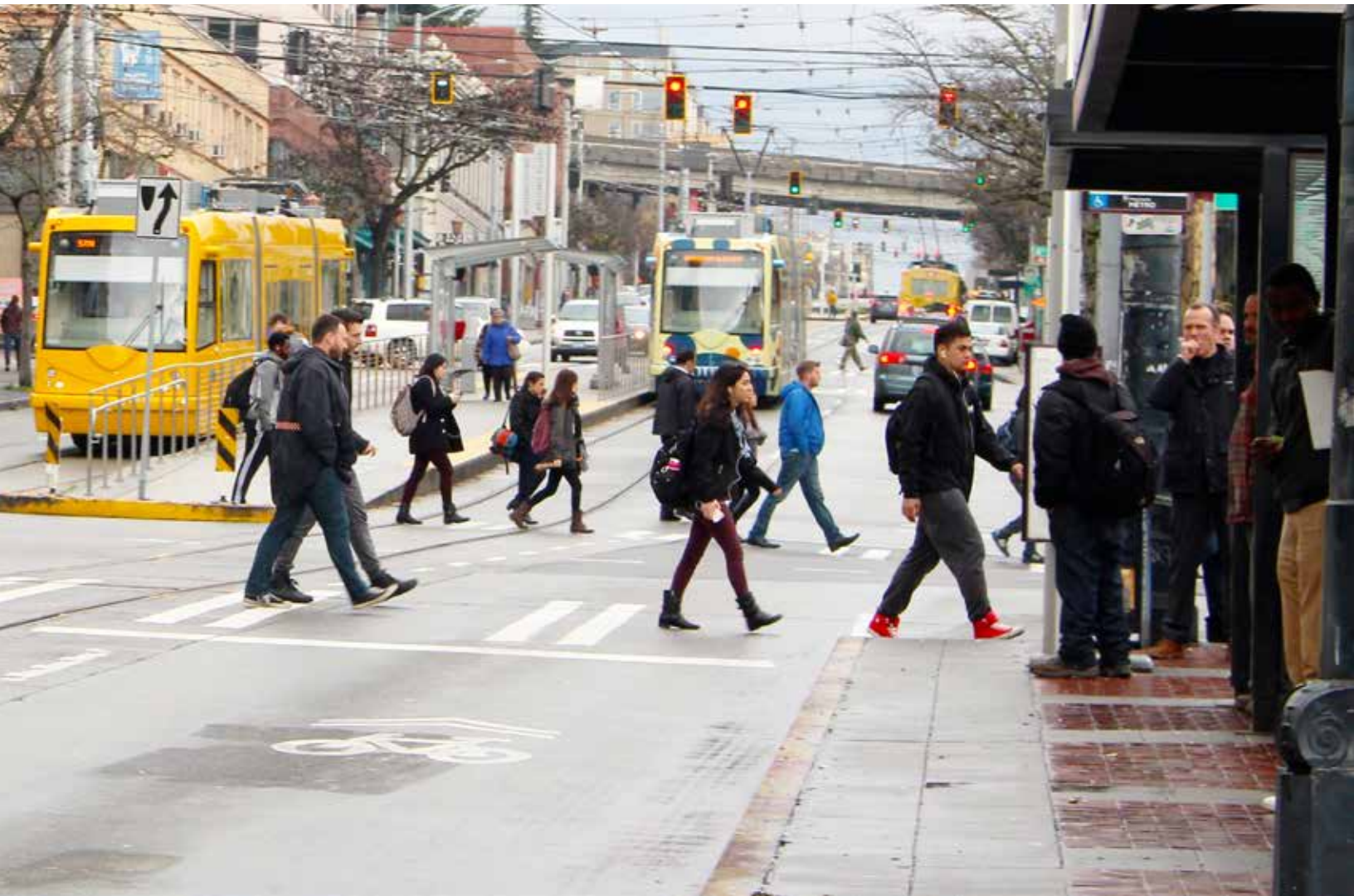


Seattle Department of Transportation

# NEW MOBILITY PLAYBOOK



Version 1.0

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**June 2017**



**Seattle**  
Department of  
Transportation

MORE MOBILITY

MORE INFORMATION

MORE SEATTLE

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# WELCOME TO SEATTLE

Seattle is growing at a pace and in a manner that is unique in the City's history. No other city in the country is growing like we are. We routinely rank among that fastest growing cities around the country along with sunbelt cities like Austin, TX. However, our growth is different. Those cities are growing out – gobbling up green fields – while Seattle is growing up. Three-quarters of residential growth over the last 20 years occurred in our urban villages. This growth could very easily strain our transportation system to the breaking point, but Seattle seems to have entered a tipping point.

As we grow, we are investing in more transit, walking, and biking – and we're seeing results. Between 2010 and 2016, downtown Seattle added 44,555 new jobs. Over the same span, the number of people commuting to downtown by driving alone grew by just 2,255. Ninety-five percent of the net growth was carried by walking, biking, and transit. We've seen commuting to downtown on foot and on bike increase by 35%. Between 2015 and 2016, transit ridership in Seattle grew by 4.1% – higher than any other city in the country.

Seattle has long been a sustainable transportation vanguard and will continue to be a climate action leader. We are taking meaningful action to reduce greenhouse gases by investing in walking, biking, and transit, and leveraging our carbon neutral electricity for transportation.

At the same time the City is growing, the transportation industry is changing faster than at any time since the advent of the automobile. New mobility options are innovating and disrupting existing business models. Companies like Bridj and Leap Transit have started, received large

venture capital investments, and closed up shop in just a few years. At the same time, companies like Uber and Lyft or Car2Go and ReachNow have revolutionized personal mobility.

Seattle has a history of welcoming and fostering innovative mobility. Boeing, UPS, and Flexcar, one of the first car sharing companies, were launched in Seattle. We were one of the first cities to regulate Uber and Lyft. We are also home to local, mobility-focused startups like Luum, mobility service innovators like ReachNow, as well as Amazon – a company that's changing urban transportation patterns all over the world.

Not all of our innovations have succeeded. Pronto Cycle Share operated for two years in Seattle, and, ultimately, we decided to end the service. However, we are welcoming a bevy of private, free-floating bikeshare operators to pilot their service in the city. The lesson we took from the experience was not to stop innovating, but instead to take a step back, assess how to change our approach, and then move forward.

In the background, we have automakers and technology companies working to bring automated vehicles to the market. Automated vehicles could change almost every aspect of our society. They will impact jobs; not just drivers, but also insurance claim adjusters, mechanics, car salespeople, and many others. It will impact land use decisions and building design. Transportation finance could increase vehicle miles traveled and change if automated vehicles are in shared fleets, electric, and reduce the demand for on- and off-street parking. Without deliberate action, automated vehicles could change the pedestrian environment and our robust transit network for the worse.

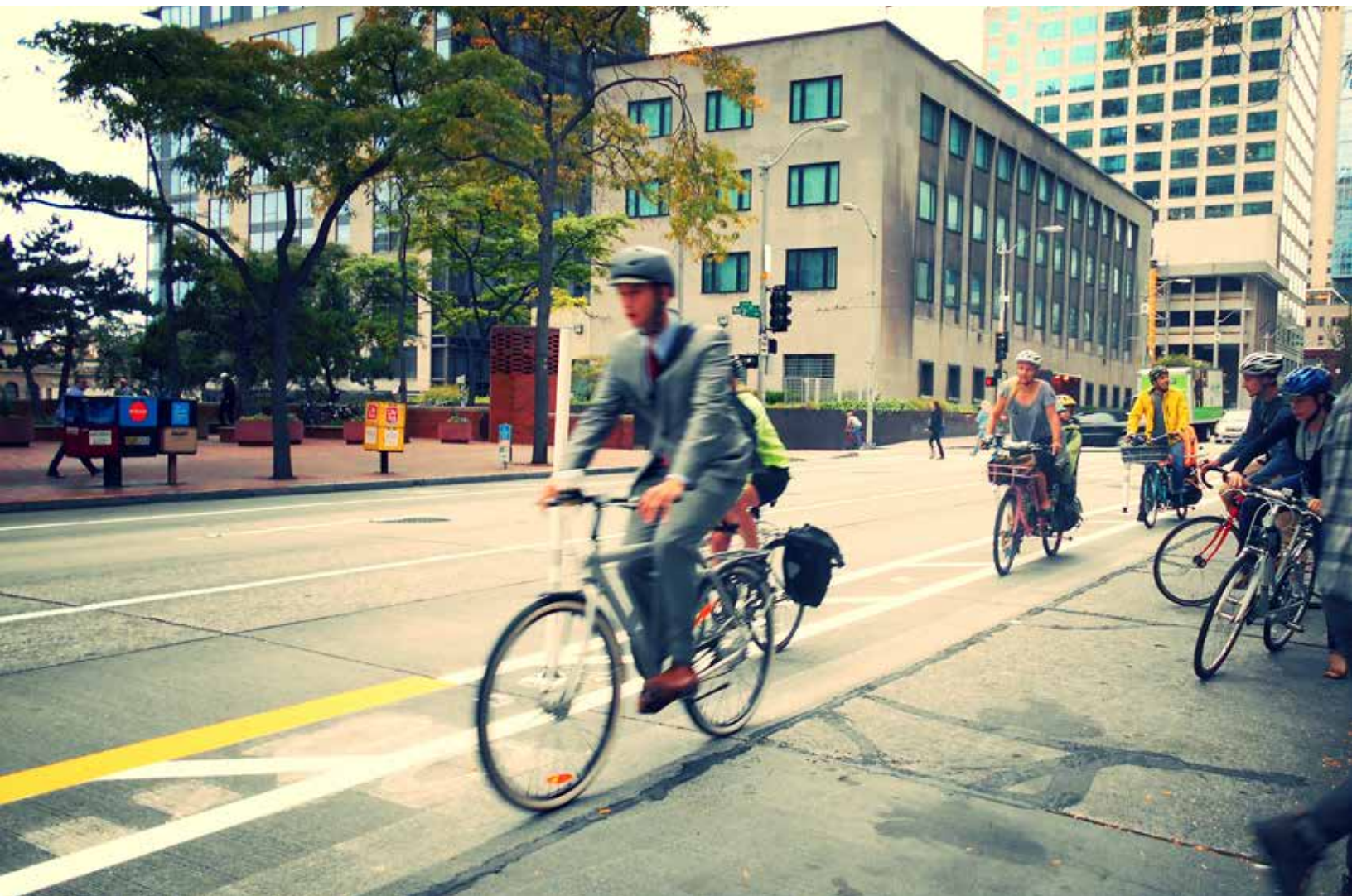
In such a fluid situation, a traditional “plan” isn’t the appropriate way to chart our course. Technology and services are changing faster than government can adapt and regulate to ensure they serve the public good. Instead of a plan, we are responding with a set of “plays.” We know the “court”: the permanent investments in our infrastructure - our signals, streets, and bridges. The companies and people playing are constantly changing and evolving, and government can’t have a static response.

In this context, we need to be open to innovation, but anchor our approach in the City’s and department’s core values. Ultimately, we want technology and innovations to adapt and help build the city we want rather than have to adapt our city to the technology. This document lays out our values, principles, ideas, plays, and strategies to help us adapt. We invite innovators to help move Seattle.

Sincerely,



Scott Kubly  
Director, Seattle Department of Transportation  
(SDOT)





# 1 OUR CHANGING LANDSCAPE













*Corner of 3rd Avenue and Seneca Street looking northwest, 2017*

## IN THE EARLY DECADES OF THE CENTURY...

Rapidly growing cities in the U.S. are challenged by new transportation technology. There are new vehicles on the streets, new services, and new ways to travel.

These innovations have the potential to improve the transportation system, but they can also disrupt existing services. They can upend current business models. They can supplement or they can compete with our investments in buses, streetcars, and light rail.

City administrators need to accommodate the new technology, but they also need new ways to understand and supervise emerging services. The city will need new forms of infrastructure and new policies and rules to manage the rapidly changing urban transportation system.

Old jobs are threatened, but there may be new opportunities, new skills to learn, and new industries could emerge...





*Corner of 3rd Avenue and Seneca Street looking northwest, 1910*

## ...THE YEAR IS 1910

The year is 1910 and the B-type double-decker bus, the first mass produced motor bus, has just begun service in London. The B-type, along with other motor buses, would eventually supplant the many horse-drawn, steam, or trolley buses already in service in many cities around the world.

In the U.S., the Ford Model T, the first mass produced car, began dominating city roads. Ford would eventually sell more than 15 million Model T's, ushering in the age of the automobile.

Motor cars and buses were faster and saved cities thousands of dollars in the costs of clearing horse manure from the streets.

Over the next few decades, the streets of American cities would be completely repurposed to serve the automobile. Gas stations, car repair shops, and auto show rooms popped up on street

corners. Stables, blacksmiths, and groomsmen disappeared. The Teamsters, formed in the late 1890s as a union for drivers of horse-drawn carriages, buses, and carts, began organizing the growing ranks of drivers of motor delivery trucks.

In 1916, the same year Congress approved the Federal Aid Road Act, New York City would hold its last horse auction. The city closed the auction houses because there were simply no more buyers.

In 1918, Chicago's Hotel La Salle built the first multi-story parking garage. And in 1935, Oklahoma City installed the first parking meter. Highway building, interrupted by two world wars, exploded in 1956 when President Eisenhower signed the Federal Highway Act. The new highways powered the creation of suburbs and exurbs. Racist local and federal housing and zoning regulations and rapacious real estate developers fueled the exodus that led to disinvestment and city decay.

The emerging automobile industry, which started in the 1890s with hundreds of startup companies, consolidated until only three remained: General Motors, Ford, and Chrysler. The Big Three dominated not only the automobile industry and the national economy, but also urban planning and policy. The car and the attendant technologies and innovations created in its wake delivered on the promise of economic growth, middle-class jobs, and distributed mobility. At the same time, it created massive economic, social justice, and environmental inequities.

In reshaping our existing cities and planning new cities optimized for the new technology of the privately owned vehicle, we took down mass transit systems, disconnected and razed whole communities (more often than not, communities of color), and created new ways to exclude

people by race and income. Our cities became uncomfortable to people walking. Our roads became hostile to anyone not traveling in a metal-enclosed, motorized vehicle.

**We forced our cities to adapt to the technology instead of shaping the technology to serve our cities.**

In the opening decades of this new century, we face a similar challenge. With the onslaught of new transportation technology, how will we advance our city toward a more livable, vibrant, and equitable future? How do we manage these new services so they contribute to a high-quality transportation system that works for all of Seattle? We need smart, flexible, and appropriate regulation, so that we anticipate changes in the industry and sidestep any regulatory overreaction.





## SEATTLE'S VISION AND VALUES FOR TRANSPORTATION

At the Seattle Department of Transportation (SDOT), our vision is a vibrant Seattle with connected people, places, and products. Our mission is to deliver a high-quality transportation system for the city of Seattle.

**SDOT is focused on creating a safe, interconnected, vibrant, affordable, and innovative city for all. We value:**

### A Safe City

We will not accept traffic deaths as an inevitable part of traveling together in a safe city. *Our goal is to eliminate serious and fatal crashes in Seattle.* Safety also means being prepared for a natural disaster by seismically reinforcing our bridges to withstand earthquakes.

### An Interconnected City

More travel options doesn't always equate to an easy-to-use, interconnected system. *Our goal is to provide an easy-to-use, reliable transportation system that gives you the options you want when you need them.*

### A Vibrant City

A vibrant city is one where the streets and sidewalks hum with economic and social activity. People meet and shop and enjoy the beautiful city we live in, side by side with goods delivery and freight shipping. *Our goal is to use Seattle's streets and sidewalks to improve the city's health, prosperity, and happiness.*

### An Affordable City

*Our goal is to give all people high-quality and low-cost transportation options that allow them to spend their money on things other than transportation.* The transportation system in an affordable city improves the lives of all travelers – those with the latest model smart phones in their pockets and those without.

### An Innovative City

Demographic changes and technological innovation are radically reshaping transportation. *Our goal is to understand and plan for the changes of tomorrow, while delivering great service today.* This includes newer, more nimble approaches to delivering projects and programs to our customers.





## SEATTLE TODAY

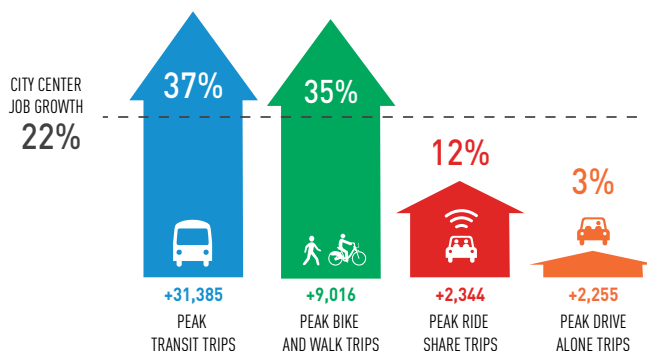
Seattle is the fastest growing big city in the U.S. in 2016<sup>1</sup> **On average, 57 people move to the city every day, nearly 1,600 a month.** We are on track to add 120,000 more residents by 2035. Our new neighbors are attracted to Puget Sound’s beautiful environment and the booming local economy that projected to add another 115,000 jobs over the next two decades.

Growth is putting pressure on our infrastructure and straining our affordability. We are working to help the city accommodate this continuing growth and make sure it doesn’t degrade our quality of life, sacrifice our environment, or displace our diverse communities. We’re expanding transportation options so people can take transit, walk, and bike more, rather than having to rely on driving for most trips.

We are seeing success. Through our Vision Zero plan to end traffic deaths and serious injuries by 2030 and our Safe Routes to School programs, Seattle is now one of the safest big cities in America for people walking and riding bikes.<sup>2</sup>

Despite our surging population and job growth, auto traffic is not growing as fast. More people are taking public transit to get to work and fewer people who work downtown are driving alone

JOB GROWTH - PEAK TRIPS BETWEEN 2010 - 2016



(from 35% in 2015, to 30% in 2016). **Between 2015 and 2016, Seattle saw the largest rate of transit ridership growth in the nation (4.1%).** Transit’s share of downtown commute trips increased from 29% in 2000 to 47% in 2016.<sup>3</sup>

Public transit—our original and most vital “shared mobility” mode—is the backbone of our transportation system. By the end of 2017, 64% of Seattle households will live within a ten-minute walk of a frequent bus route, where riders wait 10 minutes or less for the next bus.

Providing reliable transportation helps make our city more affordable. **On average, owning a car in King County adds about \$12,500 a year to the household budget.** Our investments will reduce household transportation costs and enable Seattleites to live a car-free or car-lite lifestyle.

While there is still a lot of work to be done, we believe our city has entered a self-reinforcing cycle when it comes to transportation options. More people choosing to walk, bike, or take transit increases the demand for more services and infrastructure; more services and infrastructure invites more people to walk, bike, or take transit. With our partners, Sound Transit and King County Metro, we are expanding Seattle’s light rail and streetcar systems, increasing the reach and reliability of RapidRide services, and adding or expanding express and local bus routes. We are also making walking and biking infrastructure safer for all ages and abilities.

Private services are reinforcing our public investments. Services like car sharing and ridehailing are filling the gaps. Day-to-day, people can rely on walking, biking, and transit and still have the flexibility of an automobile without the cost of ownership.

<sup>1</sup>Jul. 1, 2015, to Jul. 1, 2016 - U.S. Census.

<sup>2</sup>Vision Zero, May 2017.

<sup>3</sup>National Transit Database, 2016.

Move Seattle, our 10-year strategic plan for transportation, sets our priorities and guides our investments for building out a multimodal system. City residents overwhelmingly supported Move Seattle through the Transportation Levy to Move Seattle. Voters approved the levy in 2015, committing \$930 million over nine years to fund projects that improve safety for all travelers, maintain our streets and bridges, and invest in reliable, affordable travel options for our growing city.

People of color, LGBTQ people, women, people with disabilities, low-income households, and other historically marginalized groups continue to experience systemic discrimination and exclusion. Our challenge is to advance new mobility and access to opportunity for all, while preventing residential, commercial, and cultural displacement. By ensuring transportation options work for everyone, particularly historically underrepresented communities, we can play a key role in advancing racial and social justice.

In the early decades of the 21st century, we are excited to explore new technologies and service innovations that could help us deliver an even better, more equitable transportation network.



## SEATTLE AND NEW MOBILITY

While walking, biking, and taking public transit will remain the backbone of the city's transportation system, new technologies and service innovations are giving Seattleites more options and more convenience.

To get around the city (and the region), our ORCA cards let us get on any bus, on the ferries, on Link Light Rail, and the Seattle Streetcar. We can choose from ridehailing (like Uber and Lyft, which are "transportation network companies" or TNCs, taxis, and for-hire services) and car sharing services (like ReachNow, Zipcar, and Car2Go). We can arrange to join a carpool or split a ride with strangers. Soon, there will be new free-floating bike share services; and then there will be "microtransit" services that use vans or small buses to ferry passengers. There may be new building types and new uses that create "mobility hubs" allowing easy transfers between various transportation services.

These new and emerging services are enabled by the internet, by mobile data, and the smartphones in our pockets. Mobile apps help us find the best driving route or catch the right bus or bike the least hilly route. Mobile payment systems allow us to book any service and have it automatically charged to our credit cards or bank accounts.

Technology is rapidly changing and we're going to see more innovations in the near future; some will be sustained successes and others will rise and fall. We may see automated or driverless vehicles, drones on wheels, and drones in the air delivering goods. We may even see drones that can carry passengers across our city's air space. These systems allow communications between travelers, vehicles, and the infrastructure that governs their use. They could even run by artificial intelligence that not only manage the routes, but also allow users to "talk" to the vehicle they are using.

**This emerging, technology-enabled, seamless, nearly door-to-door transportation system is what we call the new mobility. It allows Seattleites to treat urban transportation as a customizable, on-demand service. They can book and pay for different transportation services as they go, based on what they need.**



ASSISTANCE FROM TECHNOLOGY

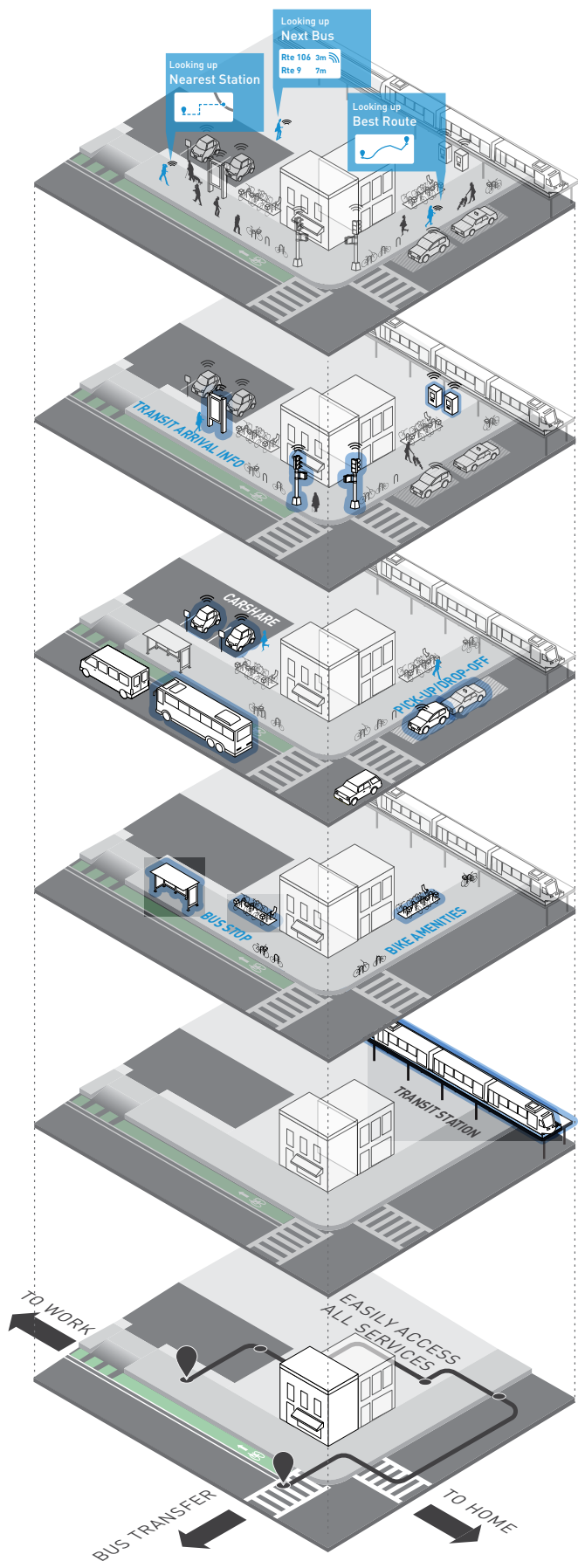
REAL-TIME NAVIGATION

MOBILITY SERVICES

INFRASTRUCTURE SUPPORTING MOBILITY

TRANSIT STATION

CONNECTIONS



Seattle's streets, sidewalks, and transit infrastructure are the conduit that move people throughout the city. More recently, shared mobility services (including public transit), real-time travel information, and other digital technologies are providing "a la carte" mobility and customer experience offerings that get people where they want to go based on their needs. These new ways that people interact with transportation infrastructure are at the heart of what we refer to as new mobility.



Seattleites, for the most part, are tech-savvy. Our residents take over a million app-enabled ridehail and car share trips every month. This, along with the increase in transit use, is why we have fewer people driving to work alone. And yet, 15% of Seattle residents do not have internet access at home and roughly a third do not have access to a mobile device.<sup>4</sup>

Most of the new, tech-enabled services require a credit card or a bank account and so don't work for lower-income households, especially those with poor credit or with no bank accounts (the "underbanked" and the "unbanked"). Many of the ridehailing services don't have provisions for people with disabilities, such as those in wheelchairs. Research from MIT and the University of Washington also shows that ridehailing services can discriminate against people of color or of particular ethnicities.<sup>5</sup> And, liability risks associated with car share programs place disproportionately burdensome costs on low-income users who can't take on those risks, however minor they may seem to some.

Many of these new mobility services are electric and the share of electric vehicles across the transportation sector will accelerate rapidly in the coming years. In addition to significantly reducing pollution, the electric transportation transition will demand coordination with the electricity sector to tap new mobility into the electric grid.

New mobility brings benefits as well as risks. New services could make our city work better or they could make it worse.

We created this New Mobility Playbook to leverage the benefits and mitigate the risks of new mobility. The plays will help us rethink how we manage our streets to deliver an equitable transportation system and ensure that Seattle continues to be an even safer, more interconnected, more vibrant, more affordable, and more innovative city. We aim to update this Playbook every 6 months to reflect the dynamic nature of new mobility services and rapid changes in transportation technology.

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<sup>4</sup>2014 Information Technology Access and Adoption Report, City of Seattle.

<sup>5</sup>"Researchers from Stanford, MIT and the University of Washington find rideshare drivers discriminate based on race and gender." Stanford News, October 2016.

## NEW MOBILITY TRENDS



### **Information is the new infrastructure.**

We are accustomed to thinking of the transportation system as physical infrastructure – roads, bridges, sidewalks, traffic lights – along with the vehicles that use the infrastructure. But, increasingly, so much of the infrastructure is virtual—in the sensors and control systems that we use to manage flow and movement.

We have bike and pedestrian counters. We have adaptive signal controls that sense and smooth out traffic flow. Our transit systems tell us if our bus or train is running on-time, record where people get on and off and how many people ride by the minute and by the hour. Public and private vehicles are equipped with sensors that track speed and driver behavior for onboard systems that are connected to the internet. Ridehailing apps track our routes to determine the fare.

The flow of data will only increase as Seattleites continue to navigate the city in new ways. Researchers estimate that a fully automated vehicle will likely produce a gigabyte of data every day.<sup>6</sup> That flow is equivalent to 15 hours of streaming music per car, per day.

All that data (and the data about that data) will give us valuable, up-to-the-minute, understanding of how the system works. We need to treat data not just as information, but as infrastructure. Transportation bits and bytes will be as critical as concrete, asphalt, and metal.



### **People will share mobility.**

Whether taking public transit, hailing a ride, or reserving a car share vehicle, shared mobility services are an increasingly popular way to get around the city. Shared mobility, those services that allow temporary use of a shared vehicle usually for a fee, allows Seattleites to use vehicles on a per use basis. The suite of shared mobility options includes public and private

transportation services of every shape and size to fit varied needs: from a van or a pickup car share to haul furniture; to the ridehail limo for a fancy date; to the workhorse public bus to get to work.

Shared mobility vehicles are either used concurrently by many (e.g., trains, buses, and shuttles) or used separately over reserved blocks of time (e.g., taxis, car share, bike share, and scooter share). Shared mobility services require fewer vehicles, but serve more trips.



### **Clean energy will power transportation.**

While transportation pollution is responsible for over two-thirds of Seattle's carbon footprint, clean hydroelectric power fuels our electrical grid. This makes ideal conditions to electrify the local transportation system. The City's Drive Clean Seattle initiative aims to transition our transportation sector from polluting fossil fuels to clean, carbon-neutral electricity. New research by Bloomberg New Energy Finance forecasts that electric vehicles could take up 35% of new light duty vehicle sales by 2040.<sup>7</sup>



### **Automakers are shifting to shared, electric, connected, and automated.**

Automakers recognize the need to adapt to shifting demographics, consumer preferences, and technologies. A recent McKinsey report predicted that new mobility services (shared cars and fleet services) could drive down the volume of car sales by more than 30% by 2030.<sup>8</sup> Automakers and technology firms have also invested billions of dollars in the research, development, and deployment of automated vehicles (AVs) and connected vehicle technology. They are also positioning themselves as mobility service providers, in addition to car manufacturers. While demand for car ownership will likely continue well into the future, the automakers' pivot toward AV production and shared fleet services will create new mobility options, revenue models, and partnership opportunities.

<sup>6</sup>"Your car's data may soon be more valuable than the car itself," CNN, Feb. 7, 2017.

<sup>7</sup>*New Energy Outlook*. Bloomberg New Energy Finance, 2016.

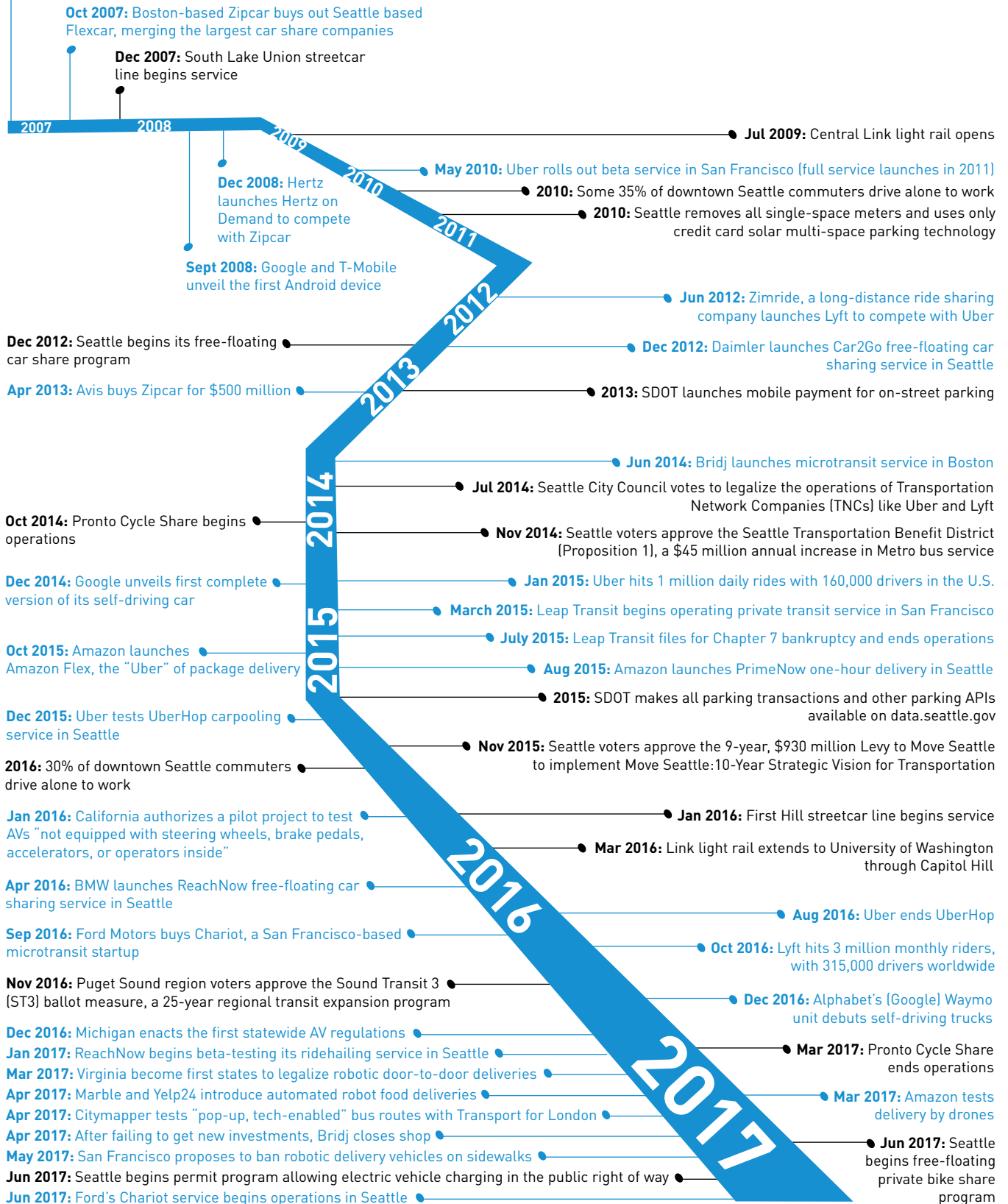
<sup>8</sup>"How shared mobility will change the automotive industry," McKinsey & Company Automotive & Assembly, April 2017.



# THE RAPIDLY CHANGING WORLD OF URBAN TRANSPORTATION

**Jan 2007:** Apple unveils the iPhone, begins the marketplace for phone apps

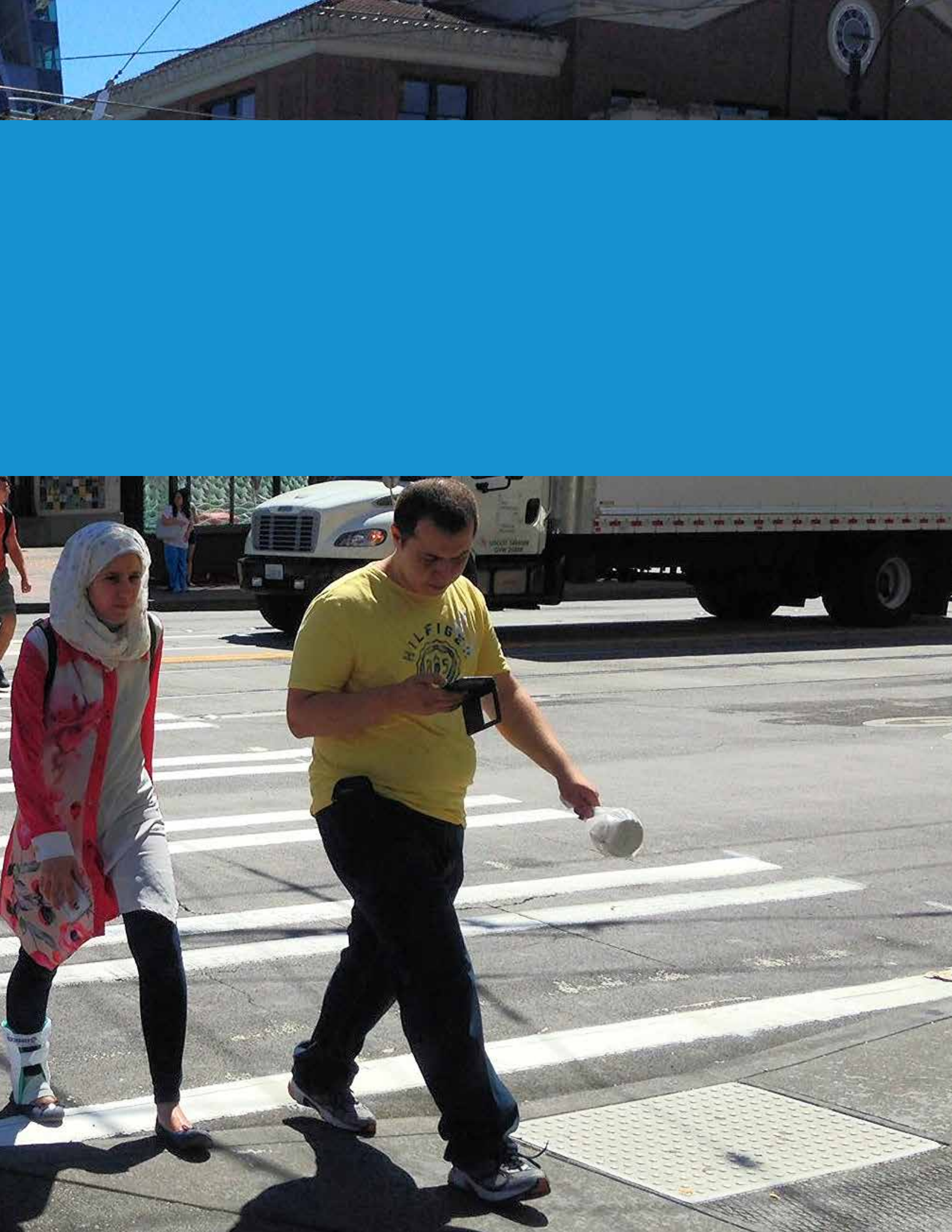
- **New mobility service or technology**
- **Key SDOT milestone**



# 2 OUR DIRECTION











## THE UPSIDE

### Potential benefits of new mobility

#### 1. We can accommodate growth without increasing congestion

New mobility options, paired with transit, could reduce the use of private cars. By 2030, as many as 108,000 privately owned vehicles could come off the streets of Seattle—a 27% reduction. The number goes up to 180,000 cars (or a 45% reduction) if we see fleets of shared, automated vehicles go into service. Before AVs hit our streets, giving up one’s vehicle could equate to roughly \$10,000 in cost savings for people who regularly use public transit, car share, ridehail, and bike share services.<sup>9</sup>

New mobility also saves road space because we could need less space for parking. Privately-owned cars are usually used for 1.5 to 2 hours a day. When cars are not being driven, they’re

stored in parking lots, garages, and on our streets. Storing personal vehicles is a burden on our limited public right of way and contributes to our ongoing housing affordability crisis. New mobility services could free up precious city space that we could put to more productive use, like dedicated transit lanes or activated public space.

Recent research from the Shared Use Mobility Center suggests that people who use new mobility services the most are also more likely to use public transit and own fewer cars. Thirty-percent of frequent shared mobility users spend less of their household budget on transportation expenses.<sup>10</sup>

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#### 2. We can enable more transportation options

New mobility services can complement public transit, especially if they provide first and last-mile connections to light rail or streetcar stations or high capacity RapidRide bus lines. If it works seamlessly, new mobility could let someone share a ride to a transit station, then take rapid transit, then get off at another station where they could use bike share, ride share or car share to get to their final destination.

New mobility could allow us to decide how much we want to spend on transportation each month (e.g., a cell phone, cable, or internet package), and then provide us with the most cost efficient ways to travel every day.<sup>11</sup> New mobility services could be exceptional tools to expand personal mobility for people with disabilities and older adults—if they had the knowledge and comfort of how to use the technology. The more options older adults have, the better positioned they are to age in place.

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<sup>9</sup>See Appendix B for more details.

<sup>10</sup>Shared Mobility and the Transformation of Public Transit, TCRP Research Analysis J-11, Shared Use Mobility Center, March 2017.

<sup>11</sup>Appendix B includes an economic analysis that estimates how many households could forgo car ownership in favor of shared mobility, and, in return, realize significant financial savings.

### 3. We can build a more responsive transportation system

Public transit, with its high capacity vehicles (buses and trains), will always be the most efficient way to move large numbers of people. Yet, public transit becomes inefficient in areas where there are fewer people making trips or during the off-hours when there are fewer people riding.

An initial analysis in Appendix B comparing ridehailing fares with Metro's non-express service costs indicates that paying for TNC fares could be a more cost-efficient alternative for Metro to provide as much as 5% of transit trips served. The majority of these trips focus on late night and early morning service. While there are additional important factors to consider, partnerships with new mobility providers appear to have great

potential to offer more responsive services at more cost-efficient rates in certain geographies and at certain times of the day. If those trips could be served by new mobility, Metro could reallocate resources to provide even more frequent service in high volume corridors.

The volume and precision of historic and real-time data generated by new mobility could also revolutionize the way we plan the transportation system and direct resources. We could begin to operate more nimbly. We could make more informed policy decisions and investments. We could have more responsive transportation management and may even have the ability to forecast problems before they occur.

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### 4. We can create a more equitable transportation system

New mobility services could connect workers to jobs that are currently not easy to get to via public transit. This is especially true of commute trips that don't start or end in downtown or in the peak periods. For example, someone who lives in Lake City could get to a job in Georgetown without having to go through downtown.

Coupled with high-quality public transit, new mobility enables self-determination. Providing the flexibility to make choices about how to get from one place to another is ultimately a quality of life improvement, giving people the opportunity to thrive regardless of race, ethnicity, ability, and income.

New mobility services could help the city provide more efficient and cheaper transportation to those who can afford it least. The data that these services generate will help us understand the unseen biases in the transportation system so we can correct them. We can then provide the right incentives and the right regulation to make sure the system serves everyone. We could also better target subsidies to those who need it most.

The new mobility paradigm could potentially offer new, better paying, and technology-based jobs opportunities. Entire new industries are being created. If actively engaged, we could align workforce pipelines and development opportunities with community partners.

## 5. We can have a safer and greener transportation system

The transportation sector generates over a quarter of the country's greenhouse gas (GHG) emissions, a key contributor to climate change. That includes emissions from cars, trucks, commercial aircraft, and railroads. Transportation pollution represents over two-thirds of Seattle's carbon footprint.

New mobility services, if they can help shift people away from private car use, could significantly reduce total GHG emissions. We

could see 85,000 fewer daily single-occupant vehicle (SOV) trips by 2030—a 4.4% decrease from 2014 daily trips. We could achieve even more drastic GHG emission reductions if we required all new mobility vehicles to run on electricity.

Fully automated vehicles could also reduce vehicle crashes. Automation will remove risky driving behavior, anticipate collision factors, and control speeding, making the street even safer for people on foot, people on bikes, and people in vehicles.



**Missing any upsides?**  
Email [newmobility@seattle.gov](mailto:newmobility@seattle.gov)





## THE DOWNSIDE Potential risks of new mobility

### 1. We could have more congestion and more pollution

Recent research out of San Francisco, New York City, and Denver shows ridehailing services like Uber and Lyft are adding to traffic congestion. While these services may be reducing private car use, they are also putting more cars on the road—cars that are cruising already-congested areas, circling around as they wait for customers, and potentially blocking travel lanes.

Recent research from San Francisco County Transportation Authority found that TNCs makeup roughly 15% of all intra-city trips in San Francisco.<sup>12</sup> Last year, ridehailing services appear to have added more than 6 million miles of driving on New York City's streets. From 2013 to 2016, ridehailing added an estimated 7% to existing miles driven in the most congested areas of Manhattan, Brooklyn, and Queens. There is also data coming from London and Washington, D.C. that shows e-commerce has increased deliveries and put more delivery trucks on the road.

We don't currently have the same data available as New York City, but we did do some preliminary analysis using aggregated and anonymized data from our existing traffic sensors. The analysis suggests an increase in cruising behavior in downtown Seattle. This behavior is very different from the circling pattern of drivers looking for parking. We think as much as half of the vehicles cruising and circling downtown are ridehailing vehicles, including taxis, for-hire, and ridesourcing services.

Automated vehicles (AVs) may not require parking, but they could also increase congestion. AVs, especially if they are privately owned, could ferry children too young to drive or older adults unable to drive. While this is great for personal mobility, this could mean more vehicles on the road. AVs could also be running without passengers (or zero occupancy vehicles, also known as "zombie cars") in between rides.

Apart from potentially adding to traffic congestion, new mobility vehicles that run on fossil fuels would also increase the city's total greenhouse gas emissions. They could keep us from achieving our Climate Action Plan to become a net carbon neutral city by 2050.

Without strategic action by the City and its partners, we risk people using AVs to take more and longer trips. We need policies that require and incentivize clean energy for new mobility services and require fully autonomous vehicles be electric and part of shared fleets.

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<sup>12</sup>"TNCs Today: A Profile of San Francisco Transportation Network Company Activity", San Francisco County Transportation Authority, June 2017.

## ARE TNCs CONGESTING NYC?

New York City had been seeing an increase in its traffic congestion rates over the last few years. Their transportation managers suspected that TNCs were a part of the problem, but they didn't have the data to support the analysis. Using data from taxis (which are required to have GPS tracking) and from bus, subway, and bike share (all equipped with GPS) allowed researchers to infer that up to 7% of the additional congestion in Manhattan was likely from Uber and Lyft vehicles.

In February 2017, New York City's Taxi and Limousine Commission unanimously approved a rule that would require TNCs to share their data on the locations of pick-ups and drop-offs. The data will help the city understand where the biggest demand for service is so they can respond with better traffic management, with new policies, or by improving public transit. Data can help the city predict where congestion is likely to happen. Data can also show where services like Uber and Lyft don't go despite demand, to see if the exclusion is discriminatory.<sup>13</sup>



<sup>13</sup>“The secret Uber data that could fix your commute,” WIRED, February 3, 2017.

## 2. New mobility services could lead to more inequity

New mobility services should be affordable, intuitive, and available to people of all backgrounds. As Seattle becomes more culturally diverse, we will be challenged to ensure equitable access to new mobility services.

Almost a fifth of Seattle residents were born in another country. Close to a quarter of residents speak a language other than English at home.<sup>14</sup> If we are not careful, new mobility services could leave already marginalized populations behind because:

- The service is marketed in only one or two languages or may be culturally inappropriate
- The services could be too expensive
- The physical locations of the services may exclude communities of color or low-income neighborhoods
- The services may not accommodate the unique needs of families with children, youth, older adults, women, or people with disabilities
- The algorithm or the human providers could discriminate against people of color or of certain ethnicities using names or pictures
- Some residents may not know how to use these services without more focused outreach
- Not all Seattleites can access or pay for shared mobility services because they lack a bank account

While 72% of Seattleites own a laptop and 66% own a mobile device (a smartphone or a tablet), at least 15% of Seattle's residents have no internet service at home. Home internet access is even lower for immigrant and refugee families.<sup>15</sup> Residents earning under \$20,000 per year are about 25% less likely to use the internet than those earning more than \$100,000 per year.

Many shared mobility services require users to have a debit or credit card to register or pay for service. This presents a challenge to “unbanked” individuals who either do not have credit cards, debit cards, or checking and savings accounts, or the “underbanked” who have poor or unreliable access to formal financial services. An FDIC survey showed that roughly 4% of households in the Seattle-Tacoma-Bellevue area qualify as unbanked, while 16% are underbanked.<sup>16</sup>

We risk advancing transportation options that are not accessible to a significant portion of the population.

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<sup>14</sup>American Community Survey, 2014.

<sup>15</sup>2014 Information Technology Access and Adoption Report, City of Seattle.

<sup>16</sup>2015 National Survey of Unbanked and Underbanked Households, Federal Deposit Insurance Corporation, 2015.



### 3. We could erode the support and resources for public transit

Public transit—the original and most vital “shared mobility” mode—is the most cost-effective and spatially-efficient way to move more people through the city. More importantly, public transit helps make the city more affordable, accessible, and vibrant.

New mobility services could compete with public transit. While research does show that people who use ridehailing services are also more likely to use transit, we could see a shift if new mobility services deliver convenience and affordability that undercut public transit. If we are not careful, every trip shifted from transit to

a lower occupancy shared mode will exacerbate congestion, contribute to longer travel times for all other travelers, and reduce the cost-effectiveness of public transit.

Increased use of private and public shared mobility services and projected uptake in electric vehicles could have drastic implications on how we fund maintenance, operation, and expansion of our transportation system and services. Gas tax, commercial parking tax, parking meter revenues will likely deplete, signaling the need to identify new and creative funding sources to support and continue to enhance public transit.

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### 4. We could disrupt the economy and lose jobs faster than innovation creates them

Seattle is home to tens of thousands of licensed TNC drivers. There is an ongoing legal dispute over whether the drivers are contractors or employees, and another fight on whether they can unionize. And yet, all these jobs could be threatened if new mobility services shift rapidly to autonomous vehicles.

We could also lose jobs if new mobility services eat into the ridership of public transit. Fewer riders translate into less farebox revenue for public transit, which could result in reduced services and lay-offs. The changing nature of urban goods delivery could also see major job disruptions for delivery drivers.

## 5. We could have systems we don't understand, can't manage, and can't protect

We need data to understand and assess the impacts of new mobility services and technology on the transportation network. We cannot effectively manage our streets without the right data.

Currently, Seattle does not have access to the real-time and historic data generated by many of these new services. While we need to ensure the privacy of users and protect each company's ability to compete, we also need to make sure the system as a whole is safe and equitable. This lack of access can create an uneven playing field between the City of Seattle and the

service providers. There are also documented cases where new mobility providers used their algorithms to deceive authorities.<sup>17</sup>

There are also the outstanding threats to our ability to protect our communities and residents: 1) the threat that new mobility driven by artificial intelligence could be making decisions we can't understand or interrogate;<sup>18</sup> and 2) the threat that malicious actors could hack and compromise computer systems that run these services. We need policies and safeguards that allow us to understand and better manage these systems.



**Missing any downsides?**  
Email [newmobility@seattle.gov](mailto:newmobility@seattle.gov)

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We have to manage the emerging new mobility system so everyone can benefit from the upsides and we protect against the downsides.

While there are likely risks and opportunities that might still emerge, we think the lists above are expansive enough to frame our thinking. What we need next is a set of principles that will guide our actions and our responses.

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<sup>17</sup>See "Uber faces criminal probe over the secret 'Greyball' tool it used to stymie regulators," L.A. Times, May 5. 2017.

<sup>18</sup>See "The Dark Secret at the Heart of AI," MIT Technology Review, April 2017.

## PRINCIPLES FOR NEW MOBILITY

As new mobility presents both upsides and downsides, we must guide our actions with clear principles. These principles reflect our city and regional values,<sup>19</sup> aligning the opportunities presented by innovative mobility services with our mandate to serve the public good. Our approach to mobility innovations and shared transportation in Seattle will be driven by the following:

<b>Put People and Safety First</b>	The public right of way is our most valuable and most flexible public space. Our streets should prioritize access for people, amplifying the role and value of walking, biking, and transit in Seattle. We respect the desire to retain and use privately-owned vehicles; but will continue to manage the transportation system to move people and goods safely and efficiently. Safety is paramount, no matter how you get around Seattle. Our streets should be comfortable and intuitive for our most vulnerable travelers (people walking and biking). Shared, automated, and other new mobility models should not only advance our Vision Zero safety goals, they should also maintain consumer protections.
<b>Design for Customer Dignity and Happiness</b>	Transportation happiness is a key indicator of the 21st Century Seattle Department of Transportation. We will not only simplify and enhance the user experience of public transit and new mobility services, we will continue to promote a diversity of transportation choices. Dignified public transit and new mobility services must accommodate people with mobility impairments, non-traditional schedules, and families that need flexible mobility options.
<b>Advance Race and Social Justice</b>	New mobility, whether shared, public, private, or automated, is a fundamental human need. Everyone needs a barrier-free transportation system and affordable transportation options that are understandable and accessible to all who want to use them. New mobility models should also promote clean transportation and roll back systemic racial and social injustices borne by the transportation system.
<b>Forge a Clean Mobility Future</b>	We are committed to climate action. We will transition our transportation sector to one which furthers our climate goals and builds replicable models for the rest of the world. New mobility services should use clean energy and expand human-powered transportation.
<b>Keep an Even Playing Field</b>	Data infrastructure is foundational to understanding, operating, and planning in a constantly changing transportation system. Partnerships and a fair and flexible regulatory environment will nurture and expand new mobility ideas, companies, jobs, and workforce training.

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<sup>19</sup>We collaborated with King County Metro on these Principles for New Mobility.



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# 3 OUR PLAYBOOK







## OUR PLAYS

New mobility is dynamic. New startups with new services continue to enter the market and our transportation system. New players could pop-up one month and suddenly fold six months later. New mobility's fluidity plays out in the context of two factors that do not change:

1. Our hard infrastructure (sidewalks, roads, bridges, etc.)
2. Our mission, vision, values, and goals

These two factors set out the parameters where new mobility innovations are tested and deployed. This is our playing field. We know it. We will protect it. We will play to succeed.

We will work with new mobility through five "plays" so the technologies adapt to, rather than reshape, our city. The plays will help us get to the ideal outcomes and avoid the most problematic scenarios. Our five plays broadly cover the way we want new mobility to work for the city and our residents, the way the Seattle Department of Transportation works, and the way we prepare for rapid, unpredictable change.

### Our five plays are to:

#### PLAY 1:

Ensure new mobility delivers a fair and just transportation system for all

#### PLAY 2:

Enable safer, more active, and people-first uses of the public right of way

#### PLAY 3:

Reorganize and retool SDOT to manage innovation and data

#### PLAY 4:

Build new information and data infrastructure so new services can "plug-and-play"

#### PLAY 5:

Anticipate, adapt to, and leverage innovative and disruptive transportation technologies

In the following sections, we list a set of strategies under each play. We will list down our *First Moves*—our immediate (and even current) actions—and we will issue *Invitations to Innovators* who may have new ideas to help our goals.

Appendix A provides additional details on the moves that can achieve our five plays over the next five years - understanding that trends and technologies will continue to rapidly change.



*Our playbook lays out our values, principles, ideas, plays, and strategies to help us shape and adapt to changes in the mobility landscape. Each play, corresponding strategy, first move, and further action is based in our principles for new mobility and help us achieve Seattle's five core values.*

## PLAY 1:

Ensure new mobility delivers a fair and just transportation system for all



### IF WE LEAVE IT TO CHANCE...

There are more transportation choices, but only for those who can afford it. New mobility innovations cannibalize resources and erode support for public transportation. Workers are vulnerable to disruptions. The city becomes disconnected.

### IF WE SHAPE IT...

More affordable and better integrated transportation choices make the city and the region more accessible to people with disabilities and the disadvantaged. Public transit flourishes. The transportation workforce earns a living wage and is resilient to disruptions.

We must ensure that shared mobility services provide dignified, reliable, and affordable transportation options that are accessible to all. We will make targeted investments and broker partnerships to integrate new technology and ensure seamless connections to and between shared mobility modes. New services should be attentive to the needs of people of color, low-income, immigrant, refugee and aging populations, women, families, youth, LGBTQ, and people with disabilities. New mobility options and technology must fight against the displacement of vulnerable communities and develop the living wage transportation workforce of tomorrow. We will:

**Strategy 1.1:** Advance shared mobility equity programs targeting people of color, low-income, immigrant, refugee, youth, and aging populations, women, LGBTQ, and people with disabilities

**Strategy 1.2:** Deploy digital equity solutions to ensure everyone has access to app-enabled mobility options

**Strategy 1.3:** Advance as diverse an array of payment options as possible to improve access to app-enabled mobility options

**Strategy 1.4:** Ensure new mobility services are ADA accessible across the region

**Strategy 1.5:** Ensure new mobility complements and enhances the public transit system

**Strategy 1.6:** Develop integrated shared mobility hubs to seamlessly connect people to and between mobility services





## PLAY 2:

Enable safer, more active, and people-first uses of the public right of way



### IF WE LEAVE IT TO CHANCE...

Car ownership may go down, but vehicle miles traveled (VMT) increase, leading to more congestion. Ridehailing services crowd our curbs and e-commerce demands overwhelm our goods delivery system. The urban environment becomes more hostile to people walking, people with disabilities, older adults, and people riding bikes. Overwhelmed by these changes, our streets lose vibrancy.

### IF WE SHAPE IT...

We expand the network of pleasant public spaces and people-friendly streets. We can accommodate more green space as our population grows, which encourages more walking and biking. Seattle attains Vision Zero. The streets function well and goods are delivered efficiently.

New mobility services can potentially move more people using fewer vehicles. This would reduce the need for car storage (parking) and help us align our street with our right of way priorities: mobility, access for people, and activation first; storage last. We can change the way we use our streets, sidewalks, and curbs. We can provide more space to people, while accommodating urban goods delivery. Managed appropriately, new mobility services can help us fulfill our Transit, Pedestrian, Bicycle, and Freight Master Plans, as well as achieve the goals of our Move Seattle strategy.

We will harness the efficiency benefits of shared mobility to make way for a future with great pedestrian spaces and community places, no fatal and serious traffic collisions, more reliable transit, and safe places for people to bike. We will also partner with regional logistics leaders and startups to implement innovative policies that facilitate the movement of urban goods movements and e-commerce deliveries. We will:

**Strategy 2.1:** Recover street space and expand the public realm as the demands for access shift

**Strategy 2.2:** Ensure that new mobility advances our Vision Zero goal of ending traffic deaths and serious injuries on city streets by 2030

**Strategy 2.3:** Support the development of the urban goods delivery and new freight technology solutions



## PLAY 3:

# Reorganize and retool SDOT to manage innovation and data



### IF WE LEAVE IT TO CHANCE...

Lack of capacity and knowledge leads the City to over-regulate in some areas, and is preempted from critical regulatory and auditing functions in other areas. The city stifles innovation or is susceptible to unintended consequences.

### IF WE SHAPE IT...

The city becomes a testbed for innovation. Our data infrastructure allows us to manage the transportation system in real-time, providing anticipatory responses and strengthening protections against emerging threats.

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We will advance innovative, data-driven policies, services, technologies, and projects that create an abundant mobility marketplace available to all. The Seattle Department of Transportation will be a 21st Century DOT, accommodating changing consumer expectations and leveraging disruption in the mobility industry to meet our desired outcomes. We engage in new ways to create a two-way dialogue on new mobility. We will also be transparent as we test and learn about new ideas, daylighting our successes and lessons learned. We will pivot to new funding mechanisms as our gas tax and parking revenue sources deplete over time. This will require data-driven, anticipatory governance and a fresh perspective on organizational structures, staff skills, procurement rules, and partnerships. We will:

**Strategy 3.1:** Manage risk related to emerging mobility services

**Strategy 3.2:** Foster a culture of innovation and proficiency in new mobility solutions

**Strategy 3.3:** Understand the mobility needs of the community

**Strategy 3.4:** Continuously update citizens about mobility innovations

**Strategy 3.5:** Pursue nimble regulations that meet the public good while spurring innovation

**Strategy 3.6:** Establish new transportation funding mechanisms in response to the changing financing landscape

**Strategy 3.7:** Build strategic mobility partnerships with King County Metro, Sound Transit, and other public and private entities

**Strategy 3.8:** Attract mobility companies, services, and jobs to Seattle's burgeoning mobility industry cluster

**Strategy 3.9:** Encourage travel behavior that ensures safe and efficient people movement

## PLAY 4

Build new information and data infrastructure so new services can “plug-and-play”



### IF WE LEAVE IT TO CHANCE...

Disconnected systems and lack of interoperability creates new transportation silos. Data asymmetries leave users in the dark and allow private mobility players to game the system. Transportation technologies are vulnerable to cyber attacks.

### IF WE SHAPE IT...

We create clear rules for testing new technology and prototyping in the city. The results of prototypes are clearly evaluated against the city's values and goals. Successful prototypes can scale rapidly. Services that don't work can “fail gracefully.”

Transportation data is open and interoperable. Finding your way around the city without your own car is easy. Seattleites can purchase transportation services when they need them.

Our streets flow with a rich stream of data generated by traffic sensors, on-vehicle sensors, and mobile data from ridehailing, car share, and other services. This flow of data could give us more insights into emerging travel patterns and the effects of new mobility services on the way people use transportation. But, the flow of data is currently unstructured and our community has concerns over their privacy. We will advance solutions that protect publicly identifiable information, while expanding our data infrastructure. We will relay travel information in culturally sensitive and appropriate ways.

Approaching data not just as information, but also as infrastructure, could help us build a better platform for delivering mobility as a service: abundant shared mobility options, digital mobility marketplaces, seamless fare payment solutions, incentives and subsidies, and access to real-time mobility data.

This data infrastructure could also help us develop clear rules so startups can roll out their prototypes and pilot services in Seattle. We will:

**Strategy 4.1:** Access relevant data to ensure the public good is served

**Strategy 4.2:** Facilitate trusted data flows between connected vehicles, sensor infrastructure, personal devices, and community digital devices

**Strategy 4.3:** Develop analytical tools that model the evolving state of mobility

**Strategy 4.4:** Establish an open marketplace for Mobility as a Service

**Strategy 4.5:** Simplify and enhance the fare payment experience

**Strategy 4.6:** Unlock new opportunities for trip planning

## PLAY 5

# Anticipate, adapt to, and leverage innovative transportation technologies



### IF WE LEAVE IT TO CHANCE...

The transportation system is unable to adapt to or leverage innovations when the city gets locked into dead-end technologies, much like how governments got locked into BlackBerry phones for years even while iPhone and Android were taking over the world.

### IF WE SHAPE IT...

Seattle leads in transportation thinking and practice. New mobility accelerates a virtuous cycle that makes the city safer, more affordable, more livable, more vibrant. Technology adapts to the city and what we want it to be. Quiet, zero emission vehicles that run on clean energy dramatically reduce climate and noise impacts.

We have a long tradition of testing new technology, including the roll out of our mobile parking payment app and pay stations. We are establishing a policy framework that anticipates new, potentially disruptive technologies and ensures they help us meet our broader community goals. Our vision for automated mobility focuses on shared transportation, connected movement, and clean vehicle technology. We will pursue these technologies to complement our robust investments in transit. We will manage the negative impacts of single-occupant and zero occupant vehicles. We will also advance innovations in electric mobility and other clean fuels. We are setting the goal of making sure that, by 2030, at least 30 percent of all light duty vehicles registered in Seattle will be electric. And, we will collaborate with other cities, experts, and global leaders to exchange successful policy and technological innovations. We will:

**Strategy 5.1:** Establish a comprehensive set of people-first policy parameters to introduce and manage fully shared, electric, connected, and automated vehicles<sup>20</sup>

**Strategy 5.2:** Use pilots and promotions, to manage the technological and cultural shift to automated technology

**Strategy 5.3:** Promote the shift toward electric shared mobility services

**Strategy 5.4:** Support King County Metro in their effort to achieve a zero-emissions fleet by 2034



<sup>20</sup>See Appendix C for our preliminary policy framework, which will be updated periodically.



## OUR FIRST MOVES

The dynamic nature of new mobility requires us to focus resources on policymaking, initiatives, and pilots that help us shape changes in the mobility landscape. The following 20 “first moves” represent the most foundational and strategic actions that will set us up for success over the long-term. Each first move corresponds to a specific play and strategy.

Over the next 18 months, we will...

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### Establish the following policies:

1. Adopt the preliminary Automated Mobility Policy Framework (see Appendix C) as an ordinance and require annual updates to reflect changes within the automated mobility industry **(Strategy 5.3)**
  2. Adopt a policy framework and permit program that enables electric vehicle charging in the public right of way **(Strategy 5.3)**
  3. Develop a set of principles to guide ongoing regulatory and legislative efforts—including a protocol for updates (see SDOT’s regulatory principles in Appendix D) **(Strategy 3.5)**
  4. Craft a free-floating bike share policy framework to extract the most benefit out of privately funded bike share systems **(Strategy 3.1)**
  5. Partner with King County Metro and Sound Transit to develop a microtransit policy framework and pilot its ability to serve first-/last-mile connections, emerging transit markets, and capacity relief needs **(Strategy 1.5)**
- 

### Initiate the following programs:

6. Build staff capacity for data analytics, technology investments, pilot delivery, and policy-making **(Strategy 3.2)**
  7. Host community conversations with transportation advocates, social justice-oriented community-based organizations, and community members to understand broader challenges and opportunities related to new mobility **(Strategy 3.3)**
  8. Work with regional and national partners to establish a neutral trusted data platform that houses data from new mobility service providers, sensors, and other data sources, automates data analytics, and enables predictive analytics **(Strategy 4.2)**
  9. Develop a Mobility as a Service platform that enables an open marketplace for mobility aggregation apps to compete and meet customer needs **(Strategy 4.4)**
  10. Develop a Shared Mobility Hub program with a public-facing brand, actionable Implementation Plan (including a regional definition of shared mobility hubs, a hub typology, access hierarchy, siting plan, financing, phasing, and other implementation considerations), and demonstration sites **(Strategy 4.2)**
  11. Develop a digital data master plan to take stock of our data, establish data sharing standards, and create data handling and privacy standards for the trusted data platform, Mobility as a Service platforms, and connected infrastructure **(Strategy 4.1)**
  12. Democratize and test technology in the public right of way such as interactive digital kiosks and other information interfaces **(Strategy 4.6)**
  13. Develop a multi-income level shared mobility subsidy program **(Strategy 1.1)**
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## Conduct the following research:

14. Work with the University of Washington's Urban Freight Lab to understand the impacts and benefits of e-commerce and other emerging shared goods delivery models in Seattle **(Strategy 2.3)**
15. Conduct a Racial Equity Toolkit for the New Mobility program to ensure shared mobility initiatives promote, rather than roll back, equity **(Strategy 3.1)**
16. Analyze the labor implications of automated and electric mobility strategies to mitigate job loss, identify new growth areas for people of color, low-income, immigrant, and refugee communities, and pinpoint workforce development and training needs **(Strategy 5.2)**

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## Prototype or pilot the following projects:

17. Expand 3-minute passenger loading zones citywide from which ridesourcing and microtransit services can be required to pick-up and drop-off passengers (i.e., "pin drops" are tied to physical passenger loading zones) **(Strategy 2.1)**
  18. Develop new solutions for the Wheelchair Accessible Taxi (WAT) program to reduce operating costs, meet customer expectations, and work more efficiently across jurisdictional boundaries **(Strategy 1.4)**
  19. Strategically site electric vehicle fast charging infrastructure at shared mobility hubs to facilitate electric shared mobility **(Strategy 5.3)**
  20. Establish a permit process that allows sensor infrastructure providers to expand the network of sensors at intersections and multiply vehicle-to-infrastructure (V2I) communications citywide **(Strategy 4.2)**
-

## OUR INVITATIONS TO INNOVATORS

Our Playbook is grounded on our shared vision for Seattle, and on the Seattle Department of Transportation's mission, values, and goals. We've designed our plays and strategies to leverage the benefits and mitigate the risks. We are guided by a set of principles that we co-developed with King County Metro. With the help of community members and experts, we've set out actions in the immediate and near term and have brainstormed a long list of further actions. These are actions we might take by ourselves or in partnership with others, or we might encourage other stakeholders to take through our resources and relationships.

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### We invite innovators to help us answer the following questions:

1. How might we open up data from new mobility services in a way that serves the public good, but also protects the privacy of users?
  2. How might we obtain frequently updated data (even up-to-the-minute data) on how new mobility services are impacting the transportation system and furthering racial and social justice?
  3. How might we design new mobility services so they work just as well for people with disabilities (including the neurodiverse) and for older adults?
  4. How might we allow people to pay for new mobility services without a credit card or a bank account?
  5. How might we create information interfaces for new mobility that do not require a smartphone, a gadget, or a screen?
  6. How might we create localized test procedures that allow us to safely test prototypes on city streets?
  7. How might we create incentives and nudges to encourage people to use the most economical, most operationally efficient, and environmentally-friendly shared or new mobility service?
  8. How might we encourage and create a system that uses data, technology, and new delivery vehicles to deliver e-commerce and urban goods?
  9. How might we use technology to make the street friendlier to people walking and biking?
  10. How might we use sensors that tell us very useful information about how people are using our roads, streets, sidewalks, and public spaces while respecting their privacy?
  11. How might we make sure human providers and drivers of new mobility services are economically resilient?
  12. How might we redesign our procurement process so we can find innovative solutions and better partner with the private sector?
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If you have ideas that are relevant to our questions above, please email us at [newmobility@seattle.gov](mailto:newmobility@seattle.gov).



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