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PART II: ALL THINGS AUTONOMOUS—REGULATORY AND COMMERCIAL CONSIDERATIONS FOR DELIVERY ROBOTS (ON AND OFF CAMPUS), ESCOOTERS, AND DRONES

July 13, 2022

Daniel Savrin | Mark Fanelli

Morgan Lewis Automotive Hour Webinar Series

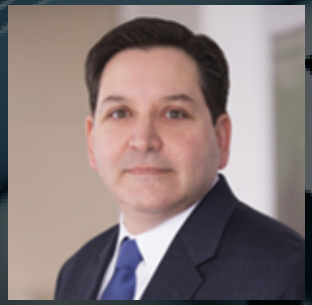
Series of automotive industry focused webinars led by members of the Morgan Lewis global automotive team. The 8-part 2022 program is designed to provide a comprehensive overview on a variety of topics related to clients in the automotive industry. Upcoming sessions:

SEPTEMBER 14 | Part I: All Things EV—Regulatory and Commercial Considerations

SEPTEMBER 28 | Part II: All Things EV—Finance and Transactional Considerations

NOVEMBER 9 | European Antitrust and Other Regulatory Updates for the Automotive Industry

Presenters



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State of Play in the U.S. Micromobility and Robot Delivery Sectors

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State of Play: Micromobility and Robot Delivery Sectors

- In the United States, European Union, and China, approximately 60% of all miles traveled in private cars cover less than 5 miles
  - Approximately 20% of trips on public transportation cover the same distance
- Per DOT, the transportation sector accounts for 29% of the U.S. annual greenhouse gas emissions.
  - The average number of passengers in a private vehicle trip is 1.14 persons.

State of Play: Micromobility and Robot Delivery Sectors

- Micromobility vehicles are known as "intuitive mobility" solutions:
  - Small, lightweight personal transportation vehicles that operate at speeds of 15-20 mph
    - Bicycles
    - E-Bikes
    - E-Skateboards
    - Escooters*
- Micromobility systems serve as a gateway for autonomous car production

State of Play: Micromobility and Robot Delivery Sectors

- More than 30% of the world's population lives in urban cities with populations of more than 1 million people.
  - The United Nations' *World Urbanization Report* (2015) projects that more than 60% of the world's population will live in urban areas by 2050.
- In the United States, between 2012-2016:
  - 175 million lived in suburbs and small metropolitan areas*;
  - 100 million lived in urban cities;
  - 46 million lived in rural areas.

State of Play: Micromobility and Robot Delivery Sectors

- Since 2015, micromobility stakeholders have invested more than $5.7 billion in personal mobility start-up companies.
  - Growth is two to three times faster than either car sharing or ride hailing over the same period
- Several micromobility start-ups have amassed valuations that exceed $1 billion, which is more than most ridesharing platforms over the same time period of their corporate lifecycles.
- Micromobility industry projected to be a $300 to $500 billion market by 2030.

State of Play: Micromobility and Robot Delivery Sectors

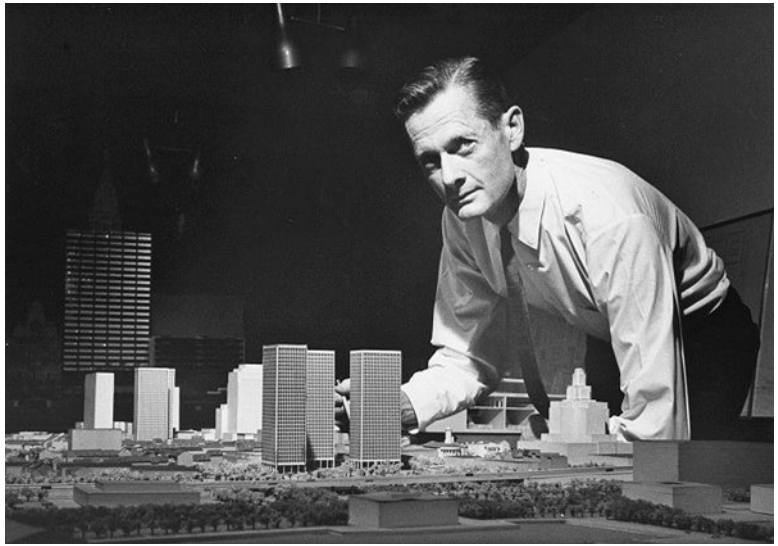
- Micromobility plays key role in Biden Administration's signature infrastructure plan
  - Goal of Build Back Better: Create a modern, sustainable infrastructure plan based on clean energy
    - U.S. reentered the Paris Climate Accord
    - U.S. economy to achieve net-zero emissions no later than 2050
    - In April 2022, President Biden held a climate summit with world leaders from 40 countries and announced that the U.S. would cut its greenhouse gas emissions by 50-52% below our 2005 emissions rate by the year 2030.

State of Play: Micromobility and Robot Delivery Sectors

- Build Back Better – Increases access to high-quality and zero-emissions options for affordable, reliable public and micromobility transportation
  - Focuses on cities and municipalities with populations of more than 100,000 people
    - Federal investments in light rail networks, commuter transit, and bus lines
    - Infrastructure for pedestrians, cyclists, and riders of escooters and other micromobility vehicles and integrate technologies like machine-learning optimized traffic lights

State of Play: Micromobility and Robot Delivery Sectors

- How can U.S. cities better accept micromobility and robot delivery systems?



Pictured: Edmund Bacon, Executive Director of Philadelphia Planning Commission, 1949-1970

State of Play: Micromobility and Robot Delivery Sectors

- During COVID-19, U.S. cities and municipalities began to close off roadways to cars and limit access to pedestrians and micromobility devices
  - This trend is expected to continue post-COVID-19, which will allow for the expansion of escooter usage.
    - By the end of 2021, New York City will have closed more than 100 miles of streets to vehicular traffic in the five boroughs
      - Montreal - 198 miles
      - Paris - 31 miles
      - Brussels - 25 miles
      - Milan - 22 miles

State of Play: Micromobility and Robot Delivery Sectors

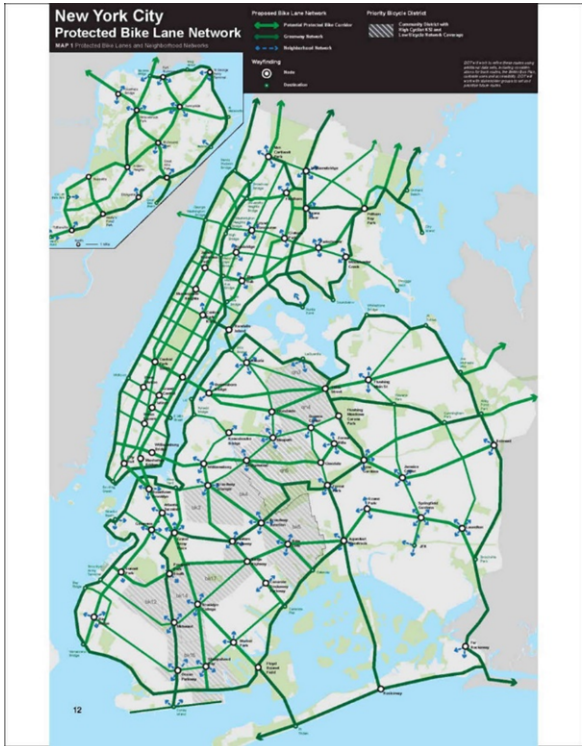
Challenges to Implementing Micromobility Pathways in New York City

- NYC Crosstown Busway Plan & Bike Lane Network
  - Two-tiered pilot program that attempts to cutdown on cross-town vehicular and provide for bicycle lanes in the five boroughs.

  - Crosstown Busway: 18-month pilot project that from 14th St. between Third Ave. and Ninth Ave. between 6 a.m. and 10 p.m. seven days a week.

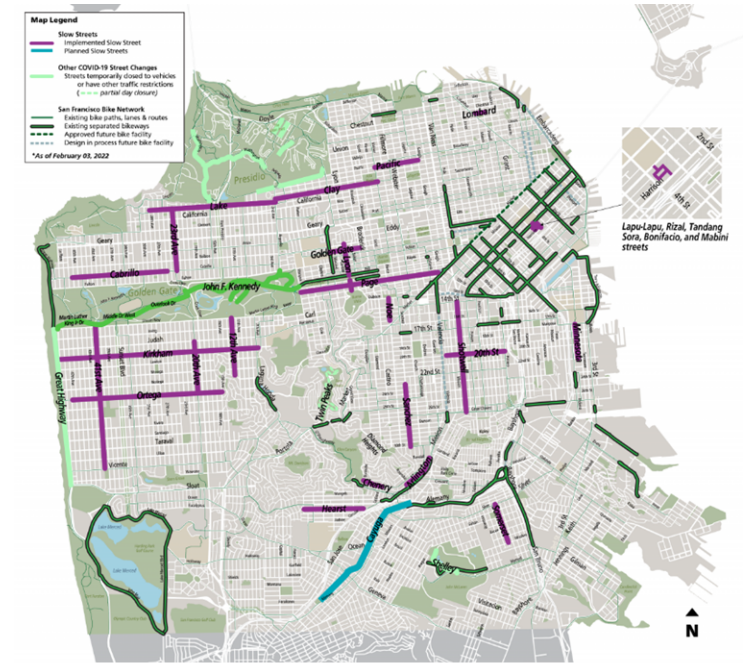
    - Only buses and trucks are allowed as through traffic during those hours.

- Lawsuit filed by businesses and civics groups opposing the crosstown busway and bike lane plans



State of Play: Micromobility and Robot Delivery Sectors

Challenges to Implementing Micromobility Pathways in San Francisco



- The Slow Streets Program
  - Implemented during COVID-19 to facilitate social distancing
  - Designed to limit through traffic on certain residential streets and allow them to be used as a shared space for people traveling by foot and by bicycle.
  - Nearly thirty corridors have been implemented as a Slow Street.
  - Signage and barricades have been placed to minimize through vehicle traffic and prioritize walking and biking.

State of Play: Micromobility and Robot Delivery Sectors

San Francisco County Transportation Authority

Projects & Studies | Funding | Policies & Initiatives | Tools & Data | What's Happening | About Us

‹ Back to Project List

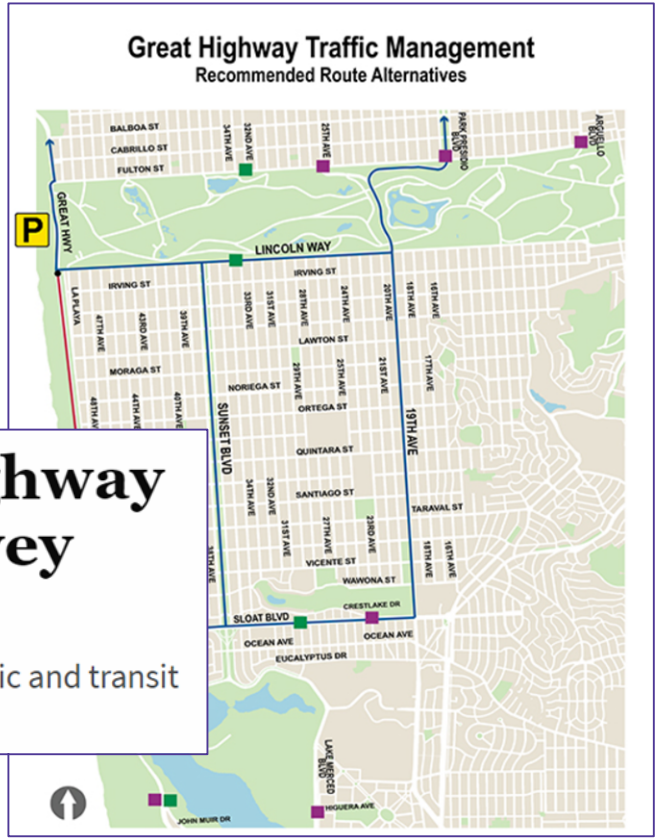
District 4 Mobility Study

Overview | Key features | Public engagement | Reports & documents

Closing Upper Great Highway for good is popular, survey finds

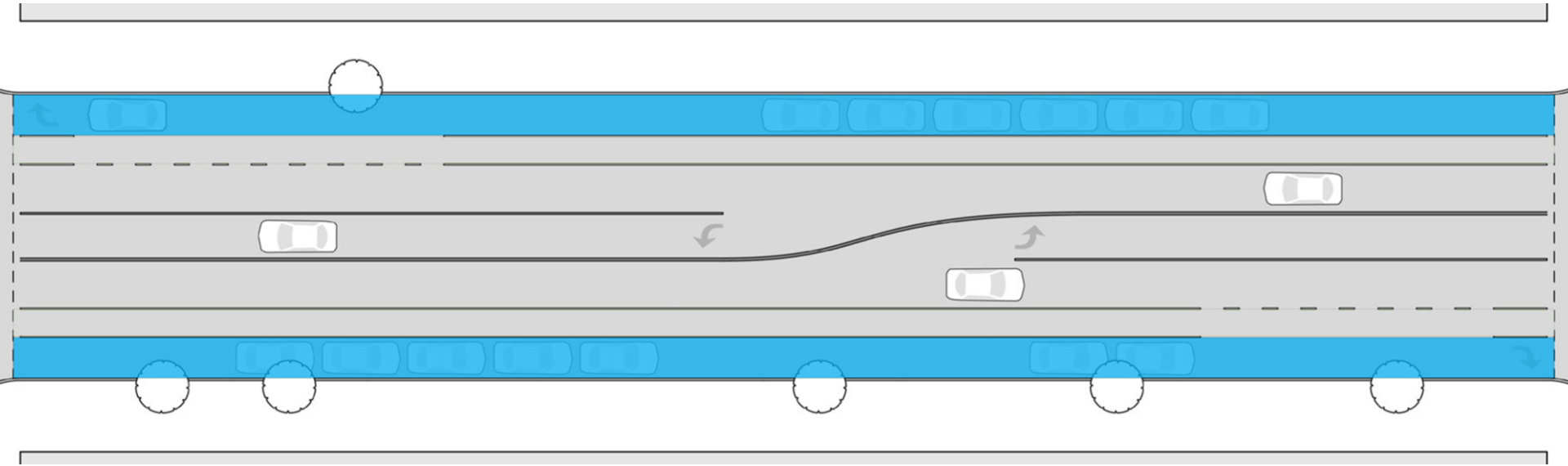
Going car-free would not come without impacts to traffic and transit

CARLY GRAF / Mar. 29, 2021 6:40 p.m. / NEWS / NEWSLETTER / THE CITY



State of Play: Micromobility and Robot Delivery Sectors

- **The Future of Urban Streets – Introduction of the "Third Lane"**



Rendering: Gensler Research & Insight

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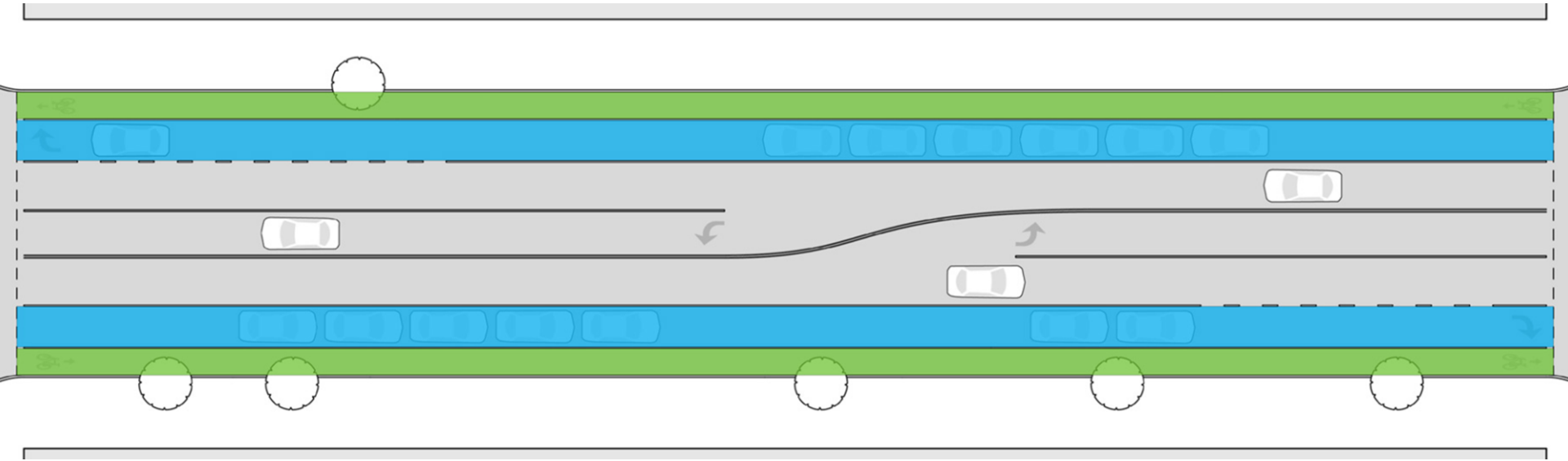

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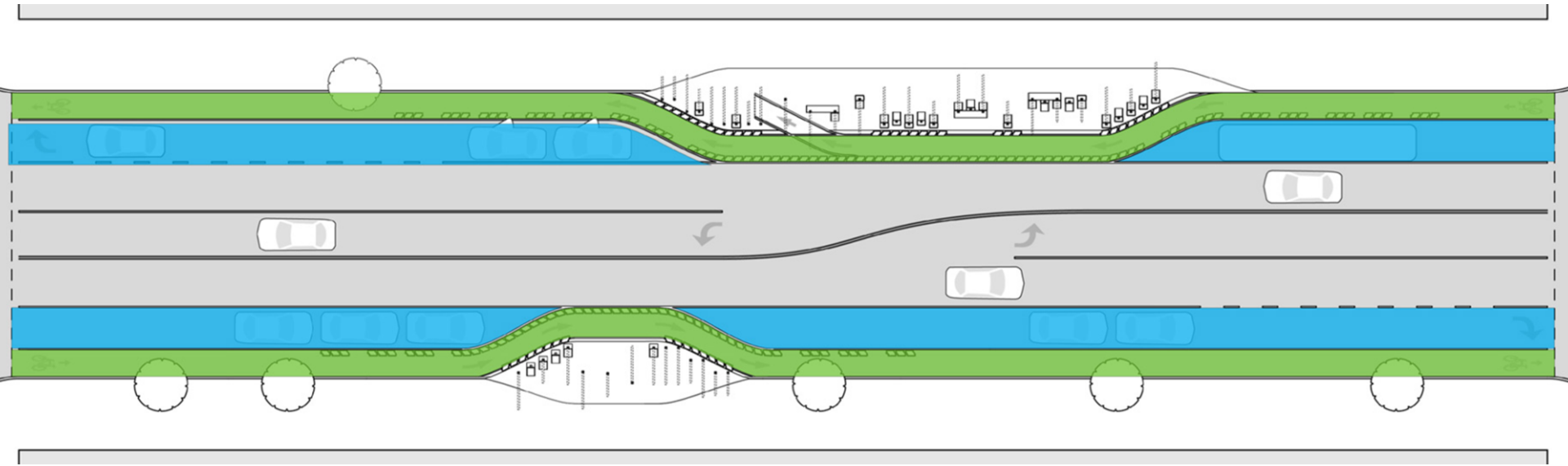

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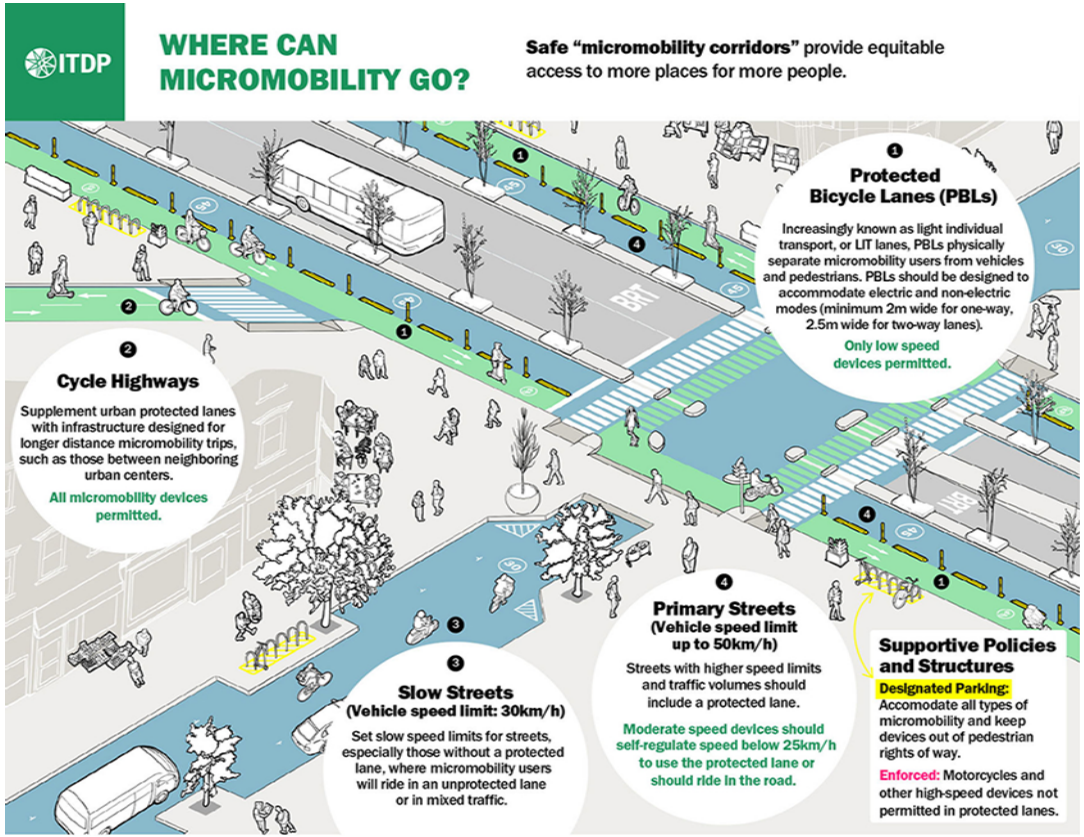
State of Play: Micromobility and Robot Delivery Sectors



Autonomous Delivery Robots (On and Off Campus)

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Autonomous Delivery Robots (On and Off Campus)

- Since 2017, micromobility companies have invested in the development of delivery robots that have proliferated on college campus…and off campus too!
  - Referred to as Personal Delivery Devices ("PDDs")
  - Powered by rechargeable lithium-ion battery packs
  - Utilize a combination of GPS, cameras, LIDAR, and radar mapping technologies to navigate street grids

Autonomous Delivery Robots (On and Off Campus)

- **PDDs are creatures of state regulation, local ordinances, and/or private contract**
  - Twelve states, including Washington, D.C., have enacted PDD legislation
  - Four more states have introduced PDD legislation
  - PDDs are treated as "pedestrians" and may operate on sidewalks, crosswalks, and certain roads
  - Maximum speeds of 12-15 mph in pedestrian areas, 25-30 mph on roadways
  - Payload limits – 450-1000 pounds

Autonomous Delivery Robots (On and Off Campus)

- **Florida's PDD Regulatory Framework**
  - PDD is defined as an "electrically powered device" that must:
    - (a) "operate on sidewalks and crosswalks and intended primarily for transporting property";
    - (b) "has a weight that does not exceed the maximum weight established by Fl. DOT" [150-550 pounds];
    - (c) "has a maximum speed of 10 miles per hour"; and
    - (d) "is equipped with technology to allow for operation of the device with or without the active control or monitoring of a natural person." See Fla. Stat. § 316.003(58)(a-d).

Autonomous Delivery Robots (On and Off Campus)

- **Florida's PDD Regulatory Framework (Cont'd.)**
  - PDDs may be operated by a "personal delivery device operator," which is defined as an "entity or its agent that *exercises direct physical control over or monitoring of the navigation system* and operation of a [PDD]." Fla. Stat. § 316.003(59).
  - PDD operators are not permitted to "[t]ransport hazardous materials." Fla. Stat. § 316.2071(3)(c).
  - PDD accident reporting requirements.

Autonomous Delivery Robots (On and Off Campus)

- **In Michigan, PDDs are flourishing even in the absence of a PDD-specific regulatory scheme**
  - PDDs are subject to provisions of the Michigan Motor Vehicle Code that are applicable to "motor vehicles" and "autonomous vehicles"
  - Key Provision: "Before beginning research or testing on a highway or street . . . of an automated motor vehicle, technology that allows a motor vehicle to operate without a human operator, or any automated driving system installed in a motor vehicle . . . , the manufacturer of automated driving systems . . . . shall submit proof satisfactory to the secretary of state that the vehicle is insured." Mich. Comp. Laws § 257.665(1)

Autonomous Delivery Robots (On and Off Campus)

- **Ann Arbor, Michigan**
  - One of the most AV-friendly cities in the United States.
  - AV permits issued through City Council and supported by Ann Arbor SPARK.
  - Permits have requirements for vehicle lighting, operational zones, hours of operation, etc.
  - University of Michigan's "MCity" is an advanced AV testing site and proving grounds that is utilized by more than 40 OEMs and 25 AV technology companies.

Autonomous Delivery Robots (On and Off Campus)

- **During and after COVID-19, PDD activity on college campuses exploded**
  - Allowed universities to reduce the number of students in dining halls at the same time
  - Increased food sales during "peak" hours depending on the days of the week
  - When universities returned to normal operation, the demand for PDD food deliveries continued to grow
  - Serves as differentiators for student recruitment via tech and food options
  - Increased safety on campus via cameras

Autonomous Delivery Robots (On and Off Campus)

- **Practical considerations for AV stakeholders seeking to provide PDD services on college campuses**
  - Food services are provided by third-party vendors.
  - POS software providers can interface with university food services and third-party app ordering platforms.
  - These arrangements are handled by private contract with the university and the related parties.
  - PDD operators are responsible for presenting designs for EV charging facilities to universities.
  - Contracts with universities should address the treatment of short-term video and confidential information from the rovers.

The Rise of Escooters in the U.S.

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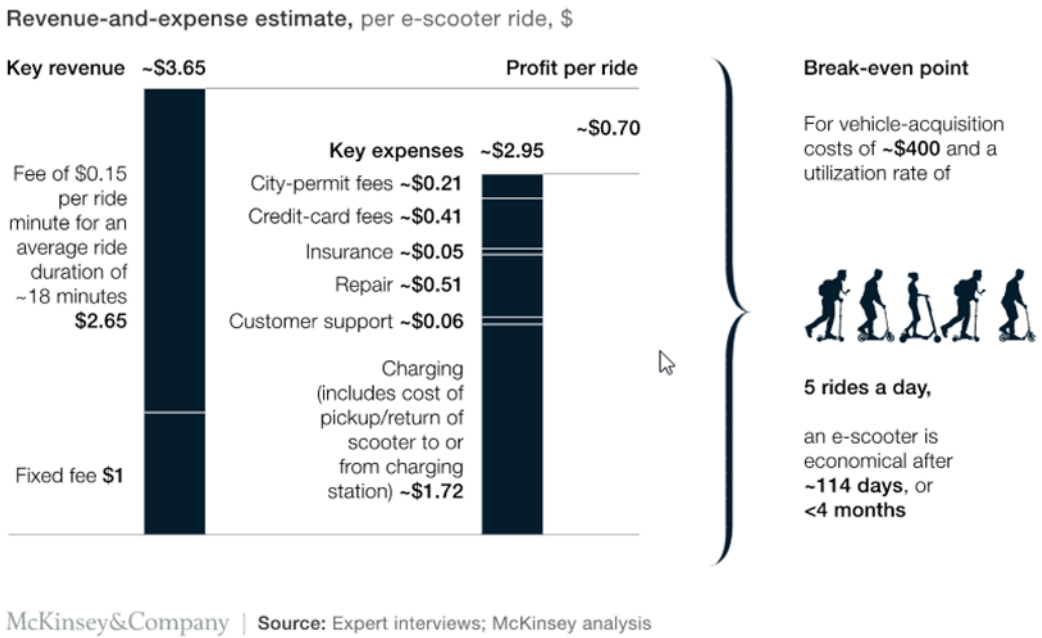
The Rise of Escooters in the U.S.

- General Escooter Specs:
  - Average weight: 23.9 to 33 pounds
  - Lithium-Ion Battery Life: 3,000 to 10,000 total miles
    - 300 to 500 charge/discharge cycles
  - Entry-level escooters can travel 15.5 to 20 miles
  - Average charge time: 3-5 hours

The Rise of Escooters in the U.S.

- Escooters are economical to private owners after 4-5 months of use
  - Escooter price:
    - Entry-level: $300-$500 (USD)
    - Mid-level: $600-$900 (USD)
    - Premium: $1,000-$1,600 (USD)



The Rise of Escooters in the U.S.

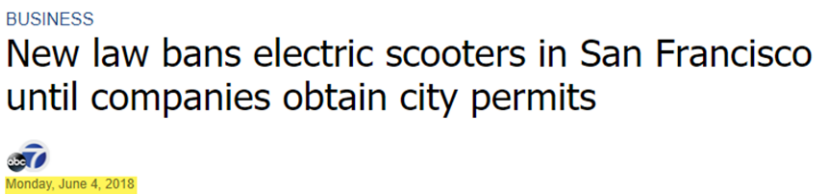
- **National Highway Traffic Safety Administration (NHTSA) Guidance on Micromobility**
  - NHTSA Interpretation 08-002289as (Jan. 16, 2009); 70 FR 34812
  - Criteria for determining whether a two- and three-wheeled micromobility vehicles are a "motor vehicle" subject to its jurisdiction:
    1. Whether the vehicle can exceed 20 mph (per ISO 7116) in the absence of a governor.
    2. Whether the physical features of the vehicle indicate it is an "on-road" or "off-road" vehicle, including whether the vehicle has a VIN, mirrors, turn signal lamps, side marker lamps, and stop lamps.

The Rise of Escooters in the U.S.

- **Consumer Product Safety Commission (CPSC) Guidance on Micromobility**
  - CPSC, *Safety Concerns Associated with Micromobility Products*, at 6 (Apr. 8, 2020)
    - CPSC has jurisdiction over consumer products, which include micromobility vehicles that NHTSA does not consider to be a "motor vehicle" per 15 U.S.C. 2052(a)(5)
      1. Scooters lacking seats that are operated in a stand-up mode;
      2. Scooters that are incapable of a top speed of **20 mph or greater**; and
      3. Electric bicycles with operable pedals, and an electric motor of 750 watts or less, 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**.

The Rise of Escooters in the U.S.

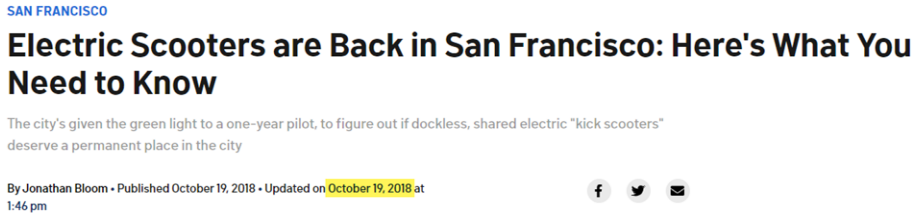
- Basic Municipal and State Government Responses to Escooters:
  - Escooters appear in cities
  - Government bans escooters
  - Government receives public pushback about escooter ban
  - Government legalizes escooters and charges permit fees, etc.
  - Government issues permits to escooter companies to establish shared escooter platforms



BUSINESS

New law bans electric scooters in San Francisco until companies obtain city permits

Monday, June 4, 2018



SAN FRANCISCO

Electric Scooters are Back in San Francisco: Here's What You Need to Know

The city's given the green light to a one-year pilot, to figure out if dockless, shared electric "kick scooters" deserve a permanent place in the city

By Jonathan Bloom • Published October 19, 2018 • Updated on October 19, 2018 at 1:46 pm

The Rise of Escooters in the U.S.

- Key Takeaways from Morgan Lewis Escooter Industry White Paper:
  - Shared micromobility systems are in place in 46 states and Washington, D.C., and use is expected to continue to grow
  - [UPDATE] Escooter trips rose to 152 million in 2021, a 24% increase from the previous year
  - States and cities are beginning to incorporate escooters into city planning decisions

The Rise of Escooters in the U.S.

- **State of California**
  - Escooters are legal in California at the state level since January 2019.
    - Under California law, escooters are prohibited from traveling above the speed of 15 mph on any public road or bike lane. Cal. Veh. Code § 21235.
    - Escooters are prohibited on sidewalks. Cal. Veh. Code § 21235(g).
    - Riders must have a valid driver's license. Cal. Veh. Code § 21235(d).
    - Helmets are required for riders under 18. Cal. Veh. Code § 21235(c).

The Rise of Escooters in the U.S.

- **Los Angeles, California**
  - In 2018, the City Council of Los Angeles approved a set of regulations that allowed companies to deploy up to 10,500 dockless escooters and bikes.
    - Los Angeles offered one-year permits to three escooter companies starting in March 2019. Los Angeles, Cal. Ordinance 185785.

The Rise of Escooters in the U.S.

- **Washington, D.C.**
  - In 2020, Washington, D.C. issued operating permits to eight escooter companies to provide 20,000 escooters by October 2023.
    - Escooters required to be placed in all eight wards.
    - Escooter companies required to install docking racks around the District.

The Rise of Escooters in the U.S.

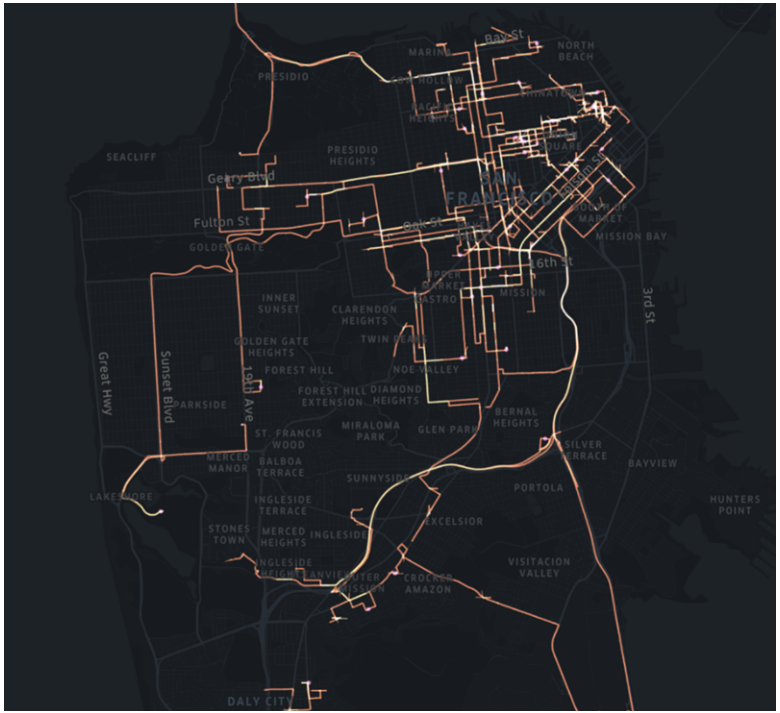
- **Commonwealth of Pennsylvania**
  - Pennsylvania does not currently have a specific law that governs electric scooters.
    - Instead, electric scooters are considered "motor-driven cycles" and must comply with the laws and regulations applicable to motorcycles.
    - Electric scooters are effectively banned.
    - Pennsylvania law allows for the operation of "electric personal assortative mobility devices," aka Segways, where the wheels are not in tandem.

The Rise of Escooters in the U.S.

- **Escooter market is continuously evolving and changing**
  - New York City legalized escooters
    - NYC selected three escooter companies to provide 1,000 Escooters in its pilot program
    - Began in June 2021 and is limited to the Bronx
    - Most escooter rides will cost less than $5 per ride
    - Still illegal in Manhattan, pilot coming
  - Boulder, CO allowed for widespread Escooter usage
    - Escooters can be operated on sidewalks, residential streets, and bike lanes
    - Established "dismount zones" in high congestion areas like University Hill to keep sidewalks clear

The Rise of Escooters in the U.S.

- **Data Privacy Concerns:**
  - Trip data contains riders' home addresses and travel behavior
  - Cities claim that trip data information will help urban planning
  - Data breaches and exposure of sensitive personal information



The Rise of Escooters in the U.S.

- **Antitrust & Competition: Manufacturing/Supply Chain**
  - Antitrust enforcement of *exceptional* vertical mergers that would lead to market foreclosure of inputs or distribution/sales.
    - DOJ and FTC's *Vertical Merger Guidelines* – Sect. 4, Unilateral Effects – Example 6

Example 6: Merger of complements raising vertical issues

Situation: Manufacturers use batteries and motors when making electric scooters. Electric scooter manufacturers use different batteries and motors based on their production technologies. The two components are complements: manufacturers make more scooters, and demand more of both components, when the price of either component falls. All components are sold under contracts that specify a constant unit price. The leading maker of motors for scooters merges with a manufacturer of batteries for scooters.

Discussion: Motors and batteries are complementary inputs into the production of electric scooters. Neither input is upstream nor downstream from the other in the supply chain. The Agencies may investigate whether the merged firm would have the ability and incentive to disadvantage rival manufacturers of batteries. For example, the merged firm might do so by increasing the price of its motors (the related product) to its customers (*e.g.*, electric scooter manufacturers) that do not also buy the merged firm's batteries. The merged firm may also have an incentive to offer lower prices for batteries to its customers that do buy both components from it. If the Agencies conclude that both countervailing price effects are likely to be present post-merger, the Agencies will conduct a balancing of the effects to determine the net effect on the prices customers will likely pay.

The Agencies may also use an analysis similar to the above to investigate whether the merged firm would have the ability and incentive to disadvantage rival manufacturers of motors (in an additional relevant market) by increasing the price of batteries (the related product) to its customers that do not also buy the merged firm's motors.

Delivery Via Drones

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Delivery Via Drones

- From 2017 through October 2020 the FAA enacted the Unmanned Aircraft Systems (UAS) Integration Pilot Program to test and evaluate the use of drones in the airspace system.

- In October 2020, the FAA enacted the BEYOND program to collect data and continue develop performance-based standards for drones and to streamline the approval process.

- The FAA does not currently have regulations that would allow drone delivery companies to fly everywhere without a human controlling or monitoring the drone.

Federal Aviation Administration

BEYOND

Delivery Via Drones

- **Certification for Aircraft**
  - 14 CFR Part 21 Certificate
- **Certification for Operators**
  - 14 CFR Part 135 Certificate
- **Certificate for Pilots**
  - 14 CFR Part 107

Delivery Via Drones

- Each state has its own regulations regarding drones.
  - Regulations require compliance with the FAA's regulations.
  - Many state regulations pertain to where drones can operate.
- Certain cities, counties, and regions within states have their own laws that create restrictions on drone flight and activity.

Delivery Via Drones

- Wing
  - Launched in April 2022 in Texas
- Walmart
  - Launched May 2022 in six states
- Amazon
  - Launched June 2022 in California

Delivery Via Drones

- Drone use for delivery is expanding faster in Europe and Canada due to less complex regulations

- Wing
  - Available in Australia and Finland

- Manna
  - Available in Ireland, but has a European-wide license from the European Union Aviation Safety Agency

Delivery Via Drones

Advantages

- Faster delivery
- More efficient delivery
- Less roadway congestion
- Environmentally friendly

Challenges

- Technology to makes the drones is complex
- Hard to operate drones in urban environments
- Safety concerns
- Potential of environmental impact of the construction and electrical needs of drone facilities and vehicle charging
  - Important to develop clean facilities with near net zero environmental impact

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Daniel S. Savrin is a nationally recognized litigator at the trial and appellate levels. He represents clients in high-stakes litigation with a focus on antitrust, consumer protection, and civil and criminal government investigation matters. Daniel's practice focuses on representing primarily consumer facing companies. His clients include, among others, leaders in the automotive, retail, ecommerce, food and beverage, insurance, and healthcare sectors. He is a leader of the firm's consumer protection defense practice and automotive and mobility industry teams, with a focus on emerging issues in the electric and autonomous vehicle space.

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Mark Fanelli represents market-leading US and international clients in high-stakes complex civil and criminal antitrust lawsuits. These disputes often involve alleged price fixing, market allocation, exclusive dealing, monopolization, price discrimination, tying, bundling, reverse payments, and other alleged violations of federal and state antitrust laws. Mark is also a member of Morgan Lewis's automotive and mobility industry team that counsels a variety of automotive and mobility stakeholders on consumer protection, regulatory compliance, product launch, and new market entry matters.

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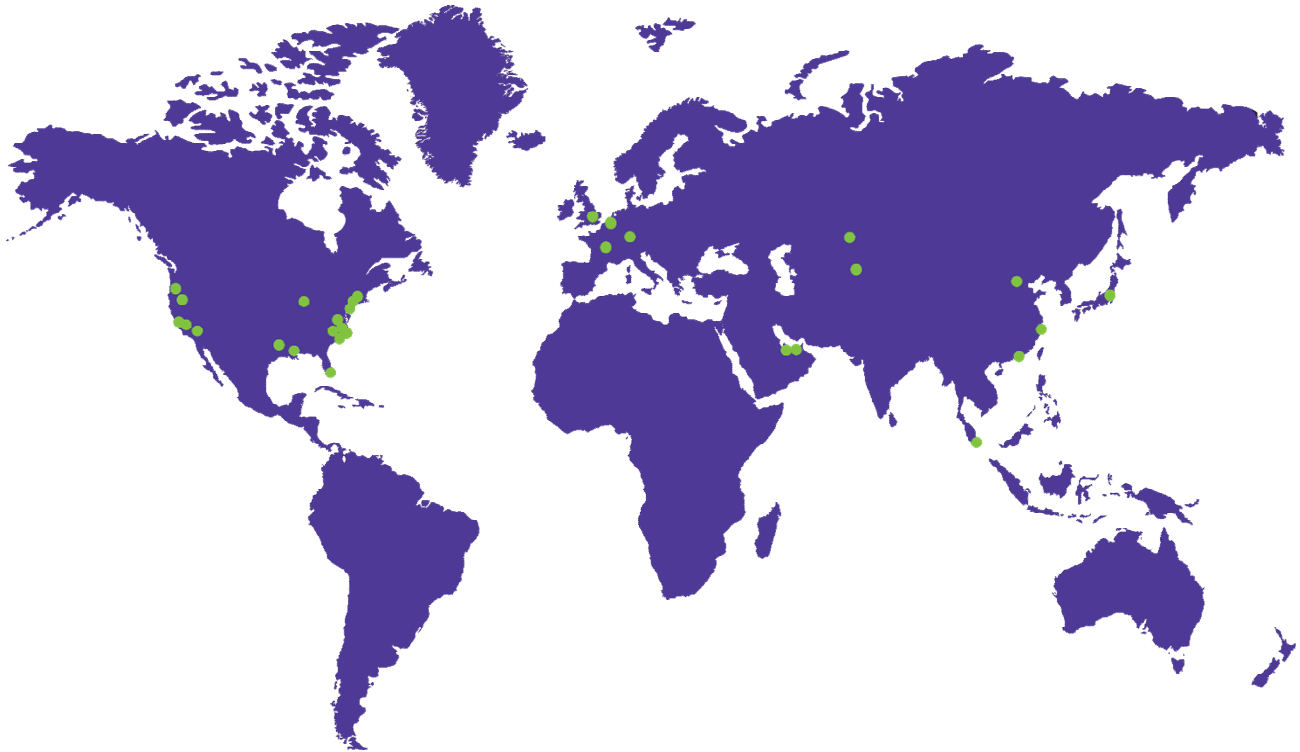

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THANK YOU