

# SHARED MICROMOBILITY *in the Denver Region*

Considerations for local agency implementation  
and regional consistency



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# SHARED MICROMOBILITY IN THE DENVER REGION

## Considerations for local agency implementation and regional consistency

The Denver Regional Council of Governments' regional transportation planning process is inherently multimodal in scope and cross-jurisdictional in practice. DRCOG staff were in the midst of developing the region's first Active Transportation Plan when dockless bike-share programs arrived in the region and which were quickly followed by other types of shared micromobility. It became clear that regional collaboration was essential to a coordinated response and approach to shared micromobility. Over the past few years, with the addition of electric scooters and electric bikes to shared micromobility fleets, state lawmakers and local policymakers have been working to create a regulatory environment that both enhances safety and mobility while simultaneously upholding civic goals. DRCOG staff support local, regional, state and federal agency conversations and fosters collaboration with partner agencies on shared micromobility.

### **What is shared micromobility?**

Shared micromobility may mean different things, depending on the context in which it's used. For the purpose of this document, shared micromobility refers to shared, low-speed, lightweight, small, human- and electric-powered transportation solutions like bikes and scooters.

Sometimes also referred to as docked or dockless mobility, shared micromobility includes traditional, station-based bike sharing, dockless bikes and e-bikes, and devices like e-scooters. These devices are typically available for short-term rental in designated service areas. Shared micromobility vehicles are most often deployed, used and

parked in the public right of way. Typically, shared micromobility services are operated by private companies, thus the importance of regulatory structure and regional considerations.

*Distinct from shared micromobility, personal micromobility is considered part of the regional transportation system, and devices like personally owned bikes and scooters are considered as part of the regional transportation planning process. These personal devices are consistent with DRCOG planning outcomes associated with things like mode shift, air quality improvements, and healthy and active communities. While not addressed in this document, personal micromobility-related planning efforts are detailed in DRCOG's Active Transportation Plan.<sup>1</sup>*

The Denver region has an opportunity to encourage the use of micromobility devices (personal and shared) to support many local, regional and statewide mobility-related goals. There are several planning documents and processes that provide context for addressing shared micromobility at the regional level, including DRCOG's Metro Vision and Metro Vision Regional Transportation Plan outcomes that support things like mode shift toward commute modes other than driving alone (including micromobility), improved air quality, reduced congestion and increased safety. DRCOG's Active Transportation Plan explored shared micromobility as an emerging trend and recommended convening local, regional and statewide stakeholders to coordinate policy efforts for such devices and programs. Additionally, micromobility was addressed in a collaborative planning effort among DRCOG, the Colorado Department of Transportation, the Regional Transportation District and the Denver Metro Chamber of Commerce and detailed in the Mobility Choice Blueprint.

<sup>1</sup> <http://www.drcog.org/atp>

## Regional Micromobility Work Group

DRCOG established the regional Micromobility Work Group in early 2019 to discuss shared micromobility policy considerations and points of regional coordination, and to collaborate across jurisdictions throughout the Denver region. The work group is made up of representatives from local governments, transportation management associations, and regional, state and federal agency staff. Throughout 2019, stakeholders met monthly. The group continues to meet at least quarterly. The participants in the regional Micromobility Work Group have discussed considerations for local agency implementation of shared micromobility programs and identified principles for which regional consistency is important. DRCOG's staff support local member governments and their work to tailor shared micromobility programs to meet local needs. The purpose of this document is to provide baseline regional considerations as shared micromobility programs are deployed in the region.

As shared micromobility programs launch throughout the Denver region, communities that have — or previously had — such programs have insight and takeaways to share about their experiences. While the Micromobility Work Group meetings allowed for coordination and collaboration with local agencies throughout the region, this document is intended to supplement the in-person opportunities and provide further support for local agencies throughout the region. DRCOG staff compiled considerations documented at in-person sessions and related discussions into this document, which will continue to be updated as innovation and changes in the shared micromobility sector continue. If there is one certainty about shared micromobility it is: change.

### Short trips

*Data from shared micromobility programs indicates that it is particularly well suited to support short trips. In the Denver region, 19% of all trips are less than 1 mile and 43% are less than 3 miles.<sup>2</sup> National data suggests average scooter trips are about 1 mile.<sup>3</sup> In the Denver region, 58% of shared micromobility trips were less than 1 mile and 73% were less than 1.5 miles.<sup>4</sup> The City and County of Denver's February 2019 survey found that 33% of scooter trips replaced personal vehicle and ride-hailing trips.<sup>5</sup>*

### **Why is it important to work on shared micromobility in a regional context?**

Shared micromobility presents an opportunity to support local, regional and statewide mobility goals. Whether shared micromobility programs support outcomes around mobility choice and equity or mode shift and environmental sustainability, there is a clear link between shared micromobility programs and civic goals. Fostering a shared micromobility regulatory environment that is guided by civic goals is particularly important given the relationships between the public sector (often a permitting or licensing agency) and the private sector (often an operating entity); thoughtful policies can guide deployment and partnerships in ways that further civic goals. Working together across jurisdictional boundaries with partners throughout the region provides the public sector with a variety of collaborative opportunities, such as learning from local deployments, coordinating regulatory requirements and evaluating pilot projects. The Micromobility Work Group discussed dozens of policy areas and principles, and identified several areas where regional collaboration on shared micromobility programs is essential.

Trips in the Denver region often cross jurisdictional

2 DRCOG Travel Model 2015, RTP-2017, DRCOG Region

3 National Association of City Transportation Officials, Shared Micromobility in the US, 2019 <https://nacto.org/shared-micromobility-2019/>

4 DRCOG Region, trips between Oct. 1, 2019 and Sept. 30, 2020

5 City and County of Denver, Denver Dockless Mobility Program Pilot Interim Report, February 2019

boundaries during travel. Shared micromobility, especially in dockless systems, facilitates unfettered travel through and across jurisdictional boundaries. Trips are made by individuals making personal travel decisions, and as such, micromobility vehicles may start the day in one jurisdiction and end it in another. As such, the work group identified that it is important to initiate cross-jurisdictional dialogues to most efficiently facilitate shared micromobility for users, vendors and jurisdictions.

Many stakeholders in the Denver region recognize the potential benefits of presenting micromobility vendors with similar considerations for working within multiple jurisdictions in the region. There is also a potential benefit to coordinating policies, shared micromobility frameworks and agreements. For example, coordinated policies may allow smaller jurisdictions to present viable market opportunities for micromobility providers operating elsewhere in the region.

Although there are opportunities to collaborate with regional partners, DRCOG's staff recognize the importance of local decisions in guiding shared micromobility programs. This document is not intended to provide rules or regulations. Rather, it outlines important considerations and opportunities for which regional collaboration has the potential to benefit various stakeholders within the region. This document was developed after an engagement process with local and regional partners through the Micromobility Work Group over more than a year.

## ***What's changed as a result of the COVID-19 pandemic?***

In March 2020, as the COVID-19 pandemic began to affect the region, transportation was disrupted. During the Stay-at-Home order in early spring, people traveled significantly less in the Denver region, and with remote work options for some of the population, travel significantly decreased from pre-pandemic levels. Shared micromobility services saw a dip in trips during late March and April, especially in the early weeks of the pandemic when some operators temporarily removed vehicles from the streets.<sup>6</sup> However, during the summer months, riders gradually took more shared micromobility trips. It is possible that with the Regional Transportation District's transit service reductions and travelers' desire to stay in open air, more people chose shared micromobility to get around instead of other shared mobility services.

Some shared micromobility operators stepped in to provide transportation for front-line workers, others expanded shared micromobility travel options into areas where transit service was less frequent or reduced.<sup>7</sup> The industry was initially challenged by the reduction in commuter and leisure travel to central business and entertainment districts where nonresident populations previously used shared micromobility devices.

Despite the pandemic, the benefits of shared micromobility are still evident, especially when considering the local goals they support. Micromobility (personal and shared) continues to provide transportation options for residents of the region and visitors alike. As more and more people prioritize social distancing and outdoor activities in response to COVID-19, the benefits of micromobility (personal and shared) are becoming more appealing to people who may have previously used other modes of shared mobility.

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6 <https://www.9news.com/article/news/health/coronavirus/electric-scooter-fleets-denver-lime-bird-razor-lyft-spin-city-travel/73-05652881-e3bd-4ed6-b4b7-021ddb8b7bd>

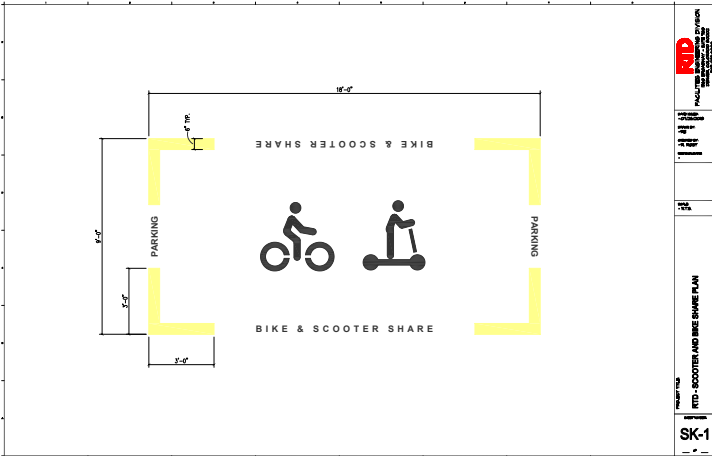
7 <https://www.covidmobilityworks.org/find-responses?search=Denver>

## Shared micromobility in the Denver region

Communities in the Denver region have introduced several pilots and ongoing shared micromobility programs, starting with one of the first bike sharing systems in the nation. DRCOG staff have worked with communities throughout the region to better understand the benefits and challenges inherent in micromobility pilots, ongoing programs and discontinued arrangements; brief summaries are provided here.

### Regional Transportation District

RTD requires all shared micromobility operators to obtain a license agreement before deploying any vehicles on RTD-owned property. The license agreement requires micromobility operators to stage their vehicles within a defined stencil area and to resolve issues with micromobility vehicles in the public right of way immediately. There is typically a fee associated with the license agreement, which is negotiated directly between RTD and the shared micromobility operator.



### City of Aurora

The City of Aurora was the first city in Colorado to introduce a dockless bike-share permit program. In 2017, the city issued permits to Ofo and Lime and implemented the first local dockless bike-share permit program. In August 2018, Ofo ceased operations in

Aurora and Lime pulled out to focus on the Denver market. Since then, the city has revised its rules and regulations to include a broader focus on shared mobility. The City of Aurora Shared Mobility Small Devices License Program (2019) Rules, Regulations and Application are available on its website.<sup>8</sup>

### City of Boulder

The City of Boulder is home to Boulder B-Cycle, a nonprofit bike sharing system with more than 45 stations and approximately 300 bikes. The docked system launched in May 2011. System users have taken over 100,000 trips since then, and the program serves around 15,000 riders annually.<sup>9</sup> The Boulder City Council has been further exploring shared micromobility services, like e-scooters and e-bikes, to support the city's Transportation Master Plan and Climate Commitment goals. The City of Boulder issued a request for information for dockless e-bikes in late summer 2020. In September 2020, Boulder City Council authorized the inclusion of shared e-scooters in a designated area as part of the city's Shared Micromobility Program. In first quarter 2021, the City of Boulder will issue a RFP to select one or more operators to provide both e-bike and e-scooter share. The City of Boulder anticipates initiating a new program in the summer of 2021.

### City of Denver

#### Denver Bike Sharing

Denver Bike Sharing is the nonprofit that owned and operated Denver B-Cycle, a station-based, bike sharing program in Denver through 2019. It was established in 2010 to create a shift toward biking and to connect and extend public transportation service areas. The program was the nation's first major, citywide bike sharing program. While it served many travelers in and around Denver, Denver B-Cycle service was discontinued in early 2020.

8 [https://www.auroragov.org/residents/transportation\\_\\_\\_mobility\\_resources/shared\\_mobility\\_program](https://www.auroragov.org/residents/transportation___mobility_resources/shared_mobility_program)  
9 <https://boulder.bicycle.com/blog>

## Dockless mobility pilot

In the summer of 2018, shortly after the unauthorized launch of shared e-scooters on Denver streets, the City and County of Denver developed a Dockless Mobility Vehicle Pilot Permit Program under its existing Transit Amenity Program.<sup>10</sup> The program included a variety of shared micromobility devices including: bicycles, e-bikes, e-scooters and other approved dockless mobility vehicles. The pilot included five operators and city staff collected data throughout the pilot, including through public surveys that provided input on the program.<sup>11</sup> The pilot was extended into 2019 and will continue to operate until a new license is granted under an ongoing program, anticipated in late 2020 or early 2021.

## Ongoing program

In March 2020, the City and County of Denver released a request for qualifications for shared micromobility services.<sup>12</sup> City and County of Denver staff conducted a competitive bidding process over the summer of 2020 and the jurisdiction is expected

to announce the operator(s) that will be licensed to operate shared micromobility programs. Its ongoing program is expected to be a license-based, no-fee approach which is unique nationwide in that it focuses on potential partnership opportunities between the public and private sector to pursue and support civic goals and is not regulated through a permit program.

## Other programs

The City and County of Denver is home to other shared micromobility programs, like the nonprofit-run Northeast Transportation Connections bike library, which is station-based and provides customer-focused services in the transportation management association's service area.<sup>13</sup>

## City of Golden

The City of Golden is home to a locally operated bike sharing system.<sup>14</sup> Bikes are available at the Golden Visitor Center and two other downtown locations. The library provides free two-hour rentals and paid day-long rentals. The bike library is seasonally operated,

10 <https://www.denvergov.org/content/denvergov/en/transportation-infrastructure/programs-services/dockless-mobility.html>

11 <https://www.denvergov.org/content/dam/denvergov/Portals/705/documents/permits/Denver-dockless-mobility-pilot-update-Feb2019.pdf>

12 <https://www.denvergov.org/content/denvergov/en/transportation-infrastructure/programs-services/dockless-mobility.html>

13 <https://nettransportation.org/bike-library/>

14 <https://www.cityofgolden.net/play/recreation-attractions/bicycling-in-golden/golden-bike-library/>





and offers both adult and children’s bikes. The Golden Bike Library is the city’s only shared micromobility program; however, in 2018, Ofo, a dockless bike-share company, launched a pilot for a few weeks before Ofo left the North American marketplace.<sup>15</sup>

### **City of Lakewood**

In 2019, the City of Lakewood conducted public engagement to learn about Lakewood residents’ thoughts on dockless scooters.<sup>16</sup> As a bordering jurisdiction to Denver during its dockless mobility pilot, the community proactively engaged residents before developing a regulatory structure for shared micromobility services. The City of Lakewood approved regulations for micromobility in September 2019. There are currently no shared micromobility operators in the City of Lakewood.

### **City of Lone Tree**

In 2018, the City of Lone Tree was home to a dockless bike share pilot. Ofo operated in Lone Tree and at RTD light rail stations, like Lincoln Station, under a pilot program.<sup>17</sup> The pilot ended when Ofo ceased operations in the North American market in summer of 2018. There are currently no shared micromobility operators in the City of Lone Tree.

### **City of Longmont**

The City of Longmont launched a station-based bike-share program in 2017 operated by Zagster. With innovations in the service model for bike-share programs, it adapted and included the Pace bike sharing system. Due to circumstances associated with COVID-19, the program ended in June 2020 when Zagster discontinued service.<sup>18</sup>

### **City of Thornton**

In 2018, the City of Thornton authorized a permit-based two-year bike-share pilot program.<sup>19</sup> City staff coordinated with neighboring jurisdiction staff including from Brighton, Commerce City, Federal Heights, Northglenn and Adams County, in addition to its local transportation management association, Smart Commute Metro North. There are currently no shared micromobility operators in the City of Thornton.

### **City of Westminster**

In 2016, the City of Westminster, along with community partners and Zagster, launched its first bike-share program.<sup>20</sup> The program provided recreation and commuter access to Westminster’s trails and open space for people of all abilities. Three kinds of bikes were available in the program: hand-cycles, tricycles and cruisers. The program was moderately used, facilitating approximately 1,500 total trips. In August 2018, due to lack of sponsorship funding, Zagster withdrew from the program and its operations ceased. In December 2020, there were no shared micromobility operators in Westminster. The city will identify the first steps in evaluating a potential micromobility administration program as part of the development of Westminster’s Transportation and Mobility Plan, under development as of December 2020, supported by initial community input about micromobility gathered in summer 2020.

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15 <https://www.goldentranscript.net/stories/yellow-ofo-bikes-leave-golden,267734>

16 <https://www.lakewoodtogether.org/dockless-mobility>

17 <https://lonetreevoice.net/stories/bike-sharing-program-comes-to-lone-tree,258472>

18 <https://www.longmontcolorado.gov/Home/Components/News/News/11010/3>

19 <https://www.thorntonco.gov/government/city-council/Documents/meeting-documents/2018/071018/9C.pdf>

20 <https://zagster.squarespace.com/press/westminster-and-zagster-introduce-inclusive-bike-share-program>

## Regulatory environment

Communities in the Denver region either do not have regulatory frameworks or have used a variety of regulatory frameworks to allow shared micromobility services to operate in both pilot and ongoing shared micromobility programs. The regulatory structure of these programs has shifted as the devices, fees and service offerings have changed since initial launches. As dockless, shared micromobility programs have entered local markets, the Denver region's communities have issued permits and licenses to multiple or single operators. The Micromobility Work Group has concluded that it's important for local agencies to consider the regulatory structure that works best in their community and which best supports its stated goals and outcomes for a shared micromobility program.

Over the last year, some communities throughout the nation have shifted from a focus on permit-based pilot programs to more formal solicitation processes like requests for proposals or qualifications. Using a competitive selection process to award a license to operate allows communities to focus on selecting operators based on a set of public outcomes detailed in a formal request for proposals or qualifications. The approach allows communities to limit the number of operators and select proposals that best meet the jurisdiction's desired outcomes while simultaneously supporting specific civic goals. In 2020, the City and County of Denver issued a request for qualifications to solicit proposals for shared micromobility services via a license to operate.

The Denver region also has communities that opted for permit-based programs. The benefits of permit-based programs may include faster turnaround time as compared with a competitive selection process, and many agencies have permitting protocols in place that can potentially handle micromobility permit programs. Some jurisdictions may favor permits in terms of revocability, should compliance with the regulations

not be met. Permit programs also provide flexibility to operators as they come to market; many permit programs accept applications on an ongoing basis.

As part of the changing regulatory environment, fee structures have also changed since the initial launch of dockless bike-share programs and are a major consideration for communities deploying shared micromobility programs. The City and County of Denver, as part of its competitive selection process to award a license to a shared micromobility operator, is reconsidering fees and instead focusing on partnerships with operators that rely more on trip subsidies to riders, rather than a payment to the public agency. In other communities, fee structures may include application, annual operating or permit fees, fees per device, or per-trip fees. Fees are used to cover direct and indirect program support; fees are typically used to support the administration of the program and investment in supportive travelway and parking infrastructure.

### **State law (HB19-1221)**

*In 2019, the State of Colorado adopted language concerning the regulation of electric scooters. The law authorized the use of electric scooters on roadways. Previously they had been considered toy vehicles and thus not authorized for use on roadways.<sup>21</sup> The law, HB19-1221, defines an electric scooter as a device that: weighs less than 100 pounds, has handlebars, is powered by an electric motor and has a maximum speed of 20 mph. The law authorizes local governments to regulate the operation of an electric scooter in a manner that is no more restrictive than the manner in which the local government may regulate an electric bicycle.*

*Innovation in the sector could result in vehicles either incorrectly classified or not classified at all, making continual monitoring of device classification a critical consideration.*

21 <https://leg.colorado.gov/bills/hb19-1221>

## Getting started and program administration

Before discussing focus areas for collaboration, communities in the Denver region discussed initial steps that would help set communities up for success through early engagement with stakeholders (internal and external) and operators.

### **Plan support and local context**

When local agency staff are considering how shared micromobility might fit in their community, the Micromobility Work Group suggests it is a good practice to first consider existing plan support and local context. For example, the City and County of Denver tied its pilot program to mobility goals in Denver's Mobility Action Plan. Clarifying the relationship between the dockless mobility pilot and local civic priorities was a step critical to introducing and evaluating the pilot. Several communities in the Denver region that have introduced or planned pilots cited using local transportation plan or comprehensive plan goals as a way to frame micromobility programs or pilots. Staff of communities in the Denver region also mentioned looking to other local policies or pilot programs in the region as they developed pilot programs or regulatory structures for their jurisdictions. For example, City of Thornton staff looked to the City of Aurora's original bike-share program as they developed Thornton's bike-share pilot program.

### **Stakeholder engagement**

#### **Internal stakeholder discussion**

When beginning conversations around launching a pilot or ongoing program, the Micromobility Work Group suggests it is important to bring together an internal team to get perspectives from all departments — from public works or transportation and community planning, to parks and safety — and, of course, consulting the community's legal team. All communities that have developed pilot programs in the Denver region have stressed the importance

of getting started with an interdisciplinary team. Cross-divisional conversations can inform the fee requirements and resources needed to implement a shared micromobility program and better position communities to make sure their regulatory structure and requirements are set up in a way that works for all internal stakeholders. Communities have demonstrated the importance of internal stakeholder discussions. Here are several examples for consideration:

- The City and County of Denver continues to work with its police and safety teams throughout deployment on enforcement and evaluation efforts. Denver staff suggests it's important to consider enforcement and ticketing efforts ahead of initial deployment with police department and public safety partners.
- During the development of its pilot program, the City of Thornton consulted its internal team including the city manager's office, planners, police and public works.
- The City of Aurora has an existing working group made up of public works, parks and recreation, code enforcement and police representatives that it worked with to discuss its micromobility program. City staff considered this partnership of internal departments critical to getting program details in front of city officials.

#### **External stakeholder discussion**

Several communities noted the importance of working with other local and regional partners, whether linking shared micromobility goals to regional Metro Vision targets or coordination with other local groups like transportation management associations. Jurisdiction staff correlated aligning program outcomes to goals and targets with success in getting the message to partners and gaining acceptance and buy-in about the program. Communities have demonstrated the importance of external stakeholder discussions. Here are several examples for consideration:

- The City of Thornton worked with the North Area Transportation Alliance when it developed its bike-share pilot program guidance and then city staff took the ideas that had been discussed at the North Area Transportation Alliance to the Thornton city manager before moving forward. Having outside, local support helped move the pilot through the approval process.
- The City and County of Denver continues to survey both dockless mobility users and nonusers on their thoughts about e-scooters and e-bike sharing programs. The City and County of Denver evaluated efforts with a survey midway through its dockless mobility pilot program (February 2019). Alongside other evaluations (observation and intercept survey work), Denver staff are using external stakeholder input to inform next steps, once the pilot program has concluded.
- The City of Lakewood conducted extensive public outreach prior to introducing a pilot or permanent program for dockless mobility devices. Its outreach included four open houses, newsletters, posts on NextDoor, Looking@Lakewood council presentation, online survey, interactive mapping tool and provider inclusion.

### ***Working with operators***

Staff from communities that have implemented micromobility pilots and programs have also noted the importance of coordination with shared micromobility operators. Local staff found extensive collaboration helpful; when operators and communities were aligned on initial pilot or program goals they were encouraged by the different ways they could be better partners.



## Pilot programs

Many shared micromobility programs are first deployed as pilot programs. Pilot programs provide local agencies with an opportunity to study the deployments and effects of shared micromobility programs on local goals and to hear from constituents about considerations before developing an ongoing or permanent program. The Micromobility Work Group considers it important for agencies to consider flexibility in deploying of pilot programs because shared micromobility is part of a transportation technology sector that is rapidly changing. The Micromobility Work Group supports the recommended actions outlined in Urbanism Next's Perfecting Policy with Pilots report.

*Urbanism Next studied new mobility pilots and developed its Perfecting Policy with Pilots: New Mobility and AV Urban Delivery Pilot Project Assessment report which details lessons learned, emerging trends and considerations regarding new mobility pilots.<sup>22</sup> It recommend 10 actions for pilot projects:*

1. Define the pilot goals and outcomes at the beginning of the process and make sure every pilot activity is designed to achieve them.
2. Study what happened and put those findings into a final evaluation report.
3. Foster relationships and build trust.
4. Create a policy framework (such as regulations, contracts, agreements) for each pilot project that advances the public good and is easy to understand.
5. Build in compliance mechanisms.
6. Measure the impact on equity, health, safety, the environment and the economy.
7. Measure the impact of the pilot project on transit.
8. Collect information needed to ensure the public good (while protecting privacy) and produce useful information to make relevant policy decisions.
9. Apply these lessons learned and recommendations to AV and other types of pilots.
10. Plan for volatility.

22 <https://www.urbanismnext.org/resources/perfecting-policy-with-pilots-new-mobility-and-av-urban-delivery-pilot-project-assessment>



## Focus areas for collaboration

### Coordination

#### Regional coordination

DRCOG staff will continue to collaborate with local, regional, state and federal partners through the regional Micromobility Work Group. RTD will continue to work with shared micromobility operators in the region to obtain a license agreement before deploying any vehicles on RTD-owned property. Ongoing communication and coordination regarding shared micromobility will inform future work of DRCOG staff and revisions to this document. Collaborating across jurisdictions and providing support to local agencies is a critical component of ensuring a successful, multimodal transportation network in the Denver region. Formed in late 2019, the region's Advanced Mobility Partnership will also provide a place for stakeholders and local governments to coordinate on issues that relate to shared micromobility.<sup>23</sup>

#### Statewide coordination

DRCOG staff have invited statewide partners from both CDOT and the Colorado Department of Public Health and Environment to participate in conversations about shared micromobility through the regional Micromobility Work Group. DRCOG staff have also presented to the Colorado Statewide Metropolitan Planning Organization group and invited staff from other Colorado metropolitan planning organizations to participate in workshops and educational opportunities. Staff will continue to be engaged in statewide partner efforts on shared micromobility and share resources and opportunities with partners as they arise. CDOT is currently developing a Micromobility Guide, which will be shared with regional partners when it is available to external stakeholders.

#### National coordination

Since late 2019, DRCOG staff have worked with national partners on shared micromobility efforts. In an ever-evolving field, DRCOG relies on partners

throughout the country to keep up with the state of the practice. DRCOG staff participate in national efforts and conversations as part of the Open Mobility Foundation and SAE International's Mobility Data Collaborative. DRCOG will provide resources from its staff's participation in these efforts to partner agencies through the Micromobility Work Group as they are made available.

Local governments in the Denver region may also participate in national collaboratives, such as the National Association of City Transportation Officials, on shared micromobility.

### Data and privacy

Among regional Micromobility Work Group members, data and data sharing was a highly ranked focus area for regional collaboration. From collecting data in the same format to having resources to analyze and use the data, there was consensus from local partners that data-related considerations in program deployment was important.

The work group considers it important for public agencies to have shared micromobility data to manage the public right of way. Depending on the local agency, specific use cases for the data collection should be made clear. The identification of use cases and implementation of data privacy policies helps (1) clarify the purpose of public agency data collection and (2) better inform the public and operators of the commitment to protecting personal privacy. Some of the potential use cases might relate to regulating shared micromobility programs and policies, and conducting planning analyses. The New Urban Mobility Alliance has developed a catalog of potential use cases as they relate to policy area outcomes in the areas of equity, safety, environment and usage.<sup>24</sup>

Coordinating on mobility data in the region potentially offers participating communities opportunities to discuss and implement consistent privacy

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23 <http://advancedmobilitypartnership.org>

24 <https://policydata.numo.global>

practices regarding the collection and use of shared micromobility data. Individual shared micromobility trip data is sensitive and should be treated as protected information. The Micromobility Work Group encourages communities in the region to consult the Open Mobility Foundation’s Mobility Data Specification Privacy Guide for Cities for additional considerations.<sup>25</sup>

Communities in the Denver region were encouraged by wide adoption of the Mobility Data Specification (MDS), a framework for using data to manage the public right of way. Pioneered by the Los Angeles Department of Transportation, MDS is now an open-source specification overseen by the Open Mobility Foundation. MDS reduces or eliminates the need for operators to develop custom data fields unique to each jurisdiction. MDS allows local agencies and shared micromobility operators to share information in a standard format.

Public agencies can share platform and analytics tools if regulatory agencies request data in an MDS-compliant format and ensure third-party data sharing provisions are included in their agreements with operators. Using a third-party (public or private sector) aggregator provides potential cost savings as individual agencies do not need to develop or hire out the expertise typically needed to analyze raw data or MDS feeds. Additionally, refining an approach to shared micromobility data and data sharing benefits partners throughout the Denver region by providing

*In 2020, DRCOG staff coordinated a shared micromobility data pilot alongside partners from the City and County of Denver, RTD and CDOT. The partners selected a third-party vendor, Ride Report, to ingest and share aggregated data among regional partners. The pilot, continuing into 2021, supports staff exploration of regional emerging mobility data sharing and opportunities to share tools and mobility data analytics.*

cross-jurisdictional metrics and access to aggregated and summarized information.

The Micromobility Work Group suggests that data requests in communities should be tailored to ensure the information collected can be used to regulate, monitor and assess shared micromobility programs. Typically, communities wish to obtain information such as, but not limited to:

- daily total vehicles deployed (available, unavailable)
- hourly/daily total trips
- daily morning deployment by area
- daily vehicle utilization rates
- average trip distance
- average trip duration
- trip origins and destinations
- trip routes
- parked vehicle locations

The National Association of City Transportation Officials and the International Municipal Lawyers Association published *Managing Mobility Data*.<sup>26</sup> The resource outlines four key principles around mobility data management including:

- **Public Good:** Require data to ensure positive safety, equity and mobility outcomes for vendors operating in public right of way.
- **Protected:** Treat geospatial mobility data the same as personally identifiable information; should be gathered, held, stored and released in accordance with existing policies and practices for personally identifiable information.
- **Purposeful:** Be clear about what data is collected and highlight why data is needed for planning, analysis and enforcement activities.
- **Portable:** Prioritize open data standards and formats, data-sharing agreements should allow cities to own, transform and share data without restrictions so long as standards for data protection are met.

25 <https://github.com/openmobilityfoundation/governance/blob/main/documents/OMF-MDS-Privacy-Guide-for-Cities.pdf>  
26 <https://nacto.org/managingmobilitydata/>

## REGIONAL APPROACH

In the Denver region, the Micromobility Work Group suggests that agencies should:

- require data in a standard, machine readable format
- request and collect data that supports program goals so pilots and ongoing programs can be properly evaluated
- request access to Mobility Data Specification-compliant application programming interfaces to participate in regional data sharing and platform access in coordination with DRCOG staff
- require General Bikeshare Feed Specification feed, also ensure it is publicly available
- request vehicle-generated data, not information collected through a user's mobile app
- require data-sharing agreements such that data can be shared with third parties, like state and regional public agencies like DRCOG, RTD and CDOT and third-party data vendors
- work with operators to understand the data they collect about users and how that data is used
- review operators' user agreements and data privacy policies for consistency with privacy best practices
- implement mobility data privacy policies

that emphasize personal privacy and outline safeguards that protect sensitive and potentially sensitive information

- share with the public how they use the data they request from operators, specifying use cases and examples wherever possible

## LOCAL CONSIDERATIONS

Local agencies may also wish to consider:

- participation in DRCOG's regional micromobility data sharing program pilot, which provides access to a platform and dashboard to view local agency data using Mobility Data Specification application programming interfaces from operators
- development of policies considering how to treat micromobility data when requested by law enforcement
- collaboration with operators to survey riders at a regular interval to better understand shared micromobility effects
- allocation of resources for training on applicable laws and best practices for safeguarding data
- joining the Open Mobility Foundation and participating in the ongoing development and improvements to the Mobility Data Specification







## Operations

Shared micromobility travelers typically use active transportation facilities where possible. The roadway conditions, bicycle facilities or shared-use paths that are available may influence the choice to use a shared micromobility device and the route an individual might travel. As the popularity of shared micromobility has increased, the need to build more light, small-vehicle accommodations is evident and has increased interest by travelers in slow streets and high-comfort bikeways. Connectivity and safe facilities are more important than ever with additional small and lightweight vehicles using the transportation system.

*DRCOG conducted a survey as part of the development of its regional Active Transportation Plan. Survey responses showed the importance of separated facilities in contributing to a rider's comfort, with three times the number of people feeling very comfortable riding in a separated facility versus riding in a conventional on-street bike lane.*

Communities can support shared micromobility by continuing to plan, design and build high-comfort active transportation facilities. Often, and especially early on in deployment of e-scooter programs, travelers often chose sidewalks where busy streets had no protected bicycle facilities because they did not feel safe traveling alongside on-street traffic. The Micromobility Work Group suggests that devices like shared e-scooters and bicycles should be ridden in bike lanes (conventional, buffered and protected), along bicycle boulevards, neighborhood bikeways and shared use paths (where bicycles are allowed), and on-street when no dedicated facility is available.

The Micromobility Work Group recognizes that sometimes shared-use paths, especially along major arterials, may look like sidewalks, but typically are constructed to a different specification to accommodate two-way travel of both bicyclists and pedestrians, and as such are appropriate for shared micromobility travel. The operational domain for shared micromobility devices should be the same as those facilities where bicycle (for human-

powered micromobility) and/or e-bike (for electric micromobility) travel is encouraged.

While the best place to park shared micromobility devices may sometimes be obvious, like in a station-based bike sharing system, often dockless devices may be parked at the whim of the rider. Typically local

agencies identify parking guidelines (for example, distance from curb edge or transit stop) to ensure clear walkways for pedestrians, and sometimes communities designate or require operators to designate specific parking areas, especially at major destinations like transit or mobility hubs, or shopping and entertainment districts.

## REGIONAL APPROACH

The Micromobility Work Group suggests that in the Denver region, agencies should:

- define the shared micromobility service area
- encourage the use of shared micromobility using facilities where bicycles (for human powered micromobility) and e-bikes (for electric micromobility) operate and discourage the use of shared micromobility devices on sidewalks, where bicycles/e-bicycles are not allowed to operate
- invest in high comfort active transportation facilities that support safe, comfortable and connected transportation networks for micromobility travelers
- identify parking regulations for shared micromobility devices such that they do not interfere with pedestrian travel or restrict access to or from pedestrian facilities at the curb, crosswalk, transit stop, etc.; and where parking areas are not limited to specific operators
- identify fleet size minimums, maximums or dynamic fleet sizing based on performance
- require devices to be parked upright and in the public right of way
- require operators to rebalance vehicles in the service area
- require operators to develop and share operations plans
- require operators to provide education materials and in-app instruction on correctly

parking shared micromobility devices

- communicate with operators the location of no-ride or no-parking zones and encourage geofencing in-app
- require operators to provide education materials and in-app instruction where no-ride or no-parking zones exist in the service area

## LOCAL CONSIDERATIONS

Local agencies may also wish to consider:

- relationship and connectivity to transit, if transit operates in its service area
- device utilization rate requirements
- desired rebalancing strategies and procedures
- additional restrictions pertaining to parking requirements
- identification of desired parking corral locations
- identification of the window of time that operators are responsible for removing improperly parked vehicles once reported
- procedures and costs associated with removal or storage of improperly parked vehicles if operators do not remove them from unauthorized locations
- fees associated with each ride or deployed device
- physical signage designating no-ride zones
- designating micromobility parking areas (for example: on-street corrals, bike racks, painted zone)

## Equipment and safety

The Micromobility Work Group suggests that as new micromobility devices are introduced to the market, standards, operator practices and policies must be able to adapt. Given the relationship between vehicle classification and regulatory environments, agencies must work together to ensure equipment is classified correctly and meets the State of Colorado's legal definitions. As Vision Zero plans are developed, adopted and

implemented, micromobility must be discussed as part of a comprehensive safety strategy. As new vehicle types enter the micromobility market, public agencies should consider how to track crashes and vehicle safety issues. There are limitations in crash and safety-related data collection; DRCOG staff will continue to track local practices in collection and analysis of this data. DRCOG staff will convene future discussions on micromobility safety through the Regional Vision Zero Working Group.

## REGIONAL APPROACH

In the Denver region, the Micromobility Work Group suggests that agencies should:

- require shared micromobility devices to clearly display a unique vehicle ID and contact information for the operator
- require each device to be equipped with a GPS to provide location information for the device
- require devices to meet the legal definitions as identified by applicable laws
- require devices comply with safety standards defined by the Consumer Product Safety Commission and other applicable federal, state and local standards
- require operators to provide education to users regarding state and local laws both in-app and through additional materials available through the operator
- require operators to provide contact information in-app and online so customers can notify operators of safety or maintenance issues with a vehicle
- require operators to include information about maintenance, inspections and repairs in their operations plans

- require operators to inform the local agency of any shared micromobility incidents immediately, including crashes, device tampering, battery hazards and personal injuries
- participate in discussions of micromobility safety through the Regional Vision Zero Working Group

## LOCAL CONSIDERATIONS

Local agencies may also wish to consider:

- specific limits on liability and appropriate insurance coverage
- lock-to requirements
- the amount of time within which providers must remove a vehicle from the right of way if there is a reported maintenance or safety issue with it
- specific emergency management plans that address fleet removals in the event of emergencies
- collection of micromobility equipment safety issue information

## Equity

In the ever-changing transportation technology sector, barriers to access and use often have direct and indirect equity effects. For example, docked bike sharing systems have been shown to further improve mobility for people that have better access and more mobility choices disproportionately compared with those with fewer choices and less access.<sup>27</sup> The Micromobility Work Group suggests that shared micromobility programs and their effects on equity should be a primary consideration as programs are planned and deployed.

A starting point for local agencies is to be specific in defining the desired equity outcomes for their communities and shared micromobility programs. Communities may want to focus on location-based equity and equitable distribution of vehicles by identifying zones or areas in which people have less access to transportation options or areas that are not served frequently — or at all — by transit. Other communities may want to focus on population-based equity, by providing free and reduced fare and pass programs throughout the service area to vulnerable populations, including cash or nondigital payment methods for individuals without smartphones or credit cards.

The Micromobility Work Group suggests that engagement and outreach is an essential component of any equity-related considerations and should be built into the process of program or pilot deployment. The ongoing City and County of Denver shared micromobility program is anticipated to include a major equity component; in the Denver pilot program, the City and County of Denver identified opportunity areas and encouraged deployment and additional vehicles in those areas. Denver staff acknowledges that robust equity components of a program may come at a cost to operators, and addressed this in the overall development of their anticipated ongoing program, with specific consideration of fees. The City of Aurora required any city-licensed or permitted operation to serve opportunity zones. Communities in the Denver region have discussed incentives like dynamic fleet size increases if an operator deploys more vehicles in equity zones or opportunity areas and low-income fare or pass programs that are integrated with existing programs. DRCOG staff will continue to monitor current practices and share information with local agencies throughout the Denver region.

27 <https://transweb.sjsu.edu/sites/default/files/1131-public-bikesharing-business-models-trends-impacts.pdf>

### REGIONAL APPROACH

The Micromobility Work Group suggests that, in the Denver region, agencies should:

- define the desired outcomes and potential challenges of a shared micromobility program with respect to equity
- conduct outreach and education activities that engage people in equity zones or opportunity areas and from vulnerable populations
- require operators to have methods for cash or credit card-free payment to allow people without smartphones or those who are unbanked to use shared micromobility services
- encourage fleet mix such that adaptive options are made available for people with mobility challenges (for example, offering

hand-trike or seated scooter options alongside other shared micromobility devices)

- provide information on income-based discount programs and credit-free access programs

### LOCAL CONSIDERATIONS

Local agencies may also wish to consider:

- requiring operators to develop an equity plan
- coordination of reduced-fare passes and programs with existing local and regional programs
- identification of a micromobility ambassador at a local agency to provide guidance and resources for those who need help accessing shared micromobility services

## Communications and community engagement

Communities and operators should work together, alongside DRCOG, CDOT, RTD and local transportation management associations to inform the public about how to use shared micromobility as a travel option, along with transportation demand management-related initiatives that may be part of any shared micromobility program. Micromobility facilitates short trips and can contribute to many

civic goals that are part of the region's transportation demand management strategy, such as reducing vehicle miles traveled and improving air quality. Encouraging operators to provide educational opportunities about the basics of using shared micromobility, and what to do to support the program's success, helps residents and visitors accept and understand the new mode as it is introduced to communities throughout the region.



### REGIONAL APPROACH

The Micromobility Work Group suggests that in the Denver region, agencies should:

- provide educational opportunities (in-app, online and in-person) to visitors and residents of the service area to learn about:
  - » service areas (including no-ride and no-parking zones)
  - » device usage (how to find a device, start a trip, ride and park a vehicle)
  - » safety rules and regulations
  - » engaging the local agency or operator if there is a problem
- provide materials in English and other languages that best accommodate potential users in the service area

- engage with the regional transportation demand management program, DRCOG's Way to Go program, to represent micromobility in the suite of smart commute options that are part of its regional initiatives

### LOCAL CONSIDERATIONS

Local agencies may also wish to consider:

- requiring operators to develop and share outreach and engagement plans
- working directly with DRCOG staff and local transportation management associations to market and offer education and outreach activities associated with the launch of a shared micromobility program

## Next steps

Shared micromobility offers a unique opportunity to support the region's mobility goals and DRCOG staff are committed to ongoing regional coordination on shared micromobility. Staff will continue to host Micromobility Work Group meetings and facilitate educational opportunities for local agency and regional partner staff. The Micromobility Work Group will continue to serve as a forum to facilitate sharing of lessons learned and discuss new considerations. Additionally, as innovation in the sector continues, DRCOG staff will update this document to reflect the latest information pertaining to these, and potentially other, focus areas for collaboration. DRCOG's staff believes we can work together, and share lessons learned and data to better inform the Denver region's planning, programming and decision-making. The region's stakeholders can only do these things by continuing the conversation.

## Resources

### General

- Bureau of Transportation Statistics, Bikeshare and E-Scooters in the U.S., <https://www.bts.gov/topics/passenger-travel/bikeshare-and-e-scooters>
- COVID Mobility Works, Mobility Responses to COVID-19, <https://www.covidmobilityworks.org/find-responses?search=Denver>
- National Association of City Transportation Officials, Guidelines for Regulating Shared Micromobility, <https://nacto.org/sharedmicromobilityguidelines/>
- National Association of City Transportation Officials, Shared Micromobility in the U.S., <https://nacto.org/shared-micromobility-2019/>
- Transportation for America, Shared Micromobility Playbook, <https://playbook.t4america.org>

- Urbanism Next, Perfecting Policy with Pilots: New Mobility and AV Urban Delivery Pilot Project Assessment, <https://www.urbanismnext.org/resources/perfecting-policy-with-pilots-new-mobility-and-av-urban-delivery-pilot-project-assessment>
- World Economic Forum, Guidelines for City Mobility: Steering Towards Collaboration, <https://www.weforum.org/reports/guidelines-for-city-mobility-2020>

### Data and Privacy Specific

- National Association of City Transportation Officials, Managing Mobility Data, [https://nacto.org/wp-content/uploads/2019/05/NACTO\\_IMLA\\_Managing-Mobility-Data.pdf](https://nacto.org/wp-content/uploads/2019/05/NACTO_IMLA_Managing-Mobility-Data.pdf)
- National Cooperative Highway Research Program, Framework for Managing Data from Emerging Technologies to Support Decision-Making, <https://www.nap.edu/catalog/25965/framework-for-managing-data-from-emerging-transportation-technologies-to-support-decision-making>
- New Urban Mobility Alliance, Leveraging Data to Achieve Policy Outcomes, <https://policydata.numo.global>
- Open Mobility Foundation, MDS Privacy Guide for Cities, <https://github.com/openmobilityfoundation/governance/blob/main/documents/OMF-MDS-Privacy-Guide-for-Cities.pdf>
- SAE International Mobility Data Collaborative, Data Sharing Glossary and Metrics for Shared Micromobility, <https://mdc.sae-itc.com/#work>
- SAE International Mobility Data Collaborative, Guidelines for Mobility Data Sharing Governance and Contracting, <https://mdc.sae-itc.com/#work>

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