# VEORIDE E-SCOOTER AT UMD COLLEGE PARK

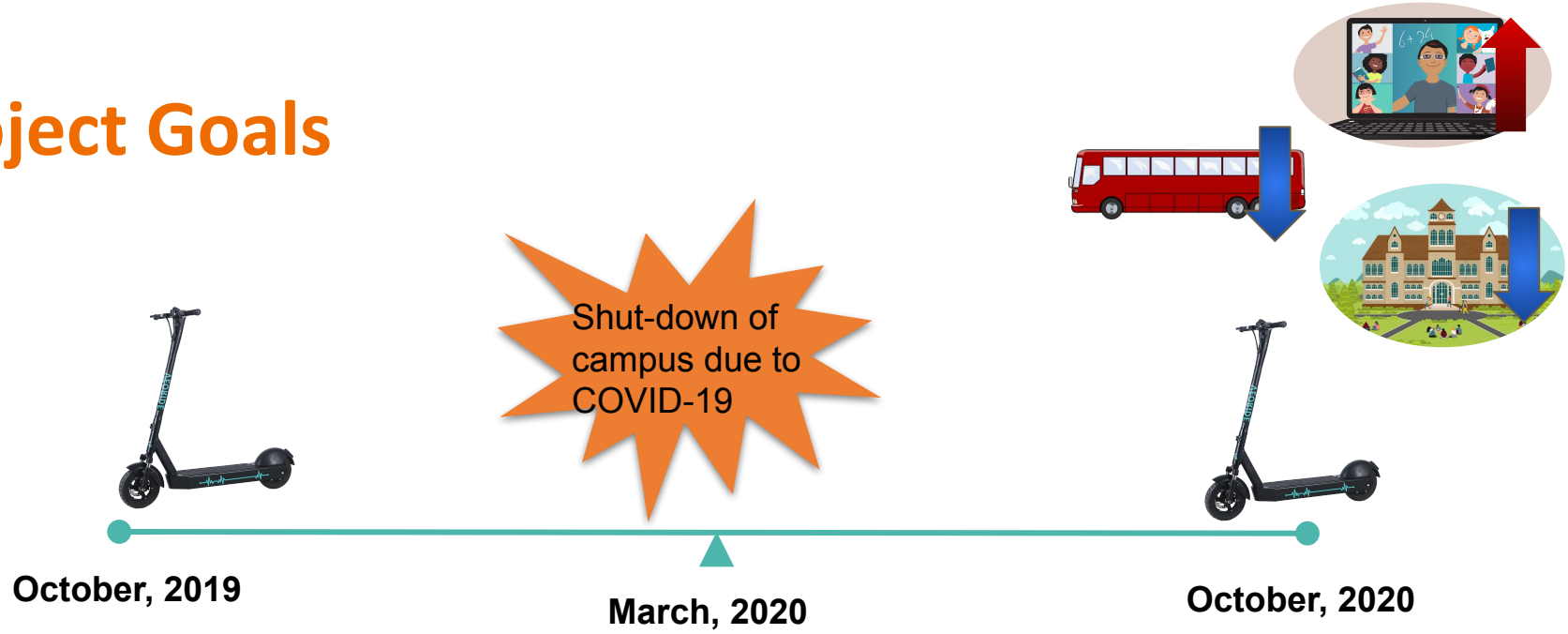
James Boggs • Madeline Raith • Ziqin Ni

# Sustainable transportation

In addition to buses, e-bike, and nite-ride, **e-scooter** has become one of sustainable transportation advocated by the Department of Transportation Service at UMD campus, in order to

- Reduce traffic congestion and parking demand on campus
- Create eco-friendly environment by reducing vehicle emissions
- Promote flexible commutes and important “last mile” connections within campus and to nearby urban areas.

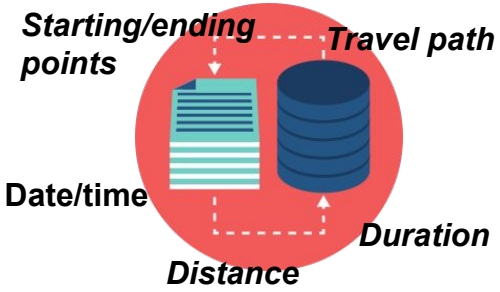
# Project Goals




1. Understand e-scooter supplements campus transportation *prior to* and *after* pandemic
2. Examine how e-scooter have improved health and quality of life
3. Provides suggestions to DOTS to enhance campus transportation in the future

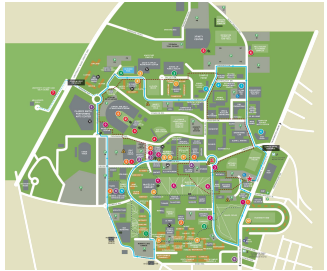
# Methods

## 1. Initial 40K dataset



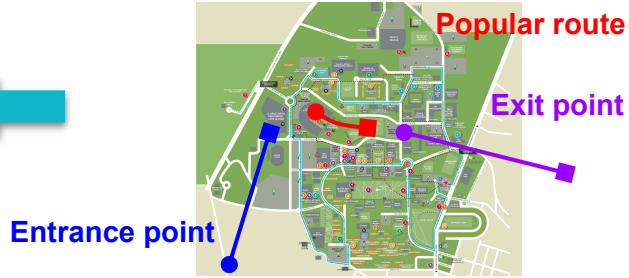

## 2. Data cleaning

## 3. Define on-campus boundary



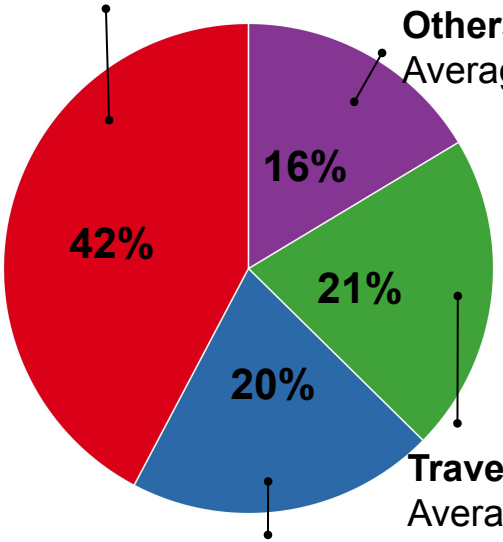
## 4. Classify trip types

## 5. Spatial analysis




## 6. Data analysis

# e-Scooter usages, 2019



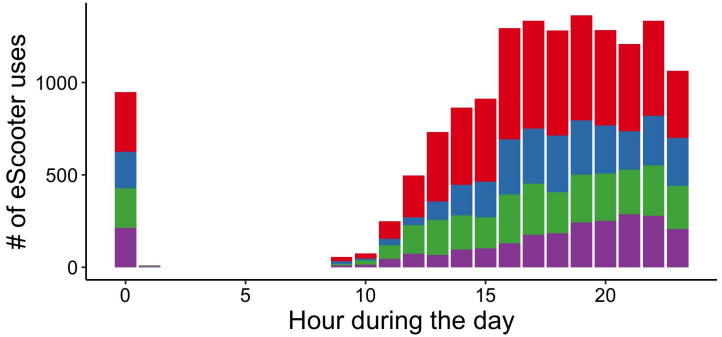

**Travel within campus**
Average distance: 0.76 miles

**Others**
Average distance: 0.85 miles

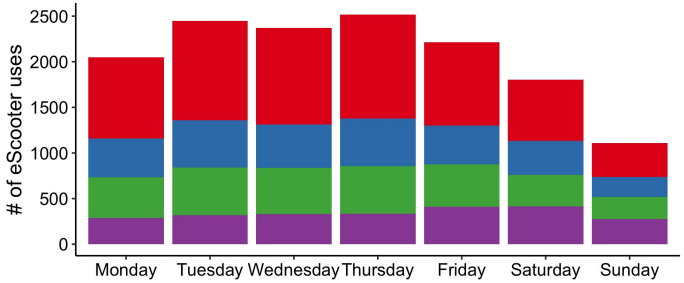
**Travel to campus**
Average distance: 0.88 miles

**Travel out campus**
Average distance: 0.87 miles

1. e-Scooter usages spanned from 9 am to 12 am

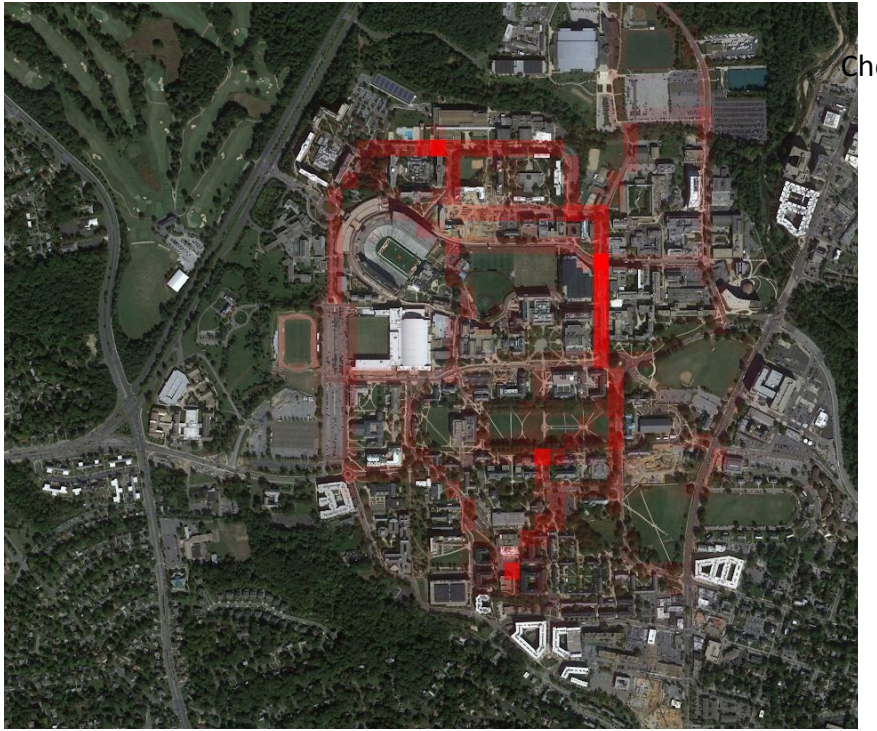


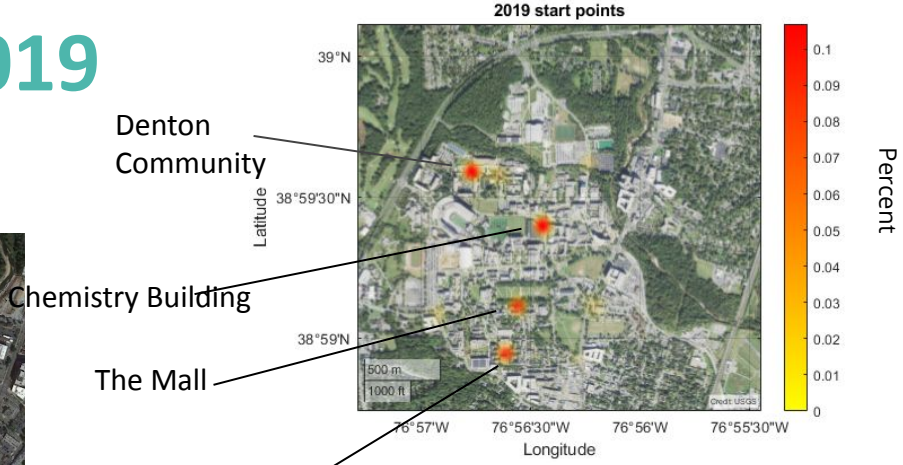

2. Most of e-scooter trips occurred during weekdays within campus

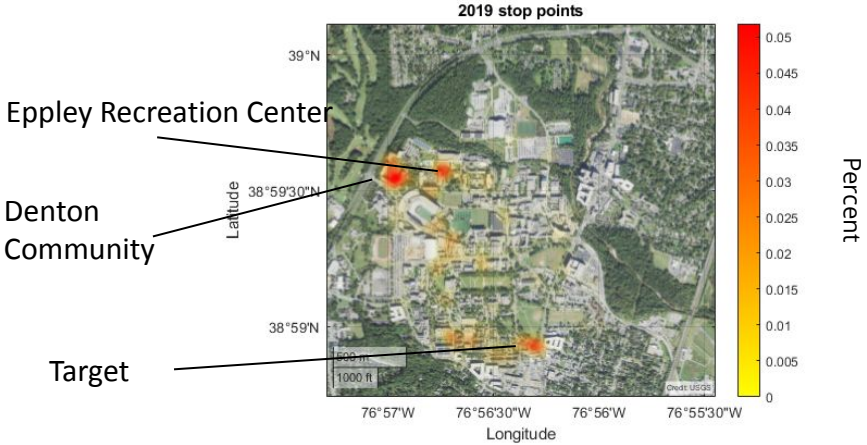


# Starts, Stops, Routes, 2019

2019 Common routes

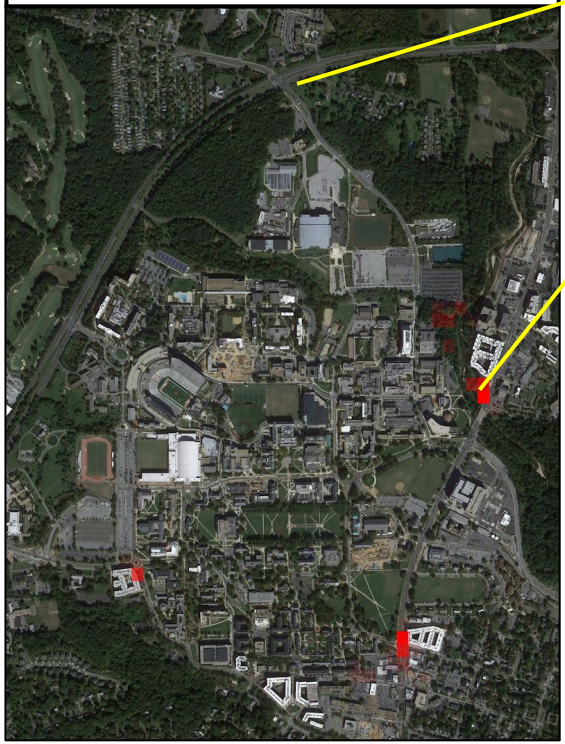




# Entrance and Exits, 2019

## Entrances



Courtyards

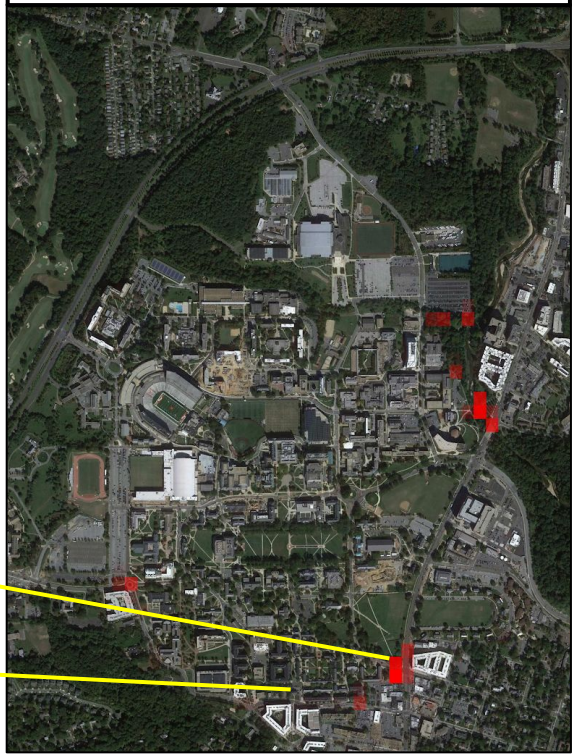
Varsity

Most popular entrance: South of the Varsity
Least popular entrance: At Courtyards
Most popular exit: Regents Dr. and Route 1 (by Target)
Least popular: Tie (along Knox Rd)

Target

Knox Rd

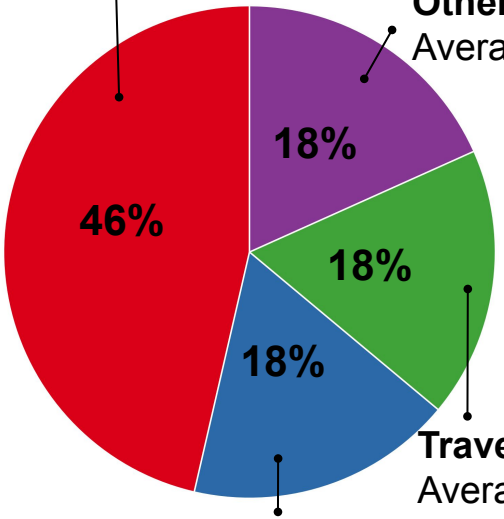
## Exits



# e-Scooter usages, 2020

**Travel within campus**
Average distance: 0.85 miles

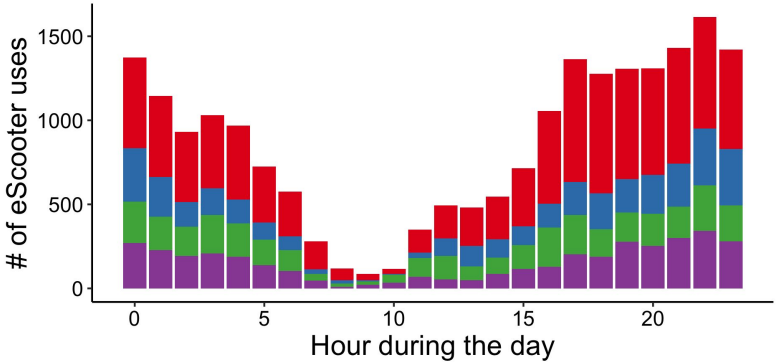
**Others**
Average distance: 0.86 miles



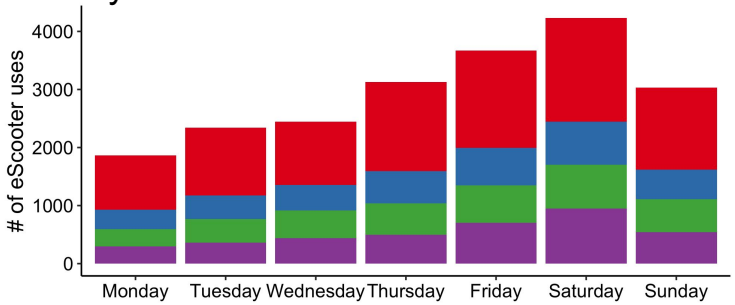

**Travel to campus**
Average distance: 0.84 miles

**Travel out campus**
Average distance: 0.85 miles

1. e-Scooter usages spanned ALL DAY

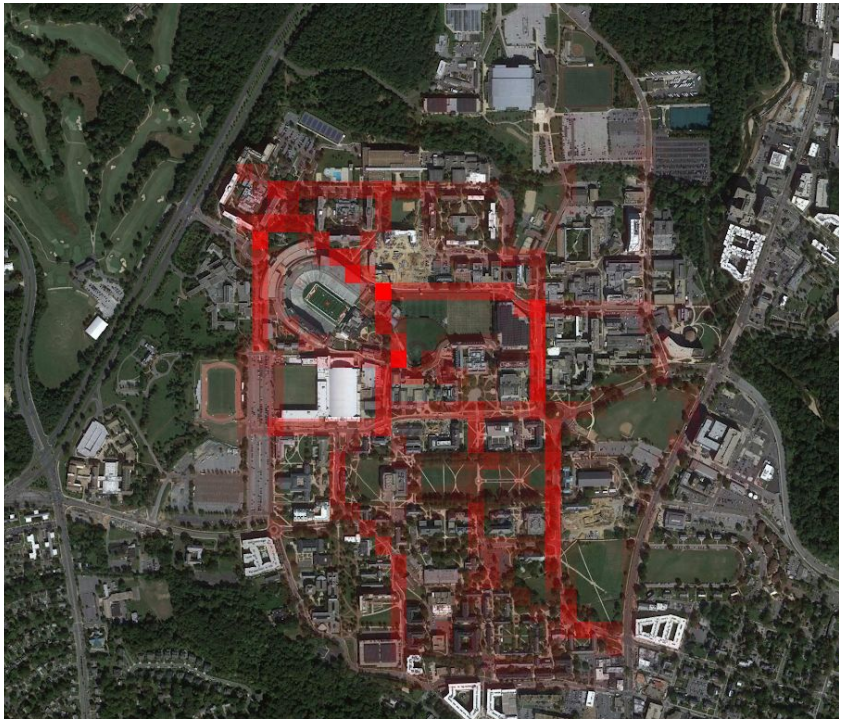


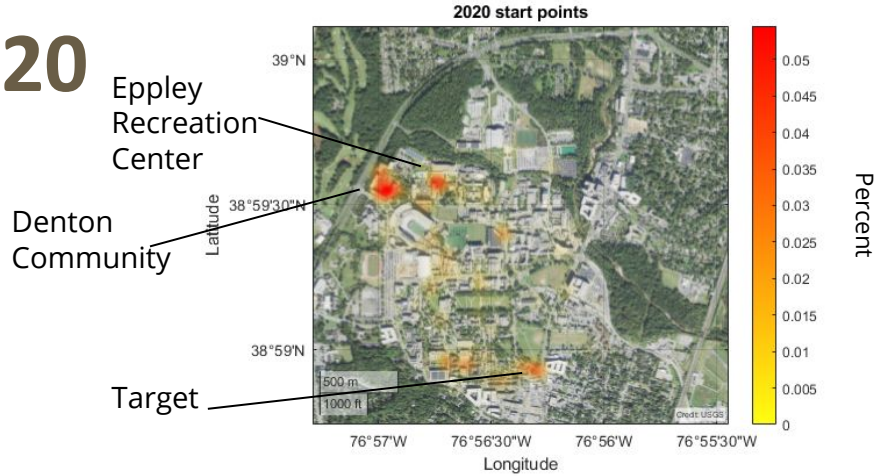

2. Most of e-scooter trips occurred during weekends than weekdays

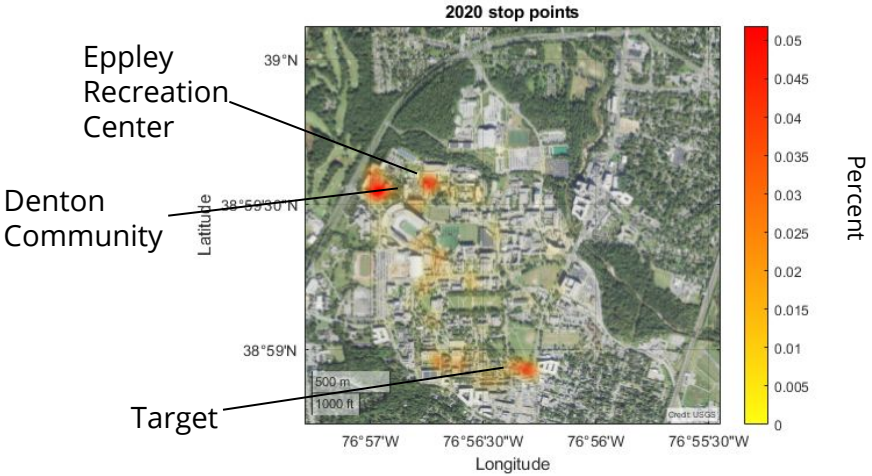


# Starts, Stops, Routes, 2020

The most popular routes

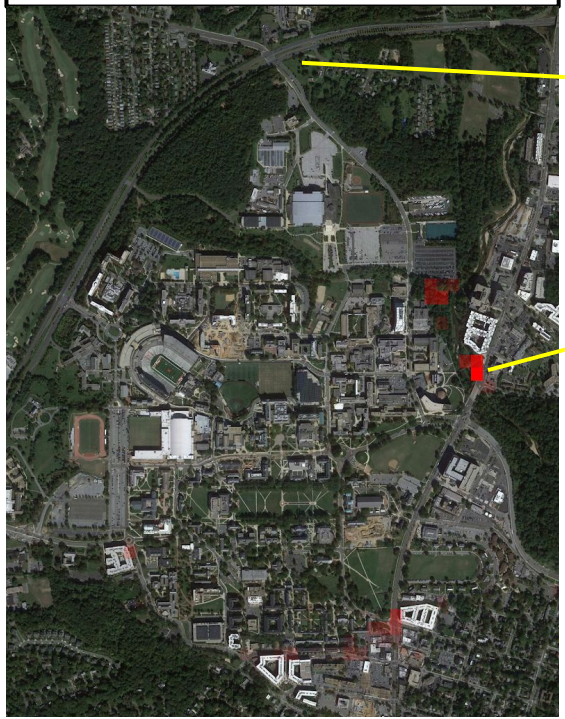




# Entrance and Exits, 2020

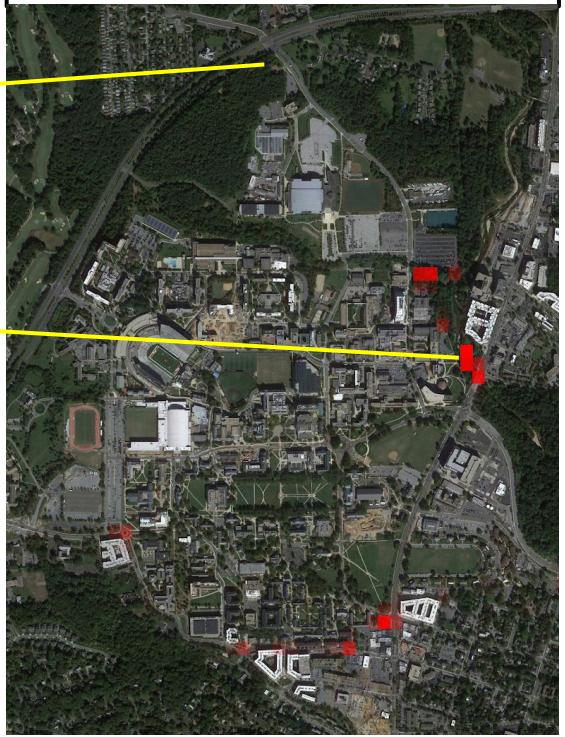
**Entrances**



Courtyards

Varsity

**Exits**

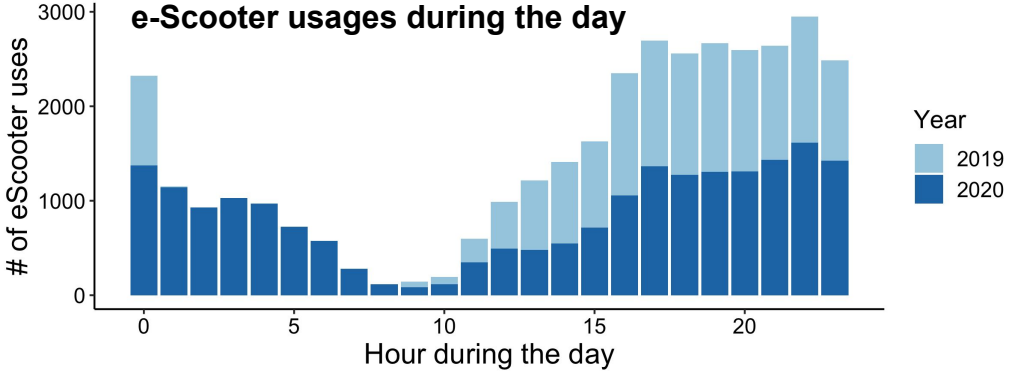


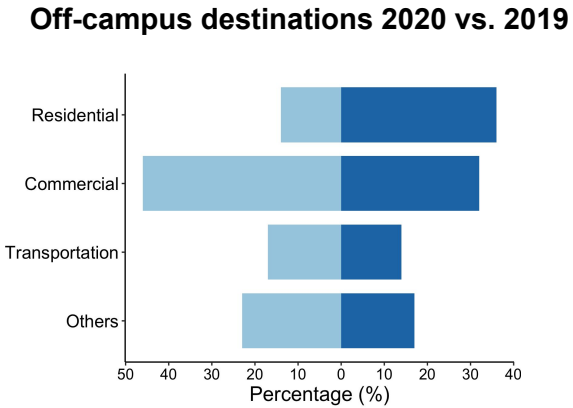
Most popular entrance: South of the Varsity
Least popular entrance: At Courtyards
Most popular exit: South of the Varsity
Least popular exit: At Courtyards

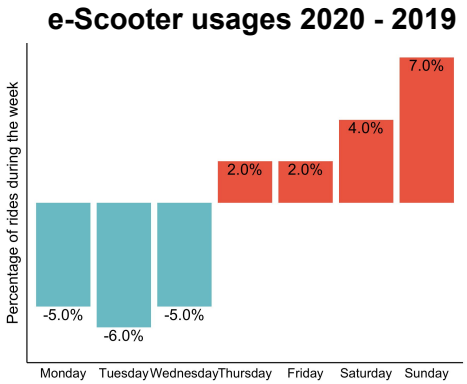
# The impact of pandemic on e-scooter usages

**Since pandemic**, we observe:

- a 43% increase in e-scooter usages, despite a ~40% reduction in population density on campus.
- increase in e-scooter usage from 1 to 8 am.
- increasing e-scooter trip to residential area but decrease travel to commercial area
- increasing e-scooter trip from Thursday to Sunday



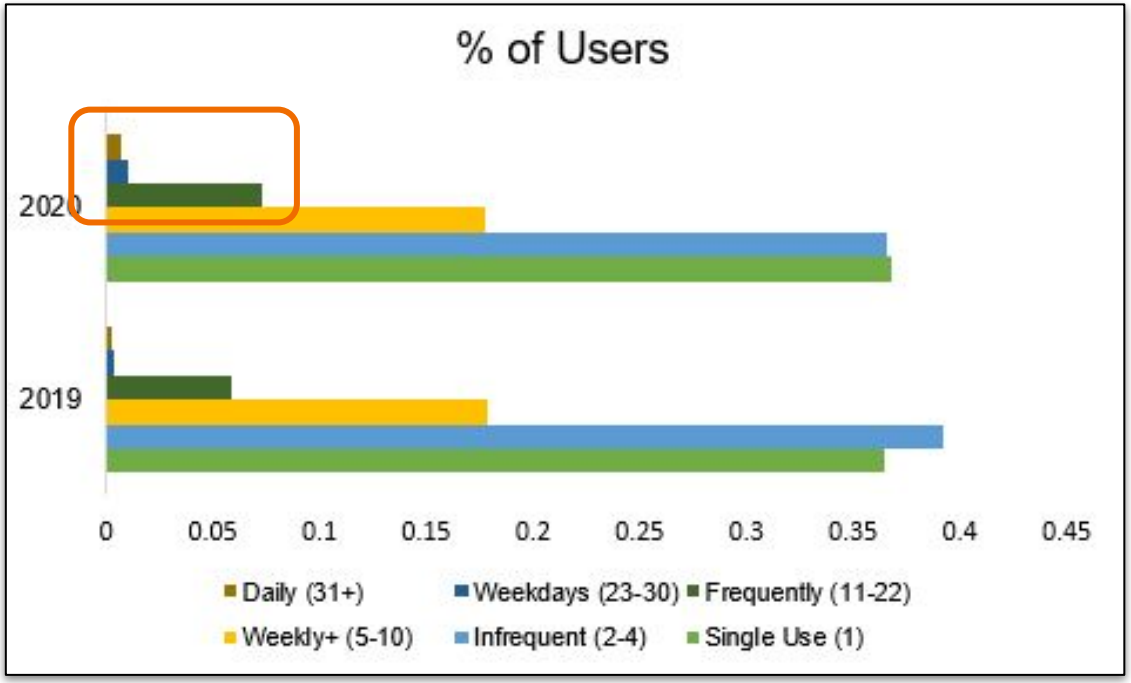



# A Comparison of Entrances and Exits

| | Entrance % Change | Exit % Change |
|---|---|---|
| South of the Varsity | 6.2% | 4.8% |
| Regents Dr and Route 1 | -37.7% | -32.7% |
| West of the View | 18.8% | 21.0% |
| By the Domain | -47.0% | -29.0% |
| College Park Shopping Center | 33.2% | 17.2% |
| Knox Rd and Mowatt Ln | 10.2% | 43.4% |
| Surrounding Leonardtown | -3.7% | 3.3% |
| Knox Rd at CP Towers | 33.0% | 40.6% |
| Knox Rd at T-Row | 85.0% | 57.8% |
| At Courtyards | 15.9% | 6.2% |
| Misc. | 24.1% | 8.8% |

# Examining User Trends

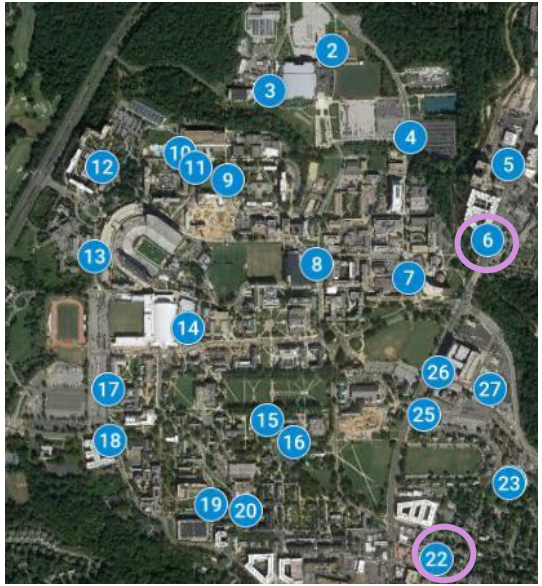


# The impact of pandemic on e-scooter usages

92% of end locations were within a designated Veoride parking spot in 2019

Only 29% of end locations were within a designated Veoride parking spot in 2020

Veoride Parking Areas

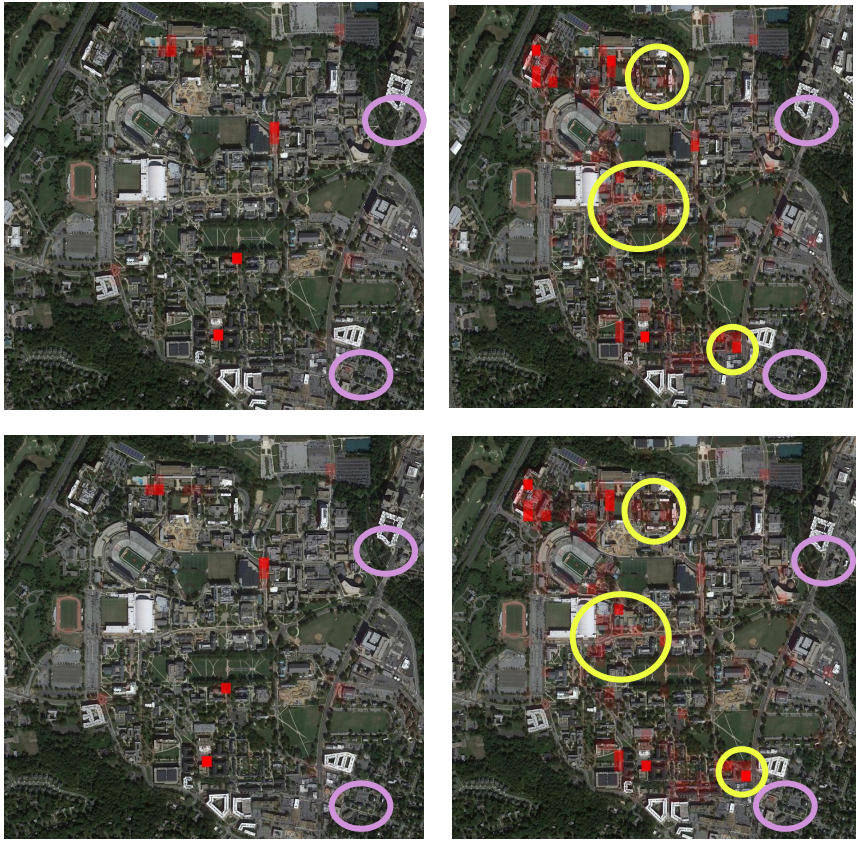



Pre-pandemic

Post-pandemic

Starting location

Ending location



## e-Scooters have become a popular alternative due to:

1. Fast trip, short distance connection: < 2 miles and < 12 minutes
2. Flexible schedule
3. Affordable rate: $1 unlock + $0.15/mins
4. Reliable and frequent commuting tools to residential areas since reduction in shuttles
5. Recreational means to maintain social interactions

## Suggestions to DOTS/Veoride to improve campus transit:

- Add lighting on veoride e-scooter to ensure a safe trip at night
- Strategically placed educational information about safety precautions and users' e-scooter operating skills
- Reinforce UMD regulation on e-scooter usages via veoride apps
- Update e-scooter parking location to promote the convenience and safety of transit