



# **Micromobility:** Trends in Pennsylvania & Around the World

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# ➤ Roadmap

- Defining Micromobility
- Current Users
- Patterns and Locations of Use
- Benefits & Challenges
- What's Next

# ▶ Electric Scooter



- Standing scooter
- Small wheel diameter
- Top speed of 20 mph
- Kick to start
- Not legal in PA



## ➤ Segway or EPAMD



- Electric Personal Assistive Mobility Device
- Two wheels
- Self-balancing
- Legal in PA



# ▶ Electric Bicycles



- Same rights and responsibilities as a bicycle
- 750 watt motor or less
- Less than 100 lbs
- Operable pedals





## ▶ Seated Scooter



- “Motor-driven cycle”
- Inspection and motorcycle plate required
- With 50cc motor or less, driver can have a normal (class C) driver’s license

# ▶ Electric Unicycle, Electric Skateboard, Etc



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## POWERED MICROMOBILITY VEHICLE







A wheeled vehicle that must:

- Be fully or partially powered
- Have a curb weight ≤ 500 lb (227 kg)
- Have a top speed ≤ 30 mph (48 km/h)

### Scope of J3194™

- Only includes vehicles that are primarily designed for human transport and to be used on paved roadways and paths
- Excludes solely human-powered vehicles

## TYPES OF POWERED MICROMOBILITY VEHICLES<sup>1</sup>

	Powered Bicycle	Powered Standing Scooter	Powered Seated Scooter	Powered Self-Balancing Board	Powered Non-Self-Balancing Board	Powered Skates
						
Center column	Y	Y	Y	Possible	N	N
Seat	Y	N	Y	N	N	N
Operable pedals	Y	N	N	N	N	N
Floorboard / foot pegs	Possible	Y	Y	Y	Y	Y
Self-balancing <sup>2</sup>	N	N	N	Y	N	Possible

<sup>1</sup>All vehicles typically designed for one person, except for those specifically designed to accommodate additional passenger(s)

<sup>2</sup>Self-balancing refers to dynamic stabilization achieved via a combination of sensors and gyroscopes contained in/on the vehicle

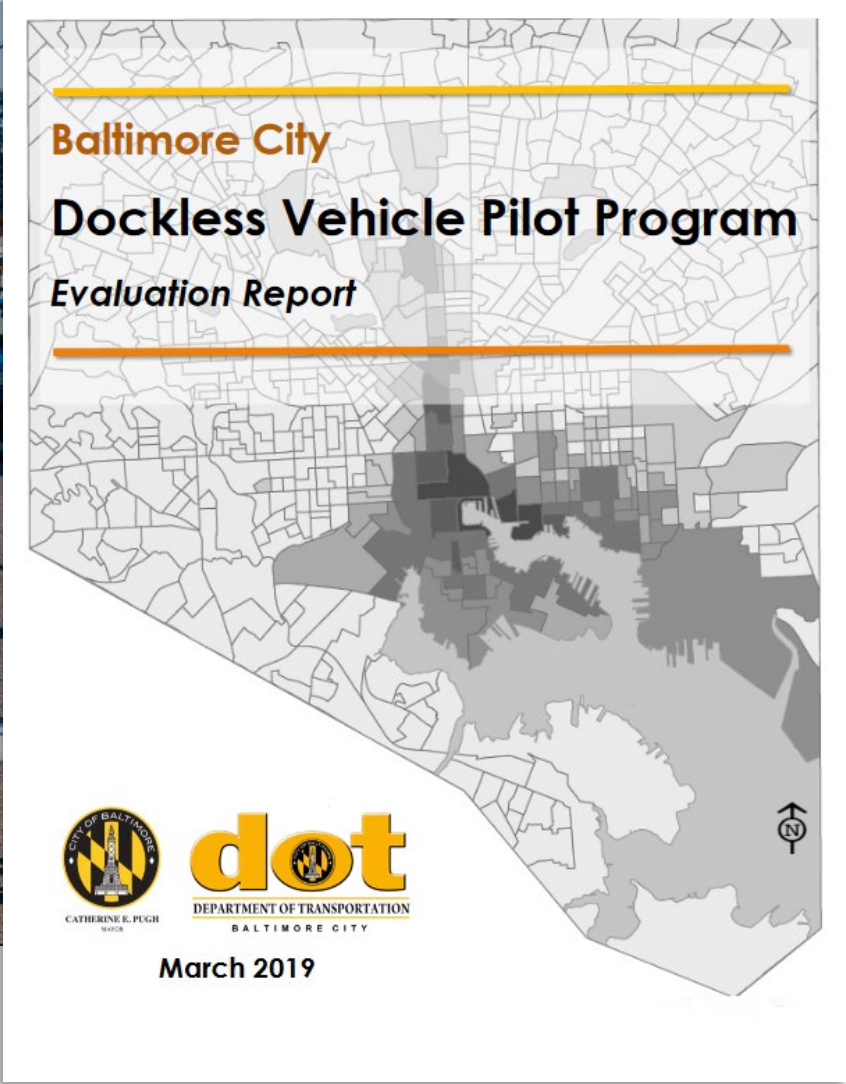


# ▶ Evolution





# Information Abounds



## ➤ Who is riding scooters?

Based on a survey in 75,000 shared scooter users in 2018, what portion of Portland scooter users were in the 40-49 age group?

- A. 17.5%
- B. 10%
- C. 3%
- D. 50%



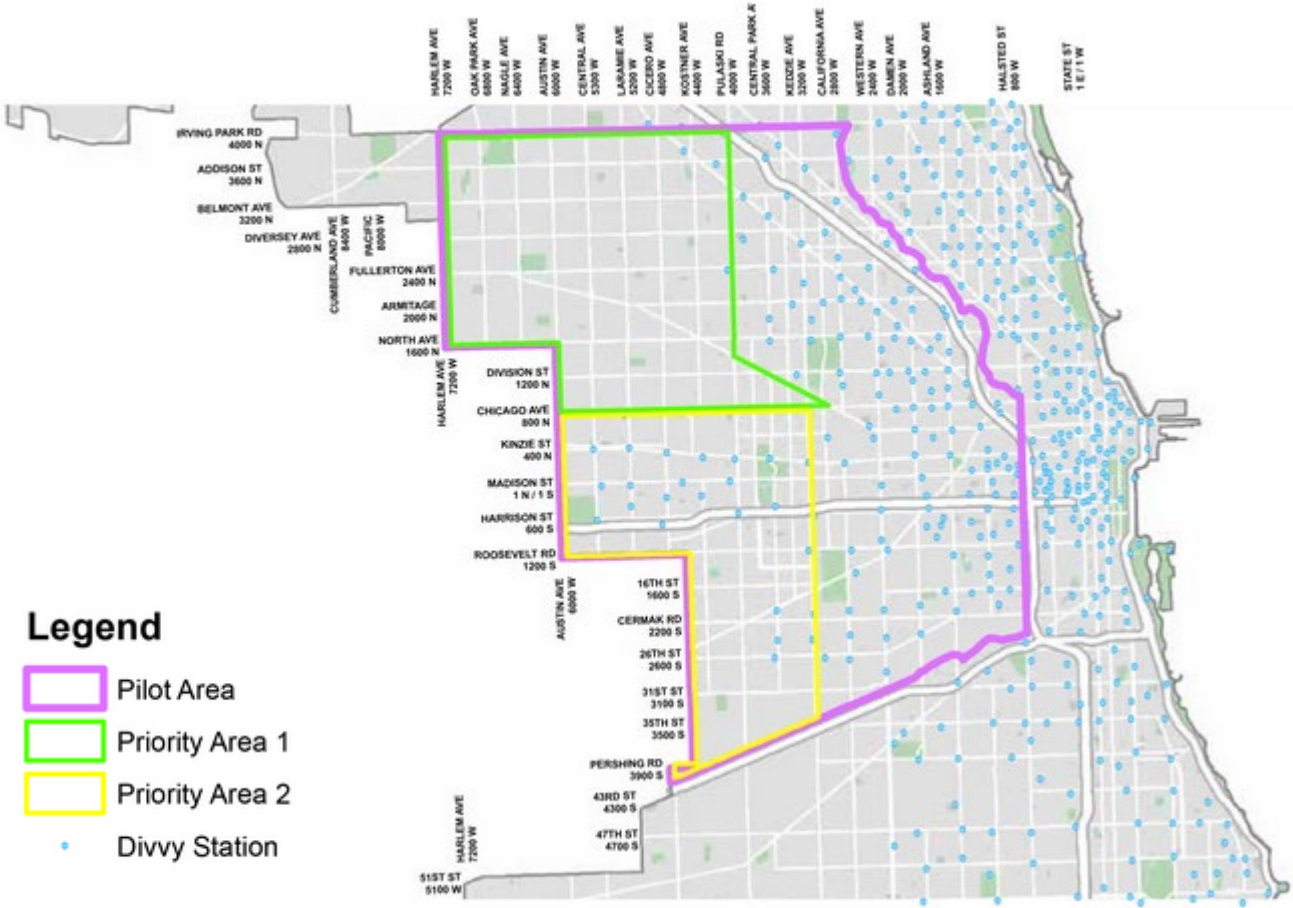
# ▶ Scoot Your Afternoon Commute

Figure 2 : E-Scooter Use by Time of Day

Trip Start Time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Grand Total
12 AM	1280	765	723	786	720	840	1470	6584
1 AM	989	517	475	518	545	575	1010	4629
2 AM	704	348	361	392	412	475	723	3415
3 AM	361	233	202	228	215	192	316	1747
4 AM	261	230	196	179	186	229	256	1537
5 AM	281	298	355	361	374	401	331	2401
6 AM	495	791	980	964	986	910	591	5717
7 AM	860	1839	2218	2354	2451	2187	950	12859
8 AM	1781	2942	3377	3640	3665	3430	2038	20873
9 AM	3515	3208	3408	3342	3579	3602	3730	24384
10 AM	5806	3746	3431	3552	3674	4110	5897	30216
11 AM	7935	5591	5188	5285	5611	6242	8081	43933
12 PM	9564	6958	6690	6654	7027	8058	9644	54595
1 PM	10584	7345	6614	6669	6952	8097	11120	57381
2 PM	10698	7731	7132	6796	6994	8726	12278	60355
3 PM	10754	8149	7855	7191	8204	9612	12175	63940
4 PM	10129	8677	8813	8532	8956	10125	11773	67005
5 PM	8485	8855	9235	9599	9468	9816	10165	65623
6 PM	6834	7477	7928	7923	8366	8516	8294	55338
7 PM	5303	5795	6231	6278	6709	7410	6474	44200
8 PM	4246	4526	4978	4838	5196	6330	5212	35326
9 PM	2112	2252	2439	2402	2539	3189	2579	17512
10 PM	1480	1478	1576	1510	1594	2124	1995	11757
11 PM	1007	1162	1110	1094	1299	1750	1620	9042
<b>TOTAL</b>	<b>105464</b>	<b>90913</b>	<b>91515</b>	<b>91087</b>	<b>95722</b>	<b>106946</b>	<b>118722</b>	<b>700369</b>

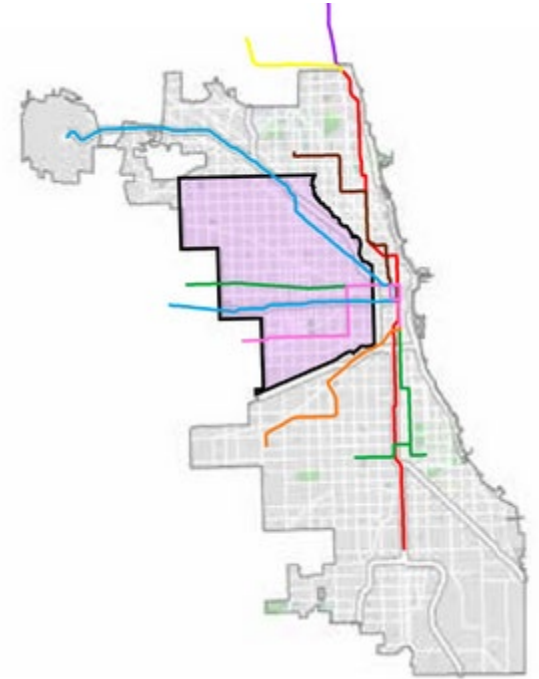
# Chicago Electric Scooter Pilot Design

## SCOOTER PILOT AREA



### Legend

-  Pilot Area
-  Priority Area 1
-  Priority Area 2
-  Divvy Station



## ➤ Equity Impacts: East Portland

- Average Trip Length in Portland (overall)

**1.15 miles**

- Average Trip Length in East Portland

**1.6 miles**



# Use Cases

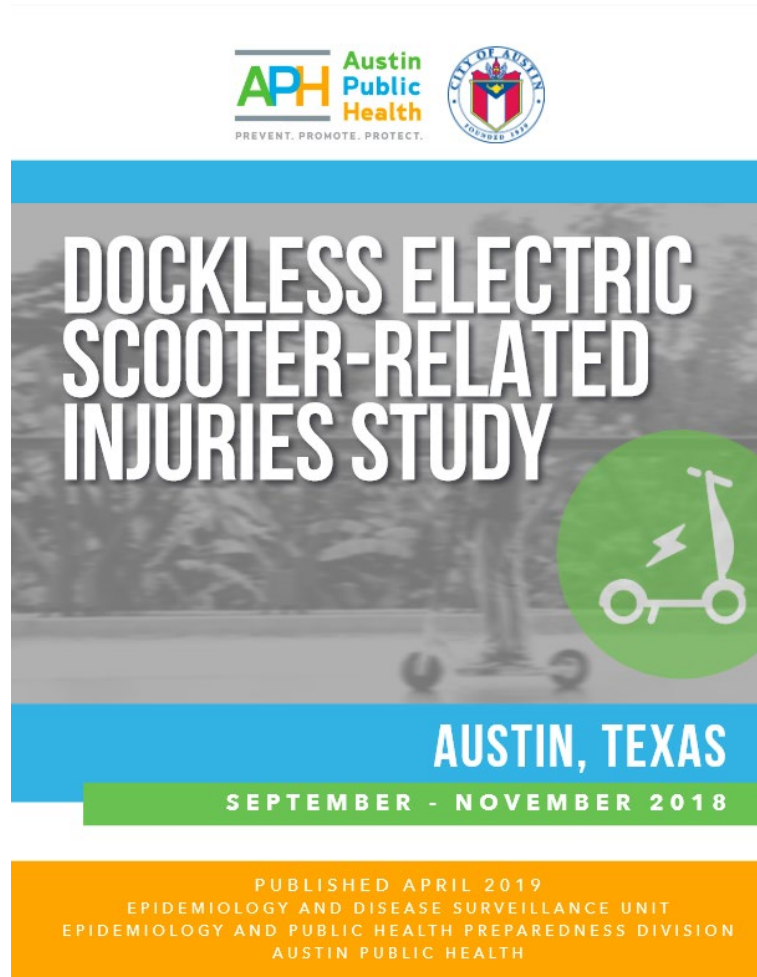




# ► Use Cases



# Challenges



- Safety
- Laws and permitting
- Street space availability
- Parking



# ➤ Opportunities

- Efficient use of space
- Replacement of car trips
- More trips
- Reduction in greenhouse gasses emissions from transportation
- Reduction in cost of transportation

# Questions?

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