CITY OF SEATTLE COMMUNITY TECHNOLOGY ADVISORY BOARD COMMENT ON 2040 AND BEYOND TRANSPORTATION PLAN

Executive Summary

The City of Seattle's Community Technology Advisory Board ("CTAB"), a group of engaged community members and technologists who advise the Mayor and City Council on technology-related policy provide the following comment on the Washington Transportation Commission's 2040 and Beyond Transportation Plan. In this comment, CTAB offers recommendations for balancing the risks and benefits of information and technology-based transportation solutions and applications. CTAB supports implementing technologies and collaborating with technology companies to better deliver services to the public in a manner that promotes inclusive access to mobility. However, CTAB also recommends that policymakers plan for collateral impacts of technology.

This comment addresses the following topics:

- **Mobility-As-A-Service Platform Companies**—rideshare and bike/scooter share companies may provide valuable first- and last-mile transportation between homes and businesses and transit lines. Rideshare is particularly useful for transportation to and from rail lines, and bike and scooter sharing has shown promise in more urban areas connecting bus lines. These services raise concerns about accessibility, safety, and congestion (among other things). Policies should seek to balance these concerns.
- **Autonomous Vehicles**—autonomous vehicles promise to improve the safety and efficiency of transportation, but comprehensive planning is needed to balance the overall effects of this technology on the economy.
- **Drones and Sensors**—drones and sensors are highly effective and cost efficient tools for monitoring and preserving infrastructure, but the voluminous amount of data they collect can leave residents vulnerable to cybersecurity and privacy risks.
- **High Speed Internet**—CTAB supports expanding high speed internet throughout the state as another method of providing access to valuable services when transportation may be infeasible.
- **Open Data Programs**—Leveraging transportation data in a manner consistent with data privacy best practices can provide residents, policymakers, and others a greater understanding of how people and goods move throughout the state, and enable the development of new services or improved delivery of current services.

It is our aim with this document to highlight opportunities, risks, and possible approaches to improving the State's transportation systems for the next 20 years and beyond.

The City of Seattle's Community Technology Advisory Board (CTAB) is pleased to offer its thoughts on the Washington State Transportation Commission's 2040 and Beyond Transportation Plan ("the Plan") and the role of transportation technology in our State for the next 20 years. CTAB is a board of community members and technologists appointed by the Seattle Mayor and the Seattle City Council that advises on technology issues in the public interest. In the Plan, the Commission recognizes that technological change and data are revolutionizing transportation. Technology and technology companies promise to make transportation more efficient, safer, and more environmentally friendly. As the cost of living increases in our communities,[1] a natural consequence is that lower-income individuals move further from employments centers.[2] CTAB recognizes that a robust transportation system is vital to the economic health of our region and the livability and inclusivity of our communities. CTAB, therefore, supports implementing technologies and collaborating with private companies to better deliver services to the public in a manner that promotes inclusive access to mobility. When doing so, however, policymakers need to be aware of important drawbacks and plan accordingly.

Mobility-As-A-Service Platform Companies

Several platform companies offer users methods of transportation that may serve as first- and last-mile connections between homes and businesses and more central public transit arteries. These include rideshare and bike/scooter-share companies.

Ridesharing

Rideshare companies allow users to access on-demand transportation using a smartphone application. The market for these services has grown quite rapidly, leading to rapid growth of the rideshare companies themselves, and resulting in many concerns about these companies' adherence to regulations and attention to societal norms. Research has shown that the availability of rideshare services has led to a reduction in car ownership, yet at the same time, research has also demonstrated an increase in congestion due to their popularity.

Are rideshare services inconsistent with the State's goals of reducing congestion and decreasing the State's carbon footprint? When rideshare is adopted in place of other modes of transportation, it may be an indicator of residents' perception of the safety, reliability, availability, and efficiency of other options. For example, it is estimated that, at the national level, more than three million people do not make medical appointments due to challenges accessing transportation, but rideshare companies are helping to narrow this gap. Rideshare companies are beginning to test pilots aimed at encouraging transit ridership, and as first- and last-mile service when connecting suburban dwellers to regional train and transit stops.

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[1] Rising cost of living index in Seattle, (2017), https://infogram.com/rising-cost-of-living-in-seattle-1h8n6mnodgq92xo.

[2] Seattle Office of Planning & Community Development, *Seattle 20135 Growth & Equity*, (May 2016), http://www.seattle.gov/documents/departments/opcd/ongoinginitiatives/seattlescomprehensiveplan/finalgrowthandequityanalysis.pdf.

Taking these observations together, CTAB recommends the State consider taking the following actions:
- Consider implementing data-sharing programs with rideshare companies, to identify opportunities for improvements in street safety and multimodal transportation options, as well as to inform anti-discrimination enforcement measures;
- Study regulations and requirements being adopted in other cities, and their outcomes, such as:
  - Accessibility requirements being implemented in Portland, Oregon;[3]
  - Restrictions on the number of rideshare vehicles in New York City;[4] and
  - Transit link initiatives being piloted by Pierce Transit in Puyallup.[5]

Bike/Scooter Sharing

Within urban centers, bikeshare and scooter share companies show strength as first- and last-mile transportation solutions. Seattle was an early adopter of bikeshare services, allowing companies to provide interesting data points about the promise of bike and scooter sharing in urbanized environments.

Lime, a sharing economy platform company offering traditional pedal and electric bicycles and (in some markets) electric scooters, released a year-end report in 2017 featuring Seattle as one of its spotlighted cities. Although it is only one of a handful of companies offering similar services (Jump and Lyft Bikes plan to begin operations in Seattle soon)[6], its report provides compelling and encouraging information for policymakers seeking to improve transit ridership and support healthy and environmentally sustainable transportation options. That is, 45 percent of all rides taken in Seattle in 2017 started or stopped near transit stations, which was five percent more than the national percent of similar trips.[7] Almost half of these trips were taken during the morning or evening rush hours,[8] and they are fairly inexpensive transit options (costing ~$1 for 30 minutes for pedal bikes), costing about $5-$7 less per mile than rideshare and $19 less per day than driving.[9] Although these programs require users have some kind of means of paying digitally, companies and governments are experimenting with cash payments.[10]

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[3] Portland Code 16.40 Private For Hire Regulations.

[4] Aarian Marshall, *New York City Goes After Uber and Lyft*, Wired.com (Aug. 8, 2018 8:48 pm), https://www.wired.com/story/new-york-city-cap-uber-lyft/.

[5] Pierce Transit, https://www.piercetransit.org/limited-access-connections/.

[6] Seattle Bike Share Guide, Seattle Bike Blog, https://www.seattlebikeblog.com/seattle-bike-share-guide/.

[7] Lime, *Year End Report* (Dec. 2017), https://www.limebike.com/hubfs/EOY%20Data%20Report.pdf.

[8] *Id.*

[9] *Id.*

[10] Tanya Snyder, *Arlington offers cash bikeshare memberships to the unbanked*, Greater Greater Washington (Jan. 21, 2015), https://ggwash.org/view/37068/arlington-offers-cash-bikeshare-memberships-to-the-unbanked; *See also* Lime Access, https://www.li.me/community-impact.

One drawback of bike and scooter sharing is that bikes and scooters compete for already limited pedestrian spaces. To grasp the benefits these companies provide residents, and to mitigate the negative impacts, CTAB recommends that Washington State and metropolitan areas within the State consider:
- Investing in protected bike lanes that are separate from pedestrian zones;
- Where possible, expanding sidewalks and walkable spaces and make repairs to narrow, obstructed, and hazardous sidewalks; and
- Seeking partnerships with bike and scooter-share companies to share the costs of creating and maintaining more spaces to use and park bikes and scooters.
- Studying cash payment opportunities and whether Washington can assist in increasing access to these services by those without bank accounts.

Autonomous Vehicles

Fully autonomous vehicles promise to improve safety and increase fuel and traffic efficiency.[11] Tens of thousands of people die in traffic accidents in the U.S. each year, and that number has been rising.[12] According to the New York Times, more than 40,000 people died from motor vehicle accidents in 2016, up six percent from 2015, which saw a seven percent increase over 2014.[13] Autonomous vehicles aim to take human error out of the system, allowing cars to communicate with each other and drive more quickly. Although vehicles increasingly have more automated features, this technology has not yet been launched. Where it's being tested, however, concerns have been raised about the ability to hack these systems and about whether these vehicles are truly safe.

Certainly, the safety of autonomous vehicles is particularly important, but their adoption has broader impacts of which policy makers should also be mindful. Primarily, the displacement of workers working in rideshare, public transit, and freight and other delivery services, which represent a significant portion of the workforce. In 2017, the Bureau of Labor Statistics estimated that more than five percent of all U.S. workers worked in transportation and utilities,[14] and until recently, Washington State employers employed more people as truck drivers than any other job.[15]

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[11] Cadie Thompson, *The 3 biggest ways self-driving cars will improve our lives*, Business Insider (Jun. 10, 2016 4:04 pm), https://www.businessinsider.com/advantages-of-driverless-cars-2016-6.

[12] Neal Boudette, *U.S. traffic deaths rise for a second straight year*, New York Times (Feb. 15, 2017), https://www.nytimes.com/2017/02/15/business/highway-traffic-safety.html.

[13] *Id.*

[14] Bureau of Labor Statistics, *Labor Force from the Current Population Survey*, https://www.bls.gov/cps/cpsaat18.htm.

[15] Quoctrung Bui, *Map: The Most Common Job in Every State*, NPR (Feb. 5, 2015 3:31 pm), https://www.npr.org/sections/money/2015/02/05/382664837/map-the-most-common-job-in-every-state.

Before autonomous vehicles become prevalent, state policymakers can take the following actions to begin mitigating worker displacement:
- Invest in retraining programs and skill-building beginning with the state's transit workers, a significant portion of whom are from historically underrepresented populations; and
- Implement policies enabling portable benefits[16] so that those working as independent contractors (such as rideshare drivers) can access benefits and save for retirement in a manner that will follow them from firm to firm.

Drones and Sensors

The Plan suggests using drones and sensors to conduct bridge inspections and monitor the physical condition of infrastructure, citing improved safety and cost efficiency. In other states where drones have been used to monitor infrastructure, there is consensus on the cost effectiveness of using drones to inspect physical infrastructure, given the labor costs, public convenience and safety hazards[17] associated with alternative techniques. Likewise, sensors are effective, accessible, and reduce monitoring costs. However, these technologies pose cybersecurity and privacy concerns. [18]

Some states in the US have passed laws regulating the use of drones. Alaska requires law enforcement agencies adopt procedures for the use of drones and "maintain a record of each flight, including the time, date, and purpose of the flight, and the identity of the authorizing official."[19] Vermont requires officials who use drones "operate [them] in a manner intended to collect data only on the target of the surveillance and avoid data collection on any other person, home, or area."[20]

Currently, the Washington State Policy Guidelines For Unmanned Aircraft Systems[21] does not include guidelines for seeking permission or consent of individuals who may inadvertently be tracked from drone use. The policy also does not comment on the confidentiality and use of the data collected. This is counter to the Federal Aviation Administration's ("FAA") own preferences, as it required the State of Minnesota obtain consent and knowledge of the owner/controller for operations and flight over private/controlled access property prior to flight and operations over

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[16] Robert Maxim and Mark Muro, *Rethinking worker benefits for an economy in flux*, Brookings Institute (Mar. 30, 2018), https://www.brookings.edu/blog/the-avenue/2018/03/29/rethinking-worker-benefits-for-an-economy-in-flux/.

[17] Laura Bliss, *To Care for Aging Bridges, Minnesota Taps the Power of Drones,* City Lab (Jan 24, 2018) https://www.citylab.com/transportation/2018/01/to-care-for-aging-bridges-minnesota-taps-the-power-of-drones/551339/.

[18] *Internet of Things, Privacy and Security in a Connected World*, Federal Trade Commission Staff Report, January 2015, 10-13, https://www.ftc.gov/system/files/documents/reports/federal-trade-commission-staff-report-november-2013-workshop-entitled-internet-things-privacy/150127iotrpt.pdf.

[19] A.S. 18.66.010, 30th Alaska Legis. § 18.65.901 (2017) http://www.legis.state.ak.us/basis/statutes.asp#18.66.

[20] 20 V.S.A. § 4622. Vermont legis (2016) https:// legislature.vermont.gov/statutes/section/20/205/04622.

[21] Washington State Policy Guidelines For Unmanned Aircraft Systems. http://www.wsdot.wa.gov/NR/rdonlyres/AC738BE5-FDCE-4FD9-A173-6C913FDABE24/0/DronePolicyGuidelines.pdf.

such property. [22] The FAA also required prior consent of individuals being filmed. In the absence of consent, filming may only be of individuals who have agreed to be in the aerial photography area.[23]

In keeping with the data privacy best practices as they relate to drone use, CTAB recommends that the guidelines for use of drones, in addition to the existing rules, also account for the following:
- Limit drone use to cases where there is demonstrated public interest. The Supreme Court in Kyllo v. US[24] held that use of a device that is not in "general public use" is a "search" under the Fourth Amendment even if it does not physically invade the home.
- Even in cases where such public interest is involved, we recommend there be a process for obtaining consent from persons whose information and/or identity is connected to drone use. This includes prior consent with the option for persons concerned to remain out of drone footage.
- Restrict the transfer, storage, access and use of data collected by the drones and clarify ownership of data. The absence of guidelines around restricted use and storage of data is likely to increase the burden, both on fiscal and infrastructure fronts for the state. Improper usage or ambiguity around access, storage and use can also raise questions about ownership of this data. Thus it may also be important to clarify the aspects around ownership.

Similar to drones, sensors can collect a large amount of sensitive information such as the collection of precise geolocation and physical condition data.

In the cases where the personal information or sensitive information is anonymously collected directly through the sensors, the information collected can be correlated and re-identified thereby making it sensitive information. The smart sensors are inherently capable of collecting voluminous data and thus it becomes more important to adopt guidelines and standards on data minimization, restricted access, deletion, anonymization for data collected through these sensors.

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[22] Unmanned Aerial Vehicle Bridge Inspection Demonstration Project, Minnesota Department of Transportation, July 2015 at A-97 http://www.dot.state.mn.us/research/TS/2015/201540.pdf.

[23] Id. at 106.

[24] 533 U.S. 27 (2001).

The following standards may boost civic confidence in these technologies and enable widespread adoption:
- Implementation of security principles to be complied by sensor installation, operation and project team handling the personal identifiable information and any sensitive information involved. This includes minimum password standards, encryption of data for storage and transmittal, destruction of data within a reasonable period after use and any general network security best practices.
- Security verification by an independent third party vendor on all data handling, management teams and ensure all teams pass the verification.
- Avoidance of the collection of more data than required for the identified purpose.
- Employment of user roles with limited rights to personally identifiable information access.

High-Speed Internet
High-speed Internet investments enable telecommuting and telemedicine, but perhaps its best impact is expanding access to critical services to differently-abled persons and lower-income individuals. Govtech reported that increases in telecommuting led to only a small decrease (less than 1 percent) in traffic congestion.[25] This can be explained by people opting to live further from their places of business, taking more personal errands through the normal workday, and, in households with one car, freeing up a car for another driver.[26] However, high-speed internet is crucial to participating in the economy, and may enable those who are differently abled without reliable access to the myriad of transportation options that exist for everyone to access some services virtually. For these reasons, CTAB supports expanding high-speed Internet access throughout the state. Additionally, CTAB supports partnerships with private industry and community groups that expand access to internet-connected devices so that more people can take advantage of mobility-enabling services and applications, such as the mobility-as-a-service applications discussed above.

Open Data Programs
In 2016, the Sunlight Foundation reported on a number of transportation successes brought about through open data programs or data-sharing partnerships, such as Portland and Google creating a transit direction service that became the "standardized format for structuring schedule data."[27] In addition to the development of new services, open data can enable researchers and policymakers a lens at the connection between transportation issues and socioeconomic trends.[28] And although open data initiatives have several laudable benefits for transparency, innovation and research, these programs also come with individual privacy risks. Balancing the risks and benefits may maximize the relevance of these programs today.

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[25] Mike Maciag, *How Will the Growing Popularity of Telecommuting Impact Public Transit*, Govtech.com (Nov. 1, 2017), http://www.govtech.com/fs/transportation/How-Will-the-Growing-Popularity-of-Telecommuting-Impact-Public-Transit.html.
[26] *Id.*
[27] Greg Jordan-Detamore, *OpenGov Voices: Transit data—a major success story for common data standards*, Sunlight Foundation (Jun. 20, 2016 2:19 pm), http://sunlightfoundation.com/2016/06/20/opengov-voices-transit-data-a-major-success-story-for-common-data-standards/.
[28] *Id.*

A study by Harvard University recommends—and CTAB agrees—the following privacy protective best practices to open data programs, especially when micro level granular data is released to the public:[29]

- Conduct risk-benefit analyses to inform the design and implementation of open data programs;
- Consider privacy at each stage of the data lifecycle;
- Develop operational structures and processes that codify privacy management; and
- Emphasize public engagement and public priorities as essential aspects of data management programs.

Concluding Thoughts

CTAB welcomes the Commission's understanding of technology as a cross-cutting topic in accomplishing the State's transportation goals. CTAB also welcomes innovations in technology that can improve everyone's improved mobility. The development of these innovations, however, benefit from a holistic appreciation of the cross-sector rewards and drawbacks of each technology solution. It is our aim that this document, although far from comprehensive, may assist in highlighting some of the opportunities, risks, and possible approaches to improving the state's transportation systems for the next 20 years and beyond.

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[29] Open Data Privacy, *A risk-benefit, process-oriented approach to sharing and protecting municipal data*, https://dash.harvard.edu/bitstream/handle/1/30340010/OpenDataPrivacy.pdf?sequence=5.