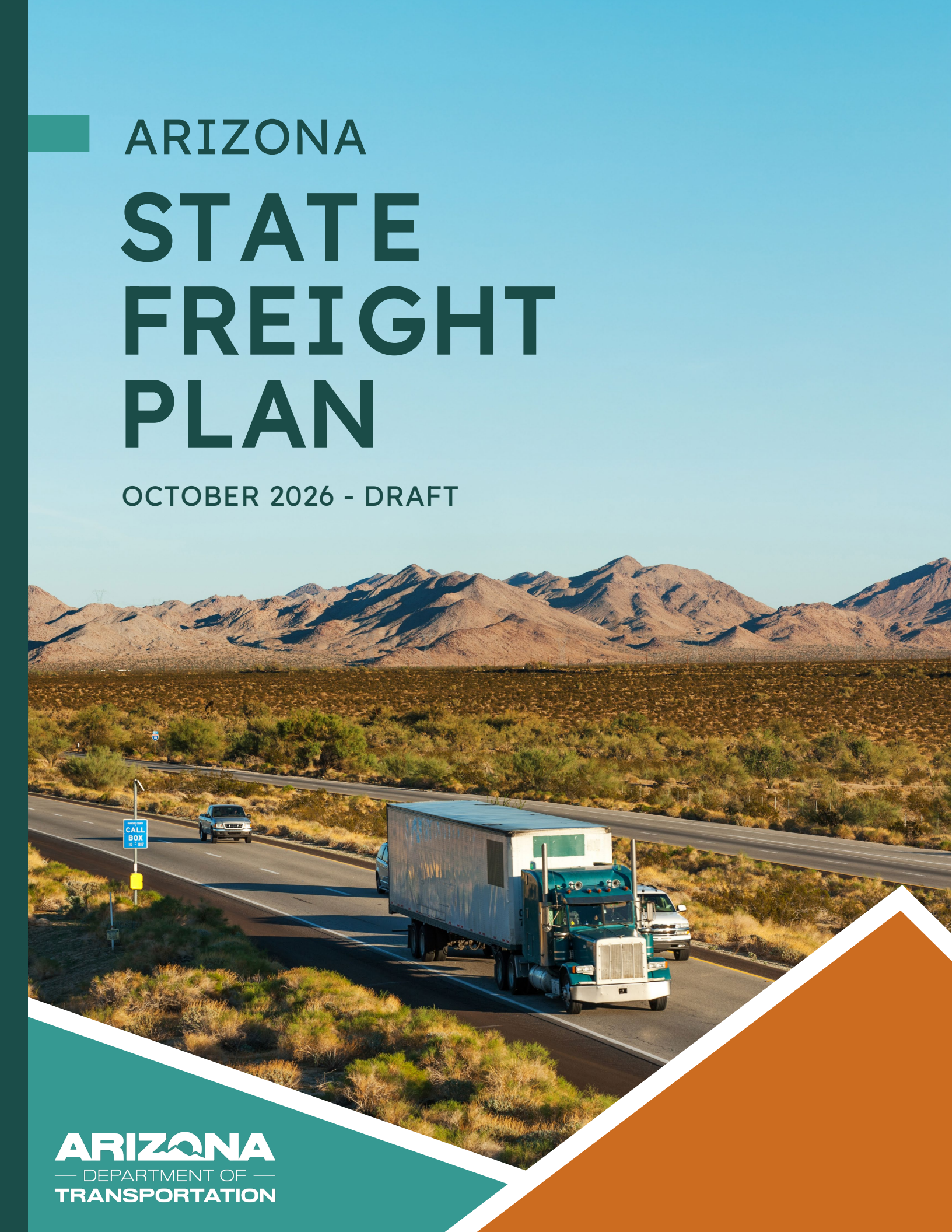


The background of the cover is a photograph of a multi-lane highway in a desert environment. A large white semi-truck with a blue cab is driving in the right lane. A silver SUV is in the left lane. In the distance, there are brown, rocky mountains under a clear blue sky. The foreground shows desert vegetation and a road sign that says "CALL BOX 10-7-87".

ARIZONA STATE FREIGHT PLAN

OCTOBER 2026 - DRAFT

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FREIGHT ADVISORY COMMITTEE ACKNOWLEDGEMENT

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- AECOM
- Arizona Trucking Association
- Barney Trucking
- BNSF
- California Department of Transportation
- Central Arizona Governments
- Citizen Express Lines
- Colorado Department of Transportation
- Colorado River Indian Tribes
- DBA Construction
- Federal Highway Administration
- Federal Motor Carrier Safety Administration
- FPAA (Fresh from Mexico)
- Freeport-McMoRan Inc.
- Greater Yuma Port Authority
- Grupo Javid
- High Street Consulting
- Inland Group
- Joyride Logistics
- Maricopa Association of Governments
- McKee Foods Transportation
- MetroPlan Flagstaff
- NATSO
- Nevada Department of Transportation
- New Mexico Department of Transportation
- Northern Arizona Council of Governments
- Park IP
- Pima Association of Governments
- Ramirez Advisors
- RL Jones
- RWC Group
- Tucson Airport Authority
- Union Pacific Railroad
- UPS
- Yavapai County

GLOSSARY OF TERMS

AADT	Annual Average Daily Traffic
AADTT	Average Annual Daily Truck Traffic
AAM	Advanced Air Mobility
ACIS	Arizona Crash Information System
ADOT	Arizona Department of Transportation
AI	Artificial Intelligence
BNSF	BNSF Railway Company
CBP	U.S. Customs and Border Protection
CDL	Commercial Driver's License
COG	Council of Governments (singular) or Councils of Governments (multiple COGs as in Arizona COG)
CRFC	Critical Rural Freight Corridor
CUFC	Critical Urban Freight Corridor
CAV	Connected and Autonomous Vehicles
DMS	Dynamic Messaging Sign
EB	Eastbound
eSTIP	Electronic Statewide Transportation Improvement Program
FAA	Federal Aviation Administration
FAC	Freight Advisory Committee
FAK	Freight of All Kinds
FAST Act	Fixing America's Surface Transportation Act
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
FIP	Freight Investment Plan
FMCSA	Federal Motor Carrier Safety Administration
FMT	Freight Mobility Trends
GDP	Gross Domestic Product
GIS	Geographic Information System
GSA	General Services Administration
HOV	High-Occupancy Vehicle
HPMS	Highway Performance Monitoring System
I-	Interstate
IIJA	Infrastructure Investment and Jobs Act
INFRA	Infrastructure for Rebuilding America
ISTEA	Intermodal Surface Transportation Efficiency Act
ITS	Intelligent Transportation Systems
IWA	Phoenix-Mesa Gateway Airport
KCC	Key Commerce Corridor
LPOE	Land Port of Entry
LRTP	Long Range Transportation Plan

MAG	Maricopa Association of Governments
MODA	Multiple-Objective Decision Analysis
MP	Milepost
MPD	Multimodal Planning Division
MPO	Metropolitan Planning Organization
NATSO	National Association of Truck Stop Operators
NB	Northbound
NBI	National Bridge Inventory
NEVI	National Electric Vehicle Infrastructure
NFSP	National Freight Strategic Plan
NHFN	National Highway Freight Network
NHFP	National Highway Freight Program
NHS	National Highway System
NMFN	National Multimodal Freight Network
NMFP	National Multimodal Freight Policy
NPMRDS	National Performance Management Research Data Set
PAG	Pima Association of Governments
PHFS	Primary Highway Freight System
PHMSA	Pipeline and Hazardous Materials Safety Administration
PHX	Phoenix Sky Harbor International Airport
PPP	Public-Private Partnership
RARF	Regional Area Road Fund
RPO	Regional Planning Organization
SB	Southbound
SFP	State Freight Plan
SHS	State Highway System
SP&R	State Planning and Research
SR	State Route
STRACNET	Strategic Rail Corridor Network
STRAHNET	Strategic Highway Network
STSP	Strategic Traffic Safety Plan
TAC	Technical Advisory Committee
TAMP	Transportation Asset Management Plan
TSA	Transportation Security Administration
TTTR	Truck Travel Time Reliability
TUS	Tucson International Airport
UPRR	Union Pacific Railroad
USDOT	US Department of Transportation
WB	Westbound
WIM	Weigh-in-Motion
YUM	Yuma International Airport

CHAPTER 1

THE IMPORTANCE OF FREIGHT & STATEWIDE GOALS



1.1 Introduction & Purpose

The 2026 Arizona State Freight Plan is an update to the 2022 Arizona State Freight Plan, which was approved and adopted on December 4, 2022. The purpose of the 2026 Arizona State Freight Plan is to build on the previous State Freight Plan by providing an action plan to guide decisions and investments that continue to support a safe, efficient, coordinated, and reliable freight system for moving goods in and through Arizona. The Arizona State Freight Plan serves as the guiding document for freight-related decision-making by providing a review of historical conditions, forecasting existing and emerging trends, and outlining the State's priorities for the future.

1.2 Why is Freight Transportation Important?

Goods movement is at the core of Arizona's economy. An efficient and cost-effective multimodal freight transportation system that safely and efficiently connects rural communities, urban centers, economic activity, interstate trade and production areas is critical for the State's continued economic stability and growth. Beyond that, Arizona's freight system plays a critical role in the daily lives of its residents, visitors, and businesses. Arizona's freight system enables goods to be delivered to businesses and residents, manufacturing plants to continue operations, and store shelves to remain stocked.

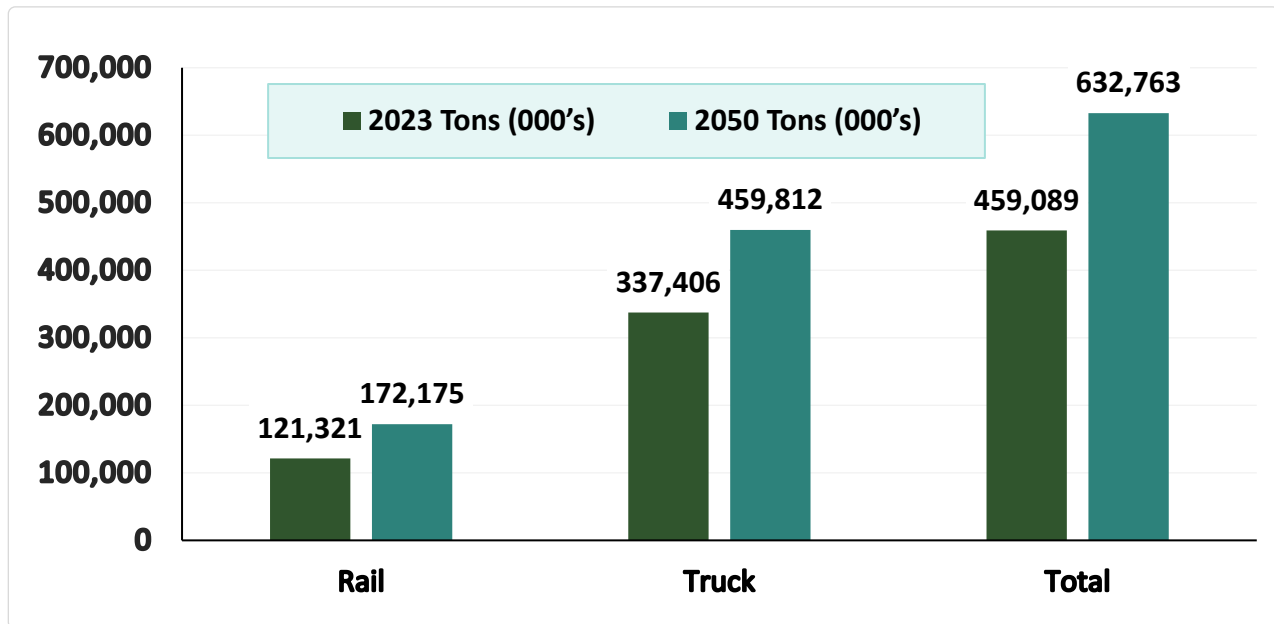
Vision for Tomorrow. Solutions for Today.

Freight transportation infrastructure is essential to Arizona's economic vitality.

The Arizona State Freight Plan represents an action plan for creating a robust and reliable freight system for Arizona's continued economic growth and diversification.

In 2023, Arizona’s multimodal transportation network moved approximately 459 million short tons of freight valued at \$1.24 trillion. By 2050, total freight activity is projected to reach 633 million short tons valued at \$2.02 trillion (*Figure 1*), reflecting both the growth of Arizona’s population and economy and its expanding role as a regional and national logistics hub. The State’s economic footprint underscores the importance of efficient freight goods movement for daily life, employment, and commerce of Arizona residents and businesses.

Figure 1: Arizona Freight Flow Tonnage (2023 and 2050)



Source: Transearch® and Waybill, 2023 and 2050

Arizona’s position at the crossroads of major east-west transcontinental corridors and the U.S.–Mexico border makes it a vital link in domestic and international trade. Beyond trade statistics, Arizona’s freight system connects rural communities, urban centers, and production areas across the State. The statewide freight network enables goods to be delivered on time, manufacturing plants to continue operations, and store shelves to remain stocked. An efficient and cost-effective multimodal freight transportation system is essential to the State’s continued economic growth.

Given the strategic importance of the State’s freight system, the Arizona Department of Transportation (ADOT), in collaboration with the Arizona Freight Advisory Committee (FAC), presents this 2026 update to the Arizona State Freight Plan (SFP), prepared in accordance with 49 U.S.C. 70202.

1.2.1 FAST Act & IIJA

The Infrastructure Investment and Jobs Act (IIJA) was signed into law on November 15, 2021. In addition to identifying new investments and programs, the IIJA also extended or amended the Fixing America's Surface Transportation (FAST) Act statewide freight planning requirements. State Departments of Transportation (DOT) must meet these requirements to utilize National Highway Freight Program Funds for freight improvement projects.

1.2.2 2022 State Freight Plan

Since the 2022 SFP was completed, ADOT has constructed or programmed every project identified in that plan's Freight Investment Plan.

These investments have:

- expanded the availability of truck parking in support of ADOT's industry partners making long-haul deliveries,
- relieved freight bottlenecks that were causing delays in the movement of goods,
- preserved and modernized an aging transportation infrastructure, and
- continued freight planning and research.

At the same time, the freight landscape has shifted since 2022: evolving trade policies and near-shoring of manufacturing with Mexico, the rapid emergence of autonomous and zero-emission vehicle technologies, growing e-commerce and last-mile delivery demand, workforce constraints, and increasing infrastructure throughput from heavier and longer vehicles have reshaped the operating environment for goods movement in Arizona and nationwide.

This 2026 SFP charts the course for the next four years and beyond. The planning horizon extends through 2050, providing a strategic framework to guide investment decisions as the State prepares to remain competitive domestically, build on its role as an important international gateway, and adapt to new directions in freight technology, planning, and partnership.

This forward-thinking, data-informed, and implementable plan advances State and national goals while addressing Arizona's economic and community needs. It lays out a vision for relieving freight bottlenecks and modernizing the

statewide freight system through an actionable Freight Investment Plan collaboratively developed with ADOT’s planning partners.

1.3 Goals Overview

1.3.1 Vision & Goals

The 2026 SFP retains the four goal areas established in the 2022 SFP — Safety, System Management and Mobility, Competitiveness, and Stewardship — but refines them based on a review of 13 statewide and regional planning documents and input from FAC meetings, surveys, and live polling all conducted in October and November 2025. The plan review confirmed alignment on safety and system management across Arizona’s planning framework but identified gaps in resilience, collaboration, data-informed decision making, and technology. FAC input reinforced these findings and highlighted additional priorities including truck parking, border infrastructure capacity, autonomous and zero-emission vehicle readiness, cargo security, workforce challenges, and accommodating heavier vehicles.

The resulting 2026 SFP updates expand the vision for the State’s freight system to reflect a broader range of freight priorities and elevate resilience as a distinct theme. Additionally, ADOT integrated data-informed and collaborative decision making more explicitly into the Stewardship goal and added border efficiency as an objective under System Management and Mobility. The new ADOT Vision and Goals are as follows:

Vision: To lead Arizona's progress by providing a safe, efficient, and advanced multimodal transportation system for domestic and global competitiveness.



Goal 1 — Safety and Security

Promote and support a safe and secure freight transportation system that meets evolving needs.



Goal 2 — System Management and Mobility

Maintain and operate a reliable, resilient, future-oriented transportation system for efficient multi-modal freight movement.



Goal 3 — Competitiveness

Advance strategic policies, investments, partnerships, and infrastructure that position Arizona to benefit from emerging economic opportunities.



Goal 4 — Stewardship

Conduct data-informed planning and decision making for improved investing and programming.

Arizona's four goal areas collectively address all National Highway Freight Program (NHFP) goal areas (23 U.S.C. § 167).

1.4 Stakeholder Engagement

Input from local and regional agencies, industry organizations, and community partners, among others, ensures that this SFP update reflects the current needs and priorities of freight system users and stakeholders. For this 2026 update, ADOT significantly expanded its outreach, contacting 274 entities representing 108 organizations to ensure broader representation across the freight community.

- **The Freight Advisory Committee (FAC)** – The FAC is at the core of the SFP engagement program. Its membership spans state and local governments, Tribal nations, metropolitan planning organizations (MPOs), trucking companies, railroads, manufacturers, commodity alliances, shipping and logistics firms, retail providers, academia, workforce organizations, economic development entities, port authorities, the US Department of Transportation (USDOT), the Federal Highway Administration (FHWA), the Federal Motor Carrier Safety Administration

(FMCSA), neighboring state departments of transportation, and international border interests. Approximately 40 external participant organizations attended one of the four FAC meetings.

- **The Technical Advisory Committee (TAC)** – A committee of ADOT subject matter experts and leaders provided technical guidance, reviewed data and analyses, and ensured that recommendations were feasible and aligned with ADOT's operational and regulatory frameworks.
- **ADOT staff and leadership** – Over 20 ADOT employees participated, provided reviews, and coordinated with the project team throughout the plan process.
- **Regional and Local Planning Partners** – MPOs, Councils of Governments (COGs), Regional Planning Organizations (RPOs), Municipalities, and Tribal governments were invited to participate as FAC members and received plan updates through email and the project website. Expanded Tribal outreach reflects Arizona's continued engagement on truck parking and freight issues affecting Tribal communities.
- **Public comment period** – ADOT released the draft plan for a 15-day public review, giving residents, businesses, and freight system users a direct opportunity to comment. Feedback shapes the final plan and informs future ADOT freight work.

The FAC engagement was structured around four virtual meetings supplemented by pre-meeting surveys and live polling to systematically capture stakeholder priorities (*Table 1*). All presentations are available at azdot.gov/planning/transportation-programs/arizona-state-freight-plan.

Table 1: FAC Engagement Summary

Meeting	Date	Key Topics
FAC Meeting 1	October 21, 2025	Anticipated challenges and desired outcomes of the SFP update, as well as input on Arizona freight vision, goals, and priorities.
FAC Meeting 2	November 4, 2025	Confirmed understanding of FAC Meeting 1 input and guidance, as well as more direct feedback on draft vision and goals.
FAC Meeting 3	April 2, 2026	Reviewed the ‘State of Freight’, affirmed freight performance measures for the SFP, and confirmed the data-driven identification of system bottlenecks.
FAC Meeting 4	September 15, 2026	Discussed the Freight Investment Plan Prioritization framework and reviewed content and messaging for this SFP.

1.4.1 Key Findings

When asked about the “State of Freight,” a majority of FAC members felt Arizona was moderately prepared for economic growth, meaning the system is adequate but could be more strategically positioned to improve economic competitiveness. When asked about long-term investment priorities to improve competitiveness, respondents prioritized highway capacity and bridge and pavement preservation highest, followed by technology and automation, truck parking, border and trade connections, and freight rail.

When asked about state freight system needs, the FAC and TAC noted trends visible at the time of the 2022 plan, such as the growth of e-commerce and advances in autonomous vehicle and alternative fuel technologies, were continuing. Yet, other needs identified by the FAC and TAC have emerged more recently, including global instability from conflicts, changing tariff policies, and associated supply chain disruptions that have materially affected the pricing, sourcing, and routing of goods. Common priority needs revealed through SFP engagement discussions include:

- **Safety, Security, and Resilience** – Enhanced safety measures, dedicated freight corridors, technology-based cargo security systems, and a resilient network capable of withstanding economic and environmental disruptions.
- **Infrastructure and Capacity** – Truck parking, passing and climbing lanes, freight-specific infrastructure on major corridors (particularly Interstates 8, 10, 17, 19 and 40, and State Routes 80 and 191), additional capacity for heavier and longer vehicles, and bridge upgrades statewide.
- **Workforce and Economic Trends** – Driver shortages and retention challenges, manufacturing growth in the Phoenix metro area, near-shoring activity with Mexico, and evolving distribution hub demands.
- **Technology and Innovation** – Autonomous and connected commercial vehicles, Artificial Intelligence (AI) integration, smart warehousing, enhanced data collection and real-time information sharing, and infrastructure upgrades to accommodate autonomous trucks and alternatively fueled freight fleets.
- **Electrification and Alternative Fuels – Heavy Duty** Electric charging stations, alternative fuel infrastructure, expanded power generation, and strategic coordination with utility providers.
- **Environmental and Community Concerns** – Reduced emissions, renewable energy, waste management, and integrating environmental stewardship and community livability into freight planning.
- **Planning and Policy Needs** – Improved freight data collection, state-led truck surveys at borders and key corridors, alternative freight routing, tariff evaluations, and cross-border coordination.

1.4.2 Next Move AZ

ADOT conducted a listening tour in 2025 and 2026 to develop a vision for transportation called "Next Move AZ." The tour engaged communities, stakeholders, and Tribal nations across the State, and featured virtual public meetings, a survey, and community events. ADOT collected input on all transportation challenges and needs, including freight.

Many listening tour themes echoed those raised by FAC participants, including truck parking and staging, highway congestion, and border freight capacity at land ports of entry. Infrastructure solutions that aligned with FAC input called for cross-border coordination, routing to avoid local and Tribal roads, additional climbing lanes, and dedicated freight lanes to separate passenger and truck traffic on I-10, I-40, and other US highways. Across both engagements, commenters also noted the highway and local road maintenance costs of freight activity.

The listening tour participants introduced some topics distinct from those of the FAC. Shown below, many of these issues are addressed in the SFP. Those not directly covered will inform ADOT's other plans, policies, and activities.

- **Truck safety and enforcement** — speed management, lane discipline, unsafe passing, and commercial vehicle operating requirements.
- **Hazardous materials** — routing and movement of hazmat shipments.
- **Heavy-truck impacts** — trucks on roads not built for those weights, including vehicles hauling mining products, gravel, dirt, and construction materials.
- **Small-community congestion** — delay and bottlenecks in growing and smaller communities.
- **Community access** — improved access for tow trucks and commercial vehicles entering and leaving communities.
- **Rail freight** – rail spurs and mining infrastructure, and other options to shift truck freight to rail to improve interstate flow and foster development.

1.5 How the Plan is Organized

The chapters that follow translate this foundation into analysis and action.

- **Chapter 2** describes Arizona's freight transportation system, including its economic context, current trends and issues, and a modal inventory covering highways, rail, air cargo, pipelines, and border infrastructure.
- **Chapter 3** presents freight demand forecasts by mode through 2050.
- **Chapter 4** sets the plan's strategic direction in full, detailing the goals, objectives, and performance measures that will guide investment decisions.
- **Chapter 5** assesses current and emerging needs across each mode, connecting system conditions to the strategic priorities identified in Chapter 4.
- **Chapter 6** closes the plan with an improvement and implementation program: a prioritization framework, Freight Investment Plan, and strategies for addressing Arizona's most pressing freight challenges.

CHAPTER 2

ARIZONA'S FREIGHT TRANSPORTATION SYSTEM



2.1 Introduction

Arizona's freight transportation system moves the goods that sustain the State's economy and meets the needs of Arizona's growing population, while supporting industries and connecting businesses to markets. The system comprises highways, railroads, airports, pipelines, intermodal terminals and transload facilities, international border ports of entry, and inland ports that together form a single multimodal network. The system's performance affects the cost, reliability, and competitiveness of nearly every sector in the State's economy, as well as employment statewide and the quality of life for every Arizonan.

This chapter describes Arizona's freight transportation system in terms of demographic and economic indicators that shape it today, emerging trends and issues that may reshape it in the future, and a comprehensive mode-by-mode inventory and assessment of each system element that carries Arizona's freight. This review of the current system gives the Arizona Department of Transportation (ADOT) and its partners a foundation on which to best prepare for the future of Arizona's freight transportation system.

2.2 Demographic & Economic Indicators

Statewide demographic and economic trends have a major influence on Arizona's freight transportation system.

2.2.1 Demographic Indicators

Arizona has a population of 7.62 million. The State has added about 795,000 residents since 2015, putting it among the fastest-growing states in the United States (U.S.) and Arizona's population is projected to exceed 10 million by 2050. The State's population is concentrated in the Phoenix and Tucson metro regions, which comprise 81% of the State's population and 85% of its labor force. Phoenix is the nation's fourth most populous metro area with 4.6 million residents and Tucson has 1.1 million residents. Population growth has been a catalyst for growth in freight activity, which is also concentrated in these two fast-growing regions.

2.2.2 Economic Indicators

Arizona's freight transportation system moves goods valued at \$1.2 trillion annually. About 85% of this freight is associated with domestic trade. California is Arizona's largest domestic trading partner by far, followed by Texas, then New Mexico, Utah, and Nevada. Freight related to international trade, particularly with Mexico, is a smaller, but growing share of Arizona's goods movement. Imports to the State consistently exceed exports and this gap is widening. About 60% of these imports, however, are ultimately destined for other states, underscoring Arizona's role as a national trade gateway and highlighting the importance of the State's border ports of entry, Class I railroads, interstate freight corridors, and intermodal connections.

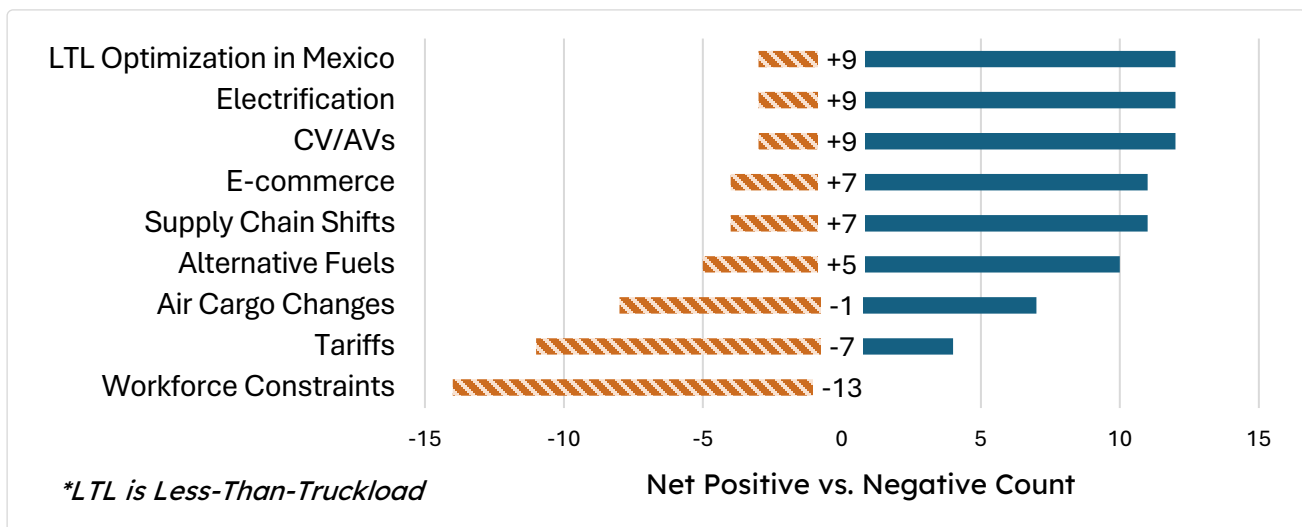
Much of Arizona's economy depends on the State's freight transportation system. Phoenix, for example, is a hub for semiconductor production and related electronics and other advanced-technology industries. Prominent industries in the Tucson region include aerospace and defense, mining, and bioscience. Agriculture generates freight activity across Arizona. Key crops include lettuce, spinach, dates, and melons, with Yuma County supplying an estimated 80% to 90% of leafy greens consumed in the U.S. during the winter growing season.

Freight needs vary by industry. Semiconductor and aerospace production depends on high-value and time-sensitive shipments, mining and construction generate heavy bulk and aggregate movements, and agriculture produces seasonal, temperature-controlled freight flows.

2.3 Trends & Issues

As part of the State Freight Plan (SFP) development process, ADOT engaged in dialogue with a diverse group of experts, partners, and stakeholders on the State’s Freight Advisory Committee (FAC) and Technical Advisory Committee (TAC) to surface and explore key trends and issues affecting freight today and in the future. Even as most participants reported Arizona’s freight transportation system generally supports their needs, FAC and TAC members identified several significant trends and issues likely to shape the future of freight transportation either positively or negatively. **Figure 2** summarizes FAC and TAC survey respondents’ views on the issues and trends viewed as most important. While many trends, like autonomous trucks and e-commerce, are expected by Arizona’s freight community to create positive opportunities, some issues such as tariffs, workforce constraints, and truck parking are widely viewed as concerns. These and other issues are explored below.

Figure 2: FAC and TAC member views on relative importance of trends and issues affecting freight movement in Arizona



Supply Chain Shifts

Nearshoring to Mexico, reshoring to the U.S., and federal investment in U.S. manufacturing are expected to reshape supply chains, particularly for high-technology and advanced manufacturing sectors, in which Arizona is a leader. As a result, Arizona’s ports of entry and major freight corridors, including Interstate 19 (I-19) between Nogales and Tucson and I-10 through Phoenix,

could experience larger freight volumes and more risk of delays in supply chains as demands grow, such as those on border inspection and customs facilities or key freight corridors.

Tariff Changes

Higher tariffs on goods could affect Arizona industries by causing a decrease in freight activity. In the short term, manufacturers that rely on imported parts, for example, could face higher production costs and those buying domestic inputs such as steel and aluminum may pay more as suppliers raise prices amid reduced foreign competition. Over the longer term, higher tariffs could encourage domestic manufacturing investment. These impacts, however, are uncertain because tariff policy is subject to rapid change.

Autonomous Truck Technology Adoption

Autonomous truck technology may reduce freight transportation costs and congestion, provide additional mobility and accessibility options for travelers, and improve highway safety and efficiency. Wide-scale autonomous truck deployment is linked to technological improvements and government regulatory action. Arizona is a leader among states in accelerating adoption by fostering private sector autonomous truck development. Since 2012, State legislative action has enabled steady progress in AV testing and deployment in Arizona. At ADOT, an AV permitting process incorporates safety and reporting protocols that allow for operations with and without a driver, and regular meetings foster engagement with interested companies and public sector representatives. Companies such as Aurora, Stack, and Gatik are making headway in Class 8 and middle mile (warehouse to store) deliveries, as well as long-haul routes from Phoenix to Fort Worth and El Paso, Texas. A total of 13 companies have been approved for testing or operations. Initiatives like the multi-state I-10 Corridor Coalition, which was set up to coordinate freight technology along this key freight corridor, are helping make progress in this arena more likely. As this field grows, autonomous truck adoption may generate new or changing responsibilities for ADOT on issues such as roadside truck inspection, commercial driver licensing, curb and parking management, or highway design standards.

Aging Infrastructure

Some parts of Arizona's freight transportation system are approaching or exceeding their service life. Funding gaps, rising construction costs, and competing priorities have led to deferred maintenance which in turn has resulted in deterioration of infrastructure like pavement and bridges. This wear is accelerated by growing truck volumes on corridors like I-10, I-17, and I-40.

Increasing Demand for Truck Parking

Growing freight activity continues to increase the demand for truck parking, which is important for drivers to operate safely and comply with hours-of-service regulations. ADOT continues to expand truck parking capacity along Arizona's busiest freight corridors, but parking demand continues to increase. Truck parking drew some of the most sustained discussions among FAC and TAC members. Trucking industry representatives describe truck parking as the single highest-value investment the State could make for safety and efficiency, and it is a priority for regional government partners like the Maricopa Association of Governments.

Workforce Capacity Limitations

Arizona's freight logistics workforce is not growing fast enough to keep pace with the freight sector's expansion in the State. Truck drivers and warehouse and distribution-center workers remain essential to goods movement, yet this workforce is aging faster than the overall labor force. Federal minimum-age, licensing, testing, and hours-of-service rules for interstate drivers, along with occupational safety and wage-and-hour rules for logistics workers add complexity, as does the need for technical skills to operate automated equipment. All these factors increase the importance of freight and logistics workforce development, recruitment, and retention efforts.

Domestic Mining Growth

Federal efforts to expand domestic supplies of critical minerals could increase mining and processing activity in Arizona. Growth in copper, manganese, and zinc mining offers near-term potential within the State and several identified sites could become significant sources of supply. Limited freight infrastructure serving mining and processing sites could become an impediment to expanded economic activity in this sector.

Overweight Vehicles

Travel by overweight vehicles increases pavement fatigue and shortens the service life of bridges and culverts. Overweight vehicles can be a concern in areas of Arizona where agricultural and mining activity is prevalent, since mining products, crop harvests, agricultural inputs, and equipment often travel on rural two-lane highways and county roads that are not designed for sustained heavy loads. This causes increased wear on these roads.

Rising E-Commerce

E-commerce is reshaping freight movement in Arizona by increasing residential deliveries, returns, and curbside activity on local streets that often were not designed for commercial vehicles, while also increasing demand for warehousing, truck staging and parking, and connections among truck, rail, and air networks. Arizona's proximity to major markets in California, Nevada, Texas, and Mexico has attracted substantial logistics investment, including more than 23 million square feet of warehouse space under construction in metro Phoenix as of 2023. The State's e-commerce network includes major distribution and fulfillment centers, commercial gateways, and the corridors connecting them. Emerging technologies such as Advanced Air Mobility (AAM) could further change last- and middle-mile freight movement patterns, particularly in remote areas, while creating new infrastructure and airspace-management needs that will require coordination among public agencies, airports, and private operators.

2.4 Federal & State Freight System Designations

Arizona's freight transportation system includes several overlapping federal and State designated networks, whose classification rubrics highlight the most important routes for freight movement within Arizona and across the U.S. These classifications help ADOT and its partners prioritize investments where they will have the greatest impacts.

National Highway Freight Network

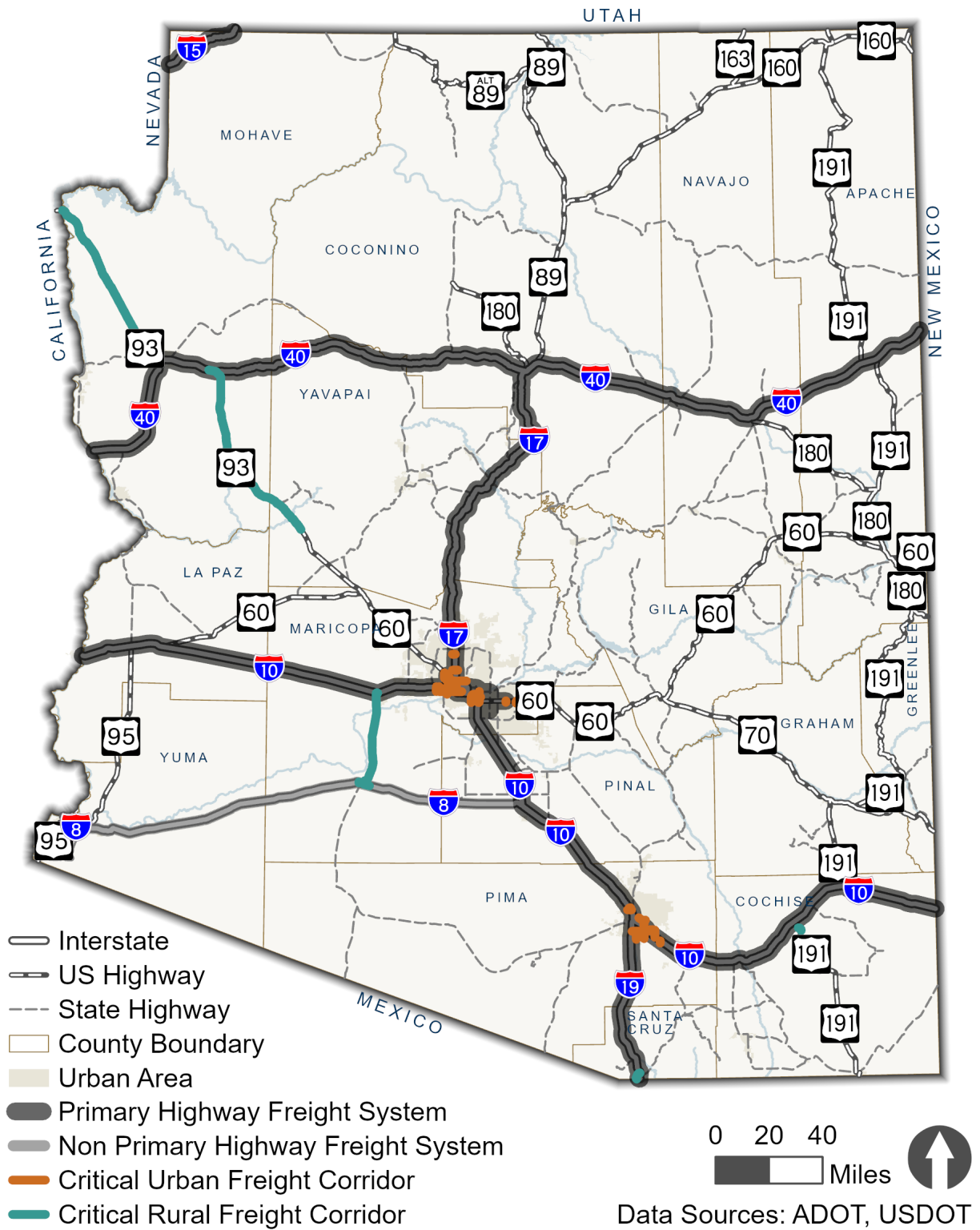
The National Highway Freight Network (NHFN) comprises federally designated roads critical to national and international freight movement. The NHFN was established under the Fixing America's Surface Transportation (FAST) Act and continued under the Infrastructure Investment and Jobs Act (IIJA). The NHFN

and the funding provided through the National Highway Freight Program (NHFP) help states target investments in roads that carry the highest volume and value of freight. The four subcomponents of the NHFN include:

- **Primary Highway Freight System (PHFS)** – The PHFS is the mileage-limited core of the NHFN. It is designated by the Federal Highway Administration (FHWA) using national data on freight tonnage and value, truck traffic on principal arterials, and access to ports of entry, energy production areas, and population centers. Arizona has 1,027 PHFS miles, which are mostly on interstates within the State.
- **Non-PHFS Interstates** – The FAST Act includes the entirety of the interstate system in the NHFN, so interstates not designated as part of the PHFS fall into this category to maintain route continuity and freight access. Arizona has 178 non-PHFS interstate miles.
- **Critical Urban Freight Corridors (CUFCs)** – CUFCs are designated by metropolitan planning organizations (MPOs) and are public roads in urbanized areas that connect the PHFS and the national interstate system to ports, intermodal facilities, and other freight facilities. Arizona has 101 CUFC miles located mostly in the Phoenix and Tucson urban areas. The State has 49 undesignated miles remaining under its 150-mile cap.
- **Critical Rural Freight Corridors (CRFCs)** – CRFCs are designated by the State and are public roads outside urbanized areas that provide a similar connecting role as CUFCs. Arizona has designated 205 CRFC miles. The State has 395 undesignated miles remaining under its 600-mile cap.

Because Arizona contains more than 2% of national PHFS mileage, it is classified as a "high mileage state." This requires ADOT to obligate NHFP funds on the PHFS, CUFCs, and CRFCs. The remaining interstate mileage is ineligible unless designated as a CUFC or CRFC. ADOT recently completed a study that recommends expanding CUFC and CRFC mileage and identifies additional corridors for potential designation. **Figure 3** maps the four NHFN components.

Figure 3: National Highway Freight Network in Arizona, 2025



National Multimodal Freight Network

Beyond the highway-focused NHFN, federal law also calls for a broader, cross-modal network. The requirement for a National Multimodal Freight Network (NMFN) was established under the FAST Act and continued under IIJA. Unlike the highway-centric NHFN, the NMFN includes rail lines, waterways, ports, airports, and intermodal facilities. It helps states target investments to system elements that carry the greatest amounts of freight regardless of mode. The NHFN is a component of the larger NMFN.

As of mid-2026, the U.S. Department of Transportation (USDOT) has not designated a final NMFN. The USDOT published a draft designation in January 2025 with approximately 175,000 miles of highways, rail lines, and waterways together with 205 marine ports and airports. Because no final network has been designated, Arizona has not designated any multimodal critical rural freight facilities or corridors. When USDOT designates the final NMFN, ADOT will evaluate potential additional designations in consultation with the FAC, regional planning organizations, and the owners and operators of port, rail, pipeline, and airport facilities, ensuring that any designations are consistent with the State Freight Plan (SFP) and the Statewide Transportation Improvement Program. In the interim, ADOT looks to the draft NMFN and corridor priorities in the National Freight Strategic Plan (NFSP) to ensure its multimodal freight planning efforts are connected to national direction.

Nationally Designated Truck Routes

Nationally designated truck routes are roads open to large commercial vehicles under the Surface Transportation Assistance Act, as identified in 23 CFR 658. In Arizona these routes include the entire interstate system, non-interstate routes listed in the federal regulation, and non-interstate federal-aid primary routes defined in the Surface Transportation Assistance Act. This designation establishes the baseline statewide network on which standard-dimension trucks may operate without special permits.

Arizona Key Commerce Corridors

ADOT's *Key Commerce Corridor Plan* (2014) identified five corridors where infrastructure improvements would generate the greatest economic benefit to the State. These corridors remain important to the movement of freight through Arizona:

- **I-10** – Crosses the heart of the country through Arizona, connecting Phoenix and Tucson and providing access to ports in southern California and Florida.
- **US 93 (planned I-11)** – Connects Arizona to Nevada and other western states.
- **I-17** – Freight and tourist corridor linking Phoenix to Flagstaff and I-40.
- **I-19** – Connects Tucson to the Nogales Land Port of Entry, Arizona’s most important port of entry to Mexico and a major economic driver for the State.
- **I-8** – A direct connection from Tucson, Arizona to southern California.

High-Priority Corridors

The Congressionally designated High-Priority Corridors were first established under the federal Intermodal Surface Transportation Efficiency Act (ISTEA) and refined through subsequent federal transportation legislation. Four High-Priority Corridors cross Arizona:

- **The Economic Lifeline Corridor** – Runs along I-15 and I-40 through California, Arizona, and Nevada.
- **The CANAMEX Corridor** – Follows I-19 from Nogales to Tucson, I-10 from Tucson to the Phoenix vicinity, and US 93 from the Phoenix area to the Nevada border, with the US 93 segment being planned for upgrade to future I-11.
- **The Southwest Passage** – Part of the Alameda Corridor East and Southwest Passage, which follows I-10 from the California state line east through Arizona.
- **The Sonoran Corridor** – Along State Route 410 (SR 410) connecting I-19 and I-10 south of the Tucson International Airport.

Strategic Highway Network & Strategic Rail Corridor Network

Arizona’s primary highway and rail freight corridors also serve national defense functions. The Strategic Highway Network (STRAHNET) supports military deployment, mobilization, and logistics and the Strategic Rail Corridor Network

(STRACNET) is its rail equivalent. STRAHNET and STRACNET are further defined and shown in section 2.5.6, Military Logistics Networks.

2.5 Freight System Inventory & Assessment

Arizona's freight system is multimodal. Goods are moved by highway, rail, air, and pipeline and across the international border with Mexico. This section provides an inventory and assessment of infrastructure for each element of the system, which helps inform ADOT's and its partners' understanding about freight needs.

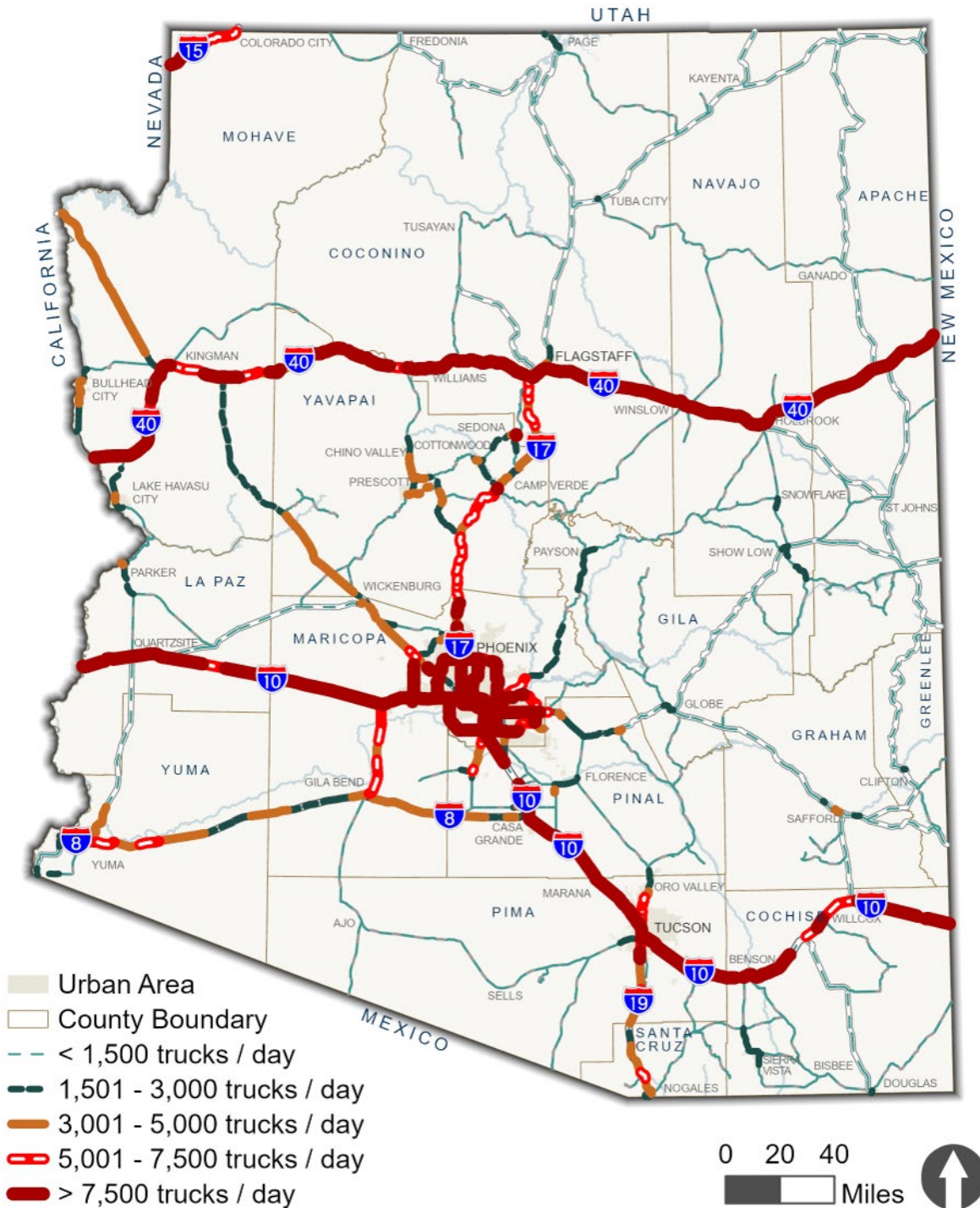
2.5.1 Highway Freight System

Arizona's highway system carries most of the State's freight and forms the backbone of goods movement across local, regional, interstate, and international markets.

Roadways

Arizona's roadway network includes more than 76,000 centerline miles of public roads. Within this network, the State Highway System (SHS) comprises 6,900 centerline miles and more than 20,000 lane miles. Arizona's interstates carry most of the truck traffic, connecting major population and employment centers, intermodal facilities, and international gateways. A broader system of state and local roads provides additional connectivity that serves freight users across Arizona. **Figure 4** shows the Average Annual Daily Truck Traffic (AADTT) on the interstates, US highways, and state highways with the heaviest volumes concentrated on the interstates and around major metropolitan areas.

Figure 4: Average Annual Daily Truck Traffic, 2024

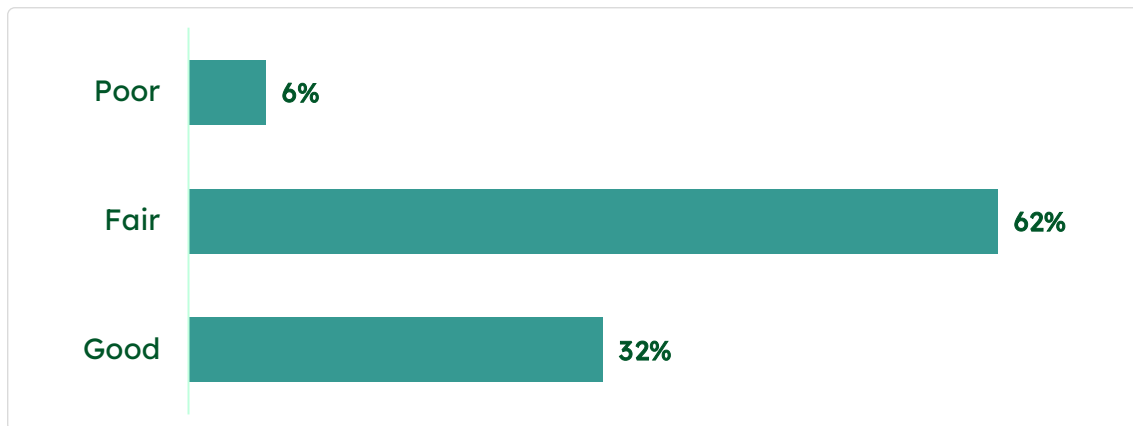


Trucks volumes include both single (6 or fewer axles) and multi-unit (>6 axle) vehicles.

Performance Assessment

- Pavement condition.** Directly affects goods movement by influencing truck speeds, vehicle wear, business location decisions, and roadway safety. **Figure 5** shows, based on 2024 data, that 32% of Arizona state-owned pavement is in good condition, 62% is rated fair, and 6% is in poor condition. Arizona has exceeded federal performance targets for interstate pavement and bridge condition in recent reporting, reflecting sustained investment in preservation. Even so, the share of pavement in poor condition reflects deferred maintenance caused by limited funding, rising construction costs, and competing priorities even as growing truck volumes and weights accelerate wear.

Figure 5: Arizona Highway Pavement Condition in 2024



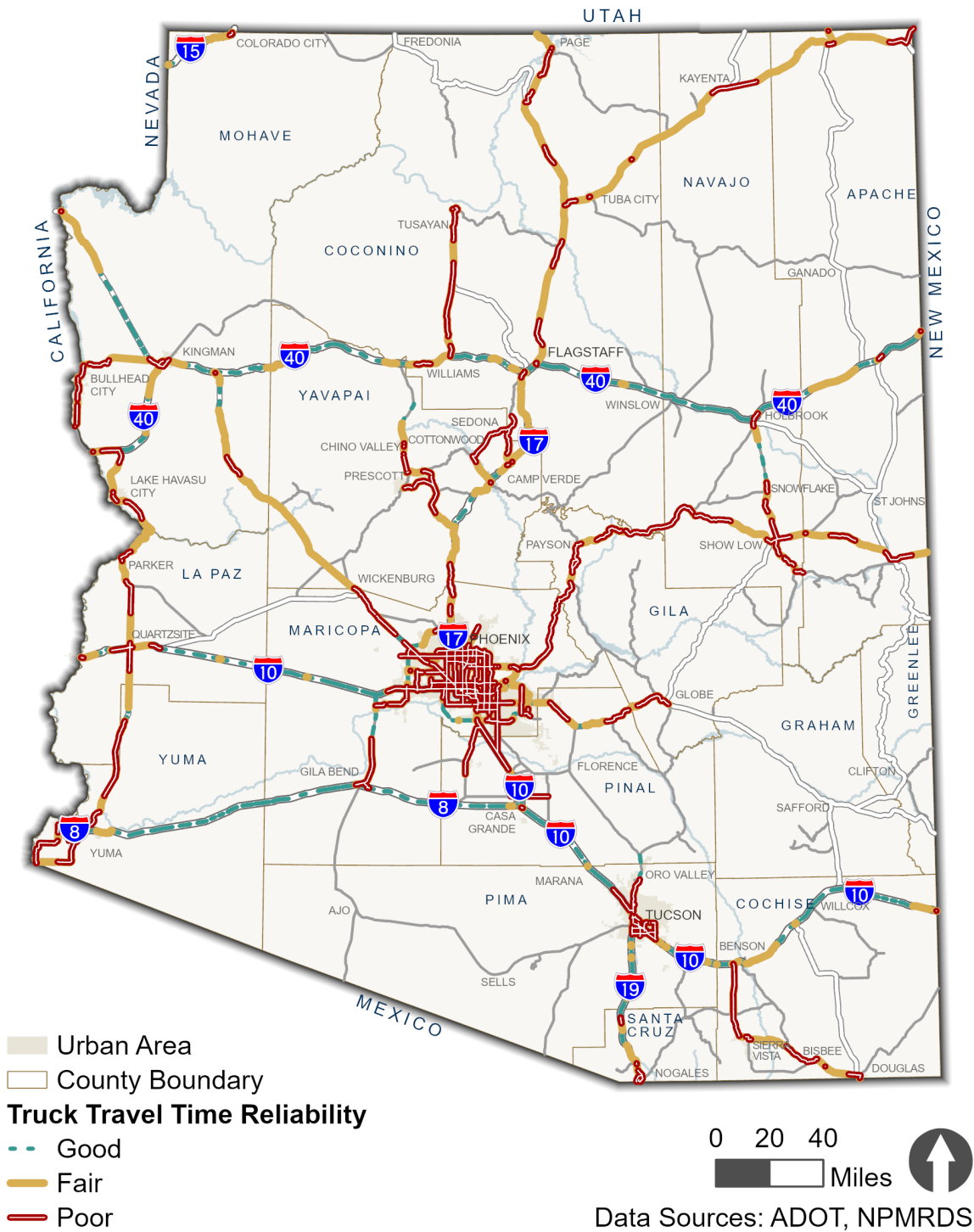
Source: ADOT

- Truck Travel Time Reliability.** Trucks generally experience less reliable travel times than overall traffic across Arizona. As shown in **Figure 6**, Truck Travel Time Reliability (TTTR) is poor on the major urban freight corridors (I-10, I-17, Loop 101, Loop 202, and US 60 in metro Phoenix, and I-10 and I-19 in Tucson) and ranges from poor to fair along I-17 and I-40. Several rural state highway segments also show poor TTTR, including routes in the Yuma, Nogales, Sedona, central Yavapai, Show Low, and Kingman areas. ADOT reports TTTR and infrastructure condition targets and progress toward them.
- Roadway capacity and geometry.** Roadway capacity and geometry shape how efficiently freight moves. Two-lane highways account for 61% of ADOT-owned and maintained roadways, and four-lane highways and

interstates make up another 29%. Segments with more than six lanes are mostly limited to the Phoenix region. Several corridors serving tribal regions and remote communities, such as US 160 and US 191, remain two-lane facilities, which can reduce travel time reliability for trucks serving the mining and agriculture industries found in these regions.

Since publication of the *2022 Arizona State Freight Plan*, ADOT has invested in expanding and preserving the highway freight system. Projects include the I-10 Broadway Curve widening, I-17 widening and flex lanes, and the South Mountain Freeway, along with improvements to rural freight corridors such as US 93 and portions of I-40.

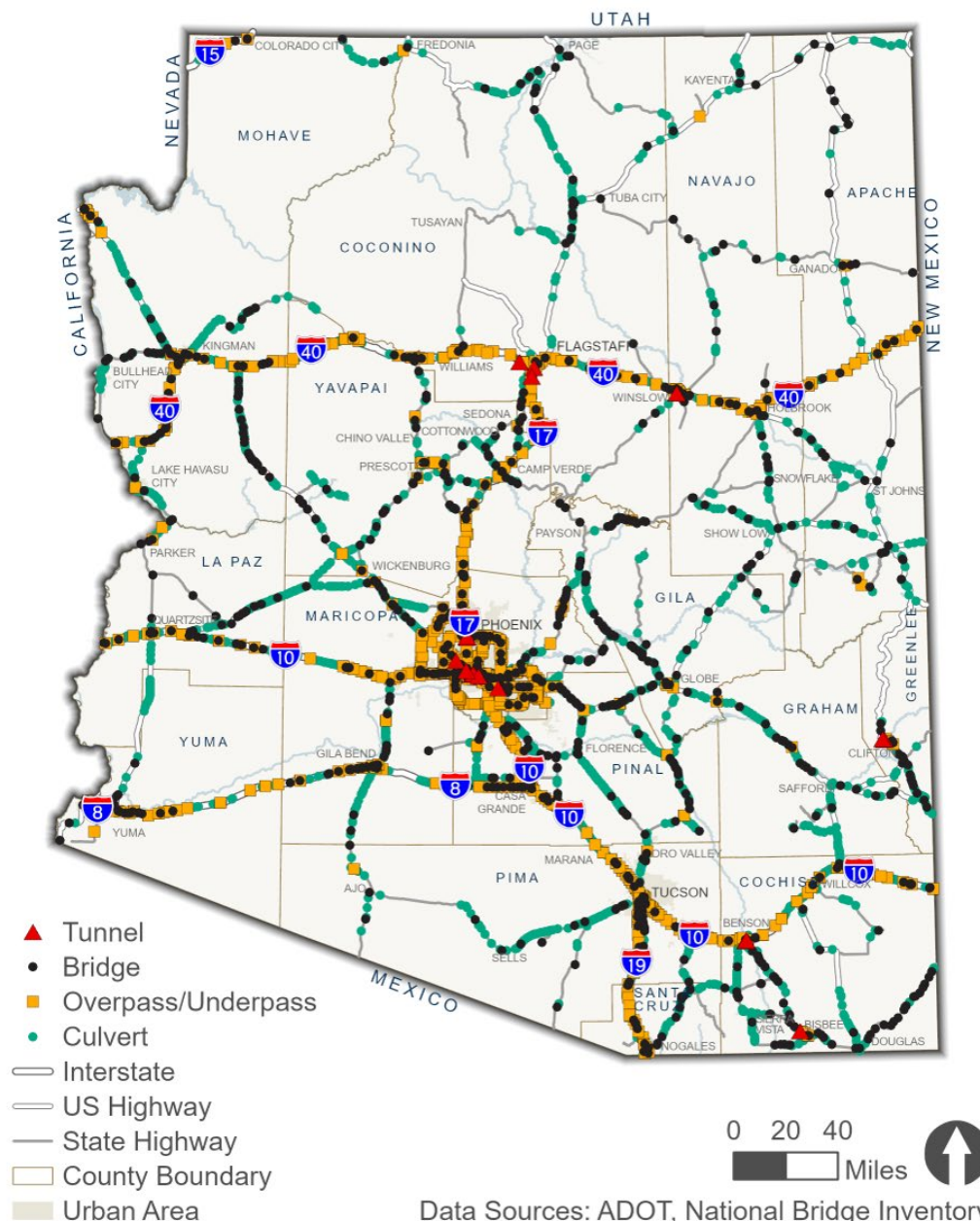
Figure 6: Truck Travel Time Reliability, 2024



Bridges

Bridges carry freight across canyons, rivers, and other features that interrupt the roadway network. According to FHWA's National Bridge Inventory (NBI) data, Arizona has more than 8,000 state and locally owned structures. ADOT owns roughly 4,800 (60%) of these structures, more than half of which are large culverts. Cities, counties, railroads, and other jurisdictions own the rest. **Figure 7** maps structures by type.

Figure 7: Bridges and Structures in Arizona, 2025



Condition Assessment. Keeping bridges in a state of good repair preserves mobility. Structures in poor condition can slow down trucks, force time-consuming detours, or carry load restrictions that limit the cargo a truck can haul. Fifty-nine percent of Arizona’s bridges are rated in good condition and about 40% in fair condition, while less than 1% of ADOT-owned bridges are in poor condition. **Table 2** shows 2025 bridge conditions and state-of-good-repair targets per ADOT’s 2025 *Transportation Asset Management Plan*.

Table 2: Condition and Performance of ADOT-owned Bridges, 2025

Performance Measure	2025 Actual	Long-Term Target
Percentage of National Highway System (NHS) Bridges in Good Condition	99.6%	96%
Percentage of NHS Bridges in Poor Condition	0.4%	4%
Percentage of SHS Bridges in Good Condition	99.7%	96%
Percentage of SHS Bridges in Poor Condition	0.3%	4%

Source: ADOT National Bridge Inventory (NBI) Summary Dashboard

Adequate vertical clearance for bridges is also important. Many older bridges were built to specifications below current ADOT standards, which call for a minimum clearance of 16 feet 6 inches on freeways, arterials, and other state highways, and 15 feet 6 inches on other highways and streets. As of 2025, 142 bridges have a vertical clearance less than 15 feet.

Supporting Roadway Infrastructure

ADOT works with other state agencies and private partners to operate and maintain infrastructure that improves truck mobility and safety. Some of this infrastructure serves trucks specifically, while some supports all road users:

- **Intelligent Transportation Systems (ITS).** ITS describes a variety of real-time information gathering, analysis and dissemination practices used by ADOT and its partners to help manage roadways, reduce congestion, improve safety, and inform drivers of conditions. Arizona’s ITS infrastructure includes traffic operations centers, cameras, variable message signs, ramp metering, and web and mobile traveler information tools.

- **Weigh stations and weigh-in-motion (WIM) stations.** Weigh stations enforce vehicle weight limits and support safety. Fixed weigh stations require trucks to stop for checks and inspections, while WIM stations screen vehicles at highway speeds and flag potentially overweight trucks.
- **Runaway truck ramps.** ADOT maintains 15 truck safety ramps along key mountain corridors, giving trucks a safe place to stop if they experience mechanical problems on steep grades.

Rest Areas & Commercial Motor Vehicle Parking

Adequate truck parking is essential for safe and efficient freight movement and is needed to address parking challenges in Arizona and throughout the U.S. An SFP must include a commercial motor vehicle parking assessment that examines high truck volume corridors (demand), parking supply, parking utilization rates, and geographic areas of shortage. In 2023, ADOT produced the comprehensive *Arizona Truck Parking Study* that addresses these considerations. Highlights from the study include:

Truck traffic volumes. Truck parking demand is tied to commercial vehicle volumes. Arizona’s highest Average Annual Daily Truck Traffic (AADTT) occurs on the following corridors:

- I-10 and I-40 between the California and New Mexico state lines;
- I-19 south of I-10 in the Tucson area;
- I-8 in the Yuma area;
- I-15 entire segment;
- Multiple corridors in the Phoenix urban area (I-10, I-17, US 60, Loop 101, Loop 202, and SR 85);
- SR 347 between I-10 and Maricopa; and
- SR 85 between I-10 and I-8.

Truck parking supply. Arizona’s capability to provide truck parking depends substantially on private organizations operating alongside public facilities. The State has 7,149 designated truck parking spaces statewide, including public parking spaces and other private stops and locations. Private truck stops provide 6,511 (91%) truck parking spaces in Arizona. The remainder are provided

by ADOT and are in rest areas, overflow lots at rest areas, and parking-only locations that have no amenities.

Parking utilization. Utilization data from ADOT’s study show a predictable daily pattern with facilities in the Phoenix and Flagstaff areas and along I-40 near the California state line beginning to fill by 4 p.m. to 5 p.m., and by midnight most of the state’s truck parking is at or near capacity. Parking is generally available statewide only between about 8 a.m. and 4 p.m. This pattern indicates that supply is adequate for daytime operations but falls short of demand overnight along the State’s busiest interstate corridors.

State truck parking response. ADOT has expanded truck parking capacity, with recent and planned rest-area expansions concentrated along the I-10, I-17, and I-40 corridors that carry the heaviest truck volumes. **Table 3** shows truck parking capacity expansion work since the *Arizona Truck Parking Study* was published.

Table 3: Truck Parking Added Since ADOT’s 2023 Truck Parking Study was Completed

Route	Mile Post	Rest Area Name	No. Truck Parking Before	No. Added	Total Truck Parking	Status
I-40	182	Parks East Bound (EB)	15	24	39	Rehab completed and reopened for truck parking only
I-40	182	Parks West Bound (WB)	15	0	15	Rehab completed and reopened for truck parking only
I-17	324	Christensen North Bound (NB)	11	0	11	Rehab completed and reopened for truck parking only
I-17	324	Christensen South Bound (SB)	15	0	15	Rehab completed and reopened for truck parking only
I-17	252	Sunset Point SB	27	19	46	Completed and open to traffic

Route	Mile Post	Rest Area Name	No. Truck Parking Before	No. Added	Total Truck Parking	Status
I-40	23	Haviland EB	29	30	59	Under construction, completion expected 2026
I-40	23	Haviland WB	23	27	50	Under construction, completion expected 2026
I-40	233	Meteor Crater EB	57	69	126	In design; construction planned for 2027
I-40	233	Meteor Crater WB	64	45	109	In design; construction planned for 2027
I-10	86	Burnt Well EB	30	80	110	In design; construction planned for 2026
I-10	86	Burnt Well WB	30	43	73	In design; construction planned for 2027

Source: Arizona DOT

MAG Regional Truck Parking Study and Plan.

MAG has completed a 2026 Truck Parking Study and Plan to address the lack of urban truck parking in the MAG region. Truck parking demand is high and continues to grow. The plan can be found here:

<https://azmag.gov/Programs/Transportation/Freight-Transportation/>

The Maricopa Association of Governments (MAG) region is a major trade and distribution hub, and ongoing economic growth continues to increase the demand for truck parking. Although some truck parking infrastructure exists, it does not meet current or future needs. As a result, trucks often park in residential areas, on major streets, or in unsafe locations such as highway shoulders and ramps, creating risks for both drivers and the public.

To address these challenges, MAG conducted the MAG Regional Truck Parking Study and Plan, which evaluated existing parking, identified deficiencies, explored technology-based options, and gathered data to develop feasible solutions. The study defined the following approaches:

- **Physical Infrastructure:** Strategically locating new truck parking facilities to serve key freight corridors, including collaboration with private stakeholders to develop shared-use facilities and alternative parking solutions.
- **Digital Infrastructure:** Exploring innovations such as real-time parking availability apps and intelligent parking management systems.
- **Regulatory:** Evaluating policy changes that facilitate better truck parking management and land-use planning.

In addition, the following strategies were identified:

- **Interchange upgrades:** Interchange improvements designed to support accessibility to freight hubs and truck parking by reducing congestion.
- **Roadway improvements:** Roadway improvements to improve safety, congestion, and connectivity on freight access routes.
- **Building truck parking facilities near freight generators:** Build truck parking facilities near freight generators and freight-supportive land uses and high-volume roadways.
- **Provide O&M for truck parking facilities for ten years:** Provide funding to ADOT to support (in-house or outsourced) O&M costs.
- **Pilot private management program for truck parking facilities for 10 years:** Pilot private management and monitoring of truck parking sites.
- **ADOT 511 Upgrades to Trucker Mode:** Implement “Trucker Mode” data layers and communication into the statewide 511 system.
- **Programming of Regional Funds to Address Member Agency-Identified solutions:** Programming of funds to be expended, as needed, to support member agencies for truck parking opportunities as they arise.

Although the Truck Parking Study identified several potential solutions, these strategies were not fully explored or vetted. The proposed Truck Parking

Implementation Plan will take a deeper look at these options, detailing the processes, procedures, and potential locations for implementing the previously identified solutions, while also considering additional alternatives.

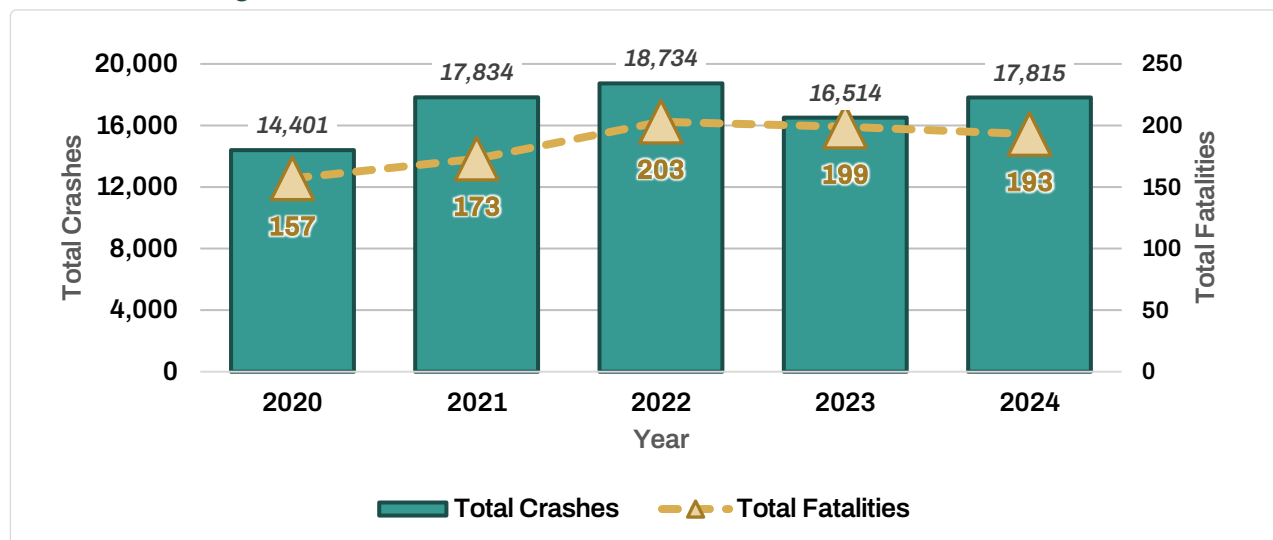
By working collaboratively with the trucking industry, jurisdictional agencies, business owners, and regional professionals, a phased implementation plan will be developed that identifies available sites, potential costs, regulatory recommendations, and other possible actions. This plan will help move the region from planning to practical, on-the-ground implementation.

Highway Safety

In 2024, heavy vehicles were involved in approximately 14% of all fatalities and 35% of injury-inducing crashes in Arizona. In addition to the loss of life and injuries, truck crashes can impact goods movements and supply chains by damaging goods or causing delays.

Figure 8 shows that between 2020 and 2024 both the total number of truck-involved crashes and the number of fatal crashes increased. Total crashes increased from 14,401 to 17,815, while fatal crashes increased from 157 to 193. Each metric experienced 5-year highs in 2022 with 18,734 crashes and 203 fatal crashes. Rear-end collisions are the most common truck-involved collision type. Crashes are concentrated in the Phoenix and Tucson metropolitan areas, as well as along interstate corridors statewide with additional accident clusters near Flagstaff, Kingman, and Arizona’s western border crossings.

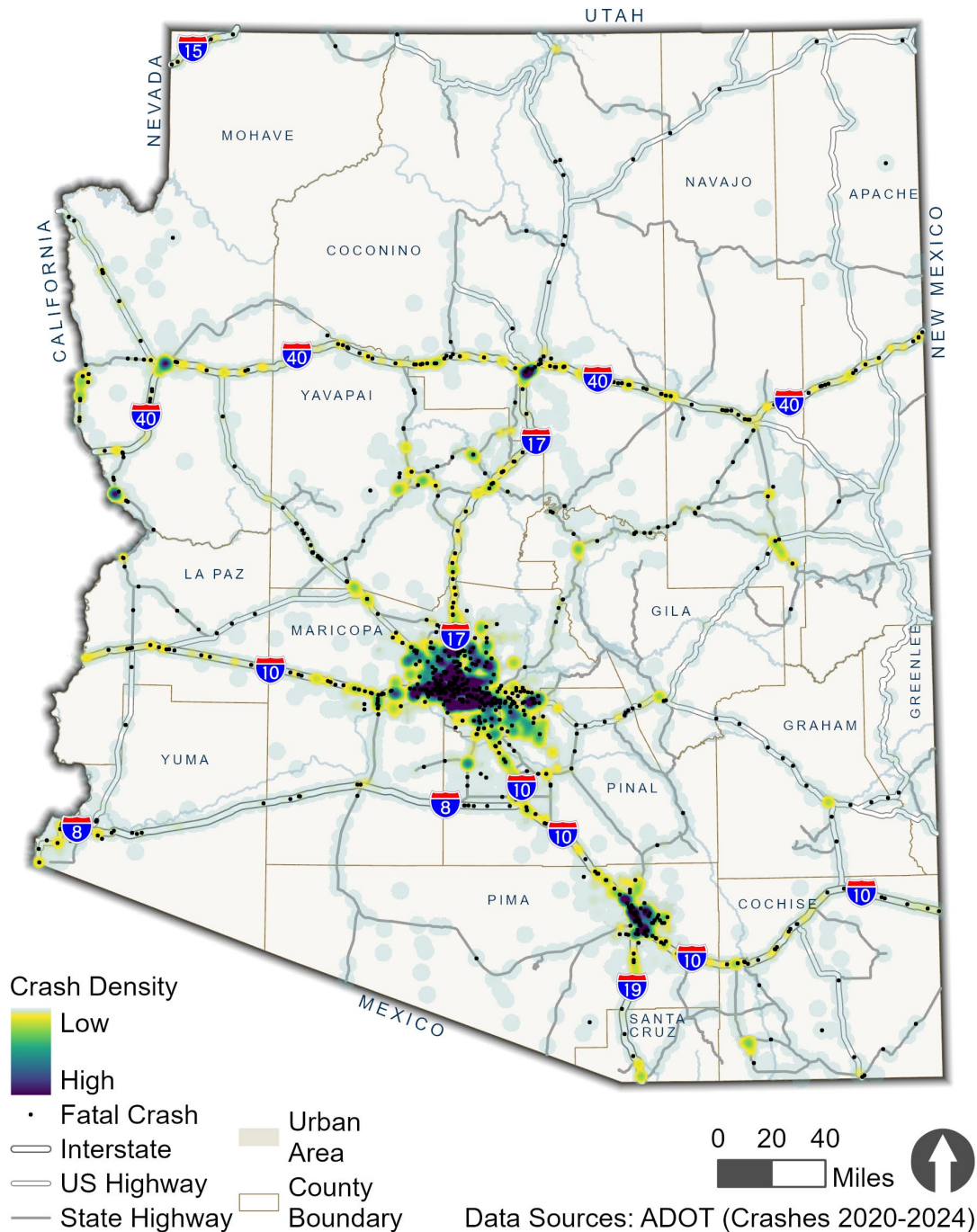
Figure 8: Total Truck-Involved Crashes and Fatalities, 2020-2024



Source: Arizona DOT Arizona Motor Vehicle Crash Facts, 2024

Figure 9 maps the location of fatal crashes and areas with a high density of truck related crashes. The crash hotspots are centered around major metropolitan areas and junctions of key truck corridors.

Figure 9: Map of Truck-Involved Crash Density (2020-2024)



2.5.2 Rail Freight System

Arizona's freight rail system supports domestic and international freight movement for many commodities and industries ranging from agricultural produce and automobiles to mining products and construction materials.

The federal Surface Transportation Board classifies railroads by their annual operating revenue. Class I railroads are the largest carriers and have revenue of \$1 billion or more. Arizona's freight rail system has two Class I carriers, which collectively account for about 72% of the State's track miles. Class II railroads, sometimes called regional railroads, have revenue between \$40 million and \$1 billion; Arizona has no Class II railroads. Class III railroads (also called local or short line railroads) have revenue below \$40 million. Arizona has eight active Class III short lines, which own the remaining 28% of track miles in the State. **Table 4** shows track miles owned by each Class I or Class III railroad in the State.

Arizona's two Class I transcontinental railroads form the backbone of the rail freight system. They connect the State's rail freight to national and international markets. BNSF Railway (BNSF) operates the Southern Transcon corridor, which crosses northern Arizona and connects Los Angeles to Chicago. Union Pacific Railroad (UPRR) operates the Sunset Route, crossing southern Arizona and connecting Los Angeles to Houston. The Sunset Route alone carries 20% of UPRR's total traffic.

Table 4: Arizona Freight Railroad Summary of Track Miles Owned by Operator, 2025

Class I Railroads		
Railroad	Route Miles (Tracks)	Percentage of State Miles
BNSF	659	35.0%
UPRR	691	36.7%
Totals for Class I RRs	1,350	71.7%
Class III Railroads		
Railroad	Route Miles (Tracks)	Percentage of State Miles
Apache Railway	42	2.2%
Arizona and California Railroad	172	9.1%
Arizona Eastern Railroad	208	11.1%
Clarkdale Arizona Central Railroad	38	2.0%
Copper Basin Railway	61	3.2%
San Pedro & Southwestern	7	0.4%
Kingman Terminal Railroad	3	0.2%
Drake Switching Company	1	0.1%
Totals for Class III Active RRs	532	28.3%

Source: Association of American Railroads

Condition Assessment – A key measure of rail line condition is the ability to carry a North American standard 286,000-pound railcar. Arizona’s Class I railroads are generally in good condition and double-tracked; they all meet this condition standard. Class III short line conditions in Arizona are more variable; some segments have significant maintenance or rehabilitation needs. The Arizona Eastern railroad and the Clarkdale Arizona Central railroad do not meet the 286,000-pound railcar standard, limiting the volume and types of freight they can carry and the efficiency of their connections to the wider national freight rail system. These two lines account for almost half of active Class III miles in the State.

Sometimes structural constraints limit Arizona’s freight rail capacity. The network’s historic east–west orientation restricts north–south service. Interchanges between Class I and Class III railroads are frequently congested.

Intermodal capacity in Phoenix is constrained by limits on land available to support growth. Backhaul opportunities in Arizona are limited because the State imports more by rail than it exports, which reduces the efficiency of rail service.

Transload Facilities & Intermodal Terminals

Transload facilities transfer bulk or break-bulk cargo between modes, typically between rail and truck. The goods are physically unloaded from one conveyance and reloaded onto another, often with some intermediate handling or storage. Common examples include lumber yards that receive rail carloads and reload onto trucks, or facilities handling agricultural commodities, building materials, or industrial inputs. The cargo usually isn't containerized. Transload adds handling cost and time but gives shippers flexibility. For example, a full container of goods from Asia can be transloaded into multiple smaller truck shipments for regional distribution.

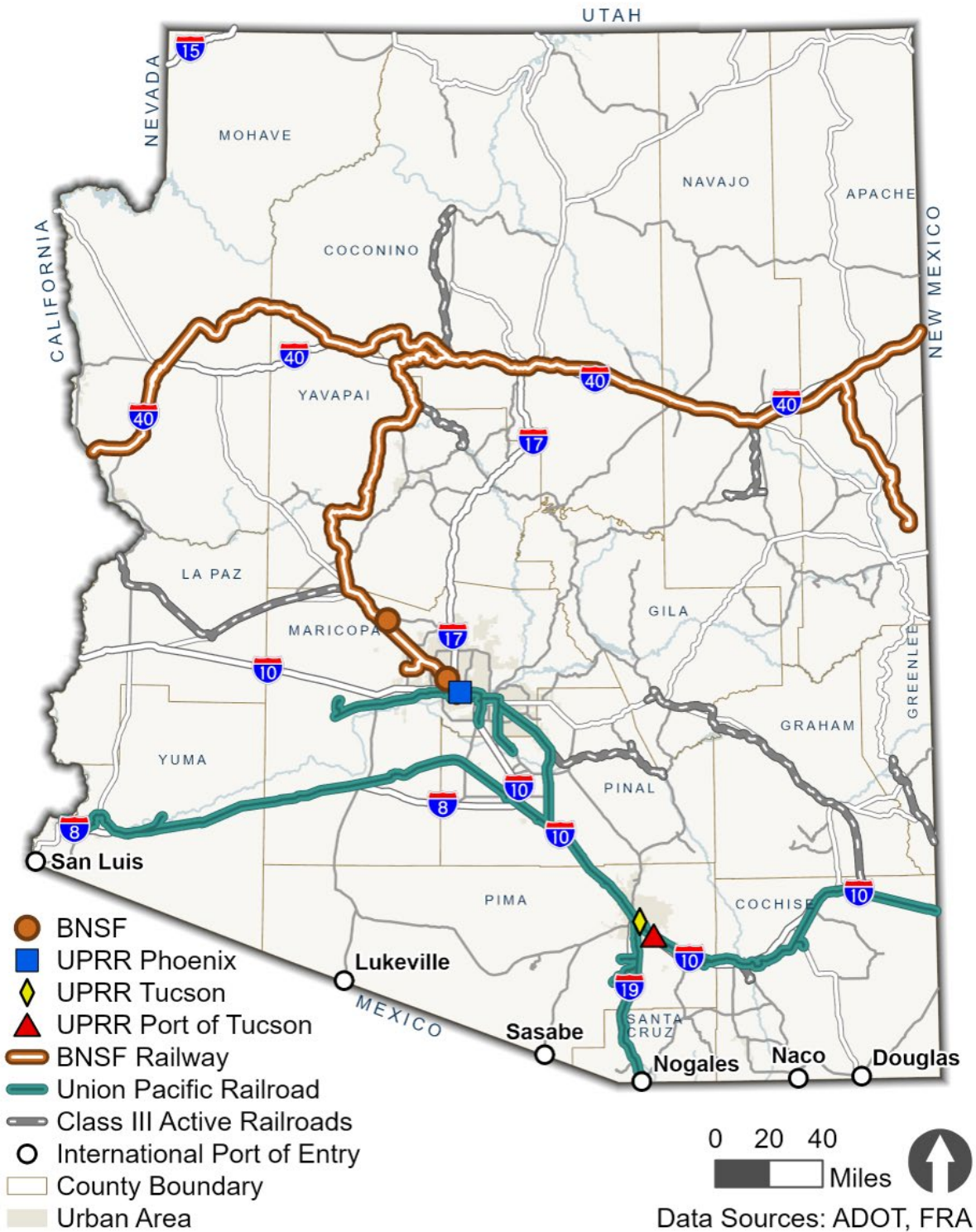
Intermodal terminals transfer containerized cargo (ISO containers or trailers) between modes, most commonly rail and truck, without opening the container or touching the goods inside. The container itself is the unit being lifted and moved. Intermodal terminals use cranes or top-loaders to move containers between truck chassis and rail flatcars (or double-stack well cars). Speed and standardization are important since the same sealed box moves door to door. Arizona's intermodal terminals cluster around the Phoenix and Tucson metropolitan areas, where Class I rail lines connect with the State's largest warehousing and industrial areas.

In addition to large intermodal terminals associated with its Class I railroads, Arizona has numerous transload facilities that support Class III freight operations throughout the State. They provide essential support for drayage, short-term storage, and freight transfer operations, complementing the larger Class I intermodal terminals. Continued growth of these intermodal terminals and transload facilities is important as freight demand in Arizona grows. Information presented in *Table 5* and *Figure 10* shows key current and planned intermodal terminals and transload facilities in Arizona.

Table 5: Key Existing and Planned Intermodal Terminals and Transload Facilities in Arizona, 2025

Location	Type	Characteristics
BNSF Glendale	Intermodal Terminal	Serves as a major rail-to-truck transfer point connecting the Phoenix area with the national rail network
BNSF Northwest Maricopa County	Planned Intermodal Terminal	- Will add rail capacity and improve freight connectivity across the region - Expected to support over 76,000 jobs, \$4 billion in labor income, and \$258 million annually in tax revenue - Project in local permitting phase
Port of Tucson	Inland Port	770 acres; can handle unit trains of 80 cars - Domestic service to Chicago, with plans to add Houston - Began international service in 2013 - Expansion plans: unit trains of liquefied petroleum gas, heavy truck lanes, grain container loading, copper concentrate mixing, and boxcar/refrigerated boxcar operations
UPRR Phoenix	Intermodal Terminal	- Opened in 2024 in UPRR's downtown Phoenix rail yard - Provides intermodal service to/from Los Angeles and Long Beach ports and UPRR's Intermodal Container Transfer Facility - Supports import and export freight - Additional construction ongoing: lighting, surface improvements, and office building
UPRR Phoenix	Transload Terminal	8 tracks and 150 spots - Open-air and warehouse storage
UPRR Tucson	Transload Terminal	2 tracks and 10 spots - Warehouse storage
Miscellaneous smaller intermodal & transload facilities	Various	- Located near warehousing and industrial clusters - Provide flexible rail access for shippers - Enable rail-to-truck transfers, reduce long-haul truck traffic, and enhance multimodal freight efficiency

Figure 10: Rail Lines and Key Intermodal Terminals and Transload Facilities in Arizona, 2025



At-Grade Crossings

At-grade crossings are locations where railroad tracks and roadways intersect at the same level. Arizona has 1,395 active roadway-rail crossings with 1,135 (81%) at-grade and 260 (19%) grade-separated, meaning the railroad and roadway are physically separated by a bridge or similar structure. At-grade crossings are a safety concern; they account for most collisions between trains and road vehicles. At-grade crossings are also a source of freight movement delay, since a train in such a crossing halts road traffic, while at-grade crossing protocols also constrain efficiency of train movement along a corridor.

2.5.3 Air Freight System

Air freight's high cost limits its use to shipments where speed and value justify the premium. Air cargo carries less than 1% of Arizona's freight by tonnage, but 26% of the State's freight by value. Most air freight is directed toward airports that have runway capacity for large aircraft, populous markets nearby, and adjacent industrial land for cargo handling and distribution. According to the federal Bureau of Transportation Statistics T-100 data, Arizona's annual air freight volume peaked in 2021 and moderated through 2024 as the COVID-19 pandemic era's demand spike returned to normal levels.

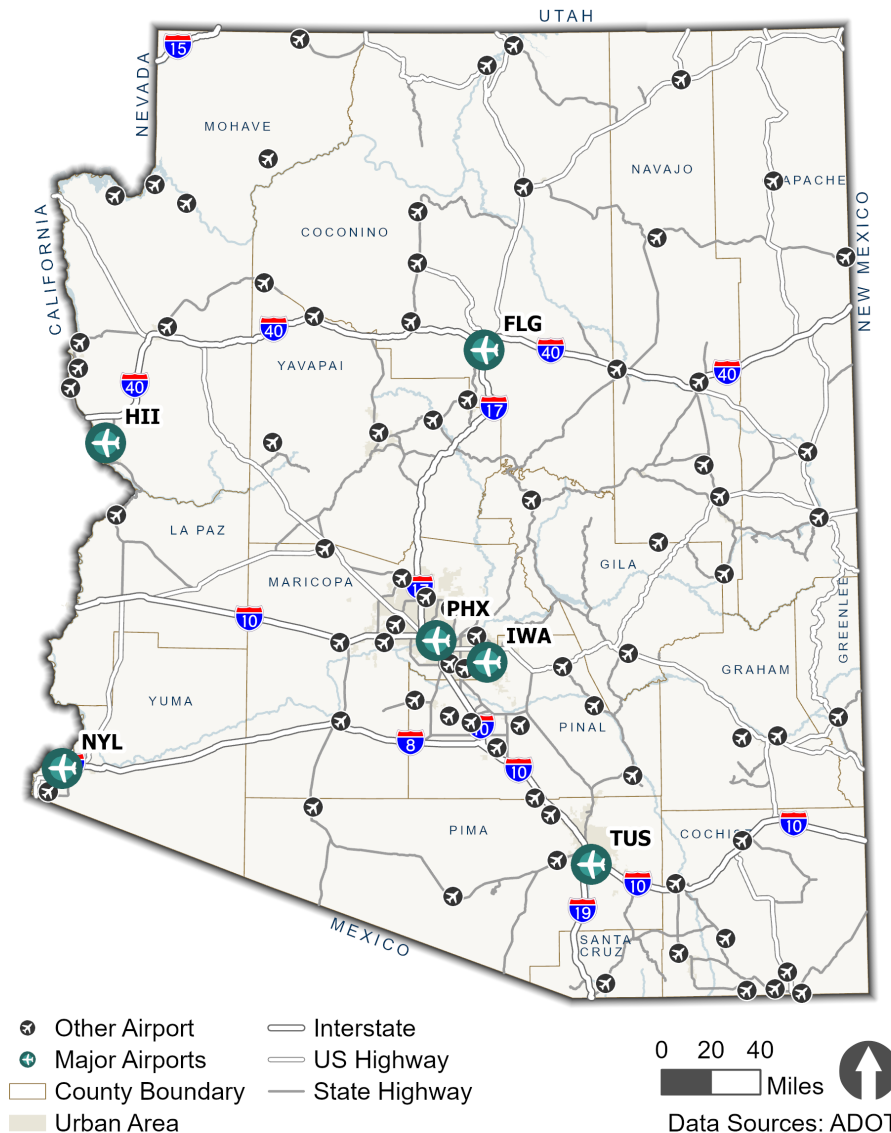
Figure 11 shows the locations of Arizona's 67 public-use airports. Four major airports, however, handle most air freight activity and 93% of the State's air freight moves through Phoenix Sky Harbor International Airport:

- **Phoenix Sky Harbor International Airport (PHX).** A 3,400-acre facility with two terminals and three runways that moves nearly 1,000 short tons of air freight on a typical day and serves as Arizona's primary air freight hub. In 2025, PHX handled 676 million pounds of air freight; 351 million pounds inbound and 325 million pounds outbound. PHX cargo tonnage declined about 5% from 2023 to 2024.
- **Tucson International Airport (TUS).** An 8,280-acre facility about 9 miles from the Port of Tucson, surrounded by manufacturing and aerospace business parks. TUS has two operating runways and a third expected to open in 2026. In 2025, TUS handled 35.5 million pounds of air freight; 18 million pounds inbound and 18 million pounds outbound.
- **Mesa Gateway Airport (IWA).** Located southeast of PHX and home to SkyBridge Arizona, at full buildout, the airport business park is intended

to function as a joint U.S.-Mexico customs processing hub. This will allow cargo between the U.S. and Mexico to be inspected and cleared inland at Mesa rather than at the border crossing. IWA moved 10 million pounds of air freight in 2025: 9.5 million inbound and 0.6 million outbound. Some of PHX's recent decline in air freight may be due to growth at IWA. IWA anticipates an increase of 10,000 cargo flights per year by 2036.

- **Yuma International Airport (YUM).** A 3,100-acre facility located 15 miles north of the U.S.-Mexico border, serving California markets, the Yuma Proving Ground, and the Barry M. Goldwater Air Force Range. In 2025, YUM handled 2.3 million pounds of air freight; 1.3 million pounds inbound and 1.0 million pounds outbound.

Figure 11: Arizona Public Use Airports, 2025



2.5.4 Pipeline System

Pipelines are the safest and most efficient way to move bulk liquid and gas commodities over long distances. *Figure 12* shows privately operated pipelines in Arizona that move natural gas and petroleum from production and storage facilities to markets inside and outside the State.

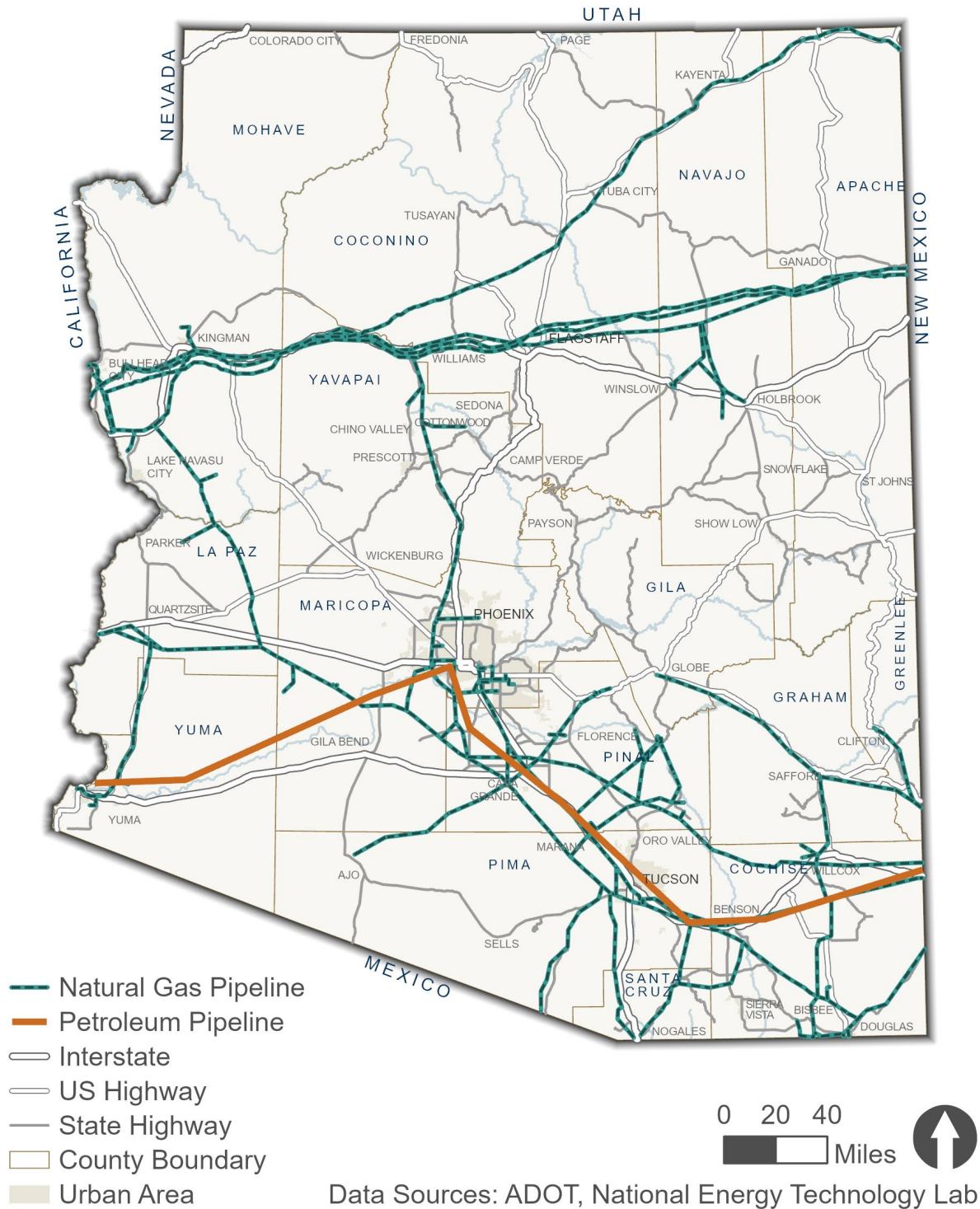
Arizona's pipeline system primarily serves movement of natural gas, with more than 49,000 miles of gas pipelines that gather, transmit, and distribute natural gas from supply basins and storage facilities to centers of demand. Natural gas arrives in Arizona through 10 interstate pipelines operated by El Paso Natural Gas, Transwestern, and Southern Trails. Arizona has nine active fuel terminals, anchored by Kinder Morgan's Phoenix and Tucson facilities. The State has no underground natural gas storage.

A smaller mileage of petroleum pipelines paralleling I-8 and I-10 serves Arizona's largest urban areas and fuel distribution terminals. Petroleum via pipeline reaches the State through two Kinder Morgan pipelines that converge in Phoenix including the West Line from the Los Angeles Basin and the East Line from El Paso, Texas.

Some gas pipeline segments in Arizona operate near capacity during peak demand and capacity challenges are expected to increase as Arizona's population grows, natural gas use for electricity generation rises with coal plant retirements, and demand for natural gas increases in Northwest Mexico. These shifts ripple across freight modes: coal retirements reduce rail freight demand, while many of the State's bulk fuel terminals are themselves supplied by rail, making pipeline capacity and rail fuel movements complementary parts of the energy supply chain. New lines require shipper commitments, capital investment, and regulatory approval, so capacity can be slow to develop in response to new demand and when it falls short of demand, product availability tightens and prices rise, stressing the broader economy.

Although pipelines are among the safest methods for transporting energy products, incidents still pose risks to the public and environment. USDOT's Pipeline and Hazardous Materials Safety Administration (PHMSA) documents and investigates these incidents, the number of which in Arizona has remained stable from 2010 to 2024. PHMSA oversees pipeline safety and the Federal Energy Regulatory Commission (FERC) regulates interstate transmission and petroleum rates.

Figure 12: Arizona Transmission Pipeline Network, 2025



2.5.5 Land Ports of Entry & Inland Ports

Arizona shares a 373-mile border with the Mexican state of Sonora and the economic relationship across that border is deeply integrated. Mexico is Arizona's largest international trading partner, and land ports of entry (LPOEs) serve as the physical connectors for much of that trade.

Land Ports of Entry

Six border crossing locations along Arizona's border with Mexico host nine LPOEs. Two of these crossing locations have more than one LPOE, with two at San Luis Río Colorado and three at Nogales. In addition to handling pedestrians and passenger cars, five of the Arizona LPOEs process commercial trucks, with Sasabe only handling passenger vehicles. **Table 6** shows freight flows at each LPOE.

Table 6: Arizona LPOE Flow by Type, 2024

LPOE	Trucks	Trains
Douglas	28,640	-
Lukeville	767	-
Naco	3,090	-
Nogales DeConcini, Mariposa, and Morley Gate	404,588	978
San Luis <i>I and II</i>	44,246	-
Sasabe	-	-

Source: Bureau of Transportation Statistics

The three facilities at Nogales are Arizona's busiest LPOEs. Mariposa LPOE handles most of the State's truck crossings and the DeConcini LPOE is Arizona's only international rail gateway. Truck wait times average about 15 minutes at most Arizona LPOEs. However, Nogales's wait time runs between 20 and 45 minutes and exceeds an hour during peak periods. Seasonal demand adds further challenges: Nogales is the primary gateway for northbound winter produce during the November-to-April harvest, when refrigerated truck traffic and cold-chain activity surge across southern Arizona.

Most of Arizona's LPOEs were built in the 1930s and modernized in the 1990s, though San Luis, Nogales Mariposa, and Lukeville have been expanded more recently. Mariposa and San Luis II offer the most commercial capacity, with room for up to eight inspection lanes, while the remaining LPOEs are constrained by limited right of way and legacy layouts. The principal barrier to adding capacity is funding, compounded by a multijurisdictional, bi-national approval process in which a new crossing requires a Presidential permit that can take years to secure. Work is underway to expand LPOE capacity in Arizona. Over \$500 million awarded under the IIJA is modernizing the Douglas and San Luis I LPOEs and funding development of a new LPOE in Douglas. Construction broke ground on the new Douglas facility in October 2025 and is scheduled for completion in 2028, while the San Luis I improvements are scheduled to be finished in 2029.

Inland Ports

Arizona is served by two inland ports, two UPRR rail-connected logistic complexes that consolidate, store, and transfer freight between truck and rail. These ports are located away from Arizona's physical border with Mexico but provide the logistics, customs, and intermodal transfer functions typically associated with a traditional LPOE. They move cargo processing and handling inland, relieving congestion at border crossings and bringing port-like efficiency closer to freight origins and destinations:

- **Port of Tucson.** Arizona's primary inland port, occupying more than 700 acres with over 2.2 million square feet of industrial space and more than 13 miles of internal track. As a designated Foreign Trade Zone with Class 2 bonded warehousing, it provides tariff and tax advantages tied to cross-border and global trade, and its location (less than 9 miles from TUS) anchors a combined air, rail, and truck logistics cluster.
- **Inland Port Arizona (Pinal Logistics Park).** An emerging rail-served logistics complex on more than 1,600 acres in Coolidge, AZ, in the fast-growing Sun Corridor of Pinal County. Designed for manufacturing and import-export users, it offers developable industrial sites adjacent to SR 87, with I-10 about 5 miles away and I-8 about 10 miles away, and places shippers within a day's drive of major Southwest markets, including Los Angeles, Las Vegas, and the El Paso–Ciudad Juárez gateway.

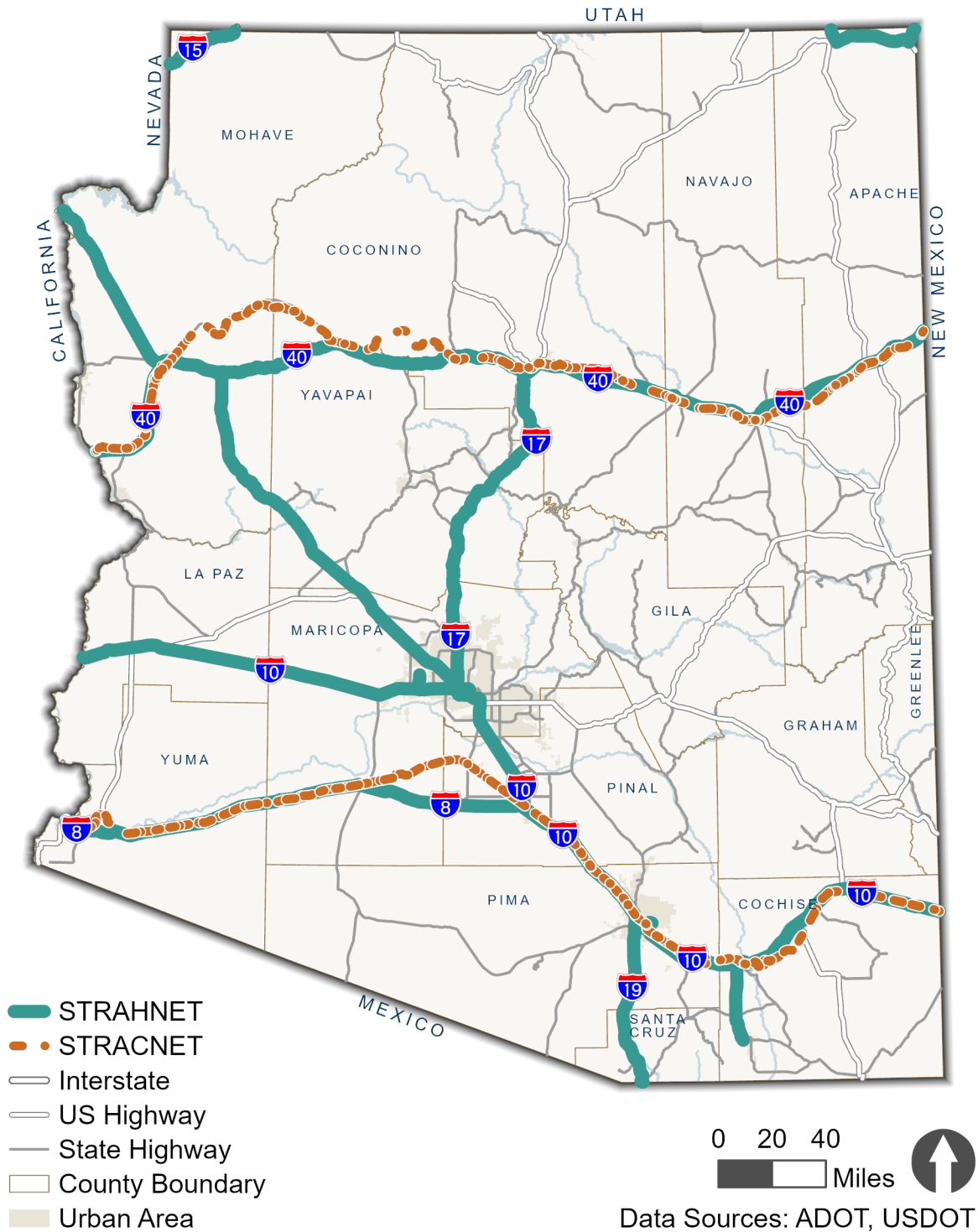
2.5.6 Military Logistics Networks

Arizona's highway and rail freight corridors are vital to U.S. military logistics. STRAHNET supports military deployment, mobilization, and logistics; its design standards emphasize load capacity, vertical clearance, and reliability. STRACNET supports rail movement of military equipment on Class I railroads and key connectors to strategic sites.

Figure 13 shows that I-10, I-17, and I-40 form the backbone of Arizona's STRAHNET routes and connect the State to California, Nevada, New Mexico, Texas, and Utah. These routes provide direct access to Arizona's border facilities and the U.S. Transportation Command's installations, including Luke Air Force Base, Davis-Monthan Air Force Base, Fort Huachuca, and Yuma Proving Ground. **Figure 13** shows that STRACNET follows the UPRR and BNSF mainlines, parallel to I-40 in the north and I-10 in the south.

Arizona's defense role extends beyond freight that begins or ends at in-state installations. The I-10 and I-40 corridors function as a national land bridge, carrying strategic assets in transit between the ports and installations of California to those in Texas and New Mexico. These movements often involve oversize and overweight equipment, and the convoys that carry them test the load capacity, vertical clearance, and lane width that STRAHNET standards are designed to protect. Maintaining these corridors and coordinating oversize and overweight convoy travel is essential to both national defense and the reliable movement of commercial freight.

Figure 13: STRAHNET and STRACNET in Arizona, 2025



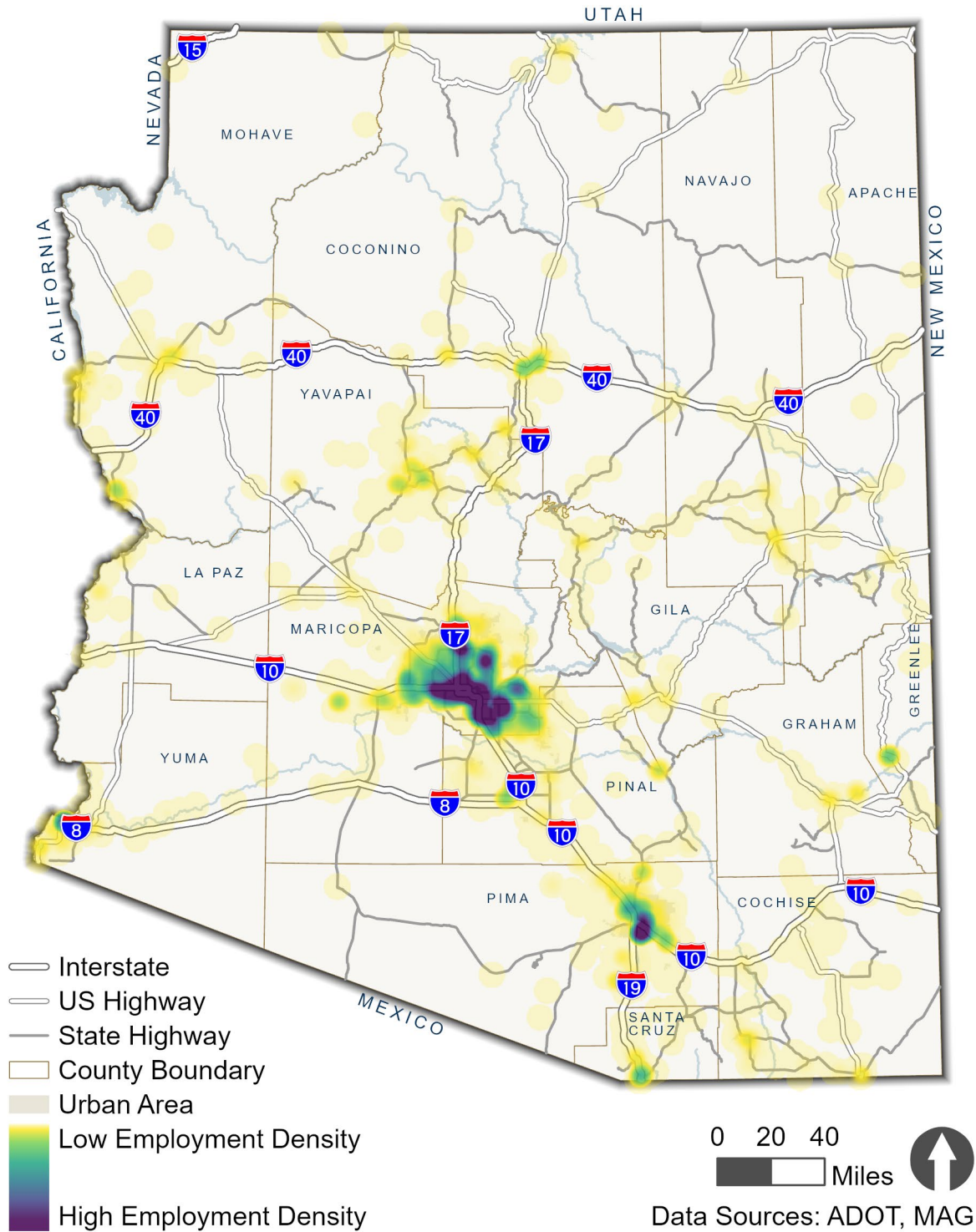
2.5.7 Freight Clusters, Facilities, & Impacts

Freight-dependent businesses tend to cluster near the highways, railroads, airports, and pipelines that serve them. An efficient relationship between these freight-intensive land uses and the transportation network underpins Arizona's economic competitiveness. To identify where this activity concentrates, ADOT mapped freight-relevant employment using the 2023 Arizona Councils of Governments (COG)/MPO Employer Database. Employing this data, manufacturing and warehouse and distribution lead employment in the freight-relevant industries at 231,000 and 197,000 jobs respectively, statewide.¹

Figure 14 shows that freight employment is concentrated in Phoenix and Tucson, with smaller clusters in Yuma, Nogales, Flagstaff, and other isolated pockets serving smaller communities. The densest activity is in west Phoenix and Tolleson bounded by I-10, the Salt River, I-17, and Buckeye, where businesses rely on I-10 and the UPRR Phoenix subdivision to reach the national network. More than 20 intermodal and transload terminals in this area link truck, rail, air, and pipeline movements. E-commerce growth has reinforced this concentration, adding truck traffic and increasing demand for truck parking and intermodal service along I-10, I-17, and at the Phoenix-area air cargo gateways.

¹ Due to methodology differences between S&P and MAG, there are some differences in employment values.

Figure 14: High Density Warehouse, Distribution, and Industrial Employment Centers, 2025



The map also shows how closely freight employment tracks the State's primary freight highway and rail routes. Most major clusters fall along I-8, I-10, I-17, I-19, and I-40, while communities farther from that spine such as Prescott, Sierra Vista, Safford, and Lake Havasu City depend on rural highways for freight access. Many of these same routes are congested, particularly in metro Phoenix and Tucson, so trucks reaching key employment areas can experience poor travel time reliability and recurring bottlenecks.

Behind this geography are several of Arizona's most strategically important industries which each place distinct demands on the network. Energy production depends on reliable truck access to facilities such as the Palo Verde Nuclear Generating Station and the state's gas-fired plants. Battery, electric vehicle, and energy-storage manufacturers in Casa Grande and Queen Creek rely on frequent input deliveries, which are often heavy, oversized, or hazardous, as do copper mining operations connecting Morenci, Bagdad, Ray, and Mission to smelters and interstate routes. Semiconductor and aerospace clusters in Chandler, north Phoenix, and Tucson depend on coordinated truck and air cargo service and designated hazardous materials routes. In northern and eastern Arizona, forestry and logging operations move goods, equipment, and crews over routes such as SR 87 and SR 260, which also serve wildfire response.

CHAPTER 3

FREIGHT TRANSPORTATION FORECASTS



3.1 Introduction

Arizona is among the fastest-growing states in the United States, and this growth is influencing its freight system. Populations in Phoenix and Tucson continue to grow. Investment continues into semiconductor manufacturing, aerospace, and logistics. Arizona is positioned along the high-traffic Interstate 8 (I-8), I-10, and I-40 corridors. Each of these factors is driving freight demand up. Analyzing the forecasted freight in Arizona across all modes provides a comprehensive view of Arizona's role in regional and national freight networks and highlights expected shifts in commodity flows over time. It provides a foundation for assessing future freight growth, capacity needs, and transportation planning and investment decisions.

3.2 Freight Demand & Commodity Group Overview

In 2023, Arizona's multimodal transportation network carried 459 million short tons of freight valued at \$1.24 trillion. By 2050, if economic and population growth remain consistent, freight by weight will grow to 633 million short tons with a total value of \$2.02 trillion, which is a compound annual growth rate (CAGR) of 1.2% for freight tonnage and 1.8% for freight value. The higher growth rate in freight value reflects the rising share of high-value consumer and manufactured goods within Arizona's total freight mix.

Table 7 shows trucks are Arizona's primary freight mode, moving 337 million short tons in 2023 (73.5% of total tonnage) and \$666 billion in value (53.6% of total). Truck freight flows are expected to grow to nearly 460 million short tons valued at \$1.06 trillion by 2050. Rail accounted for 26% of total tonnage and 45% of total value in 2023, growing to 172 million short tons valued at \$926 billion by 2050. Air freight accounted for less than 0.1% of total tonnage in 2023 but is projected to more than double in both volume and value by 2050, from 364 thousand short tons to 779 thousand short tons and from \$12 billion to \$30 billion. Air freight growth reflects more high-value, time-sensitive shipments in Arizona.

Table 7: Freight Flows by Mode, 2023 and 2050

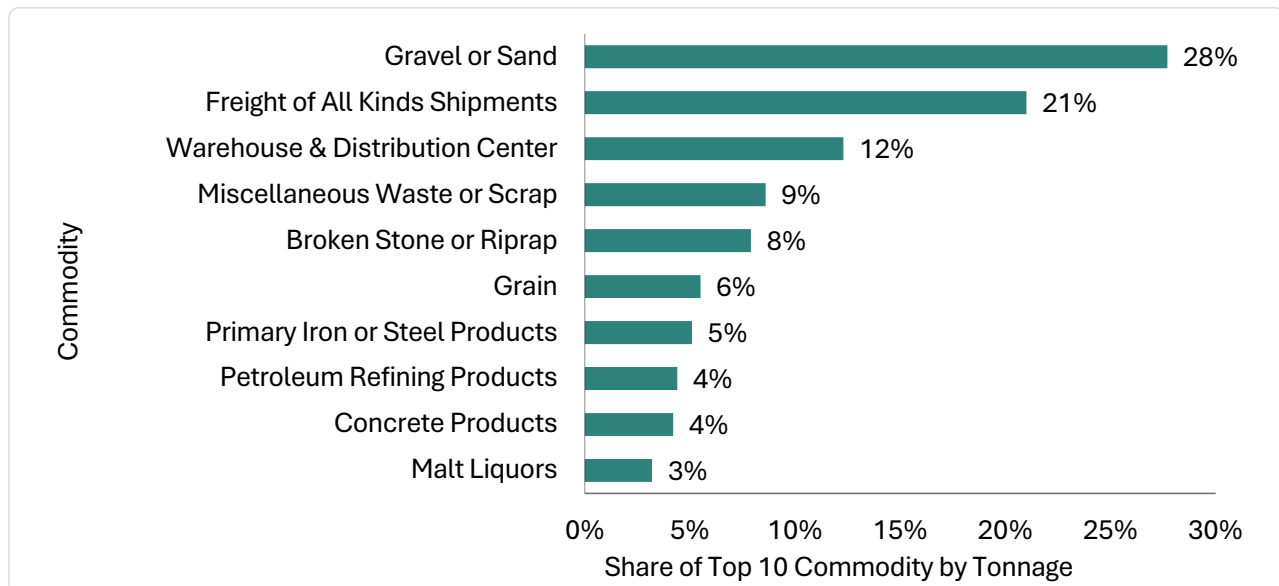
Mode	2023 Tons (000's)	2050 Tons (000's)	2023 Share of Total Tons	Tonnage CAGR 2023-2050	2023 Value (millions \$)	2050 Value (millions \$)	2050 Share of Total Value	Value CAGR 2023-2050
Air	362	776	0.1%	2.9%	11,943	29,667	1.0%	3.4%
Rail	121,321	172,175	26.4%	1.3%	563,323	926,050	45.4%	1.9%
Truck	337,406	459,812	73.5%	1.2%	665,680	1,060,608	53.6%	1.7%
Total	459,089	632,763	100%	1.2%	1,240,946	2,016,325	100%	1.8%

Source: Transearch® and Waybill, 2023 and 2050

Arizona's freight network is expected to remain dominated by truck and rail, with stable shares of 73% and 27% of total tonnage, while air continues to serve a specialized but fast-growing share of high-value, time-sensitive goods.

Figure 15 shows Arizona's top 10 freight commodities by weight for 2023 across all modes. Gravel or Sand, Freight of All Kinds (FAK) Shipments, and Warehouse and Distribution Center goods dominate, accounting for 58% of all commodities in the state and reflecting the importance of the construction, logistics, and development industries. Other key commodity categories include Petroleum Products, Broken Stone, Miscellaneous Waste, Grain, Concrete, and Asphalt.

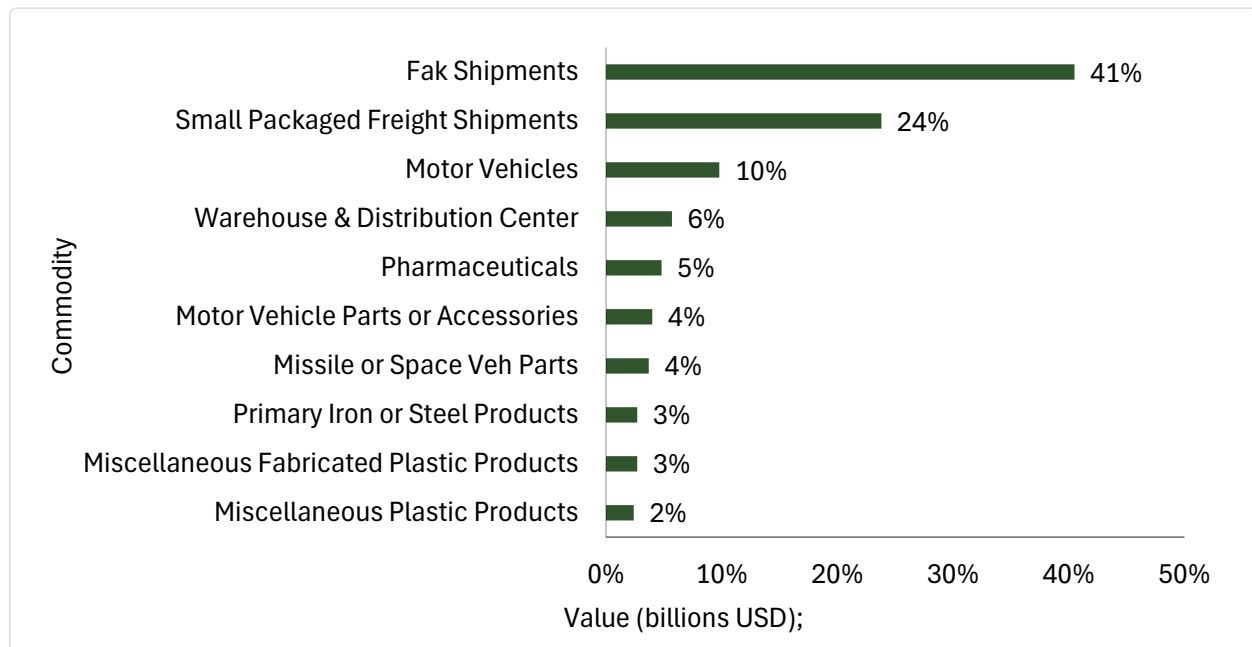
Figure 15: Top 10 Commodities by Tonnage in Arizona, 2023



Source: Transearch® and Waybill, 2023

Figure 16 shows Arizona’s top 10 freight commodities by value for 2023. FAK Shipments (41%) and Small Packaged Freight Shipments (24%) account for the largest shares, reflecting the roles of consolidated freight and e-commerce in Arizona’s economy. Motor Vehicles and Warehouse and Distribution Center goods remain important freight commodities with a combined 18%, while Pharmaceuticals and Missile or Space Vehicle Parts highlight Arizona’s pharmaceutical and aerospace activity accounting for 9% of freight value in the State. Other key commodities in Arizona include Motor Vehicle Parts or Accessories, Petroleum Refining Products, Miscellaneous Plastic Products, and Primary Iron or Steel Products which support broader industrial and energy-related supply chains.

Figure 16: Top 10 Commodities by Value in Arizona, 2023



Source: Transearch® and Waybill, 2023

3.3 Arizona Truck Freight Forecasts

Table 8 shows projected Arizona truck freight inbound and outbound flows by tonnage and value for 2023 and 2050. Total truck freight movements are expected to grow steadily over this forecast period, increasing from 337 million short tons valued at \$666 billion in 2023 to nearly 460 million short tons valued at \$1.06 trillion in 2050. Notable characteristics of this growth include:

- Through movements account for the largest share of total tonnage and value, growing from 148 million short tons (\$422 billion) in 2023 to 214 million (\$690 billion) in 2050.
- Local shipments remain the second-largest category by tonnage, increasing from 122 million short tons (\$82 billion) in 2023 to 153 million (\$105 billion) in 2050.
- Inbound freight grows from 44 million short tons (\$121 billion) in 2023 to 62 million short tons (\$196 billion) in 2050, while outbound shipments grow modestly from 24 million short tons (\$41 billion) in 2023 to 31 million (\$71 billion) in 2050.

Overall, the truck freight forecast data indicates moderate tonnage growth and substantial value gains across all movement types, reflecting both higher volumes and an increasing share of higher-value commodities over time.

Table 8: Arizona Truck Freight Flows 2023 and 2050

Direction	2023 Tons (000's)	2023 Value (millions \$)	2050 Tons (000's)	2050 Value (millions \$)	Ton CAGR	Value CAGR
Inbound	43,963	120,687	61,792	195,555	1.3%	1.8%
Local	121,938	82,340	153,055	104,701	0.8%	0.9%
Outbound	23,752	40,629	31,016	70,737	1.0%	2.1%
Through	147,754	422,024	213,948	689,614	1.4%	1.8%
Total	337,406	665,680	459,812	1,060,608	1.2%	1.7%

Source: Transearch®, 2023 and 2050

3.3.1 Through Truck Freight Traffic

Through traffic is the largest component of Arizona's truck freight; it will grow from 148 million short tons in 2023 to 214 million by 2050. This equates to 46% of all truck freight tonnage and 65% of truck freight value in Arizona, amounting to a value of \$690 billion by 2050. **Figure 17** shows that by 2050, most through truck traffic will originate in a combination of states that includes Texas, Utah, Louisiana, Mexico, Georgia, Alabama, Florida, and Illinois. Arizona's through freight is primarily destined for California. This high through truck freight volume is shaped by Arizona's geography and key infrastructure, with I-10 and I-40 serving as the main long-haul corridors linking Southern California to Texas, the Southeast, and the Midwest. I-10 carries some of the heaviest truck traffic in the western United States and acts as the primary overland route between the Los Angeles Basin and markets east of Arizona.

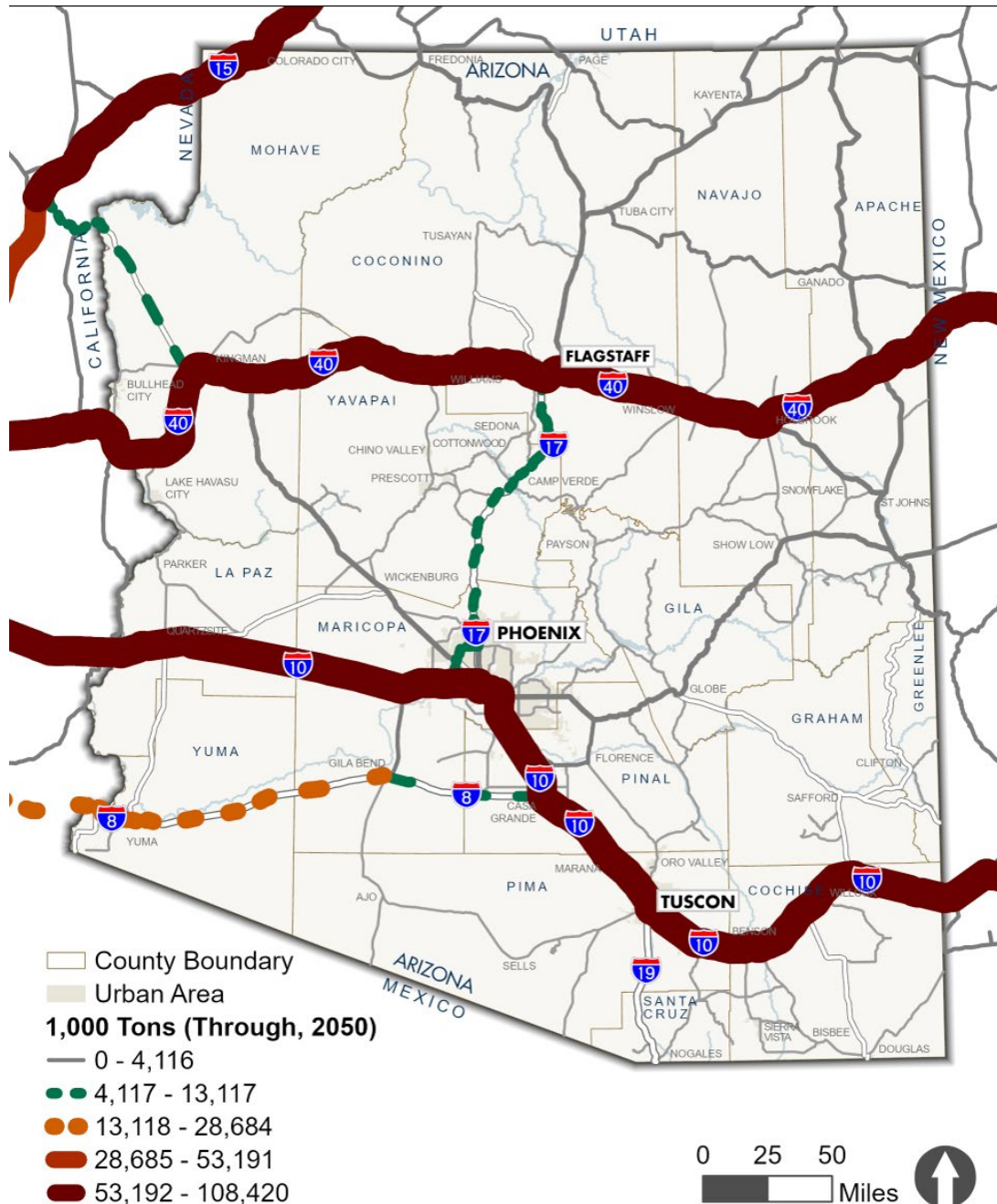
Figure 17: Arizona Through Truck Freight Traffic Flows, 2050



Source: Transearch®, 2050

Figure 18 shows a state level view of these flows. The scale of through movements projected through 2050 shows the continued importance of these corridors and the absence of viable alternative routes for long-haul freight in this part of the country.

Figure 18: Arizona Through Truck Freight Traffic Flows, State Level View, 2050



Source: Transearch®, 2050

Table 9 shows the largest through-truck flows by origin, destination, and commodity in 2023. The largest flows are primarily from Texas to California and include Concrete Products, Miscellaneous Coal or Petroleum Products, Primary Iron or Steel Products, Gravel or Sand, Portland Cement, and Asphalt Paving Blocks or Mix. Concrete Products moving by truck between Texas and California and Florida and California represent the largest share of total tonnage at 2.8%. Other notable flows include Nevada to Texas for Processed Nonmetal Minerals and Utah to California for Chemical or Fertilizer Minerals. The tonnage share of each through truck flow by commodity represents 2% or less of all through truck movements in the State.

In 2023, the top 10 commodity flows are about 10% (15 million short tons) of total through-truck tonnage, with the remainder coming from a range of other commodities and accounting for 133 million short tons. This data shows Arizona’s through truck traffic is diverse but heavily focused on construction materials, industrial products, and energy-related shipments.

Table 9: Largest Through Truck Flows by Origin, Destination and Commodity (by Weight), 2023

Origin State	Destination State	Commodity	Thousand Tons
Texas	California	Concrete Products	2,411
Texas	California	Miscellaneous Coal or Petroleum Products	2,365
Nevada	Texas	Nonmetal Minerals, Processed	1,861
Florida	California	Concrete Products	1,702
Texas	California	Primary Iron or Steel Products	1,502
Texas	California	Gravel or Sand	1,031
Utah	California	Chemical or Fertilizer Minerals Crude	981
Texas	California	Portland Cement	916
Alabama	California	Primary Iron or Steel Products	915
Texas	California	Asphalt Paving Blocks or Mix	890
All Others			133,180
Top 10’s share of total			9.9%

Source: Transearch®, 2023 - Ordered by Tonnage 2023

Table 10 shows that by 2050 the largest through-truck flows will continue to be dominated by construction and industrial materials shipped from southern and interior states to California. The largest volumes in 2050 include Concrete Products, Primary Iron or Steel Products, and Miscellaneous Coal or Petroleum Products originating from Texas. By 2050, Concrete Products moving between Texas and California and Florida and California will account for 2.2% of total tonnage, compared to 2.8% in 2023. Other major shipments will include Processed Nonmetal Minerals from Nevada to Texas, Crude Chemical or Fertilizer Minerals from Utah to California, and Portland Cement from Texas to California. By 2050, two new commodities are anticipated to become part of the top 10 based on total tonnage, Miscellaneous Industrial Inorganic Chemicals and Tropical Fruits, each representing 0.8% and 0.7% of the total tonnage.

In 2050, the top 10 through truck flows will move about 20.3 million short tons, while all other commodities will account for about 193.7 million short tons. These results indicate that by 2050, through movements across Arizona will remain dominated by heavy construction and industrial goods supporting California's infrastructure and manufacturing demand.

Table 10: Largest Through Truck Flows by Origin, Destination and Commodity (by Weight), 2050

Origin State	Destination State	Commodity	Thousand Tons
Texas	California	Concrete Products	2,951
Texas	California	Primary Iron or Steel Products	2,852
Texas	California	Miscellaneous Coal or Petroleum Products	2,587
Florida	California	Concrete Products	1,808
Texas	California	Portland Cement	1,801
Alabama	California	Primary Iron or Steel Products	1,771
Nevada	Texas	Nonmetal Minerals, Processed	1,743
Utah	California	Chemical or Fertilizer Minerals Crude	1,645
Texas	California	Miscellaneous Indus Inorganic Chemicals	1,635
Mexico	California	Tropical Fruits	1,498
All Others			193,656
Top 10's share of total			9.5%

Source: Transearch®, 2050 - Ordered by Tonnage 2050

Table 11 shows the largest through-truck flows by value in 2023. The highest flow values include Motor Vehicles from Texas to California (0.9% of total through-truck value), Pharmaceuticals from California to Texas (0.8%), Miscellaneous Plastic Products (0.7%) and Primary Iron or Steel Products from Texas to California (0.6%), Cigarettes from North Carolina to California (0.6%), Miscellaneous Office Machines from Mexico to California (0.6%), Aircraft Parts from Kansas to California (0.5%), Motor Vehicle Parts from Alabama to California (0.4%), Primary Iron or Steel Products from Alabama to California (0.4%), and Miscellaneous Fresh Vegetables from California to Texas (0.3%). These 2023 top 10 flow values account for about 5.9% of total through-truck value or \$25 billion, with the remaining flow value coming from a variety of other commodities and origin-destination pairs.

Table 11: Largest Through Truck Flows by Origin, Destination and Commodity (by Value), 2023

Origin State	Destination State	Commodity	Million USD
Texas	California	Motor Vehicles	3,804
California	Texas	Pharmaceuticals	3,531
Texas	California	Miscellaneous Plastic Products	3,019
Texas	California	Primary Iron or Steel Products	2,709
North Carolina	California	Cigarettes	2,655
Mexico	California	Miscellaneous Office Machines	2,436
Kansas	California	Aircraft Propellers or Parts	2,296
Alabama	California	Motor Vehicle Parts or Accessories	1,627
Alabama	California	Primary Iron or Steel Products	1,505
California	Texas	Miscellaneous Fresh Vegetables	1,397
All Others			397,044
Top 10's share of total			5.9%

Source: Transearch®, 2023 - Ordered by Value 2023

Table 12 shows the largest through-truck flows by value in 2050. It shows technology and manufactured goods are forecasted to dominate through movements in 2050 by value, reflecting continued growth in cross-border and interstate trade. For example, at 2.9% of total through-truck value, the biggest flow will be Miscellaneous Office Machines going from Mexico to California, compared to 0.6% in 2023. This points to a connection between U.S. and Mexican supply chains, especially in electronics and assembly sectors. Other major truck flows include Motor Vehicles (0.9%) and Primary Iron or Steel Products from Texas to California (0.8%), as well as Pharmaceuticals from California to Texas (0.8%) and Aircraft Parts from Kansas to California (0.6%), highlighting diverse industrial and consumer demand patterns.

In 2050, the top 10 through flows will total about 8.2% of total through-truck value or \$57 billion, while all other commodities will account for roughly \$633 billion. Compared to 2023, this shift shows an increase in high-value technology and automotive trade, underscoring the growing importance of international and interstate connections supporting California’s economy.

Table 12: Largest Through Truck Flows by Origin, Destination and Commodity (by Value), 2050

Origin State	Destination State	Commodity	Million USD
Mexico	California	Miscellaneous Office Machines	19,755
Texas	California	Motor Vehicles	6,476
California	Texas	Pharmaceuticals	5,347
Texas	California	Primary Iron or Steel Products	5,319
Texas	California	Miscellaneous Plastic Products	4,472
Kansas	California	Aircraft Propellers or Parts	4,162
Mexico	California	Tropical Fruits	3,355
Alabama	California	Primary Iron or Steel Products	2,935
Alabama	California	Motor Vehicle Parts or Accessories	2,407
Iowa	California	Meat, Fresh Frozen	2,359
All Others			633,027
Top 10’s share of total			8.2%

Source: Transearch® - Ordered by value 2050

3.3.2 Outbound Truck Freight Flows

Outbound truck traffic from Arizona is projected to grow steadily through 2050, reaching a higher tonnage while maintaining a similar share of total statewide truck activity. Overall, total outbound shipments will grow from 23.7 million short tons in 2023 to 31 million in 2050 and total value will grow from \$40.6 billion to \$70.7 billion. The larger growth in value than tonnage indicates a significant shift toward higher value commodities within Arizona's outbound freight mix.

Figure 19 shows most of Arizona's outbound truck freight in 2050 is concentrated among a handful of key destinations. California remains by far the largest market for outbound shipments, followed by Mexico, Nevada, Texas, and New Mexico. Other important destinations include Utah, Washington, Colorado, Florida, and Oregon. Together, these top 10 destinations account for the vast majority of Arizona's outbound tonnage and value. This highlights Arizona's freight ties with nearby western states and major trade partners.

Figure 19: Arizona Outbound US Truck Traffic Flows, 2050



Source: Transearch®, 2050

Table 13 shows a few key destinations dominating Arizona’s outbound truck freight in 2023 and 2050. California leads with 13.6 million short tons in 2023, growing to 17.6 million in 2050, while the value of California shipments is forecasted to grow from \$17.5 billion to \$30.1 billion. This reflects moderate tonnage growth *and* increased value growth.

Flows to Mexico are forecasted to be second in value and tonnage by 2050. Flows are estimated to grow from 1.3 million short tons to 2.4 million and more than double in value from \$5 billion to \$11.5 billion. This reinforces the importance of the U.S.-Mexican supply chains. I-8 to the south of Arizona is a high-traffic freight corridor linking the Yuma agricultural region to Southern California markets. Other large flow destinations include Texas, Nevada, Utah, and Washington; each shows steady growth in both tonnage and value. The top 10 destinations account for 87.2% of total tonnage and 75.7% of total value in 2023, increasing to 88.1% of tonnage and 78.0% of value in 2050. Arizona’s outbound freight is heavily concentrated in these key markets.

Table 13: Outbound Truck Traffic by Destination, 2023 and 2050

Direction	2023 Tons (000’s)	2023 Value (millions \$)	2050 Tons (000’s)	2050 Value (millions \$)	Ton CAGR	Value CAGR
California	13,625	17,522	17,637	30,091	1.0%	2.0%
Mexico	1,337	5,018	2,359	11,548	2.1%	3.1%
Nevada	1,550	1,763	2,012	2,847	1.0%	1.8%
Texas	1,115	1,999	1,490	3,448	1.1%	2.0%
New Mexico	867	711	908	1,020	0.2%	1.3%
Utah	643	822	859	1,361	1.1%	1.9%
Washington	556	1,123	720	1,868	1.0%	1.9%
Colorado	507	812	692	1,307	1.2%	1.8%
Florida	277	645	340	1,027	0.8%	1.7%
Oregon	230	347	310	647	1.1%	2.3%
All Others	3,044	9,866	3,688	15,572	0.7%	1.7%
Top 10’s Share of Total	87.2%	75.7%	88.1%	78.0%		
Total	23,752	40,629	31,016	70,737	1.0%	2.1%

Source: Transearch®, 2023 and 2050 - Ordered by Tonnage 2050

3.3.3 Inbound Truck Freight Flows

Inbound truck traffic to Arizona is expected to increase steadily through 2050 with total inbound tonnage increasing by about 41% and shipment value rising by more than 62%. **Figure 20** shows that the origins of inbound truck traffic in 2050 will be concentrated among a core group of states. California is by far the largest source of inbound freight, followed by Texas, Mexico, and New Mexico. Other important origins for Arizona's inbound truck freight include Nevada, Utah, Colorado, Washington, Louisiana, and Georgia. Together, these top 10 origin states reflect Arizona's freight connections to neighboring western states, major coastal gateways, and key domestic and international trade routes.

California's role as the largest source of inbound truck freight reflects Arizona's location downstream of the Southern California port complex. A significant portion of this freight moves east to Arizona for distribution facilities via truck or intermodal transfer. Growth in warehouse and distribution facilities along the Loop 303 and I-10 corridors in Glendale, Goodyear, and Buckeye has increased Arizona's capacity to receive and process this freight. The high truck volumes are expected to continue supporting growth of inbound warehouses and distribution centers through 2050. Mexico shows the largest projected inbound truck freight growth, with inbound value increasing at a CAGR of 3.1% and tonnage more than doubling to over 4.8 million short tons by 2050. This reflects continued expansion in cross-border trade, manufacturing integration, and logistics ties between Arizona and Northern Mexico. The Nogales Port of Entry, one of the busiest land ports on the U.S.-Mexico border, serves as a key gateway. Trucks entering at Nogales move north on I-19 before connecting to I-10, making southern Arizona an important link in U.S.-Mexico supply chains.

Figure 20: Arizona Inbound US Truck Traffic Flows, 2050



Source: Transearch®, 2050

Table 14 shows inbound truck flows to Arizona are projected to increase from 44.0 million short tons, valued at \$120.7 billion in 2023, to 61.8 million short tons, valued at \$195.6 billion in 2050. The top 10 origin states account for 78.0% of total inbound short tons and 71.9% of total inbound value in 2023, with their shares expected to rise slightly to 80.1% of short tons and 73.0% of value by 2050. This indicates that inbound activity will remain dominated by a core set of trading partners, even as total volumes grow.

Table 14: Inbound Truck Traffic by Origin, 2023 and 2050

Origin	2023 Tons (000's)	2023 Value (millions \$)	2050 Tons(000's)	2050 Value (millions \$)	Ton CAGR	Value CAGR
California	19,264	56,503	28,003	90,828	1.4%	1.8%
Texas	4,141	10,074	5,875	15,669	1.3%	1.6%
Mexico	2,344	8,198	4,829	18,915	2.7%	3.1%
New Mexico	3,562	2,210	3,925	2,417	0.4%	0.3%
Nevada	1,375	1,218	1,755	1,499	0.9%	0.8%
Utah	857	1,684	1,347	2,692	1.7%	1.8%
Colorado	850	1,558	1,259	2,195	1.5%	1.3%
Washington	753	2,379	995	3,525	1.0%	1.5%
Louisiana	651	1,397	782	2,031	0.7%	1.4%
Georgia	479	1,612	702	2,992	1.4%	2.3%
All Others	9,687	33,854	12,320	52,793	0.9%	1.7%
Top 10's Share of Total	78.0%	71.9%	80.1%	73.0%		
Total	43,963	120,687	61,792	195,555	1.3%	1.8%

Source: Transearch®, 2023 and 2050 - Ordered by Tonnage 2050

3.4 Arizona Rail Freight Forecasts

Table 15 shows that in 2023, nearly 121 million short tons of freight moved by rail in Arizona, valued at approximately \$563 billion. Through movements accounted for most of this freight rail activity at over 91 million short tons and about 92% of total cargo value at \$518 billion. Inbound shipments made up the next largest share of tonnage, 22 million short tons, while outbound and local movements represented smaller portions of overall rail flows at 5 million short tons and 2 million short tons, respectively.

By 2050, total rail tonnage is projected to increase to more than 172 million short tons, reflecting average annual growth of about 1.3%. Through rail movements are expected to grow steadily at an average annual rate of about 1.6% in terms of tonnage and remain the dominant component of rail movements. Outbound traffic is forecasted to expand at a rate of 1.2%, slightly below total tonnage growth, while local traffic shows the slowest growth at a rate of 0.5%. Inbound tonnage, however, is projected to decline slightly by 2050 at an average annual rate of -0.3%.

In value terms, total rail movements are expected to grow at an average annual rate of 1.9%, outpacing tonnage growth. Through traffic will continue to account for the overwhelming majority of total rail freight value, accounting for 92% of total cargo value at \$851 billion. Outbound shipments are projected to post the largest gains in value at a rate of 2.4% per year, totaling \$28 billion by 2050. Local shipments are also projected to post a greater gain in value at a rate of 1.8%.

Table 15: Arizona Rail Flows, 2023 and 2050

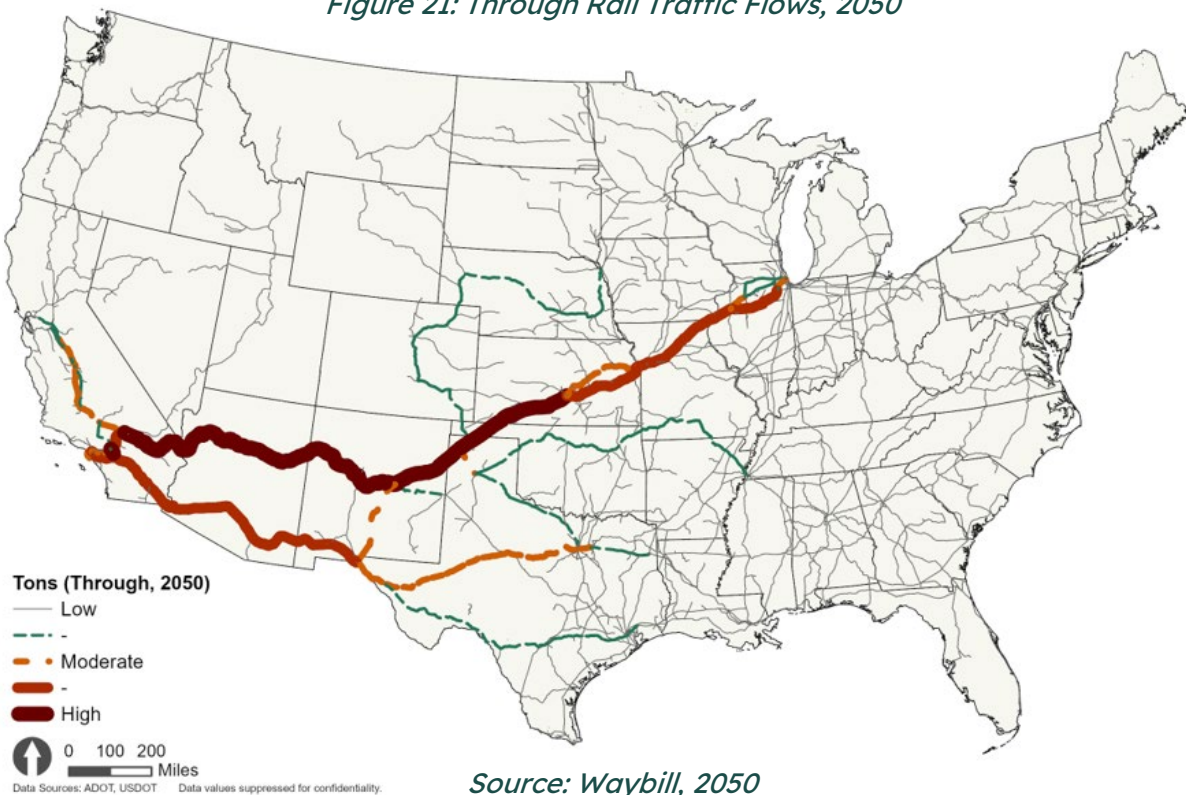
Direction	2023 Tons (000's)	2023 Value (millions \$)	2050 Tons (000's)	2050 Value (millions \$)	Ton CAGR	Value CAGR
Inbound	22,362	29,240	20,567	44,358	-0.3%	1.6%
Local	2,079	1,315	2,391	2,105	0.5%	1.8%
Outbound	5,235	15,152	7,289	28,408	1.2%	2.4%
Through	91,645	517,616	141,927	851,179	1.6%	1.9%
Total	121,321	563,323	172,175	926,050	1.3%	1.9%

Source: Waybill, 2023 and 2050

3.4.1 Through Rail Freight Flows

Through rail traffic accounts for the largest share of Arizona's rail freight flows. **Figure 21** shows that the largest volumes of rail freight traffic are linked to California, Illinois, and Texas. Arizona serves as a key through state for transcontinental rail traffic, linking the West Coast with the Midwest, South, and East. This role is supported by two of the highest-volume mainline rail corridors in North America. The BNSF Transcon runs along a northern alignment parallel to I-40, handling substantial intermodal and merchandise traffic between Southern California and Chicago. Then, the UPRR Sunset Route crosses southern Arizona parallel to I-10, connecting Los Angeles to New Orleans and serving as a key transcontinental link for intermodal and automotive traffic. Much of this freight moves in intermodal containers, classified as Freight of all kinds (FAK), including consumer goods, automotive products, e-commerce shipments, and manufactured items. Arizona's location enables efficient overland movement of goods, supporting national supply chains and acting as a land bridge for high-volume rail traffic. The projected through-rail volumes through 2050 underscore the continued importance of these corridors and their capacity.

Figure 21: Through Rail Traffic Flows, 2050



Source: Waybill, 2050

The cargo moving on rail through Arizona is dominated by FAK shipments, mainly along routes from California to Illinois, Texas, Tennessee, and Kansas. There are also flows of Grain and Miscellaneous Industrial Organic Chemicals from Illinois and Nebraska to California. **Table 16** shows the top 10 origin-destination pairs, which account for about 38% of total through rail tonnage. The remaining 62% is spread across many other routes. The largest single flow is California to Illinois at 17.3 million short tons, nearly double the reverse FAK flow from Illinois to California. The California-Illinois origin-destination (OD) state pair accounts for 21% of all through rail movements. Other prominent flows account for an additional 11% and include California-Texas, Texas-California, and California-Tennessee, reflecting the importance of West-to-East and Southern corridors for interregional freight movement.

Table 16: Through Rail Flows by Origin, Destination and Commodity (by Weight), 2050

Origin State	Destination State	Commodity	Thousand Tons
California	Illinois	FAK Shipments	17,302
Illinois	California	FAK Shipments	9,762
California	Texas	FAK Shipments	8,995
Texas	California	FAK Shipments	3,824
California	Tennessee	FAK Shipments	3,340
Illinois	California	Grain	2,817
Nebraska	California	Miscellaneous Industrial Organic Chemicals	2,370
California	Kansas	FAK Shipments	2,203
Nebraska	California	Grain	1,829
Kansas	California	FAK Shipments	1,713
All others			87,786
Top 10's Share of Total			38.2%

Source: Waybill, 2050 - Ordered by Tonnage 2050

Table 17 shows the top 10 origin-destination pairs in terms of rail freight value through Arizona. The top 10 account for about 57% of the total. This concentration reflects the significant role a handful of high-volume corridors play in the State's freight network. The largest value flows are dominated by shipments from California to Illinois, including \$118 billion in FAK shipments and \$104 billion in Small Packaged Freight Shipments, accounting for 26% of the total value. Other high-value flows include Illinois to California, California to Texas, and Texas to California, representing 18% of the total value and underscoring the importance of transcontinental trade lanes that route through Arizona. Additional notable movements in the top 10 include California-Tennessee, California-Kansas, and California-Ohio, reflecting both FAK and Small Packaged Freight Shipments. These top-value corridors highlight the concentration of high-value interregional freight moving through Arizona, with California serving as a major origin and destination hub.

Table 17: Through Rail Flows by Origin, Destination and Commodity (by Value), 2050

Origin State	Destination State	Commodity	Million USD
California	Illinois	FAK Shipments	117,981
California	Illinois	Small Packaged Freight Shipments	103,574
Illinois	California	FAK Shipments	66,569
California	Texas	FAK Shipments	61,336
Illinois	California	Small Packaged Freight Shipments	38,231
Texas	California	FAK Shipments	26,073
California	Tennessee	FAK Shipments	22,773
California	Kansas	Small Packaged Freight Shipments	16,336
California	Kansas	FAK Shipments	15,024
California	Ohio	Small Packaged Freight Shipments	12,952
All others			370,324
Top 10's Share of Total			56.5%

Source: Waybill, 2050 - Ordered by Value 2050

3.4.2 Outbound Rail Freight Flows

Outbound rail is a small share of Arizona's overall rail freight activity; much of Arizona's outgoing rail freight, however, is high-value or containerized, supporting manufacturing, automotive, and consumer-goods movements. Outbound rail is concentrated along a limited set of corridors serving West Coast ports, Texas, and the Midwest. **Figure 22** shows outbound shipments move primarily west to California, east through New Mexico to El Paso and the rest of Texas, or northeast through the Midwest to Chicago, Illinois. Mexico is also a destination for outbound Arizona rail freight. All rail traffic to Mexico crosses at Nogales Land Port of Entry, where the Dennis DeConcini crossing has Arizona's only rail connection to Mexico. Overall, outbound rail connects Arizona's manufacturing and distribution activity to regional, national, and international markets.

Figure 22: Outbound Rail Traffic Flows, 2050



Source: Waybill, 2050

Table 18 shows outbound rail traffic is projected to grow from about 5.2 million short tons in 2023 to 7.3 million short tons by 2050, an average annual increase of 1.2%. In terms of value, outbound rail shipments are expected to increase more rapidly, rising from \$15.2 billion to \$28.4 billion, an average annual growth of 2.4%. Illinois is both the largest and fastest-growing destination, with tonnage increasing at 2.2% annually and value rising at 2.9% to 2050. California and Texas also account for sizable outbound flows, though their tonnage growth is more modest at about 0.8% annually to 2050. However, Texas also exhibits value growth at 2.2% annually, suggesting high-value commodities moving along this corridor over time.

Other destinations such as Missouri and Washington display steady gains in both tonnage and value to 2050, while Arkansas shows high value growth at 2.8% despite smaller volumes. Overall, the top 10 destinations account for the majority of outbound rail shipments, highlighting the concentration of outbound freight to a small number of key markets.

Table 18: Outbound Rail Traffic by Destination, 2023 and 2050

Direction	2023 Tons (000's)	2023 Value (millions \$)	2050 Tons (000's)	2050 Value (millions \$)	Ton CAGR	Value CAGR
Illinois	1,277	8,834	2,306	19,058	2.2%	2.9%
California	1,491	1,874	1,851	2,402	0.8%	0.9%
Texas	1,068	1,550	1,313	2,766	0.8%	2.2%
New Mexico	353	80	409	93	0.5%	0.6%
Colorado	172	206	219	262	0.9%	0.9%
Oklahoma	114	35	145	53	0.9%	1.6%
Missouri	91	786	143	1,165	1.7%	1.5%
Washington	69	97	104	161	1.5%	1.9%
Kansas	70	587	98	884	1.2%	1.5%
Arkansas	52	33	71	69	1.1%	2.8%
All Others	475	1,069	630	1,497	1.1%	1.3%
Top 10's Share of Total	90.9%	92.9%	91.4%	94.7%		
Total	5,235	15,152	7,289	28,408	1.2%	2.4%

Source: Waybill, 2023 and 2050 - Ordered by Tonnage 2050

3.4.3 Inbound Rail Freight Flows

Figure 23 shows Arizona’s inbound rail traffic comes from a wide range of states and regions, with the largest volumes originating in Texas, Iowa, and Illinois. Other notable origins for inbound rail freight include Minnesota, California, Kansas, Louisiana, Nebraska, and British Columbia, highlighting the diverse sources for freight moving on Arizona’s rail network. Inbound rail continues to play a key role in linking Arizona to regional and national supply chains.

Figure 23: Inbound Rail Traffic Flows, 2050



Source: Waybill, 2050

Table 19 shows inbound rail traffic is projected to decline slightly in tonnage from 22.4 million short tons in 2023 to 20.6 million by 2050, reflecting an average annual decrease of 0.3%. This decline is largely due to the retirement of major coal-fired power plants in the region. The Navajo Generating Station near Page, Arizona, ceased commercial generation in November 2019, and the Four Corners Power Plant on Navajo Nation land in northwestern New Mexico is scheduled to close by 2031. Together with broader shifts toward natural gas and renewable energy, these closures are expected to eliminate most inbound coal rail demand in Arizona. Inbound freight value is expected to grow steadily from \$29.2 billion to \$44.4 billion, increasing at 1.6% annually, indicating a shift toward higher-value commodities and containerized goods.

Texas, Iowa, and Illinois are the largest inbound freight origins, accounting for 24% of total tonnage and 60% of total value in 2023, with steady gains in both tonnage and value forecasted. British Columbia shows the highest growth in inbound tonnage at 2.4% annually, which will double its share of total tonnage to 4% by 2050; however, its share of total value remains constant at around 1%. Louisiana and Nebraska also record moderate increases of 1.6% and 1.5%, respectively. In contrast, inbound flows from New Mexico — mostly coal — decline sharply in tonnage, contributing to the overall decrease in inbound volumes.

Overall, the top 10 origins account for the majority of inbound traffic, with growth patterns suggesting gradual shifts in sourcing toward key domestic and cross-border supply corridors.

Table 19: Inbound Rail Traffic by Origin, 2023 and 2050

Origin	2023 Tons (000's)	2023 Value (millions \$)	2050 Tons (000's)	2050 Value (millions \$)	Ton CAGR	Value CAGR
Texas	1,930	4,791	2,556	7,256	1.0%	1.5%
Iowa	1,800	881	2,547	1,289	1.3%	1.4%
Illinois	1,574	11,889	2,153	18,133	1.2%	1.6%
Minnesota	1,072	821	1,446	1,045	1.1%	0.9%
California	1,189	1,137	1,392	1,524	0.6%	1.1%
Kansas	963	2,036	1,312	3,228	1.2%	1.7%
New Mexico	3,414	163	1,178	134	-3.9%	-0.7%
Louisiana	653	573	1,009	1,090	1.6%	2.4%
Nebraska	635	379	956	578	1.5%	1.6%
British Columbia	408	216	769	385	2.4%	2.2%
All Others	8,724	6,356	5,249	9,695	-1.9%	1.6%
Top 10's Share of Total	61.0%	78.3%	75.5%	78.1%		
Total	22,362	29,240	20,567	44,358	-0.3%	1.6%

Source: Waybill, 2023 and 2050 - Ordered by Tonnage 2050

3.5 Arizona Air Freight Forecasts

Table 20 shows total air cargo movements in Arizona are expected to grow significantly over the forecast period from 362 thousand short tons (\$11.9 billion) in 2023 to 776 thousand short tons (\$29.7 billion) in 2050, with CAGRs of 2.9% for tonnage and 3.4% for value. This highlights the expanding role of air freight in Arizona’s logistics network, particularly for high-value and time-sensitive goods. Outbound air shipments are expected to grow more rapidly than inbound, highlighting Arizona’s expanding role as a producer and exporter of high-value goods. Air freight growth will be served by Phoenix Sky Harbor International Airport — the State’s primary air cargo facility — and to a smaller extent by Phoenix-Mesa Gateway and Tucson International Airport. Several Phoenix-area sites carry Foreign Trade Zone designations, which support air cargo activity by allowing duty deferral on imported components used in domestic production. Projected growth in semiconductor and aerospace exports is expected to place increasing demands on air cargo capacity at these facilities through 2050.

Table 20: Air Freight Flows by Direction, 2023 and 2050

Direction	2023 Tonnage (thousands)	2050 Tonnage (thousands)	CAGR Tonnage	2023 Value (millions)	2050 Value (millions)	CAGR Value
Outbound	174	467	3.7%	5,913	18,589	4.3%
Inbound	188	309	1.9%	6,030	11,078	2.3%
Total	362	776	2.9%	11,943	29,667	3.4%

Source: Transearch®, 2023 and 2050

3.5.1 Outbound Air Freight Flows

Table 21 shows the top outbound air cargo commodities by tonnage for Arizona in 2023 and 2050. Small Packaged Freight Shipments are by far the largest outbound commodity, growing from 54 thousand short tons in 2023 to 190 thousand in 2050, with a robust CAGR of 4.7%. This reflects the continued expansion of e-commerce, express delivery, high-value and time-sensitive shipments moving through Arizona’s air freight network. This trend emphasizes the importance of Arizona’s air freight infrastructure in supporting the State’s role as a regional and national logistics hub, particularly for sectors reliant on

rapid, reliable air transportation. Instrument, Photo Equipment, and Optical Equipment are projected to see fast growth among major commodities, increasing from 22 thousand short tons in 2023 to 72 thousand in 2050 (CAGR 4.5%). Electrical Equipment and Transportation Equipment also remain significant, with tonnage more than doubling by 2050. Other notable outbound commodities include FAK Shipments, Machinery, Miscellaneous Manufacturing Products, and Fabricated Metal Products all of which are expected to experience steady growth, reflecting the diverse manufacturing and logistics base in Arizona.

Table 21: Outbound Air Flows by Commodity (by Weight), 2023 and 2050

Commodity	2023 Tonnage (thousands)	2050 Tonnage (thousands)	CAGR
Small Packaged Freight Shipments	54	190	4.7%
Instrument, Photo Equipment, Optical Equipment	22	72	4.5%
Electrical Equipment	23	53	3.1%
Transportation Equipment	23	51	3.0%
FAK Shipments	7	20	4.2%
Machinery	6	13	2.8%
Miscellaneous Manufacturing Products	7	13	2.3%
Fabricated Metal Products	7	13	2.5%
Clay, Concrete, Glass or Stone	4	6	1.8%
Industrial Chemicals	3	6	3.0%
All Others	19	30	1.9%

Source: Transearch®, 2023 and 2050 - Ordered by Tonnage 2050

Table 22 shows the top outbound air cargo commodities by value for Arizona in 2023 and 2050. Overall, parallel to trends in tonnage, outbound air cargo value is increasingly concentrated in high-value, technology-intensive, and time-sensitive commodities. Small Packaged Freight Shipments dominate outbound air cargo value, increasing from \$3.6 billion in 2023 to \$12.6 billion in 2050, with a CAGR of 4.7%. This growth underscores the expanding role of e-commerce,

express logistics, and high-value, time-sensitive shipments in Arizona’s outbound air freight sector. Instrument, Photo Equipment, and Optical Equipment remain the second-largest commodity by value, growing from \$783 million in 2023 to \$2.6 billion in 2050 (CAGR 4.5%). Transportation Equipment and Electrical Equipment also maintain significant shares, with values more than doubling over the forecast period, reflecting the continued importance of advanced manufacturing and technology sectors in Arizona’s economy. The share of total value for the top four commodities accounts for around 90% of all outbound air flows for 2023, increasing to close to 93% in 2050. Other notable commodities include Fabricated Metal Products, Rubber or Miscellaneous Plastics, Machinery, FAK Shipments, and Pharmaceuticals, all of which are projected to experience steady value growth. Solid State Semiconductors are expected to see the fastest growth rate (CAGR 7.7%), which reflects the increasing significance of high-tech manufacturing and electronics exports. However, the share of total value for Solid State Semiconductors remains low at 0.8% in 2050, compared to 0.4% in 2023.

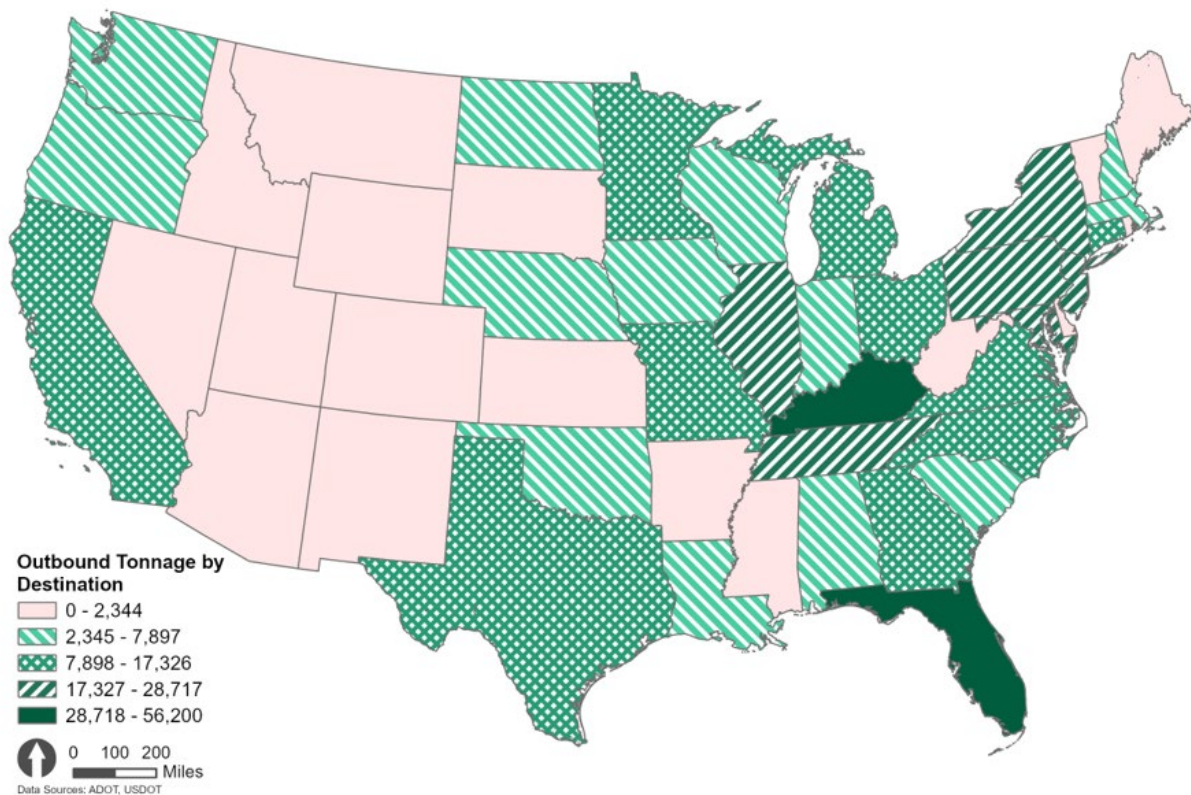
Table 22: Outbound Air Flows by Commodity (by Value), 2023 and 2050

Commodity	2023 Value (millions)	2050 Value (millions)	CAGR
Small Packaged Freight Shipments	3,626	12,634	4.7%
Instrument, Photo Equipment, Optical Equipment	783	2,569	4.5%
Transportation Equipment	494	1,107	3.0%
Electrical Equipment	397	895	3.1%
Fabricated Metal Products	208	406	2.5%
Rubber or Miscellaneous Plastics	81	203	3.5%
Machinery	90	189	2.8%
Solid State Semiconductor	21	156	7.7%
FAK Shipments	50	144	4.0%
Pharmaceuticals	25	44	2.1%
All Others	137	241	2.1%

Source: Transearch®, 2023 and 2050 - Ordered by Value 2050

Figure 24 shows that, by 2050, destinations for the highest volumes of outbound air shipments will include states such as Florida and Kentucky each exceeding 29 thousand short tons annually in 2050. Other important states for outbound flows include California, Texas, Illinois, and Pennsylvania, reflecting the presence of major logistics hubs and international gateways. Central and western states generally exhibit lower outbound air flows, while eastern states tend to have higher volumes, underscoring the influence of population centers and established freight infrastructure.

Figure 24: Destinations of Outbound Air Flows by State (by Weight), 2050



Source: Transearch®, 2050

3.5.2 Inbound Air Freight Flows

Table 23 shows the top inbound air cargo commodities by weight for Arizona for 2023 and 2050. Small Packaged Freight Shipments are projected to remain the largest inbound commodity category, increasing from 58 thousand short tons in 2023 to 108 thousand in 2050, a CAGR of 2.3%. This growth reflects the ongoing expansion of e-commerce, express logistics, and time-sensitive shipments entering Arizona via air. Machinery, Electrical Equipment, and Transportation Equipment continue to rank among the top inbound commodities, each experiencing steady growth with tonnage rising at a CAGR of 1.6%. Instrument, Photo Equipment, and Optical Equipment are expected to see the fastest growth among major commodities, increasing from 8 thousand short tons in 2023 to 18 thousand in 2050 (CAGR 3.1%), indicating a rising demand for advanced technology products. Other notable inbound commodity categories include FAK Shipments, Textile Mill Products, Miscellaneous Manufacturing Products, Pharmaceuticals, and Primary Metal Products, all of which are projected to experience moderate growth.

Table 23: Inbound Air Flows by Commodity (by Weight), 2023 and 2050

Commodity	2023 Tonnage (thousands)	2050 Tonnage (thousands)	CAGR
Small Packaged Freight Shipments	58	108	2.3%
Machinery	30	46	1.6%
Electrical Equipment	28	43	1.6%
Transportation Equipment	15	24	1.6%
Instrument, Photo Equipment, Optical Equipment	8	18	3.1%
FAK Shipments	6	11	2.4%
Textile Mill Products	7	10	1.6%
Pharmaceuticals	4	7	2.3%
Miscellaneous Manufacturing Products	5	7	1.2%
Primary Metal Products	4	5	1.4%
All Others	24	29	0.7%

Source: Transearch®, 2023 and 2050 - Ordered by Tonnage 2050

Table 24 shows the top inbound air cargo commodities by value for Arizona from 2023 and 2050. Small Packaged Freight Shipments dominate, growing from \$3.86 billion in 2023 to \$7.21 billion in 2050 (CAGR 2.3%). This pattern is consistent with continued growth in e-commerce, express logistics, and other time sensitive shipments. Electrical Equipment and Machinery rank second and third by value, increasing from \$474 million and \$420 million in 2023 to \$733 million and \$652 million in 2050, respectively (both 1.6% CAGR). Instrument, Photo Equipment, and Optical Equipment grows from \$283 million to \$649 million (CAGR 3.1%) and moves ahead of Transportation Equipment by 2050. Transportation Equipment grows from \$335 million to \$520 million (1.6% CAGR), remaining a major inbound category even as its relative position shifts slightly. Among the remaining commodities, Pharmaceuticals increase from \$136 million to \$252 million (2.3% CAGR), reflecting steady demand tied to medical and pharmaceutical supply chains. FAK Shipments also rise from \$53 million in 2023 to \$233 million in 2050 (CAGR 5.6%), suggesting increased use of consolidated or mixed air shipments as supply chains become more complex. Rubber or Miscellaneous Plastics shipments grow more slowly (0.8% CAGR), and Aircraft or Missile Engines post the *greatest* growth rate in the top 10, rising from \$18 million in 2023 to \$124 million in 2050 (CAGR 7.3%). Fabricated Metal Products show moderate gains consistent with incremental growth in manufacturing inputs.

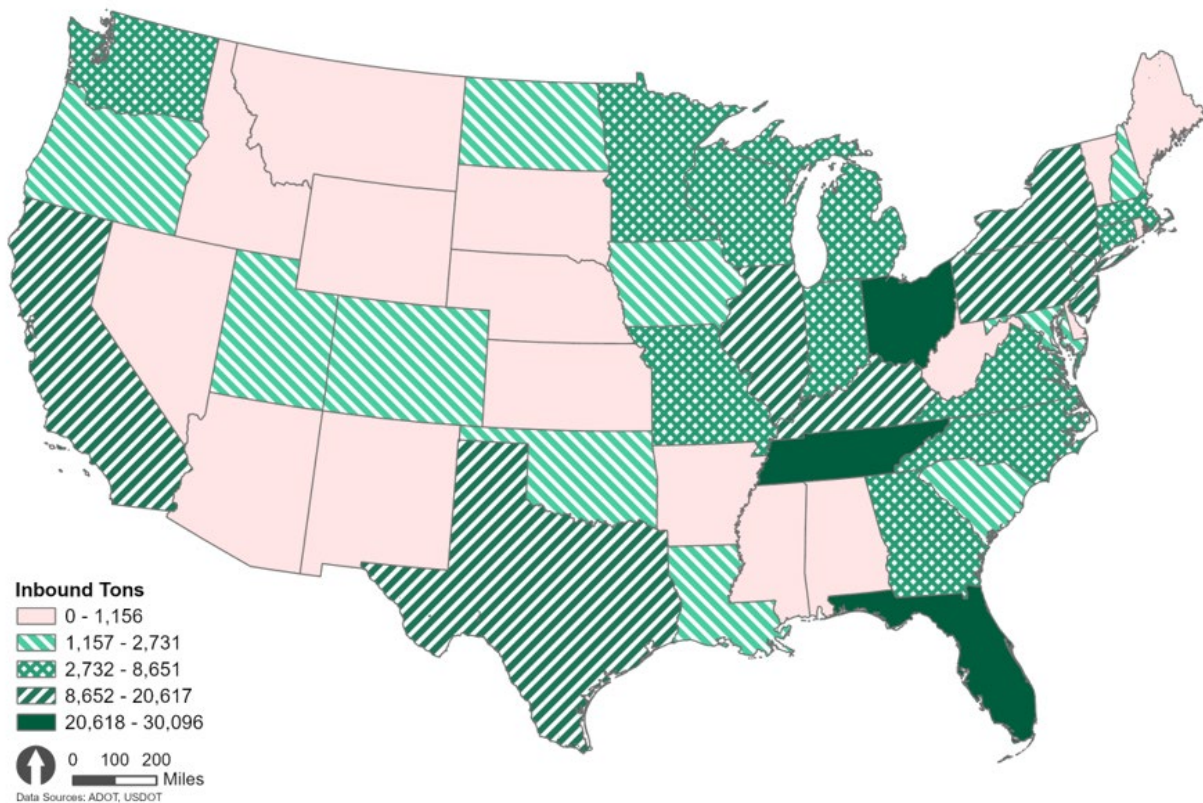
Table 24: Inbound Air Flows by Commodity (by Value), 2023 and 2050

Commodity	2023 Value (millions)	2050 Value (millions)	CAGR
Small Packaged Freight Shipments	3,860	7,213	2.3%
Electrical Equipment	474	733	1.6%
Machinery	420	652	1.6%
Instrument, Photo Equipment, Optical Equipment	283	649	3.1%
Transportation Equipment	335	520	1.6%
Pharmaceuticals	136	252	2.3%
FAK Shipments	53	233	5.6%
Rubber or Miscellaneous Plastics	106	132	0.8%
Aircraft or Missile Engines	18	124	7.3%
Fabricated Metal Products	78	120	1.6%
All Others	266	449	1.6%

Source: Transearch®, 2023 and 2050 - Ordered by Value 2050

Figure 25 shows the projected origins for the largest volumes of inbound air freight to Arizona in 2050. The largest inbound air flows will originate from states such as Florida, Ohio, and Tennessee. Other prominent sources include Illinois, Texas, and New Jersey, reflecting the influence of population centers and established air freight gateways. States in the Midwest and along the East Coast generally contribute to higher volumes of inbound air shipments compared to central and mountain states. The inbound air cargo network in 2050 will be shaped by connections to these origin states, supporting Arizona's critical role in national and global supply chains.

Figure 25: Origins of Inbound Air Flows by State (by Weight), 2050



Source: Transearch®, 2050

3.6 Cross-Border Freight Ports

Arizona's trade with Mexico moves through a set of commercial land ports of entry (LPOEs) that serve as key nodes in North American supply chains, connecting the State to northern Sonora and manufacturing corridors beyond. In 2025, Arizona's ports handled roughly \$26.0 billion in imports and \$12.9 billion in exports — about \$39 billion in two-way trade. **Table 25** shows this activity is overwhelmingly concentrated at a single crossing: Nogales accounts for about 90% of imports and 87% of exports, making it by far the State's most important gateway for cross-border freight. San Luis and Douglas handle most of the remainder, with Lukeville, Naco, and Sasabe carrying smaller, largely local volumes.

Table 25: All Arizona Border Port of Entry Trade Flows, 2025

LPOE	Imports	Exports
Nogales	\$23,318,014,708	\$11,251,429,029
Douglas	\$1,598,148,259	\$815,433,742
San Luis	\$1,007,351,247	\$835,014,635
Lukeville	\$85,519,029	\$2,085,252
Naco	\$20,550,673	\$44,256,123
Sasabe	\$53,812	\$282,249
Total	\$26,029,637,728	\$12,948,501,030

Source: ADOT

Cross-border activity reinforces the trends seen across freight flows. Mexico is among the fastest-growing truck origins and destinations, the Mexico–California corridor is the fastest-growing through-truck flow by value. This points to deepening U.S.–Mexico supply chain integration and demonstrates Arizona's role as a gateway for trade between the two countries.

Three crossings — Nogales, San Luis, and Douglas — carry nearly all of Arizona's cross-border freight, together handling more than 99% of the State's trade with Mexico. Each serves a distinct role and is being modernized to handle rising volumes.

3.6.1 Nogales Land Port of Entry

Nogales is Arizona's largest commercial port of entry and comprises three separate crossings: the Mariposa Port of Entry, which handles commercial truck traffic; the Dennis DeConcini crossing downtown, which processes passenger vehicles, pedestrians, and Arizona's only rail connection to Mexico; and the pedestrian-only Morley Gate. Nogales set new records in northbound traffic in 2024 compared to 2023, with 978 trains (+10%), 404,588 trucks (+5.9%), and 3.3 million cars (+2.4%), while processing 10.3 million people (+5.3%). Gateway Nogales handled \$34.1 billion in trade (+8.1%), including \$23.3 billion in imports (+9.7%) and \$10.8 billion in exports (+4.9%), reflecting an overall increase in trade.

To support continued growth, the General Services Administration (GSA) commissioned a feasibility study to modernize the DeConcini Port of Entry, which determined the port's future footprint, produced a conceptual design, and estimated project cost at \$1 billion to \$2 billion. The 2025 feasibility study is complete, and GSA began the environmental review in July 2026, publishing a Notice of Intent to prepare an Environmental Impact Statement and opening a public scoping period. The study includes extensive coordination with the Arizona Department of Transportation (ADOT) on traffic mobility at DeConcini, including I-19 and Grand Avenue access, pedestrian flows, and multimodal connections. Nearby, ADOT is modernizing the I-19 interchanges at Ruby Road and Rio Rico Drive and upgrading Nogales east-west connectors to improve safety and mobility for commercial trucks, cars, and school buses.

Additional priorities include expediting traffic at Querobabi, ensuring adequate Port of Entry staffing, deploying SENTRI at the Mariposa Port of Entry, protecting the fresh produce import industry, and advancing key infrastructure projects such as a new multimodal facility for freight, passenger, and rail operations and modernization of the MX-15 "Corredor" to strengthen cross-border freight connectivity. These initiatives are important for maintaining Nogales' role in North American trade.

3.6.2 Douglas Land Port of Entry

Douglas serves as a gateway for manufacturing and local trade between Arizona and northern Sonora. The facility remains outdated and congested, with trucks, cars, and pedestrians sharing lanes. Trucks must make a 90° turn into the compound, limiting commercial traffic to a single lane, and oversize or

overweight shipments can block traffic. The port also handles hazardous materials, adding operational complexity. In 2024, northbound traffic at Douglas included 28,640 trucks, 1.56 million cars, and 854,322 pedestrians, totaling 3.7 million people. Growing industrial activity in Agua Prieta suggests continued increases in truck traffic in the coming years.

In September 2025, GSA broke ground on a nearly \$329 million dedicated commercial port 4.5 miles west of the existing downtown crossing. The 80-acre facility will provide four northbound and two southbound commercial inspection booths, a covered secondary inspection area with 36 truck bays, and dedicated hazardous-materials processing — a significant upgrade from the Castro port's two northbound booths and five secondary dock bays. These improvements are designed to handle the oversized mining equipment and chemicals that move through Douglas in support of the regional mining industry. Upon its completion, U.S. Customs and Border Protection (CBP) will permanently relocate commercial inspection operations to the new port and ADOT and the Federal Motor Carrier Safety Administration will operate co-located truck safety inspection facilities there. Phase 1 focuses on commercial trucks, with future phases planned for cars and pedestrians. Combined with a separate modernization of the Castro port, the total federal investment exceeds \$600 million, with construction expected to continue through fall 2028.

Supporting infrastructure includes a utilities corridor providing water and wastewater to the port, Cochise Community College, the Border Patrol Station, and surrounding businesses. The total cost is \$46.5 million, with \$19.4 million secured, and utilities are to be delivered to GSA by May 2027.

On the Mexican side, 59.97 acres were donated to INDAABIN (Mexico's federal office in charge of the administration and valuation of public properties) in 2023 and are being modified to allow two crossing points and a connector to MX-2, supporting smoother binational operations.

3.6.3 San Luis Land Port of Entry

San Luis operates as two distinct facilities. San Luis I, the main downtown crossing, serves regional and agricultural trade connecting Arizona with northern Sonora and primarily handles passenger and pedestrian traffic. San Luis II is the commercial crossing, dedicated to truck freight. In 2024, San Luis I processed 3.39 million cars and 2.36 million pedestrians — 8.14 million total

people — through only eight northbound lanes, while San Luis II handled 44,246 northbound trucks and \$1.724 billion in trade, reflecting its role in the movement of higher-value commodities. Freight crossing at San Luis connects to the national network via I-8, which links the Yuma region eastward to I-10 and west to Southern California.

San Luis I is undergoing a \$355 million modernization and expansion that will double northbound vehicle lanes from eight to 16, increase pedestrian inspection lanes from 10 to 14, and expand southbound facilities. Construction began in May 2023 on what will be the first fully electric, net-zero-energy land port of entry in the United States. The 16 new northbound vehicle lanes opened on March 27, 2026, doubling the port's northbound capacity, with full completion of the broader project anticipated in spring 2029. In addition, \$62 million has been secured to modernize Cesar Chavez Boulevard, the principal east-west connector between San Luis I and San Luis II, though a related \$25 million grant remains on hold pending agency review.

Improvements at the commercial San Luis II crossing focus on operations rather than physical expansion. As trade volumes grow, CBP will need additional staffing. For instance, a full-time entomologist is needed to inspect the produce that moves through the port, because without one, shipments can be delayed for several days. Longer-term plans include adding capacity to accommodate passenger vehicles at San Luis II.

CHAPTER 4

STRATEGIC DIRECTION



4.1 Introduction

This Arizona State Freight Plan (SFP) establishes the direction for the State's freight transportation system through a strategic framework with four connected parts: a vision, goals, objectives, and performance measures. The vision establishes long-range expectations for Arizona's freight transportation system. The goals bring the vision to life, reflecting regional, statewide, and national freight priorities. Objectives supporting each goal define specific, measurable outcomes that detail how the goal will be achieved. Finally, performance measures align with the objectives to support tracking progress toward achieving the SFP goals. Together, these parts of the strategic framework will guide policies and strategies created by Arizona Department of Transportation (ADOT) in service to the public, freight industry, and agency partners.

This framework integrates agency and stakeholders' priorities and aligns with state, regional, and national freight plans and policies. The vision, goals, and objectives reflect the goals of the National Multimodal Freight Policy (NMFP) (49 U.S.C. 70101(b)), the National Highway Freight Program (NHFP) (23 U.S.C. 167), the 2026 National Freight Strategic Plan (NFSP), and a range of relevant state and regional planning documents. Aligning with these national, state and regional frameworks positions ADOT to advance national freight priorities and support coordinated investment across jurisdictions, while keeping the plan grounded in Arizona's own freight needs.

4.2 Strategic Framework Development Process

4.2.1 Review of Relevant Plans

ADOT began the strategic framework development process by reviewing relevant statewide, regional, and national plan goals and objectives to align the strategic direction with priorities established across the State and nation; these included:

- National Freight Strategic Plan (2020)²
- ADOT 2050 Long Range Transportation Plan (LRTP) (2023)
- Arizona State Rail Plan Update (2022)
- ADOT Transportation Asset Management Plan (2025)
- ADOT State Highway Safety Plan (2024)
- Arizona Electric Vehicle Infrastructure Deployment Plan (2024)
- ADOT Transportation System Management and Operations Strategic Plan (2017)
- ADOT Intelligent Transportation System Master Plan (2024)
- ADOT Asset Management Infrastructure Resilience Study (2020)
- Maricopa Association of Governments Regional Freight Transportation Plan (2017)
- Pima Association of Governments Regional Freight Plan (2018)
- Arizona-Sonora Border Master Plan (2013)
- Arizona Commerce Authority 2025-2029 Strategic Plan

ADOT compared the 2022 SFP goals to these plans to evaluate consistency. Most plans included goals related to safety (78%), competitiveness (67%), and system management and mobility (78%). Only 44% of the plans reviewed included a stewardship goal. Nearly all plans included objectives that aligned with the four goal areas of safety (100%), competitiveness (80%), stewardship (80%), and system management and mobility (100%). **Table 26** shows coverage of the 2022 SFP goals across the strategic elements of the reviewed plans.

² ADOT completed revision of the SFP goals in 2025, prior to USDOT's release of the new NFSP in May 2026. The new NFSP goals were reviewed in June and the draft ADOT SFP was found to align with the 2026 NFSP.

Table 26: Goal Area Coverage in Plans Reviewed (2025)

	Safety	Competitiveness	Stewardship	System Management & Mobility
Vision Statements	50%	67%	8%	75%
Goals	78%	67%	44%	78%
Objectives	100%	80%	80%	100%
Strategies	63%	38%	25%	88%
Performance Measures	55%	45%	18%	91%

This comparison also surfaced themes outside the four 2022 goal areas, pointing to potential gaps in the strategic direction this SFP update should address. ADOT considered four of these for the updated strategic framework:

- **Data-Informed** – using quantitative and qualitative data to shape decision making in a transparent way.
- **Collaboration** – engaging and empowering a wide range of communities and stakeholders in the decision-making process.
- **Innovation and Technology** – preparing for and applying new and emerging technologies and methods to improve outcomes.
- **Resiliency** – sustaining natural or manmade disasters and major economic shifts while minimizing performance impacts.

These themes appeared most often within the objectives of the reviewed plans rather than at the vision or goal level. ADOT drew on this finding to refine the strategic direction by:

- Determining which goal should address resilience, Stewardship or System Management and Mobility;
- Ensuring that collaboration is reflected either in a new goal or within the Competitiveness goal and its objectives; and
- Integrating decision-making priorities into a goal or objective.

4.2.2 Stakeholder Engagement

Alongside the plan review, ADOT engaged Arizona's freight partners early to ground this strategic direction update in their priorities. ADOT hosted virtual meetings and employed survey instruments to gather feedback and input on the vision, goals, and objectives.

The October 21, 2025, online Freight Advisory Committee (FAC) meeting included 45 participants (30 stakeholders and 15 ADOT staff) from state and local/regional governments, tribal nations, private trucking and rail organizations, and professional groups. During the meeting, ADOT conducted online polling exercises to inform the vision, goals, and objectives. In one exercise, participants were asked to share a word describing their vision. As shown in **Figure 26**, the most frequent responses were “efficient,” “reliable,” “electric,” and “technology,” followed by “multi-faceted,” “mobility,” and “autonomous.”³

*Figure 26: FAC Input on the Vision for
Arizona's Freight System in 2050 (October 2025 polling)*



³ In addition, 15 additional stakeholders representing a mix of cities and counties, Metropolitan Planning Organizations, original equipment manufacturers, community and advocacy groups, state and federal government staff, port, rail, and intermodal representatives participated in a stand-alone survey that provided further input.

Combined with the review of other plans, this input pointed to three takeaways for the vision:

- Broaden the vision to provide more flexibility,
- Incorporate the term “efficient,” and
- Reflect a focus on emerging technology.

During the same meeting, ADOT presented the 2022 SFP goals and objectives, polling participants to rate how strongly they agreed or disagreed with each one. Most participants agreed that the previous plan’s goals reflected their current priorities to some extent.

At a second online FAC meeting on November 4, 2025, ADOT presented the results of the first meeting and a draft vision, and freight partners provided more specific feedback on the goals and objectives. The FAC highlighted the following categories for the updated goals and objectives:

- Smart vehicles and other advanced technology,
- Truck parking safety, including non-amenity rest stops,
- Expansion of rural and border crossing infrastructure capacity,
- Data-informed decision making,
- Freight system resilience and agency responsibility,
- Cargo security,
- A trained freight workforce, and
- Increased truck weights above the federal limit of 80,000 pounds.

ADOT used this input to update vision, goals, and objectives for this 2026 SFP. For the goals, ADOT made one revision, including security in the safety goal. Changes made to the objectives are summarized in **Table 27**.

Table 27: Changes in Objectives from the 2022 to the 2026 Arizona State Freight Plan

Goal	Changes From 2022
 Safety and Security	Shortened Objective 1.3 to remove limits on the nature of the causes of infrastructure and cargo vulnerability.
 System Management and Mobility	Replaced a prior objective with Objective 2.5 to focus on border freight movement, reflecting the polling results, the prior survey, the review of other plans, and open discussion by the FAC. Reframed the original resiliency objective for inclusion under the Stewardship goal, reflecting that goal's broader focus. Even so, aspects of resiliency are inherent in other objectives in system management and mobility, so the term was retained in the System Management and Mobility goal language, reflecting the cross-cutting importance of resilience to various aspects of freight planning and investment.
 Competitiveness	Made numerous small revisions, mostly in the form of additions, and relocated two objectives from the original Competitiveness set under the revised Stewardship goal for 2026.
 Stewardship	Shortened one objective to focus on materials and procedures and reworded others for tighter grammatical construction. Removed prior Objectives 4.4 and 4.5 because other goals broadly addressed their purposes and to better align with the revised 2026 State Freight Plan guidance from the U.S. Department of Transportation (USDOT). The new Objective 4.4 was previously under Competitiveness but has been moved to Stewardship to tie stewardship practices to competitive outcomes and benefits to Arizona. This is differentiated from 4.2, which is more directly related to responsible spending. Finally, Objective 4.5 was a reframing of a resiliency goal under System Management and Mobility that now draws attention to the importance of critical asset preservation as part of a comprehensive stewardship role.

4.2.3 Performance Measures Development

ADOT identified performance measures for tracking progress toward these goals. The measures connect the strategic framework to the broader planning process, drawing on the freight system's existing condition, strengths and weaknesses, and needs to gauge progress toward each goal and objective. Following the update of the vision, goals, and objectives, ADOT turned to the performance measures by:

- Considering the performance measures used in relevant state and regional plans,
- Reviewing US Department of Transportation (USDOT) materials discussing both required and recommended performance measures, and
- Incorporating FAC input.

4.3 Vision Statement

The vision is an aspirational statement that defines what a successful freight system looks like 10 to 20 years into the future. It guides future decision making by providing a shared reference point for the future freight system. Then goals and objectives provide more details as to the values and priorities for the freight system.

The resulting vision calls out areas of focus including safety, efficiency, and multimodal freight. It also incorporates concepts of progress, improvement, innovation, and technology through the term “advanced,” and connects the State to national and international goods movement and economic success. The 2026 SFP vision is:

To lead Arizona's progress by providing a safe, efficient, and advanced multimodal transportation system for domestic and global competitiveness.

4.4 Goals

Goals are value-based statements that set the direction of the SFP, identifying issues to be addressed without specifying measurable targets. Each goal reflects regional, statewide, and national freight priorities:



Safety and Security: Promote and support a safe and secure freight transportation system that meets evolving needs.



System Management and Mobility: Maintain and operate a reliable, resilient, future-oriented transportation system for efficient multimodal freight movement.



Competitiveness: Advance strategic policies, investments, partnerships, and infrastructure that position Arizona to benefit from emerging economic opportunities.



Stewardship: Conduct data-informed planning and decision making for improved investing and programming.

4.5 Objectives

ADOT developed actionable, measurable objectives to support achievement of each goal.



4.5.1 Safety & Security Objectives

- **Objective 1.1:** Reduce the number and severity of freight-related crashes and injuries.
- **Objective 1.2:** Coordinate with relevant organizations to implement ADOT's Cross Border Plan as it relates to safe and secure movement at the international border.
- **Objective 1.3:** Identify and address infrastructure and cargo vulnerabilities.



4.5.2 System Management & Mobility Objectives

- **Objective 2.1:** Coordinate with local governments, Metropolitan Planning Organizations (MPOs), modal operators, and the private sector to manage congestion and freight system reliability.

- **Objective 2.2:** Implement strategies that apply emerging technologies and support logistics and freight industry innovations.
- **Objective 2.3:** Maintain, preserve, and modernize State freight transportation systems and infrastructure to improve network quality.
- **Objective 2.4:** Improve roadway connections at intermodal facilities, airports, or other modal hubs.
- **Objective 2.5:** Improve the efficiency and reliability of freight movement at the international border.



4.5.3 Competitiveness Objectives

- **Objective 3.1:** Build and maintain a freight network that supports key sectors that drive economic competitiveness, lower costs, and provide high-paying jobs to residents.
- **Objective 3.2:** Coordinate with public and private partners to improve connectivity, redundancy, and supply-chain reliability between Arizona businesses and their trading partners.
- **Objective 3.3:** Develop and advocate for strategies, policies, and investments to enable Arizona's freight system to adapt quickly and effectively to evolving markets, emerging trends, and other external factors.



4.5.4 Stewardship Objectives

- **Objective 4.1:** Provide transparent access to ADOT planning documents, data resources, and decision-making processes.
- **Objective 4.2:** Use data resources and performance-based decision making to select fiscally conscientious investments that advance plan goals and objectives.
- **Objective 4.3:** Reduce the effect of freight on environmental resources by supporting the deployment of advanced vehicle technologies, cleaner fuels, and more efficient freight operations.
- **Objective 4.4:** Institute performance-based and data-informed policies that increase Arizona's economic preparedness and competitiveness.
- **Objective 4.5:** Improve the resiliency of critical at-risk assets on the freight transportation system.

4.6 Performance Measures

The performance measures align directly with the four goal areas and help ADOT track progress over time across multiple goals and objectives. **Table 28** lists the 2026 SFP performance measures that will be used to assess the freight system and the efforts towards improving it.⁴

Table 28: 2026 Arizona SFP Performance Measures

Goal	Performance Measure
Safety & Security	Freight-involved fatal and serious injury crash rate per 100 million truck vehicle miles traveled (VMT)
	Total number of freight-involved crashes by severity
	Work zone-related crashes
	Average commercial vehicle wait time at Arizona ports of entry
System Management & Mobility	Truck Travel Time Reliability (TTTR) Index on freight corridors
	Percent of freight corridors equipped with Intelligent Transportation System (ITS) or connected freight technologies
	Percent of interstate pavement in good condition
	Percent of non-interstate National Highway System (NHS) pavement in good condition
	Percent of interstate pavement in poor condition
	Percent of non-interstate NHS pavement in poor condition
	Percent of NHS bridges in good condition
	Percent of NHS bridges in poor condition
	Average travel time from intermodal hubs to the interstate and National Highway Freight Network
Competitiveness	Average commercial vehicle wait time at Arizona ports of entry (repeated from Safety & Security)
	Total freight tonnage moved through Arizona by mode
	Truck Travel Time Reliability (TTTR) Index on freight corridors (repeated from System Management & Mobility)
	Public investment in projects that improve freight mobility, reliability, or access
Stewardship	Percent of freight plan recommendations funded through performance-based project selection criteria

⁴ The following metrics are measured at different time intervals, some are measured every year, and some are measured every State Freight Plan revision (every 4 years).

4.7 Alignment with National Freight Policy Goals

Table 29 shows how the SFP’s strategic direction advances the goals of the NMFP and NHFP while reflecting Arizona’s freight priorities.⁵

Table 29: Alignment of SFP Goals with National Freight Goals

SFP goal	National Multimodal Freight Policy (49 U.S.C. 70101(b))	National Highway Freight Program (23 U.S.C. 167)
Safety & Security	Safety, security, efficiency, and resiliency of multimodal freight.	Safety, security, efficiency, and resiliency in rural and urban areas.
System Management & Mobility	Reduce congestion and bottlenecks; state of good repair; innovation and technology; reliability; goods movement to ports, airports, and gateways.	Reduce congestion; state of good repair; innovation and technology; reliability of the National Highway Freight Network (NHFN).
Competitiveness	Economic competitiveness; productivity; economic efficiency; multi-State corridor planning flexibility.	Economic competitiveness; productivity; multi-State corridor planning and connectivity.
Stewardship	Reduce environmental impacts; economic efficiency through performance-based investment.	Reduce environmental impacts of freight on the NHFN.

⁵ The NHFP goals are similar to the NMFP goals; they direct the same priorities to investment and operational improvements on the National Highway Freight Network (NHFN).

CHAPTER 5

STATE FREIGHT SYSTEM NEEDS



5.1 Introduction

As detailed in Chapter 4, Arizona plays an important role in freight movement across the United States (U.S.). The State serves the nation's largest and fastest-growing international trade relationship with Mexico, with an increasing share of the \$1.6 trillion in goods moved annually between the two countries flowing through the Interstate 19 (I-19) corridor and the Nogales and San Luis ports of entry. Arizona also serves as a significant east-west crossroad connecting the Los Angeles Basin to interior U.S. markets, with the I-10 and I-40 corridors specifically linking the Southwest coast to markets stretching from Texas to the Southeast. In 2023, approximately 459 million short tons of freight valued at \$1.24 trillion moved through Arizona's multimodal network, all of it dependent on highway, rail, air cargo, pipeline, and border infrastructure performing reliably every day.

This plan has documented trends impacting the freight system's capacity and reliability: deferred roadway maintenance, workforce constraints, increased truck parking demand, and worsening recurring congestion all strain the freight system. In addition, increased truck volumes can have higher incident rates. These factors fall disproportionately on the corridors and crossings that carry the heaviest loads, including the I-19 border corridor, the Nogales and San Luis ports of entry, and the I-10 and I-40 interstate corridors that distribute freight across the region.

Emerging trends are likely to intensify that strain rather than relieve it. Accelerating U.S.-Mexico trade, onshoring and near-shoring of manufacturing, sustained e-commerce growth, and advancing connected and autonomous vehicle technologies are each generating new demand and issues on a system already struggling to handle existing volumes. Without targeted investment, these trends risk compounding deficiencies rather than unlocking the economic opportunity they represent.

The Arizona Department of Transportation (ADOT) has planned accordingly with an actionable assessment of needs, beginning by connecting the State's trends to the vision, goals, objectives, and performance measures, then evaluating the strengths and weaknesses of the freight system relative to the State Freight Plan's (SFP's) four goal areas. ADOT reviewed the progress made on needs identified in the 2022 State Freight Plan (SFP) and the 2023 Arizona

Truck Parking Study Implementation Plan, and assessed mode-by-mode topics facing Arizona's highway, rail, air cargo, pipeline, and border infrastructure systems. This work provides the foundation for the 2026 SFP prioritization framework and investment strategy.

5.2 Trends & Issues

The freight environment facing Arizona has shifted substantially since the 2022 SFP was completed. Pandemic-era supply chain disruptions have largely subsided, Infrastructure Investment and Jobs Act (IIJA) funding has moved from authorization into active project delivery, and automated vehicle and electrification technologies have advanced from early pilots to limited commercial deployment.

Though Arizona is investing into light duty EV infrastructure through the federal National Electric Vehicle Infrastructure Program (NEVI), there are no plans at this time for HD EV Infrastructure investment.

In Chapter 2, this plan discussed key trends and issues in detail. Current conditions limiting freight system performance today include roadway congestion, deferred maintenance, continuing demand for truck parking, and workforce constraints. Emerging trends are catalysts that reshape freight demand and operations and intensify freight movements over the plan horizon, including accelerating U.S.–Mexico trade, onshoring and near-shoring of manufacturing, e-commerce growth and growing critical minerals demand. New technology such as connected and autonomous vehicle deployment, electrification and alternative fuels, offers a streamlined and efficient freight movement with prospects to reduce cost.

Each of these trends and issues carries direct implications for the infrastructure investments, operational strategies, and policy actions needed to sustain and enhance freight system performance. *Table 30* summarizes those implications and identifies how each trend or issue connects to the system needs.

Table 30: Trends and Issues Influencing Arizona Freight System Needs

Trend or Issue	Freight System Implications
Increased trade with Mexico	U.S.–Mexico freight totaled \$1.6 trillion in 2024. Northbound truck crossings through Arizona’s border ports have grown more than 60% since the mid-1990s. The Mexico–California corridor (I-19/I-10) is projected to grow 129% in tonnage and 209% in value by 2050, concentrating demand on the Nogales Port of Entry and the connecting interstate system.
Onshoring and near-shoring of manufacturing	Major Arizona investments reflect a national reshoring surge of 244,000 job announcements in 2024. New manufacturing demand is increasing inbound and outbound freight on I-10 and I-19 and requiring more cross-border logistics.
E-commerce growth	E-commerce reached 17% of U.S. retail sales in 2025. Phoenix added 23 million square feet of warehouse space in 2023, increasing truck activity on metro Phoenix interstates. Small-packaged freight is the fastest-growing air cargo commodity, concentrating new demand at Phoenix Sky Harbor International Airport (PHX) and Phoenix-Mesa Gateway Airport.
Connected and autonomous vehicles (CAV)	A number of companies (Waymo etc.) are testing autonomous vehicles in Arizona under an established regulatory framework. CAV deployment offers a potential long-term offset to the driver workforce shortage, with retraining implications for displaced drivers.
Proposed Union Pacific (UP)–Norfolk Southern rail merger	The proposed merger would create the first transcontinental Class I railroad in the U.S. The UP Sunset Route through southern Arizona would be most directly affected, with likely shifts in intermodal flows and competitive dynamics. The outcome and any Surface Transportation Board conditions remain uncertain.
Electrification and alternative fuels	Though light duty infrastructure for electric vehicle (EV) charging has taken off commercially, heavy duty EV infrastructure is in its infancy in Arizona. For the success of EV commercial vehicles, planning for EV charging infrastructure would be needed along rural I-10 and I-40. Moreover, EV adoption will also reduce petroleum demand over the plan horizon.

Trend or Issue	Freight System Implications
Critical minerals demand	Growing federal and private investment in copper, lithium, and rare earth extraction, including the Hermosa Project, the southeast Arizona porphyry copper belt, and lithium prospects at Big Sandy, Wikieup, and Willcox Playa, is causing new heavy freight activity on rural highways not designed for sustained high-axle loads.
Deferred roadway maintenance	Deferred maintenance affects highways, ports of entry, and air cargo facilities across the State. On state owned and maintained highways, 62% of pavement is rated fair and 6% poor, and 18 bridges are structurally deficient; left unaddressed, deferred maintenance accelerates deterioration, increases repair costs, and can force load restrictions or unplanned closures that disrupt freight movement. The 2027–2031 Five-Year Program allocates \$2.8B to pavement and bridge preservation, but this investment is not yet weighted by freight corridor volume.
Truck parking demand	ADOT continues to address the gap of approximately 842 spaces across roughly 10 priority locations identified in the Statewide Truck Parking Implementation Plan. Growing freight demand continues to peak overnight along I-10 and I-40, resulting in trucks parking on shoulders, ramps, and undesignated areas.
Workforce constraints	Stakeholders ranked workforce as the single most negative impact on Arizona freight. Shortfalls span Commercial Driver’s License (CDL) drivers, Customs and Border Protection (CBP) officers at ports of entry, and skilled trades supporting freight construction and maintenance. Transportation and warehousing employment grew 6.5% annually from 2014 to 2024, outpacing labor supply.
Roadway congestion	I-10 and I-40 carry 44% of statewide truck tonnage. Congestion on these corridors and at the Nogales Port of Entry reduces reliability across connected supply chains. E-commerce warehouse growth is adding truck trips to already-strained metro Phoenix interstates.

5.3 Strengths & Weaknesses of Arizona State Freight System

ADOT assessed where the system is resilient and where it is vulnerable, drawing on the freight system inventory, condition and performance data, and modal and corridor needs examined throughout this plan. The identified strengths and weaknesses may not affect the State Freight System uniformly. Some elements of the system are well positioned to absorb increased demand and adapt to changing conditions; others are already at or near capacity and are more susceptible to disruption.

The following strengths and weaknesses reflect the freight environment as it stands today. Most notably, freight safety performance has faced a downward trend reflecting an increase in truck-involved crash trends, while economic momentum from onshoring and near-shoring activity increased and the State's technology and innovation readiness have strengthened Arizona's competitive position.

5.3.1 Strengths of Arizona's Freight System

Arizona's freight system has several foundational strengths that provide resilience against the previously defined issues and position the State to capture the economic opportunity those same trends represent.

- **Multimodal network connectivity.** Arizona has a well-connected, multimodal freight system spanning highway, rail, air cargo, and pipeline assets, with capacity that meets industry needs and supports economic growth. The highway freight system spans 1,027 Primary Highway Freight System (PHFS) miles and includes more than 8,000 structures, of which ADOT maintains over 4,800. Inflation-adjusted gross domestic product (GDP) rose 3.5% annually from 2014 to 2023, and transportation and warehousing employment grew an average of 6.5% per year over the prior decade. Freight industry partners report that the network meets their supply chain needs, even as they flag challenges such as truck parking and workforce shortages.
- **Geographic and multinational connectivity.** The State's location offers unmatched access to Mexico and key commerce centers in the western United States. U.S.–Mexico trade reached \$1.6 trillion in 2024, and the

Nogales Port of Entry alone handled \$34.1 billion in trade and more than 400,000 commercial truck crossings. SkyBridge at Phoenix-Mesa Gateway is planned to streamline air-cargo clearance by housing both U.S. and Mexican customs.

- **Intermodal and rail connectivity.** Arizona's freight system is served by two of the nation's primary transcontinental rail corridors, the BNSF Transcon and the UP Sunset Route, anchored by the Port of Tucson inland port, which provides direct intermodal transfer between truck and Class I rail. Together, these assets link the State's major freight generators to the broader multimodal network, supporting efficient long-haul movement and reducing reliance on highway-only routing.
- **Strategic rural access.** Rural Arizona is home to many of the State's most strategic and emerging industries, including critical-minerals and rare-earth mining at sites such as the Hermosa Project, the southeast Arizona porphyry copper belt, and lithium prospects at Big Sandy and Willcox Playa. A broad network of state and U.S. highways connects these rural areas to the interstate and national highway network.
- **Economic momentum and onshoring.** Recent onshoring and near-shoring investments, including Amkor (\$2 billion, Peoria), ASM (\$300 million, Scottsdale), and Chang Chun (Casa Grande), position Arizona to capture growing manufacturing and cross-border freight demand along the I-10/I-19 corridors.
- **Technology and innovation readiness.** Arizona is well positioned to apply technology to freight operations, including ADOT's extensive Intelligent Transportation Systems (ITS) network, to its established connected/automated-vehicle regulatory framework. The State is a national leader in AV freight testing.
- **Strategic and defense corridor role.** Arizona's primary freight corridors serve a dual national-defense function: I-10, I-17, and I-40 form the backbone of the State's Strategic Highway Network (STRAHNET) system, and the Union Pacific and BNSF rail mainlines make up portions of the Strategic Rail Corridor Network (STRACNET), connecting Luke Air Force Base, Davis-Monthan Air Force Base, Fort Huachuca, and Yuma Proving Ground. These defense routes align closely with the State's highest truck-

volume corridors, reinforcing the case for sustained investment in high-capacity, reliable infrastructure.

5.3.2 Weaknesses of Arizona's Freight System

These strengths are tempered by weaknesses that make the system more susceptible to challenges. Some of these ADOT can address directly through investment and operational improvements, while others require coordination with metropolitan planning organizations (MPOs), local governments, federal agencies, the railroads, the private sector, or Mexico.

- **Highway delays and bottlenecks.** Recurring congestion and bottlenecks on Arizona's interstate freight corridors delay goods movement and reduce reliability, with much of the State's truck tonnage moving as through-traffic on I-10 and I-40. ADOT can address these locations directly through capacity, operational, and bottleneck-relief projects.
- **Deferred maintenance and infrastructure wear.** Pavement and bridge preservation needs increasingly outpace available funding, and rising material and labor costs compound the gap. Sustained heavy and oversized truck traffic from the State's strategic industries adds wear on rural highways and freight connectors. ADOT can address this weakness directly, though continued partnership with other agencies will help close the gap.
- **Freight safety performance.** Heavy vehicles account for approximately 14% of all fatalities and 35% of injury-inducing crashes statewide, and recent trends indicate these rates are increasing. Sustained, performance-based investment, paired with the longer-term safety benefits of emerging vehicle technologies, will be important to reversing this trend. ADOT can address this weakness directly, in partnership with other agencies on the factors which contribute to crashes, injuries and fatalities.
- **Truck parking demand.** Truck parking is a national concern that also affects Arizona. The State has made real progress expanding capacity, but as demand continues to grow, it still exceeds supply along key corridors. Continuing to address this need will depend on a combination of direct ADOT investment and private-sector solutions.

- **Border crossing congestion and constraints.** Increasing congestion and wait times at the ports of entry impede international trade, and many of Arizona's crossings are aging and only partially modernized. This weakness sits substantially outside ADOT's sole control and requires coordination with federal partners and Mexico.
- **Load and truck restrictions.** Bridge weight limits, height restrictions, and other physical constraints force heavy trucks onto circuitous detours, increasing cost and travel time, and can limit access to industrial, agricultural, and intermodal sites. Because detours often route trucks onto local and county roads, addressing these constraints requires coordination with the affected jurisdictions.
- **Urban congestion.** Recurring congestion on metro Phoenix and Tucson interstates degrades freight mobility and reliability. E-commerce growth and the resulting last-mile warehouse buildout add to bottlenecks and addressing them requires coordination with MPOs and local agencies.
- **Workforce constraints.** Stakeholders identified workforce constraints as the single most negative impact on Arizona freight, with shortages spanning CDL drivers, CBP officers, and the skilled trades supporting freight construction and maintenance. This weakness sits substantially outside ADOT's sole control and requires partnership with other agencies and the private sector.

Taken together, these strengths and weaknesses point to a freight system that is well connected and economically competitive but unevenly maintained, with freight safety performance trending in the wrong direction and cross-cutting constraints such as congestion, border-crossing capacity, workforce, and deferred maintenance recurring across multiple goal areas.

5.4 Assessment of Needs in Previous Freight Plan

A core principle of Arizona's freight planning process is stewardship: using available resources strategically to make measurable progress on the needs the State has identified. With each SFP update, ADOT works collaboratively with its Freight Advisory Committee (FAC) and Technical Advisory Committee (TAC) to

develop a Freight Investment Plan that targets the system's most severe bottlenecks, safety concerns, and operational needs.

5.4.1 Projects Completed Since 2022 Arizona State Freight Plan

ADOT has constructed or programmed every project identified in the 2022 SFP Freight Investment Plan (**Table 31**), using National Highway Freight Program Funds (NHFP). These investments have expanded the availability of truck parking in support of ADOT's industry partners making long-haul deliveries, relieved freight bottlenecks that were causing delays in the movement of goods, preserved and modernized aging transportation infrastructure, and continued freight planning and research.

Table 31: Status of Identified Freight Improvement Priority Projects in the 2022 SFP

Route	Issue Segment	Project	Status
NA	NA	Truck Parking	Completed
NA	NA	Planning/Research	Completed
I-10	Milepost (MP) 149-159	Broadway Curve	Completed
I-10	MP 260-274	Country Club T.I. or Kino T.I.	Completed
I-19	MP 92-102	Irvington T.I.	Completed
State Route 69 (SR 69)	MP 287-290	ITS Improvements and Raised Median Scoping Project	Completed
I-10	MP 331	I-10 at US191 Cochise T.I. (2017 Freight Plan)	Completed

5.4.2 Projects Completed Since 2023 Arizona Truck Parking Study Implementation Plan

In Fall 2023, ADOT completed the Arizona Statewide Truck Parking Study Implementation Plan to address the growing need for commercial truck parking along the State's major freight corridors. The plan identified priority locations based on truck parking demand, existing undesignated parking activity, cost, ease of implementation, and input from the trucking industry, with sites

prioritized for funding based on project viability and available resources. Chapter 2 documents the full inventory of expansions completed to date. Despite this progress, the documented gap of approximately 842 spaces across roughly 10 priority locations has not been closed, and freight volume growth risks widening the gap if investment does not keep pace. Truck parking therefore remains an active system need.

5.5 Current Arizona Freight Transportation System Needs

ADOT used the strengths and weaknesses to identify mode-by-mode needs across the State's highway, rail, air cargo, pipeline, and border infrastructure systems. ADOT drew on condition and performance data, freight forecasts, and stakeholder input. As a result, ADOT identified the facilities and corridors where mobility impediments, congestion and delay, infrastructure deficiencies, and safety concerns are greatest. Not every mode faces the same scale of need. Highway carries the largest share of Arizona's freight tonnage and absorbs the broadest range of converging challenges; border infrastructure faces concentrated demand growth driven by a single dominant trend; rail and air cargo each confront targeted but consequential shifts in competitive dynamics and commodity mix.

5.5.1 Highway System Needs

Highway is Arizona's dominant freight mode, accounting for 73.5% of total freight tonnage, and faces more converging issues than any other mode. Growing trade with Mexico, onshoring and near-shoring of manufacturing, e-commerce-driven warehouse growth, and the expansion of autonomous trucking are all increasing or reshaping demand on the State's highway network. Furthermore, deferred pavement maintenance, workforce shortages, and recurring congestion are already constraining performance. No other mode carries this combination of challenges simultaneously. Traffic on I-10 and I-40 alone accounts for 44% of statewide truck tonnage, concentrating both demand and condition stress on these two corridors.

Recurring Truck Bottlenecks

A truck freight bottleneck is a segment of roadway where constraints cause a significant impact on freight mobility and reliability. Bottlenecks fall into two categories:

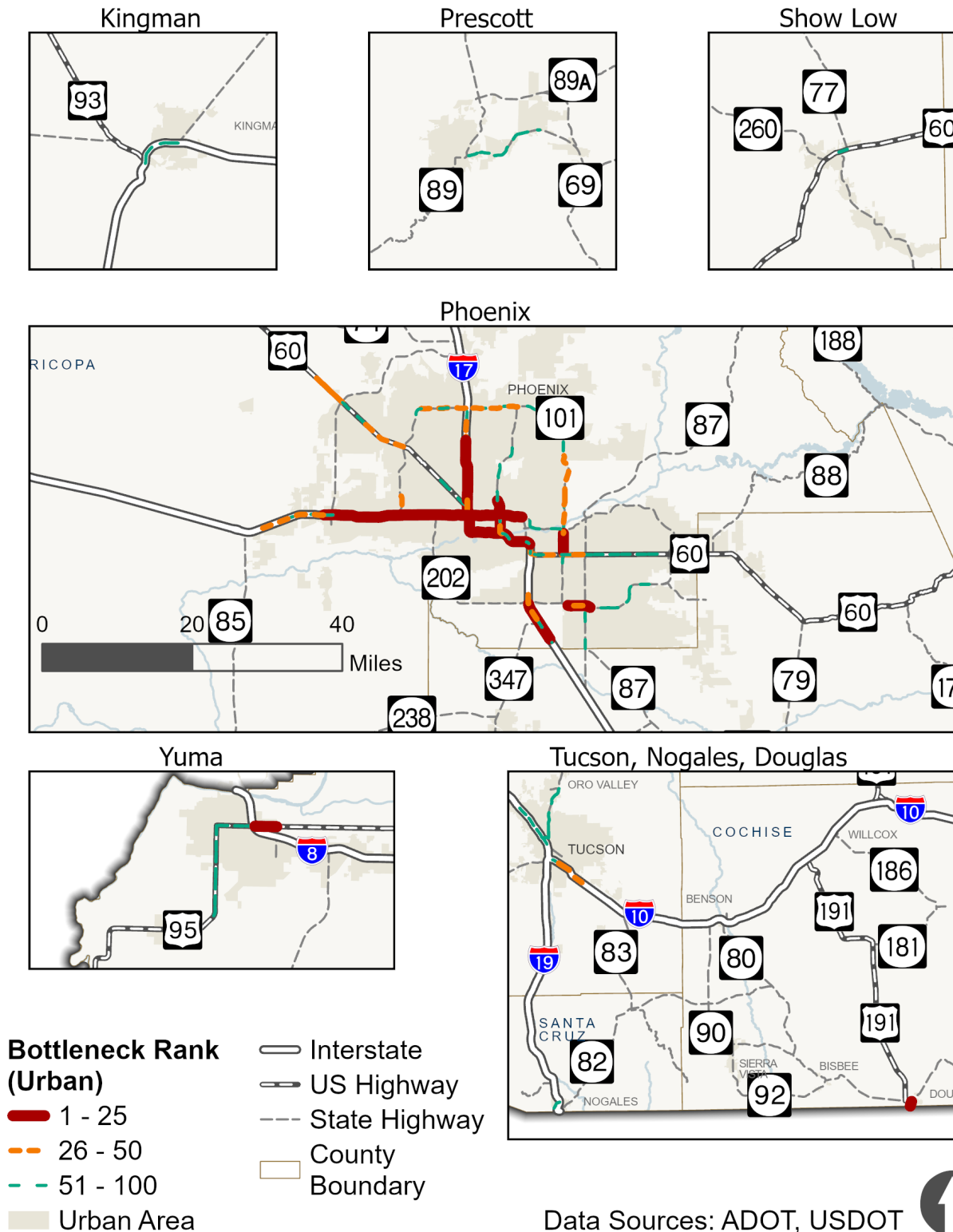
- Recurring bottlenecks occur when traffic demand during peak periods regularly exceeds roadway capacity, causing predictable delays at specific locations and times of day.
- Non-recurring bottlenecks occur when infrastructure limitations, extreme weather, crashes, special events, or work zones temporarily reduce capacity, or when physical restrictions such as bridge height and weight limits force trucks to detour, carry smaller loads, or travel at restricted times.

To identify and evaluate recurring truck freight bottlenecks, ADOT applied a six-step process using Federal Highway Administration's (FHWA) Freight Mobility Trends (FMT) methodology. The analysis drew on 2024 National Performance Management Research Data Set (NPMRDS) travel time data for the full Arizona National Highway System (NHS), screened using the FMT tool to identify segments with the highest annual truck hours of delay per mile.

Results were validated and supplemented through coordination with the Freight Advisory Committee (FAC), Technical Advisory Committee (TAC), MPOs, Councils of Governments (COGs), Tribal Nations, among others using an interactive online mapping tool. Bottlenecks were ranked primarily by annual truck hours of delay per mile, with truck travel time reliability, congestion costs, freight significance, and stakeholder input providing additional context.

Figure 27 and **Figure 28** show the highest-ranking recurring bottlenecks for the urban areas and rural areas, respectively. The top ranked bottlenecks are concentrated in the Phoenix metropolitan area, where freight volumes, population growth, and travel demand are highest.

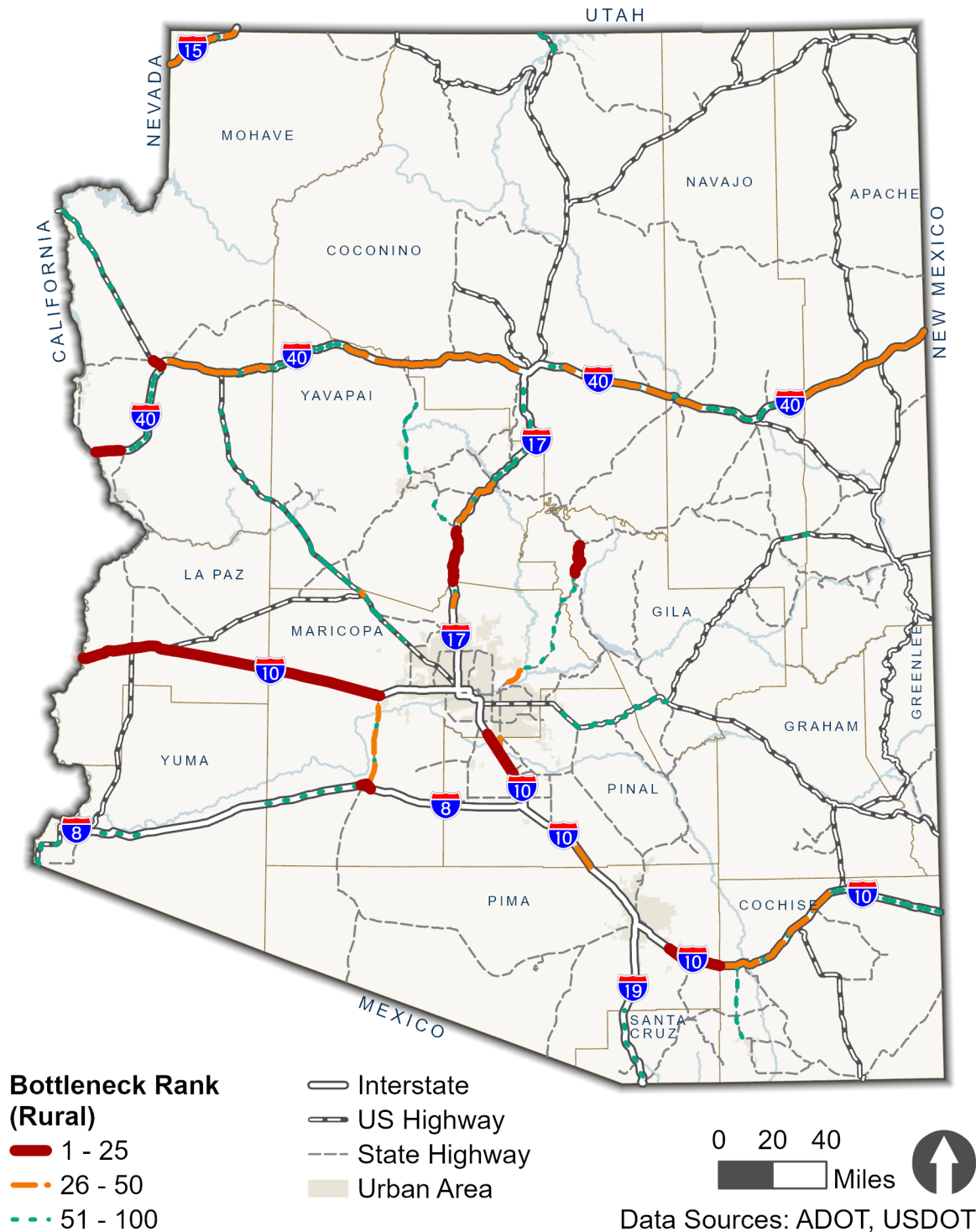
Figure 27: Recurring Bottlenecks - Urban



Data Sources: ADOT, USDOT



Figure 28: Recurring Bottlenecks - Rural



Non-Recurring & Truck Restriction Bottlenecks

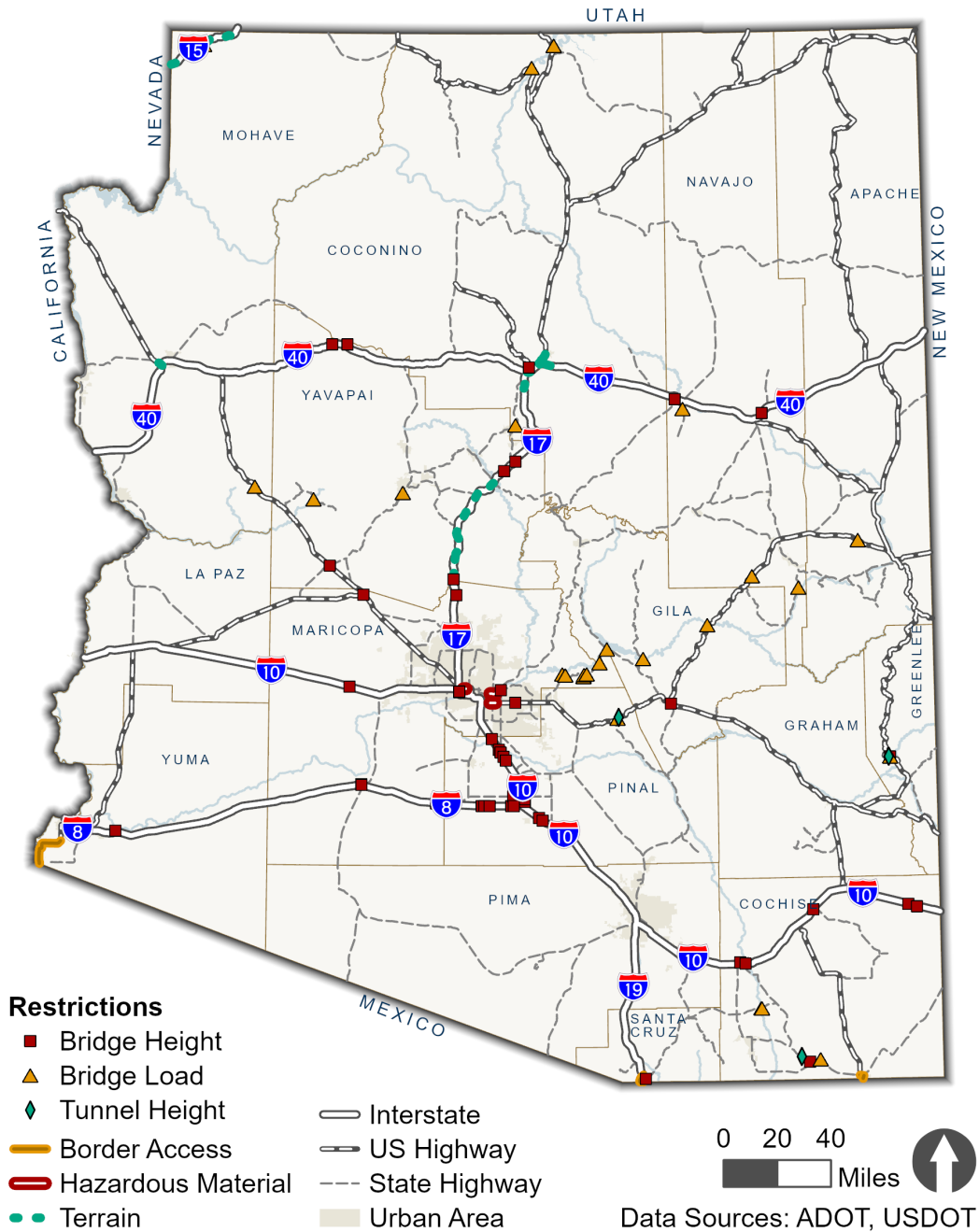
Non-recurring bottlenecks and physical restrictions add a second layer of constraint. These include terrain-related constraints, border-access bottlenecks, hazardous material restrictions, and bridge height and load restrictions that force trucks into detours, require smaller loads, or limit operating times as shown in *Figure 29*.

Terrain bottlenecks concentrate on I-17 between Black Canyon City and SR 69 and between Camp Verde and Black Canyon City, on US 93 between SR 68 and I-40, and on US 89 in the Flagstaff area. Border-access bottlenecks affect SR 189⁶ and I-19 at the Nogales Port of Entry in both directions, US 95 at San Luis, and US 191 at Douglas. Three hazardous material restrictions apply in the Phoenix metro: I-10 between 7th Avenue and 7th Street, SR 202 between McClintock Road and Dobson Road, and US 60 between McClintock Road and Dobson Road.

More than 80 bridges and structures statewide carry height or load restrictions. Height-restricted structures, the majority non-rampable, meaning oversize loads cannot use the ramp and must detour entirely, concentrate on I-8, I-17, I-10 and their business loops, SR 80, SR 85, SR 87, SR 303, and US 60. Load-restricted bridges are distributed more broadly across the rural highway network, with clusters on SR 88, SR 89A, US 60, SR 82, and US 191.

⁶ ADOT completed the SR 189 improvement project, improving the safety and the flow of commerce.

Figure 29: Non-recurring and Truck Restriction Bottlenecks



The top 20 Urban and Rural bottleneck locations, with the likely causes and ranking, are illustrated in *Table 32* and *Table 33*, including the road name, direction (North-bound (NB), South-bound (SB), East-bound (EB) and West-bound (WB)), and milepost (MP).

Table 32: Top 20 Rural Bottlenecks based on Delay per Mile

Road Name	Bottleneck Location	Potential Cause of Bottleneck	Segment Delay	Segment Delay per Mile	Bottleneck Rank
I-8 BL	NB: I-8 EB on/off ramps to I-8 WB on/off ramps	Congestion	1,736	6,707	1
I-10	WB: SR 587 to Riggs Rd	Congestion	52,607	6,143	2
US 93	NB: SR 68 to I-40	Congestion	13,127	3,562	3
I-10	EB: Riggs Rd to SR 587	Congestion	28,493	3,514	4
SR 85	WB: I-8 to Butterfield Trail	Congestion	6,892	3,368	5
I-10	WB: SR 85 to Salome Rd	Congestion	108,716	3,345	6
Main St	EB: Segment Between Riggles Ave/I-10 and Quartzsite Ave/I-10	Congestion	9,199	3,236	7
I-10	EB: Houghton Rd to Cochise County Line	Congestion	65,299	3,200	8
Butterfield Trail	SB: SR 85 to I-8	Congestion	8,122	3,195	9
Main St	WB: Segment Between Riggles Ave/I-10 and Quartzsite Ave/I-10	Congestion	8,905	3,133	10
I-10	WB: SR 587 to SR 387	Congestion	27,386	2,997	11
I-40	WB: Topock POE to California State Line	POE, Congestion	8,432	2,854	12
I-10	WB: US 95 to California State Line	Congestion	51,340	2,660	13
I-10	EB: SR 587 to SR 387	Congestion	23,736	2,586	14
I-10	EB: Maricopa/La Paz County Line to Sun Valley Pkwy/Palo Verde Rd	Congestion	93,706	2,388	15
I-10	EB: California State Line to US 95	Congestion	46,570	2,383	16
I-10	EB: MP 110 to SR 85	Congestion	5,173	2,245	17
I-40	EB: Needle Mountain Rd to SR 95	Congestion	13,434	2,169	18
I-10	EB: Avenue 75E Off Ramp to Maricopa County Line	Congestion	2,840	2,043	19
US 93	NB: SR 68 to I-40	Terrain, Congestion	6,721	1,950	20

Table 33: Top 20 Urban Bottlenecks based on Delay per Mile

Road Name	Bottleneck Location	Potential Cause of Bottleneck	Segment Delay	Segment Delay per Mile	Bottleneck Rank
I-10	WB: At Loop 303	Congestion	74,279	47,029	1
I-10	EB: 27th Ave to 19th Ave	Congestion	36,073	35,560	2
I-10	EB: 51st Ave to 27th Ave	Congestion	109,038	32,619	3
I-10	EB: I-17 to SR 51	Congestion	94,507	29,464	4
I-10	WB: 19th Ave to Buckeye Rd	Congestion	167,195	27,597	5
I-10	EB: Sarival Ave to Litchfield Rd	Congestion	95,841	27,420	6
SR 202	WB: SR 143 to I-10	Congestion	78,918	25,926	7
I-10	EB: Litchfield Rd to 51st Ave	Congestion	239,006	23,233	8
I-10	WB: I-17 to 51st Ave	Congestion	76,861	23,104	9
I-10	WB: 27th Ave to 19th Ave	Congestion	29,691	22,618	10
I-10	WB: Queen Creek Rd to Riggs Rd	Congestion	45,404	19,253	11
I-10	WB: 51st Ave to Litchfield Rd	Congestion	190,852	18,507	12
I-10	WB: Buckeye Rd to 24th St	Congestion	18,749	17,150	13
I-17	NB: I-10 to 24th St	Congestion	115,100	16,164	14
US 95	SB: I-8 to Avenue 3E	Congestion	22,983	15,824	15
SR 51	SB: I-10 to Indian School Rd	Congestion	28,076	15,020	16
SR 101	SB: Southern Ave to SR 202	Congestion	35,533	15,015	17
I-10	WB: Queen Creek Rd to SR 202	Congestion	44,849	14,283	18
I-17	SB: Thunderbird Rd to Indian School Rd	Congestion	109,968	13,703	19
US 191	SB: SR 80 to Douglas POE	POE, Congestion	15,637	13,564	20

Border-access bottlenecks on SR 189, US 95, and US 191 connect directly to the Nogales, San Luis, and Douglas ports of entry, and several rural corridors, including I-17 near Black Canyon City and US 93 in northwest Arizona, face terrain-related constraints that compound congestion.

The specific combination of needs varies by corridor:

- **I-10 Phoenix metro.** This corridor is Arizona's busiest freight artery and faces the State's most severe urban congestion. Growing e-commerce demand concentrated in the Phoenix warehouse and distribution cluster adds truck trips to an already-strained network, while the corridor's role as a primary testbed for autonomous trucking creates both opportunity and near-term infrastructure coordination needs. Pavement rehabilitation and bottleneck relief at key interchange locations, particularly the I-10/I-17 stack interchange, are the corridor's most pressing capital needs.
- **I-19 from Nogales to Tucson.** This corridor is the primary route for northbound cross-border trade and is absorbing growth from both increased Mexico trade volumes and new near-shoring manufacturing investments. The most acute constraint is the SR 189 connector between the Nogales Port of Entry and I-19. ADOT has completed improvements to address the most acute need. CBP staffing shortages at Nogales compound the corridor's congestion by slowing commercial throughput at the crossing itself.
- **I-10 rural (Tucson to the New Mexico and California state lines) and I-40 between Flagstaff and Kingman.** These long, sparsely populated through-corridors carry substantial national freight volumes with very limited driver amenities. Truck parking is limited along both routes. Deferred pavement maintenance adds further challenges to corridors where heavy through-truck traffic accelerates wear on roads designed for lower volumes.
- **I-17 between Phoenix and Flagstaff.** This corridor faces a more moderate set of challenges than the others. The most significant physical constraint is the Black Canyon grade north of Phoenix, where terrain limits speeds and passing opportunities for heavy trucks.
- **US 191/US 70 in southeast Arizona.** This corridor serves the State's emerging critical-minerals industry, connecting the Hermosa Project in

the Patagonia Mountains, porphyry copper operations in the southeast Arizona belt, and lithium prospects at Big Sandy, Wikieup, and Willcox Playa to the interstate system. Heavy mining loads place disproportionate wear on roadways built for lower truck volumes, and a shortage of CDL drivers and skilled trades workers in this remote region could limit how quickly the industry grows. Truck parking is also limited along this corridor.

Highway Truck Parking

Truck parking can be an operational constraint on Arizona's highway system. Since the 2022 SFP, there have been significant resources dedicated to expand and improve truck parking statewide. In conjunction, ADOT's Statewide Truck Parking Implementation Plan identified a gap of approximately 842 spaces across roughly 10 priority locations statewide, with the most challenges along I-10 and I-40. Completed expansions to date include the Haviland Rest Area on I-40 (adding 30 spaces), the Bouse Wash Rest Area on I-10 (adding 12 spaces) and the Meteor Crater Rest Area on I-40 (30 formalized spaces).

5.5.2 Freight Rail System Needs

Rail represents 26.4% of Arizona's freight tonnage, moved primarily on the BNSF Transcon in northern Arizona and the UP Sunset Route in southern Arizona. The most consequential near-term development for Arizona's rail system is the proposed merger between UP and Norfolk Southern, which would create the first transcontinental Class I railroad in the United States. If approved, the merger would reshape how intermodal freight moves through Arizona: the UP Sunset Route would be at the center of this change, as it connects Southern California's ports to eastern markets through Arizona and is the corridor most likely to see shifts in competitive dynamics, intermodal flows, and railroad operating plans. BNSF Transcon would also be affected, though more indirectly, as shippers and the railroads themselves respond to a changed competitive landscape. It is not yet clear what conditions the Surface Transportation Board may impose if it approves the merger, making it difficult to predict the net effect on Arizona's freight system. ADOT will monitor the merger process closely and engage as necessary to ensure Arizona's freight interests are represented.

Growing trade with Mexico also creates rail-specific needs. Containerized rail volumes through the Nogales rail crossing have more than tripled since the mid-1990s, and continued cross-border trade growth will add further traffic at the crossing and on the UP Sunset Route that connects it to national markets. Rail labor shortages and localized maintenance needs on secondary lines may also affect the reliability of service to some Arizona freight generators, particularly in mining and agricultural corridors.

Highway-rail grade crossings are a safety need that grows alongside freight volumes. Arizona has 1,395 active roadway-rail crossings, of which 1,135 are at-grade; 687 of these are on publicly maintained roadways. At-grade crossings concentrate on Class III short-line railroads, where grade separations are less common than on the Class I mainlines. From 2020 to 2024, Arizona recorded between 3 and 9 at-grade crossing crashes annually, with fatalities declining 50% since 2020 though total crashes marginally increased. The 2022 State Rail Plan identified specific crossing improvement projects at Milton Road, Florence-Walnut, Lone Tree, and Beaver Street/San Francisco Street in Flagstaff.

Unlike the highway system, Arizona's freight rail infrastructure is owned and operated by private Class I and Class III railroads. ADOT does not own or maintain rail infrastructure; its role is to support grade crossing safety on the public roadway side of at-grade crossings, coordinate with railroads on planning, and advocate for Arizona's freight interests in federal regulatory proceedings such as the proposed UP-Norfolk Southern merger. ADOT will develop a separate state rail plan to examine rail-specific issues in depth, including grade crossing safety, blocked crossings, and the infrastructure needs of Arizona's smaller freight railroads.

5.5.3 Air Cargo System Needs

Air cargo handles only 0.1% of Arizona's freight tonnage today but is the fastest-growing mode in the State's freight system, driven almost entirely by e-commerce. Small-packaged freight, the product of online retail, is the fastest-growing air cargo commodity nationally, and Arizona's air cargo airports are absorbing the growth. Arizona's commercial airports are owned and operated by local governments: Phoenix Sky Harbor International Airport (PHX) by the City of Phoenix, Tucson International Airport (TUS) by the Tucson Airport Authority, and Mesa Gateway by the City of Mesa. ADOT's role in the air cargo system is limited to the landside road infrastructure that connects airports to

the freight network. Airside operations, security, and facility investment are the responsibility of airport operators, the Transportation Security Administration (TSA), and the Federal Aviation Administration (FAA).

Phoenix Sky Harbor International Airport (PHX) is the dominant hub. Volume is growing, but PHX faces constraints that limit its effectiveness as a freight gateway:

- **Landside access is congested:** trucks serving the cargo facilities compete for road capacity with passenger traffic on the approaches to the airport.
- **Workforce is constrained:** competition for skilled labor from the broader Phoenix-metro economy adds challenges for cargo handling operations.
- **Infrastructure is aging:** cargo aprons and terminal facilities have deferred maintenance requiring attention as freight volumes rise.

Tucson International Airport (TUS) serves a more specialized freight role, with an aerospace-focused operating profile tied to the Tucson region's defense and manufacturing industries. The most acute need at TUS is workforce: the aerospace-sector concentration means that cargo operations compete for the same pool of skilled technicians and ground crew that the region's defense contractors and manufacturers are also recruiting from aggressively.

Phoenix-Mesa Gateway Airport is positioned to become significantly more important to Arizona's air cargo system when the planned SkyBridge facility becomes fully operational in the mid-2030s. SkyBridge's joint air-cargo hub housing U.S. and Mexican customs will bring Arizona its first cross-border logistics capability and serve as the nation's first inland airport-centered development built around a dual-customs air cargo hub. Near-term air cargo needs at Gateway are limited, but planning for the infrastructure and access connections that will serve SkyBridge should begin in advance of its opening.

5.5.4 Pipeline System Needs

Arizona's pipeline network, anchored by the Kinder Morgan West and East Lines carries petroleum products from the Los Angeles basin and El Paso, respectively, to Phoenix and Tucson. In addition, the natural gas pipeline infrastructure is expanding. The Transwestern Pipeline Desert Southwest Expansion Project will bring new natural gas supply from the Permian Basin into

Arizona, and the proposed Western Gateway Pipeline would create additional connections between West Texas, Arizona, and California. These projects reflect continued demand for natural gas for power generation even as petroleum demand fluctuates. Phillips 66, KMI, and HF Sinclair announced a joint venture and final investment decision to move forward with the proposed Western Gateway Pipeline system (Western Gateway) project. The proposed 1,300-mile refined products pipeline system would create a new fuel supply path from St. Louis, Missouri, and expanded Gulf Coast origin points to Arizona and California. The project will consist of an approximately 900-mile new-build pipeline from Borger, Texas to Phoenix, Arizona.

Pipelines are privately owned and operated; oversight of safety rests with the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA). ADOT has no direct role in pipeline operations or investment. ADOT will monitor energy transition trends, particularly natural gas and petroleum demand, so that the plan's assumptions about pipeline capacity and freight mode share remain current as conditions evolve.

5.5.5 Border Infrastructure Needs

Arizona's six international land ports of entry are important gateways for a freight system that depends heavily on trade with Mexico facing a concentrated set of needs. Growing trade volumes, aging physical infrastructure, and persistent staffing shortages all press on the same facilities at the same time. The land ports of entry (LPOEs) themselves are federal facilities owned by the General Services Administration (GSA) and operated by Customs and Border Protection (CBP). ADOT's role is to plan, fund, and maintain the State highway infrastructure that connects crossings to the interstate system.

The Nogales Ports of Entry complex, which includes the Mariposa commercial truck crossing and the adjacent rail crossing at the DeConcini Port of Entry, is Arizona's busiest commercial gateway and its most constrained. In 2024, Nogales handled \$34.1 billion in trade and more than 400,000 commercial truck crossings. The physical infrastructure at Mariposa is aging and only partially modernized, limiting the number of lanes that can process commercial vehicles at peak periods. Wait times at Nogales routinely run 20 to 45 minutes and exceed an hour during peak produce season, when refrigerated northbound truck traffic surges from November through April. Staffing shortages at CBP compound the physical constraints: when lanes cannot be staffed, throughput

slows regardless of facility capacity. The SR 189 improvement project provides a connection between the Mariposa crossing and I-19 which has improved safety and the flow of commerce.

The San Luis area is one of Arizona's most important international trade gateways. Commercial freight is served through San Luis II, a major crossing for agricultural imports and cross-border truck traffic, while the San Luis I LPOE is undergoing a roughly \$355 million modernization and expansion project to increase passenger-vehicle and pedestrian processing capacity, improve operational efficiency, and reduce wait times. CBP staffing constraints affect border operations, though the modernization will address significant physical-capacity limitations at San Luis I.

The smaller eastern ports of entry (Lukeville, Sasabe, Naco, and Douglas) carry relatively limited commercial freight volumes. The most significant need among them is at Douglas, where close to \$400 million of \$500+ million in IIJA-funded investment is modernizing the existing crossing and funding a new facility expected to be complete in 2028. This investment will expand Arizona's commercial crossing capacity in the southeastern part of the State.

Across all ports of entry, ADOT's role is primarily to support the road infrastructure that connects crossings to the interstate system, while federal agencies control the crossings. Addressing future border infrastructure needs will depend on continued coordination with CBP on staffing and retention.

Port & Facility Upgrades

The following are Arizona-Mexico infrastructure project improvements for the LPOEs for freight and passenger vehicles.

- **San Luis I Land Port of Entry:** The facility is undergoing a major modernization and expansion project managed by the General Services Administration (GSA). Upgrades expand northbound private vehicle lanes from 8 to 16, increase pedestrian lanes from 10 to 14, and add new inspection canopies and administrative buildings, with completion expected in Spring 2029. Separately, temporary equipment installation caused localized traffic delays over the summer and fall of 2026.
- **San Luis I Operations:** U.S. Customs and Border Protection crews carried out equipment installations in mid-2026 to optimize operational infrastructure and traffic flow.

- **Dennis DeConcini LPOE (Nogales):** Bipartisan federal lawmakers and local stakeholders have pushed to prioritize and accelerate pre-construction and modernization planning for this heavily traveled port, which faces capacity strains serving millions of personal vehicle and pedestrian crossings annually, as well as heavy flooding during monsoon season.
- **GSA conducted a feasibility study in Douglas and determined that there was a need for a two-port solution.** The existing Raul H. Castro port of entry will be undergoing a \$350 million modernization process, and a new, nearly \$329 million commercial port of entry will be constructed approximately five miles west of the downtown Douglas area.
- **Douglas Port of Entry/Livestock Phased Reopening:** Following a temporary closure to manage screwworm prevention in Mexico, the U.S. Department of Agriculture announced a phased reopening plan for southern ports including Douglas, supported by regional animal health infrastructure controls.

5.6 Conclusion

In the years ahead, ADOT will work towards completing the projects outlined in this SFP plan, and resolving issues such as bottlenecks, by optimizing NHFP funds, and coordinating with freight planning partners and stakeholders in Arizona to implement strategies outlined in the Arizona State Freight Plan. Throughout this process, ADOT will examine trends, monitor needs, and look for opportunities related to the freight system.

The FAC has been involved in freight plan development every four years, and ADOT intends to continue regular FAC interaction to help proactively mainstream freight planning more robustly into the overall statewide planning process. This will help us address freight issues together and help us move more seamlessly into freight plan updates with an improved understanding of mutual needs and goals.

The implementation of the 2026 Arizona State Freight Plan, as well as FAC involvement in statewide planning, will ultimately enhance economic

CHAPTER 6

FREIGHT IMPROVEMENT & IMPLEMENTATION PLAN



5.1 Federal Policies & Initiatives Informing Arizona State Freight Plan Implementation

The Arizona Department of Transportation (ADOT) is required under the Fixing America's Surface Transportation (FAST) Act, as continued by the Infrastructure Investment and Jobs Act (IIJA), to maintain a fiscally constrained freight investment plan that describes how National Highway Freight Program (NHFP) funds available under 23 U.S.C. 167 will be invested and matched. ADOT developed this Freight Investment Plan (FIP) to be federally compliant. Additionally, the Agency selected strategies ADOT will follow to advance the 2026 State Freight Plan (SFP) freight goals and objectives.

5.2 Freight Investment Plan

The FIP is required by federal statute to be fiscally constrained to funds reasonably expected to be available over the plan horizon. For the 2026 SFP, ADOT drew upon the original 2017 SFP process and the refreshed 2022 SFP method of updated data and partner input. The 2026 SFP relied on spatially joined system data wherever possible, focused on bottleneck-related highway freight projects, and collaborated with Technical Advisory Committee (TAC) members to identify priority locations.

ADOT used a three-stage process:

1. Identifying Candidate Projects

- **Screening ADOT Programmed Projects:** Began with the projects in the electronic Statewide Transportation Improvement Program (eSTIP). Then screened them for those eligible for freight funding:
 - projects planned for Federal Highway Administration (FHWA) funding,
 - set to the current programming window,
 - and project types related to freight.
- **Elicitation of partner priority projects:** Reached out to regional, local, and tribal governments for additional projects to consider, comparing

their project priorities against the screened list to flag projects that align and add those not already captured.

2. Prioritization Framework

- **Criteria and Weights:** Selected prioritization criteria and weights based on previous SFP methodologies and available data.
- **Data Sources and Joining:** Identified the most recent data for each criterion and joined the spatial data to each project.
- **Scoring and Ranking:** Using the joined data and criteria, applied a weighted scoring to rank each project and create a list of the top 30.

3. Qualitative Review and Project Selection

- **Bottleneck and NHFN alignment:** Flagged projects that overlap identified bottlenecks and are located on the National Highway Freight Network (NHFN), evaluating each for its ability to improve the freight system and for any work needed to confirm eligibility.
- **Regional partner priorities:** Gave weight to the priority freight projects identified by the Freight Advisory Committee (FAC) and TAC.
- **Geographic representation:** Balanced urban investments with rural corridor needs across the state.
- **Fiscal constraint and funding status:** Met with the Multimodal Planning Division (MPD) team to identify the projects most appropriate for NHFP funding. Assigned NHFP funding to the selected projects by programmed year from 2027 through 2031.

5.2.1 Identifying Candidate Projects

ADOT began by reviewing the status of all candidate projects carried forward from the 2022 SFP. This review found that all previously identified projects had been completed, were under construction, or had otherwise advanced through ADOT's programming pipeline. With the prior projects substantially advanced through programming and delivery, ADOT focused on identifying emerging freight needs and new investment opportunities across the state.

ADOT used a two-pronged approach to identify candidate projects:

1. **Systematic screening of ADOT’s programmed pipeline.** The eSTIP Five-Year Plan and discussions with internal ADOT staff served as the starting point for identifying programmed projects with freight relevance. A multi-step screen narrowed the full eSTIP and additional projects from around 3,000 to a set of candidates likely to address documented freight needs:
 - a) Federal-aid funding status. Only projects currently programmed or planned to use Federal Highway Administration (FHWA) funds were retained, which also removed airport projects funded through the Federal Aviation Administration (FAA). The remaining set was 1,339 projects.
 - a. FY2027–FY2031 programming window. Projects were retained only if they had programmed funding within the FY2027–FY2031 Five-Year Plan horizon or planned funding beyond the next five years, narrowing the set to 272 projects.
 - b. Exclusion of non-freight project types. Rest area projects (3), National Electric Vehicle Infrastructure (NEVI) projects (17), bridge rehabilitation and pavement preservation projects unlikely to improve bottleneck conditions or freight connectivity (89), privately funded projects (2), and active transportation projects (22) were excluded, leaving 139 projects.
2. **Priority projects were reviewed by FAC/TAC members.** ADOT sought to include locally-significant investments addressing last-mile connectivity, border access, and regional bottlenecks. This outreach populated the candidate list with regionally vetted investments while giving the FAC/TAC an early, substantive role in plan development. For example, the Pima Association of Governments (PAG) identified Interstate 10 (I-10) widening from Alvernon Way to Valencia Road, I-19 Phase 3 widening from Valencia Road to I-10, and the Tangerine Road / I-10 traffic interchange reconstruction as its top three priorities. The Maricopa Association of Governments (MAG) similarly identified freight-related projects from its Regional Freeway System and Regional Surface Transportation programs, including corridor optimization on US 60 (Grand Avenue) and I-17 capacity improvements from the I-10 system interchange northward through the central Phoenix corridor.
 - a. Two of the MAG projects were not in the eSTIP and were added, resulting in a total of 141 projects evaluated.

The combination of bottom-up input from regional, tribal, and private-sector industry was part of the FAC/TAC discussions and top-down screening of the programmed pipeline produced a candidate list grounded in both local priorities and statewide freight system needs. All candidate projects were then evaluated through the prioritization framework.

5.2.2 Prioritization Framework

Using analytical scoring scripts, the framework scored each candidate project against eight objective criteria, normalized on a 0-to-1 scale and combined using a weighted scoring method.

Scoring Criteria & Weights

Relative to prior SFP iterations, the 2026 SFP revised the criteria and approach by shifting toward objective criteria that can be scored with available, spatially joined system data, reducing reliance on subjective or difficult-to-obtain measures and consolidating travel-time indices into the FHWA Truck Travel Time Reliability index.

The criteria and weights are shown in **Table 34**.

Table 34: Freight Investment Plan Prioritization Criteria and Weights (2026)

Criterion	Measure	Weight
Does the issue hinder mobility or freight transportation system reliability?	Truck Travel Time Reliability (TTTR) index, the federal Transportation Performance Management measure	22%
Is the issue on a Key Commerce Corridor (KCC)?	Issue is on a KCC	15%
Does the issue affect transportation system safety?	Truck-related crashes per 100 million vehicle miles traveled	13%
Are the flows impacted by the issue significant?	Truck volume (average annual daily truck traffic, AADTT) through the project segment	12%
Do future conditions aggravate this significance?	Future AADTT, estimated using Highway Performance Monitoring System (HPMS) geometric growth rates applied to the 2050 horizon year	12%
Is the issue an impediment to trade?	Commodity tonnage through the project segment, spanning all industries and including intra-Arizona flows	12%
Does the issue increase the transportation cost of freight?	Annual truck delay (hours)	11%
Would addressing the issue improve multimodal access?	Project is within a quarter mile of an airport or railyard	3%

Data Sources & Joining

Table 35 shows the datasets ADOT identified using the most recently updated source for each criterion.

Table 35: 2026 Prioritization Criteria Data Sources

Criterion	Data source(s)
KCC	2016 Key Commerce Corridors data layer
AADTT	2024 HPMS
Future AADTT	2024 HPMS
Commodity tonnage	2024 HPMS
Intermodal connector	Airports: 2026 FAA Airport Inventory System; rail: 2025 ADOT rail network
TTTR	2024 National Performance Management Research Data Set (NPMRDS)
Truck delay	2024 NPMRDS
Truck-related crash rate	2025 Arizona Crash Information System (ACIS)

Each source dataset was spatially joined to the candidate project segments using a geographic information system (GIS). Because the source data relies on different coordinate systems and map to roadway segments that do not align one-to-one with project limits, a 150-foot spatial buffer was applied around each project's centerline to capture overlapping data segments. Where at least 75 percent of a captured segment's length overlaps the project, it is treated as representative of the conditions the project addresses. This rule prevented spurious matches from cross-streets, parallel routes, or over- and under-passes that fall within the buffer but are not part of the project scope. Once joined, the segment data for each project was aggregated into a single criterion value using binary, length-weighted-average, sum, and product/quotient methods as appropriate to each criterion's data type.

Weighted Scoring & Ranking

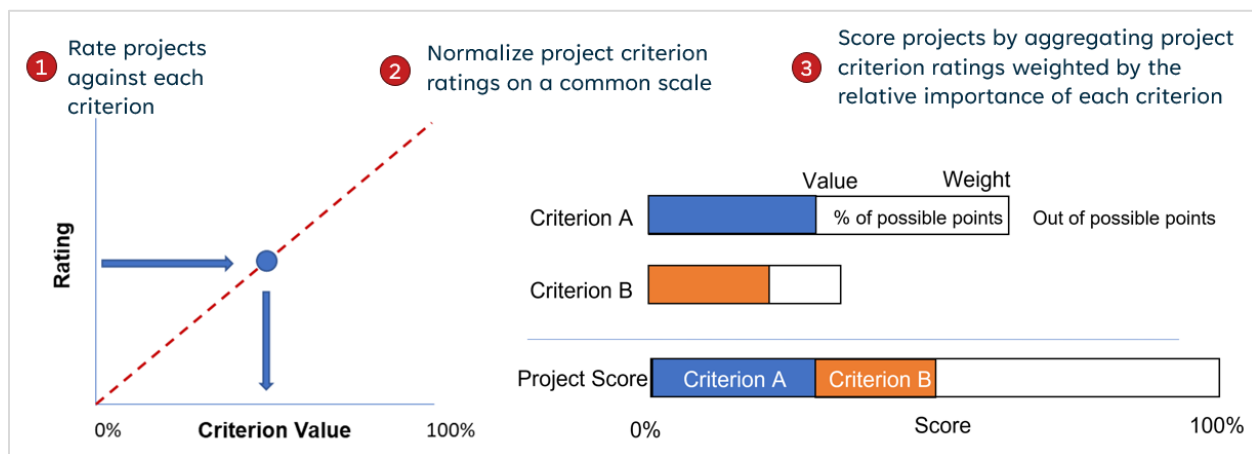
Consistent with prior cycles, project scores were computed using a weighted scoring method (multiple-objective decision analysis, or MODA) that combines normalized criterion values with partner-derived priority weights into a single composite score for each project (**Figure 30**):

1. **Normalize.** Each criterion's rating was normalized across all candidate projects to a 0 (lowest priority) to 1 (highest priority) scale by dividing each

project's rating by the maximum observed in the candidate set, placing criteria measured in different units on a common value scale.

2. **Weight.** Each normalized value was multiplied by the criterion's weight from **Table 34**, reflecting its relative importance.
3. **Score.** A project's weighted, normalized ratings were summed across all eight criteria to produce its composite priority score. Projects were ranked from highest to lowest composite score, with higher scores indicating greater relative alignment with the plan's goals and higher priority for freight investment.

Figure 30: Weighted Scoring (MODA) Approach



5.2.3 Qualitative Review & Project Selection

The qualitative review and project selection phase moves beyond objective scoring, bringing Agency and partner judgment to the ranked list. ADOT weighed each project's bottleneck and NHFN alignment, regional partner priorities, and geographic representation against the NHFP funding reasonably expected to be available and its suitability for NHFP support.

Bottleneck & NHFN Alignment

To support evaluation and selection, ADOT flagged whether the projects overlapped a bottleneck location. Bottleneck flagged projects overlap by at least 75% with a recurring or non-recurring bottleneck identified as part of this SFP. This step highlighted the projects that could contribute to addressing these areas of congestion.

Additionally, the same 75% threshold was applied to indicate projects that fall on the National Highway Freight Network (NHFN) segment, more specifically on the Primary Highway Freight System (PHFS), a Critical Urban Freight Corridor (CUFC), or a Critical Rural Freight Corridor (CRFC). Consistent with 23 U.S.C. 167, any top-ranked projects not located on the National Highway Freight Network (NHFN) would need to be funded through alternative federal-aid or state sources, or ADOT could consider designating additional CRFC or CUFC segments to be eligible for NHFP funding. For the 2026 SFP, all top-ranked projects were eligible.

Consideration of Regional Partner Priorities

Beyond the objective scores, the selection accounts for priorities expressed by regional planning partners. When the regional partners identified their top priority freight projects, these preferences informed the final selection. PAG identified three priority projects and MAG identified 20.

Where a ranked project was also a regional partner priority, that convergence of objective scoring and local support reinforces its selection and helps ensure the FIP reflects both statewide freight system performance needs and the priorities of the communities most affected by freight activity.

Geographic Representation

To serve the full breadth of Arizona's freight system, ADOT considered geographic representation across the state, including projects addressing rural corridor needs alongside the urban investments that dominate the top of the ranked list due to higher volumes, greater congestion severity, and greater relative safety concerns. While urban freight bottlenecks generate high absolute delay costs, rural corridors are essential links serving agricultural trade, border commerce, natural resource extraction, and through-movement of goods on national corridors.

Selection Approach

Finally, to consider the funding available for the FIP, ADOT first had to forecast its NHFP revenue over the five-year horizon. As of this plan's drafting, Congress had not passed a surface transportation reauthorization setting NHFP funding levels. Therefore, ADOT forecasted the anticipated revenue for the FIP assuming a continuation of Arizona's NHFP apportionment similar to the FY2026 level with \$25,000,000 each year from FY2028-2031. FY2027 is estimated at

\$14,400,000 to reflect a partial apportionment due to a Congressional extension of the authorizing law and a continuing resolution funding a pro-rated amount of federal aid funding. Over the five-year FIP horizon (FY2027–FY2031), this yields a total of approximately \$114.4 million in federal NHFP funds.

ADOT developed a matching fund strategy in coordination with the Multimodal Planning Division and the Programming Division to develop a fiscally constrained FIP. Working within these fiscal constraints and considering the various geographic and partner priorities, the final selection included:

1. Reviewing of the Top 30 prioritized projects to identify and remove from consideration:
 - a. projects that are in construction,
 - b. projects that include funds from legislative appropriations, and
 - c. projects that are funded by the Regional Area Road Funds (RARF).
2. Coordinating with the Multimodal Planning Division and the Programming Division to identify the most appropriate projects for NHFP funding.
3. Adjusting the percentage of funding type for each project accordingly in conjunction with the Programming Division.

5.2.4 Fiscally-Constrained Freight Investment Plan

Table 36 presents the fiscally constrained list of freight projects selected for NHFP funding over the five-year horizon, showing each project’s county and total cost. Projects include those with ADOT IDs and Pre-Program Review Board (Pre-PRB).

Table 36: Fiscally-Constrained Project List

ADOT ID	Title	Description	County	Total Cost (millions)
105020	I-10: L303 to L101	Local ID:DOT26-503D, DOT29-503C Design and construct ramp meters	Maricopa	\$2.35
101119	I-10: Alvernon Way to Valencia Rd (Barraza Aviation Pkwy - SR 210 Extension/ Widening)	Widening I-10 to three lanes in each direction and building ramps for the connection of the future State Route (SR) 210 to I-10.	Pima	\$263.55
105034	I-17 - Country Club Dr, Phase 1	Widen from 4 lanes to 6 lanes and add an auxiliary lane from 195.6 to 198.2	Coconino	\$12.50
106142	Scoping Miami-Globe US 60, Milepost (MP) 243-255 Freight Evaluation and Passing/ deceleration/ turn Lane	Establish Scoping Project Freight. This includes scoping for evaluating passing/deceleration/turn lane to reduce traffic buildup near mine.	Gila	\$12.00
106141	Two intersections on US 60; US 60 at Clark Rd & US 60 at White Mountain Rd, in Show Low	Scoping: Two intersections on US 60; US 60 at Clark Rd & US 60 at White Mountain Rd, in Show Low	Navajo	\$11.00
105024	US 60/Grand Ave ITS	Local ID: DOT26-524D, DOT29-500C Design and construct Intelligent Technology System (ITS)	Maricopa	\$3.90
105033	I-17 NB MP 298 to 314	Widen Northbound (NB) to 3 Lanes and Add a climbing Lane; additional general purpose lane NB and climbing lane NB.	Coconino	\$196.24
106001	Crazy Creek EB and WB Bridges	Bridge Replacement Westbound (WB)	Apache	\$46.25
105026	Eagar Area DMS	Dynamic Messaging Sign (DMS)	Apache	\$2.40

ADOT ID	Title	Description	County	Total Cost (millions)
105951	I-40 EB Exit 25	Roadway Widening Eastbound (EB)	Mohave	\$1.07
103704	SR 69 Jasper Pkwy to Glassford Hill Rd.	Intelligent Transportation System improvements on SR 69	Yavapai	\$16.29
Pre-PRB	2031 State Freight & Rail Planning Update	Update the State Freight & Rail Plan	Statewide	\$3.00
Pre-PRB	I-10 -MP 188.2 at Val Vista Road (1152)	Bridge posted for height restriction. WB non-rampable	Pinal	\$0.20
Pre-PRB	I-10 -MP 193.88 at Cottonwood Lane	Bridge posted for height restriction. Both directions non-rampable	Pinal	\$0.20
Pre-PRB	I-10 -MP 196.89 at Selma Highway (1160)	Bridge posted for height restriction. EB non-rampable	Pinal	\$0.20
Pre-PRB	I-10 -MP 195.89 at Early Road (1158)	Bridge posted for height restriction. Both directions non-rampable	Pinal	\$0.20
Pre-PRB	I-10 -MP 205.45 at Battaglia Drive (943)	Bridge posted for height restriction. Both directions non-rampable	Pinal	\$0.20
Pre-PRB	I-10 -MP 207.17 at Alsdorf Road (944)	Bridge posted for height restriction. WB non-rampable	Pinal	\$0.20
Pre-PRB	I-10 -MP 190.73 WB at McCartney Rd Underpass (1153)	Bridge posted for height restriction. WB non-rampable	Pinal	\$0.20
Pre-PRB	I-8 -MP 21.04 at Dome Valley Road	Bridge posted for height restriction. WB non-rampable	Yuma	\$0.20
Pre-PRB	I-8 -MP 144.55 at Vekol Road Traffic Interchange (TI)	Bridge posted for height restriction. Both directions non-rampable	Maricopa	\$0.20
Pre-PRB	I-8 -MP 161.6 at Stanfield Road TI	Bridge posted for height restriction. EB non-rampable	Pinal	\$0.20
Pre-PRB	I-8 -MP 172.55 at Thornton Road TI	Bridge posted for height restriction. EB non-rampable	Pinal	\$0.20

ADOT ID	Title	Description	County	Total Cost (millions)
Pre-PRB	SR 82 -MP 64.47 at Fairbank Southern Pacific Railroad (SPRR) Overpass (189)	Bridge posted for load restriction	Cochise	\$0.20

ADOT plans to match the federal freight funds with Arizona Highway User Revenue Fund (HURF) dollars, partner funding, or other non-federal sources, depending on the project. The programming of the selected projects assumes NHFP apportionment that is reasonably expected to be available through FY2031. While **Table 36** shows each project's total cost, **Table 37** breaks out the NHFP share programmed to each project.

Table 37: Potential Project Programming Years

ADOT ID	Project Location	NHFP Funding by Fiscal Year; Dollars (millions)
105020	I-10: L303 to L101	FY 2029: \$1.95
101119	I-10: Alvernon Way to Valencia Rd (Barraza Aviation Pkwy - SR 210 Extension/Widening)	FY 2027: \$9.00 FY 2028: \$19.20
105034	I-17 - Country Club Dr, Phase 1	FY 2029: \$8.18
106142	Scoping Miami-Globe US 60, MP 243-255 Freight Evaluation and Passing/ deceleration/ turn lane	FY 2028: \$0.90 FY 2030: \$8.00
106141	Two intersections on US 60; US 60 at Clark Rd & US 60 at White Mountain Rd, in Show Low	FY 2028: \$0.90 FY 2030: \$5.00
105024	US 60/Grand Ave ITS	FY 2029: \$3.30
105033	I-17 North-bound MP 298 to 314	FY 2029: \$9.50
106001	Crazy Creek EB and WB Bridges	FY 2028: \$1.20 FY 2031: \$25.00
105026	Eagar Area DMS	FY 2027: \$0.18 FY 2029: \$2.07
105951	I-40 EB Exit 25	FY 2027: \$0.60

ADOT ID	Project Location	NHFP Funding by Fiscal Year; Dollars (millions)
103704	SR 69; Prescott E Highway/ Glassford Hill Rd	FY 2027: \$2.4 FY 2030: \$12.00
Pre-PRB	2031 State Freight & Rail Planning Update	FY 2028: \$2.80
Pre-PRB	I-10 -MP 188.2 at Val Vista Road (1152)	FY 2027: \$0.185
Pre-PRB	I-10 -MP 193.88 at Cottonwood Lane	FY 2027: \$0.185
Pre-PRB	I-10 -MP 196.89 at Selma Highway (1160)	FY 2027: \$0.185
Pre-PRB	I-10 -MP 195.89 at Early Road (1158)	FY 2027: \$0.185
Pre-PRB	I-10 -MP 205.45 at Battaglia Drive (943)	FY 2027: \$0.185
Pre-PRB	I-10 -MP 207.17 at Alsdorf Road (944)	FY 2027: \$0.185
Pre-PRB	I-10 -MP 190.73 WB at McCartney Rd Underpass (1153)	FY 2027: \$0.185
Pre-PRB	I-8 -MP 21.04 at Dome Valley Road	FY 2027: \$0.185
Pre-PRB	I-8 -MP 144.55 at Vekol Road TI	FY 2027: \$0.185
Pre-PRB	I-8 -MP 161.6 at Stanfield Road TI	FY 2027: \$0.185
Pre-PRB	I-8 -MP 172.55 at Thornton Road TI	FY 2027: \$0.185
Pre-PRB	SR-82 -MP 64.47 at Fairbank SPRR OP (189)	FY 2027: \$0.185

5.3 Potential Implementation Strategies & Policies

The FIP focused on funding specific capital projects in the near term. Strategies and policies identify ways ADOT will address freight trends, needs, and issues across the life of the plan. They also help ADOT advance the four SFP goals: Safety and Security, System Management and Mobility, Competitiveness, and Stewardship.

ADOT developed the SFP strategies based on the plan's findings on freight trends, system needs, and network strengths and weaknesses, together with input from the FAC and TAC. The strategies are organized into four categories,

consistent with the framework ADOT introduced in the 2022 SFP and originally established in the 2016–2040 Long-Range Transportation Plan:

- I.** Resource Allocation
- II.** Performance Measurement
- III.** Target Setting
- IV.** Project Selection

Within each category, Guiding Principles set the underlying policy direction, while Strategies identify the specific actions ADOT and its FAC/TAC will pursue to carry that direction forward.

5.3.1 Resource Allocation

Freight demand in Arizona continues to shift, and ADOT must make the most of limited investment dollars. The agency weighs resource allocation decisions against established corridor designations, including the CUFC and CRFC and the PHFS evaluating them against current traffic patterns and federal guidance with each plan update. These designations shape which projects reach the top of the list and how ADOT with Metropolitan Planning Organizations (MPOs), Councils of Governments (COG), Tribal Governments, and the private sector fund them.

Guiding Principles

- Prioritize modernization and preservation of existing freight infrastructure while expanding or developing new facilities where warranted.
- Continue to scope projects using both data and stakeholder input to distinguish underlying issues from surface-level indicators and better target freight system needs.

Strategies

- 1.1** Regularly reevaluate CRFC and CUFC designations by reviewing high freight volume facilities and critical freight corridors with each SFP update, continuing to support U.S. military installations, considering the PHFS and 2026 update to the Infrastructure Investment and Jobs Act (IIJA) guidance, and reviewing results with the FAC, MPOs, COGs, and Tribal Governments.

- 1.2** Consider National Highway Freight Network designations when making investment decisions: the PHFS, other interstate portions not on the PHFS, CRFCs, and CUFCs.
- 1.3** Evaluate solutions to reduce the impact of heavy trucks on pavement and bridge conditions, including route optimization, expanded use of weigh-in-motion systems, and pavement material improvements, to extend infrastructure life and reduce maintenance costs.
- 1.4** Review and refine Intermodal Connector designations on the National Highway System (NHS), PHFS, and other facilities to strengthen critical first/last-mile freight connections and consider expansion where warranted.
- 1.5** Identify and pursue public-private partnership (PPP) arrangements, discretionary state/federal funding, and federal INFRA (Infrastructure for Rebuilding America) set-aside applications, coordinated with the Sun Corridor MPO's regional truck route and freight network plan, to fund priority safe-lot construction and address current and future truck parking demand, including tracking relevant legislation and updating parking expansion/conversion processes.
- 1.6** Engage and encourage coordination among MPOs, COGs, Regional Transportation Planning Organizations (RTPOs), Tribal Governments, and state and federal agencies throughout project planning, scoping, and selection, including tracking land-use development and designating truck routes, to solicit input and coordinate improvements across jurisdictional boundaries.
- 1.7** Evaluate and deploy proven freight-relevant technologies, including ITS, telecommunications infrastructure, and access management improvements, and expand Active Traffic Management and Department of Public Safety/ADOT Traffic Operations Center coordination on freight-priority signal timing along Critical Rural and Urban Freight Corridors to improve network efficiency and reliability.
- 1.8** Formally prioritize the highest-volume truck corridors (including I-10, I-17, I-40, I-8) and establish a dedicated freight infrastructure funding set-aside within the Five-Year Program.
- 1.9** Target accelerated pavement rehabilitation and bridge replacement on the I-10, I-40, and I-17 freight corridors, prioritizing structurally deficient bridges carrying high freight volumes.

5.3.2 Performance Measurement

ADOT tracks a range of indicators to understand how well the freight system is functioning and where it is falling short. These measures span safety, network reliability, environmental impact, and emerging risks such as cargo theft and extreme weather. Consistent measurement gives ADOT the evidence it needs to target improvements rather than react to isolated incidents, and it depends on data quality and interoperability across ADOT's partner agencies.

Guiding Principles

- Track progress in the areas of safety, the environment, and system reliability by aligning ADOT performance measurement with ADOT's existing plans, programs, and data sources.

Strategies

- 2.1 Evaluate the progress in reducing freight-related stormwater and flooding impacts in alignment with ADOT's Stormwater Management Plan.
- 2.2 Evaluate the progress in reducing traffic and wildlife incidents based on the implementation of the Arizona Statewide Wildlife-Vehicle Conflict Study.
- 2.3 Evaluate the progress in reducing freight mobility impacts from extreme weather and natural disasters in alignment with ADOT's Resilience Program.
- 2.4 Evaluate freight bottlenecks identified in the 2026 Arizona State Freight Plan by diagnosing underlying causes and assessing corresponding solutions to improve safety, reliability, and efficiency across the multimodal freight network.
- 2.5 Evaluate and consider formal designation of hazardous materials routes to address freight safety risks and reduce environmental, community, and supply chain impacts.
- 2.6 Evaluate opportunities to support the relief of import traffic in concert with partner investments in ports and airports.
- 2.7 Identify roadway engineering design elements that may enhance safety related to heavy trucks.
- 2.8 Evaluate truck weight and axle-load policies on state routes for possible increases and improved efficiency.

- 2.9** Coordinate with the Strategic Traffic Safety Plan (STSP) Administrator and Safety Group on systematic and project-specific crash-reduction improvements, including truck parking expansion and rest-area improvements that address heavy-truck safety.
- 2.10** Continue to analyze the freight network to identify areas with no redundancy, long detours, or lack of connectivity to alternate routes, and assess bridge-strike risk as an additional freight network chokepoint disruption.
- 2.11** Support inter-regional coordination within and outside the State focusing on major freight origins and destinations, including regular coordination with California, Texas, and Mexican freight agency counterparts to align on cross-border and cross-state congestion management along key freight corridors, including I-10, I-19, I-8 as well as major Arizona-California and Arizona-Mexico freight connections. This includes the connectivity from the Douglas international port of entry (POE) (SR 80 and US 191 connecting to I-10)ele.
- 2.12** Review and refine border goals and needs to improve safety, efficiency, and community and environmental impacts.
- 2.13** Consider the outcomes of the U.S. Department of Transportation's (USDOT) 2025 initiative to develop strategies and programs to reduce cargo theft and strengthen supply chain security and evaluate their applicability to Arizona's freight corridors in coordination with law enforcement and private-sector members in the FAC/TAC.
- 2.14** Improve the collection, maintenance, and interoperability of high-quality commercial vehicle data across multiple modes, promoting data sharing, performance measurement, and the application of emerging technologies.
- 2.15** Pair existing weigh-in-motion (WIM) station outputs with predictive analytics to address freight-corridor pavement deterioration before failure, extending the Transportation Asset Management Plan (TAMP) framework to freight-specific applications.

5.3.3 Target Setting

Targets translate performance data into forward-looking benchmarks for the freight system. Some are attainable within a single plan cycle, while others are aspirational and mark progress over a longer horizon. ADOT sets and adjusts targets using data-driven forecasts, including scenarios such as shifting trade

patterns, tariff changes, or other disruptions the freight system may need to absorb.

Guiding Principles

- Develop targets that are meaningful, data-driven, and improve decision-making through investment impact forecasts.

Strategies

- 3.1** Evaluate projects' impact on progress toward targets and integrate findings into project selection and decision-making processes.
- 3.2** Develop an established process for responding to situations outside of forecasted or projected conditions.
- 3.3** Solicit input on performance measures and targets from industry stakeholders and relevant regional and local organizations.
- 3.4** Evaluate prospective freight investments against multiple scenarios to prioritize projects that deliver value across a range of possible futures and supply chain shocks, including shifts in tariff structures, changes to trade agreements, and geopolitical conflicts.

5.3.4 Project Selection

Project selection is where strategy becomes action. ADOT chooses which investments to fund based on performance data, prioritization criteria, and stakeholder input. The process must account for known needs, such as reliability, mobility and safety, alongside emerging factors like new technology and shifting freight demand. ADOT aims to keep prioritization criteria aligned with the SFP's goals and objectives as both evolve.

Guiding Principles

- Ensure project prioritization criteria and scoring are aligned to strategic goals, objectives, and measures, incorporating data sources, including the Truck Travel Time Reliability (TTTR) Index, to improve safety, efficiency, and target-setting and to reduce negative impacts.

Strategies

- 4.1** Track ongoing federal updates to the National Highway Freight Network (NHFN) and National Multimodal Freight Network (NMFN) and align Arizona's project prioritization with current federal designations to maintain freight-funding eligibility.

- 4.2** Develop frameworks and guidance for emerging and disruptive freight technologies, such as electrification of powertrains and infrastructure, connected and automated vehicles (CAV), drones, and automated vehicle (AV)/platooning, to manage impacts and opportunities, considering effects on freight demand and project selection, and training programs for freight workers.
- 4.3** Evaluate project impacts on freight emissions and local communities.
- 4.4** Fund projects to mitigate known bottlenecks and improve throughput.

5.4 Conclusion

Freight underpins Arizona’s economy, and demand will keep growing through 2050, so sound investment and careful project selection are essential to make the most of fiscally constrained funding. The 2026 SFP gives ADOT’s freight investment decisions an objective and data-driven foundation in the FIP. The framework ranked the candidate projects on consistent criteria, then constrained that list against the anticipated NHFP apportionment to turn strategic intent into a deliverable program.

The strategies look beyond near-term investments. They shape how ADOT allocates resources, measures performance, sets targets, and selects projects in future cycles — keeping the freight program responsive to shifting trade, new technology, and environmental and resilience concerns. Together, the investment plan and strategies advance the plan’s four goals: Safety and Security, System Management and Mobility, Competitiveness, and Stewardship. They keep Arizona’s freight system moving reliably, in coordination with the regional, tribal, and private-sector members in the FAC who share the network.