



ATKINS
Member of the SNC-Lavalin Group



Connected and Autonomous Vehicle Task Force

Centralina Council of Governments, 10 May 2019



The world is changing as a
result of technology and
innovation...

...and so is transportation.

1999: “Don’t get in a car with strangers.”

2009: “Don’t meet people from the internet alone.”

2019: “Order yourself a stranger from the internet to get into a car with alone.”

What is the future of transportation?

CONSIDER SEGWAY SLIDES

What technology and applications should my agency invest in?

What do we need to do to
be ready for connected and
automated vehicles?

**How can we take
advantage of emerging
technologies to help
enable mobility in our
community?**

Intelligent Mobility

A new way of thinking about how to use innovation technology, and data to better connect people to other people, places, goods, and services and to reimagine how we plan, design, operate and maintain infrastructure across all modes of transportation.

An aerial photograph of an industrial city, likely Detroit, Michigan, showing a complex network of highways, a river, and numerous industrial buildings. The city is densely packed with infrastructure, including a large railway yard in the foreground and a major industrial facility with smokestacks in the middle ground. The background shows a vast, flat landscape under a clear sky.

Thoughtful

Flexible

Actionable

Thoughtful



Start by
identifying needs
and outcomes



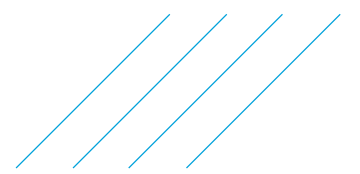
Flexible

Maintain the ability to be nimble and to pivot when necessary



Actionable

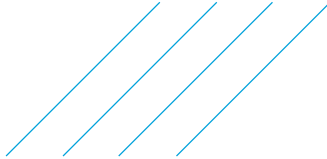
Take advantage of existing technology while preparing for the future



Agency Activities



- Educate
- Conceptualize
- Plan
- Design
- Deploy
- Operate



Examples

Educate

GO NV

Go-NV

Nevada Institute for Automated Systems

◆ Collaborated with multiple agency stakeholders across Southern Nevada to hold a first of its kind event to promote **intelligent mobility in the region** by bringing in local, national, and local experts for engaging panel discussions, followed by demonstrations of emerging technologies, such as CV applications.

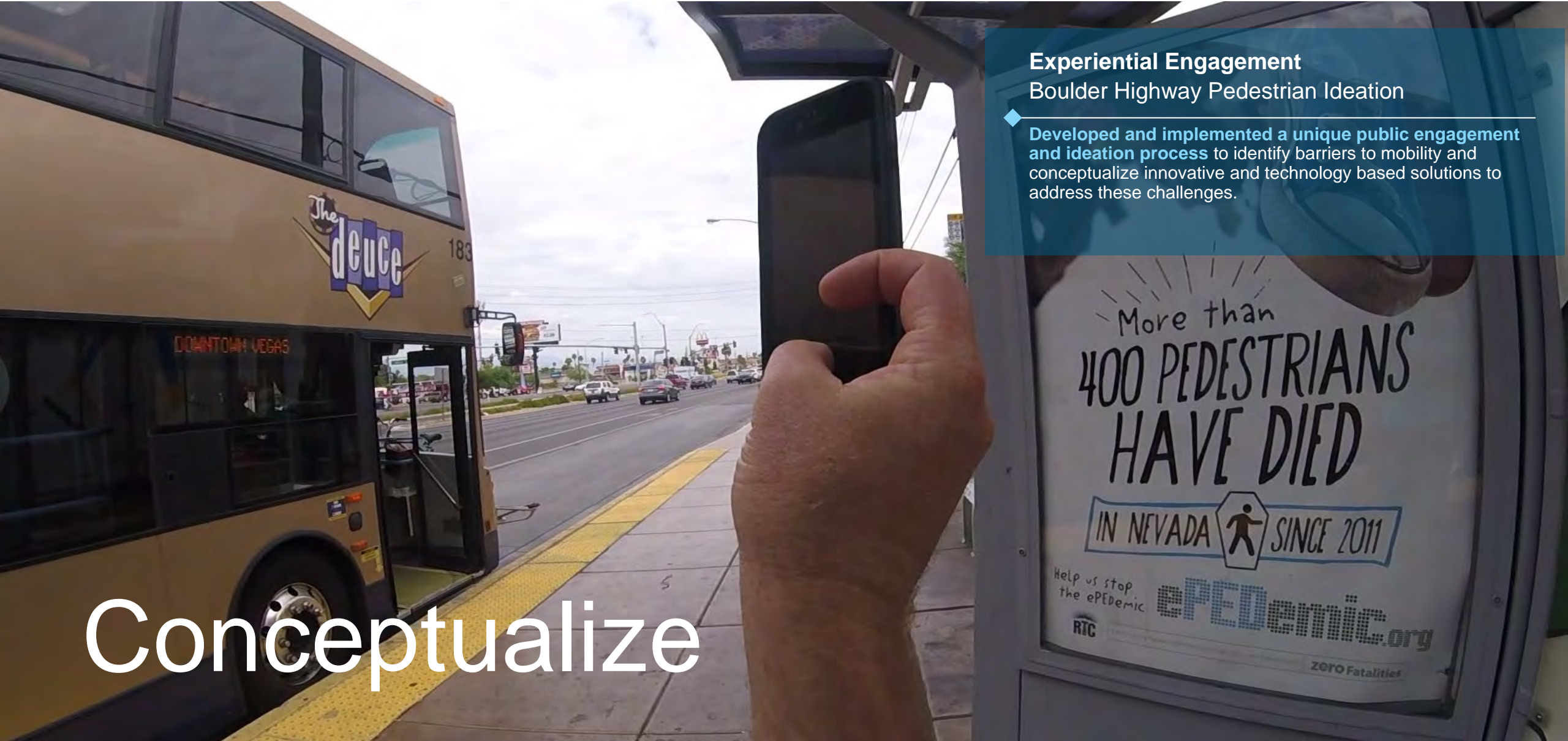


Conceptualize

RoadX Bike/Ped Challenge Colorado Department of Transportation

◆ Held a **global challenge** to engage industry and innovators to develop and submit implementable solutions to enhance bicycle and pedestrian safety and efficiency.





Experiential Engagement

Boulder Highway Pedestrian Ideation

◆ Developed and implemented a unique public engagement and ideation process to identify barriers to mobility and conceptualize innovative and technology based solutions to address these challenges.

Conceptualize



Plan

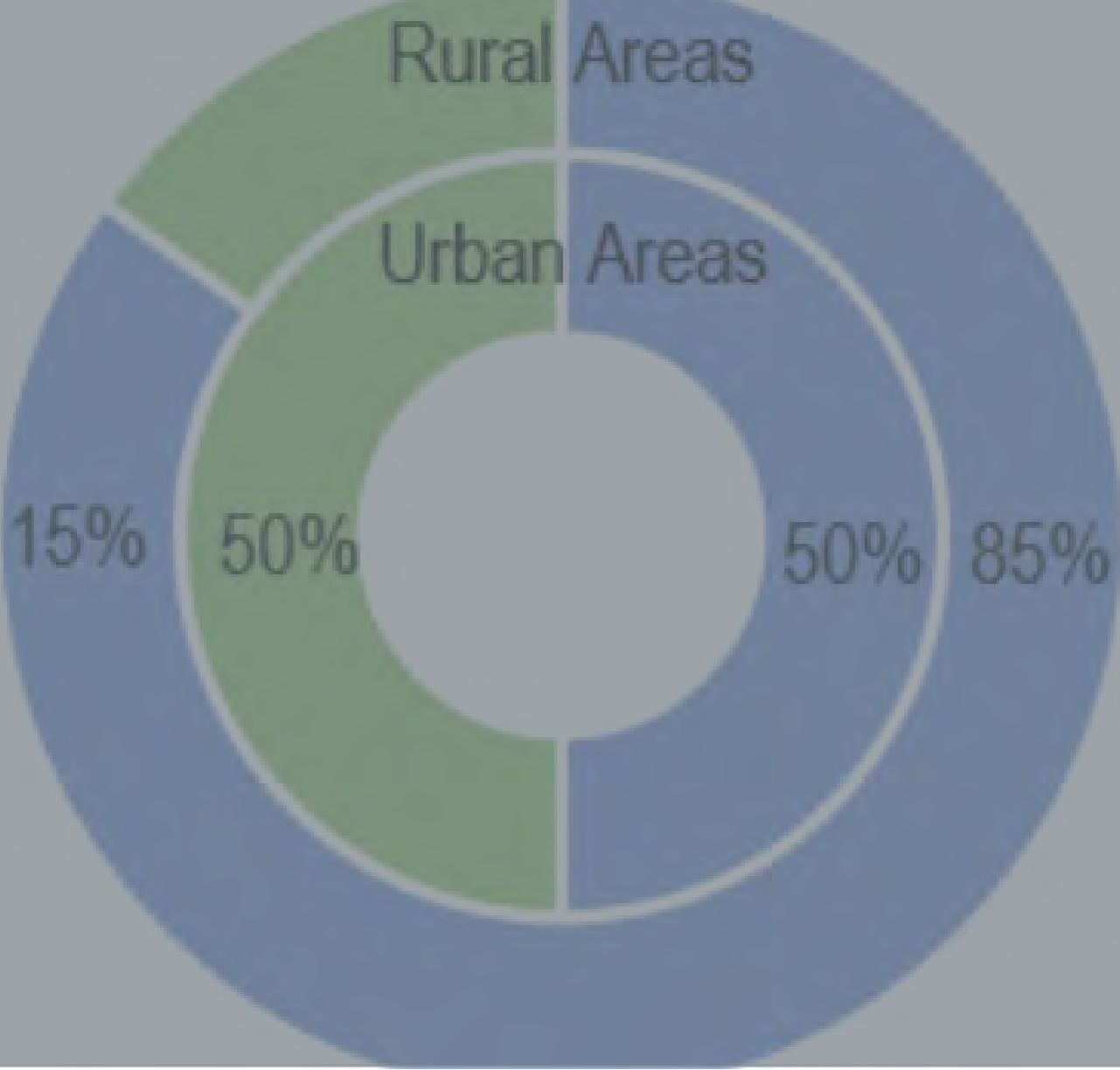
Levels of Automation

- 0 to 2 (No automation, driver assistance, or partial automation)

- 3 to 5 (Full automation, high automation, automated driving)

CV/AV Scenario Planning
Colorado Department of Transportation

Developed various future scenarios through education and stakeholder engagement that describe with various transportation and land use impacts of connected vehicles and automated vehicles (CV/AV), for use in the state-wide travel demand model and transportation plan.



Plan



Mobility Roadmap

Regional Transportation Commission of Southern Nevada

◆ Developed a vision and roadmap to help **RTC SNV** and their agency stakeholders achieve their mobility objectives for the Las Vegas valley and prepare/take advantage of emerging technologies such as CV/AV.



Design

Signal Phase and Timing (SPaT) Infrastructure Georgia Department of Transportation

◆ Designed **Dedicated Short Range Communication (DSRC)** road side unit infrastructure to broadcast SPaT messages to connected vehicles operating on GDOT's roadways.

Deploy



Commercial Vehicle Signal Priority (CVSP) Colorado Department of Transportation – Region 4

- ◆ Deployed infrastructure to allow CDOT's traffic signals to prioritize commercial vehicles approaching an intersection in order to improve safety, freight efficiency, and overall corridor efficiency.





North Avenue Smart Corridor Renew Atlanta

◆ Worked with the City of Atlanta and agency partners to design, deploy and operate connected and automated vehicle infrastructure and systems along North Avenue to test emerging technologies and to serve as a framework for future deployments of these emerging technologies in Atlanta.

Operate



Other Lessons Learned

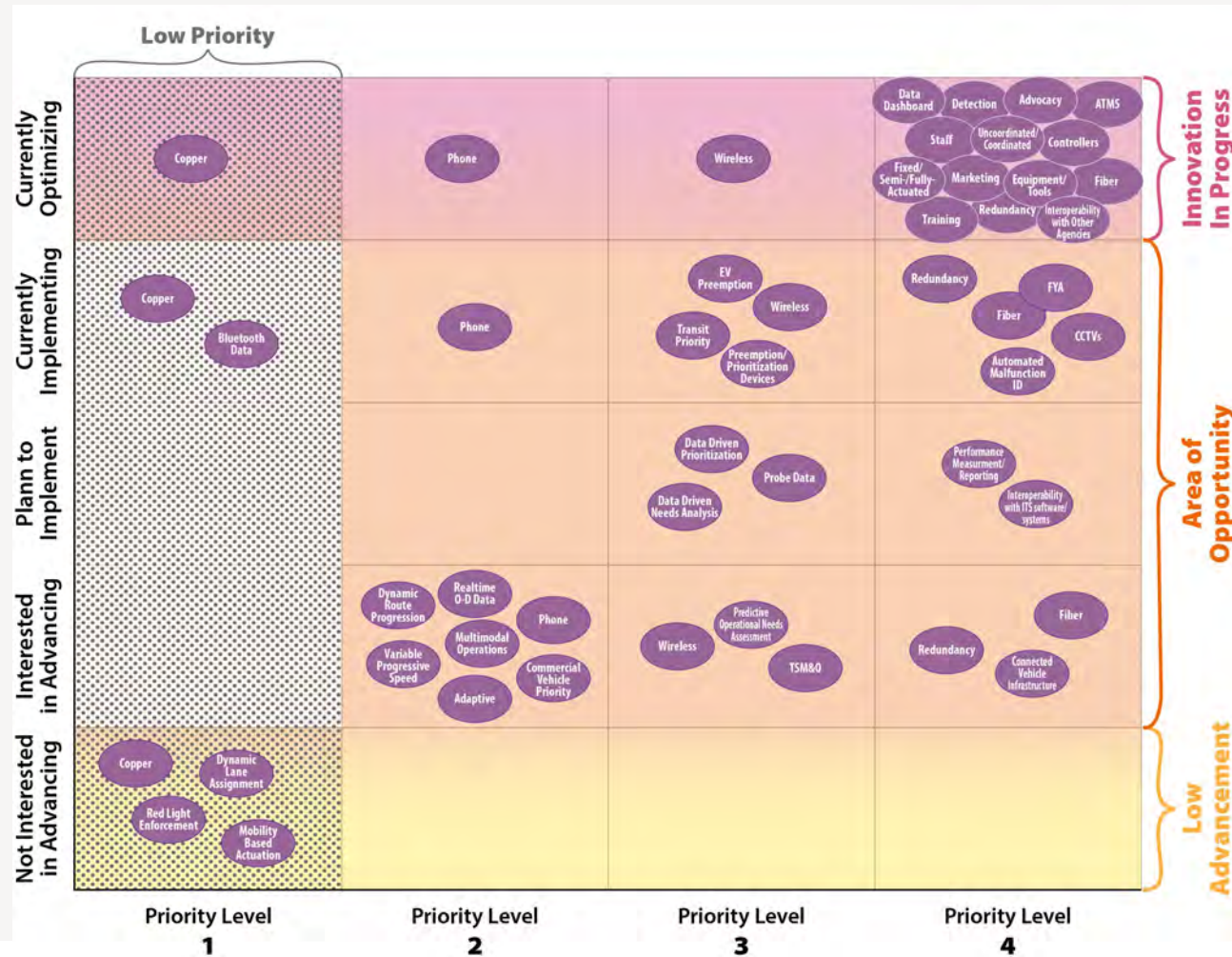


Greater Charlotte Area ACV Roadmap Action Plan

- Fleet Management
- Modeling and Forecasting
- Transportation Planning
- Infrastructure Costs
- Land Use Planning
- State Policy and Regulations



RTC FAST Mobility Roadmap – Areas of Opportunity



- Data Management
- Data Driven Planning
- Traffic Signal Operations
- Multimodal Operations
- Emerging Technologies

i2a – Performance Metrics



- Reduce injuries and fatalities
- Reduce multi-car collisions
- Improve travel times on road
- Reduce per incident costs
- Reduce Road Ranger response times
- Reduce abandoned vehicle rates



- Reduce traffic violations
- Reduce pedestrian detection failures
- Reduce gap in real-time data and reported conditions
- Increase dedicated bike/ped facilities



- Increase number of connected users
- Increase transit ridership
- Better access to choices for all
- Improve modal-split
- Improve access to jobs/services for all
- Improve personal travel time



- Increase miles of CAV compatible
- Increase number of shared, discoverable data sources
- Increase number of agencies with shared communication infrastructure
- Increase number of innovative intersections



i2a – Implementation Strategy

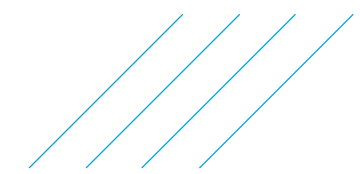
IMPLEMENTATION STRATEGY

DRAFT



| | | 3 MONTHS | 12 MONTHS | 24 MONTHS | 36 MONTHS | |
|------------------------------------|---|--|---|--|--|---|
| THEME | DESCRIPTION | SAMPLE PROOF OF CONCEPT | SAMPLE PROJECT | SAMPLE PROJECT | SAMPLE PROJECT | VISION |
| <p>Mobility as a Service</p> | Building on local efforts, Mobility as a Service (MaaS) brings every kind of transportation together into a single intuitive mobile app. It seamlessly combines transportation options from different providers, handling everything from travel planning to payments | The first MaaS solution will be based in one geographic area, such as USF or one of our other urban areas as the pilot location, we will implement a series of solutions based on the outcomes of the i2a workshop | Develop business case, funding and full commercial strategy together with a RFP based on the learning on the Proof of Concept | Secure supplier and extend the MaaS solution across the region building on the foundations of the USF proof of concept | Introduce a one account payment system that is inter-operable with all partner modes and enables for flow of money based on mode use | To provide a MaaS solution citizens and visitors for the Tampa region, it will include a one account type payment solution and be open and inclusive of all modes of transportation both public and private |
| <p>Data Platform</p> | The fusion and analysis of data from across the region brought together in one platform to enable the maximum amount of insight to be collected and shared among all participating agencies | Introduce a cloud based data platform that is focused on road and transit data sets throughout the region and open to all public sector users | Develop business case, funding and full commercial strategy together with a RFP based on the learning on the Proof of Concept | Secure supplier and transition the proof of concept to the new platform and extend geographic coverage across the region | Introduce private sector data sets through new collaborative agreements enabling use of less physical sensors on the network | To use 'big data' to optimize mobility movement across the region, inform our future planning strategies and drive efficiency savings |
| <p>Re-imagining Infrastructure</p> | Applying the benefits of technology and innovation to our existing infrastructure in bold and creative ways to save lives, improve mobility, promote resilience, and increase efficiency. | Build on the Tampa Connected Vehicle Pilot by THEA by expanding further into the Tampa Bay region CV platform | Develop a series of users cases for CV/AV solutions that cover air, land and sea in order to design a urban living lab focused on a complete streets approach | Run a global competition to attract the worlds leading CV/AV companies to Tampa to address the user cases, enable the urban living lab and drive economic growth | Develop a ICM strategy and implement a CV enabled variable speed corridor that shares data through the CV platform to vehicles | To be the world's leading urban lab for the deployment of connected and autonomous vehicle solutions that make a real difference to peoples lives |

*Proof of concept to be selected at July 2018 workshop by Action Teams.



Douglas County Intelligent Mobility Road Map

ROADMAP CATEGORIES



Leverage existing technology



Prepare infrastructure for vehicles with automated driving features



Install CV roadside units



Evaluate traffic signal operation and performance



What are
the biggest
mobility
challenges
you face?



Thank You

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