



# Gameday Transportation Data Science

*It's not just about which play to run*

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Texas A&M Transportation Institute

Workshop on Operational Data Science

February 2019

# 99 Years of Kyle Field Traffic Management



1920 – Fewer Seats



Central  
Traffic  
Center



Early version of  
shared-ride lot

Mid-90s – Football  
Traffic Planning Began

**GO WITH THE GREEN  
AFTER THE GAME**



**TUNE TO AM 1690  
FOR HIGHWAY  
ADVISORY RADIO**



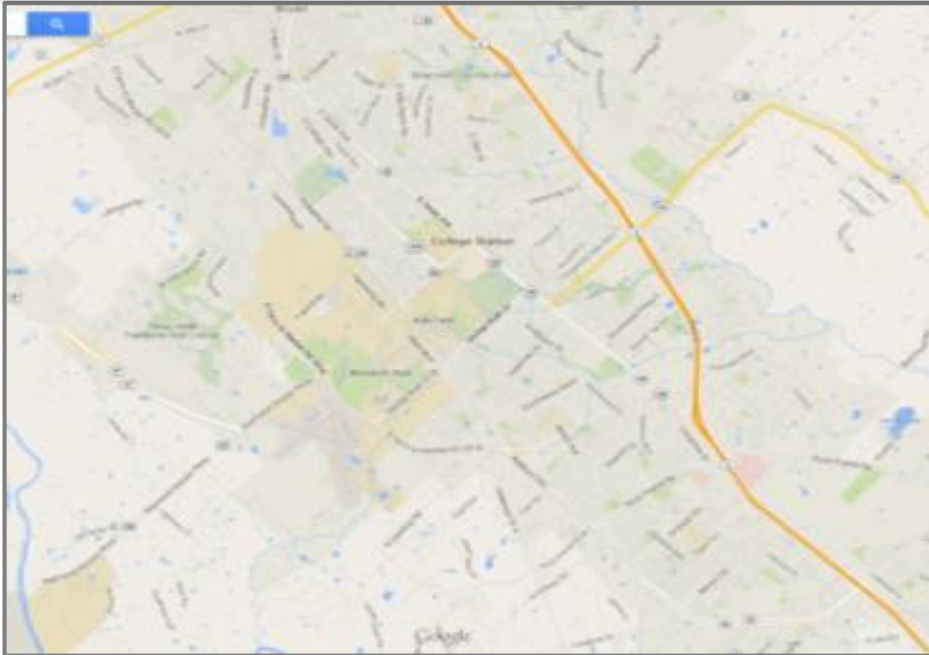
# 4th Largest Texas Downtown

GAMEDAY



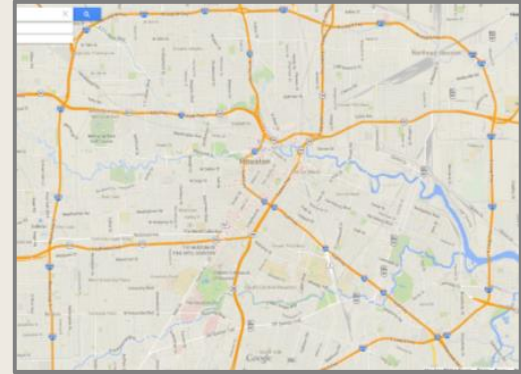
120,000+  
attendees  
& workers

0  
Freeways



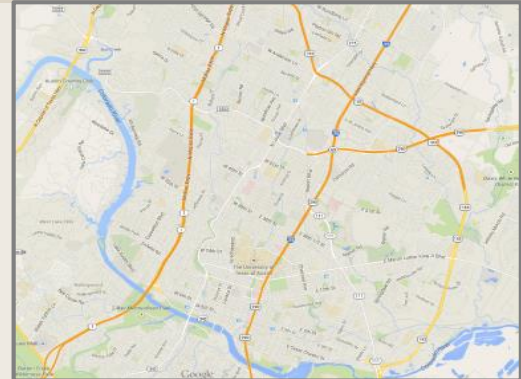
**Downtown  
Houston**  
150,000  
workers

7 Freeways



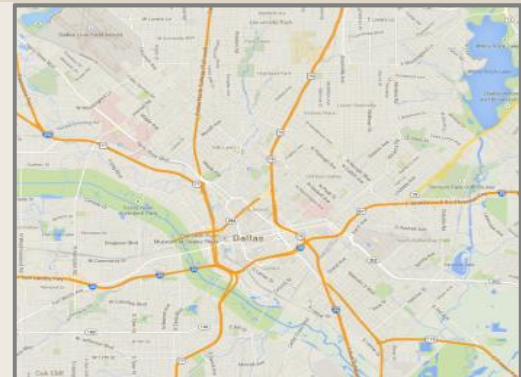
**Downtown  
Austin**  
125,000  
workers

4 Freeways



**Downtown  
Dallas**  
145,000  
workers

6 Freeways



Some Perspective

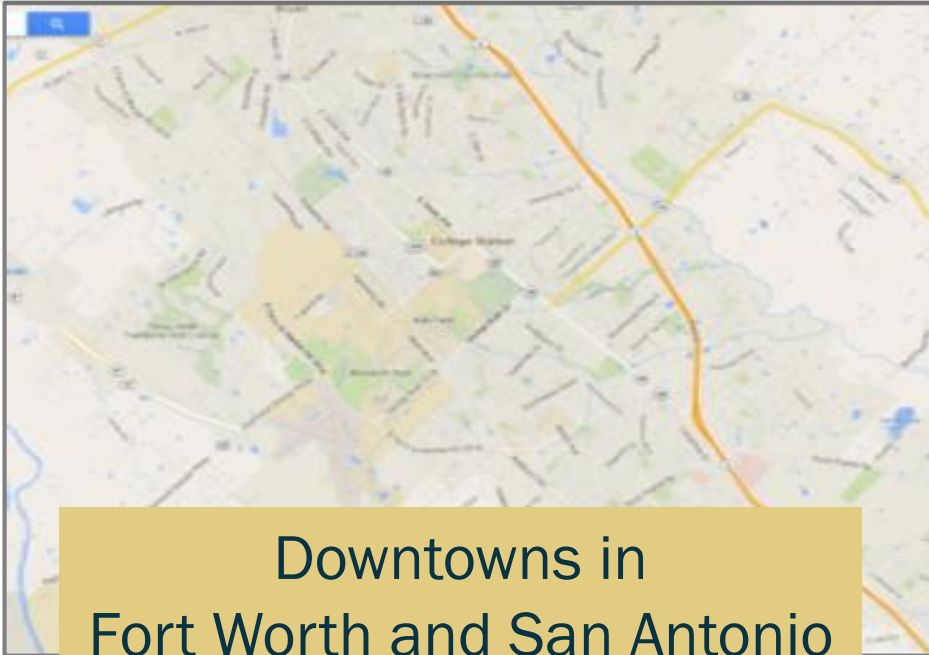
# 4th Largest Texas Downtown

MONDAY through FRIDAY



**75,000**  
students, faculty,  
staff

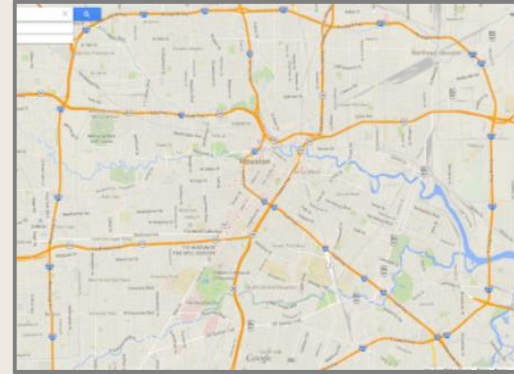
**0**  
Freeways



Downtowns in  
Fort Worth and San Antonio  
- about 50,000 employees

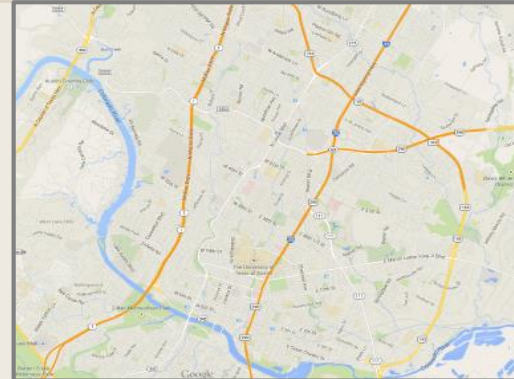
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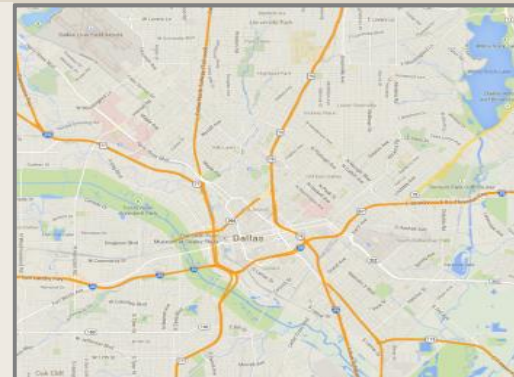
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Some Perspective





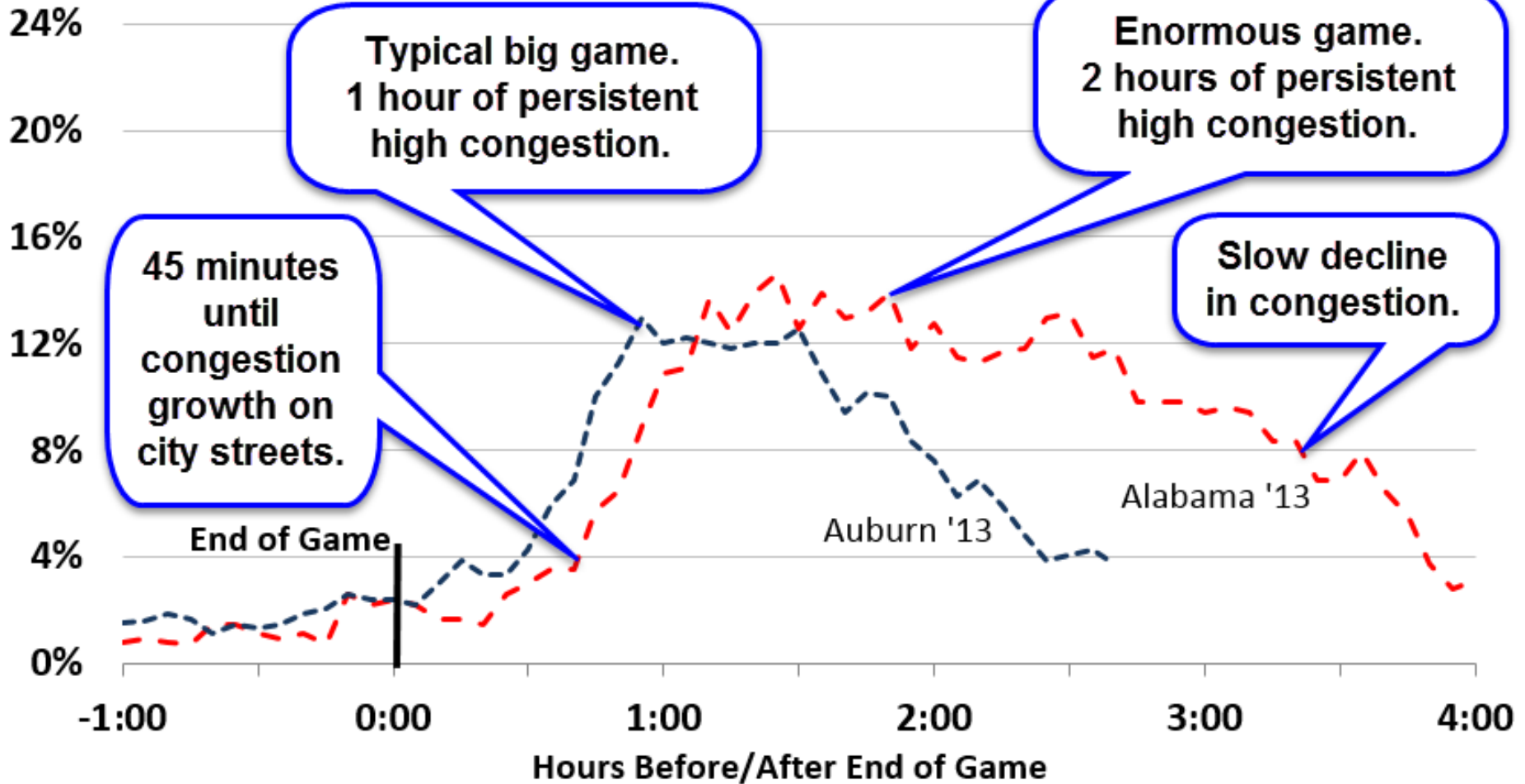
# Where We Started - 2013

- Big game performance in 2013 was not acceptable
- \$485 million stadium investment
- Our resources:
  - 25,000+ gameday parking spaces, 90+ buses, experienced staff, committed people
  - Individual traffic groups doing good job, but we needed one system; one plan
- Resource needs:
  - Transportation technology upgrades, personnel, communication and coordination

# Where We Started - 2013

% of Congested  
Major Roads

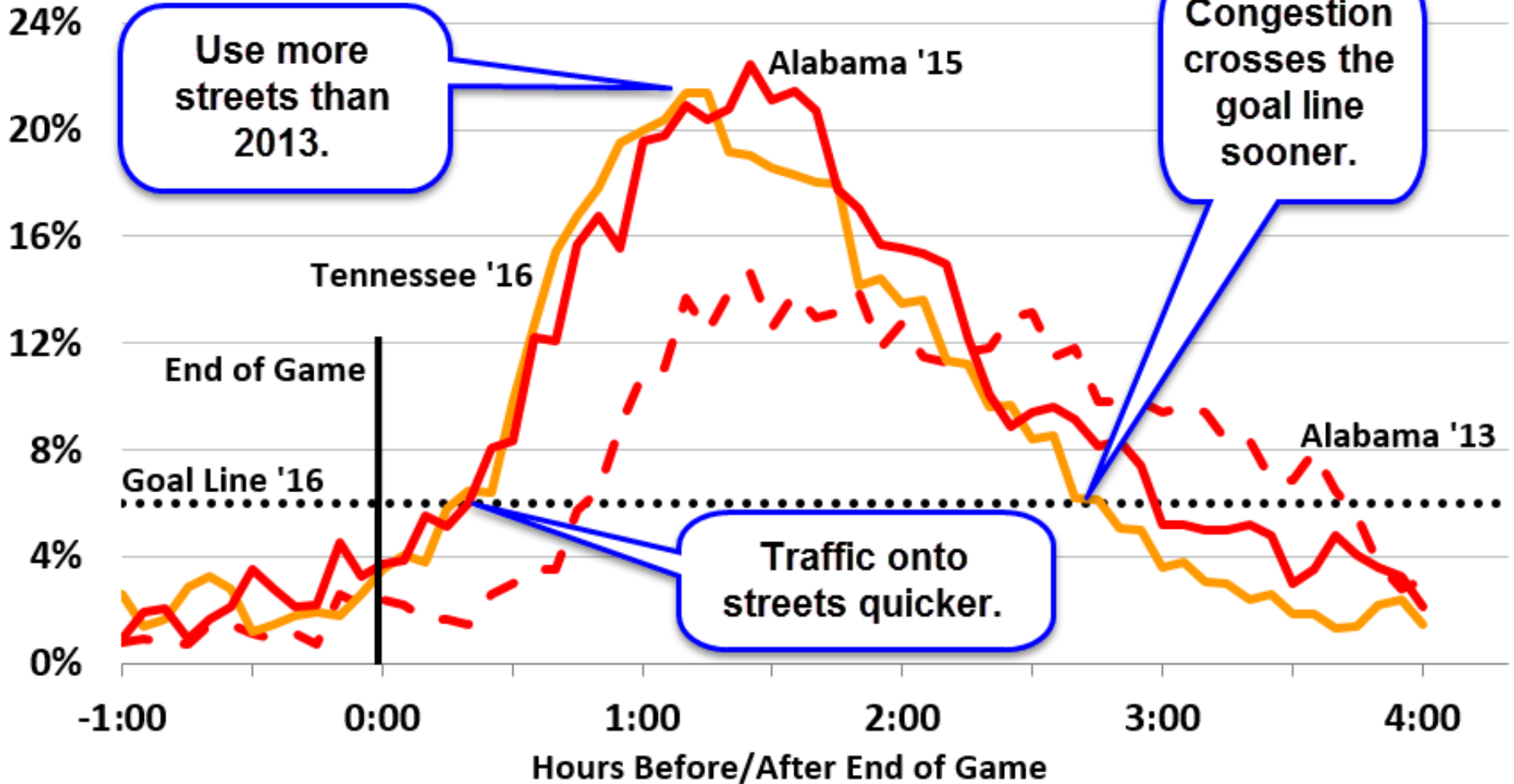
## Aggieland Postgame



# New Gameday Traffic Plan

% of Congested Major Roads

## Aggieland Postgame





# Typical Gameday Stats

## Bus Riders

2013	12,700
2014	27,300
2015	30,100
2016	27,400
2017	26,050
2018	25,500



**2013** ~19,000 cars



**2014 to 2018**  
~22,000 parked cars

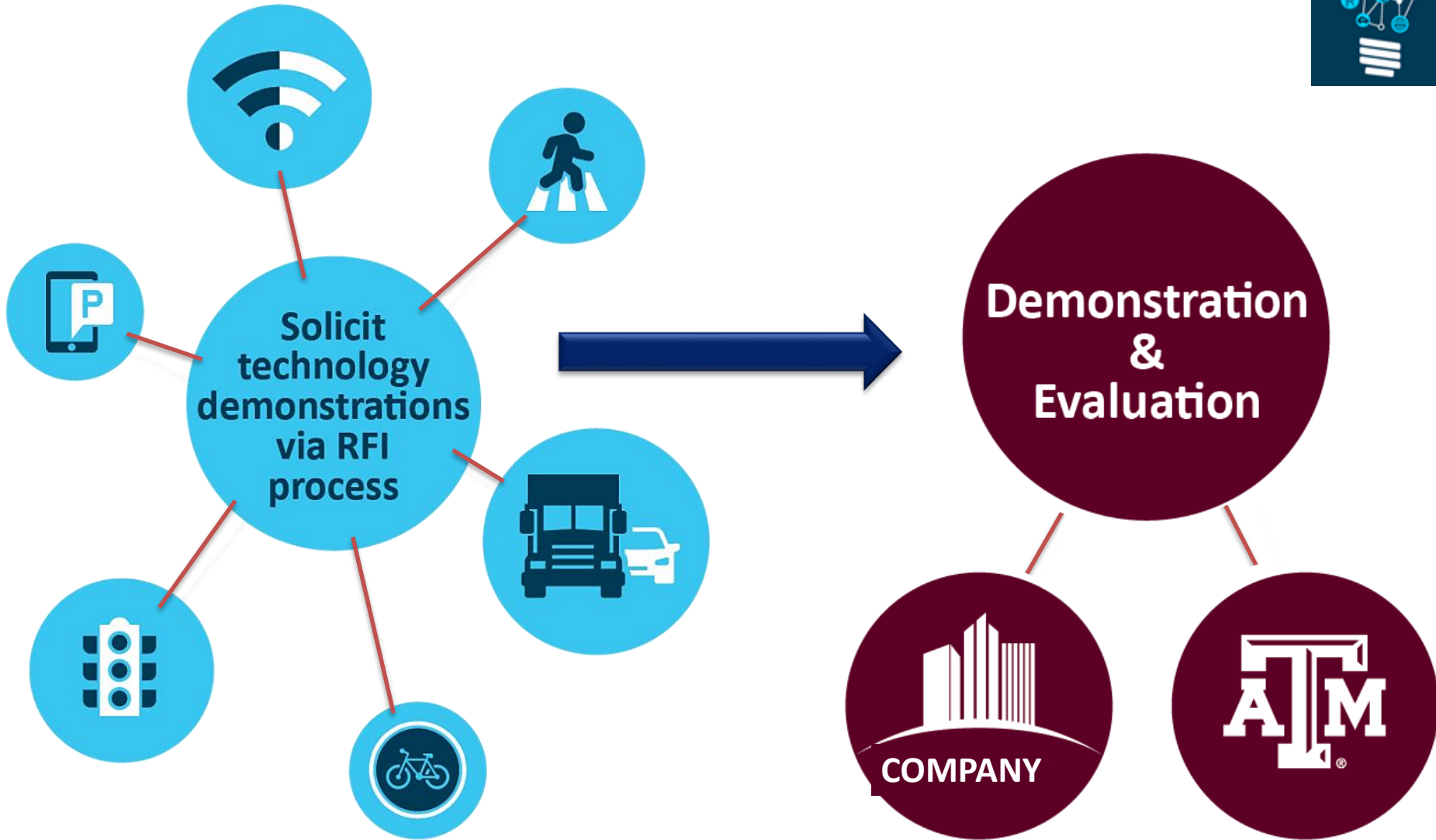




# Extending Gameday to Every Day

- Research findings, New ideas, New technology, Best practices, New applications
- Experience and training are vital
- We can efficiently handle 120,000+ fans >>once!
  - Move away from Kyle, then toward your destination.
  - You don't get high priority the 2d time we see you.
- We work the plan & rapidly respond to events
  - Cameras, controllers, communication give us significant capabilities and fan connections.
- Several times each year we are a “metro suburb”

# Campus Technology Initiative





# TTI and Campus Partners Are...



**Assess**



**Deploy**



**Integrate**



**Evaluate**



**Findings**

**Students are playing a key role.**

## Smart Intersection Proof of Concept

- Bus arriving for turn ....
- Overhead sensors note pedestrians.
- Signal display warns pedestrians.
- App alerts pedestrians.
- Grant application for College Station deployment.





# Autonomous Shuttle Would Provide Useful Mobility Option on Campus

- Strongly Agree – 54% > 98%
- Agree – 44%
- Disagree – 1%
- Not Sure – 1%





# Texas Automated Vehicle Testing

- Automated vehicles are here – and more are coming!
- How do the public agencies plan for:
  - AVs to help with safety and mobility needs
  - What is needed to safely accommodate Avs?
  - Safe introduction of AVs into mixed traffic?
- Texas A&M participating at state and national level to:
  - Create network of proving grounds
  - Encourage new levels of public safety
  - Establish Community of Practice on testing and demonstration of best practices
  - Accelerate the pace of safe deployment





# Research to Gameday to Scholarship

## Sponsored Research Projects

- Federal Highway Administration
- National Cooperative Research Programs
- State DOT agencies
- Metropolitan Planning Organizations (MPOs)
- National Transportation Operations Academy

## Conference Presentations

## Practitioner Workshops

Research > Testing > Deployment > Evaluation > Research



# Marrying Academics and Services

- Local and proven experiences create a better set of skills
- Bigger advantages when against competitors
- **“Living Laboratory”** – the 4<sup>th</sup> largest downtown in Texas provides you the ability to test out ideas in a real-world setting
- Leveraging our local resources and expertise
  - **Who better to fix Aggies’ problems than Aggies?**