Veo E-Scooter Sidewalk Usage

Team IC 22019

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Statement of Problem

- UMD Department of Transportation Services (DOTS) has a situation where increase in usage of the e-scooters is a safety concern for campus sidewalks.
- They have data and know these infractions (when a scooter is ridden in a place where it shouldn’t be) are happening but couldn’t assemble the data in useful format that provide useful information to enforce certain rules to improve the campus sidewalks student security.
- With the data provided by the DOTs, we decided to dive deep and provide practical solutions with our findings.

Questions Explored

- What’s the strategic importance of identifying and targeting only the sidewalks with the most frequent infractions?
- Are there any data on pedestrian traffic and when this pedestrian traffic occurs?
- In what ways we can identify the scooter usage will be high?

Data Sets

Dataset A: Data set from the month of September and November of Veo e-scooters operating on campus and parking area. The data was anonymized in geojson format.

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{"type":"Feature","properties":{"id":"184785454ed4b89cadb6936e65fa4d27","name":"","count":4,"percentage":0,"geometryId":"184785454ed4b89cadb6936e65fa4d27"},"geometry":{"type":"LineString","coordinates":[[-76.9463348,38.993855700000005],[-76.9462962,38.9938595],[-76.9462616,38.993873400000005],[-76.946235100000001,38.9938957],[-76.9462201,38.99392237],[-76.946218,38.9939522],[-76.94622890000001,38.9939813],[-76.94625190000001,38.9940057],[-76.9462843,38.9940226],[-76.9463218,38.9940298],[-76.9463606,38.994026600000005],[-76.9463956,38.9940133],[-76.94640840000001,38.994003],[-76.9464227,38.9939915]]}},
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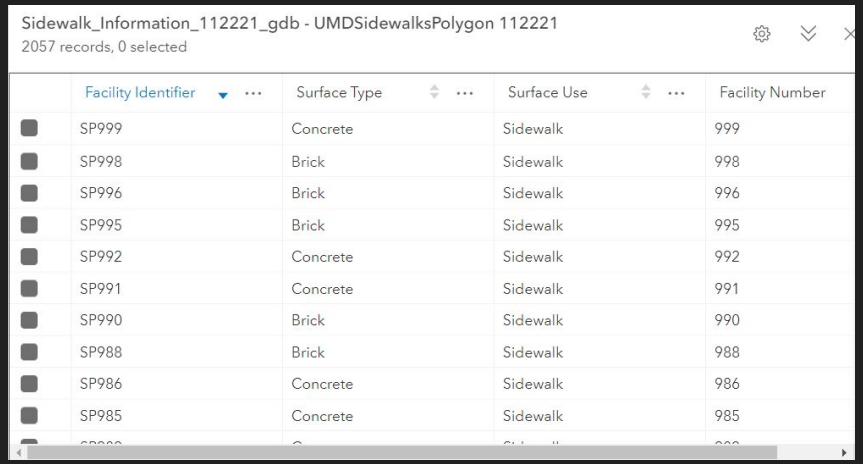
Dataset B: GIS map data denoting the location of all sidewalks on UMD College Park campus


Sidewalk_Information_112221_gdb - UMDSidewalksPolygon 112221

2057 records, 0 selected

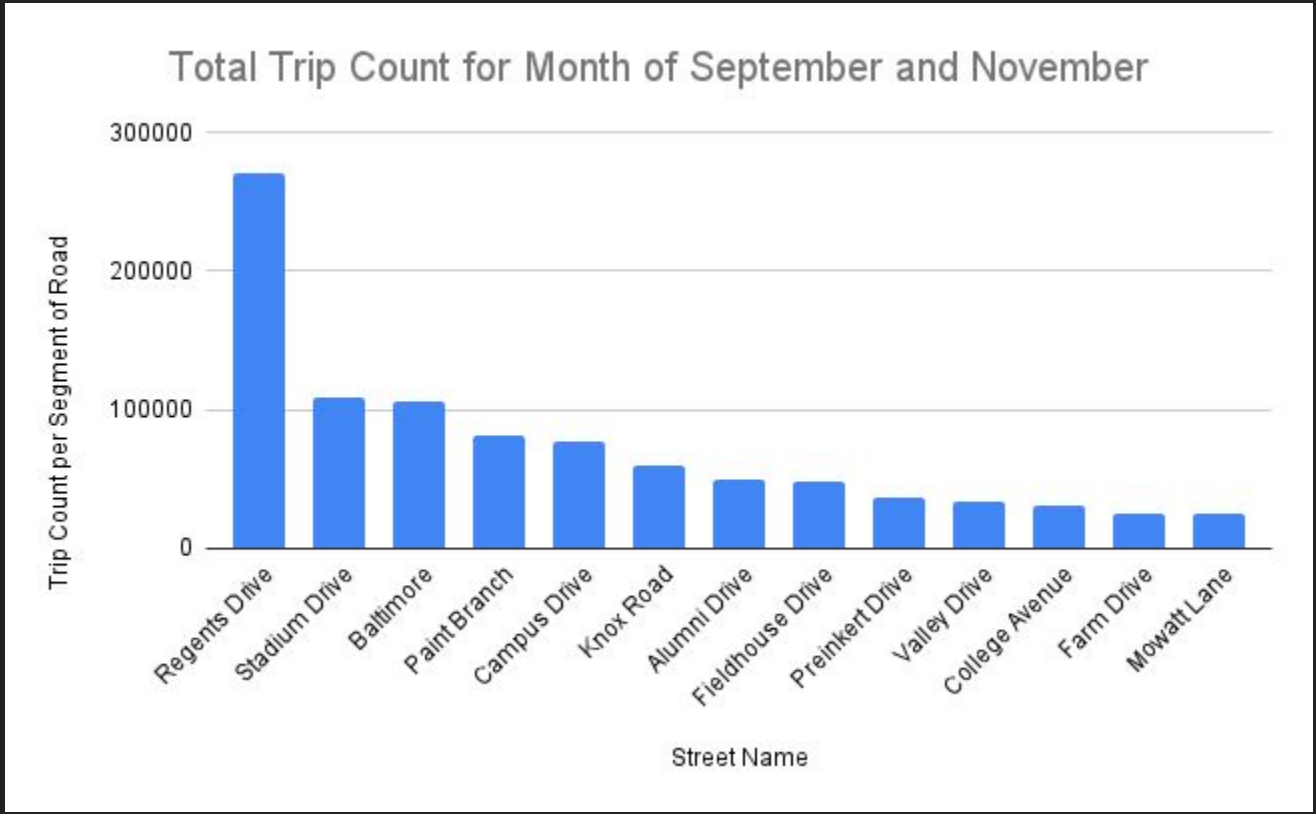
Facility Identifier	Surface Type	Surface Use	Facility Number
SP999	Concrete	Sidewalk	999
SP998	Brick	Sidewalk	998
SP996	Brick	Sidewalk	996
SP995	Brick	Sidewalk	995
SP992	Concrete	Sidewalk	992
SP991	Concrete	Sidewalk	991
SP990	Brick	Sidewalk	990
SP988	Brick	Sidewalk	988
SP986	Concrete	Sidewalk	986
SP985	Concrete	Sidewalk	985

Data Set Limitations

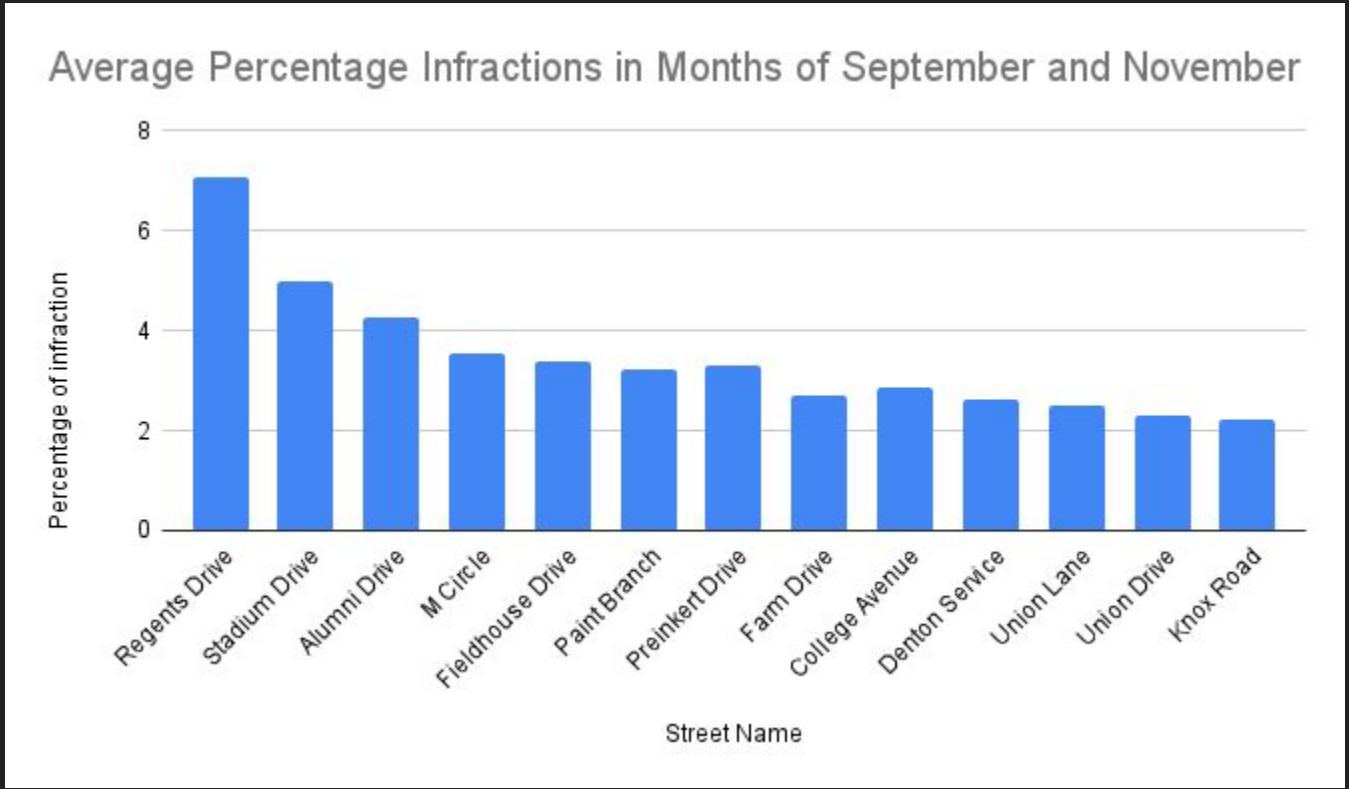
- Small data sample
- Showed only the month of September and November
- No metadata like day of the week and time of the day
- During the pandemic where online courses were widely available
- Data set during high peak like homecoming and football season

With so much limitation on data, this could skew tangible and insightful results.

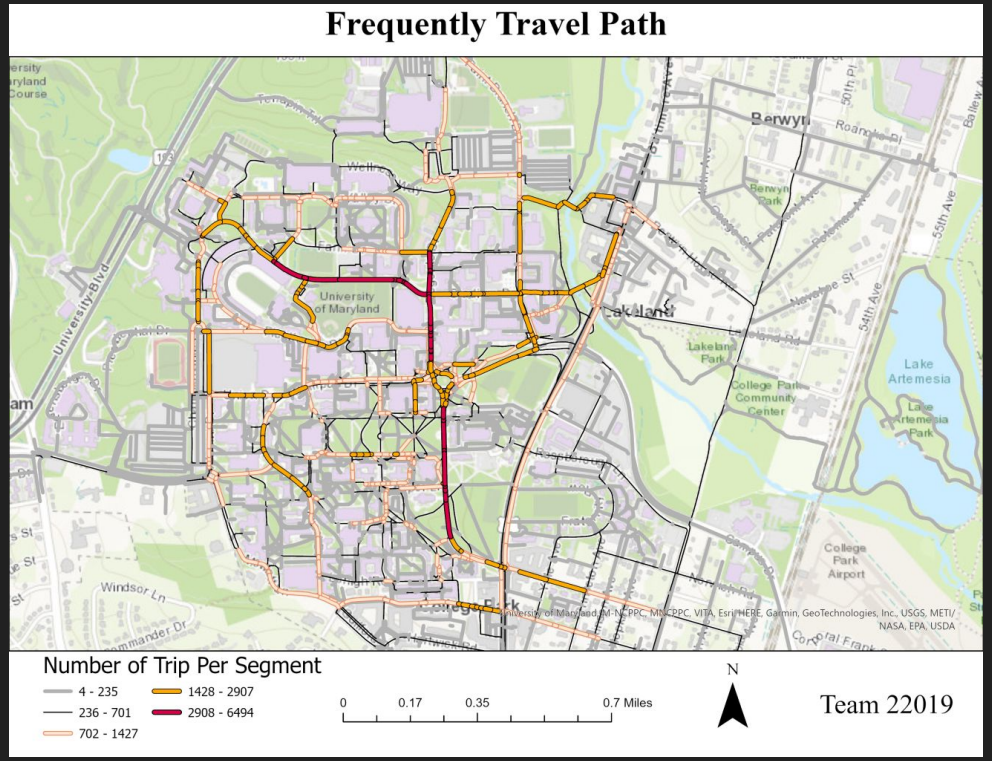
Aggregated Data - Trip Count Per Segment of Road



Aggregated Data Average Percent of Infractions



Findings

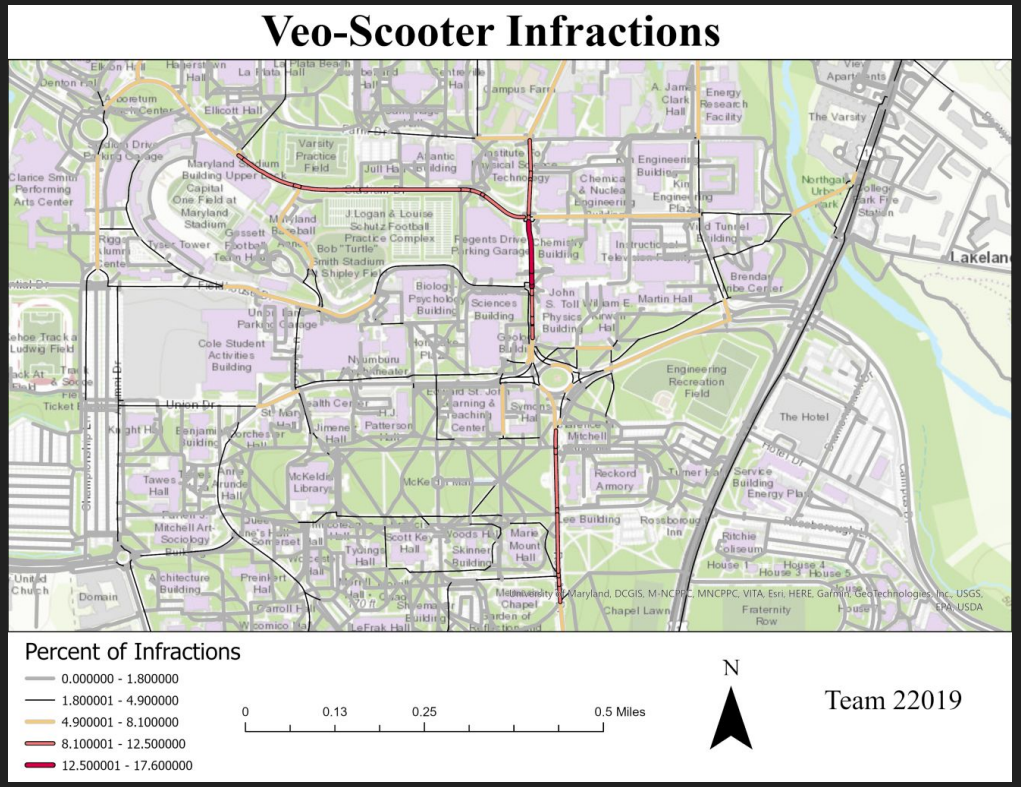


Most Travel Path: Regents Drive, Stadium Drive, Baltimore Avenue

Why:

1. Regents and Stadium Drive host cluster of stem (Biology, Chemistry, Engineering, etc.) buildings and lecture halls (Symons, A. James Clark, Martin, etc.)
2. Stadium Drive is home to the stadium and football practice complex
3. Baltimore Avenue is on US 1 i.e, major road

Findings



Most Infractions: Regents Drive, Stadium Drive, Alumni Drive

Why:

1. Heavy pedestrian traffic
2. Higher chances for collisions with cars near garages

Recommendations

- Dedicated lane for E-scooters
- Focus on target geofencing

Expanding the Project

Knowledge is power

- Data collection on courses offered during a semester
- Data collection of ticket sale for big events on campus
- Data collection on pedestrian
- Data collection on commuters

Q&A Time!