New Mobility in Gresham: Recommendations and Guidelines

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CITY OF GRESHAM OREGON

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Sustainable Cities Institute

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This report represents original student work and recommendations prepared by students in the University of Oregon's Sustainable City Year Program for the City of Gresham. Text and images contained in this report may not be used without permission from the University of Oregon.

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About SCI

The Sustainable Cities Institute (SCI) is an applied think tank focusing on sustainability and cities through applied research, teaching, and community partnerships. We work across disciplines that match the complexity of cities to address sustainability challenges, from regional planning to building design and from enhancing engagement of diverse communities to understanding the impacts on municipal budgets from disruptive technologies and many issues in between.

SCI focuses on sustainability-based research and teaching opportunities through two primary efforts:

1. Our Sustainable City Year Program (SCYP), a massively scaled university-community partnership program that matches the resources of the University with one Oregon community each year to help advance that community's sustainability goals; and

2. Our Urbanism Next Center, which focuses on how autonomous vehicles, e-commerce, and the sharing economy will impact the form and function of cities.

In all cases, we share our expertise and experiences with scholars, policymakers, community leaders, and project partners. We further extend our impact via an annual Expert-in-Residence Program, SCI-China visiting scholars program, study abroad course on redesigning cities for people on bicycle, and through our co-leadership of the Educational Partnerships for Innovation in Communities Network (EPIC-N), which is transferring SCYP to universities and communities across the globe. Our work connects student passion, faculty experience, and community needs to produce innovative, tangible solutions for the creation of a sustainable society.

About SCYP

The Sustainable City Year Program (SCYP) is a year-long partnership between SCI and a partner in Oregon, in which students and faculty in courses from across the university collaborate with a public entity on sustainability and livability projects. SCYP faculty and students work in collaboration with staff from the partner agency through a variety of studio projects and service-learning courses to provide students with real-world projects to investigate. Students bring energy, enthusiasm, and innovative approaches to difficult, persistent problems. SCYP's primary value derives from collaborations resulting in on-the-ground impact and expanded conversations for a community ready to transition to a more sustainable and livable future.

About Urbanism Next

The Urbanism Next Center at the University of Oregon focuses on understanding the impacts new mobility, autonomous vehicles, e-commerce and the sharing economy are having and will continue to have on city form, design, and development. The Center does not focus on the emerging technologies themselves, but instead on the multi-level impacts — how these innovations are affecting things like land use, urban design, building design, transportation, and real estate and the implications these impacts have on equity, health and safety, the economy, and the environment. Urbanism Next brings together experts from a wide range of disciplines including planning, design, development, business, and law and works with the public, private, and academic sectors to help create positive outcomes from the impending changes and challenges confronting our cities.

About Gresham, Oregon

With over 110,000 people, Gresham is the fourth largest city in Oregon. Portland, the largest city in the state, borders it to the west. Gresham is ideal for families and businesses wanting to start something new and grow.

Gresham is near the Columbia Gorge National Scenic Area and Mount Hood, the highest point in Oregon. It has a wide variety of neighborhoods including: the Civic Center, known for its active transportation network, rapid transit connections, and residential, commercial, and retail mix; Historic Downtown which offers a walkable blend of shops, restaurants, and service businesses; and Rockwood, one of the youngest and most diverse neighborhoods in Oregon.

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Executive Summary

The purpose of this report is to provide an approach for the City of Gresham to evaluate data requirements prior to entering into contracts with emerging technology vendors.

Four subgroups of new mobility vendors were identified and evaluated based on case studies and previous data requirements: e-scooters, bike-share programs, transportation network companies (TNCs), and autonomous vehicles. It is recommended that the City move forward with e-scooters, bike-share programs, and autonomous vehicles with robust data procurement strategies and policies.

E-scooters and bike-share programs have the potential to be extremely successful in the city of Gresham if the City models potential data procurement standards after the City of Portland's e-scooter program and the City of Seattle's bike-share program. The collection of rider datasets and performance measures may be used as descriptive metrics as well as relational to external criteria, such as maintenance records and fleet tracking. These measures are critical to ensuring operationalization and viability of the programs.

We recommend not contracting with TNCs until company behavior is more transparent and conducive to a public/private partnership with shared data and community-focused objectives. The City of Gresham does not currently have provisions for TNCs or taxis within the city, meaning drastic changes would need to occur in order for a contract to be developed. Furthermore, if TNCs were to be in place, internal controls and oversight committees are both highly recommended due to the reluctance of TNCs to release passenger datasets and a lack of current regulation.

Gresham should consider treating autonomous vehicles the same as TNCs with extra precautions in place regarding passenger and pedestrian safety. Because autonomous vehicles are an emerging technology, we recommend specific regulations be put into place related to liabilities and insurance. Furthermore, if the City of Gresham were to move forward with autonomous vehicle contracts, it is encouraged to include passenger and application programming interface (API) data as a requirement for all private stakeholders involved.

Public managers strive to maintain accountability to their constituents even though programs are contracted out, therefore contracts and communication with companies should be clearly outlined. All contracts, prior to beginning a pilot program, should have clear objectives as to how they are contributing to the City's overarching transportation goals regarding sustainability, safety, and public/private partnerships.

<u>Introduction</u>

Since the early 2000s, emerging technology vendors have been altering the technology and transportation industries in both the public and private sectors (Sperling 2018). At the forefront of new mobility services are four major subsectors: e-scooters, bike-shares, ride hailing services, and autonomous vehicles.

Companies in these subsectors have been contracting with cities and municipalities in the emerging landscape of new mobility with no set requirements in data procurement, data management, and privacy restrictions. Working alongside the City of Gresham, we have reviewed types of data that could be required for any new mobility company wishing to work with the City in the future and how these may affect the Gresham city code. This was done with background research on new mobility companies, a literature review of public management and public/private transportation contracting, case studies evaluating specific cities and their new mobility results and contracts, and recommendations for the City of Gresham regarding all four subsectors of new mobility companies.

Background

At the intersection of transportation, sustainability, and public health live new mobility programs for local governments. Public mobility programs have existed for over 50 years, typically as buses and rail lines in major cities. Today, however, they are taking the shape of bikes, scooters, shared vehicles, and self-driving cars.

There has been notable growth of such programs since 2007 across the United States (Figure 1). There are four distinct and central modes of new mobility programs which can be classified as (1) scooter companies (Lime, Ride), (2) bike-shares (PeaceHealth Rides, Biketown), (3) ride-share programs (Lyft, Uber), and (4) autonomous vehicles. Cities may incorporate these mobility options into their transportation planning to capitalize on potential benefits such as decreasing traffic congestion, reducing oil dependency and curbing emissions, and supporting public and community health goals. Cities can develop policies to address market forces and the growing need for first- and last-mile transportation.

Local governments contracting out public transportation is not new: in the 1950s and 1960s, private companies provided the majority of bus and other forms of public transit for the government. In theory, the contracting out of public transportation today, specifically for new mobility programs, provides cost savings in the form of fewer labor restrictions and lower labor costs, as well as producing competition that forces contractors to behave more efficiently in order to enhance cost savings. In specific high-density areas, such as the urban core, the level of efficiency in transit has been shown to be even more heightened. Typical private contracts run between 10 and 20 years and are often renewed, sometimes despite cost savings that may be gained from conversion. Moreover, it has been shown that once a public agency privatizes transportation, it is highly reluctant to move services back in-house due to the ostensibly high barriers of reentry, such as transaction costs, leasing new vehicles, and hiring new employees.

The City of Gresham Transportation System Plan outlines specific goals and objectives for the City to achieve through new policy by 2035. The primary goal is to develop a "multi-modal transportation system that enables people walking, biking, taking transit and driving to feel equally safe and comfortable." Providing options that promote accessibility and safety for all residents are paramount to the City. Promoting collaboration in the form of public/private partnerships and the contracting of public services to increase efficiency is aligned with the City's Transportation Financing Plan with a specific focus on sustainable expenditures and investments that consider future maintenance costs, resident safety, and community needs. Therefore, Gresham's needs are aligned with the introduction of scooter-share, bike-share, and ride-share programs in the region.

Methodology

Our team sought information from the following data sources:

- A literature review of existing policies in other cities to gain a sense of what is useful and achievable to make informed recommendations based on best practices;

- A review of case studies in cities that have incorporated policies for new mobility vehicles to learn what makes the process successful or unsuccessful; and

- The City of Gresham Transportation System Plan (TSP)

The review of existing policies was conducted via a systematic search of comparable cities' websites. Part of this review involved data from other cities that focused on the existing public transportation and either current or future forms of new mobility including e-scooters, bike-share, ride-share, and autonomous vehicles. Case studies were found via a search of literature that examined municipal data management contracts for regulating new mobility services.

Following an interview with Planning and Implementation Manager Katherine Kelly and Assistant Planner Carly Rice at the City of Gresham, we reviewed Gresham's TSP. The TSP is a blueprint for biking, walking, driving, and transit through 2035. Additionally, we reviewed a 2018 report to the legislature that the Oregon Department of Transportation AV task force approved and Sidewalk Toronto's Data Governance Working Group's meeting minutes. We reviewed policies and regulations in cities that have adopted data management tools for new mobility vehicles including Chicago, Santa Monica, Los Angeles, Austin, and Seattle.

RATIONALE FOR METHODOLOGY

To fully address the scope of our research problem, our team decided that conducting thorough reviews of existing policies and cases across cities were the most logical and useful methods. Examining the history and current state of data management policies for new mobility vehicles is key to understanding why these policies exist, what their intended purpose is, and how they currently meet or do not meet their intended goals. From there, we assessed specific aspects that may be implemented to initiate and improve data contract management in City of Gresham.

Literature Review

The current literature surrounding public mobility programs is threefold, including texts on the subjects of public/private transportation contracting, meta-analyses of data requirements for ride-share bicycles and scooters, and reviews of the optimization of ride-share car programs, such as Lyft and Uber, relative to transportation science and public management of programs.

Together, all sources analyzed include considerations for data requirements in relation to the incorporation of new mobility programs into a public contract with the City of Gresham.

The first and primary text analyzed in regard to public transportation and contracting details the benefits and setbacks that come with contracting out public transportation programs in local municipalities. Leland and Smirnova recommend that public agencies, managers, and local governments as a whole should carefully consider the path dependency exhibited by local governments before entering into contracts with private entities (Leland & Smirnova, 2014). The path dependency emerges due to conversion and transaction costs that the government incurs if they are not satisfied with the contract and wish to change services. Seventy-seven percent of local government transit agencies reviewed by Leland and Smirnova in 2014 indicated that they would not change their involvement in contracting within the next 10 years, even in the face of greater cost-saving alternatives such as moving services in-house again (Leland & Smirnova, 2014).

The empirical evidence found by Leland and Smirnova suggests that public agencies must decide carefully before entering into these contracts because they are rarely revisited in the future. Moreover, it is also important to understand the consequence of the most common system of contracting out public transportation in local U.S. governments, known as the "Scandanavian model" or "London model" (Van de Velde, 1999, p.154). In this model, the transport authority creates transit and social policy goals as a planning framework and then contracts out the realization of all planned services with support of the arranged framework (Van de Velde, 1999). Van de Velde details the London model as keeping the central planning at arms-length, thereby giving operational risk to the operators and not to the authority.

Another core point in the literature of public service outsourcing is to give greater attention to the differences between consumers and citizens, as argued by Hefetz and Warner. With public services and infrastructure systems, such as transportarion, that tend to have high externalities, citizen engagement and dialogue are sought out by municipal entities. This is in contrast to market delivery systems, which are more homogenous and grouped separately by preference (Hefetz & Warner, 2011).

Data requirements for contracted projects vary depending on the

jurisdiction and the program. A meta-analysis of ride-share programs including bicycles and scooters conducted by Fawcett et al. estimated that ride-share programs have increased about 700% worldwide from 2004 to 2014 and are still growing in popularity. This led them to question and assess the effectiveness of local laws, requirements, and regulations to control risk and social impacts of programs in densely populated areas (Fawcett et al., 2018). Fawcett et al. also analyzed origins of ride-sharing programs in relation to consumer protections, such as new safeguards to protect financial and GPS tracking information of clients. Because of the need to collect consumer information, technological advances in ride-sharing programs have today become ubiquitous in order for these programs to remain successful and profitable. The data required by municipalities such as Washington, D.C., San Francisco, and Boston are collected to improve the safety of bike-share users, pedestrians, and motorists. The pilot programs in these cities all mandated that the companies provide the respective transportation authority with access to usage, maintenance, and rider survey data (Fawcett et al., 2018).

The City of Lyon's bike-share program (Vélo'v), which began operation in 2005 and is known as the pioneer smart bike-share program, collected data on the duration and speed of riders' travel as well as the coordinates of their locations, providing valuable information about most-used docking stations and popular routes. Moreover, this method of data collection is particularly valuable for the City to create competitive advantages for ride-sharing programs, compared to taking a motor vehicle (Fishman et al., 2013). The use of company-collected route data also proved to be valuable for the City of Portland's 2018 e-scooter pilot program: when the data points were mapped out and most used routes were indicated, the City required a greater number of scooters and stations available in those areas (Orr et al., 2019).

Ride-hailing programs involving motor vehicles, such as Uber and Lyft, are also gaining popularity and disrupting the transportation sector. Data not released from these two major stakeholders in the industry include vehicle miles traveled (VMT), passenger miles traveled (PMT), travel times, mode replacement, VMT increase, parking, transportation equity, and travel behavior (Henao, 2017). Additionally, data on the number of cars per fleet are invaluable to cities due to the reduction of cars on the transportation network, with car-sharing removing an aggregate of nine to 23 vehicles from the road per shared-use vehicle (Henao, 2017). This is important information for the planning and transportation departments and may necessitate a requirement in a public-private contract if a local government chooses to contract out ride-sharing programs.

Major companies collect information on socioeconomic demographics and insights into travel behavior of users collected into "passenger datasets" that are only released to drivers and employees of these organizations (Henao, 2017). With access to the data, the City of Gresham can attempt to best optimize the overarching transportation goals laid out in the TSP. The TSP first and foremost aims to foster a "multi-modal transportation system that enables people walking, biking, taking transit and driving to feel equally safe and comfortable" (City of Gresham, 2018). The private contractors' goals are typically to

minimize system-wide VMT, minimize system-wide travel time, and maximize participants (Agatz et al., 2012).

Because ride-sharing programs have emerged so recently, literature on pilot programs is limited. However, such new, dynamic programs have the potential to provide huge societal and environmental benefits when implemented correctly (Agatz et al., 2012).

Case Studies

PORTLAND, OREGON E-SCOOTER PILOT PROGRAM

The City of Portland permitted Bird Rides, Inc., Lime, and Skip Transport, Inc. to begin a pilot program lasting from July 23, 2018 until November 20, 2018. The framework for the pilot program allowed the City to set requirements, put consumer protections in place, and create a comprehensive set of data sharing requirements that the participating companies must comply with in order to contract with the City. The participating companies agreed to the set of comprehensive data sharing requirements, such as the primary dataset of APIs. This included device availability, trips (start, end, and route data), collisions, complaints, and enumerated values that are referenced in the API specifications (PBOT, 2019). The City also made specific requirements for the percentage of fleet available each day in each quarter of the city. For example, at least 100 scooters or 20% of the fleet were to be deployed in East Portland. Compliance with this requirement was computed based on the API specifications. From August 15 through the end of the pilot, each company was permitted to have 683 scooters available for rent each day, for a total of 2,043 permitted scooters. The City of Portland also assessed e-scooters based on their alignment with Portland's 2035 Transportation System Plan (TSP), which outlines specific goals for creating a multimodal, safe, and equitable transportation system through the reduction of motor vehicle use, fatality prevention, and expansion of access to underserved Portlanders. In keeping with the TSP, the City issued penalties and compliance warnings regarding insufficient data and fleet compliance.

SEATTLE, WASHINGTON FREE FLOATING BIKE SHARE PROGRAM

In July 2017, Seattle introduced the first free-floating bike-share marketplace in the U.S., which has allowed the City to develop and craft an ongoing regulatory structure of data requirements and elements related to permit requirements for bike-share vendors. During the pilot program, three companies were granted permission to participate: Lime (green bikes), Ofo (yellow bikes), and Spin (orange bikes). Permits for each vendor were non-transferable and lasted up to one year before renewal. The vendors were required to indemnify the City, maintain insurance, take out a surety bond on the City's behalf, and reimburse the City for all incurred costs related to noncompliance with any and all requirements. Moreover, vendors were required to provide the City with monthly updates related to structured program goals. In Seattle's case, these included (1) parking and fleet management, (2) rider education, and (3) equity. Vendors were required to submit real-time data to the City on deployments, removals, and available devices, as well as weekly updates of trip data, parking reports, and maintenance logs. The vendors were also required by the City to notify all riders of the data they reported and collected. Seattle also reserved the right to perform random compliance audits to enforce vendor compliance, especially looking for improper parking practices and clusters of bikes creating obstruction hazards. Similarly to Portland's fleet requirements, at

least 70% of a vendor's deployed fleet was required to be in good working condition and available to rent at any time, and less than 10% could have maintenance-related issues. The City also required an application fee of $50 per device per vendor in order to facilitate the structured program goals.

TRANSPORTATION NETWORK COMPANIES

As congestion increases, many municipalities are looking to regulate transportation network companies (TNC) in order to collect data for future transportation planning. Taxis are historically heavily regulated, but TNCs have operated in many jurisdictions without any regulatory structure" (O'Connor-Kriss et al., 2017). The most common TNCs, Lyft and Uber, are collecting massive amounts of transportation data in every city in which they operate. However, TNCs are hesitant to share user data with local governments. Where governments see user data as a tool for restructuring their transportation, TNCs see this as breech of customer privacy.

Many cities have implemented a per-ride tax that charges riders a fee at the start of their journey in the city of origin. Chicago was one of the first cities to implement this tax and has collected enough data to create their own report on how TNC's are affecting transportation in their city (Freund, 2019). Chicago's data are collected through a three-part reporting requirement that collects a per-ride tax, TNC driver registration details, and manual monthly reports required by TNCs operating in the city. This requirement was set up through city ordinance and took several years of negotiating (Freund, 2019).

In July 12, 2015, the City of Boston and Uber made an agreement to voluntarily share certain proprietary and sensitive commercial data. Uber agreed to share the pick-up and drop-off location of each Uber trip and data regarding date, time, and duration of trips that originate and/or end in the city. The City is allowed to aggregate and use the data for reports, presentations, plans, press releases, and other publications or City work products.

Seattle has a similar reporting system for TNCs. They focus on four areas of TNC regulation: (1) licensing of TNCs, (2) acceptable routes and excludable areas of operation, (3) controlling rates per ride, city taxes paid by user, and fee collection, and (4) standards for driver hires and safety equipment (O'Connor-Kriss et al., 2017).

Although these regulations went into effect in 2014, we were not able to see how the data were collected because the TNCs immediately sued the City under the Public Records Act, arguing that the City would be publishing information that would be detrimental to the companies and their customers. The lengthy lawsuit ended with the Washington State supreme court ruling 5-4 in the City's favor. The supreme court ruled that under the "Public Records Act government documents containing trade secrets to be withheld 'only if disclosure would clearly not be in the public interest and would substantially and irreparably damage a person or a vital government interest'" (Gutman, 2018.) Seattle is now able to see how many Uber and Lyft drivers are operating in the city and put the collected data into a report, although it is not yet available to the public. "In 2016, Uber and Lyft were forced to reveal that they had 9,200 drivers in the city. Today [in 2018], Uber alone has 14,000 drivers in Seattle, according to the Supreme Court" (Gutman, 2018).

Chicago was able to use this precedent to gain the same types of information from TNCs.

AUTONOMOUS VEHICLES

Fifty cities across the globe are testing AVs, and several others are on their way. Many cities and municipal bodies do not have legislation in place for those and are working to develop policies to manage AVs as they come online. Mayor Sam Licardo announced a Smart City vision for San Jose in 2016. The City released a request for information pertaining to AVs that received 30 submissions. The city is now planning for data-sharing agreements. Chandler, Arizona, has been ground zero for autonomous vehicle testing. Waymo, formerly known as the Google Self Driving Car Project, has been testing its autonomous vehicles in the area since 2016.

The Portland Bureau of Transportation created administrative rules to govern autonomous vehicle in the city area. These guidelines are designed to spur innovation and guide this emerging transportation technology to serve community goals, achieve the City's Vision Zero goal to eliminate all traffic deaths and serious injuries by 2015, prioritize electric and shared fleet options, and encourage testing of new technologies. The regulation requires AV operators to maintain focus and have the ability to take control of the vehicle at all times, only operate AVs within City-designated areas, and comply with all applicable laws and requirements. AVs must obtain permits and licenses from the Bureau of Transportation, and failure to comply with these rules is subject to an assessment of civil penalties by the director of the Bureau of Transportation.

Recommendations

E-SCOOTERS AND BIKE SHARE PROGRAMS

As evidenced through the case studies done on e-scooter and bike-share programs, it is apparent that some form of data collection, either through application programming interfaces (APIs) or contract and permit requirements, would be beneficial to creating and maintaining a vibrant, safety-conscious new mobility program in the city of Gresham. It is recommended that the City of Gresham model their potential data procurement standards after the City of Portland for an e-scooter program and the City of Seattle for a bike-share program. These performance measures would be recorded in their natural, descriptive metric as well in in relation to an external criterion, such as the percentage of e-scooters or bikes that need maintenance (Hill & Lynn 2016). These measures are critical in operationalization because even though the programs are privately contracted, public transportation managers will still have accountability to their constituents and must have all the information possible to make informed and discretionary decisions (Hill & Lynn 2016).

Monthly check-in meetings between City transportation coordinators and company representatives could be held in order to assess program success, safety risks or hazards, and placement of fleets through the city. It is also recommended that the City of Gresham and any mobility company wishing to submit a contracting application to the City develop a set of concrete goals and objectives for e-scooter and bike-share programs that is specifically aligned with the City's Transportation System Plan. Ideally, these would emphasize the overarching goals of sustainability, safety, and the promotion of multi-modal transportation systems.

TRANSPORTATION NETWORK COMPANIES

The revised Gresham Code does not currently have provisions for taxi services or Transportation Network Companies (TNCs). Most TNCs are also technically self-classified as communications companies in order to gain a different kind of business license in the cities where they operate. Based on these two facts, we recommend that the City of Gresham replicate Seattle's four-part regulation system if they move forward with contracting with TNCs: (1) definition of TNCs and licensing available to them; (2) definition of acceptable routes and excludable areas of operation; (3) controlling rates per ride, city taxes paid by user, and fee collection; and (4) standards for driver hires and the safety equipment standards (O'Connor-Kriss et al., 2017). This would allow Gresham to set up a series of internal controls that would define the scope of both TNC operation and public oversight by the City. The fees per ride for Portland, Seattle and Eugene are $0.50, $0.24 and $0.16, respectively. We recommend Gresham use the same fee per ride as Portland to maximize revenue and create continuity in the region. If Gresham decides to move forward with the contract, we also recommend that an oversight committee be set up to monitor the use of the revenue from these contracts and decide where it will be spent in advance.

Please note that contracting with TNCs will likely significantly decrease ridership on public transit. When deciding to contract with these

companies, public managers may weigh revenue losses from not only transfer of funds through different services but also the damage that an increased vehicle presence will create on the streets. For these reasons, we recommend that Gresham not allow TNCs to operate in their city.

AUTONOMOUS VEHICLES

Autonomous vehicles operated by transportation network companies are required to follow guidelines that apply to TNCs. Additionally, there are other points to be considered in the contract:

Prioritize Safety

AVs are an emerging technology that may present serious concerns regarding safety standards. The City of Gresham safety guidelines could include the following:

- Rider's insurance and a liability insurance

- Requirement of demonstrated test results showing safety in simulated environments

Remain Technologically Neutral

The City should adopt flexible, technology-neutral policies that encourage innovation and competition, resulting in efficient and effective means of transportation. As public managers discover and implement innovative forms of action to make changes, remaining technologically neutral encourages innovation and adaptation to changing technologies.

Modernize Regulations

The City of Gresham could influence the design of how AVs work by participating in the drafting the rules that govern AVs and involve stakeholders in that dialog as well.

Encourage a Consistent Regulatory and Operational Environment

The city of Gresham is in close proximity to the city of Portland. Complying with the rules that Portland adopts maintains consistency among autonomous vehicle companies in the Portland Metro area.

Data Requirement

The City of Gresham is encouraged to include the following data requirements in contracts with AV companies.

- Provide data on each completed AV trip and fleet availability

- Provide updated data at certain time frequency such as hourly data

- The provider-facing API implemented by AVs as service provider will generate data to be shared with the City

- Reduce parking durations for AVs to disincentivize occupying street parking

- Support City efforts to install charging points to encourage electric fleet

- Agree to allow the City to aggregate and interpret data

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