be accomplished through multiple different methods, each with a varying level of technological reliance. Options include odometer inspections, on-board vehicular devices, and cellular or GPS technology that would allow the collection of location data. Options that 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

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implementing a per mile tax. The study found that both GPS and onboard diagnostics systems measured approximately 92.5% of all miles driven. In addition, the study found that, upon conclusion, 71% of survey participants had a highly or somewhat positive view of the MBUF.

In the years following the University of Iowa study, many states and multi-state coalitions have continued to conduct studies on MBUF and issues associated with implementation of such a fee. A number of studies have been funded through a program authorized as part of the FAST Act. The Surface Transportation System Funding Alternatives (STSFA) 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.

STSFA award winners include the states of Hawaii, Washington, Oregon, California, Colorado, Wyoming, Utah, Minnesota, Delaware, Ohio, Texas, Kansas, New Hampshire, and Missouri. In addition to those grant winners, other states have been included as participants in MBUF studies funded through the STSFA program. Participating states include North Carolina, Pennsylvania, Virginia, New Jersey, Maine, Maryland, and the District of Columbia.

Awardees and other participating states studied several different issues using STSFA funds. A sample of the issues being studied other efforts utilizing SFSTA funds include:

- Viability of current global positioning system technology to determine public road networks (California and Hawaii)
- Implementation impacts of MBUFs in rural areas (Kansas and Minnesota)
- Viability of smartphone-based technology for MBUF purposes
- Public outreach efforts (Ohio and Utah)

- Validation of data sharing processes (Oregon)
- International Fuel Tax Agreement (IFTA) and MBUF opportunities (Wyoming)
- Feasibility of MBUF through shared mobility services (Minnesota)
- Vehicle registration fees along with MBUF (Missouri)
- Mechanisms to collect revenue at pay-at-the-pump charging stations (California)
- Equitability and privacy issues in a multi-state region (Delaware)
- Public outreach on equity and data security issues (Missouri)
- Using on-board mileage counters to implement MBUF (Delaware)
- Manual and automated odometer readings at inspection stations (Hawaii)

Many of these efforts, and others funded without the use of SFSTA funds, are being conducted as part of multi-state coalitions. The Road User Charge West (RUC west) is a 17-state organization working together to share best practices and research RUCs. Of the 17 states within the organization, two (Oregon and Utah) have implemented RUCs and four others (California, Colorado, Hawaii, and Washington) have tested RUC pilot programs. Eleven other states researching RUCs and participating in the coalition include Alaska, Arizona, Idaho, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Texas, and Wyoming.


The other major multi-state organization associated with RUCs is the Eastern Transportation Coalition (ETC). The ETC is an 18-member organization dedicated to advancing the national conversation surrounding the implementation of a RUC. The ETC has implemented MBUF studies on both passenger vehicles and commercial trucks, including the largest truck pilot conducted in the United States.

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While numerous states have studied MBUFs, several states have reached the point of implementing an opt-in MBUF within their state. Based on its 2001 Road User Fee Task Force report, Oregon moved forward with 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. Currently approximately 2,000 vehicles are enrolled in the program. Participants pay a fee of 1.8 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.

Utah has also implemented a fully functioning MBUF option for residents of the state. During its 2018 legislative session Utah instituted an alternative fuel vehicle fee to cover lost fuel taxes collected from electric and hybrid vehicles in the state. That fee is charged in addition to the annual vehicle registration fees paid by all vehicles. Utah's Road Usage Charge (RUC) program allows certain vehicles to opt into the RUC program rather than pay the additional alternative fuel vehicle fee. The program is open to battery electric, plug in hybrid electric vehicles, and gasoline hybrid vehicles. Participants pay 1.5 cents per mile up to the alternative fuel vehicle fee that would have been charged. Participants can pay less overall through the RUC than they may have through the alternative fuel vehicle fee. Per mile fees are capped at what a participant would have paid in alternative fuel vehicle fees. Utah's RUC program is conducted using on-board diagnostic equipment.

Continued study and implementation are likely to continue in the upcoming years due to a major boost to the implementation of MBUF through the new Infrastructure Investment and Jobs Act (IIJA). This transportation reauthorization will provide funding for national, state, and local level MBUF programs, including \$50 million for a national level program and \$75 million for state and local programs. These funds will be made available between 2022 and 2026. IIJA specifies that funds are being made available to test the feasibility of a MBUF and to raise public awareness about transportation alternatives.



"Given the challenges of implementation and need for interoperability between states, the Iowa DOT has concluded that to be viable, an MBUF needs to be developed at a national level."

The Iowa DOT has concluded that an MBUF is the best long-term solution to addressing future transportation revenue challenges. However, given the challenges of implementation and need for interoperability between states, the Iowa DOT has concluded that to be viable, an MBUF needs to be developed at a national level. The Iowa DOT will continue to monitor the development of MBUFs nationally as solutions to implementation challenges are addressed moving forward.

Table 12: Fuel Tax Indexing by State

State	Index Type	Notes
California	Consumer Price Index	Based on California CPI.
DC	Consumer Price Index	Increase by greater of annual CPI increase or zero.
Florida	Consumer Price Index	Based on National CPI. No negative adjustments.
Illinois	Consumer Price Index	CPI for urban consumers. Max increase of \$0.01 annually. Sales tax is also applied to fuel purchases.
Michigan	Consumer Price Index	Indexing begins 1/1/22. Indexing will be lesser of \$0.05 or inflation rate. No negative adjustments.
Rhode Island	Consumer Price Index	Based on All Urban Consumers CPI. Minimum fuel tax of \$0.32 per gal. Indexing applied every other year.
Virginia	Consumer Price Index	Indexing was previously based on WFP. CPI adjustments begin 7/1/22.
Georgia	Consumer Price Index and Corporate Average Fuel Economy	CPI adjustments sunset after 7/1/25.
Indiana	Consumer Price Index and Indiana Personal Income	Fuel tax rates cannot decrease. Limits annual increases to \$0.01 (gas) and \$0.02 (special fuel). Last adjustment 7/1/24.
North Carolina	Consumer Price Index and Population Growth	Based on CPI energy index (25%) and population growth (75%).
Nevada	Consumer Price Index and Producer Price Index	Levied for certain counties.
Maryland	Consumer Price Index and Fuel Price	Indexing limited to 8% increase annually. No negative adjustments. Sales and use tax based on average annual retail price of gasoline.
Utah	Consumer Price Index and Wholesale Fuel Price	16.5% tax rate. Maximum fuel tax of \$0.40. Min/max WFP of \$1.78/\$2.43 based on 3-year average.
Alabama	National Highway Construction Cost Index	Indexing begins 2023. Max increase/decrease of \$0.01 every other year.
Colorado	Highway Construction Cost Index	Indexing begins 2032 and applies to the \$0.08 road use fee levied on gasoline.
Arkansas	Wholesale Fuel Price	Sales tax of 1.6% on gas and 2.9% on diesel. Annual adjustments on Oct 1, capped at one-tenth of one cent per gallon.
Connecticut	Wholesale Fuel Price	8.1% tax rate. WFP capped at \$3.00.
Kentucky	Wholesale Fuel Price	9% tax rate. Minimum fuel tax of \$0.26. Maximum wholesale price change of 110% (increase) and 90% (decrease).
Nebraska	Wholesale Fuel Price	Tax rate adjustments made to meet appropriation decisions.
New Jersey	Wholesale Fuel Price	Tax rate adjustments made to maintain revenue levels.
Pennsylvania	Wholesale Fuel Price	Minimum WFP of \$2.99 on 1/1/17.
Vermont	Wholesale Fuel Price	2% (MFTIA) and 4% (MFTA) tax rates. Minimum of \$0.0396 (MFTIA) and \$0.134 (MFTA). MFTA maximum of \$0.18.
West Virginia	Wholesale Fuel Price	5% tax rate. Minimum WFP of \$3.04. Annual WFP increase capped at 10%.
New York	Wholesale Fuel Price and Produce Price Index	Maximum annual increase of 5%.

## Appendix 1: Existing funding sources

Type of Financing	Description/Mechanism	Estimated Amount Generated	Advantages	Disadvantages	Collected from out-of-state drivers?
<b>Fuel Tax</b> (452A.3)	<p>Cents per gallon tax on motor fuels, including some alternative fuels.</p> <p>Current rate (as of July 1, 2021):</p> <ul style="list-style-type: none"> <li>Gasoline: 30.0 cents per gallon</li> <li>Ethanol-blended gasoline E10-E14: 30.0 cents per gallon</li> <li>Ethanol-blended gasoline E15 or higher: 24.0 cents per gallon</li> <li>Diesel (B10 and lower): 32.5 cents per gallon</li> <li>Diesel (B11 and higher): 30.4 cents per gallon</li> </ul> <p>The fuel tax is the only significant current source of RUTF revenue that is applied to out-of-state drivers as well as lowans. The Iowa DOT has estimated that 20 percent of large truck travel in Iowa is from out-of-state trucks and 13 percent of passenger car/small truck travel in Iowa is from out-of-state drivers. In total, approximately 8 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"> <li>Collection and administration process already in place.</li> <li>Generally proportional to system usage.</li> <li>Generates revenue from out-of-state drivers.</li> <li>Paid by all users of the highway system.</li> </ul>	<ul style="list-style-type: none"> <li>Increased fuel efficiency results in lower revenue.</li> <li>Higher fuel prices lead to reduced driving and reduced fuel tax collections.</li> <li>Fees are fixed and do not adjust for inflation.</li> </ul>	Yes (see description)
	<p><b>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</b></p> <p>Amount of additional revenue generated is dependent on rate of inflation.</p>	<p>Variable. A three percent adjustment would generate \$20.75 million per year.</p>	<ul style="list-style-type: none"> <li>Automatically addresses loss of buying power.</li> </ul>	<ul style="list-style-type: none"> <li>Makes forecasting for programming difficult.</li> </ul>	

Type of Financing	Description/Mechanism	Estimated Amount Generated	Advantages	Disadvantages	Collected from out-of-state drivers?
<b>Fee for New Registration</b> (321.105A)	Five percent fee that is imposed on the sale of new and used motor vehicles and trailers		<ul style="list-style-type: none"> <li>• Collection and administration process already in place.</li> <li>• Provides revenue source based on ability to pay.</li> <li>• Proportional to cost of vehicle.</li> </ul>	<ul style="list-style-type: none"> <li>• Not proportional to system usage.</li> <li>• May discourage sales of motor vehicles.</li> <li>• Fluctuates with economic cycles.</li> </ul>	No
	<b>Mechanism: Increase to six percent.</b>	Approximately \$75 million per year	<ul style="list-style-type: none"> <li>• Brings fee in line with state sales tax rate.</li> </ul>		
<b>Driver's License Fee</b> (321.191)	A fee charged for the privilege to operate a motor vehicle.  \$4 per year (non-commercial) \$8 per year (commercial)		<ul style="list-style-type: none"> <li>• Collection and administration process already in place.</li> <li>• Does not fluctuate with economic cycles.</li> </ul>	<ul style="list-style-type: none"> <li>• Not proportional to system usage.</li> </ul>	No
	<b>Mechanism: Double driver's license fee.</b>	Approximately \$18 million per year on average			
<b>Registration Fees</b>	Fees charged to register and license vehicles and trailers.  Fees vary according to the weight and value of the vehicle.		<ul style="list-style-type: none"> <li>• Collection and administration process already in place.</li> </ul>	<ul style="list-style-type: none"> <li>• Not proportional to system usage.</li> <li>• Higher administrative and enforcement costs.</li> <li>• Encourages retention of older vehicles.</li> </ul>	Only commercial vehicles that pay a prorated fee based on travel within Iowa.
	<b>Mechanism: Increase registration fees by 10 percent.</b>	Approximately \$65 million per year			



## Appendix 2: Alternative funding sources

Type of Financing	Description	Advantages	Disadvantages	Collected from out-of-state drivers?
<b>Local Option Vehicle Tax</b>	<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"> <li>• Enabling legislation already in place.</li> <li>• Revenue generated locally and available for local transportation priorities.</li> </ul>	<ul style="list-style-type: none"> <li>• Not proportional to system usage.</li> </ul>	No
<b>Sales Tax</b>	<p>Assess sales tax on fuel purchases.</p> <p>A one percent sales tax on fuel would generate approximately \$49 million per year based on 2020 fuel usage and prices.</p>	<ul style="list-style-type: none"> <li>• Provides a mechanism to apply local option sales tax on the purchase of fuel.</li> <li>• Requires less frequent legislative action on fuel tax because revenues will increase as the price of fuel increases.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires enabling legislation.</li> <li>• Administration and collection system need to be developed.</li> <li>• Because tax is tied to the price of fuel, the amount of tax could change significantly if fuel prices experience large fluctuations.</li> </ul>	Yes
<b>Severance Tax on Ethanol</b>	<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 2020 data, a severance tax of one cent per gallon would have generated \$40.5 million.</p>	<ul style="list-style-type: none"> <li>• Creates opportunity to generate revenue from sources outside of Iowa.</li> <li>• Compensates for roadway deterioration resulting from usage of system for the production of ethanol.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires enabling legislation.</li> <li>• Administration and collection system would need to be developed.</li> <li>• Potential regulatory issues.</li> <li>• Could put the producer at competitive disadvantage.</li> </ul>	Yes

Type of Financing	Description	Advantages	Disadvantages	Collected from out-of-state drivers?
<b>Per-Mile Tax</b>	<p>Tax based on the vehicle miles traveled within a state.</p> <p>Based on the vehicle miles traveled in Iowa in 2019, a one cent per-mile fee would generate \$338 million per year.</p>	<ul style="list-style-type: none"> <li>• Direct measure of actual costs incurred.</li> <li>• Highly related to needs for capacity and system preservation because as travel and revenue increases, the need for capacity and preservation improvements increase.</li> <li>• May be graduated based on vehicle size, weight, emissions or other characteristics.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires enabling legislation.</li> <li>• Administration and collection system would need to be developed.</li> <li>• Potentially high administrative, compliance and infrastructure costs.</li> <li>• Technology needs to mature.</li> <li>• Privacy concerns.</li> </ul>	Yes
<b>Transportation Improvement District</b>	<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"> <li>• Satisfies urgent infrastructure needs, which exceed available finances.</li> <li>• Encourages state, local and private-sector partnerships.</li> <li>• Users of the system decide to implement.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires enabling legislation.</li> <li>• Administration and collection system would need to be developed.</li> <li>• May be seen as an equity issue.</li> </ul>	Yes, if out-of-state driver makes taxable purchases within geographic area.
<b>Tolling</b>	<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"> <li>• Specific road segments/corridors generate their own revenue.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires enabling legislation.</li> <li>• Expensive to initiate due to needed capital investment.</li> <li>• Ongoing administrative costs.</li> <li>• 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.</li> <li>• Public resistance may lead to adjustments in travel patterns to avoid tolls.</li> <li>• There are federal restrictions in some cases.</li> </ul>	Yes

Type of Financing	Description	Advantages	Disadvantages	Collected from out-of-state drivers?
<b>Development Impact Fees</b>	A fee charged to developers for off-site infrastructure needs that arise as a result of new development.	<ul style="list-style-type: none"> <li>• Additional source of funding to off-set increased needs due to new development.</li> <li>• Places the cost of improvement on the development that caused the need.</li> </ul>	<ul style="list-style-type: none"> <li>• Typically a local jurisdiction fee and is difficult to apply statewide.</li> <li>• Potential negative impact on future development.</li> <li>• Can be difficult to establish and administer.</li> <li>• Can be an equity issue when costs are passed on to homeowners in the case of a housing development.</li> </ul>	No
<b>Bonds for Primary Road System Improvements</b>	<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"> <li>• Allows earlier and faster construction of some facilities.</li> <li>• Satisfies urgent infrastructure need, which exceeds available finances.</li> <li>• Avoids inflationary construction costs.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires enabling legislation.</li> <li>• Requires state or community to extend payments for long periods of time.</li> <li>• Does not generate new money.</li> <li>• May cost more over time due to bond interest.</li> <li>• Requires existing annual resources be used for debt service rather than new needs.</li> <li>• May have a negative impact on statewide transportation decision-making.</li> <li>• Poses staffing issues for government road agencies and road consultants/contractors due to significantly changing annual project expenditure levels and cyclical nature.</li> </ul>	Depends on funding mechanism that funds bond repayments.

Type of Financing	Description	Advantages	Disadvantages	Collected from out-of-state drivers?
<b>Public-Private Partnerships (PPPs)</b>	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. Revenue potential varies.	<ul style="list-style-type: none"> <li>• Expedited completion compared to conventional delivery methods.</li> <li>• Avoids inflationary construction costs.</li> <li>• Delivery of new technology developed by private entities.</li> <li>• Purchase of private resources and personnel instead of using constrained public resources.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires enabling legislation.</li> <li>• May be less efficient.</li> <li>• If user-fee based, could lead to higher tolling than under a public-only project.</li> <li>• May limit ability for in-state contractors to participate in construction depending on type of project.</li> </ul>	Depends on mechanism implemented by private owner but would likely generate funding from out-of-state drivers
	<b>Mechanism: Privatization of infrastructure.</b> Typically involves the long-term leasing of toll roads to private sector for up-front payment.  Revenue potential varies.	<ul style="list-style-type: none"> <li>• Influx of one-time capital.</li> <li>• Shifts responsibility to contractor.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires enabling legislation.</li> <li>• Administrative process needed to let, execute, contract, and monitor performance.</li> <li>• Requires high-usage corridor to be marketable; Iowa may not have any candidates.</li> <li>• Built-in toll increases.</li> <li>• 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.</li> <li>• Requires very long-term decision that removes flexibility.</li> <li>• Very limited ability for in-state contractors to participate in construction.</li> </ul>	Depends on funding mechanism implemented by private owner but would likely generate funding from out-of-state drivers.
	<b>Mechanism: Enable design-build contracting.</b> 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.	<ul style="list-style-type: none"> <li>• Intended to accelerate construction schedule since some activities can occur simultaneously.</li> <li>• Intended to allow construction to begin sooner</li> <li>• Reduces administrative burden by having one contract and point-of-contact.</li> <li>• Can result in reduced construction costs.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires enabling legislation.</li> <li>• May impact ability of in-state contractors to participate in construction.</li> <li>• Not appropriate for all types of projects.</li> <li>• Potential for cost overruns if scope of work is not properly defined up front.</li> </ul>	N/A

Type of Financing	Description	Advantages	Disadvantages	Collected from out-of-state drivers?
<b>Container Tax</b>	<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"> <li>Creates opportunity to generate revenue on shipments passing through the state.</li> </ul>	<ul style="list-style-type: none"> <li>Requires enabling legislation.</li> <li>Does little to promote efficiency.</li> <li>Ongoing administrative costs.</li> </ul>	Yes
<b>Imported Oil Tax</b>	<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"> <li>Could help promote U.S. energy production.</li> </ul>	<ul style="list-style-type: none"> <li>Requires enabling legislation.</li> <li>Imported oil can be used for purposes other than transportation.</li> <li>Could result in larger free trade issues.</li> </ul>	Yes
<b>Tire Tax on Light Duty Vehicles</b>	<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"> <li>Sustainable source of funds.</li> <li>Under normal circumstance, a strong link exists between tire wear and system usage.</li> </ul>	<ul style="list-style-type: none"> <li>Requires enabling legislation.</li> <li>Would not generate significant revenues.</li> <li>May have safety ramifications by discouraging the replacement of worn tires.</li> </ul>	Yes
<b>Agriculture Bushel Tax</b>	<p>A tax charged on each bushel of agriculture based products.</p> <p>Based on estimated 2020 production levels a \$0.01 per bushel tax would generate approximately \$28 million.</p>	<ul style="list-style-type: none"> <li>Creates new source of sustainable revenues.</li> <li>If products are shipped by road, a strong link exists between agriculture production and system usage.</li> </ul>	<ul style="list-style-type: none"> <li>Requires enabling legislation.</li> <li>Revenues would fluctuate based on production levels.</li> <li>Administration and collection system would need to be implemented.</li> </ul>	No
<b>Tax on Taxi and Ride Hailing Services</b>	<p>Sales tax or fee levied on taxi or ride hailing services. Iowa currently collects a 6% sales tax on taxi and ride hailing services.</p>	<ul style="list-style-type: none"> <li>Clear link exists between these services and system usage.</li> <li>Collection and administration process already in place.</li> <li>Paid by all users.</li> </ul>	<ul style="list-style-type: none"> <li>May be seen as an equity issue.</li> </ul>	Yes
	<p><b>Mechanism: Place revenue generated on taxi and ride hailing services in RUTF.</b></p> <p>Revenue potential varies.</p>			

Type of Financing	Description	Advantages	Disadvantages	Collected from out-of-state drivers?
<b>Increase Oversize/Overweight Load Fees</b>	Iowa currently charges fees on vehicles or loads that exceed statutory limits.	<ul style="list-style-type: none"> <li>• Strong link between vehicle weight and system wear.</li> <li>• Paid by all users.</li> </ul>		Yes
	<p><b>Mechanism: Double Iowa's oversize and overweight fees.</b></p> <p>Based on 2020 permit information doubling the fees would generate approximately \$4.5 million</p>			
<b>Truck Mileage Tax</b>	<p>A tax charged on each mile driven by trucks within a state. Per mile fee can vary according to vehicle weight.</p> <p>Revenue potential varies upon a number of factors including miles traveled and rate schedules.</p>	<ul style="list-style-type: none"> <li>• Creates new source of sustainable revenues.</li> <li>• Strong link between vehicle weight and system wear.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires enabling legislation.</li> <li>• Subject to high levels of evasion</li> <li>• Administration and collection system would need to be implemented.</li> <li>• Costly to administer for state and companies</li> </ul>	Yes

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