



Arizona State Freight Plan 2026

Freight Advisory Committee Meeting #3
April 2, 2026

Meeting Instructions

Message to Participants

- Today's presentation will be recorded for transcription.
- All attendees may unmute to provide feedback. Please raise your virtual hand in the feedback tab and give your name when speaking.
- Other ways to provide input:
 - **Q&A:** Questions/comments can be posted to the Q&A tab throughout the meeting. These will be visible to all attendees, as will the name of the author.
 - **Chat:** This function is enabled for dialogue during the meeting. Comments in the chat will be incorporated into the active discussion as time permits.
 - **If you are participating via telephone**, please email your name and affiliation to hughes@highstreetconsulting.com for record-keeping and future invitations.

Agenda

1. **Welcome & Introductions** (Heidi Yaqub, ADOT)
2. **The State of Freight in Arizona** (Heidi)
3. **Assets & Performance** (Caitlin Hughes, SFP Team)
4. **Policies & Strategies** (Caitlin)
5. **2026 Vision & Goals** (Heidi)
6. **Performance Measurement & Objectives** (Vamshi Yellisetti, SFP Team)
7. **Autonomous Vehicle Deployment in Arizona** (Amanda Abruzzo, ADOT)
8. **Next Steps** (Heidi)

State Freight Plan (SFP) Team

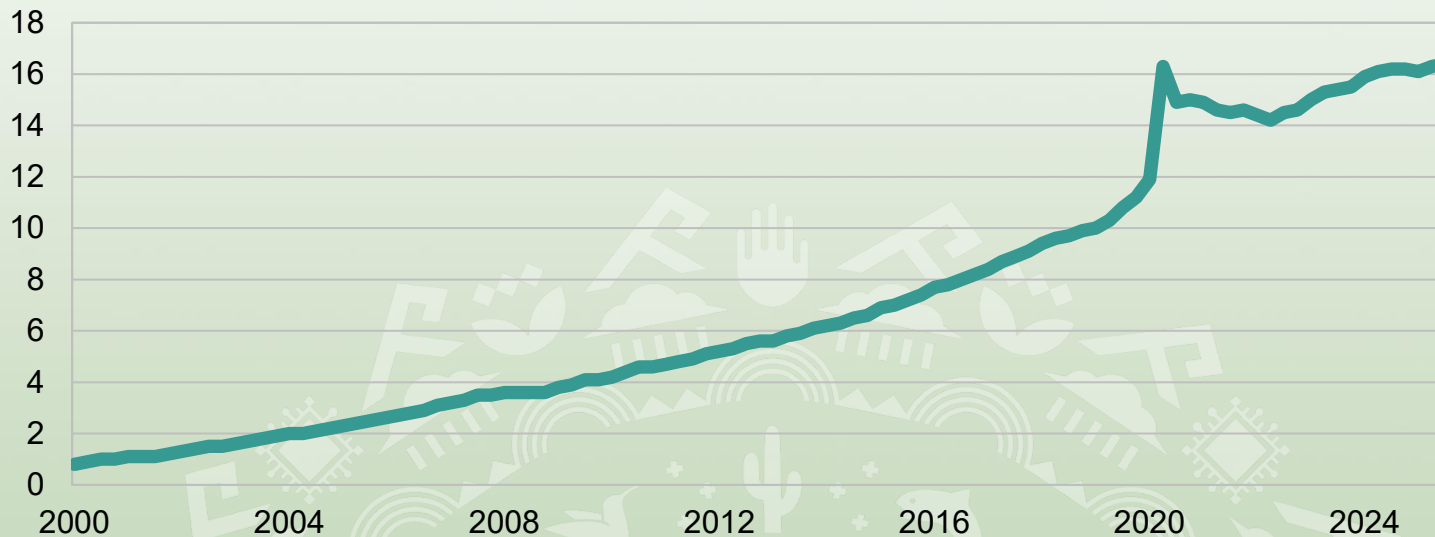
- ADOT:
 - Heidi Yaqub, Regional/Freight Transportation Program Manager
 - Jesse Schneider, Transportation Section Manager
- Consultant Team:
 - HIGH STREET, S&P GLOBAL, KITTELSON, NOVUS, LOKAHI



The State of Freight in Arizona

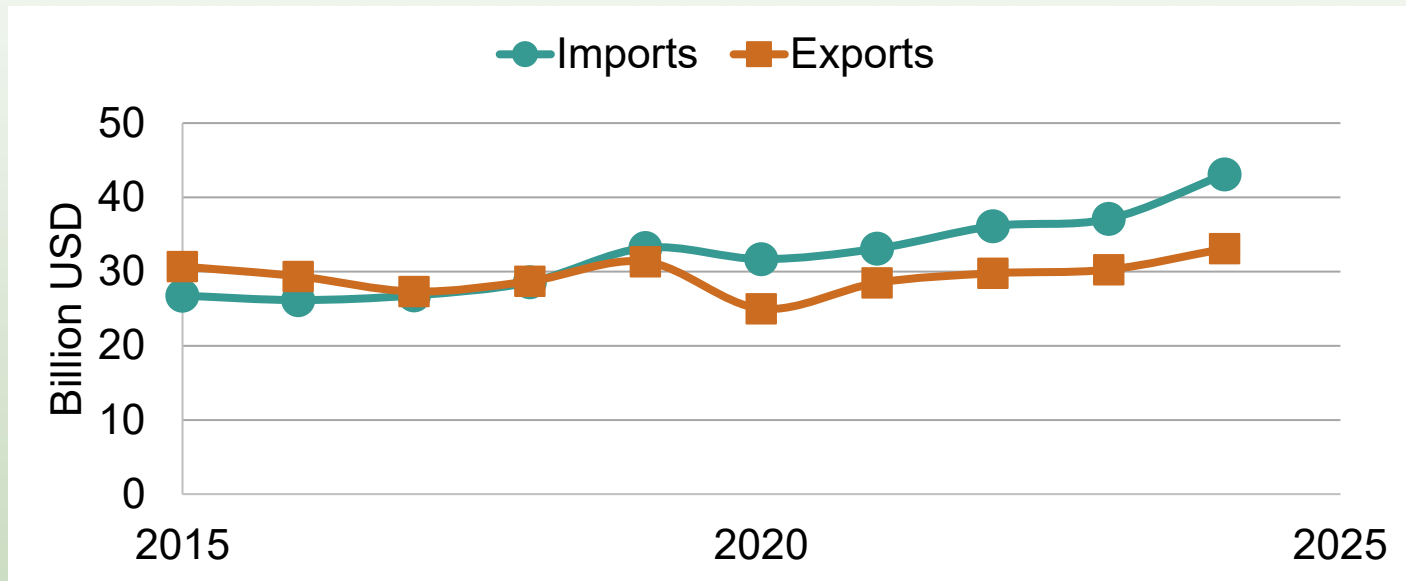
Trends – Growth in U.S. E-Commerce

E-Commerce retail sales as a percentage of total sales, 2000-2025, US Census Bureau



Trends – Growth in Imports/Exports

International imports and exports from Arizona in 2025 dollars, 2015-2024 (BEA)



Commodity Flow by Mode - 2023

Mode	2023 Tons (000s)	2023 Share of Total Tons	2023 Value (Million\$)	2023 Share of Total Value
Air	364	0.1%	12,005	1.0%
Rail	121,321	26.4%	563,323	45.4%
Truck	337,406	73.5%	665,680	53.6%
Total	459,091	100.0%	1,241,008	100.0%

Inbound Truck Flows (2023 Tons)

Top Origins

1. California
2. Texas
3. New Mexico
4. Mexico
5. Nevada
6. Utah
7. Colorado
8. Washington
9. Louisiana
10. Florida



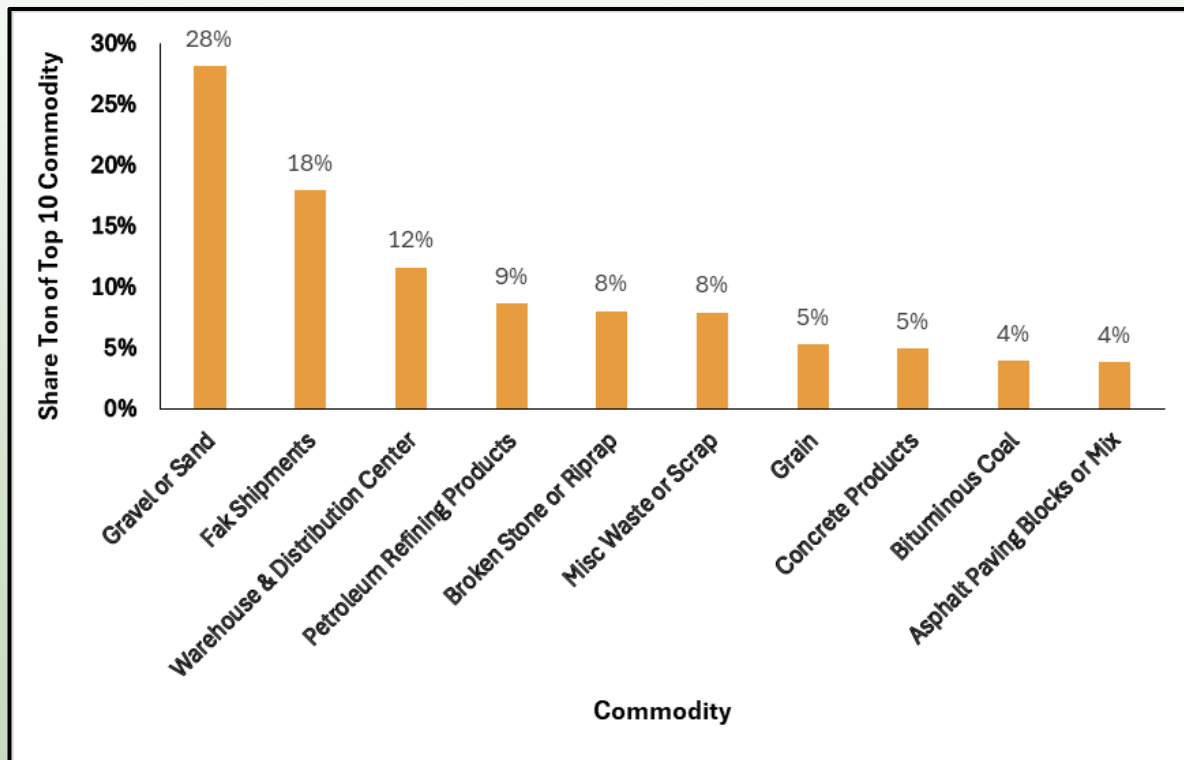
Outbound Truck Flows (2023 Tons)

Top Destinations

1. California
2. Nevada
3. Mexico
4. Texas
5. New Mexico
6. Utah
7. Washington
8. Colorado
9. Florida
10. Ontario



Top Commodities by Tonnage in AZ, 2023



Growth Drivers

- Emerging high-tech hubs
- Defense-oriented manufacturing base
- Growing back-office & services sector
- Strong population momentum:
- Growth areas - Phoenix and Tucson



Freight Employment Trends, AZ

		Workforce Specialization	
		High	Low
Change in Employment	Growing	Growing UTILITIES	Emerging TRANSPORTATION & WAREHOUSING, MANUFACTURING, RETAIL TRADE
	Falling	Transforming AGRICULTURE, MINING	Declining ADMINISTRATIVE SUPPORT & WASTE MANAGEMENT

Employment, Location Quotient, and Total Shift Share by Industry and Development Category, 2019-2024 (BLS QCEW)

Freight Employment Trends, AZ

Labor market growth: 1.0% AZ vs 0.4% US

Growth: Construction, Education & Health Services

Soft spots: Manufacturing, Retail

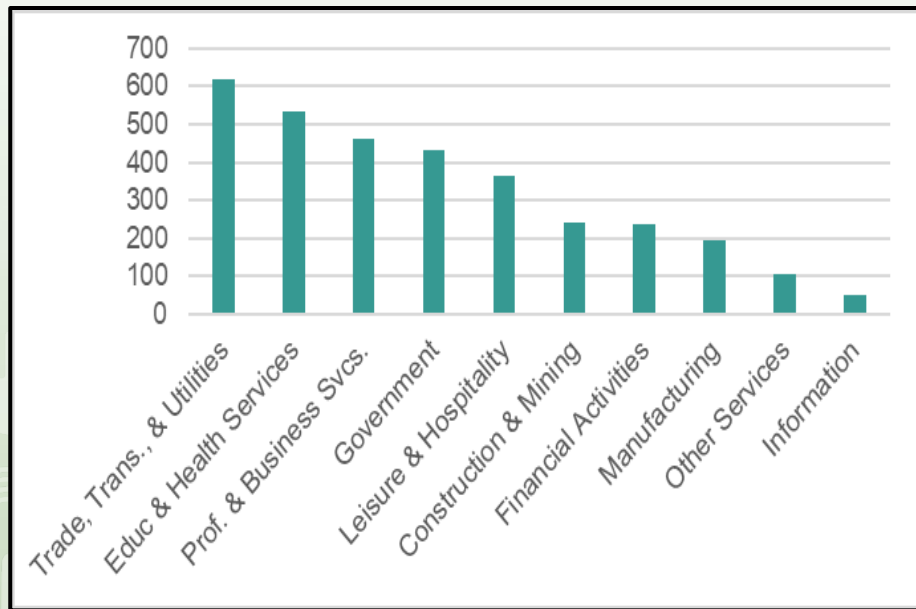
Strengths: Business-friendly, Strategic location, Renewables potential

Weaknesses:

Defense/aerospace dependence; Growth model tied to population, housing, services; Expansion limited by water, housing, climate impacts

Number of employees (in 1,000s)

Employment by Sector, 2024



Source: S&P Global Market Intelligence - Arizona State
Report February 2026
© 2025 S&P Global

Key Issues to Watch, Statewide

Greater Arizona

- Water supply
- Drought risk
- Agricultural land and labor shortages



Regional Snapshots

Phoenix Metro - Maricopa and Pinal Counties

- Major metro area with continued population growth:
 - Maricopa County >4.6M (2024)
- Strong and expanding advanced manufacturing and tech base; addition of new data centers.
- Healthcare/biosciences buildout: multi-year construction freight; longer-run specialized logistics needs



Regional Snapshots

Tucson Metro

- Population 1.08M (2024), +3.5% (2020–24); slightly older profile;
- Employment growth ~0.3% projected (below U.S.), constrained by government job mix
- Anchors:
 - University of Arizona (research & talent);
 - Aerospace & defense (Raytheon Missiles & Defense; Davis-Monthan Air Force Base);
 - Healthcare, tourism, and copper mining





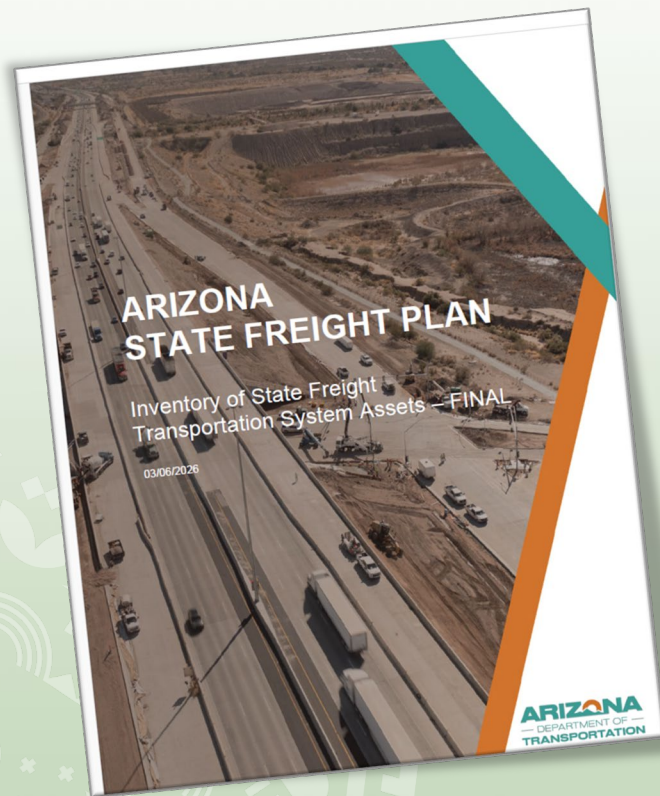
Assets & Performance

Assets

The **multimodal** transportation system connects industries, logistics hubs, and markets;

International border crossings play a critical role in Arizona's trade and freight flows; and,

Congestion and poor travel time reliability on major corridors negatively affects Arizona's agriculture, manufacturing, mining, and other freight



Highway Freight System Assets

Highways

- ~ 6,900 miles in the Arizona State Highway System
- 32% of pavement is in good condition;
- 62% of pavement is in fair condition;

Bridges

- 8,000+ structures statewide (4,800 owned by ADOT)
- ~59% of Arizona's bridges are in good condition, ~40% are fair
- The 2050 Long-Range Transportation Plan estimates \$8.8B in bridge costs in the next 25 years.

Other Freight System Assets

Freight Rail

- ~1,900 miles of rail network
- 1,395 active roadway-rail crossings

Pipelines

- 3,000+ miles of petroleum pipelines
- 49,400+ miles of gas pipelines

Air Cargo

- 700,000+ tons of cargo move through Phoenix Sky Harbor each year
- Air cargo carries ~1% of the state's freight tonnage but 26% of freight value

International Border Crossings

- More than \$34B in trade moves through Arizona's crossings annually
- Key freight ports of entry at Nogales, Douglas, and San Luis are being modernized
- Nogales handled ~1 M trains and 400K trucks in 2024

Highway Freight Network Performance

Volume

The highest truck volumes are found on:

- **I-10 and I-40** between 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);
- Freeway 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.

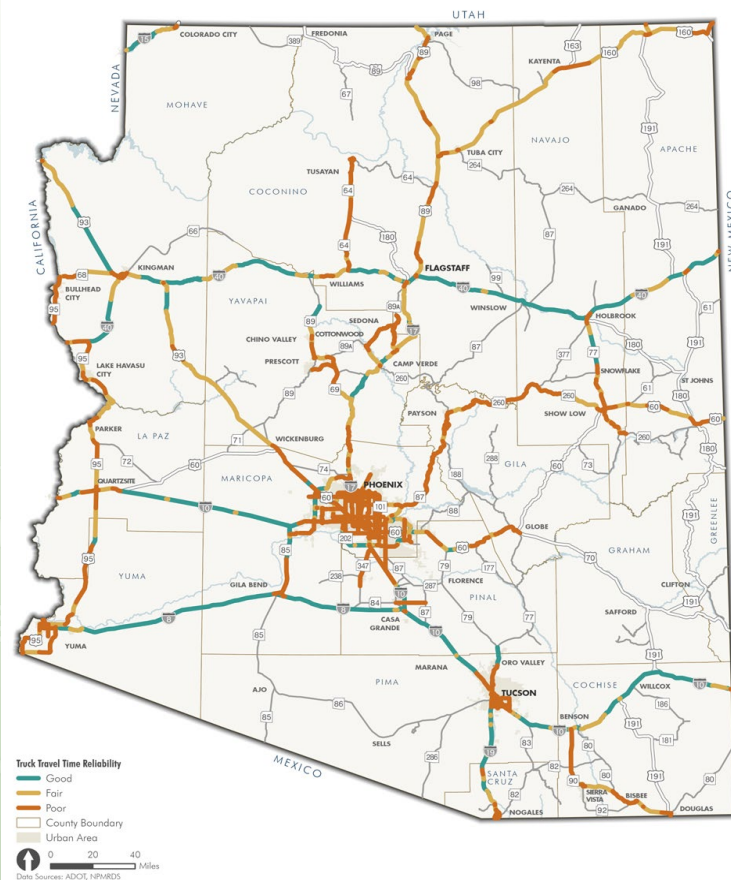
Travel Time Reliability

Challenges

- Reliability decreases near urban areas and key freight corridors
- Truck travel times are generally less reliable than passenger travel times

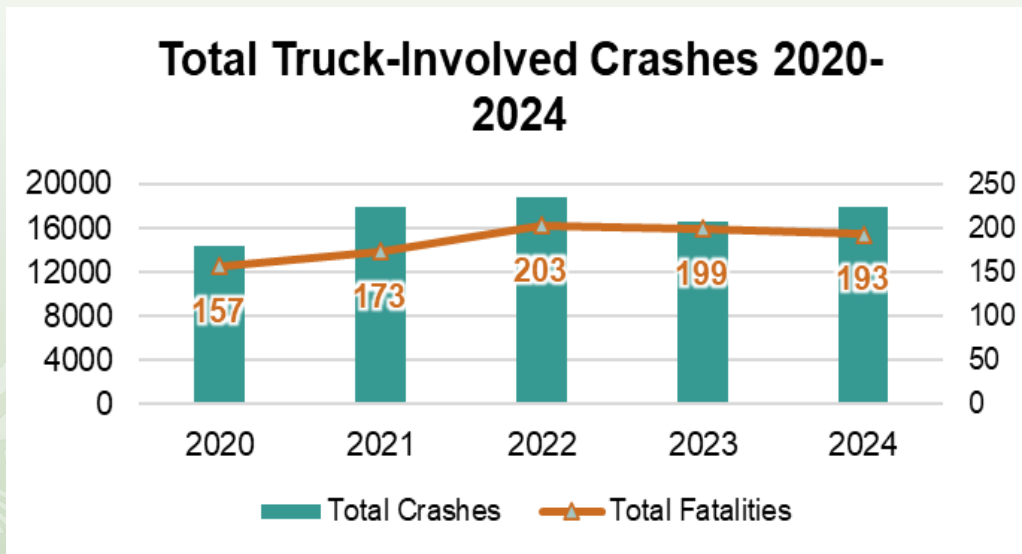
Congestion

- Congestion created **43.6 million vehicle hours of delay** and **\$1.95 B in delay costs to users**



Roadway Safety - Crashes

- The total number of truck-involved crashes has **increased** in the last five years.



Truck Parking

Arizona has ~7,149 designated truck parking spaces:

- 638 ADOT spaces (9%) at rest areas, overflow lots, and parking-only locations (no amenities). Note: This number was current as of 11/2/2025 and is changing with the completion of truck parking expansion projects.
- 6,511 (91%) private truck parking spaces

The top locations of undesignated truck parking based on 2023 truck GPS data include:

- I-10 MP 120, Last-mile West of Phoenix
- I-40 MP 185, Parks Rest Area On/Off Ramps
- I-10 MP 320, Texas Canyon Rest Area On/Off Ramps
- I-10 MP 130, Last-mile West of Phoenix
- I-40 MP 285, West of Holbrook

Truck Parking Projects

- As of November 2, 2025, 14 truck parking expansion projects (at 7 locations) were added since the 2023 Truck Parking Study
- As of April 2, 2026 --
 - 2 completed and open for parking
 - 3 under construction
 - 2 in design and scheduled to begin in 2026/2027
- 4 other sites are active in the Truck Parking Availability System



Freight Questions?



Policies & Strategies

US DOT Recommendations (2026) Strategies and Federal Interest Topics

Strategies:

- Safety
- Freight Bottlenecks
- First and Last Mile
- Supply Chain Resilience
- Industry Needs: Workforce Development and Advanced Freight Technologies
- Transparent, Criteria-based Processes
- Emissions from Idling
- Fraudulent Training Providers
- English Language Proficiency for Commercial Drivers

Federal Interest Topics:

- International Trade Impacts: reshoring of manufacturing, industries of national interest (e.g., energy, steel, critical materials), support for agricultural exports
- Multimodal Planning: Frame discussions, analyses, and strategies across truck, rail, maritime, air cargo, pipeline, and intermodal connectors
- Avoidance of investments that limit freight mobility, worsen congestion, or increase crash risk

Themes to Inform Policies & Strategies



Continued investment in infrastructure modernization and maintenance



Expansion of truck parking and driver amenities



Workforce development initiatives



Strategic planning for emerging technologies



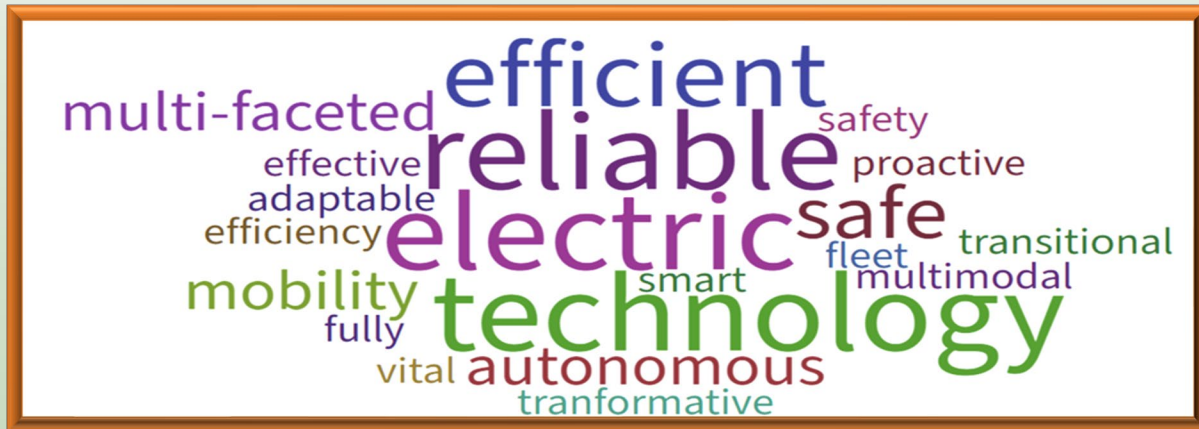
Collaboration with regional, national, and international partners



2026 Vision & Goals

2026 State Freight Plan Vision

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



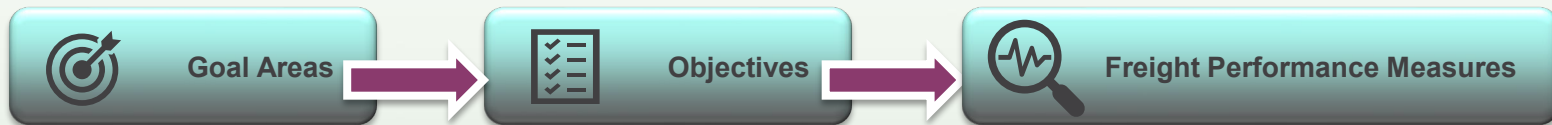
2026 State Freight Plan Goals

1. **Safety and Security:** Promote and support a safe and secure freight transportation system that meets evolving needs
2. **System Management and Mobility:** Maintain and operate a reliable, resilient, future-oriented transportation system for efficient multi-modal freight movement
3. **Competitiveness:** Advance strategic policies, investments, partnerships, and infrastructure that position Arizona to benefit from emerging economic opportunities
4. **Stewardship:** Conduct data-informed planning and decision-making for improved investing and programming



Performance Measures

Performance Measures Selection



Arizona's 2025 Freight-Related Performance Measures and Targets:



Infrastructure Conditions

- Interstate pavement condition
- Non-interstate NHS pavement condition
- NHS bridge condition



System Reliability

- Truck Travel Time Reliability



Safety

- Fatal and serious injuries

Data Sources:

NPMRDS,
ACIS Crash Database,
HPMS, etc.

Performance Targets and Thresholds

Overview

Truck Travel Time Reliability (TTTR) Index

- Federally mandated, aggregated to compare statewide performance and track change over time
- Available on federal visualization tools
- National Performance Measurement Research Data Set (NPMRDS) data available, network & facility level

Safety and Security Goal Performance Measures

1. Freight-involved fatal and serious injury crash rate per 100M truck Vehicle Miles Traveled (VMT)

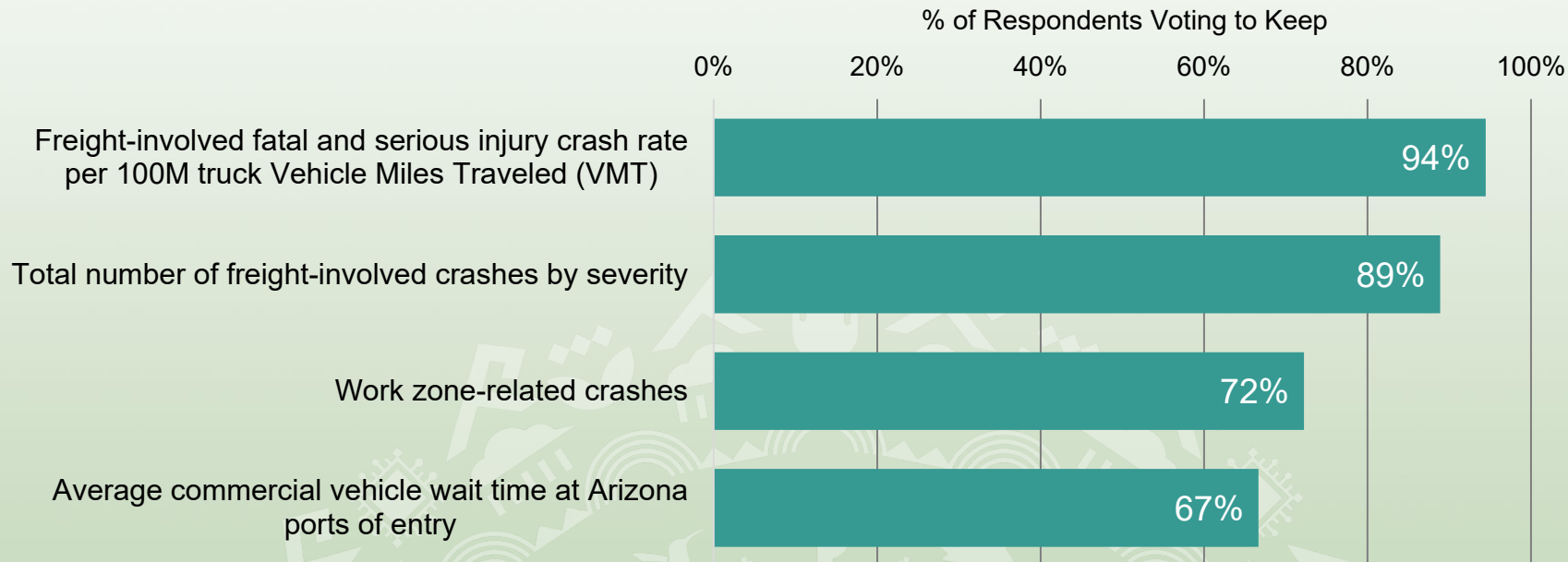
2. Total number of freight-involved crashes by severity

3. Work zone-related crashes

4. Average commercial vehicle wait time at Arizona ports of entry

#1. SAFETY & SECURITY

Please indicate which performance measures ADOT should keep (not selecting means it should be removed, replaced, or modified):



Goal: System Management & Mobility

System Management & Mobility Goal Performance Measures

1. Truck Travel Time Reliability (TTTR) Index on freight corridors



2. Percent of freight corridors equipped with ITS or connected freight technologies

3. Percent of Interstate/non-interstate NHS pavement in good & poor condition



4. Percent of NHS bridges in good/poor condition

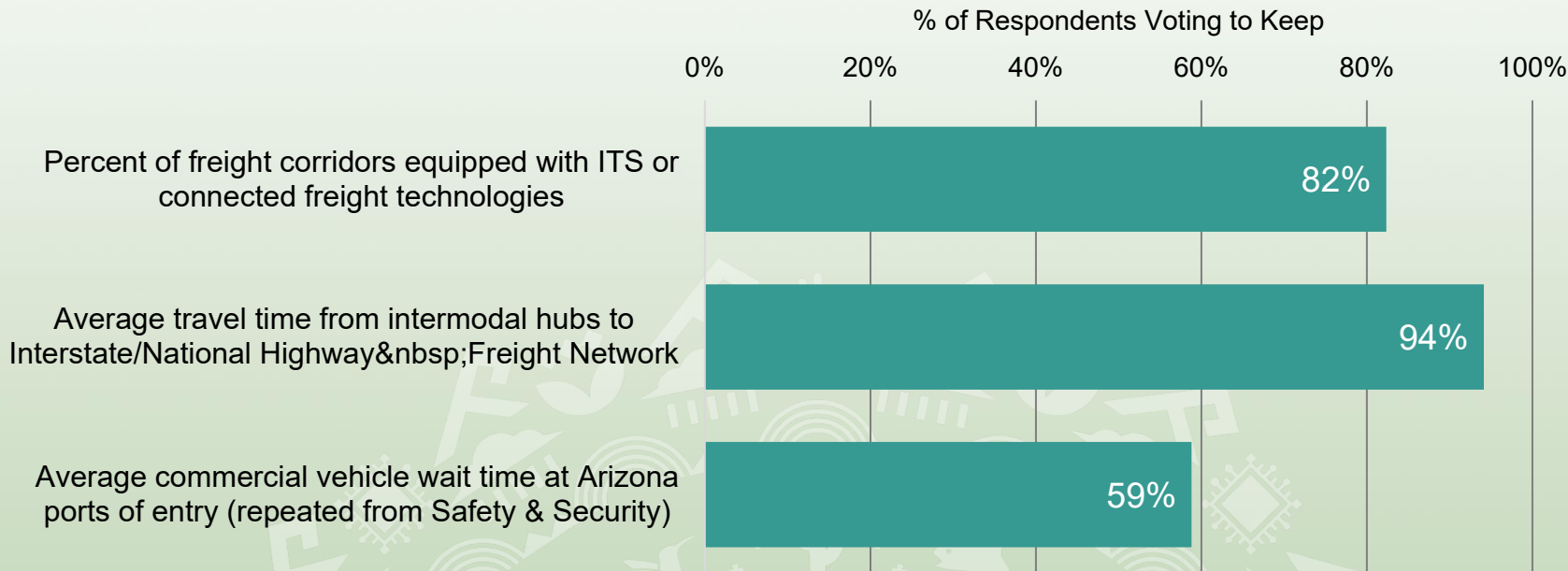


5. Average travel time from intermodal hubs to Interstate/National Highway Freight Network

6. Average commercial vehicle wait time at Arizona ports of entry (repeated from Safety & Security)

#2. SYSTEM MANAGEMENT AND MOBILITY

Please indicate which performance measures ADOT should keep (not selecting means it should be removed, replaced, or modified):



Competitiveness Goal Performance Measures

1. Total freight tonnage moved through Arizona by mode

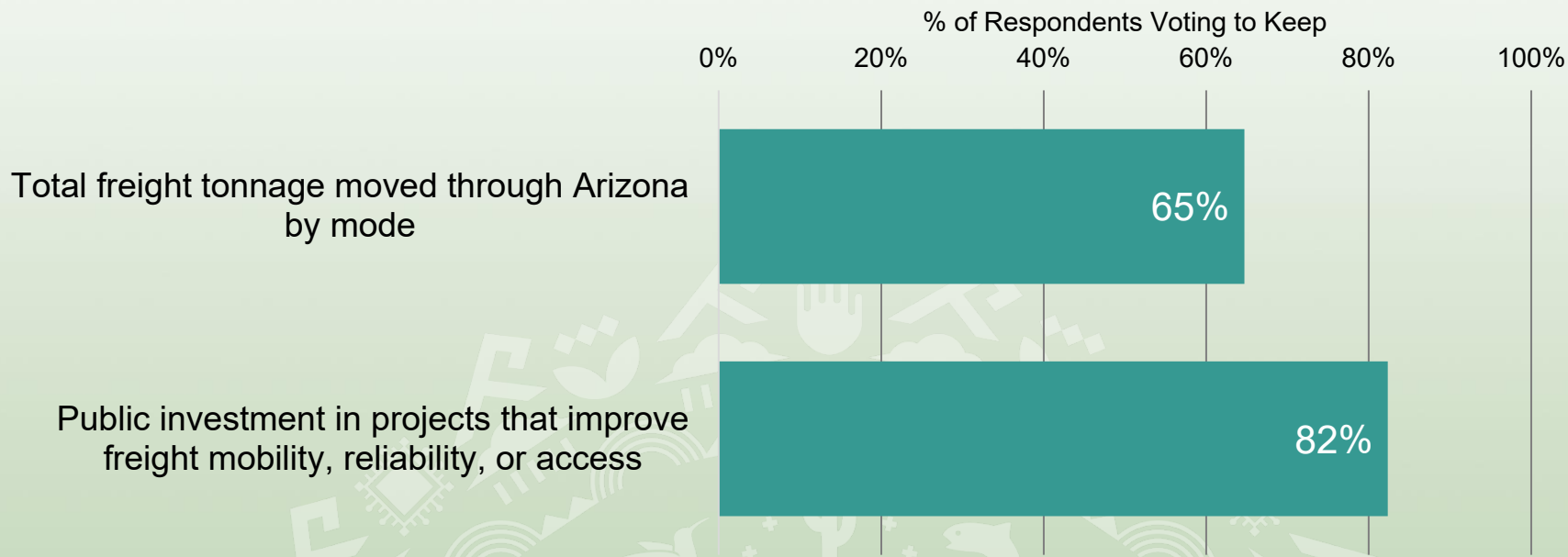
2. Truck Travel Time Reliability Index on freight corridors



3. Public investment in projects that improve freight mobility, reliability, or access (\$)

#3. COMPETITIVENESS

Please indicate which performance measures ADOT should keep (not selecting means it should be removed, replaced, or modified):



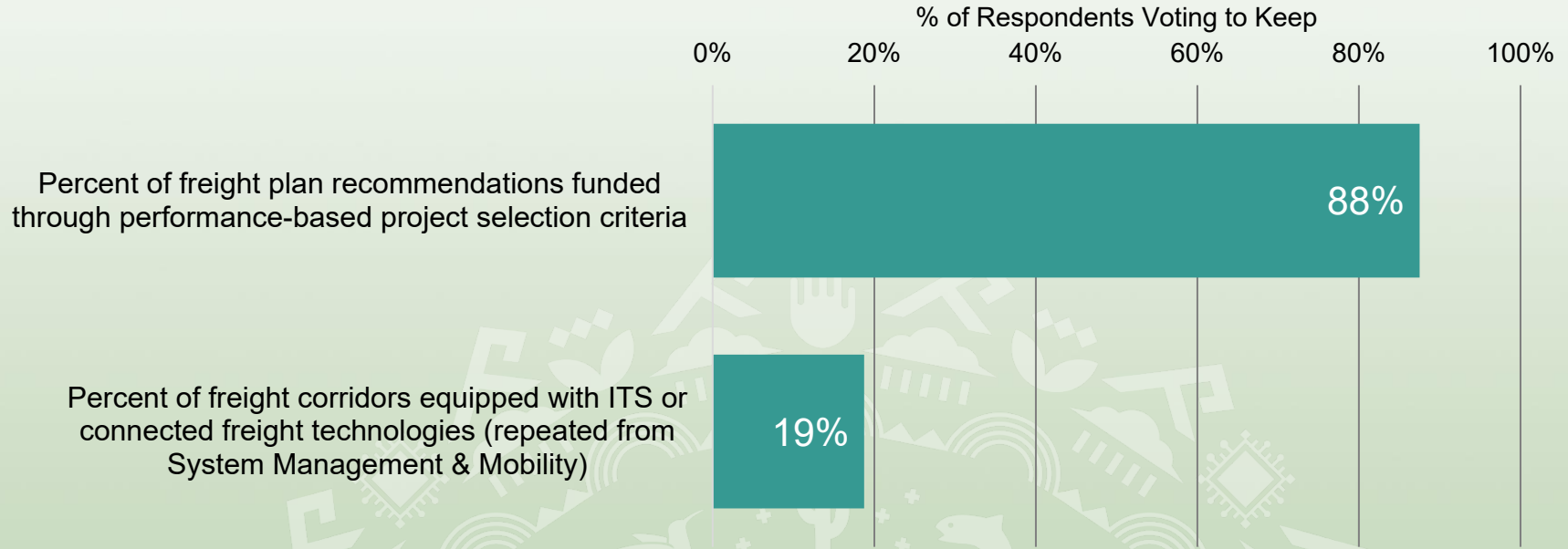
Stewardship Goal Performance Measures

1. Percent of freight plan recommendations funded through performance-based project selection criteria

2. Percent of freight corridors equipped with ITS or connected freight technologies (repeated from System Management & Mobility)

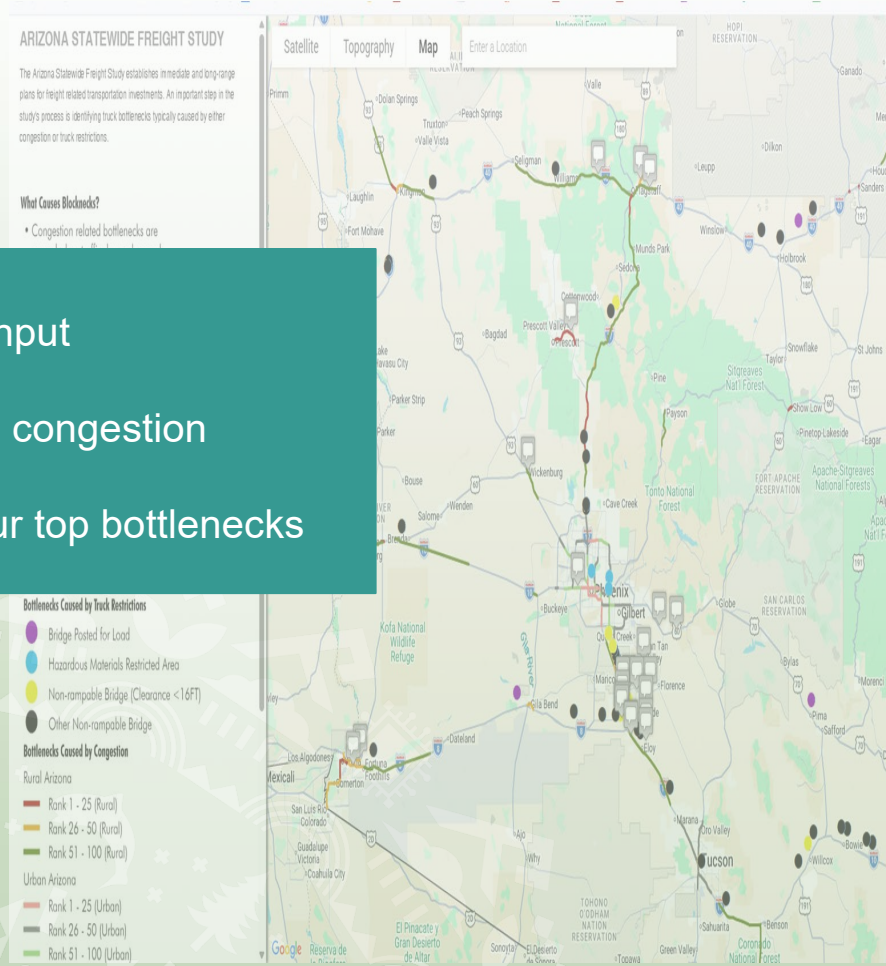
#4. STEWARDSHIP

Please indicate which performance measures ADOT should keep (not selecting means it should be removed, replaced, or modified):



Bottleneck Identification

- New Bottlenecks Map with current data and your input
- Will identify causes including truck restrictions and congestion
- Map web link will be sent next week to request your top bottlenecks



#5. BOTTLENECK IDENTIFICATION

What bottleneck locations should be added? Please provide a description and its cause.

- I-10
 - South of SR 202
 - North of the Gila River Bridge
 - Corridor thru Phoenix and west towards Goodyear
 - South of Tucson
- US-60 from 202 to Globe
- Border Crossings (e.g., Nogales, Douglas) because of customs
- Full Truck Parking Facilities



Autonomous Vehicle Deployment in Arizona

Amanda Abruzzo, MaFPsy, CPM
Stakeholder Relations Manager

Why AVs?

- ❖ 94% of road crashes include driver actions as contributing factors¹
- ❖ 37,000 fatalities occur each year on average²
- ❖ 2023 State Stats:
 - Arizona - 1,307 fatalities from 1,197 fatal crashes³

Potential to improve safety, mobility, efficiency,
environmental impacts, and accessibility

SAE J3016

(Society of Automotive Engineers)

Levels of Driving Automation⁴

**SAE
LEVEL 0™**

**SAE
LEVEL 1™**

**SAE
LEVEL 2™**

**SAE
LEVEL 3™**

**SAE
LEVEL 4™**

**SAE
LEVEL 5™**

You are driving whenever these driver support features are engaged – even if your feet are off the pedals and you are not steering

You **must constantly supervise** these support features; you must steer, brake or accelerate as needed to maintain safety

You are not driving when these automated driving features are engaged – even if you are seated in “the driver’s seat”

When the feature requests,
you must drive

These automated driving features will not require you to take over driving

Why Arizona?

- ❖ Climate
- ❖ Quality Infrastructure
- ❖ Regulatory Environment
- ❖ Proving Grounds



History,

- ❖ 2012 — Arizona Legislature introduces HB 2679, but bill fails to move forward.
- ❖ 2013 — Legislature introduces HB 2167. Again, bill fails to move forward
- ❖ 2015 — Governor Ducey signs Executive Order 2015-09 outlining Arizona's process for the safe testing and deployment of autonomous vehicles.
- ❖ 2017 — HB 2159: allows for the demonstration of truck platooning technology on Arizona highways.



- ❖ 2018 — Governor issues two additional executive orders
 - Develop the nation's first Law Enforcement Protocols (EO 2018-04)
 - Created the Institute for Automated Mobility (EO 2018-09)
- ❖ 2018 — HB 2422 passes allowing for “personal delivery devices” to operate in Arizona.
- ❖ 2019 - HB 2132 passes allowing for “personal mobile cargo carrying devices”
- ❖ 2021 - HB 2813 is signed into law, codifying current processes for AV testing
- ❖ 2022 - SB 1333 passes for Neighborhood Occupantless Electric Vehicles



Where we are now

- ❖ Arizona's AV permitting process
 - Testing/Operating with a Driver⁸
 - Testing/Operating without a Driver⁹
- ❖ Testing everything from small delivery vehicles to commercial motor vehicles.
- ❖ Arizona municipalities are actively involved in the safe development of these innovations.



Companies



- ❖ Aurora
- ❖ Gatik
- ❖ Stack
- ❖ Waymo
- ❖ Tesla



Data Collection

- ❖ Crashes Only
 - Level 3+ ADS (Automated Driving System)
 - NHTSA 2019 SGO (Standing General Order) data
 - AZ law enforcement crash reporting
 - AV developer reports

Lessons Learned

- Communication and is key.
- Collaboration with the manufacturers, various levels of government and the community is critical.
- Metrics for data collection are vital.

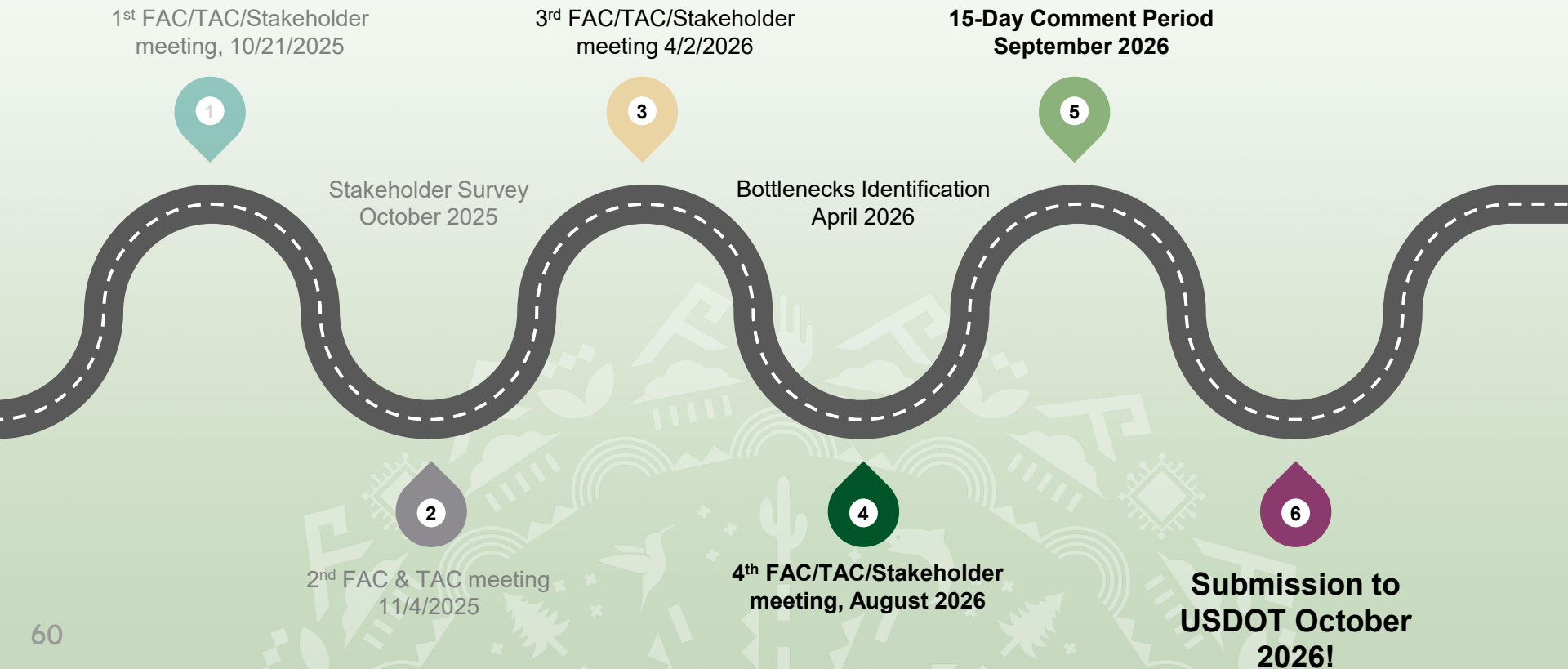


AV Questions?



Next Steps

Schedule of Stakeholder Engagement



Contact Information

Freight program information:

Heidi Yaqub
Arizona Department of Transportation
ADOT Regional/
Freight Transportation Program Manager
(602) 712-7644
hyaqub@azdot.gov

Jesse Schneider
ADOT Transportation Section Manager
(602) 712-4576
jschneider@azdot.gov

AV Questions:

Amanda Abruzzo
ADOT Project Manager
aabruzzo@azdot.gov

Plan & Poll Questions:

Caitlin Hughes
High Street Consulting, Project Manager
(202) 888-0527
hughes@highstreetconsulting.com

SFP materials: <https://azdot.gov/planning/transportation-programs/arizona-state-freight-plan>



Thank you for your participation!!!

See you at the next FAC/TAC ☺ !



Supplemental Materials

- Due to time constraints, the information listed below was not presented at FAC Meeting but is provided in the following slides:
 - Objectives
 - Infrastructure Condition and Reliability
 - Top Commodities by Value in AZ, 2023
 - Outbound Rail Flows (2023 Tons)
 - Inbound Rail Flows (2023 Tons)
 - Highway Freight Network Improvements
 - Proposed Policies & Implementation Strategies
 - AV Reference List

State Freight Plan Objectives

1. Safety and Security:

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 BorderPlan as it relates to safe and secure movement at the international border.

Objective 1.3: Identify and address infrastructure and cargo vulnerabilities.

CHANGES: Shortened the length of Objective 1.3 to remove limits on the nature of the causes of infrastructure and cargo vulnerability.

State Freight Plan Objectives

2. System Management and Mobility:

Objective 2.1: Coordinate with local governments, MPOs, modal operators, and the private sector to manage congestion and freight system reliability.

Objective 2.2: Implement strategies to leverage 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.

CHANGES: Replaced a prior goal with 2.5, to focus on border freight movement, to reflect results of polling, the prior survey, and review of other plans, as well as from open discussion by the FAC. The prior objective, dealing with resiliency, was reframed for inclusion under the Stewardship Goal, reflecting the broader focus of the revised goal. Aspects of resiliency are inherent in other objectives here in system management and mobility, so the term has been retained in the Goal language, reflecting the cross-cutting importance of resilience to various aspects of freight planning.

State Freight Plan Objectives

3. Competitiveness:

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.

CHANGES: This set of objectives underwent numerous small revisions, mostly in the form of additions. Two additional objectives from the original Competitiveness set were relocated under the revised Stewardship Goal for 2026.

State Freight Plan Objectives

4. Stewardship:

Objective 4.1: Provide transparent access to ADOT planning documents, data resources, and decision-making processes.

Objective 4.2: Utilize 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.

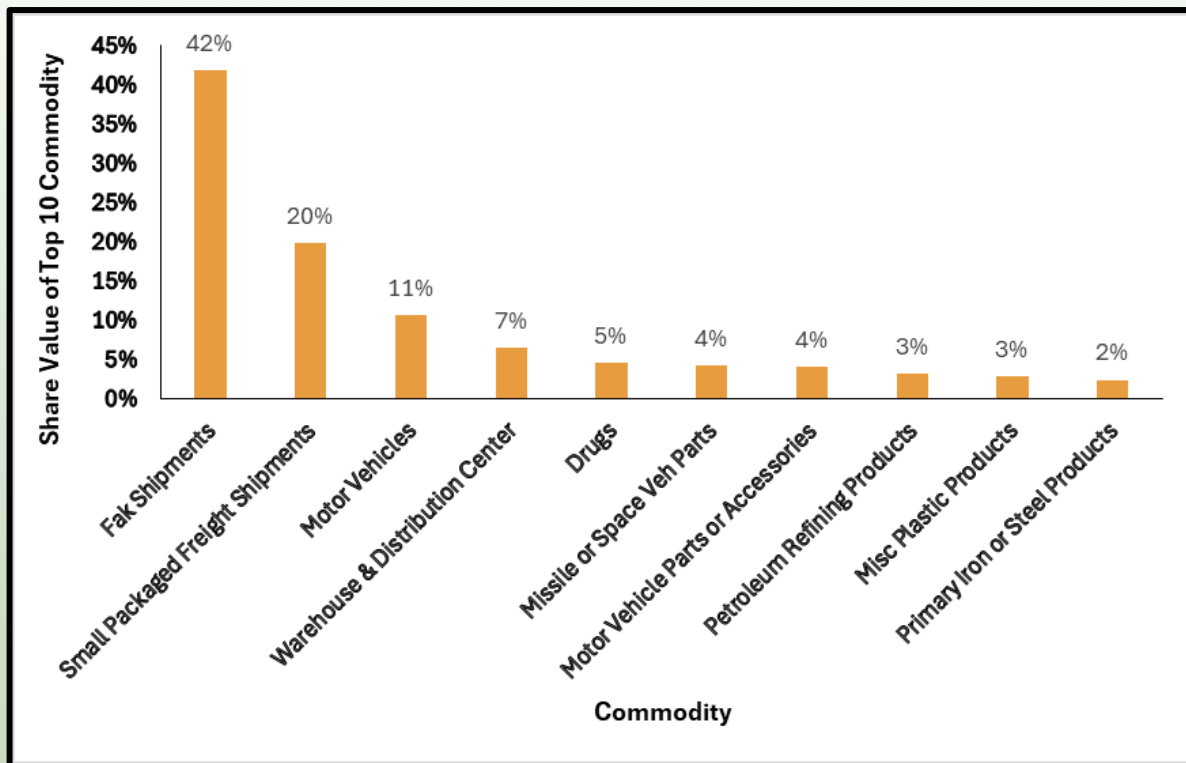
Objective 4.5: Improve the resiliency of critical at-risk assets on the freight transportation system.

CHANGES: The first objective was shortened to focus on materials and procedures. The second and third objectives were reworded for tighter grammatical construction. Prior objectives 4.4 and 4.5 were removed due in part to their purposes being served broadly in other goals and to better align with the revised federal State Freight Plan guidance. The new objective 4.4 was previously under the Competitiveness Goal but has been moved here 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 as mentioned earlier 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.

Infrastructure Condition and Reliability

Performance Measure	2023 Target	2023 Actual	2025 Target
Percentage of Interstate Pavements in Good Condition	44	53.3	44
Percentage of Interstate Pavements in Poor Condition	2	2.3	4.5
Percentage of Non-Interstate NHS Pavements in Good condition	28	32	28
Percentage of Non-Interstate NHS Pavements in Poor condition	6	6.1	10
Percentage of NHS Bridges in Good Condition	52	59	52
Percentage of NHS Bridges in Poor Condition	4	0.9	4
Interstate Highway Reliable Person-Miles Traveled	81	88.5	71
Non-Interstate NHS Reliable Person-Miles Traveled	84	90.4	77
Interstate Highway Truck Travel Time Reliability Index	1.37	1.31	1.48

Top Commodities by Value in AZ, 2023



Outbound Rail Flows (2023 Tons)

Top Rail Destinations

1. California
2. Illinois
3. Texas
4. New Mexico
5. Colorado
6. Oklahoma
7. Missouri
8. Kansas
9. Washington
10. Florida



Inbound Rail Flows (2023 Tons)

Top Rail Origins

1. Wyoming
2. New Mexico
3. Texas
4. Iowa
5. Illinois
6. California
7. Minnesota
8. Kansas
9. Montana
10. Louisiana



Highway Freight Network Improvements

Recent Projects

- **I-10 Broadway Curve** widening;
- **I-17** widening and flex lanes
- **South Mountain Freeway**
- Improvements to key rural freight corridors such as **US 93**, portions of **I-40**, and other state highways

Proposed Policies & Implementation Strategies

Repeated or Revised

- Intermodal connector designations
- Emerging and disruptive freight technologies (including CAV and drones)
- Truck weights on state routes
- Designation of hazardous materials routes

Possible Addition

- Border crossing goals to improve safety, efficiency, and community and environmental impacts

AV Reference List

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4. SAE International. (2021, May). *SAE Levels of Driving Automation™ Refined for Clarity and International Audience*.
<https://www.sae.org/blog/sae-j3016-update>
5. National Highway Traffic Safety Administration. (2025, August). *ADS Incident Report Data*. United States Department of Transportation. <https://www.nhtsa.gov/laws-regulations/standing-general-order-crash-reporting>
6. National Highway Traffic Safety Administration. (2023, April). *Second Amended Standing General Order 2021-01*. United States Department of Transportation. https://www.nhtsa.gov/sites/nhtsa.gov/files/2023-04/Second-Amended-SGO-2021-01_2023-04-05_2.pdf
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8. Arizona Department of Transportation. *Autonomous Vehicles Testing and Operating WITH Driver*.
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9. Arizona Department of Transportation. *Autonomous Vehicles Testing and Operating WITHOUT Driver*.
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