7. Making it happen

Implementing the Plan will require three important steps, which include addressing the funding shortfalls identified in the previous chapter, programming future investments, and continuous performance monitoring.

7.1 Addressing the shortfall

The first step in implementation involves gathering the resources necessary to make much-needed investments in Iowa's transportation system. With limited resources, efficient investment actions made through the Five-Year Program are extremely important to support the stewardship of Iowa's existing transportation system.

Chapter 6 showed that the 2015 fuel tax increase helped meet the critical shortfall in highway funding Iowa had been facing, but an overall funding shortfall remains. Each mode also faces a shortfall, which will limit implementation of the projects and services that would fully meet the needs identified in Chapter 5 unless additional financial resources are available. Difficult decisions must be made in dealing with Iowa's funding shortfall. Prioritizing projects, emphasizing stewardship, and achieving the right blend of modification, optimization, and transformation of the multimodal system will be critical to ensure limited dollars are spent in the most beneficial way.

Appendix 3 identifies various options for addressing the funding shortfalls identified in Chapter 6, including some mechanisms that may be more applicable to a single mode, and others that could be used to generate revenue for various modes as discussed at the end of this section. It should be noted that some of these mechanisms are already in place, and additional revenue would need to be generated through some adjustment to how the mechanism is applied. In addition, while various advantages and disadvantages are identified in the table, the purpose of this information is not to advocate for any specific revenue generating mechanism(s).

In evaluating these mechanisms, the following principles should be considered. These were publically expressed during the Governor's Transportation 2020 Citizen Advisory Commission's input gathering process, which was an input for the 2011 Road Use Tax Fund (RUTF) Study.

- The user fee concept should be preserved, where those who use the system pay for the system, including nonresidents.
- Revenue-generating mechanisms should be fair and equitable across users.

- Implement revenue-generating mechanisms that are viable now, but also begin to implement and set the stage for longer-term solutions that bring equity and stability to funding.
- Continue Iowa's long-standing tradition of pay-as-you-go financing.

RUTF Study

The Iowa Department of Transportation (DOT) has conducted the RUTF Study every five years since 2006. Iowa Code requires the department to review the current levels of the RUTF and the sufficiency of those revenues for projected construction and maintenance needs of city, county, and state governments; make funding recommendations if needed; and evaluate alternative funding sources for road maintenance and construction. The 2011 RUTF Study identified an average annual funding shortfall of $1.625 billion, part of which was a critical funding shortfall of $215 million. As discussed in Chapter 5, that critical funding shortfall was largely addressed through increases in road and bridge funding at the state and federal levels.

The 2016 RUTF Study was completed just one full construction season after the state and federal funding increases, which made the full impact on future roadway needs difficult to estimate at that time. Due to this, along with the elimination of the critical funding shortfall, the study did not include any recommendations for changes to funding mechanisms, but rather focused on the actions taken since the 2011 RUTF Study and on alternative-funding mechanisms, as well as an updated analysis of existing and potential revenue sources.

As the study notes, 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. The study highlighted three areas that are being increasingly studied and/or implemented across the country.

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. Seven states currently have laws in place, or will in the future, that adjust fuel tax rates based on the Consumer Price Index. An eighth state has indexed fuel tax rates in two counties, with an upcoming ballot measure that could enable indexing to be allowed in all counties on a county-by-county basis. An additional four states 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 are not subject to deflation or declines in the price of fuel.

Alternative fuel vehicle registration fee

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, (e.g., electric, plug-in hybrid) 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 help 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 10 states have passed legislation that implemented an additional fee on electric vehicles. Most fees are levied on an annual basis and range from $50 to $200.

Per mile tax

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 diminished because of alternatively fueled vehicles and increases in fuel economy. This issue is likely to continue to increase in the future as alternative fuel vehicles continue to gain market share and as corporate average fuel economy (CAFE) standards are set to require an increase of more than 50 percent in passenger vehicle fuel economy between 2014 and 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 (VMT) 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.

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 global positioning systems (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, across the country a number of other studies have been completed that have focused on a per mile tax and associated issues, such as evaluating implementation technology, payment options, enforcement, willingness to change travel patterns based on variable per mile tax rates, urban versus rural issues, and privacy concerns. Oregon, in particular, has completed a number of studies and pilot programs, leading to the implementation of a fully functional road-usage charge program for up to 5,000 vehicles.

Interest in implementing a per mile tax continues to expand throughout the country. Authorized as part of the Fixing America's Surface Transportation (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 million over the five-year period of 2016-2020. Eight studies were awarded in fiscal year 2016. The Iowa DOT is following these studies closely and participating in regional and national efforts to monitor impacts on roadway revenues.

While the content of the RUTF study is certainly focused on Iowa's roadway system, the intent of this section and Appendix 1 is to identify options for addressing the funding shortfalls associated with each of the modes. As previously mentioned, some of the mechanisms noted in Appendix 1 may be more applicable to a single mode. However, there are several options that could be used to generate revenue for various modes. Some examples include gaming/lottery tax, public-private partnerships, sales tax, and transportation improvement districts. While these mechanisms represent those that are more clearly multimodal in their possible application, it should be noted that the legislation associated with all revenue generating mechanisms could be structured in such a way to direct funds to any transportation mode(s).

7.2 Programming

The second step in implementation involves the development of Iowa's Five-Year Transportation Improvement Program (Five-Year Program), which is completed by the Iowa Transportation Commission (Commission) and the Iowa DOT. This document is used to inform Iowans of planned investments in our state's multimodal transportation system. The Five-Year Program is typically updated and approved each year in June, and encompasses investments in aviation, transit, railroads, trails, and highways.

Program development and management

Each day some facet of the complex transportation system affects Iowans. The process of making the critical decisions about what investments will be made to manage the state-owned system is also complex. It involves input from a wide range of individuals and organizations, and is based on an expansive programming process. As of the adoption of this Plan, the Iowa DOT is transitioning to an enhanced programming process that will improve transparency, align available tools and plans, and better incorporate appropriate stakeholders. The major steps in that process include:

1. Problem statement development
2. Scoping
3. Project advancement
4. Project prioritization
5. Program synthesis
6. Final programming

Problem statement development

The initial step in the process is a recognition that all projects should result from an original problem or need identified on the transportation system. Those problems could be related to mobility, safety, infrastructure condition, resilience, or many other factors. The first step in the process is to clearly state and document the original problem such that solutions can be evaluated against the problem as stated.

Scoping

Once a problem has been identified, the next step is to scope the problem and initial solutions. At present, there is no single system to support the scoping process; however, one is currently being developed through the Iowa DOT's Office of Location and Environment. After the project is checked for consistency with the Plan, the final stage of the scoping process will result in the development of a project charter. The project charter will contain relevant information necessary to initiate the development a project.

Project advancement

Once a project has been chartered, it is a candidate for further development. While most simple projects will quickly advance through this step, it is intended to serve as a "pause point" to consider the problem statement, the proposed solution, and have a determination made about the assignment of resources to develop the project. If the proposed project is selected for prioritization and possible development, the project location will be set, and a project number assigned.

Project prioritization

At this point, the process shifts from examining individual problems and projects to examining the best mix of projects to achieve documented objectives for the system. Chartered projects will flow into a process that will use a prioritization tool currently being developed through the Office of Location and Environment, which will compare the benefits and costs of each proposed solution and allow for comparisons and ranking of projects against system-level targets and objectives. In this step, available resources will be balanced with system objectives, resulting in a portfolio of projects that will optimize investment.

Program synthesis

In this step, the Iowa DOT's Office of Program Management will manage the development of the draft Five-Year Program, incorporating information from the portfolio optimization process. Schedule and funding constraints will be evaluated and used to inform recommendations to the Highway Program Team for inclusion in the proposed Five-Year Program to be presented to the Commission.

Final programming

The Highway Program Team will review the recommended program and the performance levels projected to be achieved by the proposed program. They will then finalize the draft program for presentation to the Commission, or refer it back through the program development process for modification as necessary.

Multimodal programming

It should be noted that the programming process described on the preceding pages is more directly applicable to the highway portion of the Five-Year Program. As previously mentioned, the document is multimodal in nature, and contains the following program sections that are directly related to one of the five nonwater modes discussed in the Plan.

- Aviation Program
- Transit Program
- Railroad Program
- State and Federal Trails programs
- Revitalize Iowa Sound Economy (RISE) Program

- Iowa Statewide Transportation Alternatives Program
- Iowa's Clean Air Attainment Program
- Traffic Safety Improvement Program
- Highway Program

With few exceptions, the funding for the nonhighway programs is associated with an application-based process in which applications are solicited, typically on a defined schedule, by Iowa DOT staff. Staff and/or a standing committee evaluates eligible applications against a set of established criteria. Following the evaluation process, a funding recommendation is developed and presented to the Commission for its review. The Commission then holds final approval authority for each of the individual programs contained in the Five-Year Program.

The funding cycle and program monitoring

The transportation programming process is a continuous, year-round effort. The Iowa DOT's contracting and revenue experiences are closely monitored and monthly updates are reviewed by the Commission. Because Iowa uses a "pay-as-you-go" investment model, adjustments to the Five-Year Program may be warranted throughout the year to ensure the investment plan remains balanced and expenses do not exceed revenues. If revenues or expenses significantly exceed projections, projects may be added or removed accordingly.

A copy of the Five-Year Transportation Improvement Program is available on the Iowa DOT's website: http://www.iowadot.gov/program_management/five_year.html.

7.3 Performance monitoring

The third step in implementation is the process of performance monitoring. This process allows a public agency to demonstrate how well the transportation system is performing relative to stated goals and expectations. The transportation planning process is cyclical (see Figure 1.2), and performance monitoring has long been a key component of the process. Evaluating the performance of the system helps determine what impacts have been achieved by investments, and where new or additional investments may be needed. Performance management was formalized for federal-aid programs with the 2012 Moving Ahead for Progress in the 21st Century (MAP-21) Act, which established seven national goals for the federal-aid highway program. These goals were affirmed in the 2015 FAST Act. The goals are:

- **Safety**: To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
- **Infrastructure condition**: To maintain the highway infrastructure asset system in a state of good repair.
- **Congestion reduction**: To achieve a significant reduction in congestion on the National Highway System.
- **System reliability**: To improve the efficiency of the surface transportation system.
- **Freight movement and economic vitality**: To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
- **Environmental sustainability**: To enhance the performance of the transportation system while protecting and enhancing the natural environment.
- **Reduced project delivery delays**: To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

In order to monitor progress towards these goals, MAP-21 and the FAST Act require the establishment of a number of performance measures and targets by both states and metropolitan planning organizations (MPOs). These measures are outlined in Tables 7.1-7.3. States and MPOs will be required to evaluate conditions for these measures; set targets; describe how the projects included in the Statewide Transportation Improvement Program (STIP) and each MPO's Transportation Improvement Program (TIP) will help achieve progress towards the targets; and report on actual results and whether targets were met. In some cases, if the state does not meet its targets, there will be restrictions on how certain funding programs can be used or additional planning efforts may be required.

Several offices across the Iowa DOT will be working together to implement the required performance measures, target setting, and reporting. The performance measures and targets will be integrated throughout the planning and programming process. The Iowa DOT will also coordinate with the state's MPOs on target setting, and will be working closely with the MPOs on their own target setting and reporting requirements.

Table 7.1: Performance measures established for safety

Performance measure	Measure applicability	State deadline	MPO deadline
Number of fatalities	All public roads	CY 2018 targets due for NHTSA HSP by 7/1/17; targets due in HSIP annual report by 8/31/17	MPO reports targets to Iowa DOT by 2/27/18
Rate of fatalities	All public roads		
Number of serious injuries	All public roads		
Rate of serious injuries	All public roads	CY 2018 targets due in HSIP annual report by 8/31/17	
Number of nonmotorized fatalities and nonmotorized serious injuries	All public roads		

Source: FHWA Final Rule: National Performance Management Measures: Highway Safety Improvement Program

Table 7.2: Performance measures established for pavement and bridge condition

Performance measure	Measure applicability	State deadline	MPO deadline
Percentage of pavements of the Interstate System in Good condition	The Interstate System	State two-year and year-year targets due by 2/17/18	MPO reports 4-year targets to Iowa DOT by 8/16/18
Percentage of pavements of the Interstate System in in Poor condition	The Interstate System		
Percentage of pavements of the non-Interstate NHS in Good condition	The non-Interstate NHS		
Percentage of pavements of the non-Interstate NHS in Poor condition	The non-Interstate NHS		
Percentage of NHS bridges classified as in Good condition	NHS		
Percentage of NHS bridges classified as in Poor condition	NHS		

Source: FHWA final rule: National Performance Management Measures; Assessing Pavement Condition for the National Highway Performance Program and Bridge Condition for the National Highway Performance Program

Table 7.3: Performance measures established for system performance, freight movement, and congestion

Performance measure	Measure applicability	State deadline	MPO deadline
Percent of the person-miles traveled on the Interstate that are reliable	The Interstate System	State targets due by 2/17/18	MPO reports targets to Iowa DOT by 8/16/18
Percent of the person-miles traveled on the non-Interstate NHS that are reliable	The non-Interstate NHS		
Percent change in tailpipe CO2 emissions on the NHS compared to the calendar year 2017 level	The NHS		
Truck travel time reliability index	The Interstate System		
Annual hours of peak hour excessive delay per capita*	Mainline of NHS in urbanized areas with a population over 1M/200k in nonattainment or maintenance for any of the criteria pollutants under the CMAQ program.		
Percent of non-SOV travel*	Urbanized areas with a population over 1M/200k in nonattainment or maintenance for any of the criteria pollutants under the CMAQ program.		
Total emissions reduction*	All nonattainment and maintenance areas for CMAQ criteria pollutants.		

**Measure not currently applicable to Iowa or any of its MPOs*

Source: FHWA final rule: National Performance Management Measures; Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program

In addition to required reporting for MAP-21/FAST Act measures, the Iowa DOT has identified a number of performance measures to help track system status across modes. Performance measures are helpful in plan implementation as a way to identify specific measures that monitor progress toward achieving the Plan's vision. Measures have been identified in Table 7.4 for three general categories:

- System performance – measurements that help gauge the usage of the mode, or its availability
- Safety – measurements related to crashes, fatalities, and/or incidents for that mode
- System condition – measurements that provide a view of the condition of the mode's infrastructure

These measures will help enhance understanding of trends across modes, and were developed in consultation with modal offices. Among other things, system performance measures should be specific, measurable, relevant and meaningful. Some are tracking measures, meaning that they may be items that are not directly influenced by the Iowa DOT or its investments, but still help provide an understanding of the mode's usage and impact.

Table 7.4: Iowa DOT performance measures

Mode	System performance	Safety	System condition
Aviation	Annual number of commercial passenger enplanements 2010: 1,468,158 2015: 1,826,127	Number of airports certified for public use 2010: 116 2016: 114	Percentage of airports that meet all facility targets for their role 2010: 61% 2016: 68%
	Aviation fuel dispensed (gallons) 2010: 36,527,471 2015: 39,310,446		Percentage of airports with a Pavement Condition Index (PCI) of 70 or higher on paved runways 2010: 87% 2016: 78%
Bicycle and pedestrian	Miles of off-road trails 2011: 1,780 2016: 1,866	*Bicycle fatalities – will align with required MAP-21/FAST PM* *Bicycle and pedestrian fatalities 2010: 27; 2016: 26*	Miles of non-interstate Primary Highway System rated as good for on-road bicycle compatibility 2016: 749.5
		Annual number of on-road, reported bicycle and pedestrian crashes 2010: 909 2016: 868	
Highway	Total annual vehicle-miles traveled (VMT) 2010: 31,579,356,000 2015: 33,108,942,000	*Crash rate – will align with required MAP-21/FAST PM*	*Pavement condition – will align with required MAP-21/FAST PM*
		Fatalities – will align with required MAP-21/FAST PM	*Bridge condition – will align with required MAP-21/FAST PM*
Public transit	Annual statewide transit ridership 2010: 26,209,999 2016: 27,838,603	Public transit crash rate per 100 million VMT 2010: 6.28 crashes 2015: 4.61 crashes	Percentage of public transit fleet operating within Federal Transit Administration's normal useful life standards 2010: 51% 2016: 37%
Rail	Total freight tonnage moved by rail (million tons) 2010: 342.5 2015: 360.6	Total crashes involving a train 2010: 42 2016: 27	Percentage of track-miles able to operate at 40 mph or higher 2010: 69.8% 2016: 86.3%
	Annual passenger rail ridership 2010: 68,744 2016: 57,611	Derailments per million net ton-miles 2010: 0.00074 2016: 0.00061	Percentage of track-miles able to handle 286,000-pound cars 2010: 82.0% 2016: 89.4%

Source: Iowa DOT

Measures will be monitored and reviewed over time. The purpose of a periodic review of these performance measures is to bring the Plan into a more focused short-term perspective while providing more detailed information to decision-makers. The review will function as a planning tool that can raise red flags concerning potential adjustments decision-makers may consider. This assessment can consider all elements affecting transportation investment, including guidance for activities such as design, programming, and location studies. When done in advance of programming activities, the review can provide direction and guidance for including specific investment actions in the Five-Year Program.

7.4 Moving forward

Iowa in Motion 2045 provides a framework for the Iowa DOT and the Commission to identify, prioritize, and select investments that will help maintain and create the transportation system envisioned for the state. The investigation and analysis conducted throughout development of the Plan has led to the following general conclusions.

- The state is completing a transition from building the system to efficiently managing the existing system through a philosophy of stewardship.
- The state has a good transportation system overall, but additional improvements are needed.
- Across modes, there is a funding shortfall that will dramatically worsen over time if action is not taken to identify new or additional sustainable financial resources.

Implementing the Plan will be a significant effort across and beyond the Iowa DOT. Outside of the three important steps identified earlier in this chapter, there are additional keys to implementing the plan that should be noted. One such key is to maintain and strengthen the Iowa DOT's partnership with the state's MPOs and RPAs. This partnership is cultivated both through day-to-day interactions and more formalized interactions, such as the quarterly meetings of these agencies that are hosted by the Iowa DOT. The state's MPOs and RPAs will be critical in the development and implementation of future statewide transportation plans.

Another key to "making it happen" will be to diligently update the Plan as needed given recent developments and progress toward implementation. It is possible that future federal legislation could require statewide transportation plans to be updated on a specific schedule. In the meantime, it is important that the Plan be continuously evaluated, revised, and updated in accordance with federal regulations, and continue to utilize a five-year update cycle.