

2023 Nebraska State Freight Plan

EXECUTIVE SUMMARY



May 2023

NEBRASKA
Good Life. Great Journey.

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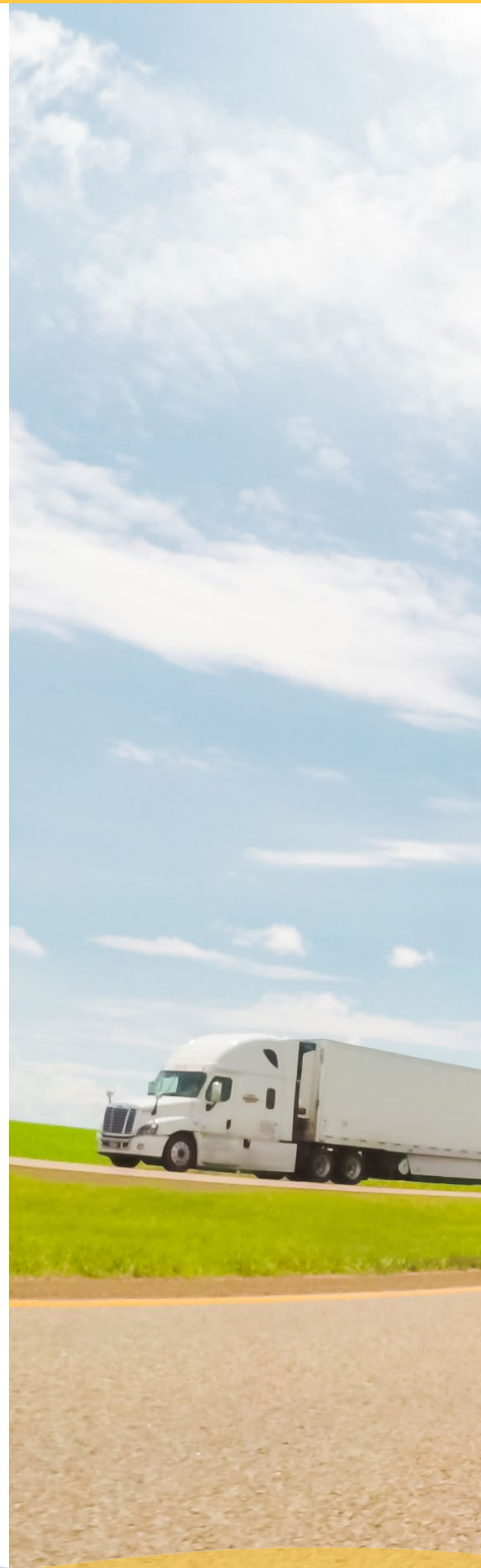
INTRODUCTION

Nebraska's economic vitality and quality of life depend in great part on how well the State's freight transportation network moves goods regionally, nationally, and internationally. Nebraska's intricate network of highway corridors, railroads, ports, and air cargo facilities handle large volumes of legacy energy, agriculture, and manufactured goods, as well as goods that are essential in today's modern economy, including electronics, pharmaceuticals, and other consumer products from all over the world. The State's importance to these industries and markets offers continued prospects for growth, but it is imperative that Nebraska not only preserve critical system assets and support freight-related development, but also proactively prepare for a future that will almost certainly increase freight volumes and activity, particularly on the highway system. Further compounding the challenge is the persistent and increasing challenge of extreme weather and natural hazards that threatens the integrity of the multimodal freight system and the stability of homes, businesses, farms, and communities.

Understanding these complex systems, the role the Nebraska Department of Transportation (NDOT) plays in their continued use, and how publicly-funded projects, policies and strategies can influence private-sector decisions that impact Nebraska's citizens and companies is key to planning for a future funding environment where needs far outweigh available resources.

The 2017 Nebraska State Freight Plan—the first of its kind for NDOT—laid the groundwork for the development of a continuous, comprehensive statewide freight planning program. The 2023 Nebraska State Freight Plan (SFP) builds on this document by identifying and describing the underlying industry drivers of goods movement in Nebraska and evaluating how supply chains have impacted the condition and performance of the system, particularly in light of the transformative shocks and changes that have occurred since the onset of the COVID-19 global pandemic in early 2020.

The 2023 SFP incorporates the latest data and research on freight and supply chain trends, with insight from a broad set of public- and private-sector freight transportation stakeholders, including the Plan's Freight Advisory Committee (FAC).



VISION AND GOALS

NDOT's mission is to provide the best possible statewide transportation system for the movement of people and goods. The vision, goals, strategies, and actions established in the 2023 SFP move forward NDOT's comprehensive program to invest in the State's highway system, as well as efforts by other Nebraska-based entities to invest and grow multimodal freight infrastructure, including railroads, air cargo facilities, and intermodal and transload facilities. Together with the 2040 Statewide Transportation Plan, the 2023 SFP ensures that Nebraska is ready to rise to the challenges and opportunities through 2040 and beyond, to fulfill its mission and keep the state's businesses and communities thriving.

Nebraska's Freight Vision

To support and grow Nebraska's freight system in efficient and innovative ways that make the multimodal system safer, more resilient, and promote the State's economic growth and competitiveness while balancing environmental considerations.

Nebraska's Freight Goals



Asset Preservation: Optimize road and bridge preservation investments decisions to best utilize limited funds to maintain and preserve the existing multimodal freight system.



Economic Competitiveness: Improve intermodal transportation system connectivity, efficiency, and mobility and strengthen inter-governmental partnerships to support existing industries and increase national and regional economic competitiveness.



Reliable, Secure & Resilient Freight Transportation: Support network resilience, reduce vulnerabilities in the statewide freight transportation system, implement redundancy, and make innovative investments that improve mobility, connectivity, accessibility, and reliability of goods movement.



Safety: Improve statewide safety by funding projects, including through the use of new technologies, that reduce injuries and fatalities on the freight transportation network.



Environmental and Community Vitality: Improve the use of data, policies, or guidance to support the avoidance, minimization, and/or mitigation of impacts, including air quality and impacts on vulnerable communities and the environment, to natural and cultural resources on freight related projects.

STAKEHOLDER OUTREACH

Stakeholder input is a key element in helping NDOT and its partners develop policies, programs, and projects that can reduce the cost of business in Nebraska and help the state attract and retain the industries it covets. While developing the Nebraska State Freight Plan, NDOT engaged with a variety of public and private freight transportation stakeholders across the State. Stakeholder outreach efforts included conducting a series of stakeholder interviews and Freight Advisory Committee (FAC) meetings.

The FAC was comprised of members from the public sector and private sector, including modal authorities, economic development agencies, representatives of major industries, freight carriers, planning organizations, advocacy groups, safety partners, and other freight stakeholders.

The FAC met once virtually (April 2022) and twice in-person (July 2022 and December 2022) to discuss progress on the freight plan, goals and objectives, critical freight needs and issues, and strategies for addressing current and future system needs.

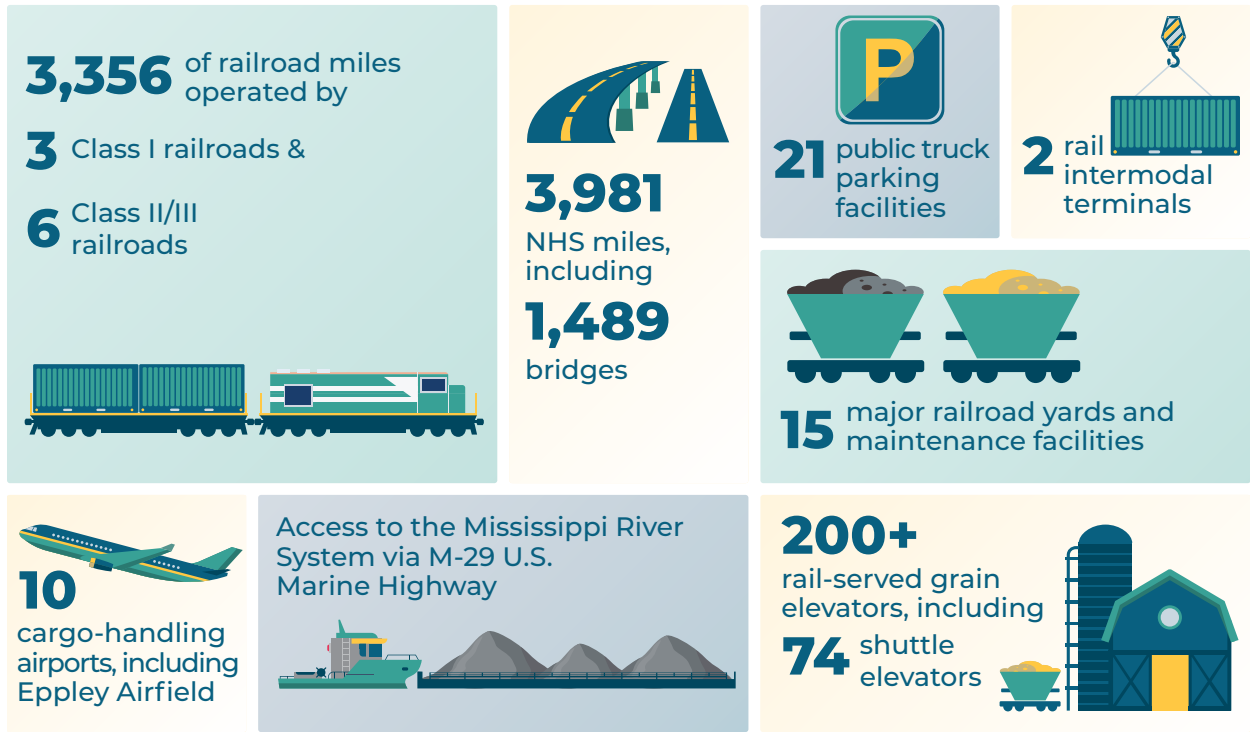
FREIGHT ADVISORY COMMITTEE MEMBERSHIP

Public Sector/Utility	Private Sector	Academic Institutions, Associations, and Advocacy
Federal Highway Administration (FHWA), Nebraska Division	BNSF Railway	Nebraska Corn Board
Lincoln Electric System	Cash-Wa	Nebraska Farm Bureau
Nebraska Chamber of Commerce	Crete Carrier	Nebraska Trucking Association
Nebraska Dept. of Agriculture	Heldt Produce/ Heldt Farms	Owner Operator Independent Driver's Association (OOIDA)
Nebraska Dept. of Economic Development (NDED)	Nebraska Central Railroad	University of Nebraska—Lincoln (UNL) Transportation Center
Nebraska Public Power District (NPPD)	Pioneer Hi-Bred International, Inc	UNL—Economics
Nebraska State Police—Carrier Enforcement	TSL Companies	UNL—Supply Chain Management & Analytics
Port of Omaha, U.S. Customs and Border Protection	Union Pacific Railroad	
	Werner Trucking	
	Romans Trucking	

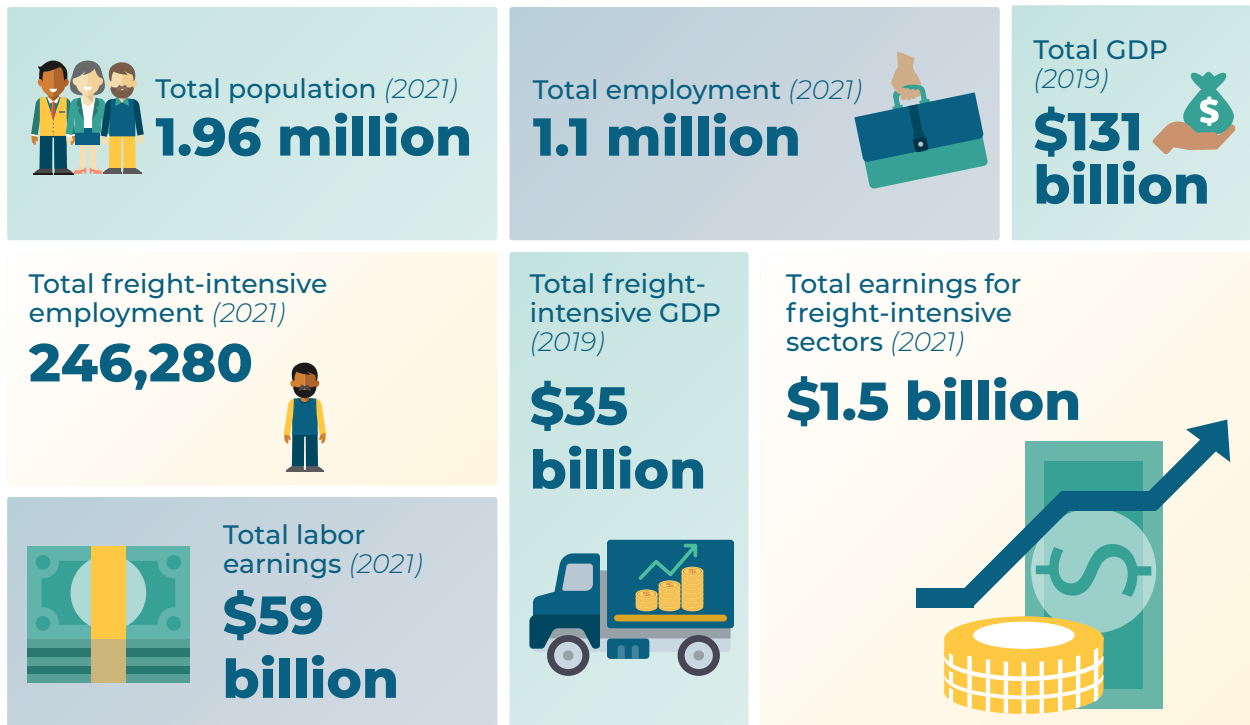
In addition to engagement with the FAC, NDOT conducted a series of in-person and telephone stakeholder interviews to validate the extensive data analysis and better understand freight and industry perspectives, needs, and opportunities. Interviews were held with various public agencies, key businesses and industries, and freight system operators.

FREIGHT AND THE NEBRASKA ECONOMY

FREIGHT INFRASTRUCTURE ASSETS



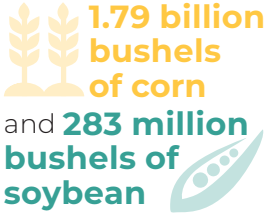
FREIGHT & ECONOMIC INDICATORS



SUPPLY CHAIN PROFILE: FOOD MANUFACTURING

Food production, a particularly freight-intensive process, is a major driver of Nebraska's economy. Owing to suitable climate and soil conditions, as well as a large supply of water from the High Plains Aquifer, Nebraska is a major agricultural producer of both crops and animals, including wheat, hay, beans, pork, poultry, and dairy.

In 2019
Nebraska **farmers harvested** more than **1.79 billion bushels of corn** and **283 million bushels of soybean** ranking the state as the **3rd** largest corn producer, and **4th** largest soybean producer in the U.S.



Home to approximately **6.8 million cattle**,

Nebraska also ranks **2nd** in the U.S. for beef production, only behind Texas, the **3rd** largest U.S. state by area.



In 2021
Nebraska **exported** more than **\$68 million in meat products**, the **highest since 2010**, which were primarily shipped to markets in China, Mexico, Hong Kong, South Korea, and Japan.



Nebraska's food manufacturing and production supply chain is highly complex and interconnected:



Nebraska-grown field corn is trucked from individual farms, located in nearly every Nebraska county, to silos. Key inputs to these corn farms include fertilizer, seeds, and farming equipment, which are also transported by truck. Similar processes are undertaken for soybeans which are often used as poultry feed. From silos, raw agricultural product can be transported by truck or rail. This includes transport by truck to other silos for localized distribution, or to livestock farms or distilleries. Rail is an option for long-haul transport to out-of-state destinations, or to ports for waterborne exports.

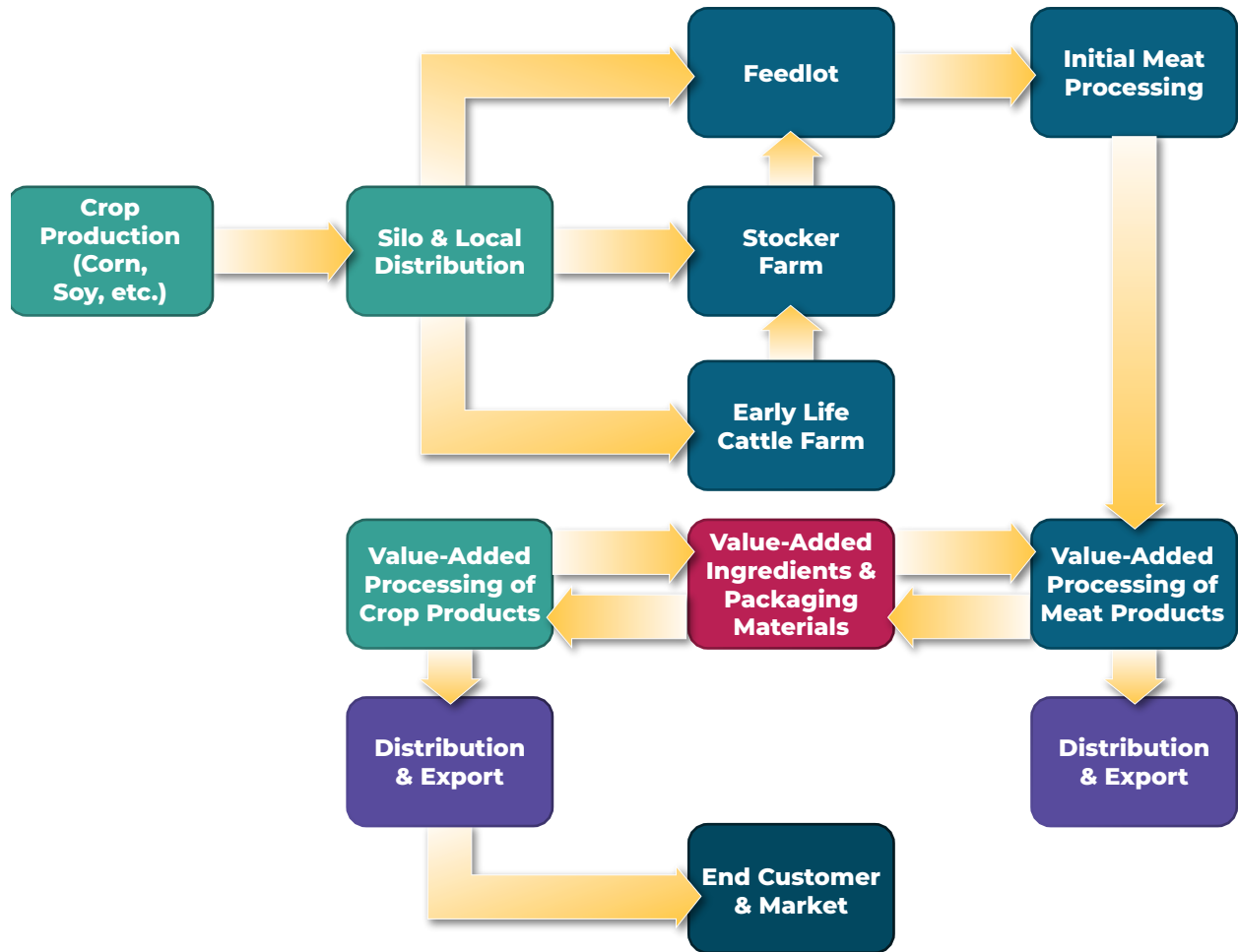


The cattle production supply chain relies almost exclusively on truck transportation, beginning on farms specializing in cow-calf operations, which are typically small and scattered throughout the state. The last stage of cattle production takes place at feedlots where finishing occurs, in which cattle are fattened to between 1,600 and 2,400 pounds. Feedlots are highly centralized, and in Nebraska, there are approximately 150 feedlots, with the top 10 accounting for nearly 30% of the statewide capacity.



Processing and distribution is the final stage of the food manufacturing and production supply chain. For beef production, cattle are transported by truck to slaughterhouses. At these locations, slaughtered carcasses are cut up into smaller sections for further processing. Additional processing may also take place with the addition of packaging and additional value-added ingredients. Final processing and transportation to end consumers and markets, including raw meat and fully cooked and processed meat products.

MEAT-FOCUSED FOOD MANUFACTURING SUPPLY CHAIN ELEMENTS



Opportunities & Challenges

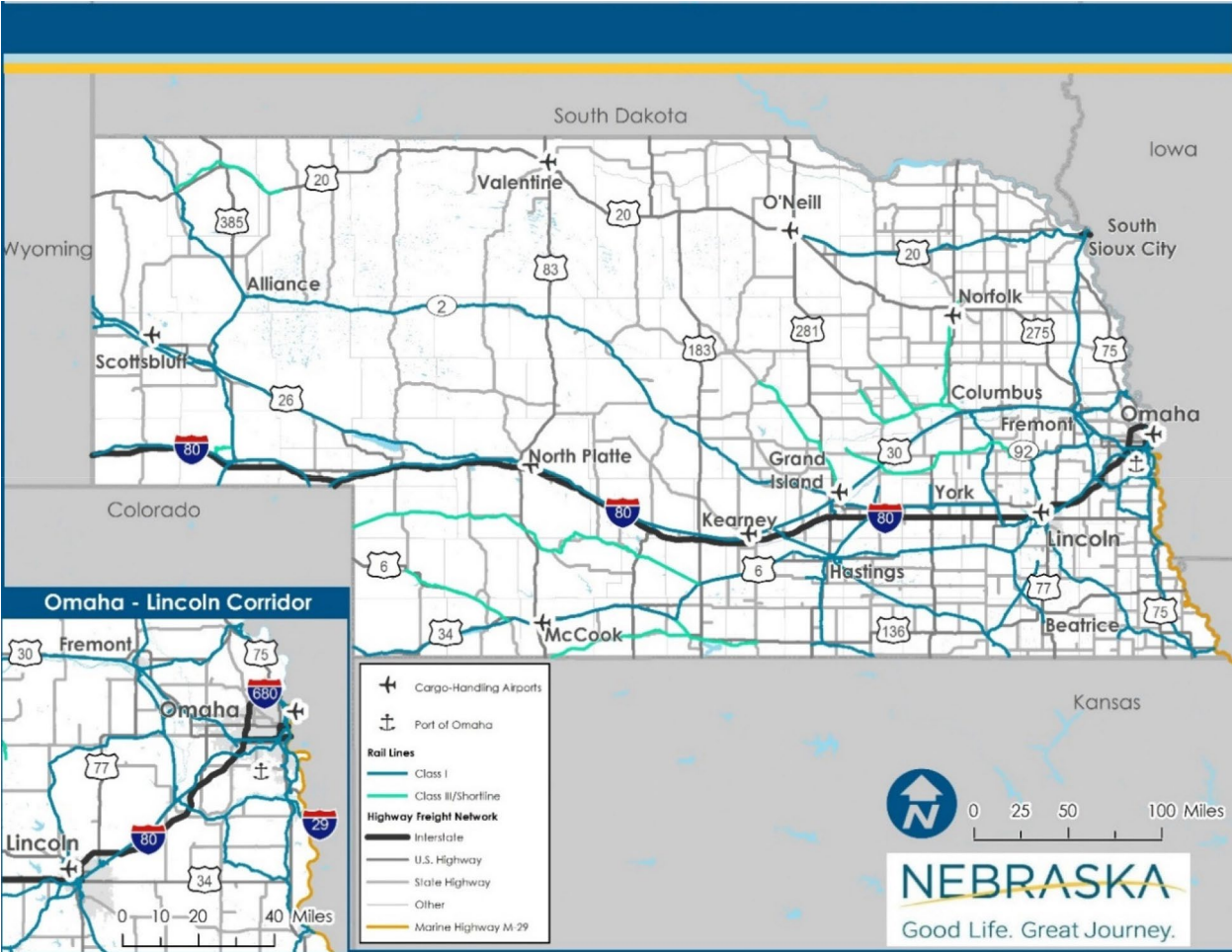
- » During the initial stages of the COVID-19 pandemic, concerns over challenging conditions at meat processing facilities, exacerbated by the spread of COVID-19, highlighted some of the issues associated with the current meat processing supply chain. The supply chain commences in a highly decentralized manner across small farms that specialize in cattle breeding, while the latter portion of the supply chain is largely dominated by just 4 firms specializing in the slaughter and processing of meat into various degrees of finished products.
- » Demand will likely continue to remain strong. Through 2030, the global demand for animal proteins is expected to increase by 14%. States like Nebraska are in an especially strong position to capture this increased demand, as U.S. produced meat is considered to be of top quality. This will lead to increased freight traffic, especially in the form of truck moves, across all stages of the supply chain.

MULTIMODAL FREIGHT NETWORK IN NEBRASKA

In order to use and transport the wide variety of goods, products, and materials used in everyday life, freight, and the methods used to move it, takes many forms. Delivery of new clothing to a regional department store, shipments of Nebraska-produced high-quality steaks bound for Asia, inbound shipments of lumber and stone for a construction project, and time-sensitive delivery of medical supplies at a local hospital, are just a few examples of the freight moves that take place in Nebraska practically on a daily basis.

The movement of freight requires the use of multiple modes of transportation. Mode choices for moving freight are based on measured factors of cost-effectiveness, capacity, and time, depending on the type of freight being shipped. Nebraska’s multimodal freight system consists of the statewide highway, freight rail, port & waterway, air cargo, and pipeline networks.

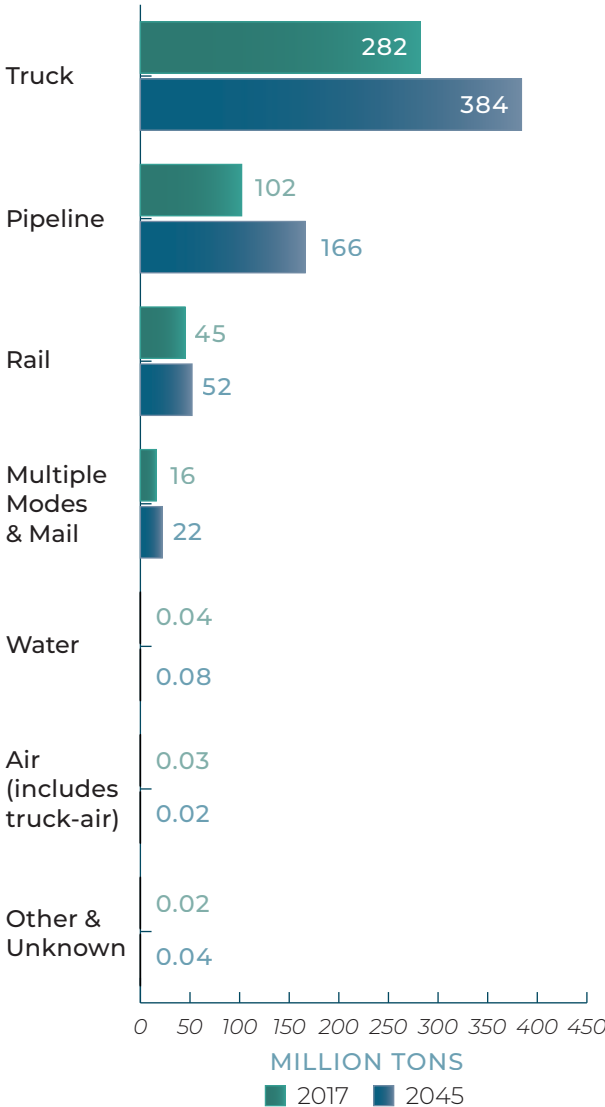
NEBRASKA FREIGHT NETWORK & INTERMODAL FACILITIES



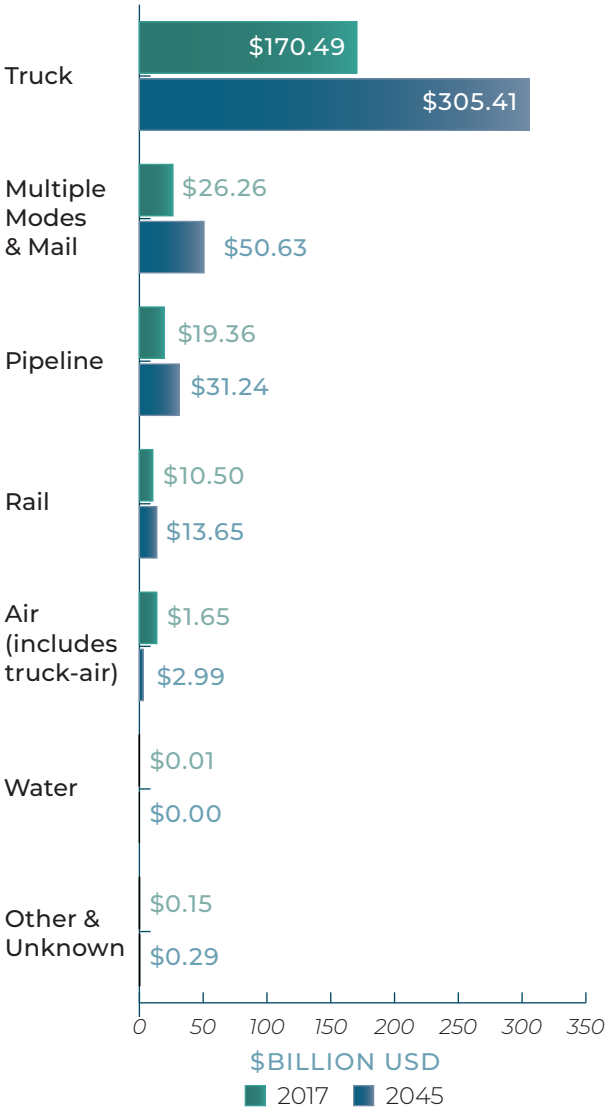
BIG PICTURE – COMMODITY FLOWS IN NEBRASKA

In 2017, more than 444 million tons of goods valued at \$228 billion moved to, from, and within Nebraska on its multimodal freight network. By 2045, the overall freight demand by weight is projected to increase by 44%, representing more than 623 million tons of goods. The overall freight demand by value is expected to increase at an even higher rate, a 77% increase by 2045 valued at \$404 billion. Nebraska has a healthy, growing economy, with the higher value of freight demand in 2045 reflecting growing advanced manufacturing sectors and shifting consumer preferences towards e-commerce.

TONNAGE BY MODE AND DIRECTION, 2017-2045



VALUE BY MODE AND DIRECTION, 2017-2045



TOP COMMODITY BY TONNAGE (2017)

Commodity	2017 Tons
Cereal Grains	131.3M
Other Coal and Petroleum Prods.	102.2M
Animal Feed and Other Products of Animal Origin	38.6M
Agricultural Products	25.5M
Other Prepared Foodstuffs	17.8M

TOP COMMODITIES BY VALUE (2017)

Commodity	2017 Value
Meat, Poultry, Fish & Seafood	\$28.5B
Live Animals and Fish	\$24.7B
Other Coal and Petroleum Prods	\$19.9B
Cereal Grains	\$14.5B
Mixed Freight	\$13.1B

TOP TRADING PARTNERS BY TONNAGE (2017)

State	2017 Tonnage
Iowa	1.5M
Kansas	1.3M
Minnesota	1.1M
Oklahoma	0.4M
Colorado	0.3M

Note: Commodity flow analysis conducted using Freight Analysis Framework Version 5 (FAF5) and the Surface Transportation Board (STB) Confidential Waybill Sample. This analysis does not include through-state flows.



MULTIMODAL FREIGHT NEEDS & OPPORTUNITIES IN NEBRASKA

Highway Freight



- » **Truck Parking** – The provision of public truck parking facilities has been difficult as the cost of building and maintaining these facilities, especially in rural areas, coupled with private sector desires to primarily manage truck parking has created barriers to NDOT expanding truck parking facilities. As such, the only public truck parking facilities within the state are found along I-80.
- » **Truck Safety** – Truck safety continues to be a significant issue in Nebraska’s urban areas, where higher traffic volumes correlate with more frequent accidents.
- » **Urban System Connectivity & Mobility** – Growth in Nebraska’s metropolitan areas has led to growing demand for a wide variety of goods. As e-commerce continues to reshape how people shop for goods and how those goods arrive to consumers, the need to provide highway freight connections and support mobility needs of trucks will continue to be a driving force.
- » **Highway Transportation Technology** – Technological advancements can both improve supply chain efficiencies and safety conditions for road users. Vehicle-to-Infrastructure (V2I) technologies have the potential to reduce congestion, but concerns about the state’s existing electrical grid and broadband network may limit widespread adoption.
- » **Network Resiliency** – Recent severe weather events have challenged the resiliency of the Nebraska highway system. Improving resiliency of these assets means identifying alternative truck routes in the event of an emergency, maintaining freight highway infrastructure, and enacting policy changes that harden the state’s infrastructure.
- » **Enhanced Commodity Data** – Continued investment in enhanced commodity datasets and tools will help prioritize highway investments.
- » **Overweight and Oversized Vehicle Permitting** – Revising OSOW vehicle permitting standards may result in more efficient freight movement, but resulting safety and infrastructure impacts must be considered.

Air Cargo



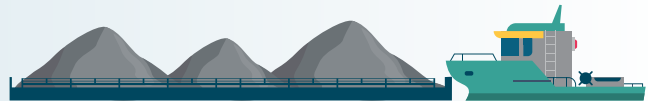
- » **Ensuring Airport Access & Connectivity** – Nebraska’s active and growing cargo-handling airports are in good shape and functioning as needed to meet current demand. However, it will be important for Nebraska to continue ensuring airport access and connectivity for cargo as the market demands, especially if new air cargo opportunities arise for Nebraska-based shippers.
- » **Capitalizing on Air Cargo Services as an Economic Development Opportunity** – Nebraska has excess airside capacity that could be used as a catalyst to create economic development, and some opportunities have come to fruition in recent years, including Amazon Air’s daily service at Eppley Airfield (launched in February 2022).

Freight Rail



- » **Expanded Access** – Rail spurs, intermodal facilities and short line railroads provide pickup and drop off points for rail cargo. Many businesses require rail access as part of the site selection process; however, it is a significant challenge, particularly in rural Nebraska, to pay for the first and last mile of rail connectivity to these businesses.
- » **Workforce** – Issues such as wage stagnation, low rates of return from furloughs during the COVID-19 public health pandemic, and a tight labor market have impacted many rail carrier’s ability to hire workers, impacting their ability to meet shipping demand.
- » **System Enhancement** – Short line railroads and the agricultural industry are challenged by legacy infrastructure tailored to historical practice, which can be more costly and labor-intensive to operate.
- » **Highway-Rail Grade Separations** – While most of the relatively straightforward, low-cost safety enhancements have been completed, there is an opportunity to reconstruct a number of existing at-grade crossings as grade-separated facilities.
- » **New or Expanded Intermodal Service** – Expanding intermodal service in certain parts of the state will lead to more competitive freight rates for long-haul truck trailer and container drayage moves and cementing the state’s role as a national intermodal hub.
- » **Network Resiliency** – The rail network be vulnerable to extreme weather events and flood events that can greatly disrupt freight rail operations.

Ports & Waterways



- » **Implementation of new Inland Port Authority Act** – With the passing of LB156 in May 2021, up to 5 inland port authorities may be established in Nebraska, which is an opportunity for potential freight hubs in Omaha, Grand Island, and other hubs. The impacts of these port authorities will not be limited to waterway freight traffic; it could impact all freight.
- » **Repairs to Missouri River Infrastructure** – The Missouri River is not well utilized in Nebraska due to reliability and navigability challenges. This may change in the future if the economics improve or if significant waterways investments are made throughout the system. Still, flood protection infrastructure (dams, levees) should be assessed to prevent widespread flooding like was seen in 2019 to safeguard infrastructure, farms, and communities.

MULTIMODAL POLICY NEEDS & OPPORTUNITIES IN NEBRASKA

Multimodal Policy

- » **Increase Freight Competitiveness** – Nebraska’s central location is an asset in terms of proximity and connectivity to many important domestic markets, but its multimodal, uncongested transportation options—including highways, railroads, intermodal facilities, and air cargo facilities—have the potential to be better utilized. Expanding intermodal service and rail access in Nebraska to better compete with trucking services will help improve freight rates for all shippers.
- » **Ensure a Competitive State Workforce** – Challenges facing Nebraska’s supply chains before, during, and after the pandemic include significant constraints on the availability of a skilled workforce. Increased demand for labor in sectors such as manufacturing, warehousing, shipping, and delivery has placed pressure on ensuring Nebraska has the necessary talent to efficiently move goods throughout the state.
- » **Address Truck Driver Attraction and Retention Issues** – The extremely tight and competitive job market in Nebraska and nationally is compounding the driver attraction and retention issues. Truck drivers continue to be an essential element of many industry supply chains, although driver pay, benefits, and quality of life can vary from company to company.
- » **Continue Building Economic-Based Processes** – Nebraska has continued its focus on linking transportation and economic development through programs such as the Build Nebraska Act, and has had tremendous success in securing grant funds through freight-specific federal discretionary funding programs.
- » **Plan for Technological Change** – Technological advances in the fields of intelligent transportation systems (ITS), electric vehicles, and automated vehicles may be able to play a significant role in addressing freight and logistics issues in the upcoming years.
- » **Support Freight-Related Development** – Nebraska has many advantages that positions it well for freight-related development. As growth continues to occur, it will be important to ensure that key freight connectors are well maintained.



STRATEGIES AND ACTIONS FOR ADVANCING MULTIMODAL FREIGHT IN NEBRASKA

The 2023 SFP identified a number of challenges and needs across the state’s multimodal freight system. These challenges include aging infrastructure, safety, system capacity constraints and bottlenecks, multimodal connectivity, and funding challenges. Nebraska’s strategy to meet those challenges and needs are designed to strengthen the multimodal freight network and supporting industries by promoting a multimodal approach to mobility, reliability, efficiency, and safety, as well as support long-term population and demographic changes, freight and economic growth, economic competitiveness, and quality of life.

The SFP embraces the five plan goals as overall strategies for the future of freight in Nebraska, with 26 individual, implementable actions to move these strategies forward.

Goal/Strategy	Action
Asset Preservation 	Continue implementation of the Transportation Asset Management Plan. Continually re-evaluate Primary Highway Freight System, National Highway Freight System, Critical Urban and Critical Rural Freight Connectors, and National Highway System intermodal connector designations.
Safety 	Monitor and identify opportunities to support or apply technology that improves freight safety and mobility. Invest in Transportation Systems Management and Operations (TSMO), including enhanced ITS and driver information systems. Develop a more detailed understanding of truck parking needs in the State and its impacts on efficiency and safety. Support recommendations from the Nebraska Highway-Rail Grade Crossing Action Plan. Improve data collection process to track injuries/fatalities for truck-involved crashes.
Economic Competitiveness 	Engage in development of a statewide transportation and economic development plan. Engage in ad hoc study and analysis of freight rail opportunities as they arise. Consider freight/economic development related impacts and benefits are reflected in project selection processes. Continue to monitor and position for Federal grant opportunities, and submit and support freight-related applications for U.S. DOT discretionary grant funding. Improve road & rail access to inland port facilities, air cargo facilities, transload terminals, and intermodal terminals. Improve last-mile access roads to Nebraska’s rural industries, farms, and other freight-generating facilities. Continue working with freight-focused stakeholders to discuss infrastructure improvements that are important to Nebraska’s economic competitiveness. Coordinate with Nebraska’s MPOs and other economic development stakeholders to identify transportation projects or improvements needed to support local and regional economies. Promote development opportunities at Nebraska’s newly-established inland ports.

Goal/Strategy

Action

Reliable, Secure
& Resilient
Freight
Transportation



Use Key Freight Corridors and Critical Freight Corridors to inform and provide support for projects that support freight mobility.

Support initiatives and investments that increase the resiliency of the multimodal freight network.

Integrate multimodal freight with regional planning activities.

Promote capacity availability and development opportunities at Nebraska's air cargo-handling airports.

Compile supporting datasets for resiliency planning, with an emphasis on goods movement that identifies and prioritizes critical multimodal infrastructure to better manage risks to the system.

Leverage NDOT data and tools to conduct scenario planning and designate alternate highway routes that are capable of handling increased truck traffic in the event of an emergency or severe weather.

Support improvements to repair waterway infrastructure along the Missouri River.

Environmental
and Community
Vitality



Consider updates to NDOT design guidance, policies, and procedures to harden against extreme weather and reduce local air pollution, flooding and stormwater runoff, and wildlife habitat loss.

Support equitable outcomes in the development of the multimodal freight system.

Plan for freight-oriented EV corridor charging and support NEVI recommendations.



IMPLEMENTING THE 2023 NEBRASKA STATE FREIGHT PLAN

As the demand for the movement of freight in Nebraska grows, it is increasingly important to invest in the multimodal freight system to ensure that the state's freight network can meet the needs of industry and consumers.

The Federal Highway Administration's National Highway Freight Program (NHFP) provides funding for freight projects, and Nebraska's apportionment of the NHFP funds for the period spanning 2022-2026 is \$97.1 million. However, designated program funding for freight projects is limited relative to the many freight needs across all modes in Nebraska. The Infrastructure Investment and Jobs Act (IIJA) maintained and created numerous discretionary grant programs with eligibilities for multimodal freight projects, including:

- » Rebuilding American Infrastructure with Sustainability and Equity (RAISE)
- » Infrastructure for Rebuilding America (INFRA)
- » Rural Surface Transportation Grant Program
- » Mega projects
- » Promoting Resilient Operations for Transformative, Efficient, and Cost-Savings Transportation (PROTECT)
- » Bridge Investment Program
- » Consolidated Rail Infrastructure and Safety Improvements Program (CRISI)
- » Railroad Crossing Elimination Grant Program
- » Port Infrastructure Development Program
- » America's Marine Highways
- » Airport Improvement Program

Nebraska has had past success with some of these programs, and NDOT will continue to support future efforts and leverage its available resources when feasible.

Successful implementation of this State Freight Plan can only be achieved with the participation and collaboration of public- and private-sector users and owners of the transportation system, including freight industry stakeholders and federal, state, regional, and local agencies. For this reason, the NDOT will continue to seek opportunities to collaborate with freight stakeholders into the future.



NEBRASKA

Good Life. Great Journey.