Regional Traffic Analysis in the D.C. Metro Area

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Team Number: DC20080

Dataset: Regional Traffic Count

Questions of Interest

- Which areas have the highest traffic volume?
- Which geographic areas have the highest amount of a vehicle type?
- How much does each vehicle type contribute to overall emissions?
- Where is public transportation being underutilized?



Data Preprocessing

- Remove the time information
- Gather average emission rates by vehicle type and reclassified emission categories
- Removed extraneous data outside target region from remote datasets





Data Limitations

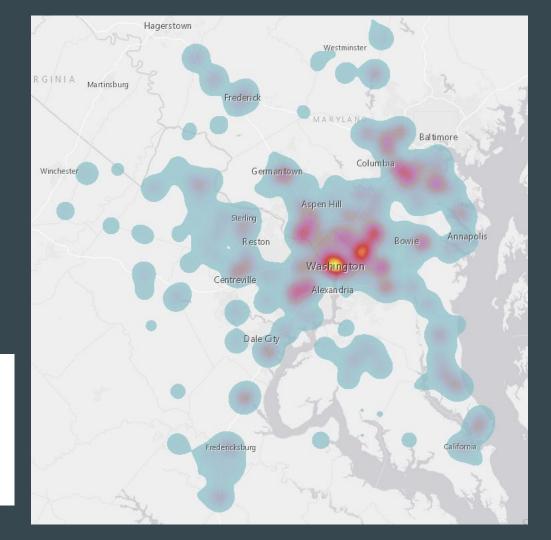
- Only volumetric data
- Limited Time Scale
- Inability to track individual vehicles between sites



Traffic Volume

High

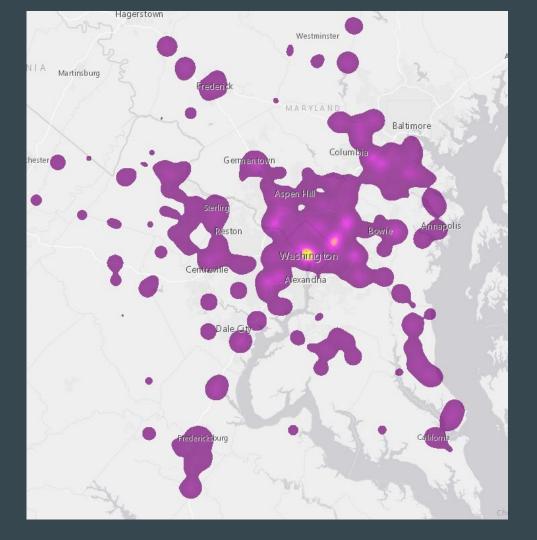
Low



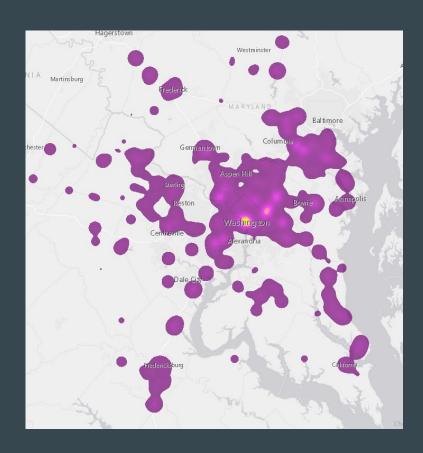
Location of Highest number of each Vehicle Type



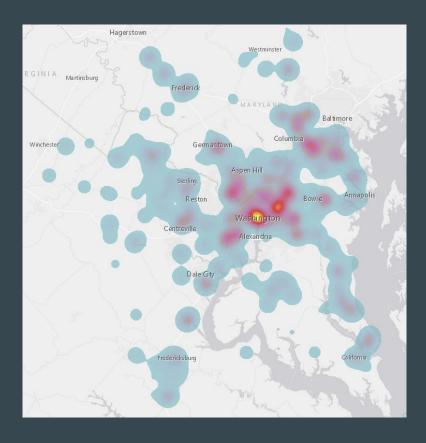
Emissions

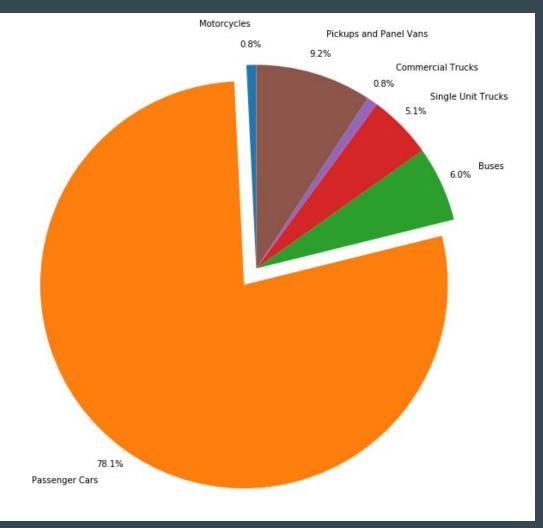


Emissions



Traffic Volume





How much does the type of vehicle contribute to overall emissions?

Difference in Emission Attribution per Vehicle Type

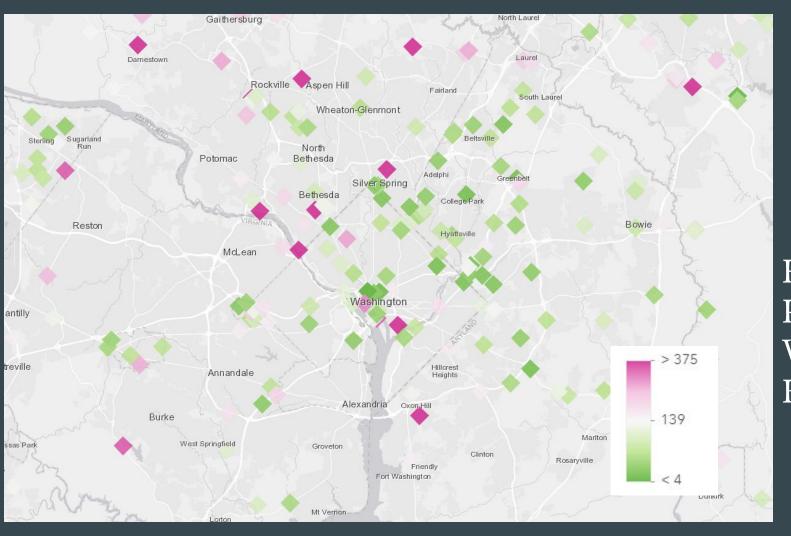
	Anne Arundel County -	-0.002	0.0041	-0.0035	0.00033	-0.0021	0.0032
	Arlington County -	0.0068	0.056	0.0064	-0.034	-0.0075	-0.028
	Baltimore County -	-0.0044	0.046	-0.029	-0.0058	0.0092	-0.015
	Calvert County -	0.00021	-0.053	-0.0034	0.017	-0.0014	0.041
	Carroll County -	-0.0024	-0.038	-0.011	0.034	0.0023	0.016
	Charles County -	0.0015	-0.057	0.018	0.016	0.00078	0.021
	City of Fairfax -	-0.00069		0.014	-0.027	-0.003	-0.016
	Clarke County -	-0.0012	-0.028	-0.012	-0.025	0.023	0.044
	District of Columbia -	0.005	0.0046	0.0079	0.019	-0.0024	-0.034
	Fairfax County -	0.0036	0.048	-0.014	-0.028	-0.0039	-0.0067
	Falls Church -	0.0033	0.032	0.001	-0.024	-0.0057	-0.0069
>	Fauquier County -	0.00026	-0.075	-0.0086	-0.014		0.074
COUNTY	Frederick County -	0.0059	-0.07	0.022		0.0065	0.011
8	Fredericksburg -	-0.002	-0.025	-0.0073	-0.02	-0.0036	0.058
	Howard County -	-0.0029	-0.021	0.0061	0.015	0.0076	-0.0048
	King George County -	0.0034	-0.023	-0.015	-0.033	0.022	0.046
	Loudoun County -	-0.0032	0.0057	0.0019	-0.023	-0.0043	0.023
	Montgomery County -	-0.00037	0.037	-0.014	-0.0025	-0.002	-0.018
1	rince George's County -	-0.0029	0.0025	0.0077	0.002	-0.0024	-0.0069
	Prince William County -	-0.0013	-0.016	-0.012	-0.019	0.011	0.037
	Spotsylvania County -	0.0012	-0.052	0.0084	-0.02	0.017	0.045
	St Mary's County -	0.0043	-0.076	0.016		-0.0034	0.032
	Stafford County -	-0.0016	-0.014	-0.012	-0.027	0.02	0.036
	Warren County -	0.00038	-0.13	0.02	-0.0006		0.072
	Washington County -	-0.0043	-0.099			0.022	0.019
		Motorcycles -	Passenger Cars -	Buses -	Single Unit Trucks -	Commercial Trucks -	Pickups and Panel Vans -

- 0.04

- 0.00

- -0.04

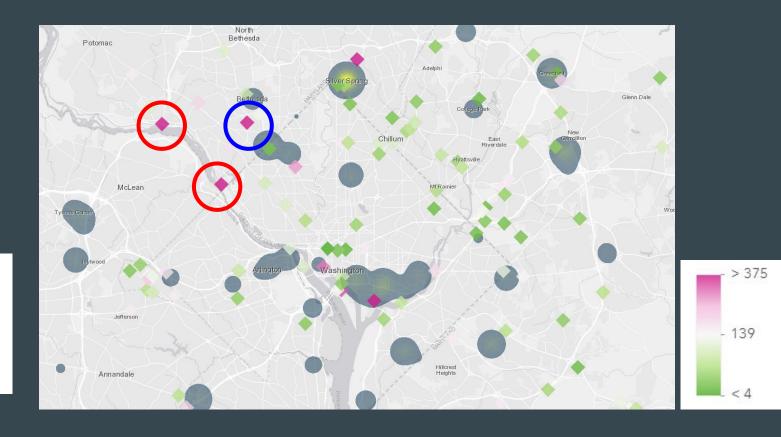
- -0.08



Ratio of
Passenger
Vehicles to
Buses



Where is there low ridership, but high numbers of passenger vehicles



High

Low

Population

Metro Lines and Stations

Metro - Rail Stations

-

Traffic Counts

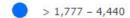
2017 Vehicle Classification -Weekday

AM (6:00 AM- 8:59 AM)









2 - 1,777

2012 USA Population Density (Mature Support)

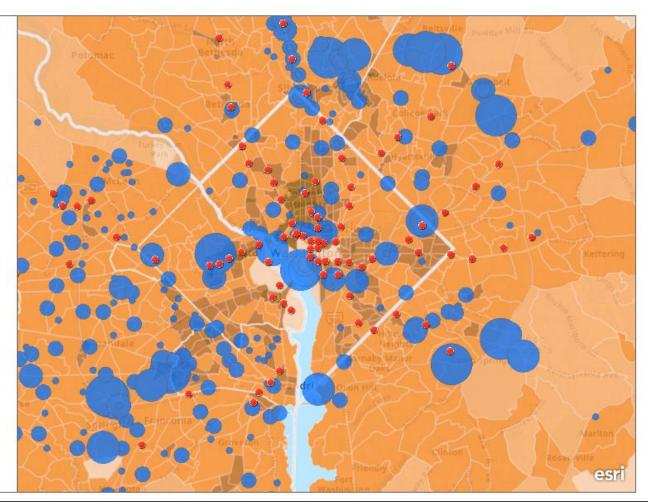
Persons per square mile

Tracts

100,001 or more people

25,001 to 100,000 people

10,001 to 25,000



Population

Metro Lines and Stations

Metro - Rail Stations

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Traffic Counts

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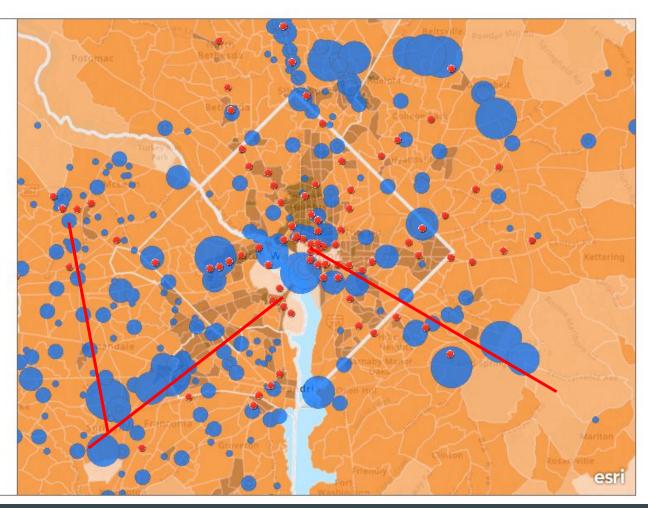
Persons per square mile

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Questions?