## **SUMMARY REPORT**

Regulation of Transportation Network Companies January 2019









"Helping Communities and Organizations Create Their Best Futures"

Founded in 1988, we are an interdisciplinary strategy and analysis firm providing integrated, creative and analytically rigorous approaches to complex policy and planning decisions. Our team of strategic planners, policy and financial analysts, economists, cartographers, information designers and facilitators work together to bring new ideas, clarity, and robust frameworks to the development of analytically-based and action-oriented plans.

2200 Sixth Avenue, Suite 1000 Seattle, Washington 98121 P (206) 324-8760 www.berkconsulting.com

BERK Consulting
Allegra Calder
Jessie Hartmann
Sherrie Hsu
Kristin Maidt
Ben Silver

Subconsultants Robert Feldstein April Rinne

# Regulation of Transportation Network Companies: Summary Report

Washington State Joint Transportation Committee | January 2019

Introduction	3
Report Objectives and Study Approach	3
Context	4
How Did We Get Here?	
TNC Regulation: A Complex History	5
Why Regulate?	5
The Path Ahead	7
State TNC Laws	8
Washington State TNC Regulations	9
Washington State Stakeholders	10
Key Issues	12
Driver Background Checks	12
Types of Criminal Background Checks	12
Cost and Time	15
Local Impacts and Interest	19
Local Revenue	19
Wheelchair and Disabled Accessibility	21
Case Studies	22
Overarching Approach	23
Vancouver, BC - Towards TNC Regulation on their Own Timeline	23
New York, NY - Competition, Congestion, and Caps	25
Texas and Austin, TX - Pre-emption: A Delicate and Difficult Balance	26
Market Efficiency and Sustainability	27
Massachusetts - Raising the Bar on Background Checks	27

California - Greenhouse Gas Emissions	28
Portland, OR - Towards Regional Collaboration and a Platform for Drivers' Voices	28
Airport and Cities: Clearinghouses for Data Exchange	29
Equitable Access	30
Toronto, ON - Towards Industry-Wide Equitable Regulation of All For-Hire Vehicles	30
Washington, DC - Market-Making and Expanded Access	31
New York, NY - Wheelchair Accessible Vehicles	32
ppendix A: Interviewees	33
Vorks Cited	34

#### Introduction

In 2018, the Washington State Legislature directed the Joint Transportation Committee (JTC) to conduct a review and analysis of state and local regulations that govern transportation network company (TNC) services. TNCs include companies such as Uber and Lyft that use a digital network or smartphone (app) to connect passengers to drivers to provide prearranged rides, most frequently in a personal car owned or leased by the driver. Currently in Washington, the state's role in regulating TNCs is limited to requirements for liability insurance for personal vehicles used for TNC rides, as well as a requirement for drivers to have a valid state driver's license. Local governments play a more active role in regulating TNCs and their drivers.

Starting in 2015, the industry (led by Lyft and Uber) introduced legislation in Washington State with an emphasis on local pre-emption that did not advance except for insurance requirements. By 2017, the industry-led bill incorporated more stakeholder discussion, but still included extensive pre-emption. That same year, a coalition that included jurisdictions (Seattle, Tacoma, and King County), the Teamsters Local 117, and victims' rights advocates introduced an alternative bill. Neither bill advanced. During the course of this study, this same coalition, industry, and a few new stakeholders continued to meet in an effort to pass consensus legislation that, at a minimum, establishes statewide standards for insurance, vehicle safety, driver licensing requirements, and fare transparency.

#### REPORT OBJECTIVES AND STUDY APPROACH

The two products of this study, this report and the TNC Policy Guide, seek to provide a comprehensive overview, inventory, and understanding of existing regulations for TNCs to inform and support the JTC and other policy makers in Washington. This study was guided by a Staff Work Group that provided technical support and reviewed work products.

Research conducted for this study included a review and summary of regulations in Washington State, in the other 49 states and the District of Columbia, and in select markets

#### Staff Work Group Members

- Joint Transportation Committee Dave Catterson and Beth Redfield
- Association of Washington Cities -Candice Bock and Andrew
   Pittelkau
- Washington State Department of Licensing - Lewis Dennie and Stephanie Sams
- Washington State Department of Transportation - Don Chartock
- Washington State Patrol -Monica Alexander
- Washington Utilities and Transportation Commission - Jason Lewis and Jon Noski
- City of Seattle Matthew Eng,
   John Megow, and Mary Mitchell
- King County Sean Bouffiou and Eddie Cantu
- Port of Seattle Eric ffitch
- Washington State Office of Financial Management -Veronica Jarvis
- House Republican Caucus -Dana Quam
- House Transportation Committee -Jennifer Harris
- Senate Democratic Caucus -Hannah McCarty
- Senate Transportation Committee
  - Bryon Moore and Kelly Simpson

outside the United States (see TNC Policy Guide). To better understand how regulations came about and how they were working, we conducted interviews with representatives from two states, two Washington counties, 22 cities (10 in Washington, 13 elsewhere, including DC), and two airports.

While TNCs are a relatively new transportation option, we were able to review many studies. Some focus on the industry more broadly and others focus on topics such as regulation, impacts on local cities, drivers, and background checks. We also spoke to researchers and representatives from national organizations, such as the National League of Cities and the Aspen Institute, with a broader perspective on the issues, trends, and key policy questions.

Finally, we interviewed a variety of stakeholders in Washington, many of whom were involved in past bill negotiations, and included agency staff, lobbyists, TNCs, and drivers (see **Appendix A: Interviewees**).

This report summarizes some of the key issues of interest in past and current regulation negotiations in this state and how other places are approaching regulation of TNCs, including some emerging ideas and practices. This report is intended to be as fair, objective, and open-minded as possible, based on what is known about TNCs and mobility trends today.

#### **CONTEXT**

#### How Did We Get Here?

Over the past five years, TNCs and the on-demand ride-hailing services they provide have transformed the mobility landscape in Washington and around the world. TNCs have significantly increased access to mobility, enhanced convenience and time savings, and reduced transportation costs for individuals. Alongside these benefits, however, they have raised (or exacerbated) concerns around accessibility, equity, traffic, congestion, and safety. Moreover, they have raised new questions for states and municipalities regarding revenues, regulations, and responsible planning. In short, TNCs have presented a universe of new opportunities and challenges simultaneously.

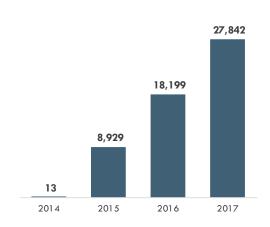
The emergence of TNCs would not be so marked if not for the pace of their growth. The TNC concept itself dates back only to 2013, when the California Public Utility Commission (CPUC) first passed rules that established this new transportation category. CPUC took this action in light of Uber, Lyft, and other TNCs' rapid growth; Uber was founded in 2009 and Lyft in 2012 (both with headquarters in San Francisco). Less than one decade after their founding, Uber is valued at \$120 billion and Lyft at \$15 billion (Hoffman 2018). Together they have completed nearly 4.5 billion trips worldwide. In December 2018, both companies filed for their initial public offerings, which are expected to take place in the first half of 2019. Globally, it is estimated that the TNC industry will be valued at \$285 billion by 2030, with 97 million trips daily. Some are even predicting that TNCs will be responsible for up to 95% of all passenger vehicle miles traveled (Huston 2017).

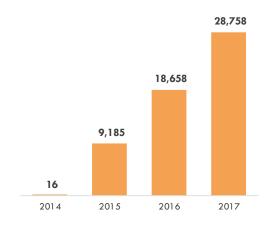
While Uber and Lyft are the dominant companies in the US, other companies operate in Washington, including CiRide, Moovn, ReachNow, and Wingz. Since 2014, King County and Seattle have seen an increase in both approved driver permits and vehicle endorsements. Exhibit 1 shows the number of driver permits and vehicle endorsements approved each year, and whether the driver or vehicle is approved to operate in King County only, Seattle only, or both. The number of Uber and Lyft trips occurring each day in Seattle also increased during this time by 235% from about 27,250 trips a day in 2015 to 91,250 trips a day in 2018 (Gutman 2018).

Exhibit 1. Annual TNC Driver Permits and Vehicle Endorsements Approved (2014-2017)

#### **TNC Driver Permits Approved**

#### TNC Vehicle Endorsements Approved





Source: King County, 2017; BERK, 2018.

#### TNC Regulation: A Complex History

Against the backdrop of extremely rapid TNC growth, policy makers worldwide see the urgency of undertaking responsible policy reform to address TNCs as a new form of transportation. This includes issues of consumer protection, public safety, economic development, and market competition, as well as the very real effects TNCs may have on state and local revenues, congestion, land use and transportation planning, public transit, as well as other public mandates and priorities.

Today 49 US states and the District of Columbia have passed TNC regulations. Policy makers in Washington State first took notice of TNCs in 2015 (early compared to most states) and passed SB 5550 outlining insurance requirements. Since then, however, TNC regulation at the state level has not moved forward. In the absence of statewide regulation, cities in Washington enacted their own rules. This has led to a regulatory patchwork that can be difficult for customers, TNCs, drivers, and regulators alike to navigate.

#### Why Regulate?

TNCs are one of several new entrants into a changing transportation landscape, and other changes are on their way. While much of the debate has been around TNCs versus taxis, the implications for transportation policy and planning are far broader. For these reasons, the State's overarching transportation policy goals (RCW 47.04.280) become important to keep in mind to ensure that regulation does not narrowly react to the latest entrant. The primary considerations for regulating TNCs include:

- Public safety of passengers, drivers, and others, including but not limited to background checks and insurance (vehicles and drivers).
- Consumer protection from improperly described or dangerous services and unfair trade practices.
- Equitable access to a system that serves everyone and considers geography (rural, suburban, and underserved urban areas); seniors, individuals with disabilities and other non-drivers; individuals without debit or credit cards and/or smartphones with data plans.
- Mobility of people and goods, considering transportation modes and congestion impacts.

Those policy issues that have typically been most challenging for regulators include enabling a "level playing field" for taxis to compete with TNCs, driver criminal background checks, wheelchair-accessible service, driver classification (independent contractor versus employee), and state versus local regulation (Schaller 2016).

The first question for legislators in Washington is whether to regulate.

- What is the state interest in regulating TNCs?
- Are certain regulations more appropriate at the state versus local level?
- What are the implications of status quo (no regulation beyond insurance requirements)?

When it comes to state vs. local regulation of TNCs, despite hundreds of cities worldwide grappling with TNCs, there are relatively few regulatory models which have been adopted by a majority of jurisdictions (to date). Within North America, three regulatory models are currently in place, described in more detail in the TNC Policy Guide as well as the case studies herein.

- 1. Pre-emption, which itself varies by state and includes:
  - No state pre-emption
  - Complete local pre-emption
  - Pre-emption with specific and/or custom exceptions
- 2. Hybrid framework which provides a minimum standard statewide and allows cities (often the largest market) to go further.
  - Pre-emption with carve-outs for large cities
  - Laws that create statewide minimum standards that local regulators can go beyond
- 3. "Patchwork" approach where regulations are implemented on an as-needed basis.

If legislators decide some amount of state regulation makes sense, additional questions need to be answered.

- How to design a regulatory framework that achieves objectives and is flexible enough to accommodate other models or variations on the model?
- How to design regulations that do not create barriers to entry for local start-ups due to high fees, while ensuring regulations can scale to cover well-resourced global companies and any unanticipated substantial growth?
- Given the growth in the market, is there a reason to require greater coverage and/or ensure that everyone is served?

This last question is somewhat broader than TNCs, though undoubtedly, they have a role to play. It asks that the State consider whether it has a role in ensuring that all those needing transport, especially non-drivers, have access to service.

When approaching regulation, it is necessary to consider both the ability to implement and enforce. The same agency may not need to do both, but regulations must have substantive teeth (whether incentives or penalties) to produce the desired outcomes. However, even regulations with teeth are only as robust as they are enforced. Similarly, any unintended consequences related to effects on service, quality, pricing, competition, and access should also be considered to the extent they are easy to predict.

Experience nationally and globally has shown that some degree of regulation should be under one umbrella, to ensure consistency and as close to a level playing field as possible. The state is often in a robust position to provide a "floor" in this regard. Experience has also confirmed that large cities, metropolitan areas, and locations with significant taxi markets are best served by local regulations that reflect a deep understanding of local market dynamics and local agencies that have the capacity to implement and enforce the regulations efficiently (Schaller 2016). More discussion of local interests and impacts is below.

#### The Path Ahead

Despite the pace of change and challenges faced with the advent of TNCs over the past decade, the next decade (and beyond) portends to be equally if not more daunting. With the rise of autonomous and electric vehicles and continued focus on multi-modal mobility solutions and integrated transit, further disruption can be expected.

The mobility landscape today struggles with efficiency: the average car sits parked 23 hours per day and carries 1.6 people (Schmitt 2016). The US is home to 260 million vehicles and more than 500 million parking spaces (Kimmelman 2012; Kitman 2018). However, with the rise of new technologies – in particular, the smartphone – we also see a shift in how these gaps are perceived and tackled.

Broadly speaking, today's digital economy is shifting from selling products to selling services, and from ownership to access on-demand. Although this shift extends beyond mobility, TNCs are one of the fastest growing examples: they reflect the shift from selling cars as products to selling access to mobility on-demand, or "transportation as a service" (TaaS). Moreover, TNCs are aggressively pursuing opportunities to become multi-modal transportation solutions providers; both Uber and Lyft have acquired e-scooter, bikesharing, and data mapping companies. They focus not only on passenger transport, but also food delivery, package delivery and shipping, and worker transit at scale. In addition, TNCs – along with other transportation, automobile, and technology companies – are heavily investing in the research and development of autonomous vehicles for the general market.

Some regulatory issues, such as public safety and congestion, will continue to be policy priorities. At the same time, emerging issues such as autonomous vehicles, the future of driving as a profession, access to data held by TNCs for transportation planning purposes, unequal and/or inadequate access to service for certain populations, and growing concerns about potential monopoly power (and related antitrust measures) will place additional pressure on policymakers. While these topics are beyond the scope of this report, it is essential to keep them top of mind. For as quickly as TNCs have transformed transportation today, the landscape is shifting even faster tomorrow.

Careful policy design and implementation are important to ensure that regulations have enough flexibility to accommodate this dynamic industry while also achieving the objectives.

#### State TNC Laws

Forty-nine states and the District of Columbia have laws governing TNCs (see **TNC Policy Guide** for a full discussion). Oregon is the only state that currently has no statewide law. Four of the 49 states only require certain insurance coverage: Hawaii, Louisiana, Minnesota, and Washington, and most of these four are considering broader TNC legislation.

States with TNC laws generally focus on regulatory issues that transcend local transport dynamics, such as safety, insurance, rates, and fees. Particularly in the early years of TNC regulation, some states were influenced by template regulations proposed by TNCs themselves, which tended to pre-empt local authority beyond the issues listed above. As TNCs have continued to grow and be better understood by regulators, however, this approach has become less prevalent.

Most states pre-empt local authority, but some have created carveouts or exemptions.

- Nevada and New York allow carve-outs for their larger cities. Vermont has a time limited population carve-out until 2022.
- Illinois and South Dakota's laws set minimum regulations that all governments must follow, but cities
  have authority to be more restrictive than these minimum standards.
- In states like Alabama, Alaska, and New York, local jurisdictions can opt out of state regulation by not allowing TNCs to operate in their city or town.
- Nebraska has no state pre-emption.
- Some states have **specific exceptions to state pre-emption**. For example, Kentucky allows the city of Louisville to determine their own driver requirements; Maryland allows cities collecting fees prior to January 2015 to continue doing so; and Alaska's municipalities can regulate TNC's trade dress (logo, insignia, or other emblem identifying the TNC company(s) visible from the exterior).

Whether and how fees are levied varies by state: many states don't mention fees at all, some states charge a flat fee to each TNC, while other states have implemented per trip fees (see TNC Policy Guide for detailed fee information).

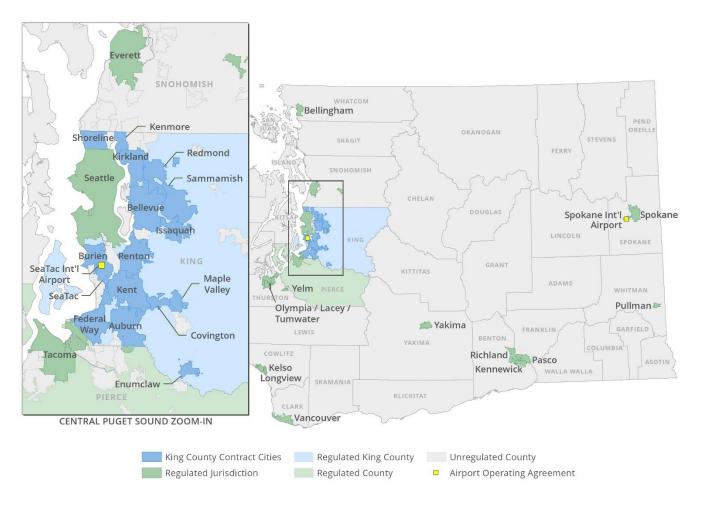
Per trip or per vehicle fees allow the revenue to scale with growth and do not create a barrier to entry for smaller companies. They also allow government revenues to grow with increased enforcement and regulatory responsibilities alongside demand for TNC services.

No states require TNC drivers to complete a fingerprint-based criminal background check. However, New York City — though not the rest of New York State — requires TNC drivers to complete a fingerprint-based background check. In addition, Massachusetts Department of Public Utilities uses name and identifying information to conduct a second criminal background check of all drivers provisionally approved by TNCs (see Massachusetts - Raising the Bar on Background Checks on page 26).

#### WASHINGTON STATE TNC REGULATIONS

As noted above, Washington State's regulations of TNCs are currently limited to insurance requirements and a requirement that drivers hold a valid driver's license. In the absence of state regulation of TNC operations, dozens of cities, two counties, and several airports have developed TNC requirements for companies and drivers. These requirements range from a memorandum of understanding to formal chapters in municipal code. Exhibit 2 shows counties, cities, and airports that regulate TNCs through local ordinances or operating agreements.

**Exhibit 2. TNC Regulation in Washington State** 



Source: Local ordinance and operating agreements, 2018; BERK, 2018.

Many local ordinances and operating agreements follow a similar structure and scope covering licensing and fees, background checks, vehicle and insurance requirements, operating requirements, and enforcement. Some ordinances and agreements also include nondiscrimination policies and outline varied auditing and penalty powers. Jurisdictions in King, Pierce, and Thurston counties have adopted regional regulatory frameworks to create seamless regulation of TNCs across geographically proximate locations. Each approach is based on interlocal agreements that designate one jurisdiction to provide central administrative services, such as issuing business and operating licenses, and take the lead on enforcing any rules. Regulations in Washington are summarized in the TNC Policy Guide.

#### WASHINGTON STATE STAKEHOLDERS

As noted earlier, there have been several attempts at regulating TNCs at the state level in recent years. In addition to Uber and Lyft, negotiation participants have included the State Department of Licensing, the City of Seattle, King County, and Teamsters Local 117. Testimony for and against various bills came from numerous others including the Washington State Patrol (WSP) and the Washington Association of Sheriffs and Police Chiefs; the Association of Washington Cities; Community Transit Association of the Northwest; Washington State Transit Association; the Governor's Committee on Disability Issues and Employment; lobbyists for taxi and for-hire drivers, including the Wheelchair Accessible Taxi Association, sexual assault victims; and drivers of TNCs, taxis, and other passenger transportation vehicles.

As time passes, and the TNC market share increases and expands to other cities, the list of interested stakeholders has grown. The shared interests of several stakeholder groups are summarized below with more discussion of local jurisdiction interests and background checks in the **Key Issues** section.

#### **Local Jurisdictions**

- Several cities commented that since the impacts of TNCs are felt at the local level they should be addressed by locals. Cities need to know how many drivers are in their city and often want the ability to enforce their local laws. They also want the ability to manage curb access and public right of way, a highly contested space in some cities.
- Related to management of limited right of way, they want data to support transportation planning and help answer questions around equitable service provision, TNCs role in congestion, and high demand loading zones.
- Where cities are regulating and enforcing TNCs and addressing impacts, they have an interest in recovering the costs for these activities.
- Where jurisdictions have worked together to organize regulations regionally and harmonize the regulatory environment, there is interest in preserving these structures.

#### **Special Needs Transportation Providers**

- The growth in TNCs has been a boon to some populations as the technology has overcome barriers for those that are deaf, hard of hearing, blind, or low-vision, among others. TNCs have added options in some communities where fixed-route service required more advanced planning. Advocates for passengers with specialized transportation needs want the same safety and level of service standards whether they choose to travel by taxi, TNC, or wheelchair accessible service.
- Across the spectrum of special needs transportation services, more drivers are needed. Additional training, driver certification, random drug testing, and other requirements are serving as barriers although they were established to assure public safety.
- Contracts for passenger transportation services for non-emergency medical transportation, Medicaid visits, Veteran's Affairs coverage, or transporting children experiencing homelessness under the McKinney-Vento Education of Homeless Children and Youth Assistance Act have federal and/or state requirements related to fingerprint-based background checks, in-person driver physical examinations, driver training, and random drug testing that currently make TNC drivers ineligible to provide these services.

#### Law Enforcement, Advocates for Victims, Teamsters

Washington State Patrol and the Washington Association of Sheriffs and Police Chiefs maintain that fingerprint-based criminal background checks are better than third-party commercial checks. Lobbyists for sexual assault victims, some drivers of other transportation services, and the Teamsters Local 117 all share this view, though possibly for different reasons.

#### **TNC Drivers**

We spoke directly with ten drivers through Drive Forward (a non-profit representing independent drivers) and the Teamsters Local 117. This small sample certainly does not reflect the views of all drivers and even within these groups there were differences between those that drive full-time versus part-time. A 2017 driver survey with over 1,100 responses conducted by the Rideshare Guy, Harry Campbell, reported some similar themes (Campbell 2017).

- Scheduling flexibility, including the ability to go off shift at any point, to decide not to work due to health issues, family needs, or other reasons, or to drive only at certain times of year were all mentioned as valued. Other valued factors included the ability to start work again quickly as a driver if one were to move to another city or state, the ability to "be my own boss," the ability to use a destination filter if you want to head home at the end of the day and would like to be assigned rides headed in the same direction, and dynamic pricing that helps match demand and supply.
- Complaints heard included less pay than expected given the number of drivers and the percent paid to the TNC. Others noted that if a passenger makes a complaint, the driver could be de-activated from the platform immediately and is "guilty until proven innocent." While drivers understand the safety prerogative, this can be frustrating.

#### **Customers**

- While passengers are not part of the stakeholder negotiations, they have demonstrated demand for TNCs through the daily trips in cities like Seattle and at airports. In some cities they have also contacted local elected officials about proposed regulations when they felt it might reduce the supply or in other ways lessen the service. For these reasons, we include a few comments about what is known about the customer perspective.
- Growth in the number of drivers has delivered curb-to-curb service with short wait times. A boon for passengers, the number of vehicles needed to meet that demand has produced impacts at the local level (see Local Interests and Impact below).
- Ease of use and price relative to taxis were found to be key reasons for using TNCs in a 2017 study by McKinsey (Dhar et al. 2017). Another study mentions ease of payment, short waiting times, and faster commutes (Armstrong and Nicoll 2016).

### Key Issues

The two overarching interests where differences of opinion remain among Washington State stakeholders are background checks – fingerprint-based or by commercial third-party vendors – and local interests and impacts. Neither issue is exclusive to Washington and both were raised in interviews and in the literature. This section summarizes these issues along with wheelchair and disabled access.

#### DRIVER BACKGROUND CHECKS

There is universal agreement that, as part of ensuring public safety, all potential drivers must undergo some form of background check that investigates, at a minimum, criminal history, driving record, and sex offender registries. But, as TNCs have entered the market in Washington State and across the country, there has been a debate about the merits and drawbacks of how criminal history is checked. Proponents of both background check methods include national voices from both academic and legal fields (Cornfield 2016; Schaller 2016).

To be complete and fair, criminal history needs both records of arrests (records generally recorded by law enforcement) and records of the case disposition, or final case outcome, including whether the charges were never filed, the case was dismissed or found not guilty, or any changes in the final plea or guilty charges (records generally recorded by local courts). See page 15 for an overview of how criminal records are created and stored.

#### Types of Criminal Background Checks

#### **Fingerprint-based Checks**

Traditionally, drivers of taxis and for-hires have undergone a fingerprint-based criminal background check through being fingerprinted, most often by law enforcement. That biometric information – along with biographic identifiers such as name, address, and date of birth – is forwarded by law enforcement to check against the state criminal database and the FBI's national database of criminal records. This system is designed to catch all incidents across the country where a person was arrested and fingerprinted, and traditionally has been viewed as the "gold standard" of background checks. This standard is often required for government contracts for the transportation of children or other vulnerable populations. However, critiques and audits of fingerprint-based background checks often point to two primary concerns: (1) fingerprint-based systems could miss arrest records where the person was not fingerprinted (such as some DUIs in Washington State), and (2) because these records are initiated by law enforcement at the time of arrest, they are more likely to be missing the disposition, or final case outcome that is often decided in the court system – including, as mentioned, where the case was not prosecuted, charges were dropped, or the individual was found innocent. This creates a risk, that without further research of court records, there is a "false-positive" of criminal record.

A 2015 Washington State Auditor's Office report found that a third of the dispositions for charges reported in the Washington court's Judicial Information System (JIS) were missing from the state fingerprint system, Washington State Identification System (WASIS) (Washington State Auditor's Office 2015). The incomplete records were due to both arrests that were never fingerprinted and data control issues between arresting agency, prisons, courts, and prosecutors. The report includes that "the most common offenses missing dispositions were driving under the influence, third degree theft, and fourth degree assault – all gross misdemeanors" (Washington State Auditor's Office 2015, 4).

#### Commercial Checks

There has been a rise in commercial background check providers, also referred to as "third-party background checks" that take advantage of more information being available via pubic and proprietary databases and better search technology to perform searches electronically. Commercial background check providers are regulated by the Fair Credit Reporting Act (FCRA) and are required to establish and follow "reasonable procedures to assure maximum possible accuracy of the information concerning the individual about whom the report relates."

Everywhere in the United States except New York City (where fingerprints are required), the major TNCs, Uber and Lyft, currently require that drivers undergo a third-party background check through Checkr, a private company. Compared to the traditional fingerprint-based FBI criminal records check, these companies use a series of searches to confirm the identity of the individual and their history and then look at local criminal records to establish any criminal records and disposition.

To start, companies use a social security number to search credit, public (e.g., voter and mail), and commercial records to establish an individual's previous addresses and associated names and aliases. The search includes a check against the Social Security Administration's Death Master File to ensure information for a deceased individual is not being used. The companies then search an aggregated national criminal database of more than 1,800 local, state, and federal criminal data sets, comprised of both publicly available and commercially purchased data (information on the exact data sets searched is considered proprietary). This is not the FBI database and coverage varies by jurisdiction; however, it is used to find additional locations where an individual may have had criminal contact.

Finally, for locations identified in either the individual's residential history or from the search of the criminal databases, the company looks at those jurisdiction's court records. Where electronic court records are unavailable or incomplete, some commercial background check companies, including Checkr, report sending researchers in the field to review paper court records. Even when records are identified, federal and state laws determine whether those records are reportable.

While this system benefits from looking at multiple databases to establish identity and using original sources for criminal case outcomes, there are challenges to the commercial background check system. The most frequent argument is that there is less surety that the background check completed is for the correct person (i.e., someone could use a stolen name, social security number, and date of birth to secure a clean background check) than with biometric fingerprinting. Since the companies perform multiple checks of the individual's identity, often including a photo matched against the driver's license picture, this would need to be a complete "identity theft" with corresponding driver's license and vehicle insurance for the assumed identity.

Commercial background checks may also face additional restrictions on what data can be accessed or how far back they can look. The FCRA prohibits reporting on arrests and most other adverse items of information that are more than seven years old but has no time limit on reporting criminal convictions (15 U.S. Code § 1681c (a)). Washington State law limits employer inquiries to convictions (or release from prison) that occurred within the last 10 years and are related to the job (WAC 162-12-140). Other states have additional limits on what information may be shared with third parties as opposed to law enforcement – for example Massachusetts (MGL Chapter 93, Section 52) and California (Civil Code 1785.13.6) also prohibit reports including convictions that are more than seven years old.

Because commercial background checks look at court records (as opposed to law enforcement records of arrests), there is a greater chance that a recent arrest – one that has not yet made it to court – could be missed. It should be noted that an arrest alone is often not disqualifying but may lead to a disposition that could eventually disqualify an individual. Exhibit 2 compares some of the features of the two types of background checks.

**Exhibit 3. Background Check Comparison Table** 

	FINGERPRINT-BASED - FBI	THIRD-PARTY COMMERCIAL
Risk of Using Stolen Identity	Use of biometrics better ensure background check for correct person.	More chance of identity theft used to generate "clean" background check.
Inclusion of all arrests	More likely to miss arrests for which individual was not fingerprinted (including some DUIs in Washington).	More likely to include arrests for which individual was not fingerprinted.
Limits on accessing data	Not subject to Fair Credit Reporting Act (FCRA), public disclosure, or many state-by-state restrictions.	Records access limited by FCRA (seven years) and state-by-state restrictions for non-law enforcement searches.
Inclusion of disposition information	More likely to have missing or incomplete disposition information.	More likely to include complete disposition information.
Recent arrests	More likely to include very recent arrests (if individual was fingerprinted).	More likely to miss very recent arrests that have not yet generated any court records.
Sources of identity information	Uses one source to identify history of where individual lived.	Uses multiple sources (voter, credit, postal, etc.) to identify individual history.

#### Cost and Time

The costs for both types of checks, while not completely known, are roughly comparable and processing time is similar (see Exhibit 4). Both may vary due to system backlogs or delays in obtaining some records. One key distinction is that for a fingerprint check, the driver must show up at a location, typically law enforcement to have their fingerprints scanned or prints taken. In comparison, for commercial checks, the driver can submit information on-line and does not need to make an additional appointment (beyond inperson appointments for vehicle inspection and any visits to the TNC office).

**Exhibit 4. Background Check Cost and Time** 

	COST	TIME
Fingerprint-based Background Checks	\$32 - \$38*	Washington State Patrol (WSP) currently estimates 1-5 business days, but with delays can take up to 2 weeks.
Commercial Background Checks	\$5 - \$35 <sup>**</sup>	One provider estimates it typically takes 2-3 business days but can take minutes or up to 2 weeks.

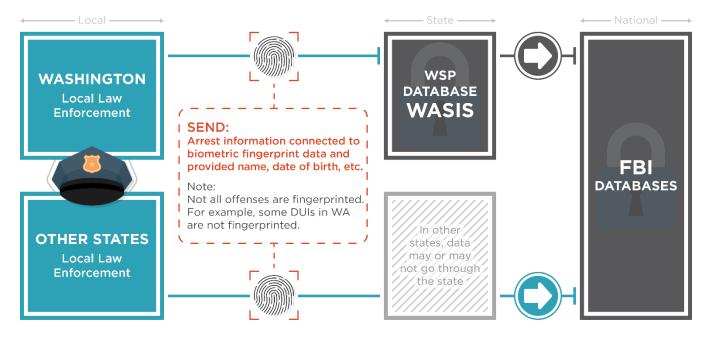
Notes: \*WSP charges \$32 for electronic state and federal charges and some cities add processing fees. WSP charges \$50 for ink-based prints. These are mailed, and results take longer, but there are few reports of jurisdictions using them.

\*\*Because TNCs typically pay, the cost is unknown to the drivers or the public and is regarded as confidential business information. Articles have listed prices from \$5 - \$20 and \$35; with one example of Checkr performing criminal and driving records checks (for a different company) for \$31. There is likely a negotiated volume discount for the large TNCs (Behr 2018). Source: Washington State Patrol, 2018; and Behr, Alyson. 2018. "Checkr." PC Mag. May 17.

### **How Criminal Records Are Created & Stored**

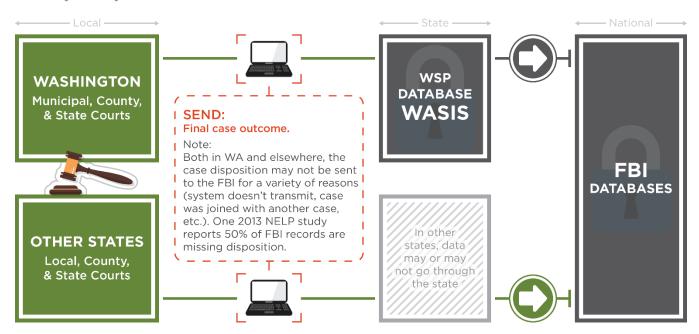
## **ARREST**

At arrest, an individual is fingerprinted. Fingerprints – along with name, date of birth, etc. – and arrest charges are entered in local law enforcement systems across the country.



## DISPOSITION

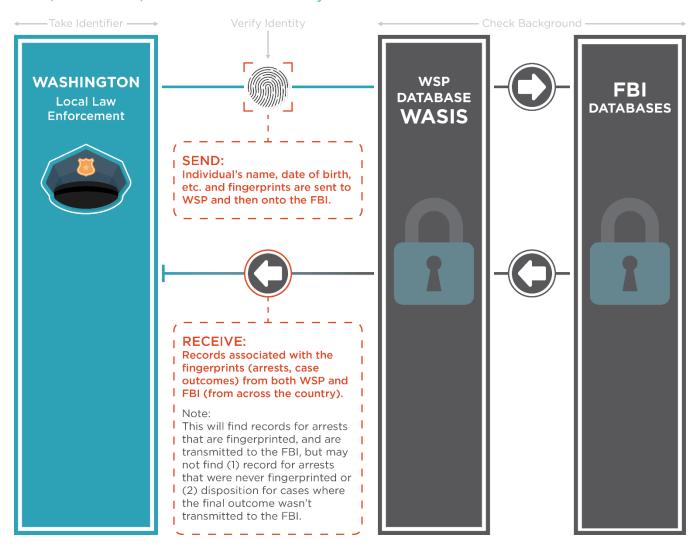
At final case outcome, the disposition is generally recorded in the local court case tracking system, and may or may not be sent to the FBI.



## **Two Ways Criminal Backgrounds Are Checked**

## FINGERPRINT-BASED

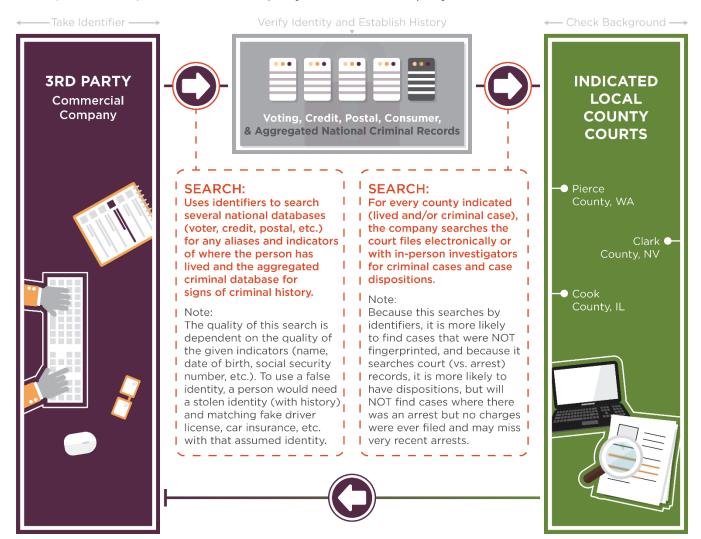
For a fingerprint-based background check, the individual is fingerprinted. The fingerprints and given name, date of birth, etc. are entered into the system.



### **Two Ways Criminal Backgrounds Are Checked**

## <u>COMMERCIAL</u>

For a background check, the individual's given name, date of birth, social security number, and zip code ("identifiers") are sent to a third party commercial company.



#### LOCAL IMPACTS AND INTEREST

With the tremendous growth of TNCs in cities nationwide, many are reporting significant local impacts. These range from concerns about increasing numbers of vehicles on the street and impacts on congestion; increased competition for loading space, whether for goods or people, at the curb; interagency coordination around mobility options and transportation demand management; and questions about whether transit, biking, and/or walking are declining with an increase in TNC trips. Related to this, many cities want the ability to enforce their traffic laws and licensing requirements to ensure consumer protection and public safety (Schaller 2016 and 2018).

Several cities, in Washington and elsewhere, commented that they view new transportation options as part of the mobility solution. They also believe local traffic and transportation demand management policy questions are best addressed at the local level (Niblett 2018). Issues include the following:

- At the aggregate level, increasing competition for right of way and curb space. This challenge concerns not only TNCs and taxis, but also public buses and private shuttles, goods delivery, emergency vehicles, and private vehicles. Myriad drivers picking up and dropping off creates challenges for cities.
- At the individual level, consumer protection and public safety. As the primary enforcers of transportation rules, cities must ensure both that the overall transportation system functions smoothly, as well as that each individual actor is in compliance and behaves in ways that support a healthy and responsible society.
- Cities are dealing with a dynamic transportation landscape. While the rise of TNCs has been dramatic in some cities, it is not the only new trend they are managing (e.g., advent of dockless bikeshare and e-scooters on city sidewalks) and there are certainly more changes on the way. We are also seeing examples of partnerships between TNCs and public transit, for example, providing shuttles to transit hubs and park and rides. Cities want data to understand what is happening on their streets to identify new possibilities for partnerships, to better mitigate some of the impacts, and to do informed transportation planning. To date TNCs have been reluctant to share data; however, third-party aggregated data is an emerging practice that may have promise (see Airport and Cities: Clearinghouses for Data Exchange).

To craft effective policy solutions, cities want data on TNC trips and many want the ability to raise revenue, whether through business licenses or other means to support development, implementation, and enforcement of local regulations.

#### Local Revenue

Across the country, states and municipalities are struggling with the growth of TNC platforms and TNCs' effects on local economic development, traffic and curb access, tech-enabled business, and the taxi industry. In the absence of regulation, TNCs have benefited from public infrastructure and other public services (e.g., police, snow removal, etc.) without having to contribute directly financially or otherwise support these systems.

Many cities in Washington require a business license to legally conduct business within their jurisdiction. The license allows them to understand who is operating in their jurisdiction and to regulate certain types of activities to ensure public safety and code compliance. Licenses also generate revenue. At the time of this review, business license regulations were varied across the state and some businesses, including TNCs, that work in multiple cities complained about the burden of obtaining licenses from individual jurisdictions (MRSC 2018). TNCs operate almost entirely within cities with existing infrastructure and customer base. Since TNC companies do not have a physical office in the vast majority of cities and their drivers are independent contractors, cities must adapt business licensing and/or taxing regulations in order to treat TNCs as they would other businesses that benefit from their city's business environment.

In addition, TNCs' popularity has negatively impacted taxi industry revenues, in some cases, affecting taxi viability and service to select taxi-dependent populations. State and municipal policy makers are also grappling with tax codes and laws that have not kept pace with the digital economy. In this context, cities and states are increasingly recognizing that TNCs' success could brings economic benefits as well as local impacts to infrastructure, curb access, and congestion. As a result, more locations are imposing taxes and fees to mitigate impacts and support the communities that they serve (Davis and Shiller 2017; Hu 2018b).

Generally, these taxes or fees are used to generate revenue to pay for one of three things:

- Operating costs of TNC regulation and/or enforcement (regulatory fees)
- Other transportation-related costs, such as public transit, roads, and infrastructure maintenance (general taxes)
- Non-transportation activities (general taxes)

Funds may be collected by:

- State for its own purposes where it serves as the regulator
- State with an allocation to the city or county of trip origin
- City for its own purposes (so long as there is no pre-emption)

Below is a sampling of what states and cities have done.

#### **States**

- Maryland: Except for those counties and municipalities with existing assessments prior to January 2015, all others may charge up to a 25-cent per trip fee. The fee is collected by the TNC and submitted to the State Comptroller for its Transportation Network Assessment Fund. The Comptroller covers its costs and distributes the remaining revenue to the city or county that was the source of the revenue. Revenue must be used for transportation purposes.
- Massachusetts: A 20-cent fee is charged for every TNC ride, with half of the revenues earmarked to the State's Transportation Infrastructure Enhancement Fund and half distributed proportionately among cities and towns based on the number of trips. Funds must be used for transportation purposes. Through 2021, half of the State's fee is distributed to the Massachusetts Development Finance Agency to provide financial assistance through an RFP process to small businesses operating in the taxicab, livery, or hackney industries to encourage the adoption of new technologies and advanced service, safety, and operational capabilities and support workforce development.

- New York: A 4% assessment on all TNC rides that originate anywhere in the state outside of cities with more than one million people. This fee is expected to raise \$24 million annually for the State's general fund, although legislation has been proposed to direct this revenue to local bus and commuter rail services. In addition, in the 2018 budget, the State imposed fees on for-hire trips in parts of New York City to combat congestion and help fund subway improvements: \$2.50 for yellow taxis; \$2.75 for other for-hire vehicles, including Ubers and Lyfts; and 75 cents for car pool trips such as Via and UberPool (Hu 2018a).
- **South Carolina:** A 1% fee for all TNC rides is distributed to municipalities and counties after covering the costs of the Transportation Department Office of Regulatory Staff to spend as they choose. This fee was originally designed to help facilitate a single regulatory framework and prevent local efforts to charge prohibitively high fees to keep TNCs out.
- Other states including Colorado, Texas, Utah, and West Virginia earmark TNC permit fees to cover operating costs of TNC regulations. In some cases, there is a specific fund, while in other cases it simply refers to "the costs of administering the chapter" of the relevant state code. Colorado's Public Utilities Commission (PUC) does not currently have a scaled fee approach with the two TNCs each paying a permit fee of \$111,250 deposited into a TNC Fund to cover the PUC's permitting related costs. This could be a barrier to entry for smaller new entrants.

#### Cities

- Chicago: A 67-cent fee is charged on all TNC rides, with proceeds from a recent 15-cent increase earmarked for public transit upgrades (track, signal, and electrical improvements to the train system). In addition, the City assesses a \$5 fee on all rides to the airport (pick-up and drop-off), the convention center, and popular tourist destinations. Collectively these fees generated nearly \$39 million for the City in 2016 and \$72 million in 2017.
- Philadelphia: A 1.4% tax on gross receipts for TNC rides in Philadelphia, with two-thirds earmarked for the city's public schools and the remainder going to TNC regulation costs. In 2018, these fees are expected to raise \$2.6 million for education and more than \$1 million for TNC regulation.
- Portland, Oregon: A 50-cent fee is charged on all TNC and taxi rides, proceeds of which help pay for city transportation enforcement efforts, including vehicle inspections and incentives to provide wheelchair-accessible vehicles. These fees have generated more than \$8 million since 2016.

#### WHEELCHAIR AND DISABLED ACCESSIBILITY

Against the backdrop of major TNC growth, transit accessibility for people in wheelchairs or with other disabilities is a growing concern for governments across the US. By and large, wheelchair users have been left out of TNC strategies and priorities. Uber has gone so far as to claim it is not subject to Americans with Disabilities Act (ADA) regulations because it is a technology company, not a transportation provider, a claim that is widely disputed (Taft 2018).

Currently, except for where local regulations have been put into effect, there are no requirements that TNCs provide wheelchair accessible vehicles (WAVs) such as taxi companies are required to provide. In some locations paratransit is an option, however it is an antiquated and expensive solution compared to what TNCs can provide. Moreover, demand for WAVs is expected to continue to grow as populations age.

WAVs represent both a public sector mandate and an untapped market. In November 2018, Uber announced its first partnership with one of the country's largest paratransit providers to increase WAV supply and accessibility. However, Uber and Lyft's track records are more problematic: they have lobbied against WAV proposals, sued, and spent millions of dollars to prevent WAV requirements from applying to TNCs. There have been at least ten lawsuits since 2014 against these two TNCs specifically regarding substandard or non-existent WAV accessibility.

Moving forward, if taxi services decline or go out of business, wheelchair users, senior citizens, and anyone without a smartphone may be not only disproportionately impacted; they could find themselves with no viable transport options beyond private vehicles and public transit. This is not a future issue; it is already happening today in some smaller, rural markets, including Greeley, Colorado and Wasatch Front, Utah which have become "taxi service deserts" (Klopfenstein 2018; Reid 2018).

The key question for policy makers is: if TNCs displace taxis, what are their responsibilities (under the ADA and otherwise) to provide WAVs?

### Case Studies

Despite hundreds of cities worldwide grappling with TNCs, when it comes to regulatory models, there are relatively few categories in which (to date) most cities have structured their approach. TNCs are likely to remain part of the mobility landscape, and jurisdictions and agencies are starting to think more broadly and concretely about their impacts on other policy goals. In some cases, the intent is to mitigate possible downsides, risks, or unintended consequences that TNCs may bring about; in other cases, it is about ensuring that TNCs are part of integrated mobility solutions (i.e., service provision to those who need it). The case studies below fall into three broad themes:

#### **Overarching Approach**

- Vancouver, BC Towards TNC Regulation on their Own Timeline
- New York, NY Competition, Congestion, and Caps
- Texas and Austin, TX Pre-emption: A Delicate and Difficult Balance

#### Market Efficiency and Sustainability

- Massachusetts Raising the Bar on Background Checks
- California Greenhouse Gas Emissions
- Portland, OR Towards Regional Collaboration and Platform for Drivers' Voices
- Airports and Cities Clearinghouses for Data Exchange

#### **Equitable Access**

- Toronto, ON Towards Industry-wide Equitable Regulation of All For-Hire Vehicles
- Washington, DC Market-making and Expanded Access
- New York, NY Wheelchair Accessible Vehicles

These case studies highlight a diversity of approaches and what is currently known about the effectiveness. They were primarily produced through interviews with representatives from the jurisdictions and supplemented with a review of local and national media.

#### **OVERARCHING APPROACH**

#### Vancouver, BC - Towards TNC Regulation on their Own Timeline

As of the writing of this report, Vancouver, British Columbia (BC) is the largest city in North America without TNCs (or equivalent) operating at the provincial or state level. While other Canadian provinces have enacted regulations for TNCs, BC has taken its time and soon we expect to see whether the delay pays off.

Back in 2017, the New Democratic Party (NDP) campaigned and won on an election platform that included a promise to bring TNC legislation by the end of 2017. After taking power, the NDP pushed the timeline to the end of 2018 and commissioned an all-party committee to research and report on a provincial strategy for TNCs.

The report <u>Transportation Network Companies in British Columbia</u> was presented to the BC legislature in February 2018 with unanimous support by the committee (Legislative Assembly of British Columbia 2018). The report includes 32 recommendations that, according to NDP committee chairwoman Bowinn Ma, "balance the importance of developing regulations that encompass fairness, consumer protection, and worker rights in a constantly changing economy."

The recommendations are intended to pave the way towards a fair and appropriate regulatory regime for TNCs in BC. They have five key areas of focus and five key areas of concern which are notable for many reasons, including:

#### Areas of focus

- Accessibility: TNCs are to provide equitable and timely service to all British Columbians; apps must meet or exceed established mobility accessibility standards, and TNCs are to provide inclusion training for drivers.
- Employment: TNCs are to provide the government with a record of each driver's hours and earnings to enable the government to monitor TNCs' labor and employment practices.
- Public transportation, traffic congestion, and environment: TNCs are to provide the government with trip data to support transportation demand monitoring, forecasting, and planning.
- Small, rural, and remote communities: regulations to be implemented with a lens that takes these communities into account, as they may have different challenges.
- Taxi industry: regulations governing the taxi industry are to be reviewed and updated in concert with the drafting and introduction of new TNC legislation, with an eye towards protecting specific types of business for taxis (such as street-hailing and taxi stands).

#### Areas of concern

Availability and pricing: regulatory decisions regarding surge pricing, vehicle caps, and service boundaries are to be based on data; taxis should benefit equally from any changes to service boundary restrictions; all non-accessible TNC trips should be assessed a fee to enhance accessible services; no price discrimination (higher fees) for accessible vehicle trips; TNCs and taxis to be subject to the same tax regime.

- Data reporting and enforcement: TNCs are to provide data for government monitoring purposes, including wait times, trip lengths, distribution of trip routes, differences between accessible and non-accessible vehicle trip statistics, trip refusals, trip fares, driver and passenger demographics; TNCs are to be subject to the same framework as taxis in regard to releasing information to police for safety purposes.
- **Insurance:** once legislation is finalized, the province's public insurer ICBC will be required to create a new mandatory insurance product for TNC drivers.
- Licensing: provincial centrally-managed licensing program; all TNC drivers are to obtain a provincial license; in lieu of a municipal business license, consider establishing a per-trip fee.
- Vehicle and public safety: TNC drivers are to submit to a driver's abstract, national criminal record, and vulnerable sector check annually, to be performed by a third-party provider; certain requirements for medical exams (similar to what is required for taxi drivers); TNCs to provide 24/7 customer service team; TNCs and all TNC drivers must follow the National Safety Code, including mandatory comprehensive inspections of TNC vehicles based on mileage.

The committee also commissioned a government review and recommendations for the creation of made-in-BC (i.e. locally owned and led) TNC. The government wants to balance competitive pressures and consider local economic growth concerns. Currently, Uber operates in several large Canadian cities and Lyft is now in Toronto; in addition, <a href="Poparide">Poparide</a> facilitates inter-city carpooling across Canada (similar to <a href="BlaBlaCar">BlaBlaCar</a> which operates in Europe, Asia, and Latin America). Interestingly, the Vancouver Taxi Association proposed developing a ride-for-hire app called Kater which would be an exclusive made-in-BC solution. While the government has indicated its goal for more collaboration and competition, it has stopped short of moves that would ban or lock out other companies.

For the time being, it appears that TNCs will not arrive in BC until at least September 2019 (Lindsay 2018). At that time, TNCs will begin applying for licenses under a new legislative regime whose terms are currently being defined.

In the interim, the BC government has made a one-time, 15% increase in the number of taxi licenses to increase supply and reduce wait times, and allowed taxi companies to offer discounted meter fares for trips booked using an app in an attempt to help taxis transition to new technologies in advance of new TNC competition (Shaw 2018).

#### New York, NY - Competition, Congestion, and Caps

In August 2018, New York City became the first major American city to halt new vehicle licenses for TNCs (called for-hire vehicles (FHVs) in New York), capping the number of FHVs for one year, and paving the way for minimum pay rates (the first of which was passed in December 2018) and other rules for FHV drivers. These new rules go into effect on January 1, 2019 (Fitzsimmons 2018). City government unsuccessfully proposed a cap in 2015 when there were approximately 63,000 FHVs. Today, there are more than 100,000 FHVs that deliver more than 17 million rides each month in the NYC area.

According to the city council, which approved the August 2018 bill 39 to 6, the main goals of the cap are to address worsening congestion, fair regulation of the industry, and improved driver wages. Many for-hire drivers came out in support of the cap, as they believe it will enable them to complete more trips and improve earnings. New York City has been racked by growing concerns over financial distress among drivers, underscored by several driver suicides in recent months (Bellafante 2018).

Arguments against the cap include potentially increased prices and wait times for passengers. (Those in favor of the cap counter that longer wait times can be a good thing, as they give users more reason to use public transportation, bicycles, or walk.) FHV operators also claim it could lead to a shortage of drivers due to routine turnover. Below is a summary of what the new rules permit and/or require with regard to licensing and caps:

- The cap is in effect for one year, during which time the Taxi and Limousine Commission (TLC) will study the effect of ride-hailing services in the city, including how best to regulate the services to promote equitable transport options and wages for residents.
- The cap is on the number of licensed vehicles, not the number of licensed drivers. Ownership of vehicle licenses is not transferable; however, a vehicle license can be put on a new vehicle (owned by the same person) or a vehicle that is leased to a different driver. That said, only one vehicle can benefit from a vehicle license at any point in time, and certain formal procedures must be followed to change the vehicle to which a license is attached.
- The cap does not apply to new wheelchair accessible vehicles (WAV). (See New York, NY Wheelchair Accessible Vehicles).
- The TLC may add more licenses in some neighborhoods if a "clear need" can be shown and doing so does not increase congestion.

Most for-hire drivers in New York City are professional drivers; 65% work more than 30 hours per week. In December 2018, the TLC voted to establish a minimum wage for TNC drivers of \$17.22 per hour after expenses (this reflects the city's \$15 per hour minimum wage, plus \$2.22 to account for contract drivers' payroll taxes and paid time off). The new rules do not require TNCs to pay for workers compensation, unemployment insurance, healthcare, or other federal taxes customarily required for employees – nor do they address worker classification more broadly (Holley 2018; Romjue 2018).

In addition, a new type of license is required for large TNCs, which must now submit detailed revenue and trip data or face a \$10,000 per day fine (Marshall 2018b). While the new rules were being considered by the City, larger FHV operators (including Uber and Lyft) lobbied the state to pre-empt these local regulations. However, the TLC was already effectively regulating FHVs and the State Department of Motor Vehicles did not have the capacity or resources to better regulate.

#### Texas and Austin, TX - Pre-emption: A Delicate and Difficult Balance

Texas has been a battleground for regulatory control of TNCs in recent years and provides useful insights, both in terms of issues to consider and unintended consequences to guard against.

In 2014, Uber and Lyft first arrived in Austin, the capital of Texas and a city with a large university population (both TNCs had previously launched in Dallas). Austin licensed the TNCs. As the TNCs' operations grew, so did complaints and claims of sexual abuse by TNC drivers, particularly within the university community and after parties. Austin's city council responded with regulations that required fingerprinting as part of the background check, to mitigate the limitations of commercial background checks (longer lookback period and broader scope of crimes committed). Uber and Lyft led an effort to overturn this regulation, known as Prop 1, but Austin residents voted to keep it in place and Uber and Lyft left Austin (Wear 2016).

Almost overnight, several other TNCs emerged that were willing to comply with local regulations, including driver fingerprinting. This included both for-profit and non-profit models, the majority of which were owned by local individuals (Davidson 2017). Meanwhile, Uber and Lyft took their case to the state, arguing for statewide pre-emption. In May 2017, the Texas Legislature voted to regulate TNCs at the state level, under the Texas Department of Licensing and Regulation, and pre-empted any existing municipal regulations. Almost immediately, Uber and Lyft returned to Austin (Wear 2017).

On the one hand, Texas guaranteed that TNCs can operate statewide and harmonized the different municipal regulations that were in place. On the other hand, it regulated at the state level what is an inherently complex, dynamic, and local activity: access to mobility. Some of the more notable consequences of this approach include:

- Revenue: pre-emption is punitive against cities if it effectively cuts off sources of municipal revenue.
- Data access and sharing: TNC data is important to effective mobility in cities for many reasons, from traffic congestion management to urban growth, employer competitiveness based on commute times, and innovation. Most cities with TNC regulations have some data sharing arrangement in place. Texas does not require data collection beyond basic registration; there is no city-level data that is collected. This makes it difficult for cities and the state to understand current impacts and plan for the future.
- Digital divides and equitable access: 10% of Austin's population does not have smartphones and are effectively locked out of the TNC market. With pre-emption, it is impossible to gauge whether mobility is equitable and/or how it affects underserved populations because city level data is unavailable.
- Strained relationships: the situation in Austin led to acrimonious relationships with TNCs and loss of goodwill. Since pre-emption, the TNCs have had to figure out ways to re-engage at the municipal level to maintain some level of good faith, both with regulators and the community.

Some of the senators who advocated for pre-emption came from small towns without taxis and argued that TNCs would be more likely to enter new markets with lighter regulation. However, TNCs need sufficient volume of demand and supply, factors which regulations do not determine. Pre-emption has not led to TNC service in smaller markets.

#### MARKET EFFICIENCY AND SUSTAINABILITY

#### Massachusetts - Raising the Bar on Background Checks

Since August 2016 TNCs in Massachusetts are regulated by a new TNC Division within the state Department of Public Utilities (DPU) and, as elsewhere, have experienced explosive growth in recent years. There are currently seven licensed TNCs in the state (including Uber and Lyft as well as several locally-led platforms). Collectively they delivered more than 64 million rides in 2017 (60% of which originated in Boston) and engaged 135,000 drivers (Commonwealth of Massachusetts 2018).

Background checks were a key point of concern and negotiation during the regulatory process. The City of Boston collaborated closely with the state and DPU on this issue, and the outcome raises the bar for TNCs and public safety alike through a multi-tiered background check. The checks are done both by the TNC, through a third-party vendor, as well as by the state through a full Criminal Offender Record Information background check.

Under the Federal Fair Credit Reporting Act, TNCs are only allowed to look back seven years into a person's criminal history (besides convictions for which there is no limit). Under Massachusetts law, third parties are restricted from accessing all criminal records – including convictions – beyond seven years. TNCs are deemed to be third parties in this context (the individual and public court agency are the first and second parties, and the only parties who can access this information directly). As a result, drivers who had disqualifying criminal convictions more than seven years ago could be approved by TNCs.

Under the 2016 regulations, after applicant drivers complete the commercial background check for the TNCs, the DPU conducts a second background check of all drivers provisionally approved by TNCs. This check by the state government is subject to a materially higher bar. The DPU has authority to investigate beyond the seven year lookback period and can access more detailed information on criminal history. These measures give DPU a full view of a person's history and behavior, and the ability to deny driver applicants that the TNCs were unable to sufficiently vet. There are numerous disqualifiers, ranging from motor vehicle and traffic violations to dozens of different bodily injury, violence, and abuse-related offenses. In addition to the check conducted by DPU's TNC Division, the TNCs are required to conduct biannual national commercial background checks.

The City of Boston originally advocated for fingerprinting and greater involvement of local police departments in reviewing and approving drivers and sharing information beyond what is submitted at the state level. This recommendation was made because local police departments often have additional information (e.g., gang involvement) that may not be on an individual's official criminal record but could provide useful context regarding a driver's suitability to pick up members of the public. However, ultimately these recommendations were not adopted by the state.

Massachusetts' TNC regulations have been successful because they improved the State's ability to vet drivers through expanded access to information. The State conducts an enhanced background check without using fingerprints.

#### California - Greenhouse Gas Emissions

In September 2018, California became the first state in the US to pass legislation (<u>SB 1014</u>) requiring TNCs to account for, and reduce, the greenhouse gas (GHG) emissions of their operations. The California Public Utilities Commission, in consultation with the California Air Resources Board (ARB) and California Energy Commission, must establish the California Clean Miles Standard and Incentive Program to increase the use of zero-emission vehicles (ZEVs) by ride-hailing companies, including TNCs.

The ARB must establish a per-passenger, per-mile GHG emission baseline for TNC vehicles by January 1, 2020, and set emission targets for TNCs by 2021 effective in 2023. By January 1, 2022, and every two years thereafter, each TNC must develop a GHG emissions reduction plan on how to meet the targets and goals.

#### Portland, OR - Towards Regional Collaboration and a Platform for Drivers' Voices

In 2015, the City of Portland earned criticism – and later praise – for its Private For-Hire Transportation Program, which included a 120-day pilot period in which TNCs were allowed to operate, and policy reform was subsequently undertaken based on real-time data and performance-based criteria established as part of the pilot (City of Portland, Bureau of Transportation 2013). As a result of the pilot, the City was able to better identify transit gaps, measure the competitiveness of both taxis and TNCs, and identify potential areas for taxi/TNC collaboration (e.g., wheelchair accessible vehicle referrals).

In May 2018, Portland became the first city in the US to create a "driver board" for TNC drivers to air their grievances (Law 2018). The resolution was endorsed unanimously by the Mayor and all four city commissioners and charges the Portland Bureau of Transportation to make recommendations for the board's structure and dispute resolution procedures.

The driver board is intended to provide a venue and mechanism for drivers to air their grievances on matters including wages, safety (of both drivers and passengers), and social safety nets. Because drivers are considered independent contractors, they are unable to be represented by a labor union. The driver board remedies this situation somewhat. Although it remains under development as of this report, it is expected that the board will be independent of the government and that it will ultimately help guide potential future policy reform.

Currently, the cities of Portland, Seattle, and Vancouver, BC are collaborating on "new mobility" solutions, particularly as they relate to autonomous vehicles and environmental impacts, thanks to a grant made by the Bullitt Foundation (Urbanism Next Center 2018). Given the pace of change and universality of issues and challenges faced, there is significant scope for further regional alignment and collaboration around TNCs, policy reform, and beyond.

#### Airport and Cities: Clearinghouses for Data Exchange

According to The Future of Airport Access report, between 2014 and 2017, the percent that American business travelers spend on TNCs grew from 8% to 62% of travel expenditures (L.E.K. 2018). Another paper that examined four US airports (Denver, Kansas City, Portland, and San Francisco) found that increases in TNC travel to and from airports has been accompanied by declining parking revenues (Henao et al. 2018). Airports' primary priority is seamless comfortable air travel and customer service. As such, they may be agnostic to different types of ground transportation if they can accommodate them and find ways to generate revenue. Two noteworthy adaptations are the use of existing infrastructure, such as creating TNC pickup zones in underused sections of airport parking areas, and data collection to help with demand management (Marshall 2018a).

The American Association of Airline Executives has established an <u>App-Based Transportation</u> <u>clearinghouse</u> developed in partnership with the San Francisco International Airport and available to airports nationwide. This web-based data system uses geo-fencing to track TNC vehicles on airport property for fee calculation and reconciliation, roadway planning, and curbside enforcement efforts that benefit the airport and its passengers.

<u>SharedStreets</u>, a project of the National Association of City Transportation Officials, an association of 59 major North American cities is now offering a similar third-party clearinghouse for data exchange for cities that want data to better understand and manage their streets (Marshall 2018c). SharedStreets is setting data standards to describe vehicle activity and infrastructure and is anonymizing it to protect individual privacy.

#### **EQUITABLE ACCESS**

#### Toronto, ON - Towards Industry-Wide Equitable Regulation of All For-Hire Vehicles

For-hire transportation in Toronto is regulated by the City's Municipal Licensing and Standards Division. In 2016, the City undertook a comprehensive regulatory review and passed a new Vehicle-For-Hire Bylaw that regulates all taxis, limousines, and Private Transportation Companies (PTCs, a new license class that is substantively equivalent to TNCs in the US). The new bylaw, built from the ground up with neither industry direction nor PTC-proposed templates, allowed Toronto to form an industry-wide framework for equitable regulation on its own terms. This included several measures to reduce the relative regulatory burden on taxis, introduce new rules for PTCs, and implement new technology and procedures, all of which have helped to balance the regulatory landscape and provide opportunities for fair competition.

Under the new bylaw, taxis and PTC drivers must meet the same city standards for criminal background checks, driving history checks and insurance coverage. Taxis must display their taxi plate on the rear of the vehicle, with the number posted on the side door, while PTCs must display an identifying sign in their rear window.

Unique to the new bylaw, the City now has a direct data exchange with PTCs for licensing and trip data. This digital solution (built by the City) provides greater efficiency, transparency, and customer protection than the prior paper-based system. Every PTC driver is licensed by the City, and that license number appears in the PTC app. This gives passengers the ability to verify driver information directly and allows for two-way electronic exchange of information between the City and PTCs.

The City took several steps to foster a more competitive landscape for taxis. Previously, the City was involved in regulating for-hire vehicles as well as certain aspects of operations, such as City-run training, inspections and owner-operator licensing caps. These restrictions were eliminated, providing greater operational flexibility.

Under the new bylaw, both taxis and PTCs are permitted to increase and/or decrease rates (flexible fares) if the ride is booked through an app and the price is accepted prior to starting the trip. This allows for greater price competitiveness across transport providers. Only taxis can pick up passengers from the street via street-hailing and taxi stands; only City-regulated, metered rates may be charged for such street-hailed trips.

Since the new bylaw was introduced, regulations have been implemented and enforced successfully. PTC ridership has doubled, while some taxi brokerages have seen record service volume and year-on-year growth. For the most part, taxis have stuck with metered rates and have not taken up flexible pricing options. Lyft entered Toronto (its first international expansion) in December 2017 and has been fully compliant to date. Upon reflection, the City believes it struck a wise balance in reshaping both taxi and PTC rules simultaneously and is well-placed for future mobility changes as a result.

#### Washington, DC - Market-Making and Expanded Access

Washington DC, like many places, has sought to engage more proactively not only with TNCs, but with tech innovation overall. The government sees its role as helping to catalyze responsible innovation and believes that the digital and on-demand economy offer new opportunities. The Transport-as-a-Service (TaaS) pilot described here is specifically designed to be an early-stage catalyst to create a new market and to keep pace with anticipated changes to mobility in the coming years.

Thanks to a grant earmarked by Mayor Muriel Bowser, DC has developed a TaaS pilot for taxis (and soon TNC) drivers to provide discounted options to eligible residents. The pilot establishes a single access point for eligible participants to book and pay for on-demand transport without needing a mobile phone. The goals of the pilot are to boost for-hire vehicle occupancy rates, improve low-income residents' access to transportation, and reduce traffic congestion (Nyczepir 2018).

Eligible residents include qualified low-income residents or those in need of transportation to medical appointments, including people with disabilities and seniors. Pilot eligibility may be extended to people who spend more than 65% of their disposable income on travel and areas where there are significant first-and-last-mile challenges (i.e., transit deserts).

The DC transportation department built and paid for a centralized, end-to-end dispatch application program interface (API) with predictive analytics for all taxis (with TNCs planned to be added) to use, including for subsidized trips. Low-income individuals who qualify will enroll in the department's TaaS program and receive an identification number. When they need transport, they call a dedicated number that will dispatch their ride to a taxi or TNC. From the driver's perspective, the transaction is seamless, and they will be paid the full ride fare subsidized by the City. Over time, this centralized dispatch could be expanded to additional partnerships such as non-emergency medical transport, veterans, and school transport for foster-care or homeless youth. Based on past experience, the City estimates that this could result in millions of dollars in savings, which could be redeployed for a range of underfunded purposes, such as driver pensions.

DC has deliberately not built a consumer-facing app, both because it "doesn't want to become a competitor to the people we regulate" (i.e., TNCs) nor does it wish to operate such programs in perpetuity. Its hope is that the pilot will succeed in creating a new, bankable market niche that will be attractive to TNCs, and that ultimately, they will hand over these services to the private sector. However, the City would still own the customer relationship and data for these rides; in effect, the government would hire a TNC as a contractor, and provide subsidies for select rides accordingly.

As the future of mobility continues to evolve, DC could adapt these partnerships and programs efficiently, such as adding autonomous vehicles to the dispatch fleet. They would still measure success in the same way: whether low-income people are able to travel conveniently and affordably across town. DC understands that pilots don't guarantee success and that sometimes ideas are ahead of their time. With TaaS they intend to plant seeds for the future of mobility to grow responsibly and to keep pace with private sector innovation.

#### New York, NY - Wheelchair Accessible Vehicles

The Rules of the City of New York Title 35 Section 59B-17(c) require that 25% of TNC trips be made in wheelchair accessible vehicles (WAVs) by July 2023 (Grossman 2018).

TNCs can ensure maximum wait times for WAV request rides instead of adhering to the 25% of trips requirement. To provide equivalent service between WAVs and non-WAVs, beginning on June 1, 2019, 80% of all WAV requests must arrive in under 15 minutes, and 90% must arrive in under 30 minutes. By June 2021, 80% of all WAV requests must arrive in under 10 minutes, and 90% must arrive in under 15 minutes.

Companies will have to submit the following data to the Taxi and Limousine Commission monthly for all WAV requests:

- Dispatching base license number
- Date and time of request receipt
- Manner of request receipt (app, phone, etc.)
- Completed trip (yes or no)

For completed trips, they will have to submit:

- Vehicle, base, and driver numbers
- Pick up and drop off locations
- Date and time of pick up arrival
- Total passenger wait time

### Appendix A: Interviewees

#### **Airports**

- SeaTac International Airport
- Spokane International Airport

#### Cities and counties in Washington

- Bellingham
- Bellevue
- Kennewick
- Seattle
- SeaTac
- Spokane
- Tacoma
- Olympia
- Vancouver
- City of Yakima
- King County

#### Cities and states in the US

- Austin
- Boston
- Chicago
- Colorado
- District of Columbia
- Los Angeles
- Massachusetts
- New York
- Portland, OR
- San Francisco

#### International

- Amsterdam
- Denmark
- Singapore
- Toronto, ON
- Vancouver, BC

#### **Legislative Staff**

Debbie Driver, Bryon Moore, Kelly Simpson

#### **WA State Agencies and Commissions**

- Department of Licensing
- Governor's Committee on Disability Issues and Employment
- Utilities and Transportation Commission
- Washington State Patrol

#### Lobbyists

- Lyft
- Sexual Assault Victims
- Spokane International Airport
- Taxis/Wheelchair Accessible Taxis
- Uber
- Washington State Transit Association

#### **Interest and Membership Groups**

- Bellevue Chamber of Commerce
- Community Transportation Association of the Northwest
- Teamsters Local 117
- Washington Association of Sheriffs and Police Chiefs

#### **National Centers, Researchers**

- The Aspen Institute Center for Urban Innovation
- Robin Chase, author and entrepreneur
- National League of Cities
- Bruce Schaller, consultant

#### **Transportation Providers**

- Around the Sound/TransPro
- Bayview Limousine
- Drive Forward
- Lyft
- Hopelink (Medicaid brokerage)
- Olympia Airporter
- ReachNow
- Shuttle Express
- Uber



#### **Works Cited**

- Armstrong, Sally, and Emily Nicoll. 2016. *Ride-sharing: The rise of innovative transportation services*.

  Toronto, April 12. Accessed October 8, 2018. https://www.marsdd.com/news-and-insights/ride-sharing-the-rise-of-innovative-transportation-services/.
- Behr, Alyson. 2018. "Checkr." PC Mag. May 17. Accessed October 10, 2018. https://www.pcmag.com/review/360858/checkr.
- Bellafante, Ginia. 2018. "Uber and the False Hopes of the Sharing Economy." The New York Times, August 9: MB1. Accessed August 10, 2018. https://www.nytimes.com/2018/08/09/nyregion/uber-nyc-vote-drivers-ride-sharing.html?rref=collection%2Fsectioncollection%2Fnyregion&action=click&contentCollection=nyregion&region=rank&module=inline&version=highlights&contentPlacement=2&pgtype=sectionfront.
- Campbell, Harry. 2017. The Rideshare Guy 2017 Driver Survey. Accessed October 1, 2018. https://docs.google.com/document/d/1QSUFSqasfjM9b9UsqBwZlpa8EgqNj6EBfWybFBSHj3o/edit.
- City of Portland, Bureau of Transportation. 2013. "Private for-Hire Transportation Innovation Pilot Program: Transportation Network Service Guidng Regulatory Principles." City of Portland. June 5. https://www.portlandoregon.gov/transportation/article/526684.
- Commonwealth of Massachusetts. 2018. 2017 Data Report Rideshare in Massachusetts. September 1. https://tnc.sites.digital.mass.gov/.
- Cornfield, Josh. 2016. "Eric Holder weighs in for Uber against fingerprint checks." AP News. June 8. Accessed August 10, 2018. https://apnews.com/01685274cc944196af9016ad0a875b72.
- Davidson, John Daniel. 2017. "The Sage of RideAustin." *Texas Monthly*, June 29. Accessed November 1, 2018. https://www.texasmonthly.com/the-daily-post/the-saga-of-rideaustin/.
- Davis, Carl and Zach Schiller. 2017. "Taxes and the On-Demand Economy." *Institute on Taxation and Economic Policy*. March 15. Accessed October 20, 2018. https://itep.org/taxes-and-the-on-demand-economy/.
- Dhar, Aditya, Dev Patel, Rahul Raina, and Paolo Sandrone. 2017. What US consumers think of shared mobility. Chicago, November. https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/what-us-consumers-think-of-shared-mobility.
- Farmer, Liz. 2018. "Governments Increasingly Tax Uber and Lyft for Transit Revenue." Governing. April 4. Accessed October 1, 2018. http://www.governing.com/topics/finance/gov-states-cities-taxing-ride-sharing-services-transit.html.
- Fitzsimmons, Emma G. 2018. "Uber Hit With Cap as New York City Takes Lead in Crackdown." *The New York Times*, August 8: A1. Accessed August 8, 2018. https://www.nytimes.com/2018/08/08/nyregion/nyc-uber-cap-regulations.html.
- Grossman, Alice. 2018. "New York City and TNCs Settle on Performance Measures for Accessible Service Requirements." *Eno Center for Transportation*. June 20. Accessed November 30, 2018.

- https://www.enotrans.org/article/new-york-city-and-tncs-settle-on-performance-measures-for-accessible-service-requirements/.
- Gutman, David. 2018. "How popular are Uber and Lyft in Seattle? Ridership numbers kept secret until recently give us a clue." *The Seattle Times*. November 5. Accessed November 5, 2018. https://www.seattletimes.com/seattle-news/transportation/how-popular-are-uber-and-lyft-in-seattle-ridership-numbers-kept-secret-until-recently-give-us-a-clue/.
- Henao, Alejandro, Josh Sperling, Venu Garikapati, Yi Hou, and Stanley Young. 2018. "Airport Analyses Informing New Opportunities to Adapt Energy-Efficient Mobility Service and Infrastructure."

  National Renewable Energy Laboratory.
- Hoffman, Liz, Greg Bensigner, and Maureen Farrell. 2018. "Uber Proposals Value Company at \$120 Billion in a Possible IPO." The Wall Street Journal, October 16.
- Holley, Peter. 2018. "New York City sets \$17 minimum wage for Uber, Lyft drivers." *Chicago Tribune*, December 5. Accessed December 5, 2018. https://www.chicagotribune.com/business/ct-biz-uber-drivers-minimum-wage-20181205-story.html.
- Hu, Winnie. 2018a. "Congestion pricing falters in New York, again." The New York Times, March 31: A21.
- —. 2018b. "When calling an Uber can pay off for cities and states." The New York Times, February 18: A1. Accessed November 21, 2018. https://www.nytimes.com/2018/02/18/nyregion/uber-lyft-public-transit-congestion-tax.html.
- Huston, Caitlin. 2017. "Ride-hailing industry expected to grow eightfold to \$285 billion by 2030."

  MarketWatch. May 27. Accessed November 19, 2018.

  https://www.marketwatch.com/story/ride-hailing-industry-expected-to-grow-eightfold-to-285-billion-by-2030-2017-05-24.
- Kimmelman, Michael. 2012. "Paved, but Still Alive." *The New York Times*, January 6: AR1. Accessed November 10, 2018. https://www.nytimes.com/2012/01/08/arts/design/taking-parking-lots-seriously-as-public-spaces.html.
- King County. 2017. "Annual Report: Taxi, For-hire Vehicle & Transportation Network Company Regulation in King County."
- Kitman, Jamie Lincoln. 2018. "Peugeot Returns to U.S. to Help People Get Around, but Not With Its Cars."

  The New York Times, November 13: B6. Accessed November 13, 2018.

  https://www.nytimes.com/2018/11/13/business/peugeot-car-industry-future.html.
- Klopfenstein, Jacob. 2018. "2 northern Utah taxi companies close, leaving Weber and Davis counties with fewer options." KSL.com. September 20. Accessed October 10, 2018. https://www.ksl.com/article/46394313/2-northern-utah-taxi-companies-close-leaving-weber-and-davis-counties-with-fewer-options.
- L.E.K. 2018. The Future of Airport Access. L.E.K. Consulting. Accessed November 20, 2018. https://www.lek.com/insights/future-airport-ground-access-disruption.
- Law, Steve. 2018. "Portland City Council endorses new worker board for Uber, Lyft drivers." *Portland Tribune*. May 23.
- Legislative Assembly of British Columbia. 2018. Transportation Network Companies in British Columbia.

- Victoria: Legislative Assembly of BC. Accessed August 20, 2018. https://www.leg.bc.ca/content/CommitteeDocuments/41st-parliament/2nd-session/CrownCorporations/Report/SSC-CC\_41-2\_Report-2018-02-15\_Web.pdf.
- Lindsay, Bethany. 2018. "No ride-hailing services in B.C. until late 2019, province says." CBC. July 19. Accessed September 15, 2018. https://www.cbc.ca/news/canada/british-columbia/no-ride-hailing-services-in-b-c-until-late-2019-province-says-1.4753339.
- Marshall, Aarian. 2018a. "Airports Cracked Uber and Lyft Time for Cities to Take Note." Wired, November 20. Accessed November 20, 2018. https://www.wired.com/story/uber-lyft-ride-hail-airport-traffic-cities/.
- —. 2018b. "New York City Goes After Uber and Lyft." Wired, August 8. Accessed October 1, 2018. https://www.wired.com/story/new-york-city-cap-uber-lyft/.
- —. 2018c. "Uber Makes Peace with Cities by Spilling its Secrets." Wired, April 16. Accessed November 30, 2018. https://www.wired.com/story/uber-nacto-data-sharing/.
- MRSC. 2018. City Business Licenses and Fees. October 22. Accessed November 27, 2018. http://mrsc.org/Home/Explore-Topics/Finance/Revenues/City-Business-Licenses-and-Fees.aspx.
- Neighly, Madeline and Maurice Emsellem. 2013. Wanted: Accurate FBI Background Checks for Employment. National Employment Law Project.
- Niblett, Matthew. 2018. "Are city authorities a friend or a foe for mobility platforms?" *Inline*. September 11. https://www.inlinepolicy.com/blog/are-city-authorities-a-friend-or-a-foe-for-mobility-platforms.
- Nyczepir, Dave. 2018. "D.C. Prepares to Launch Transportation as a Service." *Route Fifty*. October 5. Accessed October 20, 2018. https://www.routefifty.com/smart-cities/2018/10/dc-launch-transportation-service/151839/.
- Reid, Trevor. 2018. "Since the advent of ride-hailing apps, Greeley is a taxi service desert for some."

  The Tribune. September 14. Accessed 10 2018, October.

  https://www.greeleytribune.com/news/since-the-advent-of-ride-hailing-apps-greeley-is-a-taxi-service-desert-for-some/.
- Romjue, Martin. 2018. "NYTLC passes minimum wage for TNC drivers." *Luxury Coach & Transportation*. December 5. Accessed December 5, 2018. https://www.lctmag.com/news/732286/nyc-passes-minimum-wage-for-uber-and-lyft-drivers.
- Schaller, Bruce. 2018. The New Automobility: Lyft, Uber and the Future of American Cities. Brooklyn: Bruce Schaller Consulting. Accessed August 1, 2018. http://www.schallerconsult.com/rideservices/automobility.pdf.
- Schaller, Bruce. 2016. Unfinished Business: A Blueprint for Uber, Lyft and Taxi Regulation. Brooklyn: Schaller Consulting. Accessed November 19, 2018. http://www.schallerconsult.com/rideservices/blueprint.pdf.
- Schmitt, Angie. 2016. "It's True: The Typical Car is Parked 95 Percent of the Time." Streetsblog USA. May 10. Accessed November 10, 2018. https://usa.streetsblog.org/2016/03/10/its-true-the-typical-car-is-parked-95-percent-of-the-time/.

- Shaw, Rob. 2018. "Five things to know about the new ride-hailing report." *Vancouver Sun*, July 19. Accessed September 15, 2018. https://vancouversun.com/news/politics/five-things-to-know-about-the-new-ride-hailing-report.
- Taft, Molly. 2018. "Why Can't Uber and Lyft Be More Wheelchair-Friendly?" *CityLab*. December 11. Accessed December 14, 2018. https://www.citylab.com/transportation/2018/12/ride-hailing-users-disabilitiies-wheelchair-access-uber/577855/.
- Urbanism Next Center. 2018. AVs in the Pacific Northwest: Reducing Greenhouse Gas Emissions in a Time of Automation. Portland: University of Oregon.
- Washington State Auditor's Office. 2015. "Improving the Completeness of Washington's Criminal History Records Database."

  http://www.sao.wa.gov/state/Documents/PA\_Criminal\_History\_Records\_ar1013675.pdf#search = fingerprint.
- Wear, Ben. 2017. "Lyft and Uber return to Austin as Abbott signs ride-hailing bill." Austin American-Statesman, May 30. https://www.statesman.com/NEWS/20170530/Lyft-and-Uber-return-to-Austin-as-Abbott-signs-ride-hailing-bill.
- —. 2016. "Final Prop 1 tab for Uber, Lyft tops \$10 million." Austin American-Statesman. September 15. Accessed October 1, 2018. https://www.statesman.com/news/20160915/final-prop-1-tab-for-uber-lyft-tops-10-million.