Leveraging the Crowd:

The Application of Crowdsourced Data to Generate Truck Parking Insights

Innovations in Freight

Data Workshop

April 9th, 2019

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Truck Parking Problem Summary

- **Inadequate truck parking is a national problem**
  - 75% of truck drivers have difficulty finding truck parking more than once a week

- **Results in an economic cost to truck drivers**
  - 48% of truck drivers reported needing an hour our more to find truck parking – costing drivers about $5,600 in potential wages

- **Impacts safety and damage infrastructure**

Source: Arizona Department of Transportation

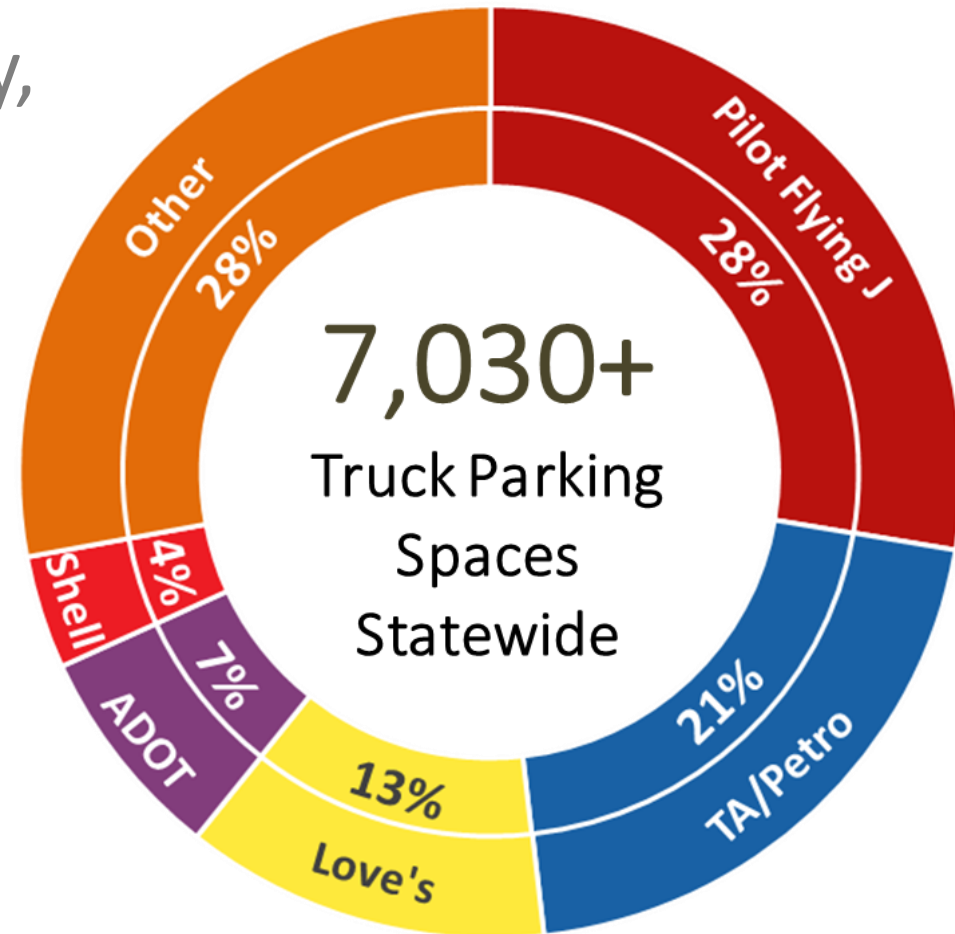**CPCS** Solutions for growing economies

About the Arizona Truck Parking Study

- Need identified in State Freight Plan

- Focus on identifying truck parking needs, solutions, and opportunities

- Ultimately, how should ADOT allocation $10 million in NHFP funds?

ADOT

Arizona State Freight Plan

A To Z

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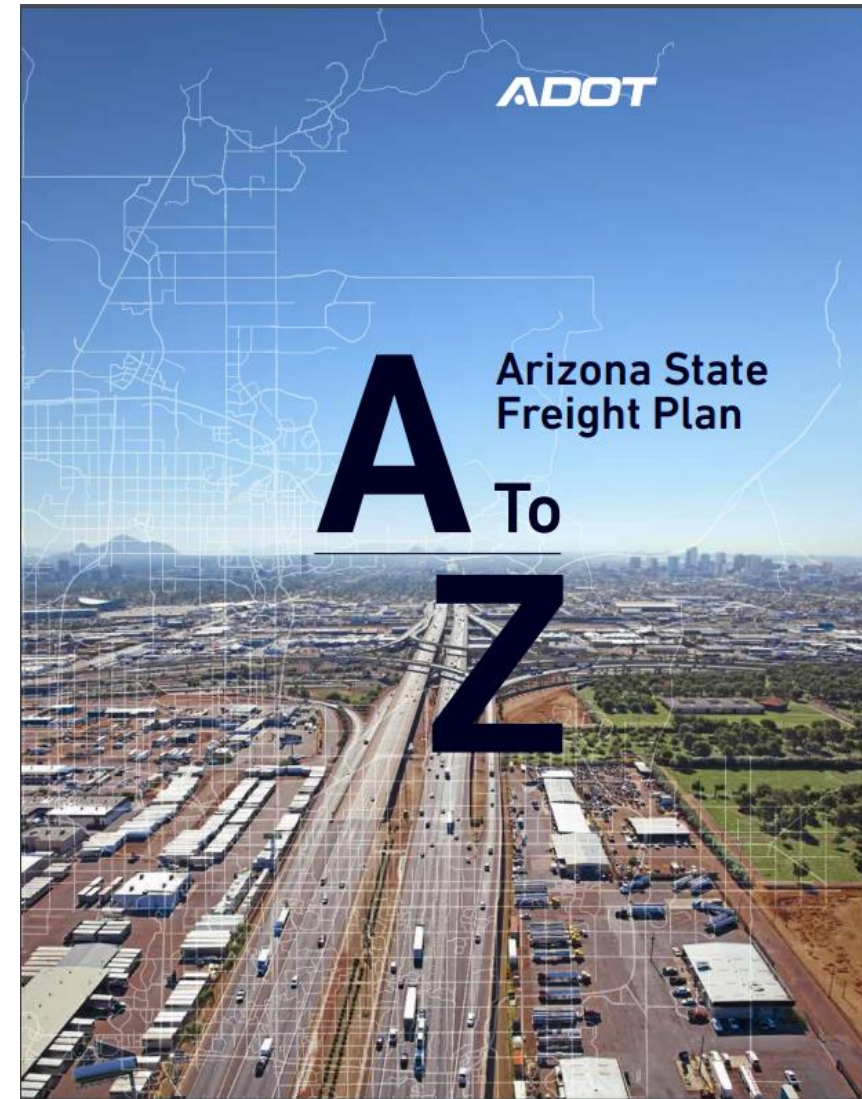
Delivering Actionable Insights

- Identify truck parking supply, utilization, and gaps
  - Challenge covering public and private truck parking locations

- Define and prioritize truck parking opportunities and solutions
  - Challenge differentiating where to deploy capacity and information solutions

7,030+ Truck Parking Spaces Statewide

- Other 28%
- Pilot Flying J 28%
- TA/Petro 21%
- Love's 13%
- ADOT 7%
- Shell 4%

129 Locations in Arizona

55 Average Spaces per Location

Leveraging Crowdsourced Data

- ## Leveraging the crowd
  - 800,000 active monthly users

- ## Information
  - Number of spots, availability, amenities, and reviews

- ## Location based prompts to update status

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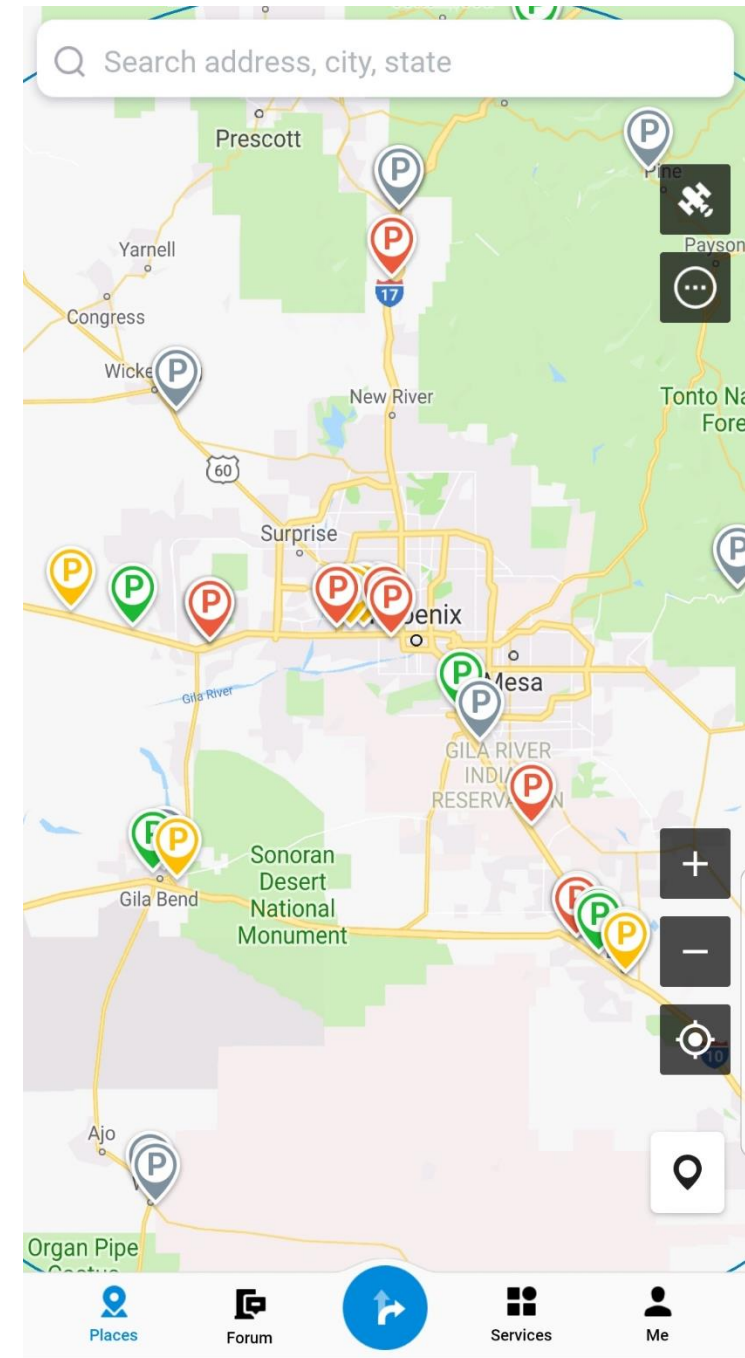
Innovative Approach to Analyzing Truck Parking

- Trucker Path - truck parking supply, utilization, and critical context for selecting solutions

- Truck GPS data - undesignated truck parking

- Industry consultations - factors affecting truck parking and data validation

Leveraging the Crowd

1,000,000+
Monthly Parking Status Updates

9,000+
Public & Private Truck Parking Locations

330,000+
Truck Parking Spaces
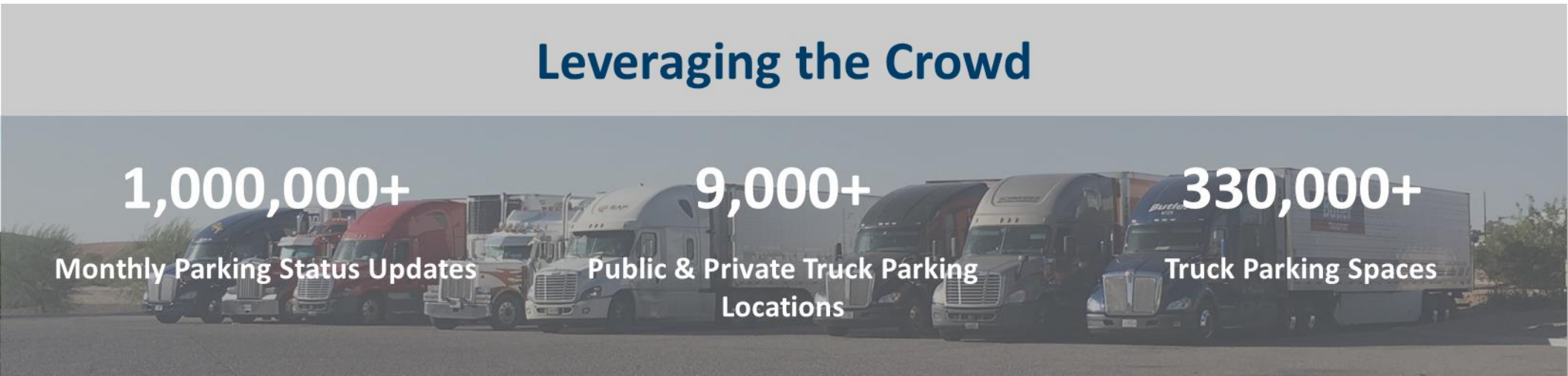
Understanding Supply

Density of Parking Spaces
Arizona State Plane Central FIPS 0202 (Feet-Intl)

Legend

Road Network
— Interstates
— US State Roads
— State County Roads

Parking Locations
◆ Rest Area
◇ Truck Stop

Parking Spot Density
(spaces per sq mile)
- <20
- 20 - 60
- 60 - 200
- 2000 - 3000
- 400 - 800
- 800 - 2000
- 2000 - 3000

0 20 40 80
Miles

Pilot Flying J

29.8%
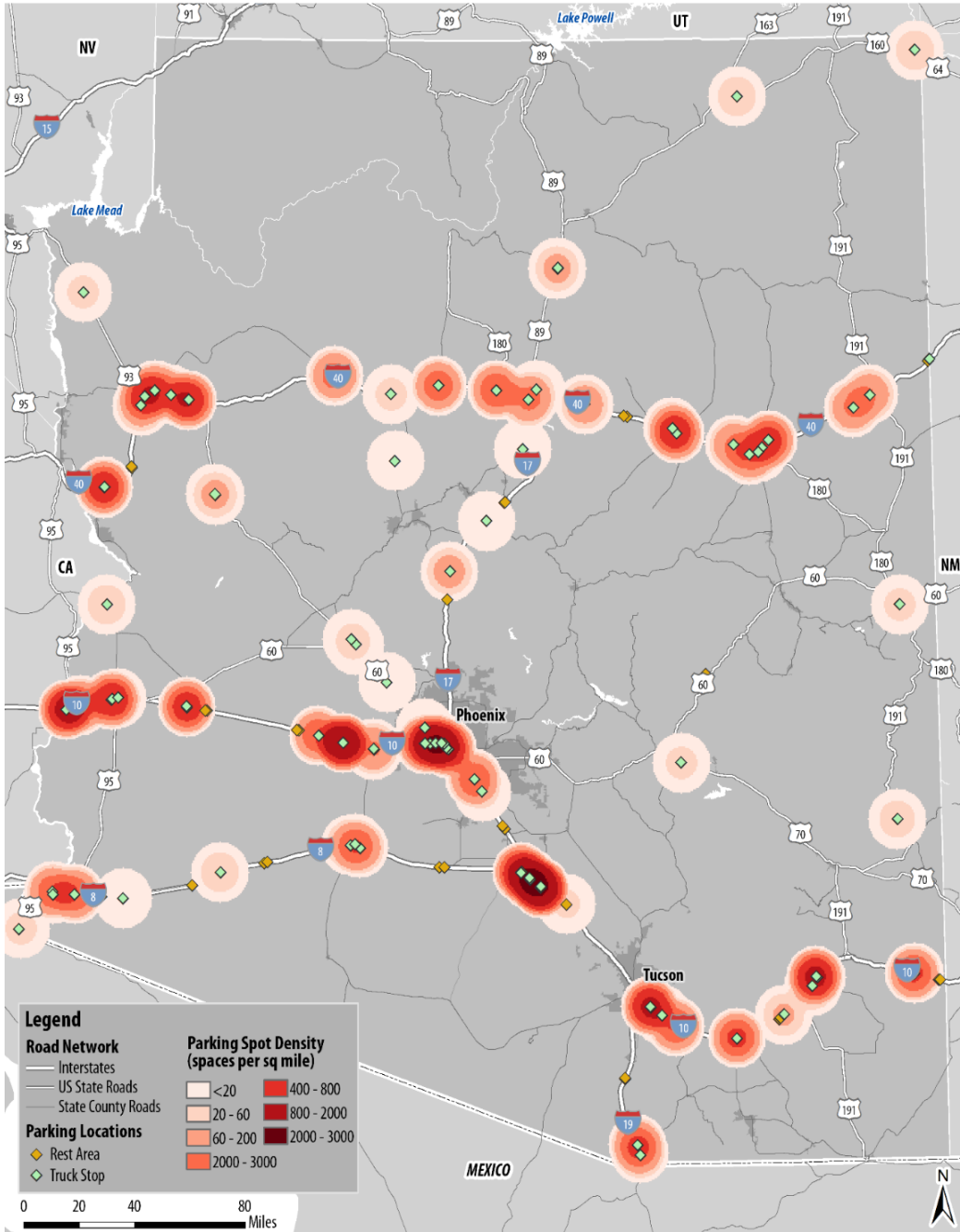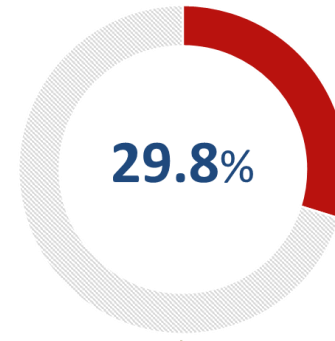
1,941
Spaces
13 Location in Arizona
149 Average Spaces per Location

TA & Petro

22.1%
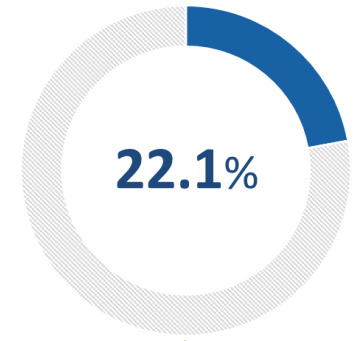
1,440
Spaces
7 Location in Arizona
206 Average Spaces per Location

Love's

13.5%
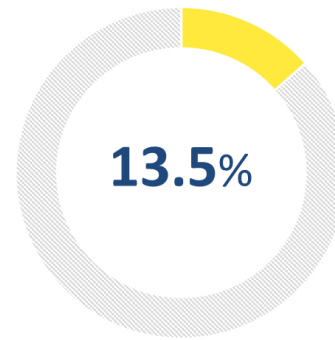
879
Spaces
12 Location in Arizona
73 Average Spaces per Location

Remaining Truck Stops

34.6%
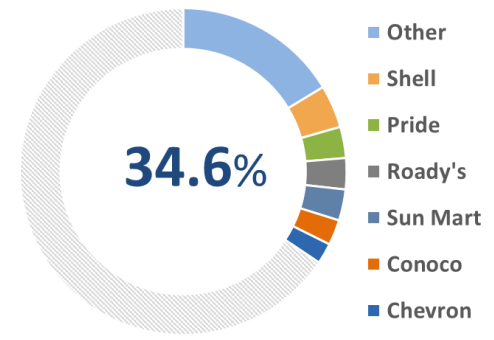
2,251
Spaces
66 Location in Arizona
34 Average Spaces per Location

- Other
- Shell
- Pride
- Roady's
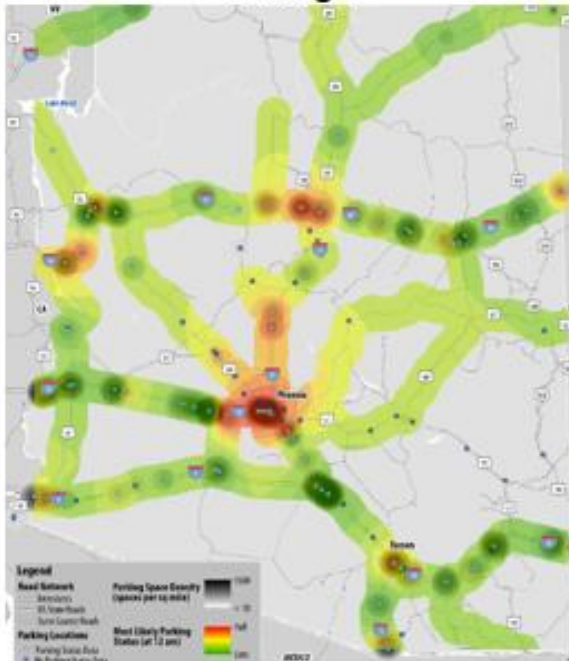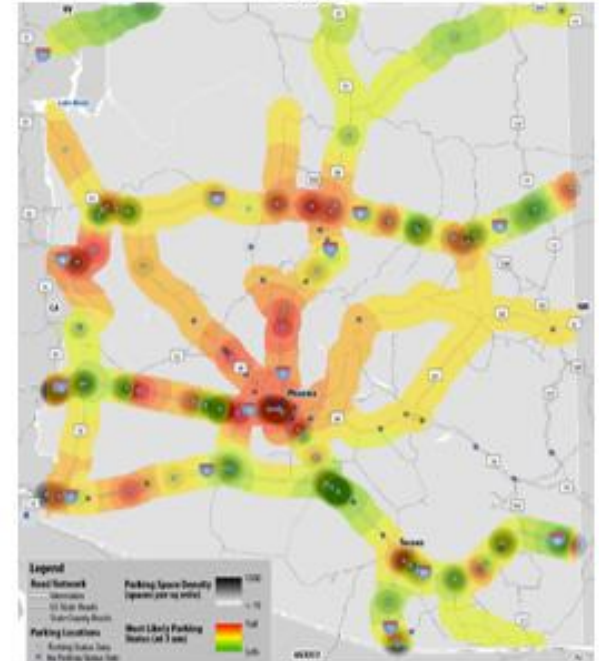- Sun Mart
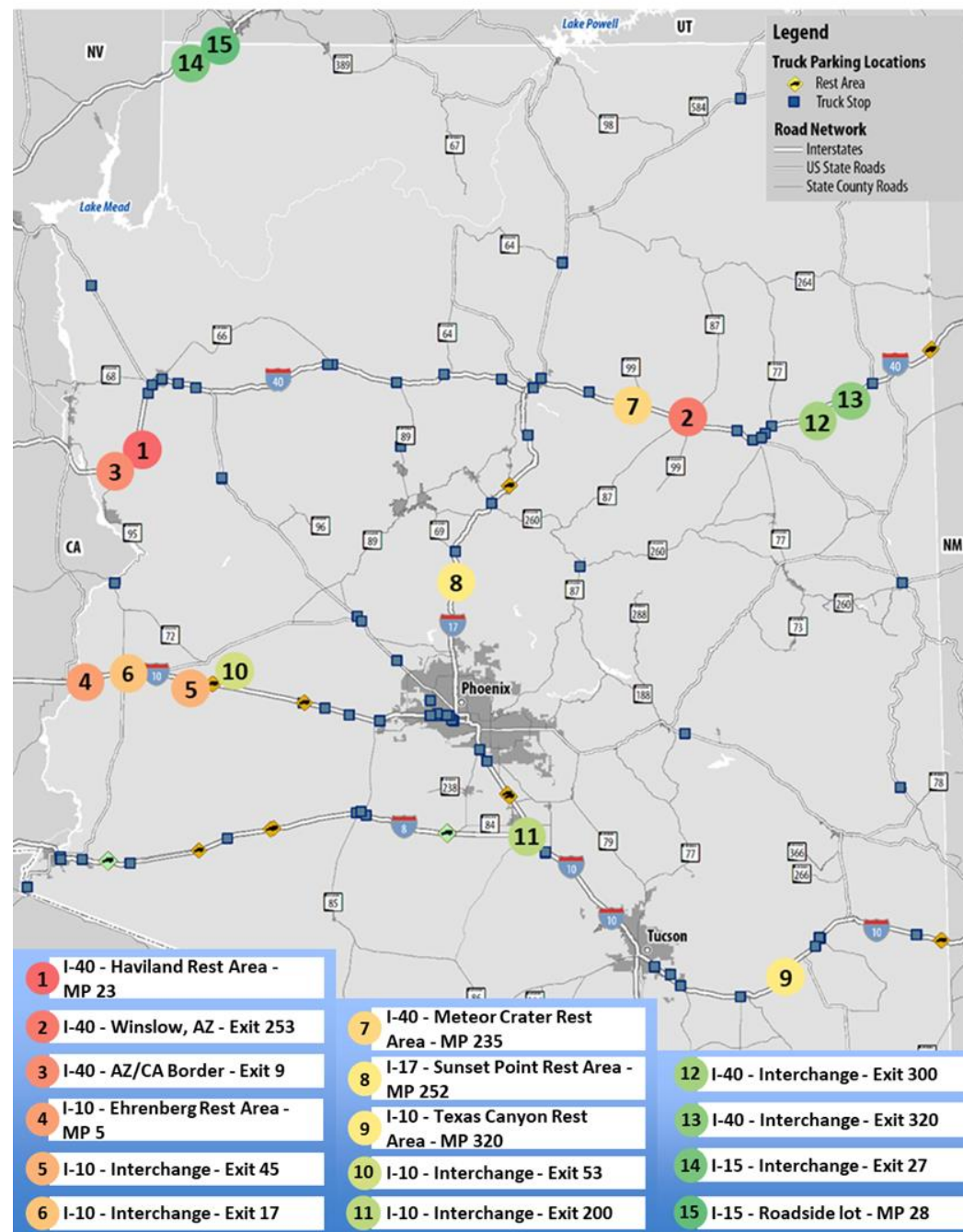- Conoco
- Chevron

7

Statewide Truck Parking Utilization
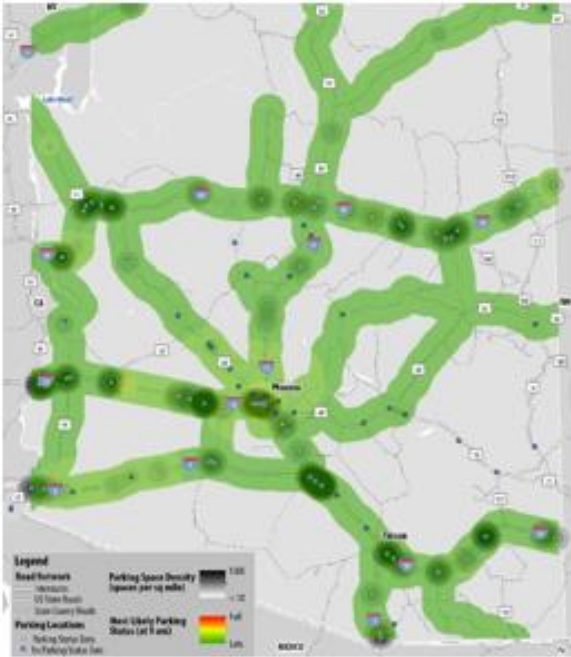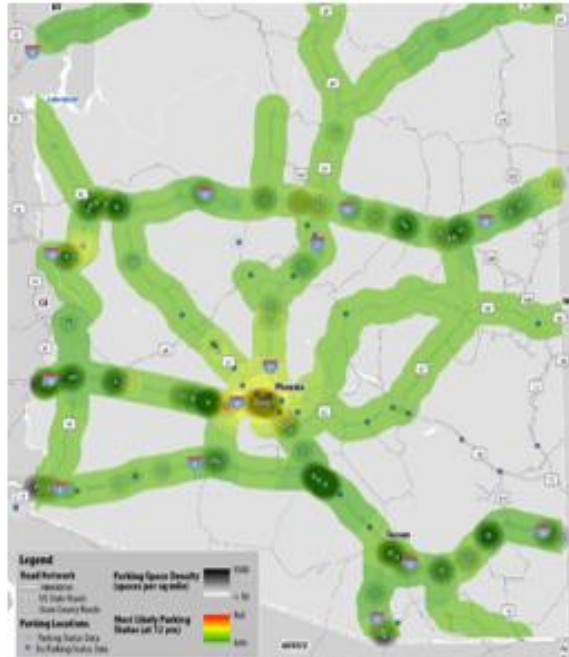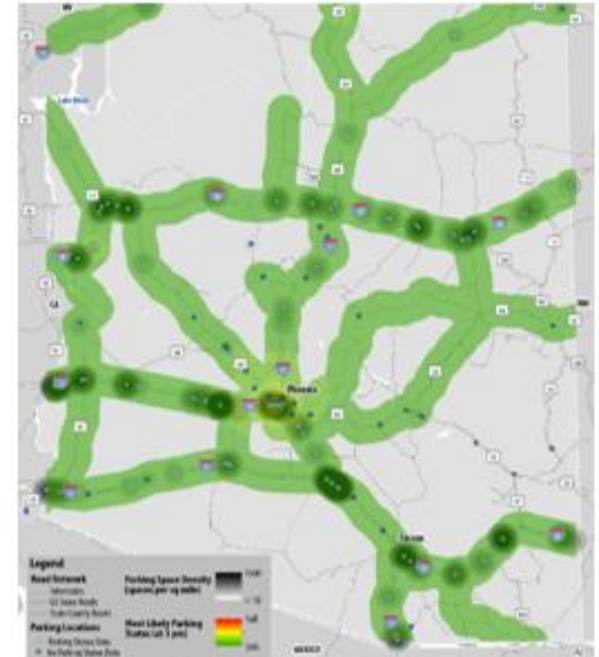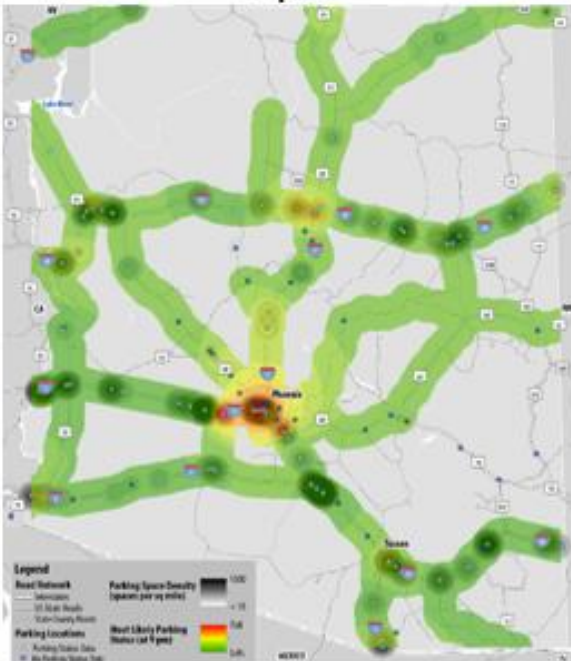
# Leveraging Truck GPS to Identify Undesignated Truck Parking

- Top 15 locations with undesignated truck parking

- Apply quantitative criteria to rank
  - Utilization at nearby truck parking locations
  - Undesignated truck parking counts
  - Truck traffic
  - Location
  - District outreach

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Legend

Truck Parking Locations
- Rest Area
- Truck Stop

Road Network
- Interstates
- US State Roads
- State County Roads

1	I-40 - Haviland Rest Area - MP 23	
2	I-40 - Winslow, AZ - Exit 253	7 I-40 - Meteor Crater Rest Area - MP 235
3	I-40 - AZ/CA Border - Exit 9	8 I-17 - Sunset Point Rest Area - MP 252 — 12 I-40 - Interchange - Exit 300
4	I-10 - Ehrenberg Rest Area - MP 5	9 I-10 - Texas Canyon Rest Area - MP 320 — 13 I-40 - Interchange - Exit 320
5	I-10 - Interchange - Exit 45	10 I-10 - Interchange - Exit 53 — 14 I-15 - Interchange - Exit 27
6	I-10 - Interchange - Exit 17	11 I-10 - Interchange - Exit 200 — 15 I-15 - Roadside lot - MP 28

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Matching Solutions to Issues

- Where should capacity solutions be used?

- Where should information solutions be used?
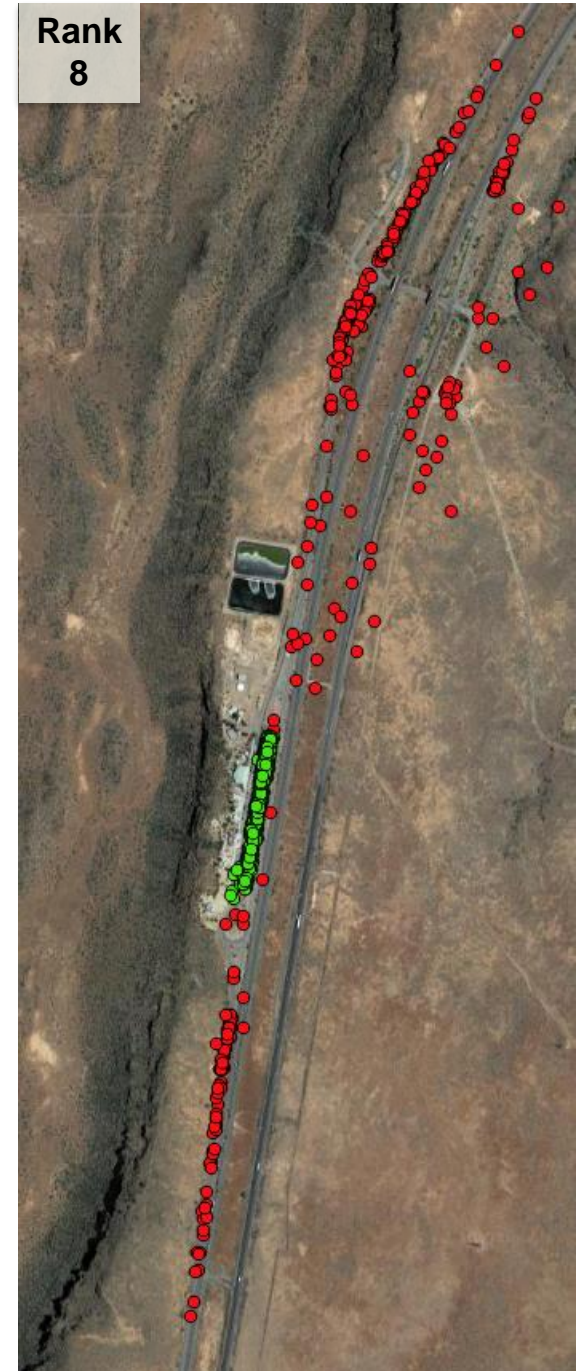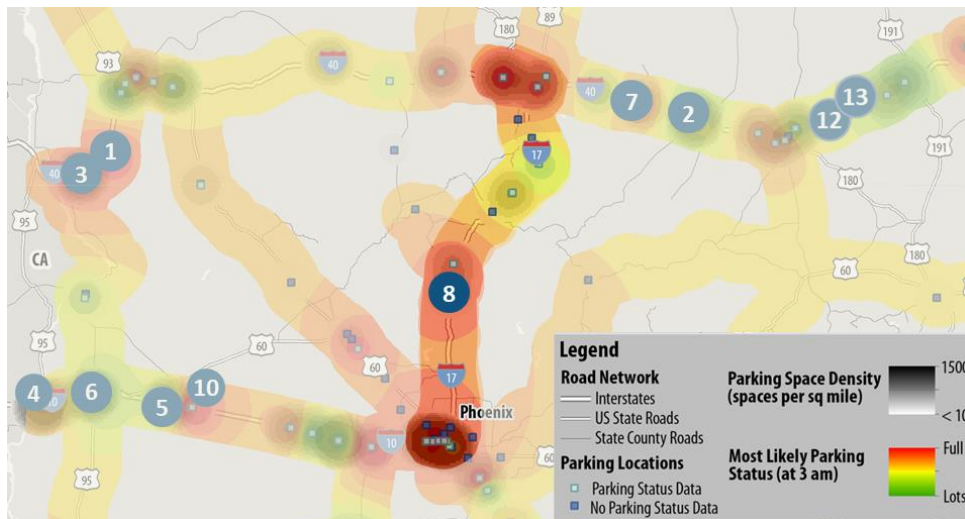
- What is the potential for policy & partnering?
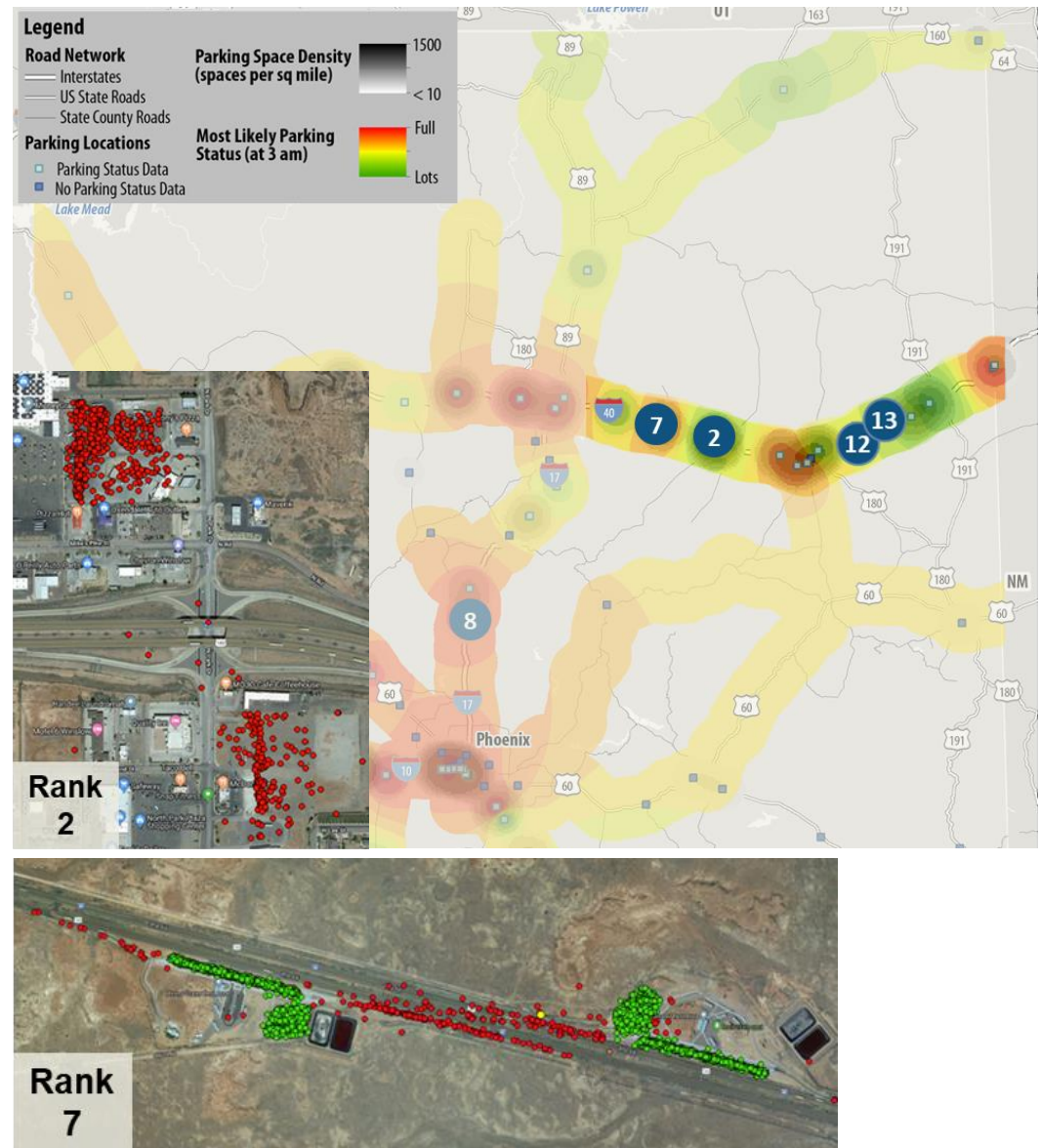
Sunset Point Rest Area (MP 23): Rank 8

- Trucks using on/off ramps and shoulders leading to and from the rest area for truck parking

- Little to no nearby alternative truck parking locations

Solutions:

- Sunset Point is unsuitable for expansion
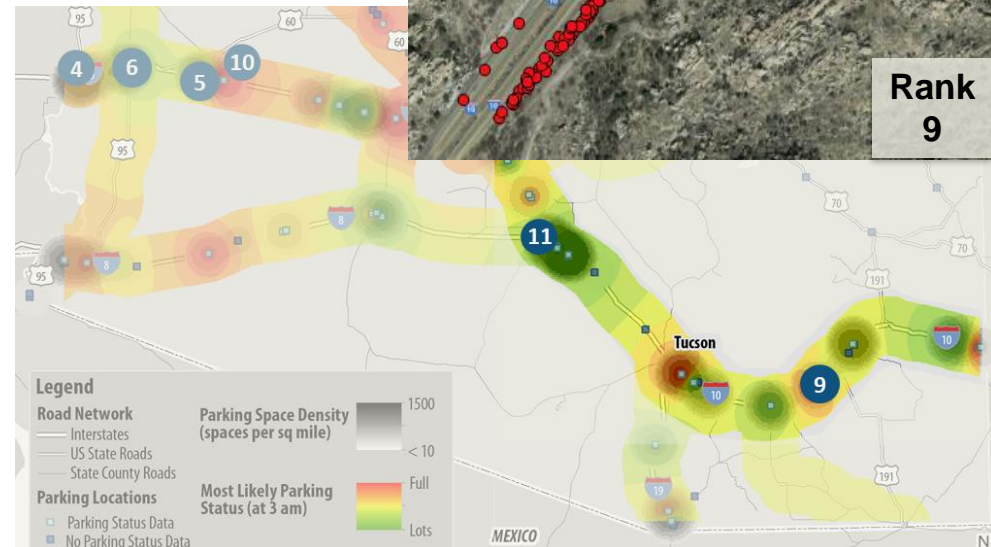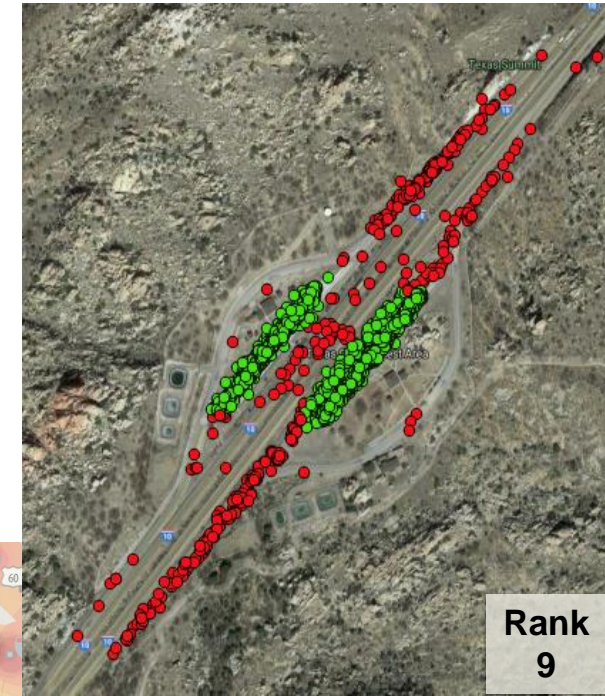
- Limited funding in the near-term places the focus on a private sector

Rank 8

Legend
Road Network
Interstates
US State Roads
State County Roads

Parking Locations
☐ Parking Status Data
■ No Parking Status Data

Parking Space Density (spaces per sq mile) 1500 — < 10

Most Likely Parking Status (at 3 am) Full — Lots

Texas Canyon Rest Area (MP 320): Rank 9

- Trucks using rest area on/off ramps for truck parking

Solutions:

- Information System
  - Provide information about nearby truck stops

Rank 9

Legend

Road Network
— Interstates
— US State Roads
— State County Roads

Parking Space Density
(spaces per sq mile)
1500
< 10

Parking Locations
☐ Parking Status Data
☐ No Parking Status Data

Most Likely Parking Status (at 3 am)
Full
Lots

Tucson

MEXICO

Outcomes of the Arizona Truck Parking Study

- Locations with capacity, information, partnership, and policy opportunities

- Recommended projects and policies

- Data and visuals to guide future public and private truck parking discussions

- Benchmark to assess project implementation

Lessons Learned

- Utilization data from Trucker Path provided ADOT with the context and quantitative support to confidently select the type of project that best address truck parking issues in the state

- Data partnerships with the private sector is possible, but it may not be fast

- Fusing new and existing data sources provides context for matching projects with issues

- Future opportunity for benchmarking and performance measurement

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Thank You

Alex Marach, MPA
Principal Consultant
C: +1.920.737.2980 | amarach@cpcstrans.com | www.cpcstrans.com

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