Alleviating Traffic Inside the Beltway

Problem ID

- Most traffic flow on weekday mornings is into DC
- Isolated traffic flow to data points collected that flow TOWARDS DC
- Beltway is commonly used during morning commute, so we isolated data inside and around the beltway
- We also eliminated data in the heart of DC because while this data may have large numbers, the data is collected of cars that are already inside where most of the commute is headed

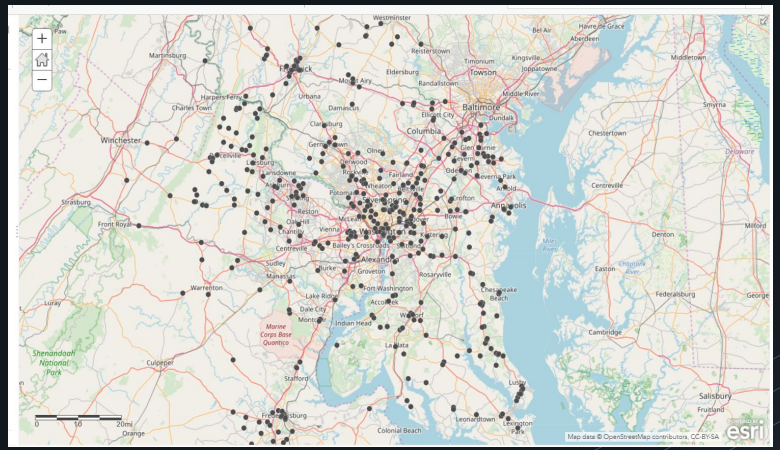
Method

- When analyzing our data, we used the points that we deemed to be important (around the beltway, towards the DC-Metro area)
- We used different factors for our data points, using different divisors for the total volumes based on the estimated size of the roads in lanes and consequently their speed limits

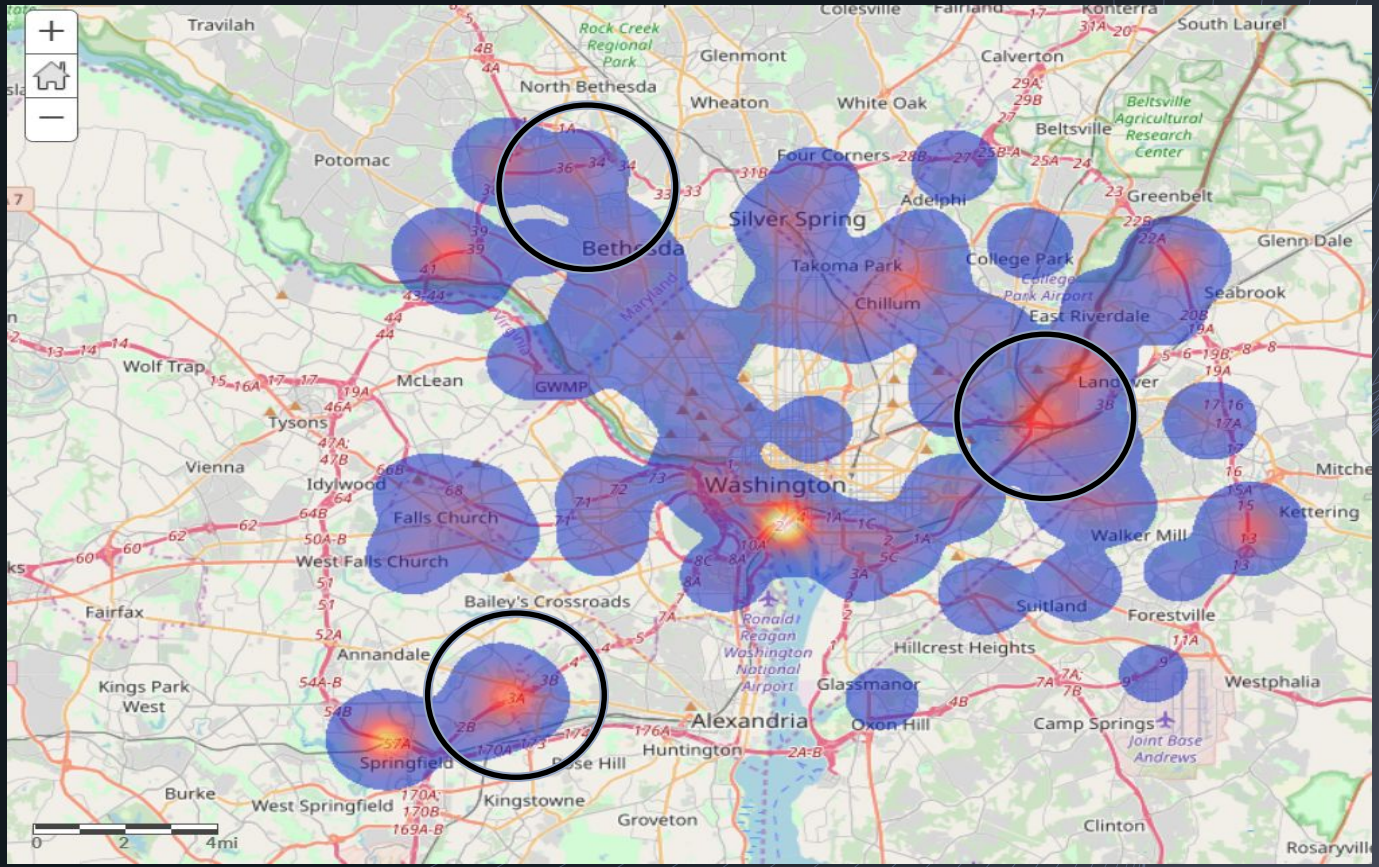
Color	Description	Associated Divisor
White	Tertiary Road	1
Yellow	Secondary Road	2
Orange	Primary Road	3
Red-orange	Highway	4
Red	Freeway	5

Method Cont.

- We decided to only analyze total volume since the volume of cars are what create massive traffic jams
- We divided the total volumes by their respective divisors based on the road they were on and then ran analysis in ARCGis software to identify key points on the heat map



Heat Map


Travilah
Rock Creek Regional Park
Glenmont
North Bethesda
Wheaton
White Oak
Calverton
South Laurel
Beltsville Agricultural Research Center
Beltsville
Potomac
Four Corners
Silver Spring
Adelphi
Greenbelt
Takoma Park
College Park
Glenn Dale
Chillum
East Riverdale
Seabrook
Wolf Trap
McLean
GWMP
Tysons
Vienna
Idylwood
Falls Church
Washington
Kettering
Walker Mill
West Falls Church
Bailey's Crossroads
Suitland
Forestville
Fairfax
Annandale
Ronald Reagan Washington National Airport
Hillcrest Heights
Kings Park West
Glassmanor
Westphalia
Alexandria
Oxon Hill
Camp Springs
Joint Base Andrews
Springfield
Huntington
Rose Hill
Burke
West Springfield
Kingstowne
Groveton
Clinton
0
2
4mi

Interesting Findings

1. Henry G. Shirley Highway to the 14th Street bridge (AdjVol = 2,918)
2. Old Georgetown road, not a bridge and only a level 3 divisor (AdjVol = 2,066)
3. Intersection of Baltimore Washington Parkway (AdjVol = 2,365) and John Hanson Highway (AdjVol = 1,839)

Solutions

1. Theodore Roosevelt Bridge has AdjVol of 2,640 while the 14th Street Bridge has an AdjVol of 5,123 so divert traffic from 14th Street Bridge to Roosevelt using tolls on the 14th Street Bridge
2. We have no data for Rockville Pike which is near Old Georgetown Rd. Ideally, Rockville Pike could alleviate traffic jams on Old Georgetown Rd.
3. Create HOV lanes on Baltimore Washington Parkway, Rockville Pike, and John Hanson Highway after their intersection

Sustainability

- Our solutions require minimal to no extra construction
- Increasing and imposing tolls on high traffic areas, as well as implementing HOV lanes incentivizes carpooling which reduces emissions and traffic
- Data can be re-analyzed after solutions because they are so easy to implement
- Tweaked solutions can be used after re-analyzing data

Thank you!