

Autonomous Vehicles in Tempe

Opportunities and Risks for Tempe's Self-Driving Future



ASU Center for Smart
Cities and Regions
Arizona State University

Thaddeus Miller, PhD
thad.miller@asu.edu



Braden Kay, PhD
Braden_kay@tempe.gov

Outline

- **Background and Goals**
- **AVs and the Role of Cities**
- **Opportunities and Risks**
- **Recommendations and Next Steps**

Goals for Report

- **Understand the role of AVs in Tempe**
- **Identify opportunities and risks**
- **Identify potential investments**
- **Identify potential policies and pilot projects**
- **Provide Mayor and Council with clear next steps**

Tempe Performance Measures

This report ensures that Tempe examines the incorporation of AVs into our city in a manner that supports and enhances the city. Specific attention is paid to how AVs can support the following Mayor and Council-adopted performance measures:

1.08 – High Severity Traffic Crashes: Achieve a reduction in the number of fatal and serious injury crashes to zero.

3.13 – Disability Social Inclusion: Achieve a score of 100 on the self-assessment tool for “Disability Social Inclusion” in accordance with the Tempe Disability Inclusion Plan (T-DIP) and the National Council on Disability.

3.26 – 20 Minute City: Achieve a multimodal transportation system (20-minute city) where residents can walk, bicycle, or use public transit to meet all basic daily, non-work needs.

3.27 – Traffic Delay Reduction: Achieve travel times at or below XX minutes per mile during during rush-hour periods along major streets (arterial corridors).

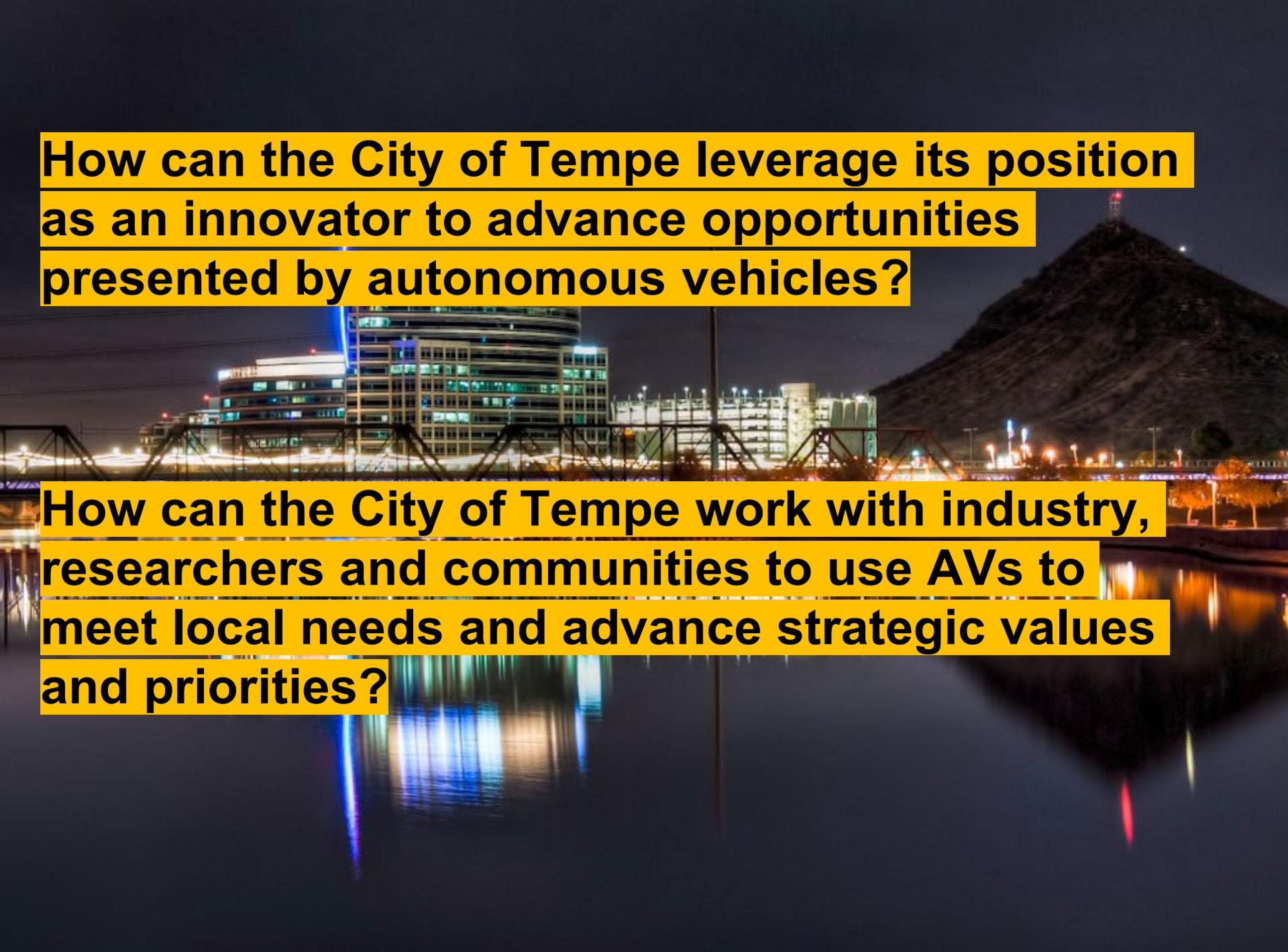
3.29 – Transportation System: Achieve ratings of “Very Satisfied” or “Satisfied” with the “Overall Satisfaction with Transit System in Tempe” greater than or equal to 80% as measured by the City of Tempe Transit Survey.

4.19 – Carbon Neutrality: Achieve the City Council goal of carbon neutrality in municipal operation by 2050 with a strategy of 100% renewable energy by 2035.

National League of Cities

NLC's Policy Preparation Guide for Autonomous Vehicles recommends:

- 1 – Planning:** AVs are on our roads today so start planning now.
- 2 – Partnership:** Policy development with the right people at the table. Include Public Safety, IT, Procurement, and Community Development.
- 3 – Policy:** Track and monitor state and federal developments and make our voices heard.
- 4 – Infrastructure and Data:** Begin planning infrastructure needs and building data and computing capacity to position your city to take advantage of an automated mobility future.



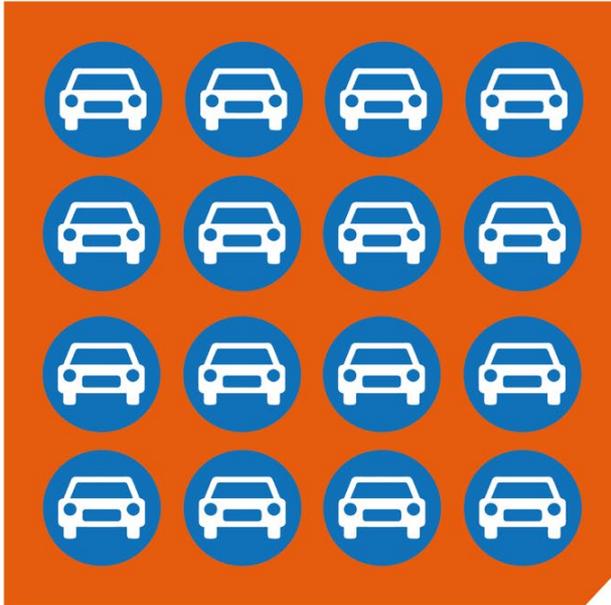
How can the City of Tempe leverage its position as an innovator to advance opportunities presented by autonomous vehicles?

How can the City of Tempe work with industry, researchers and communities to use AVs to meet local needs and advance strategic values and priorities?

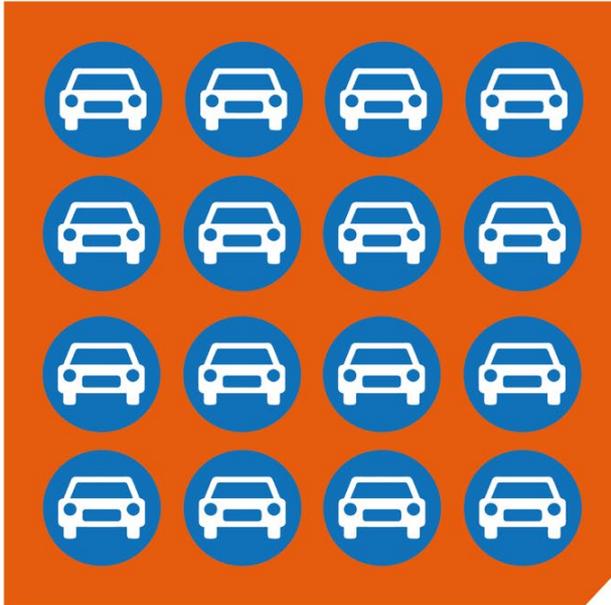
Core Challenges

- **AVs are not a standalone congestion fix**
- **AVs pose equity and access challenges**
- **AVs may threaten investments in transit**

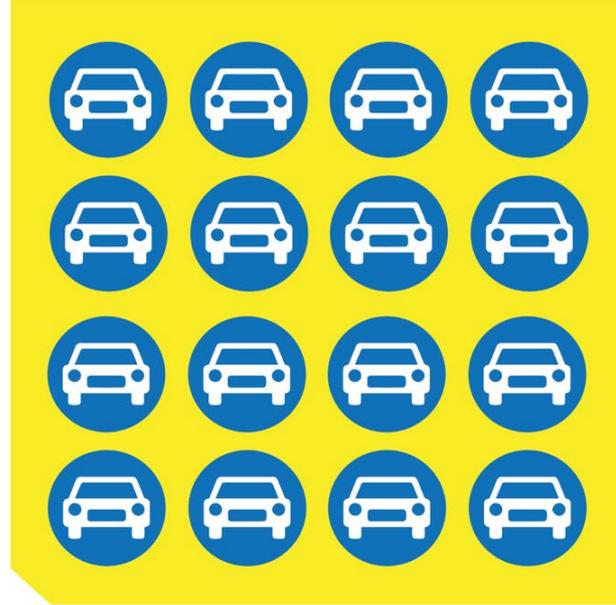
Life with cars.



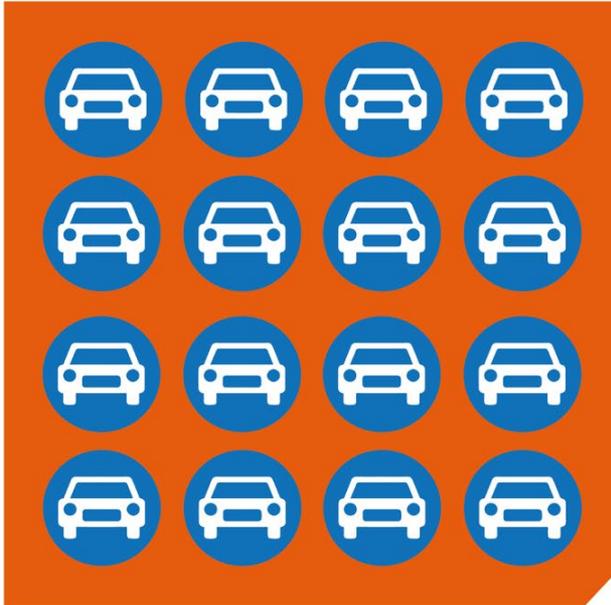
Life with cars.



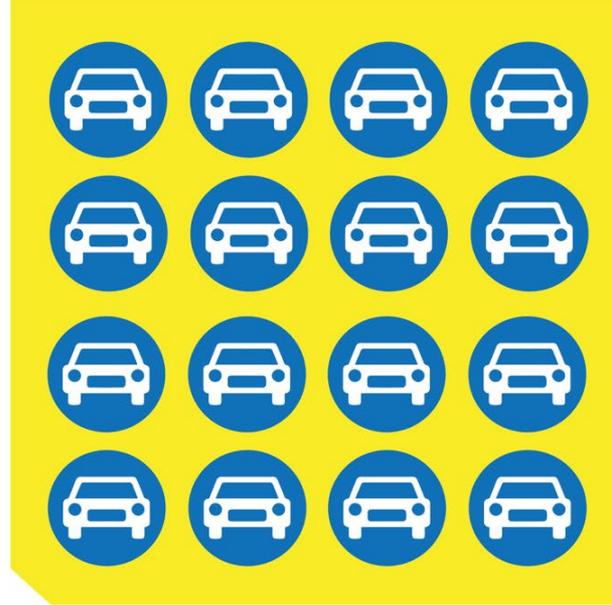
Life with electric cars.



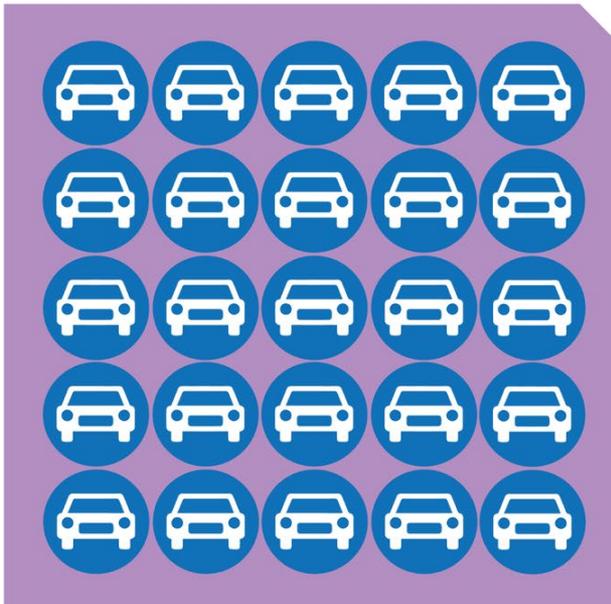
Life with cars.



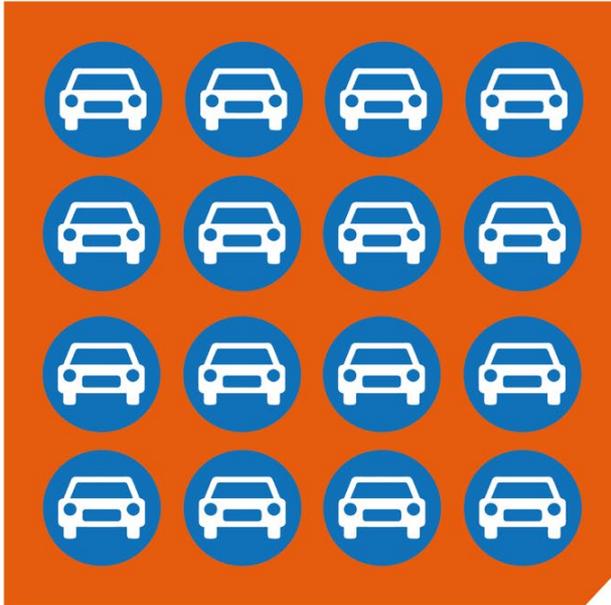
Life with electric cars.



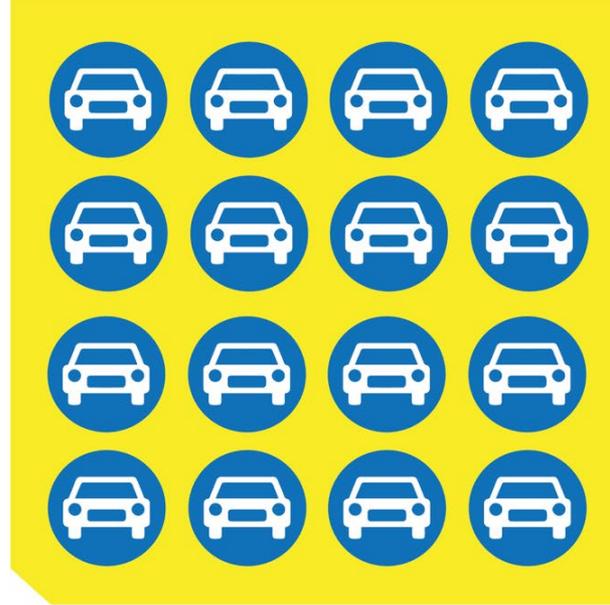
Life with autonomous cars.



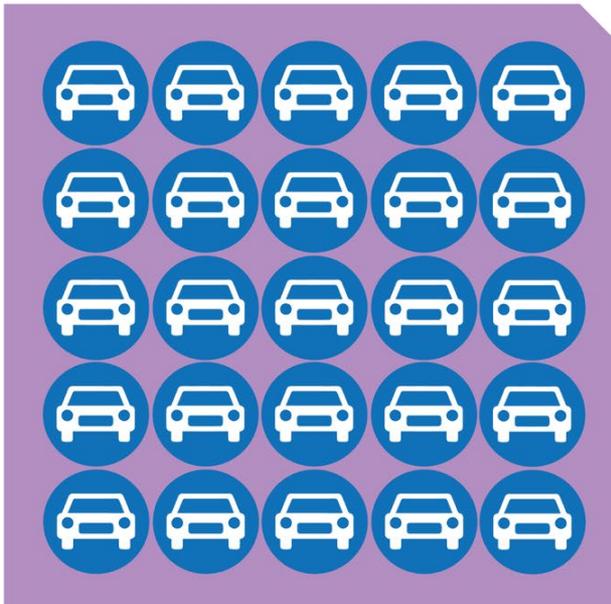
Life with cars.



Life with electric cars.



Life with autonomous cars.



Life in a modern city.



AV Initiatives in US Cities



Opportunities and Risks in Tempe



- **Traffic Safety**
- **Emergency Response**
- **Cybersecurity**
- **Liability and Public Safety**

Opportunities and Risks in Tempe



- Traffic Safety
- Emergency Response
- Cybersecurity
- Liability and Public Safety



- **AV Governance**
- **Data Governance and Sharing**
- **Public transportation**

Opportunities and Risks in Tempe



- Traffic Safety
- Emergency Response
- Cybersecurity
- Liability and Public Safety



- AV Governance
- Data Governance and Sharing
- Public transportation



- **Revenue Impact**
- **Infrastructure Needs**
- **Labor Market Impact**

Opportunities and Risks in Tempe



- Traffic Safety
- Emergency Response
- Cybersecurity
- Liability and Public Safety
- **Accessibility**
- **Equity**
- **20-minute neighborhood**
- **Congestion**
- **Public Perception**



- AV Governance
- Data Governance and Sharing
- Public transportation



- Revenue Impact
- Infrastructure Needs
- Labor Market Impact

Opportunities and Risks in Tempe



- Traffic Safety
- Emergency Response
- Cybersecurity
- Liability and Public Safety

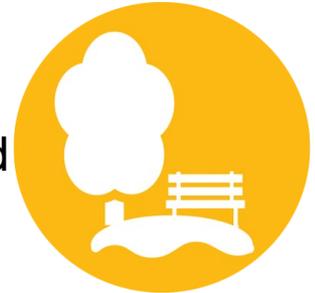


- AV Governance
- Data Governance and Sharing
- Public transportation



- Revenue Impact
- Infrastructure Needs
- Labor Market Impact

- Accessibility
- Equity
- 20-minute neighborhood
- Congestion
- Public Perception



- **Emissions and Climate Impact**
- **Compact Urban Development**



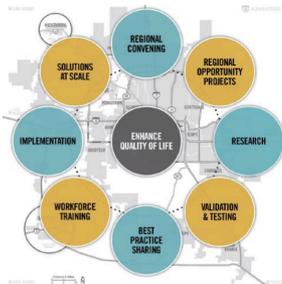
Recommendations: Partnerships



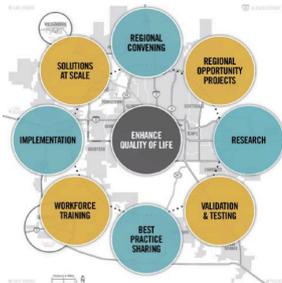
Recommendations: Partnerships



Recommendations: Partnerships



Recommendations: Partnerships



Recommendations: Smart Mobility Playbook

- **Equity and access**
- **Public safety**
- **Infrastructure, zoning, and land use**
- **Data governance and sharing**
- **Learning**

Recommendations: Pilot projects

- **Support and enhance public transportation**
- **Reduce single occupancy vehicles**
- **Equity and access**
- **Community engagement**



Next Steps

- **Supplemental Budget Request to Create Smart Mobility Playbook**
- **Support partnerships and pilot projects**
- **Continue progress and investments in transportation**
- **Advocate for smart mobility at regional and state-levels**
- **Continue to follow NLC recommendations**

Thank you. Questions?

Thaddeus Miller

thad.miller@asu.edu



Acknowledgements

TISC members; FIS 480 students; Dr. Lauren Keeler; Public and expert participants in Future of Transportation forums; Transportation and Sustainability Commissions.

