CONNECTED & AUTONOMOUS VEHICLES

Preparing together

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Access for All Advisory Committee
June 2, 2020

National Capital Region
Transportation Planning Board

Presentation Outline

- TPB CAV related activities

- CAV Overview

- Questionnaire response: What we heard from you

- Discussion

How is the TPB preparing for CAV?

Desired outcomes:

- Activities will inform ongoing planning and activities for the Systems Performance, Operations, and Technology (SPOTs) subcommittee

- Fact-finding in preparation for the next long-range plan (due 2022)

- Regional coordination on CAV

How is the TPB preparing for CAV? (cont.)

Activities:

- Consultant White Paper

    - Review of CAV issues and impacts most relevant to MPOs

    - Identification of MPO role, in context of federal, state, local roles

    - CAV 'principles framework'

    - Recommendations

- Discussions with subcommittees (e.g., CAC, AFA)

- CAV Webinars (replacing previously scheduled workshops)

    - Information and Education Series

    - Peer Exchange Series

    - Shaping TPB Activities Series

Automation Technologies

What is an Automated Vehicle?

- Automated vehicles (AV) (also known as self-driving, driverless, or robotic or Automated Driving Systems (ADS)), are vehicles in which some aspect of vehicle control is automated by the car. These vehicles have the potential to increase safety, improve mobility, and reduce environmental impacts on a global scale.

- Many vehicles on the market today already include some level of automation, such as adaptive cruise control, lane-keeping assistance, and parking assist, with more features expected in the next year or two. The Society of Automotive Engineers (SAE) provides a formal classification system focused on the degree of human intervention needed

Source: Society of Automotive Engineers

Automation Technologies (cont.)

What is a Connected Vehicle?

- Connected vehicle technology is distinct from automated vehicles.

- A connected vehicle refers to the capability of the various elements of the modern surface transportation system (personal, transit, and freight vehicles; roadside infrastructure; transportation management centers; etc.) to electronically communicate with each other on a rapid and continuous basis.

- Coordination between vehicles and infrastructure will mitigate unnecessary braking and stopping at intersections, resulting in reduced fuel consumption, and lowered emissions.

Source: Centralina Council of Governments CCOG ACV Roadmap

What Areas of Transportation Will CAV Impact?

- Driver Licensing
- Vehicle Registration
- Vehicle Inspection
- Vehicle Insurance
- Traffic Laws and Regulations
- Commercial Vehicle Regulation

- Traffic Engineering and Operations
- Public Transportation
- Non-Motorized Transportation
- Transportation Research
- System Security and

- Privacy
- Land Use and Zoning Control
- Transportation Planning
- Transportation Capital Investment
- Data Management

(Stacy Cook/COG TPB)
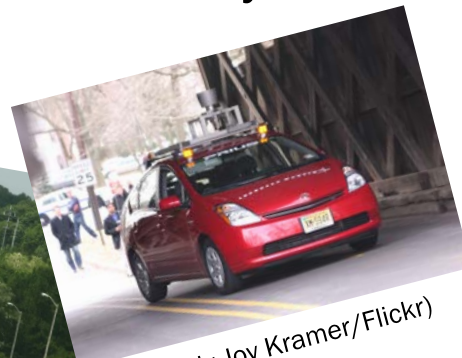
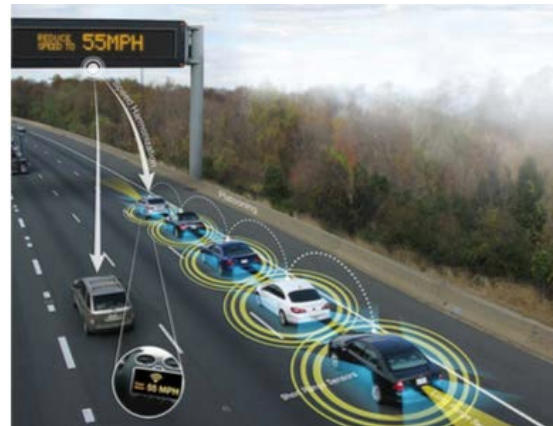(Melody Joy Kramer/Flickr)

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Why CAV?

- Safety and Security

- Efficiency

- Environmental benefits

- Equity

- Other?

(USDOT)

(USDOT)

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Private Sector Role

- Automakers and other device companies will drive design, innovation, and equipment

- Testing equipment

- Coordination to encourage environments that support implementation
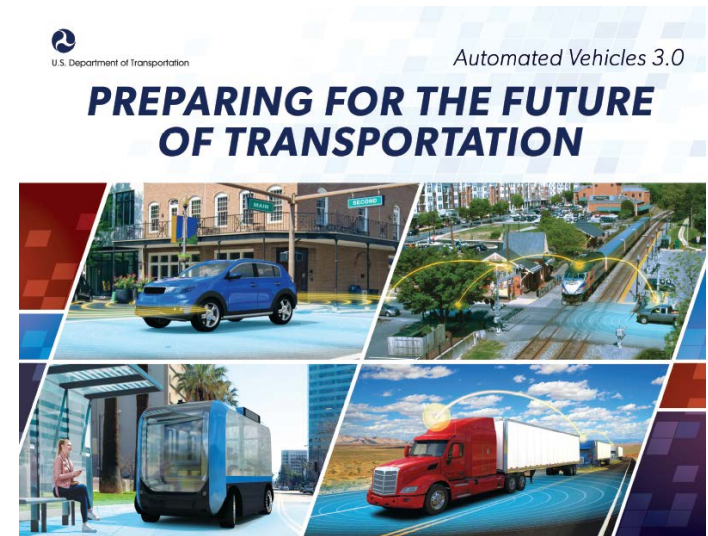

(National Museum of American History/Flickr)

Federal Role

- Research and pilots

  - USDOT Connected Vehicle Safety Pilot Program

  - Smart Cities Grant – Columbus Ohio

- Laws and Guidance

  - Vehicle to Vehicle (V2V) advanced rulemaking

  - National Highway Traffic Safety Administration (NHTSA)

- Address Cyber Security and Data Platforms, Data Management

Source: USDOT

State Role

- Policy Setting

  - Approximately 90% of the states have developed some sort of legislation

- Pilot tests

  - DOTs working with federal, local, academic and private partners

- Research and planning

  - Wide impacts on DOT practices and activities

  - Consumer response

- Coordination through AASHTO and AMPO Committees and Pooled Fund Studies

Source: NCSL:

Regional Role

Policy Recommendations

- Establish regional principles for CAV

- Have a voice at the table

Regional Coordination

- Conduct workshops and share information Convene Stakeholders

- Monitor regional activities

Research local impacts

- Strategic plans

- Impact/opportunity assessment

- Modeling needs, data and adapt assumptions

- Scenario planning to understand capacity impacts and impacts on mode choice

- Address CAV in long-range plan

Examples of what has already been happening in the metropolitan Washington region

- Olli pilots in Merrifield (VA), National Harbor (MD), Clarksburg, (MD)

- Virginia Connected Corridors

- US 1 Innovative Technology Deployment Corridor

- State and local plans are addressing CAV, staff positions specific to CAV

- Scenario Planning/Studies for CAV:NVTA study, 2019 DCST study

- Halley Rise (private residential) development automated shuttle

- ConnectedDMV

- And more…

Source: WTOP

What can you do about it?

- Educate yourself

- Start the discussion with others in your agency/organization/community

- Provide input during federal comment periods and listening sessions

- Provide learning opportunities for people in your environment

  - Brown-bags/'lunch and learn'

  - Workshops

  - Invite speakers

- Consider impacts on your professional role and responsibilities

Access for All Advisory Committee Connected and Automated Vehicles
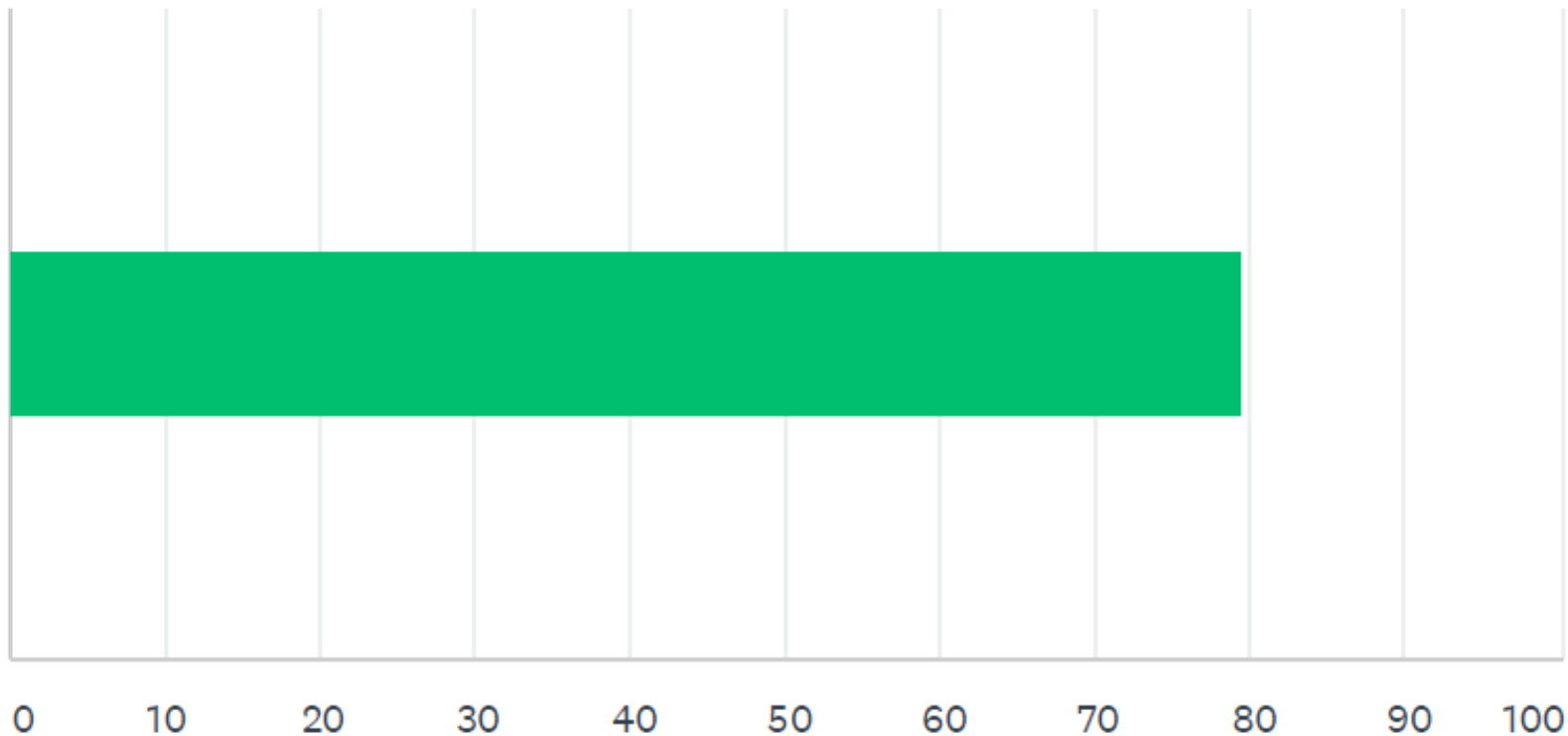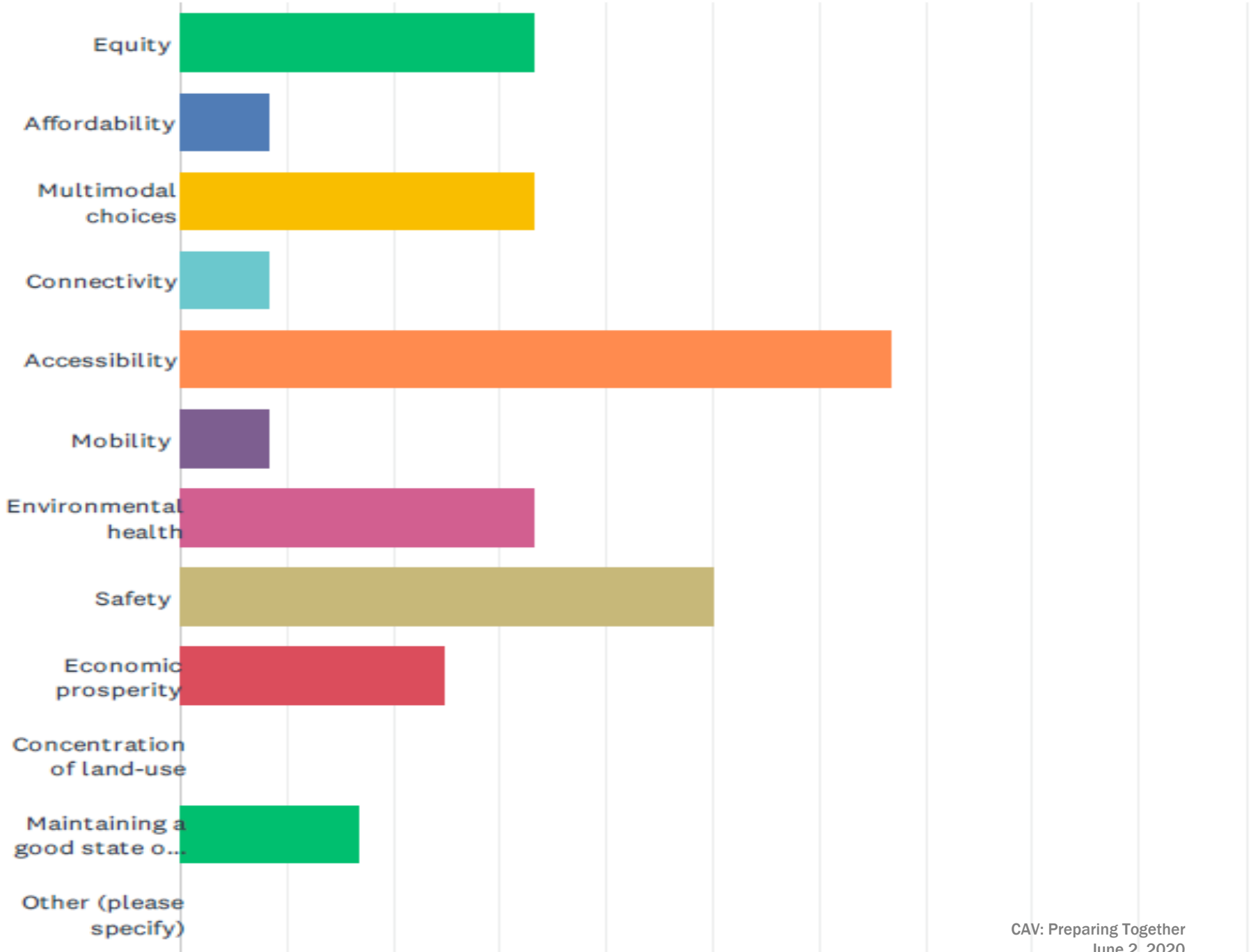## Spring 2020 Questionnaire Response Summary

Q1 How would you rate your personal interest in CAV?

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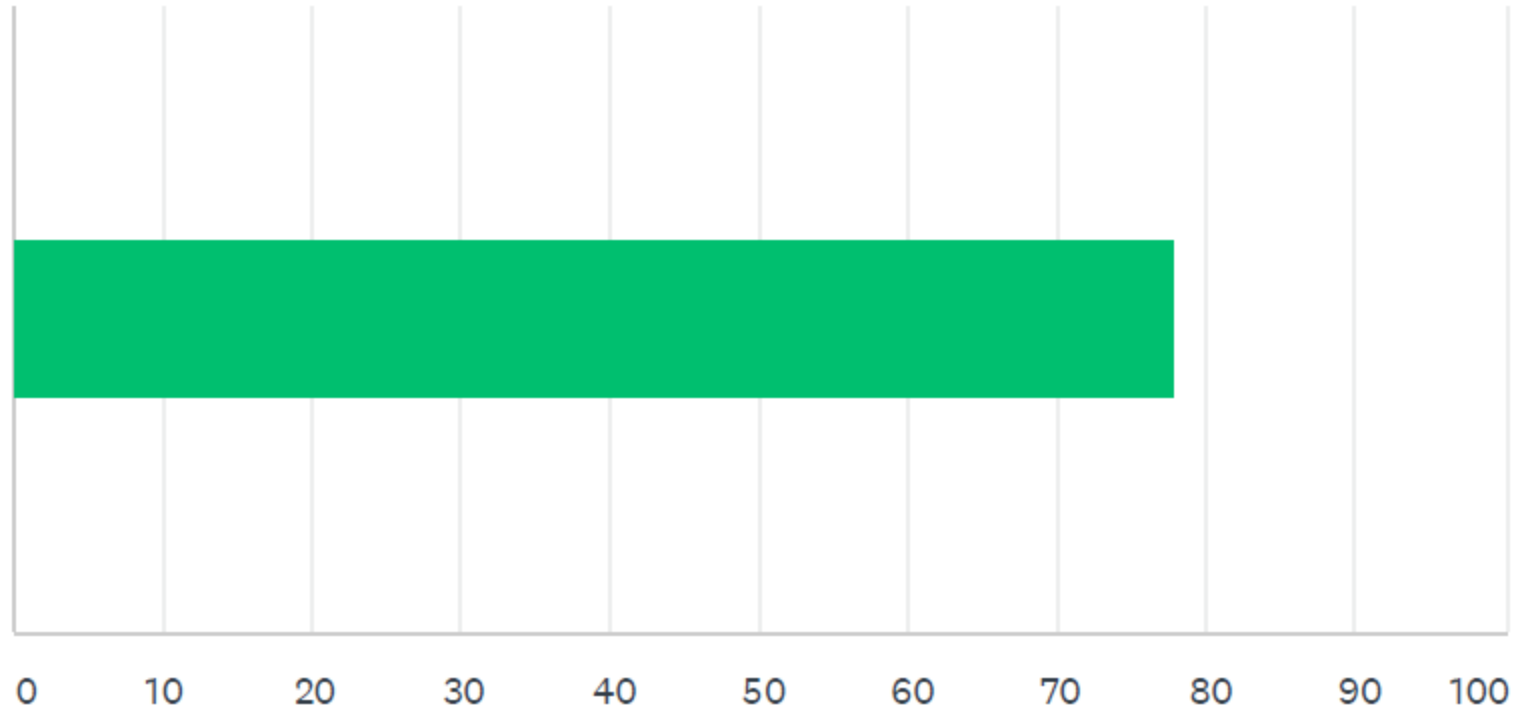
Q2 Do you think that CAV should be a TPB priority now or in the near future?

CAV: Preparing Together
June 2, 2020

Q4 What are your concerns regarding CAVs?

Delivery Expectations and Equity

- Overhyped and inequitable
- Overpromises from manufacturers as to vehicle capabilities, leading to people relying more on the technology than they should.
- Access to the service, and training
- Affordability

Q4 What are your concerns regarding CAVs?

Congestion and Mode Choice

- We need to understand the requirements for infrastructure to support CAVs
- Zero occupancy vehicles that return home/increase traffic
- More traffic, more unemployment, more queuing both ways morning and night
- CAVs could discourage use of public transportation
- Absent strong policy guidance CAVs are likely to increase congestion and sprawl

Q4 What are your concerns regarding CAVs? (cont.)

Land Use and Accessibility

- Fostering urban sprawl and increasing traffic (especially with COVID-19 impact on reducing public transit usage)

- Accessibility, including in public right-of-way for those who are disabled or need assistance (without a driver)

Legislation

- Lack of legislation at the federal level; lack of support from state and local officials

- Potential for states to preempt cities on testing parameters

Equity

- Regional disparities; It may create inequality in terms of income, accessibility, opportunities, technical savviness, etc.

Q4 What are your concerns regarding CAVs? (cont.)

Environmental impacts

- Increased VMT and the climate/air pollution impacts, especially if cars are powered by gas and not electric

- Even electric vehicles may have an environmental impact, especially if sourced from non-green energy

Safety

- Irresponsible operation of CAVs, endangering those with disabilities, seniors, children, etc.

- Malware that could disable CAV/safety features

- CAV could pose major safety problems for pedestrians and cyclists

Q5 What opportunities do you think CAVs create?

Improved Mobility
- Bus lanes integrated with smart cars to another mode
- Suburban to urban transportation/commuting
- Traffic mitigation

Environment
- If the electricity is coming from renewable sources, CAVs can cleanly replace fossil-fuel-burning cars
- Improvement in the environment (air and noise quality),

Other
- Less food insecurity
- Access to affordable housing; minimizing risk of infection during a pandemic
- Improved economic activities

Q5 What opportunities do you think CAVs create? (cont.)

Vehicle ownership/ridesharing

- Potential to help those who cannot drive to get around
- If affordable, CAV could provide an option to those who cannot afford to purchase and maintain a car
- Ridesharing by CAV could lower transportation costs and reduce traffic
- Potential to eliminate single-car ownership if pooling is encouraged (either by price or right of way on HOV lanes) -

Q5 What opportunities do you think CAVs create? (cont.)

Accessibility

- For those with full mobility and access to the required technology, CAVs can be a very useful means of providing transportation, particularly in areas and at times when other transit options are not available or feasible
- Increased job market
- Accessibility, possible convenience and efficiency
- People able to go reasonably anywhere at any time and return
- Increased independent living

Q6 What considerations specific to older adults and people with disabilities do you think need to be made when developing and regulating CAVs in our region?

Vehicle design/Use of technology

- If there is no driver to help, there needs to be a way for people with disabilities to enter and exit without assistance, designs must include on-boarding and off-boarding considerations
- CAVs should be adapted to serve people with specific impediments
- Utilization of persons with a full range of expertise relative to disabling conditions and vehicle performance
- Integration of accessibility software and choice
- There should be some sort of policy to ensure equal opportunity for access to the CAVs

Q6 What considerations specific to older adults and people with disabilities do you think need to be made when developing and regulating CAVs in our region? (cont.)

Safety

- Enforcement /ensuring speed limitations
- Limiting use of CAVs on sidewalks throughout the regions
  - Preventing discarding and dismounting of CAVs haphazardly in ways that block sidewalks, curb cuts, roadways, and business entrances; and other similar considerations (e.g., if they are similar to scooters)
- Safety, accessibility, and the physical, mental, and emotional health and well-being of older adults and people living with disabilities need to be of paramount concern, as these are likely to be those who DO NOT benefit from CAVs at all as they are presently designed

Discussion

1. What could TPB do to address CAV in its public outreach? (we are planning on addressing this and other topics in spring 2021)

   - We are interested in your thoughts about how to best communicate about/address this issue with people with disabilities and older adults

2. When we think about the TPB Vision and Goals, do you think CAV will make it harder or easier to move toward those goals?

   - What do you think TPB should do to ensure we move toward these goals?

3. Other regions and cities have established 'CAV' principles. Do you think our region should establish principles?

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