Need to Address Ongoing Multimodal Safety and Mobility Issues

• Fatalities Continue to Rise
• Peak Travel Performance Continues to Drop
• Escalating Costs Outpacing Revenues
Focus of Technology-Based Approach

Identified needs are a catalyst for Pima County to identify and evaluate new strategies, materials and technologies to provide and maintain a cost effective and sustainable multimodal system.

Optimize current system performance through technological advancements, primarily focusing on utilizing existing infrastructure and thereby allowing both supply and demand-side solutions to complex transportation and mobility issues to be implemented in a coordinated manner.
Roadways have historically been widened to accommodate existing and future projected needs at peak travel times.

Image Source
• Costly infrastructure maintenance while the vast majority of the infrastructure remains underutilized the remainder of the day
• Unsustainable approach
• Road widening may facilitate higher speeds, create more conflict points, increase crossing distance, and induce vehicular demand, all of which can contribute to a greater number of crashes
• Environmental issues
## SUPPLY-SIDE SOLUTIONS

**Traditional Infrastructure – Capital Improvement Program (CIP)**

- Roadway Expansion or New Linkages
- New Intersection Control
- Multimodal Connectivity
- All-Weather Improvements

## DEMAND-SIDE SOLUTIONS

**Focus of Technology-Based Approach**

- Adaptive Signals
- Distributed Routing
- Education
- Traffic Operations
- Ride Share

## BENEFITS OF TRAVEL DEMAND MANAGEMENT STRATEGIES

- Regional Air Quality Improvement
- Regional Transportation Cost Reductions
- Traveler Safety Improvement
- Regional Fuel Consumption Reduction
- More Efficient Personal Travel Decisions
- Travel Time Reductions
- Maximizes Return on Infrastructure Spending
- Addresses Equity/Access to Transportation
Mobility On Demand Enablers as defined by the USDOT is the framework for the Technology-Based Approach

“Mobility on Demand is an innovative user-focused approach which leverages emerging mobility services, integrated transit networks and operations, real-time data, connected travelers and cooperative Intelligent Transportation Systems (ITS) to allow for a more traveler-centric, transportation system-of-systems approach, providing improved mobility options to all travelers and users of the system in an efficient and safe manner” - USDOT
Collaboration with UArizona CATS and PAG Jurisdictions

Action Items

• Establish a multidisciplinary team of experts to provide for the greatest possible understanding of various mobility and crash factors and the relative effectiveness of mitigating strategies that are cost effective and sustainable. Team expertise includes human behavior, traffic engineering, road design, traffic analytics and enforcement.

• Pima County Department of Transportation (PCDOT), Tucson Department of Transportation and Mobility (TDTM) and Marana Public Works Department have collaborated with the University of Arizona to form the Center for Applied Transportation Sciences (CATS).
Policy and Practice

A shift in policies governing infrastructure design as well as introducing demand management strategies

**Action Items**

- Obtain community feedback to identify the type of impediments experienced and life-style views to propose a range of potential solutions to resolve the impediments and improve quality of life.
- Not ask people what they want, when they may not fully understand the range of options available.
Data Management and Urban Analytics

Dynamic Traffic Assignment modeling to evaluate network-wide effects and ROI

**Action Items**

- CATS will be conducting traffic modeling through DynusT
- Examples: Evaluate network-wide effects of traffic control device implementation, special event and construction road closures and detours
Mobile Technology and Payment Systems

One-stop mobility application for complete trips to reduce vehicle-miles traveled, reduce delay and improve safety

**Action Items**

- A platform environment for the mobility application is currently under consideration by CATS
- Determine demand management strategies to include in the application such as incident management and road closures due to construction and special events. Storm-Weather management in progress.
- Develop employer-based incentive programs
Employer-Based Incentive Strategies

1. Educate employers about any existing corporate tax benefits they could receive to offer employees pre-tax savings for transportation assistance.

2. Develop a regional vanpool program to allow employers or employees to participate and receive a financial contribution to help offset the cost of the van lease.

3. Develop an employer based transit program to allow employers to buy transit passes in bulk at a discounted rate.

4. Develop a Try Transit program to allow individuals who live within a specified distance of a transit route to receive a free 30-day transit pass.

5. Develop a recognition program to recognize employers for providing flexible schedules, telework options and ride share opportunities based on employee participation.
Standards and Interoperability

Performance-based design manuals that include context-sensitive design elements with a multimodal focus and technology-based strategies

Action Items

• Pavement preservation, such as a mill and overlay of an existing roadway, is an opportunity to modify the existing allocation of pavement through pavement marking modifications.

• Test different cost-effective materials, such as the San Joaquin Road pavement test section, to implement those with the greatest return-on-investment.
Innovative First and Last Mile Solutions

MOD application will include complete transportation options

**Action Items**

- The MOD application will include cost, time and incentive information so that the user can choose from a variety of transportation options
The MOD and traffic signal network will seamlessly integrate with these new communication systems as they emerge.

**Action Items**

- Upgrade the traffic signal network to 5G, fiber optic, or a combination thereof in order to obtain the speed and latency needed to support connected vehicles, including GPS based preemption for emergency responders
Summary

• As the region contemplates how it will invest in its transportation system in the future, it has choice between a plan that continues the unsustainable status quo or better aligns with future technological and community values.

• This approach takes advantage of technological advancements to optimize current system performance and travel equity in lieu of solely relying on infrastructure expansion solutions. It focuses on utilizing existing infrastructure to implement both supply and demand-side solutions, thereby optimizing complex transportation and mobility issues.
Discussion