

## Iowa's freight strategies

The following information represents the primary elements of the Iowa DOT's freight improvement strategy. Some of the activities associated with these strategies are already underway, while others will be initiated in the near future as new tools and technologies are implemented. Each element of the department's strategy aligns with both the priorities of the FAC and the national freight goals identified in MAP-21.

Per USDOT's interim guidance on state freight plans, these strategies relate to capital investments, operational improvements, policy changes, and the expanded use of innovative technologies. The table following each strategy shows which of these four items applies to each strategy. Those that do apply are represented in a blue box and those that do not apply are represented in a gray box. The numbering of strategies is for identification only and does not show priority of any kind.

### 1. Maximize the advantages inherent to Iowa's geographic proximity

<i>Capital investments</i>	<i>Operational improvements</i>	<i>Policy changes</i>	<i>Innovative technologies</i>
----------------------------	---------------------------------	-----------------------	--------------------------------

Iowa serves as a crossroads for our country's surface transportation system, with transcontinental Interstate highways 35 and 80 traversing the state and intersecting in the central capital of Des Moines. The country's busiest freight rail system also crosses Iowa's midsection. Iowa has eight commercial service airports along with 101 general aviation airports. Iowa is the only state in the country bordered by two navigable waterways in the Missouri and Mississippi rivers.

Iowa's geographic proximity offers many natural advantages over other areas of the country when it comes to the movement of freight. Optimizing the freight transportation network to maximize these advantages and lower transportation costs will be critical to promote business growth in Iowa. Public officials and representatives from the freight industry must continue to work cooperatively to explore this issue through forums such as the Freight Advisory Council.

### 2. Explore/create other funding sources to increase investment in the freight transportation system

<i>Capital investments</i>	<i>Operational improvements</i>	<i>Policy changes</i>	<i>Innovative technologies</i>
----------------------------	---------------------------------	-----------------------	--------------------------------

Iowa is fortunate to have a strong multimodal freight transportation network. However, tackling the challenge of maintaining and improving this system relies heavily on available funding. As described in section 4.2 *Freight Issues*, there is a shortfall between anticipated future costs and revenues of freight transportation in the state. Costs are increasing while much of Iowa's revenue stream for transportation construction, maintenance, and operations has remained relatively stagnant until recently. The situation has been improved by a ten cent fuel tax increase in Iowa that went into effect March 1, 2015, providing additional funding for road and bridge projects. However, with transportation costs increasing faster than revenues and freight movements expected to grow, Iowa's transportation system will be subject to more widespread deterioration and congestion.

Exploring other funding mechanisms, or even creating new ones, is extremely advantageous to freight movement in Iowa. Freight-specific investments will increase efficiency, connectivity, and profitability. Reserving a percentage of funding for freight projects and public-private partnerships to expedite investment are potential options. There may be the possibility of creating a multimodal state funding program such as the Linking Iowa's Freight Transportation System (LIFTS) program, which was initiated as a pilot in 2015. Infrastructure bank funds were repurposed and targeted to projects that improved multimodal connections and freight mobility. Unfortunately, there were only enough funds for a one-time grant program. If creating a separate, sustainable multimodal freight fund is not an option, allowing flexibility in current funding mechanisms is beneficial in order to make multimodal freight improvements a reality.

### 3. Target investment to address mobility issues that impact freight movements

<i>Capital investments</i>	<i>Operational improvements</i>	<i>Policy changes</i>	<i>Innovative technologies</i>
----------------------------	---------------------------------	-----------------------	--------------------------------

As required in the USDOT guidance on State Freight Plans, Chapter 7 of this plan includes the identification of bottlenecks in the freight transportation system that cause delays and unreliability in freight movements. Bottlenecks were identified for four of the five major freight modes- air, highway, rail, and water. This identification process involved a variety of stakeholders, including both users and those responsible for stewardship of the freight transportation system.

Investments that target the elimination or reduction of these freight mobility issues will be a key element of the Iowa DOT's freight improvement strategy. This includes expanding capacity and increasing connectivity of modes through transload and intermodal facilities. Using the decision making processes and tools identified in Chapter 8, the department examined the feedback and outputs received via these channels for alignment with the strategies identified in this chapter. Where this alignment exists, priority investments were identified that will serve to implement this State Freight Plan. It is also important to acknowledge that congestion in surrounding areas outside of the State's borders may have an impact on Iowa freight movement. Collaboration with other states and exploration of solutions needs to be carried out in the future to maximize the effectiveness of investments made within the state.

### 4. Utilize designs that are compatible with oversize/overweight freight movements

<i>Capital investments</i>	<i>Operational improvements</i>	<i>Policy changes</i>	<i>Innovative technologies</i>
----------------------------	---------------------------------	-----------------------	--------------------------------

While a strategy that targets investments to address existing mobility issues is prudent, it is also necessary to avoid investments that unknowingly create new obstructions to freight movement. The most obvious example of this is the application of roadway designs that are incompatible with oversize/overweight vehicles (OSOW). Due to the dimensions and turning characteristics of these OSOW vehicles, some design applications, such as roundabouts, can create unintended bottlenecks on the system.

Investments that are targeted for facilities that handle large volumes of OSOW vehicles, such as those identified in Figure/Table X.X, should incorporate designs that are compatible with these types of freight movements. In addition, future routing and access control decisions and processes should consider those facilities that are known to be compatible with OSOW freight movement. The resulting coordination would effectively create an optimal OSOW network for the state of Iowa.

### 5. Target investment on the interstate system at a level that reflects the importance of this system for moving freight

<i>Capital investments</i>	<i>Operational improvements</i>	<i>Policy changes</i>	<i>Innovative technologies</i>
----------------------------	---------------------------------	-----------------------	--------------------------------

Iowa's interstate system consists of 782 centerline miles and 271 miles of ramps, supporting nearly 8 billion vehicle miles of travel (VMT) annually. While the interstate system comprises just 0.7 percent of the length of Iowa's full road and street system, it carries 25 percent of total VMT and 56 percent of large truck VMT. Similar contrasts exist when examining the primary highway system alone. Interstate 80 carries the largest volume of freight traffic, where nearly one in every three vehicles is a large truck.

The *Iowa Interstate Corridor Plan* emphasized the importance of the interstate system while presenting a thorough evaluation of the system's condition. This plan concluded with the identification of several priority interstate corridors that should be considered for further study and programming. These priority corridors are identified in Appendix 4. In order to ensure that the interstate system can continue to support growing freight demands, future investment must be focused accordingly.

## 6. Right-size the highway system and apply cost-effective solutions to locations with existing and anticipated issues

<i>Capital investments</i>	<i>Operational improvements</i>	<i>Policy changes</i>	<i>Innovative technologies</i>
----------------------------	---------------------------------	-----------------------	--------------------------------

The existing highway system has taken shape over several decades and, while forecasted demand was considered, it was largely built to suit the needs of the time. Over the years, those needs have evolved, along with technology, the economy, and the traveling public. As a result, the Iowa DOT's role is not to rebuild the system as it was built decades ago, but rather to implement a system that will meet the demands of the 21<sup>st</sup> century. This will require significant investment in stewardship, some focused capacity expansion as resources allow, and perhaps even some contraction of the system.

Related to this right-sizing of the system is the application of cost-effective solutions to address existing and anticipated issues. An example of this would be the application of the "Super-2" concept, or some variation thereof, to address mobility issues on existing two-lane facilities that do not yet warrant more significant capacity expansion. This concept, which would provide significant benefits to freight mobility, involves the application of full-width lanes, paved shoulders, limited access, left- and right-turn lanes, climbing/passing lanes, and buffer zones. Applied correctly, such solutions will balance mobility needs with revenue limitations and the need to right-size the system, while also having more favorable long-term asset management implications.

## 7. Advance a 21st century Farm to Market system that moves products seamlessly across road, rail, and water to global marketplaces

<i>Capital investments</i>	<i>Operational improvements</i>	<i>Policy changes</i>	<i>Innovative technologies</i>
----------------------------	---------------------------------	-----------------------	--------------------------------

Per Iowa Code, "farm-to-market roads" or "farm-to-market system" means those county jurisdiction intracounty and intercounty roads that serve principal traffic generating areas and connect such areas to other farm-to-market and primary roads. This system is currently comprised of approximately 30,500 miles, and cannot exceed 35,000 miles. Iowa has an extensive highway system, including a nearly 90,000-mile secondary road system that is the result of the one-mile by one-mile sectioning of land in the state. Roads were created around these sections to provide access to farmland.

A 2002 effort by Iowa's Road Use Tax Fund Committee sought to answer the following question. "What is the nature of the road and street system required to best serve the transportation needs of Iowa, and how should jurisdictional responsibility be assigned to the state, counties, and cities to assure a coordinated, balanced, and adequately funded system without wasteful duplication?" Given the rapidly changing agricultural landscape and the diminishing buying power of existing transportation resources, the size of the farm-to-market system demands that this issue be reexamined, now more than a decade removed from the last study. While some alternatives are likely to present more obstacles than others, all alternatives should be examined for their potential efficiencies, including road abandonments, vacations, and service conversions.

## 8. Implement asset management tools and practices and promote their use at the local level

<i>Capital investments</i>	<i>Operational improvements</i>	<i>Policy changes</i>	<i>Innovative technologies</i>
----------------------------	---------------------------------	-----------------------	--------------------------------

As transportation agencies transition from a capacity expansion mission to one more focused on preservation and modernization, it has become ever more important to maximize results from each dollar spent and to communicate funding needs to the public. This has been especially true in light of the loss of purchasing power experienced in recent years. As part of the response to these changing circumstances, many agencies are exploring adoption of enhanced asset management practices to improve their long-term, systemic maintenance results. The key tenets of asset management include: use of formalized, periodic condition measurement, tracking, analysis, and anticipation systems that can lead to greater efficiency in the use of scarce resources; and an investment approach that recognizes it can be

more cost effective to repair or renovate road and bridge assets early in their life cycles rather than after they are more fully depreciated.

The Iowa DOT, in seeking to implement asset management methods in its own operations and to promote enhanced practices by all road agencies, has invited cities and counties to collaborate and coordinate efforts in striving to reach new levels of efficiency and effectiveness and improve the state of the art. Toward this end, representatives of cities, counties, the Iowa DOT, and InTrans have been named to work together on the Local Transportation Asset Management (LTAM) Steering Committee.

## 9. Optimize the freight transportation network to minimize cost and travel time and improve supply chain efficiency

<i>Capital investments</i>	<i>Operational improvements</i>	<i>Policy changes</i>	<i>Innovative technologies</i>
----------------------------	---------------------------------	-----------------------	--------------------------------

The vision of the department’s freight transportation network optimization strategy is to effectively identify and prioritize investment opportunities for an optimized freight transportation network to lower transportation costs for Iowa businesses and promote business growth in Iowa. This project aligns well with both the Iowa DOT’s Strategic Plan and the national freight goals identified in MAP-21.

To achieve this, the department must analyze network demand and capacity to identify constraints; design optimization strategies based on quantitative and qualitative analysis of costs and benefits; prioritize investment opportunities and develop short and long term financial models; develop business cases to reduce transportation costs; and document a demand-based, value-driven analysis and design methodology to effectively identify and evaluate investment opportunities specific to Iowa’s transportation network optimization. This includes objectives such as increasing the availability of transload and intermodal facilities to increase system connectivity and strengthening first- and last-mile connections to freight-related facilities, resulting in elevated efficiency for all modes of freight transportation.

## 10. Optimize the availability and use of freight shipping containers

<i>Capital investments</i>	<i>Operational improvements</i>	<i>Policy changes</i>	<i>Innovative technologies</i>
----------------------------	---------------------------------	-----------------------	--------------------------------

Currently there exists a significant imbalance when it comes to the use of inbound and outbound shipping containers. This is a problem that is inherent to many major intermodal facilities in major metropolitan areas. For example, current international trade places large numbers of empty containers in consumption markets like Dallas-Ft. Worth, Memphis, and Indianapolis. Opportunities may exist to relocate some of these empty containers to locations in Iowa for re-loading. With massive volumes of production, Iowa is well-positioned to provide potential loads for outbound movements of these containers. Otherwise, many of these containers are shipped back to international markets such as Asia without back-loads.

## 11. Explore opportunities for increasing value-added production within the state

<i>Capital investments</i>	<i>Operational improvements</i>	<i>Policy changes</i>	<i>Innovative technologies</i>
----------------------------	---------------------------------	-----------------------	--------------------------------

An ancillary yet extremely valuable product of the department’s freight transportation network optimization study is the development of a robust database of economic information. This information is necessary to ultimately identify and evaluate transportation network optimization opportunities. However, it can serve the dual purpose of identifying specific economic development opportunities for the state of Iowa.

For example, a specific origin-destination analysis could identify that raw commodities are being shipped from a location in Iowa to a location just outside of the state for value-added product refinement. This could provide an opportunity for the state to consider investments that would allow for such value-added processes to occur in-state, prior to these products being exported. Such opportunities could improve the state’s overall economic advantages, but would likely require corresponding adjustments to the optimized freight transportation network.

## 12. Promote freight movement and continue to advance efforts on the M-35 Marine Highway Corridor and M-29 Marine Highway Connector

<i>Capital investments</i>	<i>Operational improvements</i>	<i>Policy changes</i>	<i>Innovative technologies</i>
----------------------------	---------------------------------	-----------------------	--------------------------------

The M-35 Marine Highway is designated from St. Paul, Minnesota to Grafton, Illinois. The States of Iowa, Illinois, Minnesota, Missouri, and Wisconsin have a vision of a modern, reliable, and cost-effective M-35 Marine Highway that connects seamlessly into the existing Midwest and national transportation network, generates regional and national economic growth, and sustains the river's multiple uses. Realizing this vision and improving the condition and efficiency of the Upper Mississippi River will require a great deal of effort, support, and collaboration. The States will be working on numerous initiatives, such as promoting the value of the river, advocating for infrastructure investments, facilitating regional dialogue, marketing current services, and seeking out new tools. Strengthening Upper Mississippi River transportation mobility and utilization, in the context of regional and national transportation networks, will not only improve the economic competitiveness of the Midwest and nation, but will also relieve landside congestion on highways and railroads, reduce air emissions, and increase the efficiency of other surface transportation modes.

The M-29 Marine Highway Connector is designated on the Missouri River from Kansas City, Missouri to Sioux City, Iowa. Although commodity movement is relatively low, the M-29 serves as a viable shipping alternative to other freight transportation modes and provides a valuable link to the rest of the marine highway system. Unreliable water levels and competition from other modes, namely railroads, has led to the dramatic decline in commodity movement on the Missouri River. The Iowa DOT will continue to work with stakeholders to make the M-29 a more reliable waterway and promote the corridor for freight movement. Much like the M-35, strengthening the M-29 will improve economic competitiveness of the region, relieve landside congestion on highways and railroads, reduce air emissions, and increase the efficiency of other surface transportation modes.

## 13. Provide real-time information on system conditions to support the movement of freight

<i>Capital investments</i>	<i>Operational improvements</i>	<i>Policy changes</i>	<i>Innovative technologies</i>
----------------------------	---------------------------------	-----------------------	--------------------------------

Iowa's transportation system is an integral and essential part of society, serving commerce and the daily functions of all Iowans. The freight transportation system is in demand 24 hours a day and 365 days a year. This is regardless of the weather or other factors that impact the condition of the system, as a high-quality transportation system serves as the artery for economic activity.

Expectations and needs on the transportation system are changing fast and have significantly shifted over the past decade. Transportation information has become as important as the transportation infrastructure itself, which represents a shift in how state DOTs view their responsibilities as it relates to this information about the system. Providing real-time information on system conditions will become increasingly important for the safe and efficient movement of freight, and such information should be made directly available to personal devices and vehicles.

## 14. Leverage real-time information from users of the system to support advanced decision-making and incident avoidance

<i>Capital investments</i>	<i>Operational improvements</i>	<i>Policy changes</i>	<i>Innovative technologies</i>
----------------------------	---------------------------------	-----------------------	--------------------------------

Successfully leveraging information from users relates directly to the issue of providing real-time information on system conditions. Social media provides the opportunity for users to have a direct role in providing information regarding the transportation system and other associated services. Social media is consumer driven, transparent, engaging, and inclusive – all qualities that should also define transportation services.

DOTs must shift to begin more actively absorbing and utilizing social media information. Given the real-time nature of this information, it can often carry much more value than system information provided through more traditional means.

Extracting this information from users will allow others to take it into consideration and be more proactive in their decision-making and incident avoidance.

### 15. Provide measured, clear, non-technical performance results for the freight system

<i>Capital investments</i>	<i>Operational improvements</i>	<i>Policy changes</i>	<i>Innovative technologies</i>
----------------------------	---------------------------------	-----------------------	--------------------------------

MAP-21 placed an increased emphasis on performance measurement, requiring the establishment of national performance measures for which states are to develop targets. Performance measurement is not a new concept in the transportation industry, however. The concept predated MAP-21, and much study has gone into what makes an effective performance measure from the perspective of the user of the transportation system.

Perhaps most critical to the user are performance measures that are both clear and non-technical. That is not to say that a measure cannot be quantitative, but it must be presented in such a way that it is usable to the layperson. Chapter 7, *Conditions and performance of the state’s freight transportation system*, presents a set of performance measures that reflect the strategic goals identified in this plan. While these measures will help the department evaluate the effectiveness of our freight improvement strategy, these are not necessarily the same measures that will be used to publically communicate the performance of the freight transportation system.

### 16. Streamline and align freight-related regulations and minimize unintended consequences

<i>Capital investments</i>	<i>Operational improvements</i>	<i>Policy changes</i>	<i>Innovative technologies</i>
----------------------------	---------------------------------	-----------------------	--------------------------------

As noted in Chapter 4, *Trends and issues*, the FAC identified differences in regulations as a major obstacle for the efficient movement of freight. Since freight movements are often multistate in nature, there is a need for improved reciprocity between states regarding issues not standardized at the Federal level. These include regulations related to issues such as fuel, trips, vehicle registration, etc.

There are some potential short-term changes that could be made related to regulation that would be extremely beneficial to the users of the freight transportation system. These include, but are not limited to streamlining the permitting process, which is both confusing and cumbersome to shippers and truckers; providing easier access to information regarding Iowa’s trucking regulations; and improving coordination and education among the interested parties, including neighboring states, regarding these regulations.

Although all State and Federal regulations are developed with good intentions, not all have a positive impact on freight transportation. The regulatory environment will either encourage or deter business in a state. Iowa DOT should work with other state departments to attempt to minimize any unintended consequences of regulation that may hinder freight movement and/or discourage businesses from investing in the state. This can be done by analyzing the potential positive and negative impacts and discussing with the appropriate stakeholders before implementing.

### 17. Act as a point of contact and educator on freight transportation options

<i>Capital investments</i>	<i>Operational improvements</i>	<i>Policy changes</i>	<i>Innovative technologies</i>
----------------------------	---------------------------------	-----------------------	--------------------------------

Iowa DOT should strive to be an educator to the general public and a resource for companies and shippers looking to learn more about the freight transportation options in the state. One of the largest disincentives for shippers to use other modes is a lack of education or awareness on how and where to start. Typically, shippers are unaware of the full range of options or who to contact to begin the exploration of alternative modes or multiple modes. Iowa DOT should fill this role. Providing details on the multiple modal options for freight transport and where the connection points currently exist would be beneficial to the state’s economy, as well as the overall transportation network. Iowa DOT could provide technical assistance and answer questions about the use of a specific mode or multiple modes, and provide contact information for different service providers in the shipper’s area. These things can be done with websites, seminars, webinars, on-site visits, and/or online tools, just to name a few.