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Electric Scooters and Micro-Mobility in Michigan

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Center for Local, State, and Urban Policy Gerald R. Ford School of Public Policy University of Michigan Perry Holmes December 10, 2018 PUBPOL 750: Michigan Politics and Policy Final Research Paper **Electric Scooters and Micro-Mobility in Michigan**

This paper examines the emerging international trend of dockless electric scooters and evaluates how Michigan's state and local policymakers can best respond. While there are important public safety and other concerns that must be addressed with regulation, the scooters are a promising last-mile mobility option. Communities should aim to address these concerns while allowing the scooter companies to operate safely and optimize their services.

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BACKGROUND

The scooters, the companies, and their business model



internet-enabled personal vehicles. They typically have a brake on one handle, an accelerator on the other, and a small kickstand that allows them to be parked upright. The maximum speed is around 15 miles per hour, with a range of 20 miles, although

Electric scooters are battery-powered,

most rides are much shorter.²

The two largest scooter companies in the country are Bird and Lime, but several other startups are operating in cities across the country.³ In Michigan, Bird, Lime, and Spin are

¹ Bird, https://www.bird.co

² Lime, https://www.li.me/electric-scooter

³ Irfan, Umair. *Vox.* "Electric scooters' sudden invasion of American cities, explained" https://www.vox.com/2018/8/27/17676670/electric-scooter-rental-bird-lime-skip-spin-cities

currently operating, primarily in urban, walkable communities like Detroit, Ann Arbor and East Lansing.⁴

These companies all share the same general business model, offering a dockless, shortterm vehicle rental via a smartphone app. Riders use the app to locate a scooter, unlocking it by scanning the QR code on the vehicle. Bird and Lime both charge \$1 to activate the scooter plus \$0.15 per mile for each ride. Riders are encouraged to wear helmets, and the companies have offered free or discounted helmets by mail, but no helmets are attached or included with the scooter.⁵

The scooters are not docked or stored in any designated area, but rather left anywhere in the cities where the companies operate. At the end of a ride, the user is meant to park the scooter in a bike rack or anywhere that doesn't block public walkways. It is then available on the app for the next rider to use.⁶

Much like anyone can sign up to be an Uber driver, anyone can sign up to be a scooter charger. Chargers use the app the find scooters low on battery, take them home overnight to charge, and then put them back on the streets.⁷ This hands-off business model has allowed the companies to scale quickly, deploying scooters in cities across the country without directly employing many people to run the service in each community.

⁴ Reindl, JC. *The Detroit Free Press.* "Detroit honeymoon now over for Bird, Lime rental scooters" https://www.freep.com/story/money/2018/10/12/detroit-bird-lime-rental-scooters-near-misses/1593489002/

⁵ Bird. "Do I need to wear a helmet?" https://bird.zendesk.com/hc/en-us/articles/360004393611-Do-I-need-to-wear-a-helmet-

⁶ Bird. "How to Bird." https://www.bird.co/how/

⁷ Bird. "There's a New Way to Earn." https://chargers.bird.co/join

Where did all these scooters come from?

The electric scooter trend may seem to have come out of nowhere, but is really the consequence of a few familiar technological and economic trends. Rapid advancement of battery technology has made personal electric scooters economically viable, with prices dropping 80 percent in the past six years.⁸ The battery revolution comes after a telecommunications one, with GPS and high-speed data networks fueling the widespread smartphone adoption necessary to make the short-term scooter rental business model function.⁹

Finally, the rapid expansion of scooter service has been funded by venture capitalists eager to invest in the next wave of transportation startups after Uber and Lyft revolutionized the taxi industry.¹⁰ Valuations for the companies are soaring—Bird is valued at \$2 billion and Lime at \$1.1 billion—while companies like Uber, Lyft, Microsoft, and Ford are all acquiring or creating their own scooter businesses.¹¹

COMMUNITY REACTION

Adoption, Backlash, and Regulatory Response

As companies rushed to enter markets across the country, they often failed to work with communities in advance to seek permission, or even warn city officials that the scooters were

⁸ Lambert, Fred. *electrek*. "Electric vehicle battery cost dropped 80% in 6 years down to \$227/kWh – Tesla claims to be below \$190/kWh" https://electrek.co/2017/01/30/electric-vehicle-battery-cost-dropped-80-6-years-227kwh-tesla-190kwh/

 ⁹ Irfan, Umair. Vox. "Electric scooters' sudden invasion of American cities, explained" https://www.vox.com/2018/8/27/17676670/electric-scooter-rental-bird-lime-skip-spin-cities
¹⁰ Carson, Biz. Forbes. "Part Uber, Part FOMO: Investors Are In A Frenzy Over Transportation Startups Again " https://www.forbes.com/sites/bizcarson/2018/06/29/lyft-bird-scooter-investor-valuation-crazy/#795ef562415d

¹¹ Lee, Dami. *The Verge*. "Ford buys e-scooter company Spin for \$100 million" https://www.theverge.com/transportation/2018/11/7/18073046/ford-electric-scooter-spin-acquisition

coming, leading to legal conflicts and community backlash.¹² Mirroring the aggressive strategy of Uber and Airbnb when they launched, the companies initially took cities by surprise, entering without permission and hoping that by the time cities reacted, they would have the support of enough loyal customers to give them an advantage when regulations were created.¹³ The strategy worked for Uber and Airbnb, forcing policymakers to be much more permissive than they might have been, to the chagrin of the established taxi and hotel industries. But in the case of scooters—at least in some cities—the backlash has been as strong as the support, and city officials are determined not to be rolled over like they were with Uber and Lyft.¹⁴

Santa Monica and San Francisco, the respective headquarters of Bird and Lime, moved to ban the scooters, later licensing just a few companies to operate.¹⁵ In Michigan, the reaction has been mixed, with Ann Arbor and East Lansing initially impounding many of the vehicles,¹⁶ but ultimately relenting and allowing them to operate. Detroit has been relatively welcoming; while the city placed a limit on the number of scooters permitted, it increased the number from 300 to 400 for both Bird and Lime, with the stipulation that they deploy a certain number of those scooters in districts outside the downtown core.¹⁷ The city also moved quickly to publish an

¹² Kokalitcheva, Kia. *Axios*. "The big picture: Why scooters have faced backlash"

https://www.axios.com/electric-scooter-backlash-bfd20cb8-08d0-467f-b79d-d798023e5bf7.html ¹³ Bhuiyan, Johana. *Recode*. "The bare-knuckle tactics Uber used to get its way with regulators are not going to work for scooter startups"

https://www.recode.net/2018/8/30/17690056/scooters-bird-lime-san-francisco-santa-monica-permits-uber-lyft

¹⁴ Kokalitcheva, Kia. Axios. "The big picture: Why scooters have faced backlash"

https://www.axios.com/electric-scooter-backlash-bfd20cb8-08d0-467f-b79d-d798023e5bf7.html ¹⁵ Russell, Melia. *San Francisco Chronicle*. "Shut out of SF, Lime and Bird look elsewhere to rent scooters" https://www.sfchronicle.com/business/article/Shut-out-of-San-Francisco-Lime-and-Bird-look-13242319.php

 ¹⁶ Stanton, Ryan. *Mlive.* "Ann Arbor confiscates, locks up Bird scooters deployed at UM"
https://www.mlive.com/news/ann-arbor/index.ssf/2018/09/bird_scooters_being_confiscate.html
¹⁷ Jordan, Jerilyn. *MetroTimes.* "Detroit gives green light to more scooters as long as they expand

to neighborhoods" https://www.metrotimes.com/news-hits/archives/2018/10/25/detroit-givesgreen-light-to-more-scooters-as-long-as-they-expand-to-neighborhoods

interpretation of existing regulations and their application to scooters, giving the companies and

riders the structure to operate in compliance with the law.¹⁸

Beyond the anger over the way the companies entered these cities, the principal

objections to the scooters are public safety and the nuisance of improperly parked scooters. The

City of Detroit published a comprehensive list of these and other concerns.¹⁹

LPD has found that there are a number of issues that have commonly occurred since the broad use of the electric scooters have begun. Some examples of concerns that have arisen include²: Children riding the electric scooters People riding the scooters without helmets People riding the scooters on sidewalks Scooters left abandoned in the middle of sidewalks Scooters left in front of building entrances and exits, and blocking handicap access ramps People riding additional persons on the scooters. Additional safety issues identified which should be taken into consideration are: Because electric scooters are small, motorist are often unable to see them. The electric scooters and riders are easily hidden from view by other objects such as cars, or objects on or off the streets, in blind naturally occurring blind spots. Riders of electric scooters on the street have no barrier protection similar to motorcyclist and bicyclist. Additionally, most scooter riders do not wear helmets, even though the providers recommend them particularly for children and inexperienced operators. Electric scooter riders often crash as the result of hitting or swerving to avoid potholes, gravel, roadway debris, or uneven surfaces. Many electric scooter riders have little or no experience, the scooter can become wobbly, or lock up, especially during emergency braking or swerving. Electric scooters cause a hazard to pedestrians tripping on an electric scooter lying on the sidewalk or just outside a building entrance. Electric scooter riders are susceptible to being hit by an opening car door, a turning or backing vehicle, or a swerving car. Electric scooters cause a hazard to motorist swerving to avoid a scooter rider and crashes into another car.

¹⁸ Brundidge, Ron. *City of Detroit*. "Dockless Scooter Memorandum of Interpretation."

https://detroitmi.gov/Portals/0/docs/DPW/Dockless%20Scooters%20Memo%20of%20Interpretat ion_Final%20Version%207%2020%2018_1.pdf

¹⁹ Whitaker, David. *Detroit City Council.* "Report on Motorized Electric Scooters" https://detroitmi.gov/document/2018-10-15-motorized-scooters

POLICY LANDSCAPE: TRANSPORTATION IN MICHIGAN

Transportation in Michigan is obviously auto-centric; personal vehicles are how most people get around, and the infrastructure reflects that. According to the U.S. Census Bureau, 83 percent of Michigan commuters drive alone, with another 9 percent carpooling—just 2 percent each take public transportation or walk.²⁰ However, local officials in Michigan reported that people in their jurisdictions—particularly those with larger populations—have access to other public and private options.

	Population <1,500	Population 1,500-5,000	Population 5,001-10,000	Population 10,001-30,000	Population >30,000	Total
Dial-a-ride/on-demand para-transit service	36%	46%	56%	69%	71%	47%
Municipal, county-wide, or regional fixed-route bus service	20%	24%	30%	54%	72%	28%
Taxi service	10%	23%	32%	59%	72%	25%
Greyhound, Indian Trails, or other private bus service	6%	11%	10%	24%	42%	12%
Van pool service	2%	5%	6%	17%	19%	6%
Amtrak	0%	4%	6%	15%	31%	5%
Other	3%	4%	3%	13%	5%	6%
None selected/don't know	42%	29%	20%	2%	2%	30%

Especially in Southeast Michigan, there are several public transit agencies offering services, often without coordination. DDOT operates busses in Detroit, while SMART does in Macomb, Oakland, and Wayne counties, and TheRide in Ann Arbor and Ypsilanti. Separately, the Windsor Tunnel Bus connects Detroit and Windsor and the U of M Connector's route

 ²⁰ Mack, Julie. *Mlive*. "See average work commute time in your Michigan county" https://www.mlive.com/news/index.ssf/2018/03/michigan_commuting_to_work_tim.html
²¹ The Center for Local, State, and Urban Policy. *University of Michigan Ford School of Public Policy*. "Michigan local government leaders say transit services are important, but lack of funding discourages their development" http://closup.umich.edu/files/mpps-fall-2014-transit.pdf

includes Ann Arbor, Dearborn, and Detroit. The People Mover and the QLINE are limited rail lines within the City of Detroit.²²

In recent years, alternative transit options from both the public and private sectors have expanded the range of transportation options, especially in urban areas. From the private sector, ride-hailing services like Uber and Lyft or short-term car rentals from General Motors' Maven service make it feasible for those with relatively infrequent need of a car to go without owning one. The docked bike service MoGo, launched last year in Detroit, effers another option for shorter trips within the city. Voters in 2016 narrowly defeated a ballot proposal to fund the Regional Transit Authority's plan to expand and coordinate service, as well as build new light rail. However, the RTA did launch the limited FAST Bus program to better connect Detroit and the suburbs. With many workers commuting in both directions between Detroit and the suburbs, this is a key challenge for the region.



Visualization of where Wayne County commuters live vs. where Wayne County commuters work²³

Transit in Michigan today is clearly failing to meet the needs of residents. Those who

drive face crumbling roads and the highest car insurance rates in the nation. For the many

 ²² Gifford, David. *Curbed Detroit.* "Metro Detroit's public transit: A comprehensive guide" https://detroit.curbed.com/2018/11/19/18098517/detroit-metro-public-transit-guide-bus-rail
²³ Runyan, Robin. *Curbed Detroit.* "This Colorful Map Shows Metro Detroit Commuters in Action" https://detroit.curbed.com/2016/6/1/11829980/interactive-commuter-map-transit

residents without cars, the limited public transportation options make getting around difficult. In Detroit, despite its Motor City reputation, 26 percent of households do not have a vehicle, the eighth highest rate in the nation.²⁴

Additional public transportation investment is uncertain. While 86 percent of Michigan's local leaders believe that a well-functioning transit system is important,²⁵ 61% say that a lack of local funding has discouraged transit development.²⁶ With limited funding for public transportation, private options like Uber, Lyft, Bird, and Lime may fill some of the gaps. As last-mile mobility solutions, they make short trips easier without a car, or connect people to Michigan's relatively sparse and inconvenient transit options.

Michigan's "Complete Streets" Policy

The policy initiative most relevant to scooter adoption is Complete Streets, which encourages local jurisdictions to design roadways "for all users, including drivers, bicyclists, public transportation riders, and pedestrians."²⁷ Along with economic development and environmental goals, streets designed in this way better balance the interests of drivers, pedestrians, and cyclists. Although scooters were not a consideration when Complete Streets was launched in 2010, they benefit just the same.

While specific scooter regulation may be necessary, streets must be designed in this way for scooters and other micro-mobility options to succeed. Fortunately, as shown in the chart

https://news.umich.edu/hitchin-a-ride-fewer-americans-have-their-own-vehicle/

- ²⁵ The Center for Local, State, and Urban Policy. *University of Michigan Ford School of Public Policy*. "The Michigan Public Policy Survey (MPPS) Fall 2014 Data Tables".
- http://closup.umich.edu/michigan-public-policy-survey/fall-2014-data/

²⁴ DeGroat, Bernie. *University of Michigan*. "Hitchin' a ride: Fewer Americans have their own vehicle"

²⁶ The Center for Local, State, and Urban Policy. *University of Michigan Ford School of Public Policy*. "The Michigan Public Policy Survey (MPPS) Fall 2014 Data Tables".

http://closup.umich.edu/michigan-public-policy-survey/fall-2014-data/

²⁷ SEMCOG. "Complete Streets" https://semcog.org/complete-streets

below, support for the program is high, and especially strong in the more densely-populated communities where scooter companies operate.



Support for Complete Streets Among Michigan Local Officials, MPPS 2014 Transit Survey²⁸

EVALUATION OF SCOOTER IMPACT

Potential Benefits

While there are clear downsides to the scooters, their potential benefits are significant. Despite their reputation as a toy, the simple fact that many people are riding them shows that they can be a useful transportation option. Less strenuous than pedaling a bike, the scooters are faster than walking, making them an appealing option for short trips. And the data shows that

²⁸ The Center for Local, State, and Urban Policy. University of Michigan Ford School of Public Policy. "The Michigan Public Policy Survey (MPPS) Fall 2014 Data Tables". http://closup.umich.edu/michigan-public-policy-survey/fall-2014-data/

most trips are short: nearly half of all vehicle miles traveled by car in 2017 were less than three miles.²⁹

Scooters, along with other alternative transportation options, could also help cities solve some congestion and land use problems. Traffic is a constant problem in cities across the country, especially those with many commuters, like Ann Arbor. There is evidence to suggest that ride-hailing services are even exacerbating the problem with Uber and Lyft cars spending much of their time driving around waiting to pick up customers, and potentially diverting riders from public transit.³⁰ Scooters could have a mixed effect here, replacing some driving trips, which takes cars off the road, but perhaps adding to traffic by introducing another vehicle to the streets.

Reducing the use of cars isn't just beneficial from a traffic standpoint; it's an important public policy goal for environmental reasons as well. Cars are a major driver of climate change, contributing one fifth of all of the country's emissions.³¹ Dense, walkable urban neighborhoods are a more sustainable model, and scooters make that lifestyle more attractive.

Finally, another benefit to scooters is their reliance on private sector money. While more investment in busses and light rail may be a better solution, this is unrealistic in today's political climate. Despite their reputation as a plaything for wealthy millennials, surveys find that they are actually more popular with less well-off people. A Populus survey found that 70 percent of Americans in major U.S. cities support scooters and other micro-mobility solutions, with highest

 ²⁹ Schneider, Benjamin. *CityLab*. "Why Little Vehicles Will Conquer the City"
https://www.citylab.com/transportation/2018/06/welcome-to-the-tiny-vehicle-age/563342/
³⁰ Schaper, David. *NPR*. "Ride-Hailing Services Add To Traffic Congestion, Study Says"
https://www.npr.org/2018/08/01/634506179/ride-hailing-services-add-to-traffic-congestion-study-says

³¹ Union of Concerned Scientists. "Car Emissions & Global Warming" https://www.ucsusa.org/clean-vehicles/car-emissions-and-global-warming

support among those making between \$25k and \$50k.³² Research shows that access to transportation is an important "ladder out of poverty" as people struggle to get to work and keep jobs when a private vehicle is unaffordable.³³

Dockless Bike Case Study

Scooters are too new to be well-studied, but we can look to bikeshare systems as a close comparison, especially dockless services. Using the same business model as Bird and Lime, companies like Ofo and Mobike have had remarkable success in China.³⁴ In just two years, the country has 106 million users and 16 million bikes, meaning nearly one in ten people in China uses not just any bike, but dockless bikeshare specifically.³⁵ While there may have been an oversupply of bikes from China's extreme lack of regulation, the services continue to grow.³⁶

It may seem far-fetched that Americans will give up their cars and begin biking and scootering, the example of Sevilla in Spain shows that fairly radical changes in transportation patterns are possible, with focused effort and investment. By rapidly building bike lanes across

³² Clewlow, Regina. *Populus*. "The Micro-Mobility Revolution" https://medium.com/populus-ai/the-micro-mobility-revolution-95e396db3754

³³ Bouchard, Mikayla. *The New York Times*. "Transportation Emerges as Crucial to Escaping Poverty" https://www.nytimes.com/2015/05/07/upshot/transportation-emerges-as-crucial-to-escaping-poverty.html

³⁴ Lyons, Ben. *City Metric*. "How did China fall in love with dockless bikeshare?" https://www.citymetric.com/transport/china-fall-love-dockless-bikeshare-cycling-3807

³⁵ Wu, Yimian. *China Money Network.* "Jaw-Dropping Chinese Bike Sharing Growth: 106M Users And 16M Bikes In Less Than Two Years"

https://www.chinamoneynetwork.com/2017/09/12/jaw-dropping-growth-chinas-bike-sharing-106m-users-and16m-bikes-less-two-years

³⁶ Campbell, Charlie. *TIME*. "The Trouble with Sharing: China's Bike Fever Has Reached Saturation Point" http://time.com/5218323/china-bicycles-sharing-economy/

the city, as well as removing parking spaces, the city went from "having about as much biking as Oklahoma City to having about as much biking as Portland, Oregon" in just four years.³⁷

Are the Concerns Justified?

Safety is often cited as the main reason for opposition or skepticism to scooters, especially as many riders ignore the companies' and city officials' encouragements to wear a helmet. It's too early to know exactly how safe scooters are; while there has been a rise in scooter-related injuries, that's likely a function of how many more people are using scooters.³⁸

However, there are several reasons to believe scooters are a safe option. For one, they only go 15 mph, much safer for pedestrians than a car. However, many riders do use them on sidewalks, which is unsafe and illegal in most cities. As bike lanes are further developed in many cities, aided in Michigan by initiatives like Complete Streets, the situation should improve.³⁹ While not a perfect analog, it is also encouraging that there have been zero deaths in the U.S. from bikeshare systems, a remarkable statistic considering that they have existed since 2010, and now operate in almost 100 cities.⁴⁰

A second commonly-cited concern about scooters is the nuisance they cause by littering the streets and blocking sidewalks. This is especially worrisome for those with disabilities who cannot easily step over an improperly-parked scooter. While a justifiable concern, this can be ameliorated with more bike racks and parking areas for scooters and other micro-mobility

³⁷ Andersen, Michael. *Streetsblog USA*. "*Six Secrets From the Planner of Sevilla's Lightning Bike Network*" https://usa.streetsblog.org/2018/05/07/six-secrets-from-the-planner-of-sevillas-lightning-bike-network/

 ³⁸ Stein, Vicky. UCSF News Center. "Scooter Safety: UCSF Doctors to Track New Injuries" https://www.ucsf.edu/news/2018/08/411406/scooter-safety-ucsf-doctors-track-new-injuries
³⁹ Irfan, Umair. Vox. "Electric scooters' sudden invasion of American cities, explained" https://www.vox.com/2018/8/27/17676670/electric-scooter-rental-bird-lime-skip-spin-cities
⁴⁰ Martin, Elliot. *Mineta Transportation Institute*. "Bikesharing and Bicycle Safety" http://transweb.sjsu.edu/research/bikesharing-and-bicycle-safety

vehicles. Today we devote an immense amount of public spaces for private cars to park; a small amount of that space allocated for scooters and bikes would serve many more people per square foot and encourage scooter riders to keep the vehicles from blocking sidewalks. It may also take some time for norms to evolve around scooter etiquette as people become more familiar with the services and how to use them appropriately.

Finally, Michigan's snowy winters could make scooters unusable for many winter days. This is less a problem for cities than for the companies themselves, which will need to either create scooters capable of safely navigating the ice and snow, or plan for big seasonal fluctuations in revenue in snowy cities. It's possible that people may unsafely attempt to ride the scooters in icy conditions, in which case the companies would likely deactivate them to avoid liability—if the companies do not, cities may need to mandate this.

POLICY RECOMMENDATIONS

Detroit as a Model for the Way Forward

The large potential benefits and manageable downsides make scooters a promising trend worth nurturing. Cities like Detroit, which have placed minimal, but thoughtful limits on the companies while otherwise letting them compete and innovate, are a model for how to proceed in the near term. It's possible that too many scooters flood the streets, but the downside risks are shouldered primarily by the companies, which will rationally try to avoid an oversupply.

Scooter regulation should happen at the local level, with each city passing laws to govern their use and working to license companies in ways that fit their residents' needs. Regulation on the scooter companies should ensure they are safe, orderly, and that their benefits reach as many citizens as possible. Scooters should also be incorporated into urban planning as cities design streetscapes that allow walkers, scooter riders, drivers, and public transit riders safe access and opportunity.

Model Policies

- For Companies
 - Allow all companies to deploy a reasonable number of scooters, provided that they are able to ensure they are safe to operate.
 - Impose modest requirements on companies to ensure scooters are distributed to all areas of a city, not just wealthier downtown areas, assuming those areas are dense enough for the service to be feasible.
 - Levy a small tax on the scooters to fund micro-mobility infrastructure and education investments.
 - Require companies to share anonymized data with the city.
- For Riders
 - Riders must be 18 or older.
 - Riders must ride in the street or bike lane, never the sidewalk.
 - Scooters must be parked in a bike rack or on the side of the sidewalk where they do not block pathways.
- For Cities
 - Partner with companies to run education campaigns to encourage safe and lawful riding, specifically helmet use.
 - Expand bike lanes and bike racks. Fix potholes in the streets that drive riders to improperly ride on the sidewalks instead.

- After education campaign, use tickets to discourage riding on sidewalks or leaving scooters blocking pathways.
 - Partner with companies, if necessary, to force the development of technology to more easily monitor and enforce riding and parking laws.



*Own the Data*⁴¹

Detroit has partnered with Shared Streets and the National Association of City Transportation Officials (NACTO) collect data on dockless scooters and bikes to "analyze trip data to allocate street space to

sustainable transportation, reduce traffic crashes, and provide more equitable transportation access.⁴² Washington, DC is doing something similar, partnering with Populus to better understand how scooters and bikes are being used in traditionally underserved areas.⁴³ Uber and Lyft have a tremendous amount of valuable data on transportation, which cities could use to optimize traffic patterns, improve public safety, or countless other objectives. Cities should require companies operating on their streets to give them co-ownership of this data so it can be used for the public good.

⁴¹ Hill, Alex. *DETROITography*. "Map: Shared Streets and Scooter Activity in Downtown Detroit" https://detroitography.com/2018/11/05/map-shared-streets-and-scooter-activity-in-downtown-detroit/

⁴² National Association of City Transportation Officials. "The City of Detroit, SharedStreets, and NACTO to Pilot New Data Standard for Dockless Mobility"

https://nacto.org/2018/10/29/detroit-sharedstreets-nacto-pilot-new-dockless-data-standard/ ⁴³ Nyczepir, Dave. *Route Fifty*. "How D.C. Wants to Use Bike-Share Data to Improve Equity" https://www.routefifty.com/tech-data/2018/11/dc-bikeshare-data-equity/153044/

CONCLUSION

This emerging policy area requires local leaders to remain flexible and keep pace with rapid change on their streets. Cities must be watchful to keep residents safe, but a hands-off approach will give companies space to experiment and see which business models best serve residents. Cities that invested resources into docked bikeshare may find that effort wasted as dockless bikes (and scooters) overtake them in popularity. Rather than micromanaging each new trend, public policy should focus on building a safe and accessible streetscape built not just for cars, but for all people.