



1. INTRODUCTION

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Importance of Freight Planning

The United States currently enjoys an unrivaled comparative and competitive advantage over the rest of the world due to its production capacity and ability to transport at low costs.

Thanks to an abundance of natural resources and arable land, the U.S. can produce vast amounts of agricultural commodities, energy products, minerals, and raw materials. The U.S. also has a world-class freight transportation system with multiple transportation modes, lower costs, and greater reliability that provides American businesses the ability to move products and materials much more efficiently than elsewhere in the world.

Unfortunately, the competitive advantage is shrinking due to deteriorating infrastructure, increased congestion, and shifting supply chains. The transport of goods and services is the backbone of the economy and investments in basic transportation infrastructure strengthen economic vitality. A safe, efficient, and convenient freight transportation system is a necessity not only for Iowa, but the entire nation.

1.1 Plan purpose

Leadership and clear direction are necessary for making strategic decisions and investments that will better support the economic competitiveness of the state and nation. The Iowa Department of Transportation (Iowa DOT) recognizes this necessity and the need to further integrate freight considerations into the statewide transportation planning and programming process.

The primary purpose of the Iowa State Freight Plan (State Freight Plan) is to document the immediate and long-range freight planning activities and investments in the state. More specifically, it will provide guidance on how to address issues, adapt to emerging trends, and invest strategically in the freight system to grow a stronger economy, strengthen the nation's competitive advantage, and enhance the quality of life for Iowans.

The State Freight Plan serves as a platform for connecting Iowa's freight-related initiatives and a tool for supporting informed decision-making aimed at addressing the ongoing challenges of today's freight system and supply chains. This plan will:

- Address each of the five modes of the freight transportation system – aviation, highway, pipeline, railroad, and waterway;
- Support the implementation of the state transportation plan, Iowa in Motion;
- Align with the national freight goals; and
- Meet the requirements of the Infrastructure Investment and Jobs Act (IIJA).

How the plan is used – the state’s role

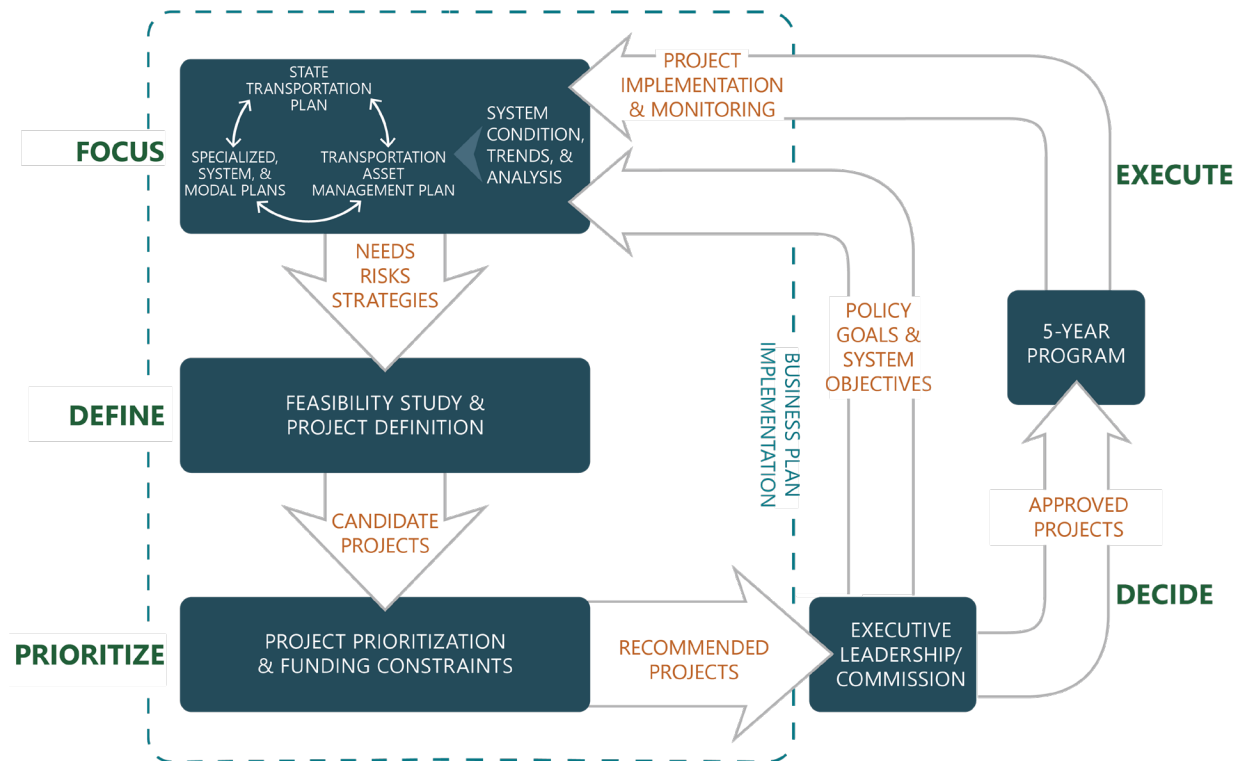
The State of Iowa has an important role in supporting and overseeing Iowa’s freight system and it is the responsibility of the Iowa DOT to support the safe, efficient, and convenient movement of goods by:

- Working collaboratively with industry to improve infrastructure and supply chain efficiency and resiliency through groups such as the Iowa Freight Advisory Council;
- Developing, maintaining, and utilizing data and tools to analyze the freight system and identify bottlenecks that inhibit supply chain efficiency or raise costs to shippers and consumers;
- Assisting local planning entities with further incorporating freight considerations into their planning and programming processes; and
- Providing targeted funding and financial assistance to support freight projects that provide benefits to the economy.

In recent years, the Iowa DOT has embarked on numerous freight planning activities to help improve freight movement. The State Freight Plan is a way to connect each of these initiatives and allow them to move forward toward a common goal of optimal freight transportation in the state.

Each of Iowa’s freight-related initiatives plays a role in a collaborative planning and programming process. Figure 1.1 illustrates in more detail how the State Freight Plan relates to the variety of additional plans and tools the department utilizes to ultimately inform the development of the Five-Year Program. These include the state transportation plan, more specialized plans (e.g., State Freight Plan and Transportation Asset Management Plan), system evaluation tools (e.g., Infrastructure Condition Evaluation tool), and project-level evaluation tools (e.g., Project Prioritization).

Figure 1.1: Relationship between elements of the planning and programming process



Source: Iowa DOT

The State Freight Plan is used to assist the department in making informed transportation decisions and investments by:

- Inventorying Iowa’s freight transportation assets, the conditions of these assets, and the freight-dependent industries and supply chains the assets support;
- Identifying the locations of multimodal bottlenecks to be addressed;
- Documenting demographic, economic, and freight trends and what these mean for Iowa in the future; and
- Developing strategies and improvements to be implemented in order to maintain and improve the freight transportation system.

This document is also developed to support the state transportation plan. More specifically, the goals, implementation strategies, improvements, and performance measures in the State Freight Plan will align with the four Iowa DOT system objectives (Figure 1.2) documented in the state transportation plan.

Figure 1.2: Iowa DOT system objectives



Source: Iowa DOT

1.2 Impact on the economy

Efficient and reliable transportation options power the creation of wealth in the state and nation, unleashing the opportunity for economic activity. The state's economy is dependent on a robust and diverse transportation system to move products to a global marketplace. This system has long been a competitive advantage for businesses in Iowa and remains so today as the state continues to be a major player in the global economy.

The performance of the freight transportation system affects economic productivity in several ways. Changes in the cost and the quality of freight movement affect both the amount of freight transport that firms buy and the ways in which they use it. At the most basic level, a drop in the cost of goods movement means more will be sold. This will most likely take the form of an expanded area for obtaining inputs, materials, and intermediate products, as well as for shipping final products. Lower cost transport increases the market that can be served from a given facility. Figure 1.3 traces the links from an improvement in freight transport to a higher standard of living.

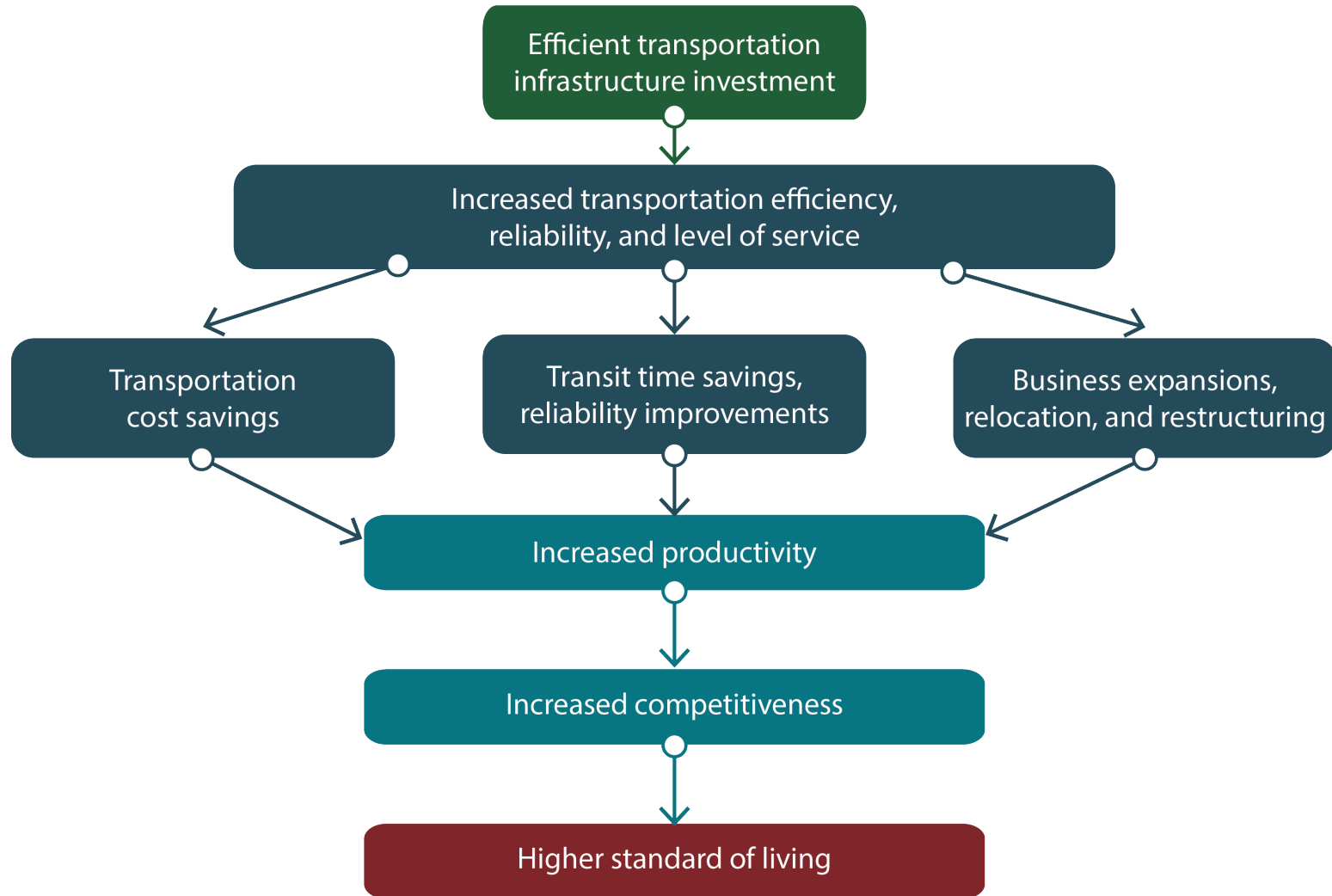
Improvements in the quality of transportation (i.e., efficiency and reliability) result in reduced transit times and greater reliability of delivery times. Both of these, especially the latter, impact the way in which firms design their logistics systems. These improvements also open the door for transportation cost savings, as well as potential business expansions and restructuring. Lower transit times increase the "reach" of facilities such as factories and distribution centers; if these facilities can be more widely spaced, a given market area can be served with fewer facilities. Since fewer facilities for a given flow of goods means more volume per facility, investment costs and operating costs may be reduced.

Thus, when firms consider their logistics arrangements and the design of their distribution systems, they will take into account improved freight transport to develop lower-cost systems. The result can be more productivity, increased competitiveness with other businesses, and in turn, a higher standard of living for the area as more capital is invested in the region.

By continuing to maintain and invest in the freight transportation system, public and private transportation providers can increase competitiveness for Iowa businesses, strengthen the economy, and raise the quality of life for Iowa citizens.

Iowa's freight transportation system boasts a central geographic location and an abundance of transportation options. As a producer-state, meaning one that transports more goods out-of-state than it receives into the state, and a relatively rural state, this transportation flexibility provides shippers and businesses a strong comparative advantage. This fosters the ability to efficiently and competitively serve domestic and global markets via single or multiple modes of transportation. Iowa's network of interstates, rail infrastructure, pipelines, airports, and barge routes combine to provide cost-competitive transportation choices to serve and access markets outside the state. In addition, Iowa is consistently named as one of the lowest cost domestic locations for manufacturing in the country. Combining manufacturing output with the massive volume of agricultural products creates a surprisingly large demand for cost-competitive multimodal and intermodal systems.

Figure 1.3: Transportation and the economy



Source: ICF Consulting, 2010 and Beyond: A Vision of America's Transportation Future

1.3 Federal transportation bills and national freight goals

Fixing America's Surface Transportation (FAST) Act

The FAST Act was signed on December 4, 2015. With this reauthorization, states that receive funds under 23 U.S.C. 167 National Highway Freight Program (NHFP) were required to develop state freight plans that show a comprehensive plan for immediate and long-range planning activities and investments of the state with respect to freight.

In addition, the FAST Act created a National Multimodal Freight Network (NMFN) with the intent of strengthening the contribution of this network to the economic competitiveness of the country. It also required the development of a National Freight Strategic Plan (NFSP) and encouraged states to create and utilize state freight advisory committees.

Effective two years after the date of enactment of the FAST Act, a state was not able to obligate NHFP funds unless the state had developed a freight plan in accordance with 49 U.S.C. 70202 of the FAST Act.



IIJA

IIJA was signed on November 15, 2021 and built on the freight initiatives of the FAST Act, including the extension of NHFP funding and the identification of additional requirements for state freight plans.

These plans must be updated every four years and meet 17 requirements outlined in IIJA for approval. The table on pages 6-7 identifies the plan section(s) where each requirement is addressed.

NHFP – Creates a formula program where each state receives funds (in proportion to the amount of funds a state receives compared to other states under all formula-apportioned programs) to be spent on freight projects on the National Highway Freight Network (NHFN), with some flexibility to include intermodal projects.

NMFN – A network of airports, highways, railroads, and waterways identified as critical freight corridors that should be targeted for investment with the intent of strengthening the contribution of this network to the economic competitiveness of the country. See Chapter 2, System inventory and performance.

NHFN – The highway portion of the NMFN which consists of the Primary Highway Freight System (PHFS), Critical Rural Freight Corridors (CRFCs), Critical Urban Freight Corridors (CUFCs), and the remainder of the Interstate Highway System not already designated as part of the PHFS. See Chapter 2, System inventory and performance.

NFSP – Defines the U.S. Department of Transportation's vision and goals for the national multimodal freight system, assesses the condition and performance of the freight system and barriers to freight system performance, and defines strategies to achieve its vision and goals.

National freight goals

IIJA requires a state freight plan to include a description of how the plan will improve the ability of the state to meet the National Multimodal Freight Policy goals described in 49 U.S.C. 70101(b) and the NHFP goals described in 23 U.S.C. 167. These were summarized in a single list to be addressed throughout the State Freight Plan (see Table 1.1).

Table 1.1: National freight goals

To identify and invest in infrastructure improvements, policies, and operational innovations
To improve the safety, security, efficiency, and resiliency of multimodal freight transportation
To achieve, maintain, and improve the state of good repair on the NMFN
To use innovation and advanced technology to improve the safety, efficiency, and reliability of the NMFN
To improve the economic efficiency and productivity of the NMFN
To improve the reliability of freight transportation
To improve the short- and long-distance movement of goods
To improve the flexibility of states to support multi-state corridor planning and the creation of multi-State organizations to increase the ability of states to address multimodal freight connectivity
To reduce the adverse environmental impacts of freight movement on the NMFN
To pursue the goals described in this subsection in a manner that is not burdensome to state and local governments

Source: U.S. Department of Transportation

The NFSP, released in September 2020, also identified a vision and goals for the Nation’s multimodal freight system and defined objectives to achieve those goals (see Table 1.2). The State Freight Plan will address each of these three sets of goals, and Table 1.3 shows alignment between the NFSP goals and the Iowa DOT system objectives (see Figure 1.2).

In addition to aligning with the national freight goals, Iowa DOT will consider the potential regulatory impact of all initiatives and how these could act as hindrances to freight movement.

Table 1.2: National Freight Strategic Plan goals and objectives

Goal	Strategic objective
<p>Safety</p> <p><i>Improve the safety, security, and resilience of the national freight system.</i></p>	<ul style="list-style-type: none"> • Support the development and adoption of automation, connectivity, and other freight safety technologies • Modernize safety oversight and security procedures • Minimize the effects of fatigue and human error on freight safety • Reduce conflicts between passenger and freight traffic • Protect the freight system from natural and human-caused disasters and improve recovery speed
<p>Infrastructure</p> <p><i>Modernize freight infrastructure and operations to grow the economy, increase competitiveness, and improve quality of life.</i></p>	<ul style="list-style-type: none"> • Fund targeted investments in freight capacity • Improve consideration of freight in transportation planning • Prioritize projects that improve freight intermodal connectivity, and enhance freight flows on first- and last-mile connectors and at major trade gateways • Advance freight system management and operation practices • Improve job growth and economic competitiveness in rural and urban communities • Mitigate the impacts of freight movement on communities
<p>Innovation</p> <p><i>Prepare for the future by supporting the development of data, technologies, and workforce capabilities that improve freight system performance.</i></p>	<ul style="list-style-type: none"> • Support the development and adoption of automation and vehicle-to-everything technology • Support the safe deployment of unmanned aircraft system technology • Streamline regulations to improve governance, efficiency, and economic competitiveness • Improve freight data, modeling, and analysis tools and resources • Strengthen workforce professional capacity • Invest in freight research • Support regulatory frameworks that foster freight innovation

Source: U.S. Department of Transportation

Table 1.3: Comparison of National Freight Strategic Plan objectives and Iowa DOT system objectives

Safety	Iowa DOT System Objectives			
Improve safety, security & resilience	Safety	Sustainability	Accessibility	Flow
Technologies				
Oversight & security procedures				
Fatigue & human error				
Passenger & freight traffic conflicts				
Resiliency				

Infrastructure	Iowa DOT System Objectives			
Modernize infrastructure & operations	Safety	Sustainability	Accessibility	Flow
Freight capacity investments				
Transportation planning				
Connectivity & enhancement projects				
System management & operations				
Economic competitiveness				
Community impact mitigation				

Innovation	Iowa DOT System Objectives			
Develop data, technologies & workforce	Safety	Sustainability	Accessibility	Flow
Automation				
Unmanned aircraft system technology				
Streamlined regulations				
Data, modeling & analysis tools				
Workforce capacity				
Research investment				
Regulatory frameworks				

Source: U.S. Department of Transportation and Iowa DOT