Connected, Automated, and Autonomous Vehicle Scenario Planning in a University Community

Katherine F. Turnbull, Ph.D.
Texas A&M Transportation Institute

6th Annual Florida Automated Vehicles Summit
Tampa, Florida
November 28, 2018

Texas A&M Transportation Institute

TEXAS A&M UNIVERSITY

Transformational Technologies and Shared Services

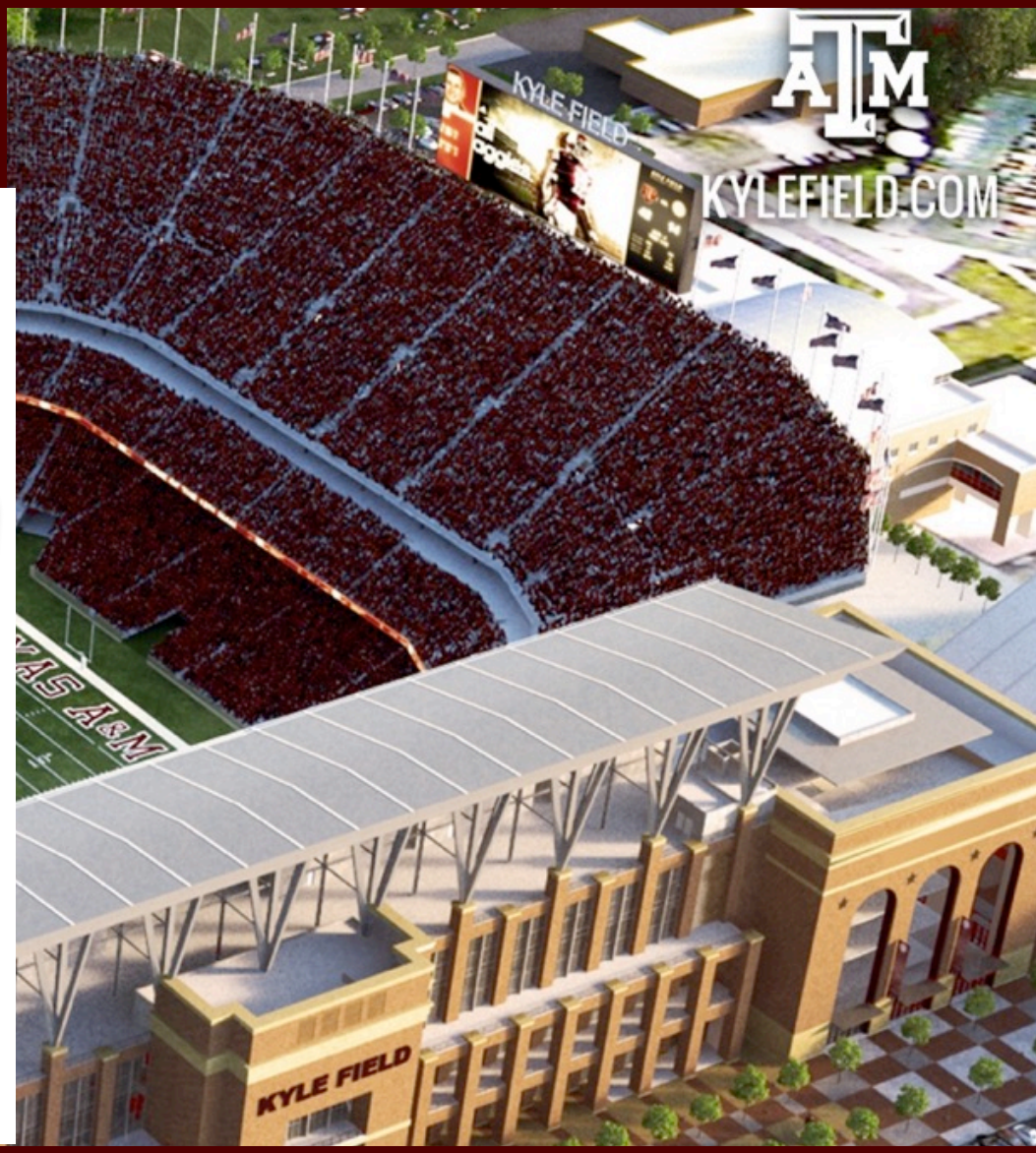
- Livable Communities
- Active Transportation
- Transit Ridership
- Energy Use
- Congestion
- Vehicle Miles Traveled

Texas A&M Transportation Institute

TEXAS A&M UNIVERSITY

Activities

- Campus Transformational Mobility Plan
- Campus Transportation Technology Initiative
- Campus Master Plan Update
- Game Day
- TAMU Bicycle, Pedestrian Plans
- Destination Aggieland App
- Existing Services
- RELLIS Campus Development
- TxDOT, Bryan, College Station, Brazos County, MPO Plans



Texas A&M Transportation Institute

TEXAS A&M UNIVERSITY

Campus Transformational Mobility Plan

- Walkable, Connected Campus
- More Green Space
- Pedestrian, Bicycle, Transit, Car Share Options
- Innovative Technologies, Services, Approaches
- Enrich Student Experience
- Living Laboratory
- Leadership in Autonomous Transportation Systems
- Collaborative, Coordinated Process

Texas A&M Transportation Institute

TEXAS A&M UNIVERSITY

Campus: 1877

Texas A&M Transportation Institute

TEXAS A&M UNIVERSITY

Campus: 2017

Texas A&M Transportation Institute

TEXAS A&M UNIVERSITY

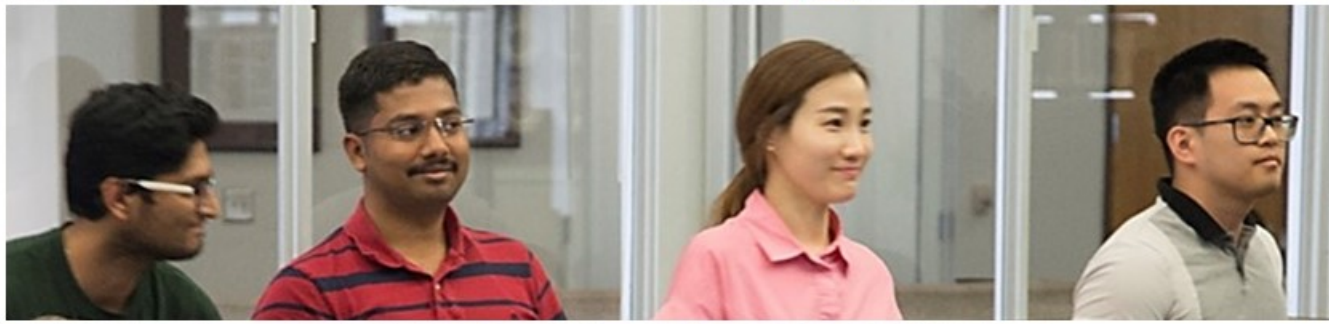
A Scenario Planning Charrette

Autonomous Technologies and the Texas A&M University Campus Bryan/College Station Area

Texas A&M Transportation Institute

TEXAS A&M UNIVERSITY

- **Participants**
  - Faculty
  - Students
  - Staff
  - Researchers
  - Community Members



Autonomous Vehicle Charrette

Texas A&M Transportation Institute

TEXAS A&M UNIVERSITY

Scenarios

	Driver Controlled Connected Automated Vehicles (CAVs)	Vehicle Controlled Fully Automated
Private Vehicle Ownership	Private CAVs	Private Autonomous Vehicles
Shared Vehicle Ownership	Shared CAVs	Shared Autonomous Vehicles

Texas A&M Transportation Institute

TEXAS A&M UNIVERSITY

Private CAVs Scenario

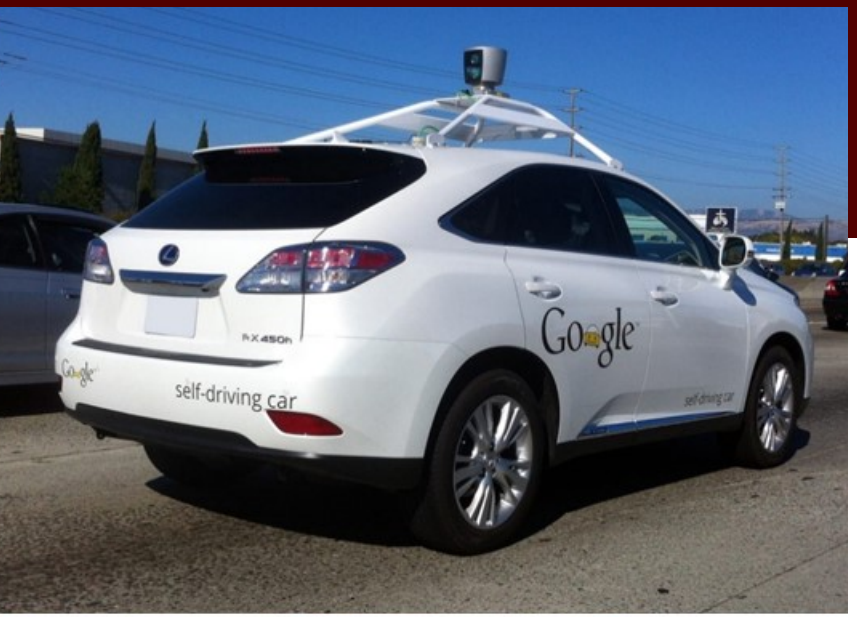
- Personal CAVs Dominate
- Smart CAV Infrastructure & Operations
- Slightly Expanded
  - TAMU Bus System with Electric Buses
  - Uber, Zipcar, etc.
  - Campus Bike Share

Texas A&M Transportation Institute

TEXAS A&M UNIVERSITY

Shared CAVs Scenario

- Shared CAVs Dominate
- Community-Wide Bike Share Program & Bike Facilities
- Additional Bus Routes with Electric Buses Serving Students and Public



Private Autonomous Vehicles Scenario

- Private Autonomous Vehicles Dominate Market
- Smart CAV Infrastructure & Operation
- Slightly Expanded
  - TAMU Bus System with Autonomous Electric Buses
  - Autonomous Uber, Zipcar, etc.
  - Campus Bike Share Program

Texas A&M Transportation Institute

TEXAS A&M UNIVERSITY

Shared Autonomous Vehicles Scenario

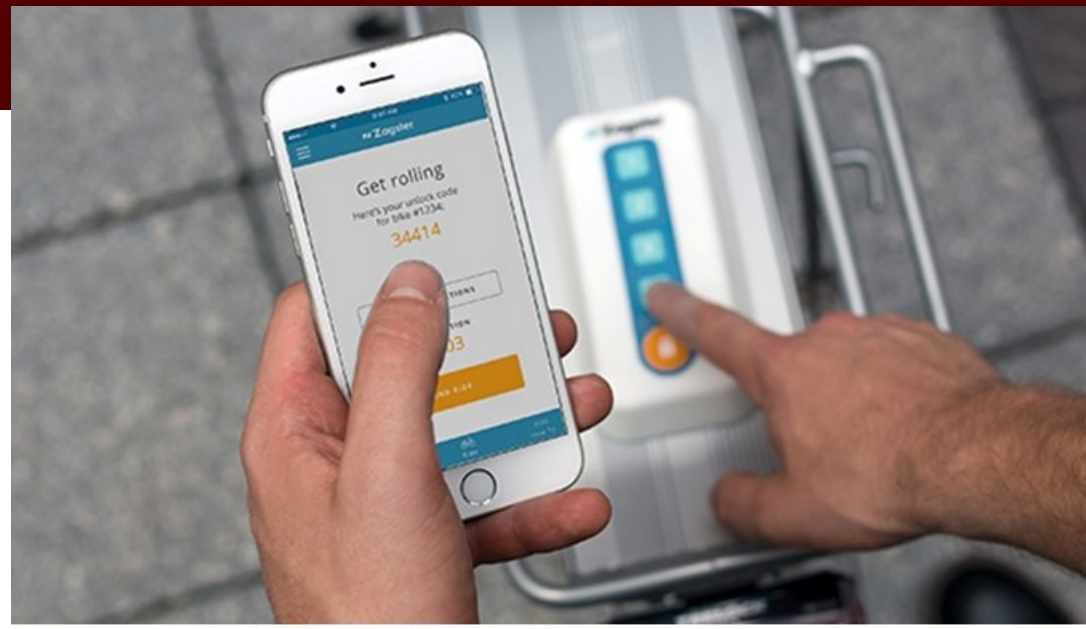
- Shared Autonomous Vehicles Dominate Mode
- Community-Wide Bike Share Program & Bike/Walking Network
- Community-Wide Autonomous Bus System using Electric Autonomous Buses & Bus-Only Lanes Serving Students & Public

Texas A&M Transportation Institute

TEXAS A&M UNIVERSITY

Discussion Topics

- Density, Parking, Pick-up & Drop-Off Areas
- Bicycle & Pedestrian Facilities
- Green Space
- Shared Economy
- Infrastructure & Communication Technology
- Urban Freight
- Possible Unintended Consequences & Mechanisms to Avoid



Charrette

- Initiate Discussion
- Ongoing Stakeholder Workshops
- Focus Pilots and Tests
- Guide Plan Development

Texas A&M Transportation Institute

TEXAS A&M UNIVERSITY

Thank You!
Katie Turnbull

k-turnbull@tti.tamu.edu