"$1 TO START"–The Municipal Shared-Mobility Ride

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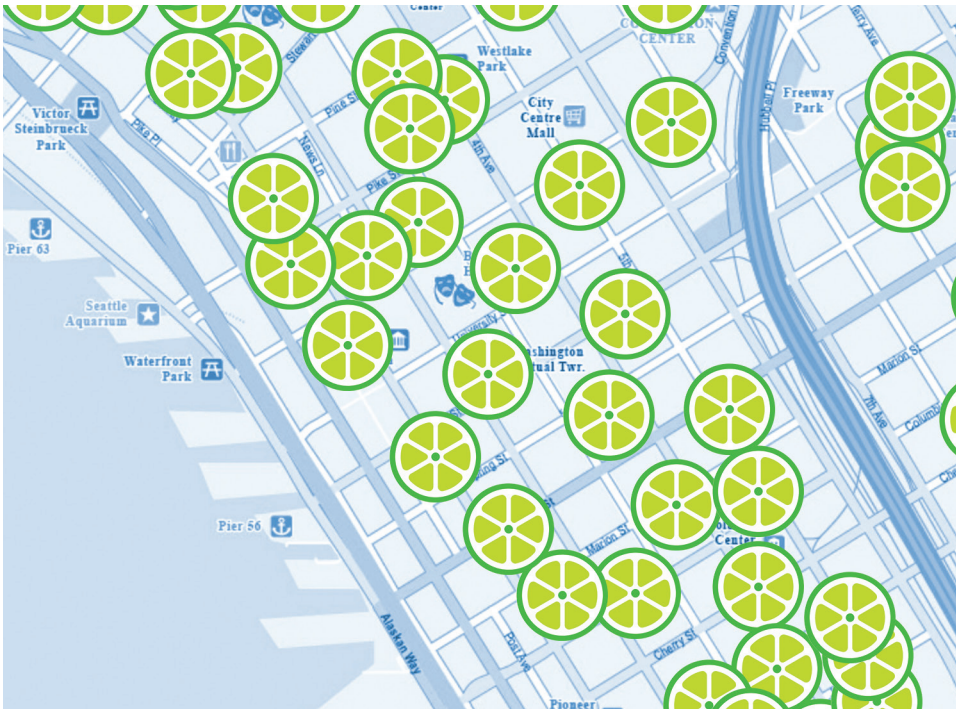

INTRODUCTION

Last month, IMLA inaugurated its Disruptive Transportation work group, formed to serve as a collaborative source of answers to common questions about another innovation rapidly rolling into cities across the country: dockless bikes and scooters. To be sure, inquiries abound as local government lawyers are called upon to craft sensible and effective regulations for this new species in the shared mobility ecosystem.

This article is intended to provide an overview of the bikeshare phenomenon, to look at some municipalities' responses, and to suggest some elements to be considered when drafting bike share ordinances and operating agreements.

The Bicycle: Historians attribute the birth of the bicycle to a Frenchman in the late 18th century, who aligned two wooden wheels and a simple board on which to sit–without pedals or steering mechanism. The first steerable such device was developed in 1816 by a German; it too required feet on the ground, much like the pedal-less "balance-bikes" used by pre-kindergarteners today. A Scottish blacksmith introduced a pedaled, link-driven contraption in 1839, but it weighed nearly 60 pounds. The less-massive *velocipede*, which attached pedals to the cycle's front wheel, emerged on the streets of Paris in the 1860's, thanks to the brothers Michaux. That innovation was borrowed by a colleague of the brothers, who brought it to the United States and obtained a patent in 1863.

In 1885, John Kemp Starley introduced America to his device that combined pedals and a chain to transfer power to the rear wheel. It was a technologic leap that would see the nation's thoroughfares swarming with bicycles as the twentieth century began. Starley's basic configuration continues today, enhanced with tubed rubber tires, highly engineered brakes and gears, electronics and other gadgetry—not to mention leaps in material science that allow the modern bicycle to weigh less than 15 pounds.

As with many other types of human conveyance, whether traveling on tracks, rails or rivers, and whether wind-driven, horse-drawn or coal-powered, the bicycle was rapidly overtaken by the internal combustion engine. Following World War Two, cyclists took a back seat to drivers as massive freeways and expansive city avenues proliferated, accommodating millions of ever-more comfortable personal cocoons travelling at previously unimaginable velocities.

But that miracle would eventually reach its limits, victimized by its own success. After an automobile golden age which saw many modes of public transportation starved out of existence, the empirical evidence today suggests that in many of America's cities and exurbs, vehicular traffic moves at near single-digit speeds. That crawl, plus concerns about pollution, parking headaches, a desire for exercise in otherwise cubicle-confined employment, a simpler and cheaper way to travel from point A to point B, even an unspoken want for greater social connectedness—all contributed to the gradual re-emergence of the bicycle as a significant mode of transport in many of the nation's urban areas.

The Technology: Fast-forward to the "sharing economy." Why take a cab or use one's own bike for short-distance city travel if inexpensive, reliable alternatives are readily available? Early in this decade, the first large experiments in public-use bicycles emerged on American streets. These were municipally-funded public-private partnerships offering docked bicycles, secured in stations around town. The kiosks required credit card payment before releasing a bike and tallied minutes elapsed until the cycle was re-docked. New York City's Citi Bikes (12,000 bikes at 500 stations)[1] and Washington DC's Capital Bikeshare (4,300 bikes across six jurisdictions)[2] were early examples of this genre. They have been overwhelmingly successful in those cities, adding thousands of new cyclists to the urban landscape.

Further innovation has led to further disruption. Entrepreneurs recognized that the power of GPS, the smartphone, versatility in bicycle design, and proliferation of other species of personal street mobility—driven by ever-more convenient and personalized applications–could enable second- and third-generation advances. The "dockless" or "stationless" bike was born. This new evolution did not require the infrastructure used by docked programs; in theory, no real estate needed to be developed and no guesses were required as to the best location for bike aggregation—consumers would park bikes where they desired and follow-on riders would locate them, rent them, and continue onward. Convenience triumphed over all: the phone-based "app" would render an Uber-like interaction, giving today's users the autonomy they so intensely crave. (Clearly, every inch of their usage could be assiduously tracked by the service providers and easily linked to their personalized consumer information; adding to the surrender of privacy to the Googles and Amazons of our time).

Today, then, "bikeshare" technology–a subset of "shared mobility"– encompasses a spectrum: cycles which must be docked at permanent stations, cycles which are designed to be docked or locked to bike stands (or to signposts and similar vertical supports) but can also self-lock, and bikes which are totally self-locking and will not

affix to any support. And, as most city dwellers will attest, another "bike" varietal has sprouted, almost overnight--low-slung "Razor"-type scooters. It seems likely that future mobility sharing may encompass other one-, two-, three-or more wheeled conveyances, some built for two riders and/or accommodating child seats, with the potential for "hovering" or "airborne" devices somewhere down the road. (Other vehicular forms including "electric personal assistive mobility devices" (EPMDs such as "Rascals") and that most disruptive of transport modalities, the bizarre combination of group carousing while exercising on the open road known as the "Pedal Tavern," make the taxonomy even more challenging.)

As usual, it's as much about the "app" as the modality itself, with providers delivering ever-more innovative and personalized smartphone software. Today, your bikeshare app will: locate available bikes; allow you to reserve a specific bike, making it off-limits to other users; tell you which e-bikes have power--and alert you as power diminishes; let you "hold" your bike while you disembark to eat or take in a landmark; tell you where you can or cannot ride or park the bike; provide you with a map tracking where you've ridden; tell you how many carbon units you saved by foregoing vehicular travel; seamlessly bill your credit card (or more likely your app-within-an-app like ApplePay); penalize (or reward) you based on where you leave the bike; and credit you for bringing others into a given program. It is inevitable that the app will connect your other personal likes and dislikes to your cycling experience, creating "loyalty" purchase credits, and perhaps tracking calories burned and linking to nearby eateries with the perfect farm-to-table offerings.

In addition to financial metrics, which will be vigorously protected by the operating companies, the volumes of data produced by bikeshare systems will provide near real-time information about bike traffic, indicate which stations or parking zones have a surfeit or deficit of bikes, show the impact—positive or negative—on other public transportation options, and generate related statistics which should be of significant value to transportation and planning departments. In that context, the industry has developed its own open data specification, General Bikeshare Feed Specification (GBFS),[3] which is currently the gold protocol for such aggregation (and should be the standard required and adopted by municipal clients).

The Money: As with disruptive car share and short-term housing invasions discussed in previous issues of *Municipal Lawyer*, the dockless newcomers are more nimble than their predecessors. They can enter markets surreptitiously, with little fanfare or governmental interference, not needing to secure real estate or build infrastructure as a precursor to their arrival. And whereas the original docking programs required substantial up-front public money, these newer disruptors can emerge with far less initial funding—only to be subsequently backed by hugely successful enterprises: For example, Bloomberg reports that Ofo and Mobikes have deployed 13 million bicycles worldwide after raising billions from Chinese internet giants Alibaba and Tencent.[4] Other programs are attracting similar financing; Silicon Valley funders recently poured $300 million into Bay Area e-scooter startup Skip[5] and, as described below, Google, Uber and Lyft are all heavily involved in bikeshare.

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The meteoric rise of these companies, particularly in China, is mind-boggling. Mobikes wasn't even conceived of until 2015, when Hu Weiwei--a former journalist--devised with her cohorts the idea of a system that would allow Chinese commuters to ride to work for pennies per ride. In April of this year, Mobikes was sold for $3.4 billion, with Hu and other founders and investors pocketing more than $1 billion in cash.[6] That trajectory is moderate when compared to newer-newcomers Bird and Lime, each of which began operations in 2017 and had already achieved "unicorn" status (having a valuation of more than $1 Billion) earlier this year.[7]

Investors in bikeshare are not simply looking to be involved in the next big thing (think Bitcoin and marijuana enterprises)—they smell monetary reward. While there are no doubt hurdles, not the least of which is vandalism to equipment, or competition as five or more providers enter a given market, venture capital financiers are bullish on American prospects.[8] When purchased by the thousands, mass-produced e-scooters should be available for as little as $300 each, perhaps less, even after giving effect to tariffs. They are enticingly inexpensive to enjoy, as illustrated by Lime's "$1 TO START" invitation embossed in large letters on the floorboard of each scooter. Docked bikes seem more expensive, typically requiring a minimum 30-minute commitment of from $1.75 (Metro Bikes in Los Angeles) to $3.50 (Biki Bikeshare in Honolulu). But on e-scooter rides, the meter begins to run immediately, generally costing $ .15 per minute, meaning that ten minutes of travel costs $2.50. If rented only twice per day for 20 minutes total, the devices would generate their purchase price in two or three months' time. Reliable sources cite even higher e-scooter numbers for various cities: $11 per day for Bird in Santa Monica and upwards of $20 per day for Lime in San Francisco. At least one company, Skip, has bragged that its e-scooters are being ridden a hard-to-believe seven times per day.[10] Even using far lower ridership projections, figuring reduced pricing for daily/weekly/monthly programs, and adding a considerable overhead factor, it's evident that a significant payback could occur by the first year of dockless operation. "Do the math," as they say.

Along those lines, the "sharing" in these new programs extends beyond mere riding of rented bikes. Companies have found ways to expand their labor pool, relatively cost-free: the Limebike app, for example, seeks members of the public willing to serve as so-called "Juicers" who are compensated for locating e-cycles and scooters that are low on power and recharging them. Bird offers similar rewards for charging and returning stray scooters to a "Bird's Nest." To induce good behavior, Hamilton, Ontario's "SoBi"--a hybrid docked/dockless program--charges $1 if users don't leave bikes at designated locked parking hubs, giving subsequent riders a $ .75 credit if they return an "out-of-hub" bike to one of 100-plus geo-fenced parking locations.[11] New Orleans' Blue Bikes program exacts a larger fee to help defray the cost of retrieving dockless strays, charging users $10 for locking a Blue Bike outside of system boundaries.[12] These programs have themselves developed enthusiastic followings, with millennial devotees comparing the experience of hunting for

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"dead" devices to a *Pokemon Go* search—one that pays decent money. It is inevitable that similar tactics and incentives will be used to boost the bottom line, which will be fattened further as advertising opportunities are exploited.

In contrast, docked bikes pose a far more daunting financial challenge. One source posits that in New York City, for example, they cost $5200 per bike, including docking stations.[13] That price tag inhibits expansion throughout all New York City boroughs and requires an exceedingly disciplined approach: the city's Department of Transportation has reportedly calculated that it would take 80,000 bikes to fully serve all parts of the metropolis.[14] Whether that $5200 estimate includes the cost of litigation is unclear, but fisticuffs should be anticipated whenever big-city real estate is being appropriated for public use. Consider *Matter of Fraydun Realty Co. v New York City Department of Transportation*,[15] wherein Manhattan merchants fought to preserve metered parking in front of their establishments. The city listened to their complaints and reduced the bikeshare docking footprint significantly, from 48 bikes down to 27. Undeterred, the real estate and commercial interests attacked the move as reckless:

> Petitioners now move for an Order pursuant to Article 78 of the CPLR declaring that respondents have acted arbitrarily, capriciously, irrationally and contrary to law by installing the Bike Share Station in its location on Third Avenue near the tenant petitioners' commercial establishments and that respondents violated their legal duties under SEQRA and CEQR by failing to properly consider the socioeconomic impact the Program would have on their businesses."[16]

The merchants lost the fight, and the bikes went into service. New York was resoundingly vindicated in its decision to place the bike station on that particular stretch of Third Avenue: among more than 600 stations around the city, it now ranks among the top ten in usage.

Given these headwinds, venture capital is not typically attracted to the docked bike value proposition. As a result, docked bikeshare programs have routinely required significant public-private funding mechanisms and/or massive corporate sponsorships: examples include Citibank and Goldman Sachs' sponsorship of New York's Citi Bike program and Blue Cross and Blue Shield of Illinois' help in funding Chicago's Divvy bike share.[17]

The Statistics: One of the most comprehensive sources of data about US bikeshare programs is the National Association of City Transportation Officials (NACTO).[18] NACTO's report "Bikeshare in the U.S.: 2017" states that there were 35 million bikeshare trips last year, a 25% increase over 2016.[19] 2017 saw the true emergence of the dockless bike phenomenon, with five major providers operating in 25 cities by the end of last year (a number which has clearly accelerated tremendously during 2018)—but it would be misguided to think that the new technology has put an abrupt end to the older docked systems. NACTO says that docked programs generated more than 90% of all rides in 2017, with the legacy systems in New York (Citi Bikes), Washington DC (Capital Bikeshare), Chicago (Divvy) and Boston (Blue Bikes—formerly Hubway) garnering the largest share. And last year, new docked programs took to the streets of Honolulu (Biki-already an overwhelmingly successful venture), Detroit (MoGo), New Orleans (Blue Bikes) and Charleston (Holy Spokes),[20] while San Francisco relaunched its Ford GoBike docked system, increasing its 700 bikes by ten-fold, to 7,000 units.[21]

But the growth in dockless bikes, and their implications for the future, is virtually undeniable. NACTO states that the number of shared bikes in the US more than doubled in 2017, from 42,500 to over 100,000. Only 14,000 of the newcomers were the docked variety, while three times that number were stationless.[22] The growth in 2018 will undoubtedly exceed last year's figures, with the vast majority being completely dockless or at least allowing self-locking: the variety of options, the flexibility, and the rider's certitude that there will be a place to disembark – as opposed to the phenomenon most feared by docking bike users, being "dock-blocked" because no spaces are available at the end of the journey – portend rapid and continuing growth for the dockless newcomers. The bikes are appearing in new cities at a breakaway pace, and are now being surpassed by e-scooters which are proliferating even more rapidly. While reliable data is difficult to come by, the number of municipalities with bikeshare and/or e-scooter systems must already be in the several-hundreds, extrapolating from year-old industry data.[23]

Data is also emerging about how these bikes are being used. While the companies themselves are tight-fisted with their own information, citing competitive concerns, a Seattle bikeshare study conducted by the University of Washington indicates that the majority of docked bike rides in Seattle's program are by commuters, at traditional work hours. In contrast, dockless bike usage spikes at night and on weekends.[24] The statistics also show the current dominance, likely evanescent, of stationed bikes over dockless: while Seattle's docked cycles averaged 1.7 trips per day, their dockless relatives generated less than 1/3 ride in that time.[25] And the Seattle data confirms that bikeshare is oftentimes part of longer journey, with the cycles being used to connect to or from other public transportation modes.

Mobility for More of Us: The new cycle programs can overlap with bus and subway systems in other ways, by being structured to add more mobility—and opportunity—to disadvantaged residents and neighborhoods. Although the most innovative features require a user to carry a smartphone linked to a payment mechanism, programs can be tweaked to serve a broader constituency. Old-school docked systems have long allowed eligible users to enjoy greatly reduced pricing. For example, Philadelphia's "Indego" program gives PA ACCESS card holders the right to purchase cards which will allow unlimited docked bike rides of up to an hour each, for $5 a month.[26]

Washington DC's "Capital Bikeshare" with its diaspora of adjoining municipalities is equally ambitious, accommodating users who don't have credit cards or who cannot complete online access to obtain low-cost usage via a phone call; neighboring Montgomery County, Maryland provides free access to Capital Bikeshare for its low-income residents and students.[27] Virtually all the major docked systems offer such discounted programs.

The new dockless entrants also accommodate low-income participants. Among these is Lime, which allows users who "demonstrate eligibility or participation in any state or federally-run assistance program" to join "LimeAccess," obtaining a 95% price reduction in the company's pedal-powered cycles and a 50% cut for their electric-assist bikes and scooters, and to pay cash for access at more than 27,000 "PayNearMe" locations, including 7-Eleven and CVS stores, nationwide.[28] LimeAccess allows users to unlock bikes and scooters at the reduced pricing

via a simple text, meaning a fully-featured smartphone is not needed.

These features will further allow disadvantaged users to jump the "last-mile" gap, enabling them to travel to other modes of transport, likely also subsidized, and to be employable in a larger geographic arc. In that regard, the legacy docked programs and the new dockless vehicles need not be mutually exclusive: Chicago is now piloting a dockless program in the city's far south side, specifically intended to expand the shared bike envelope beyond the boundaries of the Chicago Divvy docked program.[29]

Bad Behavior: As has been widely publicized, the bikeshare companies are frequently discovered moving into communities without adequate (or any) prior notice, making money before making concessions about safety and parking. But residents are also capable of unsociable acts, beyond thoughtless parking and irresponsible riding on sidewalks and against traffic—including those who use their apps to enable young children to ride scooters on city streets. One of the biggest impediments to bikeshare success in some markets has been theft and vandalism, with private citizens stealing, disposing of and/or destroying millions of dollars in high-tech conveyances. These crimes generally go unreported and unsanctioned.

More inventive commercial subterfuges have emerged. Because the e-device companies will pay ordinary people to round up and charge the devices, cutthroat competition has sometimes arisen, with entrepreneurial types fighting over nearly-depleted devices. The programs pay from $5 to $20 for the retrieval and replenishing of a missing and inactive scooter–so underhanded middlemen now kidnap the conveyances, keeping them out of service until the companies post a reward.[30] It also seems likely that the highly-discounted rental rates intended for underprivileged users will be abused, generating a cottage industry of unscrupulous resellers. These growing pains, although troubling, will not put the brakes on the new mobility revolution.

Nor will an ancillary problem referenced above, one already being eagerly tackled by ambitious personal injury lawyers: damage to person and property being caused by careless riders. As a Bloomberg article headlines, "Accidents by scooter riders in San Francisco and Los Angeles have law firms salivating over potential payouts."[31] This not-unexpected development makes it even more important for municipalities to require solid indemnifications and insurance coverages from the shared mobility companies.

The Programs: America's bikeshare map is populated by a spectrum of providers, some of which are global giants and some of which are home-grown upstarts. While the legacy bikeshare companies' websites list the cities where they operate, some newcomers are moving so rapidly—and their legal status in many cities is still so uncertain—that their websites do not always name participating jurisdictions. The more noteworthy operators, beginning with bike purveyors followed by scooter companies, include:

Motivate is the vertically-integrated provider behind the non-electric docked programs in (from smallest to largest) Twin Cities, MN; Columbus, OH; Jersey City, NJ; Portland, OR; San Francisco, CA; Boston, MA; Washington D.C.; Chicago, IL, and New York, NY. Gotham's one-month tally of nearly two million Motivate rides in June 2018 exceeded June rides for all other Motivate cities put together, dwarfing totals for the same period in Chicago (460,000) and the Nation's Capital (390,000). Motivate is the biggest and oldest provider of shared bikes in the US. Lyft, the global ridesharing behemoth that competes head-on against Uber, acquired Motivate in July 2018. Lyft now labels itself the largest bikeshare company in America,[32] and plans to re-brand its cycles as LyftBikes.

Social is the purveyor of red "Jump" bikes in more than 50 US locations, from Charlotte, NC to Magnolia, AR and Ketchum, ID, including numerous college campuses. Every cycle in this New York start up's portfolio is electric, helping riders up hills and travelling roughly 20 miles on one charge. It claims to offer the best-quality bike in the business, including hidden cabling and "buttery smooth" shifting. Jump is dockless but is designed to be locked to bike racks and other vertical supports, reducing the free-for-all of some other providers. Indicative of the significant role that dockless bikes will assumedly play in the transportation ecosystem, Uber acquired Jump in April 2018 for many millions of dollars,[33] prompting one source to ask "Is Uber disrupting itself with its bike share investment?" [34]

BCycle is owned by US bicycle maker Trek, and headquartered in Waterloo, WI. All BCycle bikes are electric; some feature the latest in handlebar-mounted smart screens. BCycle offers bikes designed for docking in the company's stations as well as "DASH" bikes ~ fully dockless versions which lock themselves and can be parked anywhere. BCycle is now powering programs in more than 50 US cities, including many middle- and smaller-sized municipalities like recent additions Tulsa, OK and Jackson, WY. [35]

Ofo, based in Beijing, bills itself as "the world's first and largest station-free bike sharing platform." It claims to have to have put more than 10 million of its yellow bikes into service in more than 20 countries: Australia, Austria, China, Czech Republic, France, Germany, Hungary, India, Israel, Italy, Japan, Kazakhstan, Malaysia, Portugal, Russia, Singapore, Spain, Thailand, the Netherlands, the UK-and the US, and purports to generate more than 32 million transactions each day.[36] The company's growth may be reversing, however; it has departed several countries[37] and many US markets. It recently exited Washington DC after regulators would not allow it to expand the size of its fleet and a significant percentage of its existing inventory was vandalized; in late August it sold several hundred cycles (which had the self-locking feature removed) to buyers in Arlington, Virginia for a bargain price of $100 each.[38]

Mobike, referenced earlier for its amazing growth story, calls itself "The Perfect First & Last Mile Solution." Headquartered in Beijing, it is the world's largest bikeshare company. The company's silver and orange cycles have appeared in many cities unannounced, triggering legal action and, in some communities such as Dallas, outright warfare by residents. Despite its sometimes-unwelcome market entry, the company continues to innovate, now linking to Apple iWatches, offering "curated" rides through Mobike cities, and promoting its environmental responsibility and carbon reduction impact. Mobike appears to have been more disciplined in its growth outside China than Ofo and is not reported to be abandoning markets wholesale—although it too left Washington DC in late July because the nation's capital would only allow 400 bikes per provider in the city. [39]

Lime offers a "Smart Mobility Fleet"

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comprising bikes and scooters. It has been among the most aggressive of dockless species, placing its neon-green e-scooters and cycles (pedaled and/or e-assisted, with one, three or eight gear varieties)[40] in cities across the country, often without any notice. San Francisco, Charlotte, Indianapolis, San Jose and other localities have issued cease and desist orders to Lime, with mixed results. The company's apparent premise that it is better to apologize than ask for permission seems unlikely to wane, based on its newest collaborators—Lime received a $335 million investment from serial disruptors Uber and Google in April.[41] As of July, the company's devices had popped up in more than 70 cities across the US and Europe.[42]

Bird's flat-black e-scooters are as ubiquitous as Lime's, and it has often found itself in the same posture after sneaking into city streets uninvited. The Santa Monica-based operator has already placed its scooters in at least 15 cities, invoking threats of litigation, sometimes acted upon, in San Francisco, Nashville, Milwaukee, Washington D.C., Austin and Denver.[43] Bird is also emblematic of the new technology's "act first, negotiate later" strategy: "We enter markets where scooters aren't prohibited, and we follow the laws on the books," says Kenneth Baer, a Bird spokesman. "But in most cities, the laws never anticipated this technology."[44]

Skip was funded by Silicon Valley investors and promotes its electric scooters as a safer, more durable alternative to other companies' devices, offering a wider riding surface and shock cushioning.[45] And the Speedway Mini4 scooters which Skip modifies can go up to 30 miles per charge at an average of 10 mph—50% farther than the scooters used by competitors like Lime--meaning that they are less likely to be useless by mid-afternoon.[46] The company's website includes rules applicable to various cities (in Portland, Oregon, no riding on sidewalks or in parks; helmets required; 15 types of no-parking areas) and actively seeks to be notified about irresponsible parking or other scooter problems.[47]

There are many other entrants in the global shared mobility market, including Hello Bike, Bluegogo, Goat, NextBike, VBike, OBike and more. Some have entered the US, securing small niches; others have abandoned their aspirations for the American market.[48]

The Existing Laws: While federal laws respecting e-scooters are yet to emerge, the bicycle has been fully defined by Congress in 16 CFR 1512, recent iterations of which address arcane issues such as seat posts, wheel hubs and brake grip dimensions. Localities wanting to craft their own ordinances to address these new modalities will obviously have to conform to such federal standards and to applicable state regulations. Washington State's legislative history is illustrative. In 1997 Washington had defined electric-assisted bicycles as those with two or three wheels, a saddle, fully operative pedals for human propulsion, and an electric motor with a power output of no more than 1,000 watts. It was to be incapable of propelling the device at more than 20 mph on level ground, whether operating alone or assisting the human pedaling rider.

A 2002 federal law amended the Consumer Product Safety Commission definition of electric-assisted bicycles and defined a low-speed bicycle as "A two-or three-wheeled vehicle with fully operable pedals and an electric motor of less than 750 watts, whose maximum speed on a paved level surface, when powered solely by such a motor while ridden by an operator who weighs 170 pounds, is less than 20 mph."[49]

On June 7, 2018, Washington updated its e-bike provisions, via SB 6434. The law took effect July 1, 2018. As the House Bill Report states, "While the federal government regulates the manufacturing and first sale of an electric-assisted bicycle, the operation on roadways and paths is under a state's control." Washington reduced permissible e-power, and established three categories of e-bikes:

> Summary of Bill: The definition of a bicycle is updated to include electric-assisted bicycles.
>
> An electric-assisted bicycle's motor must have a power output of no more than 750 watts and the electric-assisted bicycle must meet the requirements of one of three classifications:
>
> 1. Class 1 electric-assisted bicycle in which the motor provides assistance only when the rider is pedaling and ceases to provide assistance when the bicycle reaches the speed of 20 mph;
> 2. Class 2 electric-assisted bicycle in which the motor may be used exclusively to propel the bicycle and is not capable of providing assistance when the bicycle reaches the speed of 20 mph; or
> 3. Class 3 electric-assisted bicycle in which the motor provides assistance only when the rider is pedaling and ceases to provide assistance when the bicycle reaches the speed of 28 mph and is equipped with a speedometer.[50]

(To put these specifications into perspective, Lime's e-assist bikes have a power output of 250 watts and will augment the rider's pedaling up to a top speed of 15 mph; they would be Class 1 devices). The Washington law also requires motorized scooter riders to wear a helmet if under 18 years of age.

This federal-state matrix has not entirely deprived Washington localities of their own regulatory powers. SB6434 says that Class 1 and 2 bikes can be ridden on sidewalks but allows municipalities to prevent them. (Seattle recently decided that the 20 mph-and-under e-bikes will henceforth be permitted on city walks, given that bicycles already have that status). SB6434 also permits local authorities to allow e-bikes on highways having speed limits of up to 35 miles per hour-- and would allow them on higher-speed highways if operated within a Class II or Class IV bikeway.

California is considering legislation that would apply similar provisions to "motorized scooters," defined as "a 2-wheeled device that has handlebars, has a floorboard that is designed to be stood upon when riding, and is powered by an electric motor or by a source other than electric power." Local authorities could allow motorized scooters to operate in a Class II bike lane on highways with a speed limit up to 35 mph, replacing the prior 25 mph limit; however, the maximum speed of the scooter would remain capped at 15 mph.

Under AB 2989, localities would still be bound by California requirements that scooter riders carry a valid driver's license; that they not carry additional passengers-- or parcels preventing at least one hand on the handlebars; that they not operate a scooter on a sidewalk; and that they not leave a scooter parked on its side or obstructing passers-by. But the provision, passed by the California legislature on August 29, 2018, would eliminate the helmet requirement for riders above 18 years old.

The War Stories: The need for municipalities to meet bikeshare entrants with a preemptive shield, a well-conceived regulatory scheme, and sound business assumptions is evidenced in some recent history:

Coronado-Taking the Offensive: Coronado, California's municipal code requires businesses that use the city's public right of way to obtain a permit. In the spring of 2018, Lime, Ofo and Mobike's cycles began to appear in the locality without the requisite permits. This triggered the city's right to impound. As of the end of June 2018, it had collected 106 bikes, according to Coronado's Director of Public Works and Engineering. The offending companies are charged a $45 impound fee and a $1 per day storage fee. Most of the impounded cycles belong to Lime, which proclaims its innocence: "Lime has never deployed bikes in Coronado, our smartphone app actively warns riders against parking in Coronado, and we collect and redistribute most of our bikes on a nightly basis."[51] Until reclaimed, the bikes remain locked, unusable-and unsaleable. Accordingly, the city now plans to recycle them as scrap metal.

Dallas-Caught in the Deluge: "Big D's" foray into the bike share experience is cautionary. Dallas became a bikeshare epicenter virtually overnight in late 2017 as five companies (VBike, Lime, Spin, Ofo and Mobike) converged on the metropolis. The city did not yet have in place a regulatory scheme to keep the bikes out or to control them once they arrived. By February 2018, one of the largest American municipalities without any bike share system had suddenly been morphed into the city with the largest share bike fleet anywhere in North America—some 18,000 cycles. It was even deemed "the bike-share capital of America" in *D Magazine*.

The subsequent history was fairly predictable given the absence of protections for such an onslaught. Residents jammed 311 phone numbers, complaining about the swarms of brightly-colored cycles, many of which were not moved for weeks on end, clogging their sidewalks and encroaching on open spaces. War against the uninvited vehicles seemed to become a local pastime. Many were tossed aside, vandalized and even conscripted into ad hoc artistic installations. Far from being a cost-free enhancement to the city, as promised by the companies, the dockless bikes were a political and economic liability.

In June 2018, the Dallas City Council passed an ordinance imposing an $808 permitting fee any company seeking entry into their market, coupled with a $21 per bike charge. That step was too much for three of the five companies, who rapidly departed.[52] Only Lime and VBike now remain, with a much smaller population of roughly 3,500 bikes. Much of the remaining inventory was simply abandoned, and hundreds of cycles now await destruction at Dallas recycling centers—a colossal waste of resources. The city's shared mobility challenges are hardly over; as the bicycle programs were shrinking, a new horde of e-scooters began invading.

Seattle-Lessons Learned: Seattle also suffered a collapse of its initial bike share experiment, "Pronto!" Started in 2014 as another Motivate docked-bike program, it was funded via a massive municipal budget. Alaska Air signed on as a primary sponsor, committing to a whopping $1,000 per bike for five years; with an initial population of 500 bikes, the airline was committing to $2,500,000. Unfortunately, that largesse—buttressed with another $7 million in city funding—was insufficient. Seattle had too few docking stations and not enough bikes, a flaw that prevented the program from achieving critical mass.[53] Ridership—and income-was well below the city's projections, and the bike share experiment soon became prohibitively expensive. Added to that, a transportation executive appointed by Seattle's mayor became embroiled an ethics controversy for his undisclosed interest in the Pronto! Venture. Faced with many other fiscal realities, the city council and ultimately the mayor, who had won office partly because of his outspoken enthusiasm for more bicycle paths in the city, reluctantly defunded the program in late 2016.

But the Emerald City tried again, this time under the auspices of the new bike share companies. Armed with more resources, better technology, experience gained in markets around the world, and perhaps most importantly, dockless bikes, these entities took the risk in 2017. They now seem to be succeeding.

Seattle's recently-updated bike share program is one of the nation's most developed—and most progressive. Following a one-year pilot period, the city passed its amended "free-floating" bike ordinance on July 30, 2018. It projects a doubling of the city's already-ambitious program, from 10,000 cycles to 20,000. Instead of relatively modest initial payments (fees, bonds and/or deposits) specified under most other city's policies, Seattle envisions a hefty ante totaling $1 million for the 20,000 bikes in its program—assumed to be $250,000 from 4 primary vendors, each providing 5,000 bikes at $50 apiece. These funds will enable the city, in theory, to host a bike program without consuming its own taxpayer dollars. Of the $1 million in up-front payments, $400,000 will be used to fund Seattle traffic personnel responsible for overseeing the program and another $400,000 will be used to create designated parking areas for bikeshare cycles (the city has identified the 30-foot buffer zones around stop signs as fertile ground for such deployment, estimating that it can repurpose such areas at a cost of $2,000 to $3,000 each, providing 10 to 15 spaces in each).

The $250,000 per vendor target has caused some repercussions. While Spin, Ofo and Limebike had participated in the pilot since July 2017; Ofo announced that it was not willing to foot such a large up-front bill and is dropping out of Seattle. In contrast, Limebike is enthusiastic about remaining, and cites the following data:

- In the last 13 months, Limebike has sold six million rides on its bikes around the world, of which more than one million were taken in Seattle, it's most successful market. Seattle was the first market to hit one million rides on a dockless bikeshare program;
- 715,000 pounds of CO2 have been saved by Seattleites using its bikes, more than any other city;
- 74 percent of Seattle residents have a favorable opinion of dockless bikesharing;
- Of the one-third of Seattle residents who have tried Limebike: 36 percent were Hispanic and African American; 32 percent Asian; and 32 percent Caucasian; and
- A rider using Limebike products in conjunction with public transit would pay, on average, 80 percent less than the cost of owning and operating a personal vehicle.[54]

The revised program expanded beyond what the Seattle Department of Transportation had initially envisioned. The city's sharing program now includes "shareable mobility devices, such as tricycles, handcycles, tandem cycles, electric scooters, and others," intended in part to provide sharable transportation for disabled residents.

Oklahoma City-Give the Public What they Want

One of the latest jurisdictions to see an overnight invasion by this new technology is Oklahoma City. In mid-July 2018, Bird placed several hundred electric scooters

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on the city's sidewalks and open spaces, without any advance notice or discussion with officials. Although Oklahoma City apparently did not already have in place a Coronado, California-type ordinance on its books allowing the seizure of unauthorized objects in its public right of way, it rapidly passed such a regulation. In an emergency session, the City Council unanimously enacted a measure giving Public Safety workers the latitude to confiscate Bird scooters and charge the company for collection and storage costs.

That solidarity did not last. A day later, a single councilman pressed for, and achieved, a one-week reprieve to allow the parties to discuss the situation and derive a mutually-acceptable compromise. A more telling barometer of the ultimate outcome was provided by the city's mayor, who acknowledged openly that the city's residents wanted the devices.

As one local media outlet describes it, the onslaught is not bad for the city, and is actually forcing it to move towards a new paradigm that it might not otherwise have achieved:

> The upside of these operators is great for cities like Oklahoma City that is attempting to reverse decades of heavily auto-centric design. The city sprawled to 221 square miles for 40 years without any sidewalk requirements.
> The city is just now figuring out how to properly design bike lanes after attempting the derided sharrow lanes that make bicyclists feel no safer sharing lanes with vehicles. The Oklahoma City Planning Department unveiled a comprehensive plan for improving pedestrian and bicycle infrastructure throughout the city.
> The timing couldn't be better for a company like Bird to approach the city, as did their competitor, Lime, to adapt the plan so bike lanes and infrastructure can accommodate scooters. Oklahoma City, with ample downtown plazas, new sidewalks and embrace of efforts to reduce reliance on vehicles is a perfect test case for these companies to come up with a template for the country.[55]

On August 23, the city announced that it had granted Bird the right to place its e-scooters at 15 locations after having received "no objection" letters from nearby property owners.[56] Oklahoma City has now drafted a proposed "shared vehicle ordinance" for consideration at a city council meeting on September 11 and adoption by September 25.[57]

The Ordinances: These case studies, and many more, merely reveal what is hiding in plain sight: although some cities have not successfully launched bikeshare programs, in most places the public wants to enjoy this new modality. Rebuffing that enthusiasm will not garner votes for an elected official--and will not result in compliments to his municipal legal team. The government attorney's mission, in the vast majority of jurisdictions, will not be to squelch shared bikes but to find a way to get to yes. Many noteworthy examples can be found—Austin, Boulder,[58] Chicago and Washington DC each have useful precedents, for example. They address many of the items flagged below.

1. <u>Preliminary issues:</u>

- **<u>What does the statehouse say?</u>** While it might seem intuitively obvious that local voters and officials can best determine how and where bicycles should operate within their municipality, it would be unwise to develop a local bikeshare program without considering preemption. As indicated in the Washington State legislative activity described above, the definition of what constitutes a "bicycle" is likely to be a matter of federal and/or state prerogative. Defining "e-bicycle" or "e-scooter" (or "motorized skateboard" for that matter) may not have been well defined yet at the statehouse, but will likely be decided there. So may issues such as required bike safety features, allowable ages of bike share users, mandated insurance coverages, parameters of bike usage data programs, spacing necessary for ADA compliance, and much more. Checking for appropriate state—and occasionally federal—preemptive regulations is essential before spinning municipal wheels drafting unenforceable home-grown provisions.

  One somewhat surprising ally in the preemption inquiry is the North American Bike Share Association (NABSA),[59] a one-year old industry trade group headquartered in Maine. Unlike trade associations representing many other innovations which have elbowed their way into the municipal cosmos (fracking, drones, Uber, and Airbnb come to mind), NABSA has not sought to end-around local autonomy by cutting deals with overreaching state legislators. In fact, the NABSA website specifically affirms its support of local governments, listing by bill number a variety of attempted preemptive regulations around the country that NABSA has helped to scuttle.[60] Moreover, NABSA provides its own useful list of provisions to consider when drafting bike share ordinances.

- **<u>Keeping the barbarians outside the gate</u>:** Municipal lawyers around the country have witnessed bikeshare companies placing their profit-generating devices, in now-familiar orange, green, yellow or black trade dress, in an unsuspecting town. The companies are hardly bashful about such an approach, as indicated in the Bird spokesman's comment above. Without a preexisting defensive strategy, municipalities can be sitting ducks for such app-driven incursions. One elemental mechanism that would seem useful is a blanket prohibition against stealth placement of unlicensed or unpermitted bikes and the like on a municipality's public spaces--with the locality having the authority to confiscate and hold such items for redemption without further notice, pending negotiation of a mutually-acceptable agreement. Cities with these pre-existing shields such as Coronado have the upper hand in subsequent discussions. Without such provisions, emergency regulations and cease and desist demands become a necessary predicate for confiscatory steps—an approach that has also ultimately led to success in many jurisdictions. albeit not as immediate. Legal maneuvering can easily become complicated: in July, Milwaukee sued Bird for penalties of $200 per infraction for some 6900 instances of illegal Bird scooter rentals in the city; that case has been removed to federal court. And the city's effort to put the onus on riders by threatening fines of $98.80 for using unauthorized e-scooters was objected to by local residents.[61]

- **<u>Avoid the bleeding edge</u>:** The pressure to provide constituents with access to this high-profile innovation may impel rapid action. But localities will require a cost-benefit analysis before significant resources are allocated to such an initiative. On the expense side of the ledger, a comprehensive understanding of the manpower and logistics involved in a bike share program—including enforcement, once ordinances are drafted–is needed in order to avoid understating potential costs (both economic and political) to the municipality. On the income side of things, a survey of pricing paid by bike share companies in other

communities will reveal a wide range; it will be useful to gauge the market before settling for a paltry fixed sum or unnecessarily low per-bike figure. Where such data cannot easily be discerned on day one, latitude can be preserved in pricing provisions, allowing for future increases. Flexibility may also be important in the context of another early-mover deal tendency: exclusivity. Ample room should be allowed for other programs and next-generation innovations.

- **Engagement before marriage:** While many municipal regulatory schemes will include similar terms, each locality has different topologies, demographics, public transport infrastructure-and culture. It will be critical, while preventing unauthorized invasion onto a city's streets, to have a well-defined pilot program giving the municipality time to test one or more bikeshare candidates: what impact is the program having on traffic, safety, sidewalk congestion, and business; is the company making good on its commitments; do residents and tourists like and use the service; and so on.

  In that regard, Baltimore provides a good example. On August 15, 2018 it signed a six-month pilot program agreement with Bird. It calls for 1,000 e-scooters to be placed around the city, allocated to low-income neighborhoods as well as affluent. Riders must be apprised of rules, including a prohibition against riding on sidewalks. The city receives $20,000 up-front, followed by $1 per day for each of Bird's "dockless vehicles" operating in Baltimore—a pricing scheme that Bird has followed in Memphis[62] and other cities. The package could conceivably bring a total of $200,000 to city coffers—presumably enough to cover resulting enforcement costs—and indicative of the profit opportunities sensed by the e-scooter companies. Baltimore is held harmless and indemnified against virtually any type of loss or expense arising from the use or presence of Bird's devices and has ample rights to curtail the Bird relationship in the event of noncompliance.
- **The Ordinance need not answer every question:** While the immediate pressure is to create a barrier to overnight intrusion and unregulated activity, ordinance drafters need not feel the compulsion to address every nuance in their initial codification, particularly until pilot programs are evaluated. They can defer the crafting of more specific elements until later—or, as Tucson recently did, simply provide that any agreement signed by the municipality with a bikeshare provider will address those elements, many of which are described below.

2. **Defining the Program:** As data from pilot programs is harvested and analyzed, the scope of a longer-term programs can be better-defined: how many bikes will be needed or allowed (while too many will result in glut and clutter, too few will prevent critical mass); where should they be dispersed (commercial areas and neighborhoods in the center city may welcome them, while wealthy enclaves may have less interest); will bikes, scooters, and other conveyances be included; will they be docked and/or dockless; must bikes lock to a structure; will the program be limited to specific providers or open to virtually any qualified entrant; will the program need to be self-sustaining or can the municipality expend funds to add this amenity; will the operators be required to allocate devices and free use time to non-profits and low-income communities; will the program serve those without smartphones and credit cards; will employment of local low-income residents be mandatory; and so on. As NACTO stresses, bikeshare is not merely a recreational or peripheral feature to be viewed in its own silo; it should be assessed as part of the larger municipal transportation environment.

3. **Defining the "Bikes":** How will the conveyances in the program be defined—much of which may already be answered by federal and state codification as described above; will Segways, single-wheel devices, handcycles, tandem cycles and other iterations be covered; will foot-powered, battery/electric powered (and potentially, internal combustion devices) be included; and so on. The specifications and attributes of permitted cycles and scooters must be established: beyond complying with federal, state and industry standards for strength/sturdiness/dimensions/braking power; how many gears must bikes have; what signage or labels must be affixed; what lighting, cargo baskets, bells or warning devices and the like must be included; and so on.
4. **Licensing and Permits:** The standards and qualifications for licensing must be determined: what financial attributes must be shown via audited financial statements, if any; in addition to having a permit to operate its bike share program, must the operator be qualified as a foreign corporation with the state, must an agent for service of process be designated and must it register with the municipality for a business license; must each bike have an individual permit and be separately registered; must permitting be renewed annually or on some other periodic basis; how and when can permits be revoked; and so on.

5. **Fees, Bonds, Deposits, Insurance:** The financial elements must be determined: how much will the permitting fee be; what fee structure will be needed to cover the municipality's costs; will the fee include a base amount plus per-bike fees or some other mechanism; how large of a bond will be required, and how will it be calculated; what sort of property, casualty and comprehensive coverages will be necessary; and so on.

6. **Rider Qualification and Safety:** Rider qualifications and responsibilities must be addressed: must they carry drivers' licenses; will riders below the age of [18] (or below [16] if accompanied by an adult) be allowed; must riders view a tutorial, acknowledge that they will not perform stunts, carry additional people or operate the devices while under the influence; must they agree to ride and park only where permitted; must they wear helmets; and so on.

7. **Tracking, Identification and Data:** The ability to identify and track bikes must be addressed: must each bike be equipped with its own individual electronic identifier and GPS tracking capability; must each transmit continuously its path and position, allowing the capture of aggregated data regarding bike share traffic patterns; must that data be shared (in real time/promptly) with city transportation and planning personnel (subject to confidentiality protections from other bike share competitors); what steps will be taken to avoid capture of personally-identifiable information associable with specific bike trips; what data storage, open meetings and FOIA implications must be considered; what communication protocols will be required (the current industry standard is the aforementioned

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GBFS protocol, but legacy systems still abound); and so on.

8. **Logistics:** Bicycle flow, parking, maintenance and charging (where applicable) must be determined: will riding and/or parking bikes be prohibited in some areas (or heavily discouraged, such as via the $10 charge that New Orleans' Blue Bike program charges noncompliant parkers); will geo-fencing be required in the bikes' GPS/app interface to alert riders to no ride/no park areas (and apprise them of additional fees if they do so); will operators be required to "re-balance" bike availability (moving them back up hilly areas or to outlying or low-income areas from center-city aggregation points); will operators be required to retrieve damaged, "dead," and impermissibly parked bikes; will operators be allowed to pay the public to move and/or recharge bikes; how will Uber-and Lyft-type food and parcel delivery services be incorporated; what policies will be needed for snow and weather emergencies; what scope of customer service and repair staff will be required; and so on.

9. **Fines, Confiscation, and Disposal:** The municipality's policing authority must be spelled out: what fines will be assessed if damaged, dead and/or impermissibly parked bicycles are not timely retrieved by the operator; what labor charges will be assessed if the municipality has to undertake such retrieval; what sort of notice to the operator will be required; what sort of legal process will be necessary; how long will the operator have to redeem confiscated bikes from the municipality before they can be sold or disposed of; will the municipality have the authority to (or authority to require the operator to) disable the app within its jurisdiction; what will the penalties be for using municipal facilities to recharge bikes; and so on.

CONCLUSION

The above elements, and others, can be woven into an effective regulatory scheme allowing municipalities and their residents to experience the continuing evolution of shared mobility. The impact of bikeshare seems overwhelmingly positive; removing cars from city streets should ultimately benefit everyone. Bikeshare-fueled tourism, with people journeying to places previously thought to be too costly or out of the way, is undoubtedly bringing new dollars to our communities. And anyone who has seen the delighted expressions of people riding electric bikes and scooters around our cities (in particular those of an age who might never have envisioned themselves again being so insouciant) must acknowledge that they are here to stay. The challenge is to devise rules which allow this innovation while maintaining order and not abdicating safety. It is a mission to which municipal lawyers are well-suited, and one which IMLA and its members are already pursuing.

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