



Arizona State Freight Plan

Freight Advisory Committee

February 22, 2022



Presentation Outline

- Welcome and Introductions
- Final Arizona State Freight Plan and Goals
- Bottleneck Identification Map
- Freight Forecast Updates
- Next Steps
 - Initial Discussion of Needs

To participate in online polling during the meeting please visit **pollev.com/streets315** or text **streets315** to **22333**.

Please tell us what type of organization you represent...

Academia

Airport

Arizona DOT

FHWA

Government/MPO/RTPO

Logistics

Manufacturer

Partner State

Private Consultant

Railroad

Trade Association

Trucking Carrier



Final Vision & Goals



Final Arizona State Freight Plan Vision

Arizona's freight transportation system enhances economic competitiveness and quality growth through innovation and effective system management.

Final Arizona State Freight Plan Vision

| DRAFT GOALS | REVISED GOALS |
|--|--|
| SAFETY: A safe and secure freight transportation system | SAFETY: A safe and secure freight transportation system |
| SYSTEM MANAGEMENT & MOBILITY: A reliable, resilient transportation system that enables efficient freight movement, and provides access to economic opportunity across Arizona | SYSTEM MANAGEMENT & MOBILITY: A reliable, resilient, future-oriented transportation system that enables efficient multi-modal freight movement |
| COMPETITIVENESS: Strategic policies, investments, partnerships, and infrastructure that position Arizona to benefit from emerging opportunities and enhance its economic competitiveness in key sectors | COMPETITIVENESS: Strategic policies, investments, partnerships, and infrastructure that position Arizona to benefit from emerging economic opportunities |
| | STEWARDSHIP: Approaches to freight planning that include economic, social, and environmental stewardship |



Bottlenecks

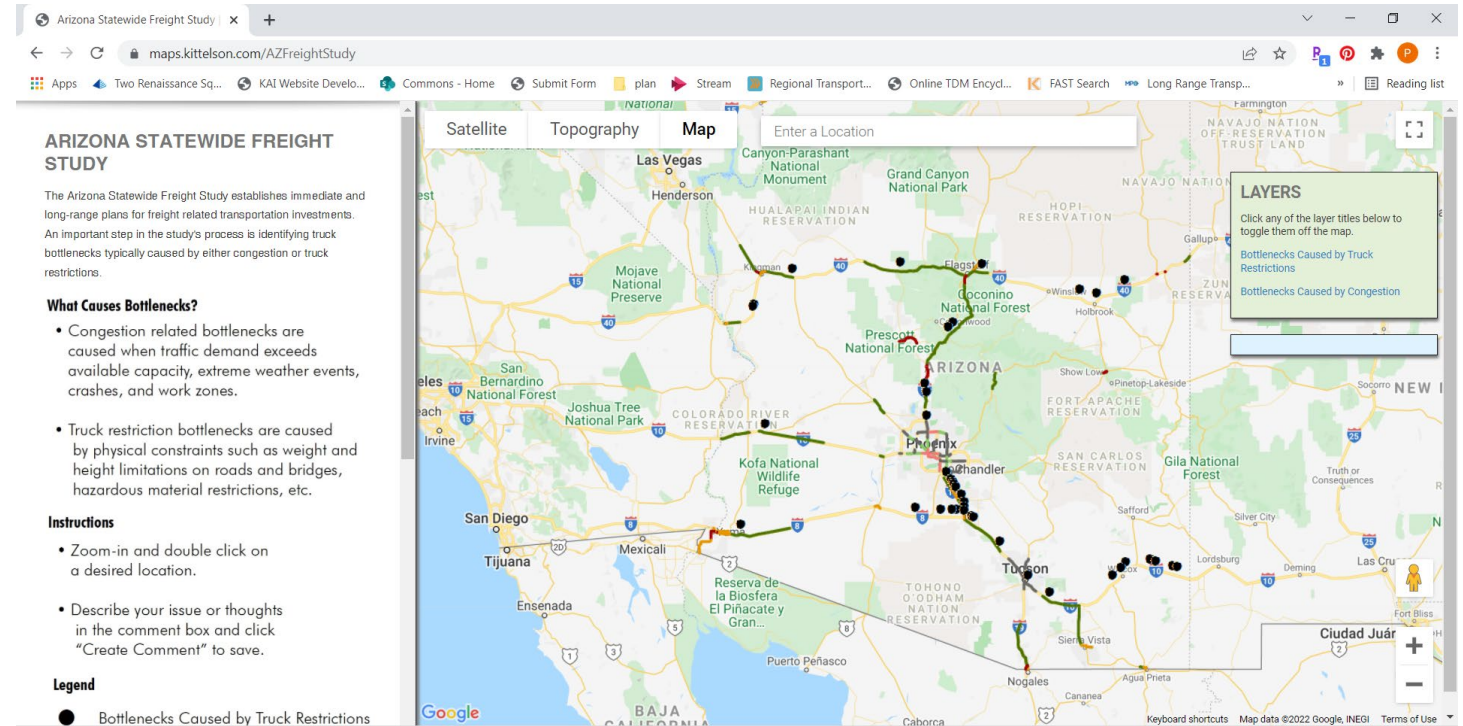
What is a Truck Bottleneck?

- Locations where trucks experience delays due to:
 - 1) **Restrictions:** bottlenecks caused by physical constraints (i.e., weight, height limits, hazmat restrictions, etc.)
 - 2) **Congestion:** bottlenecks caused by excess traffic demand, queuing at border crossings (recurring); weather events, crashes, special events, etc (non-recurring).
- Identified were identified through a data-driven approach.
We need your input to confirm/validate the results.

We Need Your Input

Online map to comment on:

- Agree/disagree with identified locations
- Missing bottleneck locations



<https://maps.kittelson.com/AZFreightStudy>

Identified Truck Congestion Bottlenecks – Phoenix Area

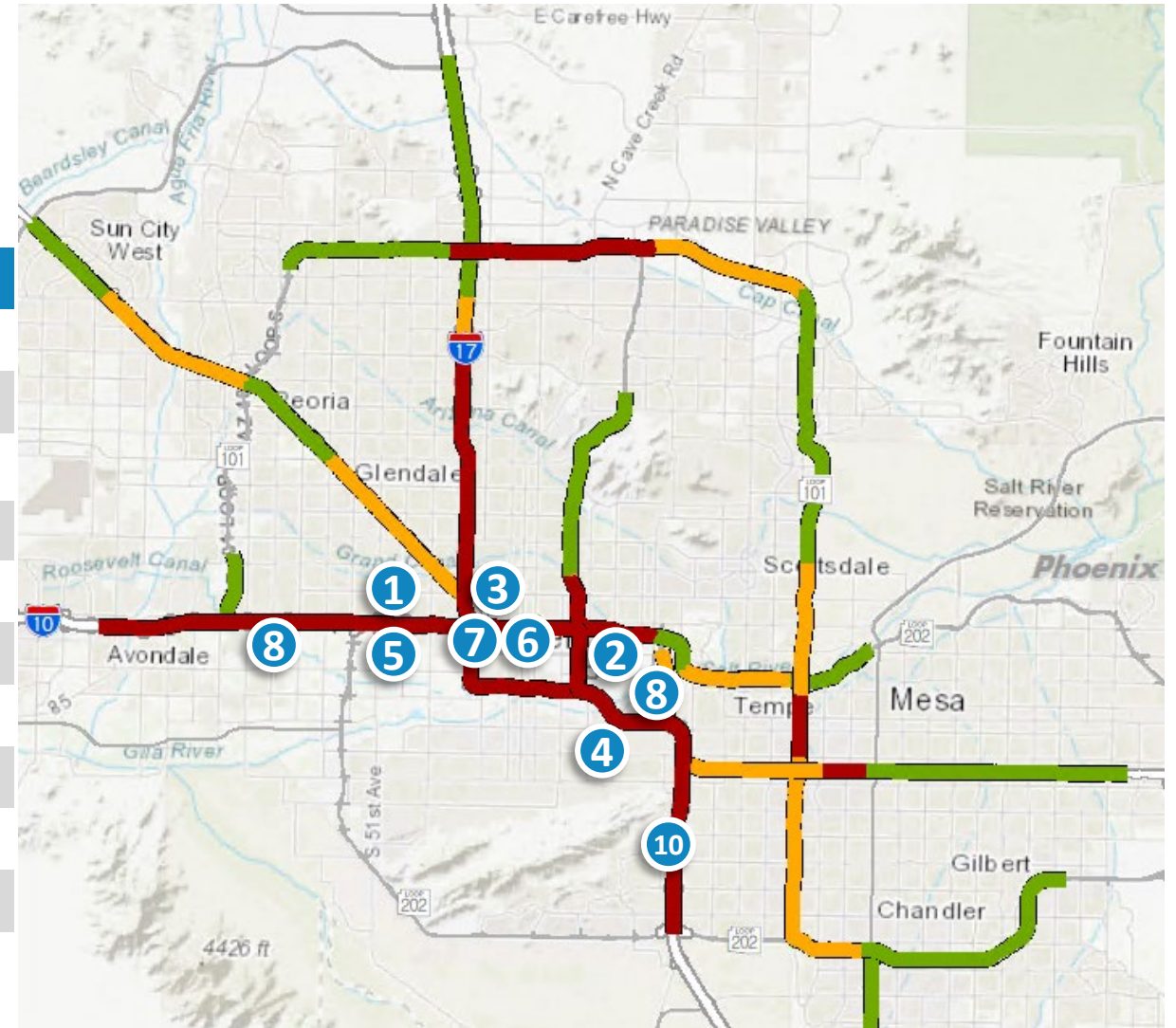
Top 10 Phoenix Area Locations –

A) Do You Agree With These?

Congestion Rank (Phoenix Area)

- 1 I 10 WB: 27th Ave to 51st Ave
- 2 I 10 WB: Buckeye Rd to 19th Ave
- 3 I 10 WB: 19th Ave to 27th Ave
- 4 I 10 EB: I 17 to SR 143
- 5 I 10 EB: 51st Ave to 27th Ave
- 6 I 10 EB: 19th Ave to 16th St
- 7 I 10 EB: 27th Ave to 19th Ave
- 8 I 10 WB: SR 143 to I 17
- 9 I 10 EB: Litchfield Rd to 51st Ave
- 10 I 10 WB: SR 202 to US 60

B) Any new bottlenecks missing?



Which of the top ten Phoenix area bottleneck locations do you agree with? Select all that apply.

I 10 WB: 27th Ave to 51st Ave

I 10 WB: Buckeye Rd to 19th Ave

I 10 WB: 19th Ave to 27th Ave

I 10 EB: I 17 to SR 143

I 10 EB: 51st Ave to 27th Ave

I 10 EB: 19th Ave to 16th St

I 10 EB: 27th Ave to 19th Ave

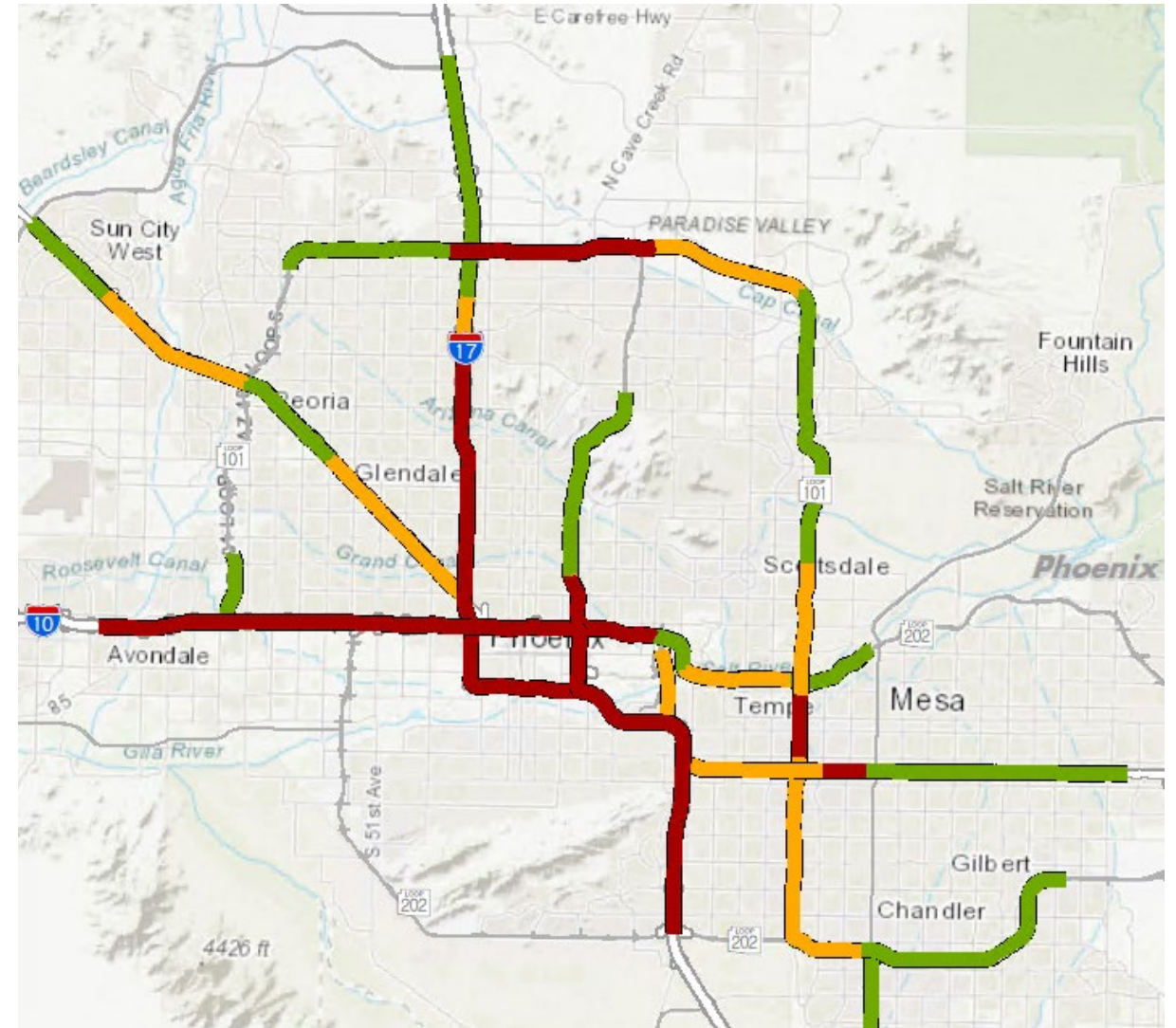
I 10 WB: SR 143 to I 17

I 10 EB: Litchfield Rd to 51st Ave

I 10 WB: SR 202 to US 60

Identified Truck Congestion Bottlenecks – Phoenix Area

B) Any new or other bottlenecks missing?



What Phoenix area bottleneck locations are missing?

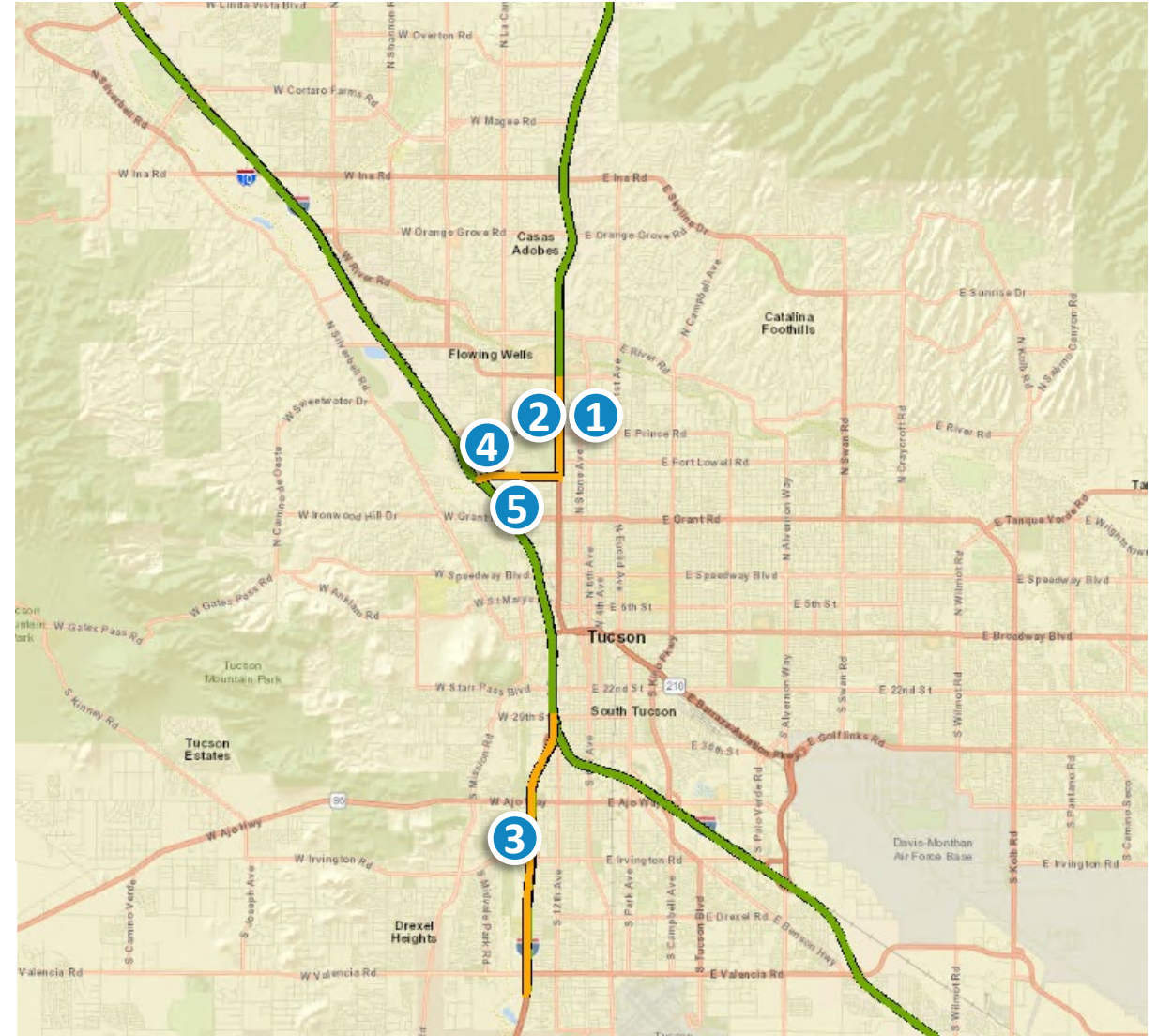
Identified Truck Congestion Bottlenecks – Tucson Area

Top 5 Tucson Area Locations –

A) Do You Agree With These?

Congestion Rank (Tucson Area)

- 1 N Oracle Rd NB: Miracle Mile Rd to Wetmore Rd
- 2 N Oracle Rd SB: Miracle Mile Rd to Wetmore Rd
- 3 I 19 SB: I 10 to Valencia Road
- 4 W Miracle Mile St WB : I 10 to Oracle Rd
- 5 W Miracle Mile St EB : I 10 to Oracle Rd



Which of the top five Tucson area bottleneck locations do you agree with? Select all that apply.

N Oracle Rd NB: Miracle Mile Rd to Wetmore Rd

N Oracle Rd SB: Miracle Mile Rd to Wetmore Rd

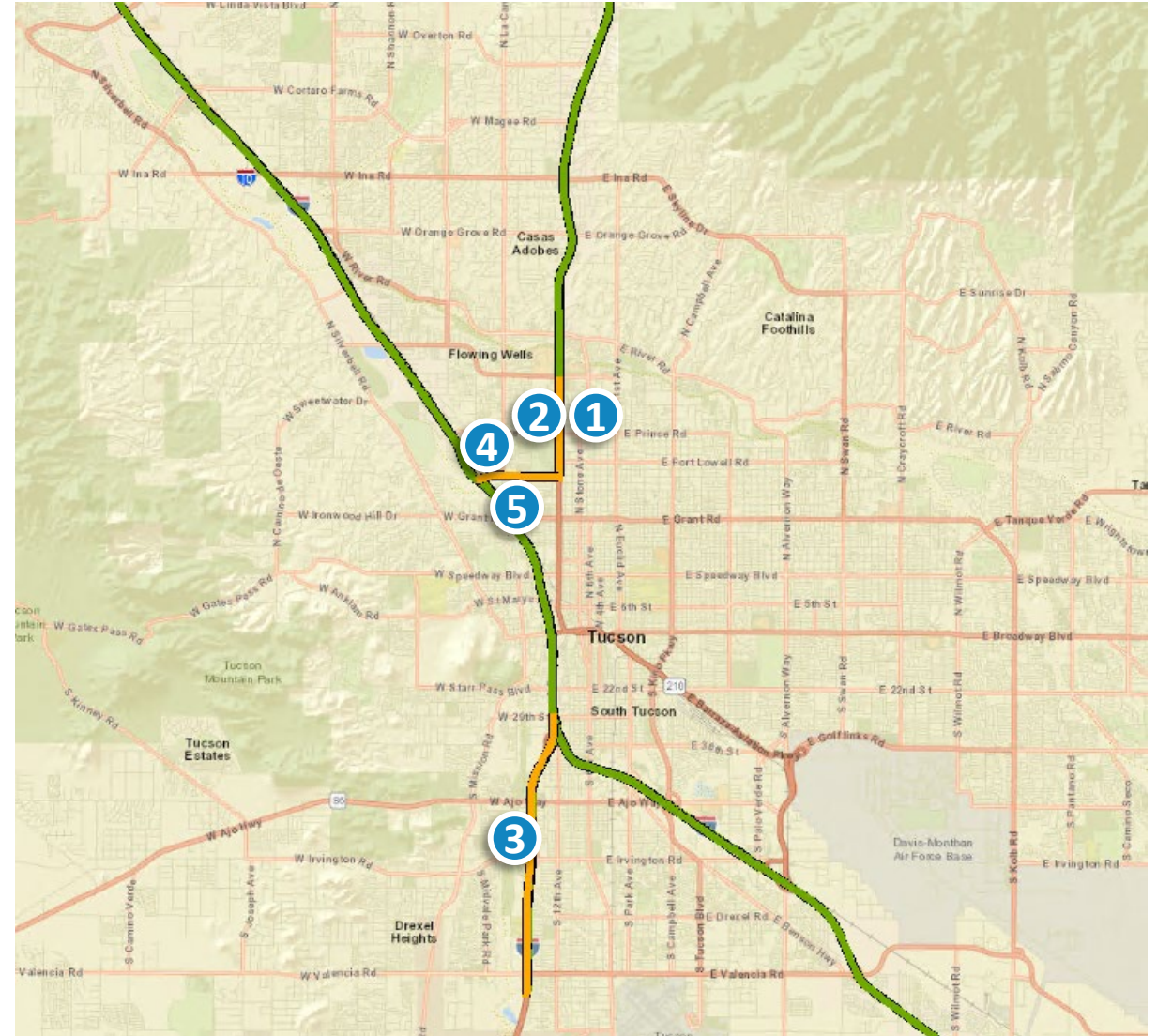
I 19 SB: I 10 to Valencia Road

W Miracle Mile St WB : I 10 to Oracle Rd

W Miracle Mile St EB : I 10 to Oracle Rd

Identified Truck Congestion Bottlenecks – Tucson Area

B) Any new or other bottlenecks missing?



What Tucson area bottleneck locations are missing?

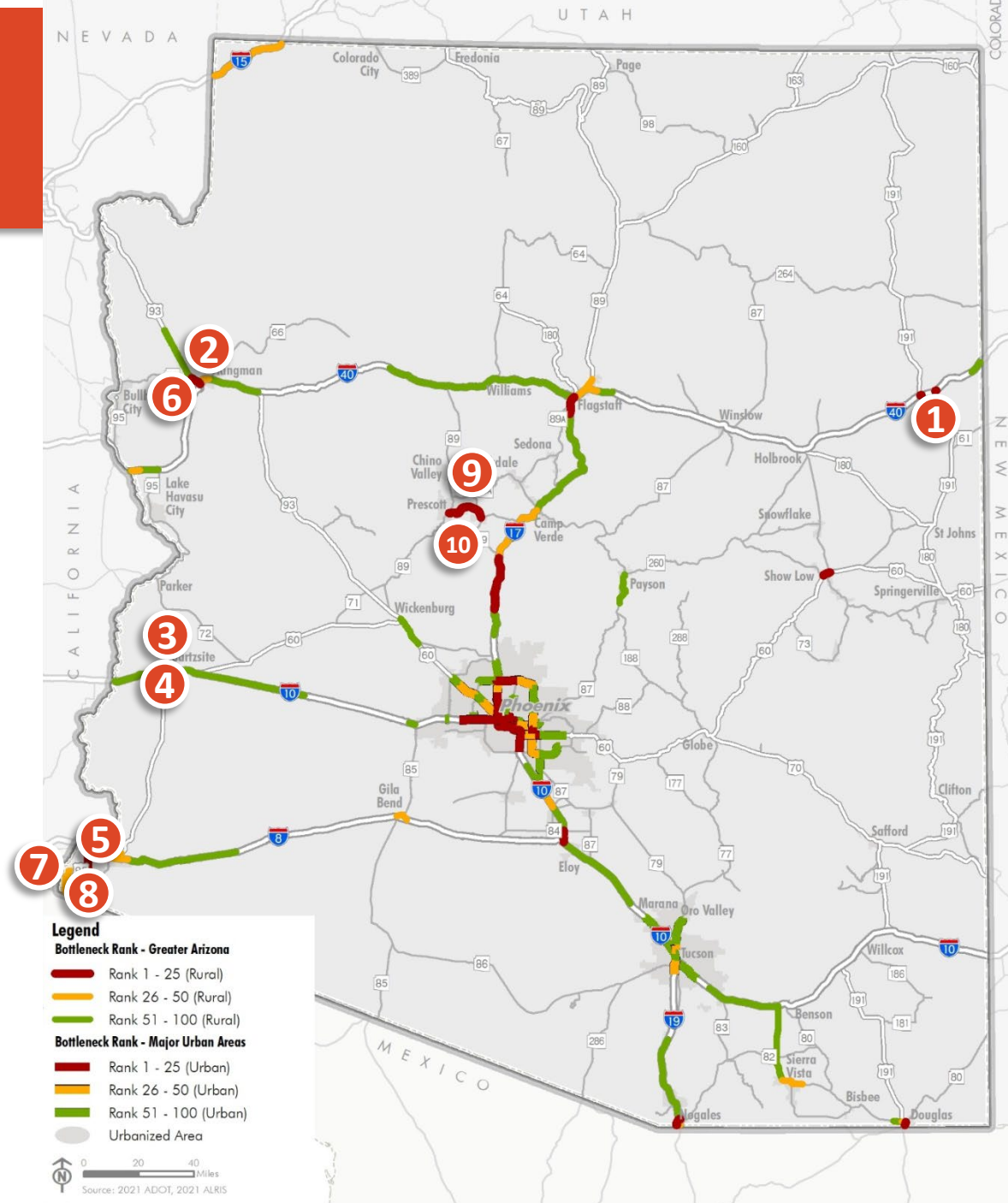
Identified Truck Congestion Bottlenecks (Greater Arizona)

Top 5 Bottleneck Locations, Greater AZ –

A) Do You Agree With These? Respond Yes or No

Congestion (Greater Arizona)

- 1 US 191/I 40: On-Ramp and Off-Ramp
- 2 US 93 NB: SR 68 to I 40
- 3 I-10/Riggles Ave TI and I-10/Quartzite Ave TI @ Quartzite - EB
- 4 I-10/Riggles Ave TI and I-10/Quartzite Ave TI @ Quartzite - WB
- 5 US 95 SB: I 8 to Avenue 3E
- 6 US 93 SB: SR 68 to I 40
- 7 US 95 SB: County 15th to I 8
- 8 US 95 NB: County 15th to I 8
- 9 SR 69 NB: Prescott Lakes Pkwy to Glassford Hill Rd
- 10 SR 69 SB: SR 89 to Robert Rd



Which of the top ten Greater AZ bottleneck locations do you agree with? Select all that apply.

US 191/I 40: On-Ramp and Off-Ramp

US 93 NB: SR 68 to I 40

I-10/Riggles Ave TI and I-10/Quartzite Ave TI @ Quartzite - EB

I-10/Riggles Ave TI and I-10/Quartzite Ave TI @ Quartzite - WB

US 95 SB: I 8 to Avenue 3E

US 93 SB: SR 68 to I 40

US 95 SB: County 15th to I 8

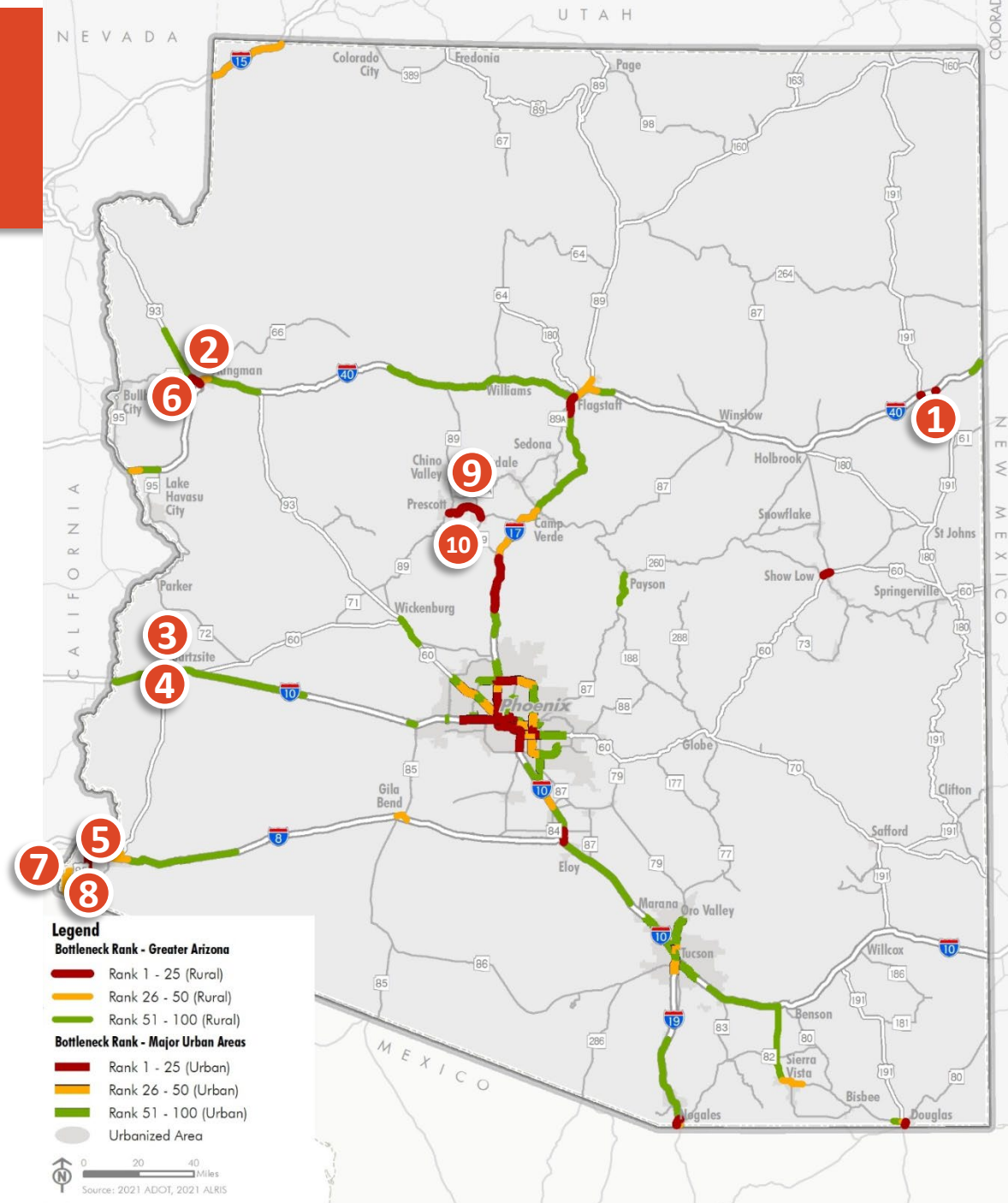
US 95 NB: County 15th to I 8

SR 69 NB: Prescott Lakes Pkwy to Glassford Hill Rd

SR 69 SB: SR 89 to Robert Rd

Identified Truck Congestion Bottlenecks (Greater Arizona)

B) Any new or other bottlenecks missing?



What Greater AZ bottleneck locations are missing?

Which truck restriction bottleneck locations or corridors are the highest priority?

I 10: SR 202 to I 8

I 10: US 191 to East End of State Line

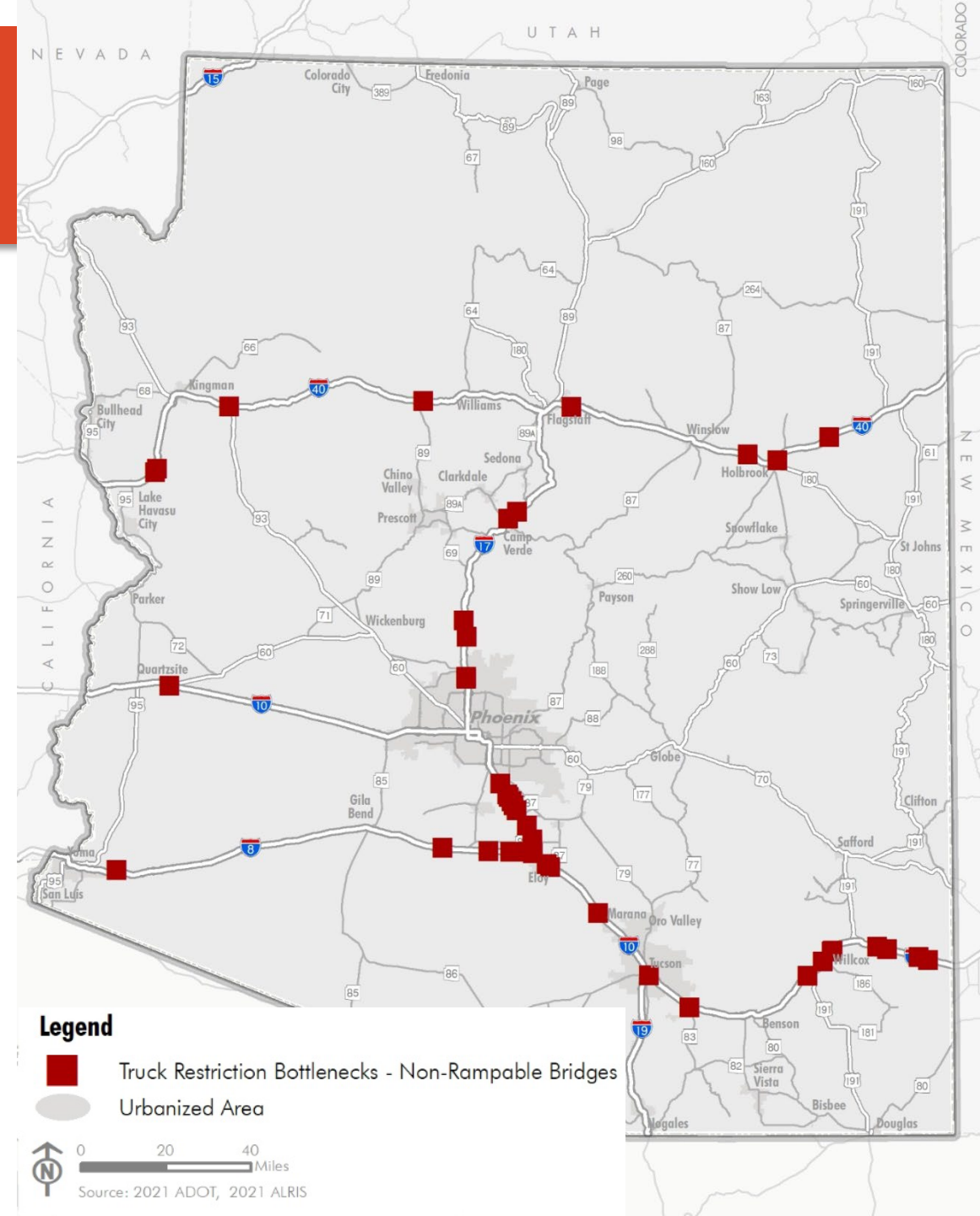
I 40: Winslow to Chambers

I 8: I 10 to SR 85

I 17: SR 303 to Sunset Point Rest Area

Identified Truck Restriction Bottlenecks

**B) Any other priority truck restriction bottlenecks we are missing?
(height, weight, hazardous material restrictions)**



What priority truck restriction bottlenecks are missing?



Freight Forecast

Freight Forecasts are based on the Transearch Data

- The data presented in this section are extracted from Transearch 2019, IHS Markit's proprietary database of domestic commodity flows.
- Transearch combines econometrics and transportation industry data to forecast commodity flows of domestic and import and export goods movement at the county-by-county level.
- Data is reported at the Standard Transportation Commodity Code (STCC) 4 level
- Commodity flow forecasts are assigned to modes of transportation (truck, railroad, inland-waterway barge, and air) and routed on the transportation network.
- Goods covered in flow forecasts include domestic legs of exports and imports, but only those links to and from the points of exit/entry. Imports and exports destined or originating in Canada or Mexico are also included.
- Railway totals are developed using STB private waybill data

Arizona Total Truck, Air, and Rail– 2019 and 2045

| | 2019 Tons (000's) | 2045 Tons (000's) | 2019 Share of Total Tons | CAGR** 2019-2045 | 2019 Value (Million \$) | 2045 Value (Million \$) | 2019 Share of Total Value | CAGR** 2019-2045 |
|-------|----------------------|----------------------|-----------------------------------|---------------------|----------------------------|----------------------------|------------------------------------|---------------------|
| Truck | 284,928 | 450,995 | 70.0% | 1.8% | 395,231 | 736,760 | 44.9% | 2.4% |
| Rail | 121,894 | 200,878 | 29.9% | 1.9% | 427,750 | 793,956 | 48.6% | 2.4% |
| Air | 364 | 875 | 0.1% | 3.4% | 57,784 | 125,519 | 6.6% | 3.0% |
| Total | 407,195 | 652,747 | | 1.8% | 880,766 | 1,656,235 | | 2.5% |

**Compound Annual Growth Rate – mean annual growth rate from 2019 to 2045

Top 10 Commodities for all modes

| STCC | STCC Description | Thousand Tons 2019 | Thousand Tons 2045 | CAGR | Share 2019 | Share 2045 |
|-------|---------------------------------|--------------------|--------------------|-------|------------|------------|
| 14 41 | Gravel or Sand | 62,771 | 81,344 | 1.0% | 15% | 12% |
| 46 11 | Freight of All Kinds Shipments | 45,645 | 87,746 | 2.5% | 11% | 13% |
| 50 1 | Warehouse & Distribution Center | 16,428 | 63,904 | 5.4% | 4% | 10% |
| 14 21 | Broken Stone or Riprap | 16,292 | 18,959 | 0.6% | 4% | 3% |
| 29 11 | Petroleum Refining Products | 15,923 | 15,309 | -0.2% | 4% | 2% |
| 40 29 | Misc Waste or Scrap | 13,838 | 17,071 | 0.8% | 3% | 3% |
| 01 13 | Grain | 11,200 | 12,558 | 0.4% | 3% | 2% |
| 29 51 | Asphalt Paving Blocks or Mix | 10,193 | 14,100 | 1.3% | 3% | 2% |
| 11 21 | Bituminous Coal | 9,238 | 930 | -8.5% | 2% | 0% |
| 32 71 | Concrete Products | 8,252 | 11,634 | 1.3% | 2% | 2% |

Commodity Flow Highlights

- Through traffic has the highest share of tonnage at 51% in 2019 and 54% in 2045; In terms of value this share is even higher at 73% in 2019 and 71% in 2045
- Truck flows account for 70% of tonnage moved in Arizona and 45% of value
- Commodities moved on the rail network account for 30% of total tonnage and 49% of total value
- Commodities moved by air will have the highest growth by 2045 (3.4% CAGR). Truck and rail will have similar growth of 1.8-1.9%.
- Top commodity shipments in the state: freight of all kind, gravel and sand, grain, coal, and petroleum products



Next Steps

Next Steps

- Needs identification
 - Truck parking needs
 - Bottleneck location needs
 - Critical Rural Freight Corridors and Critical Urban Freight Corridors
 - Multimodal needs
- Prioritization Framework

ADOT

Q/A?



Thank you!