

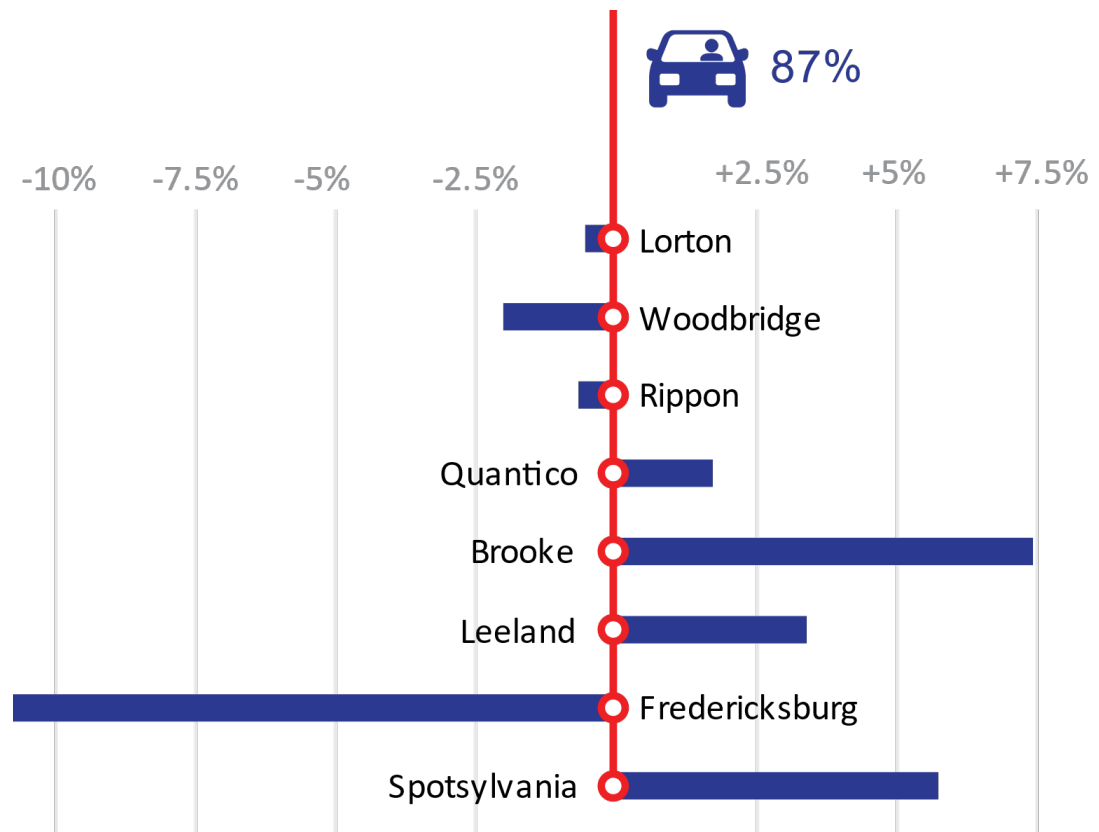


MULTIMODAL ACCESSIBILITY TO VRE STATIONS

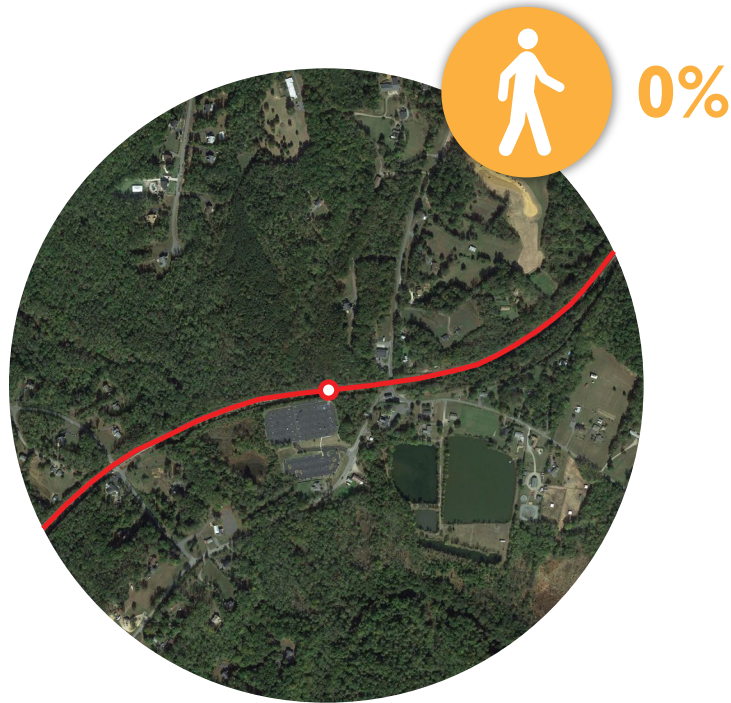


ARE RIDERS DRIVING ALONE MORE TO ONE STATION THAN TO ANOTHER?

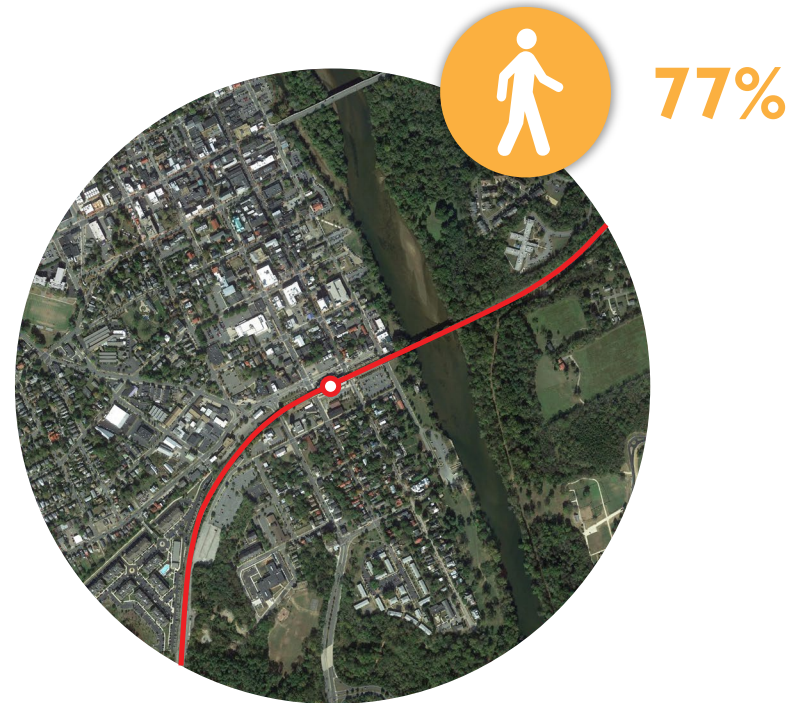
- The average rate of driving alone for the Fredericksburg Line is **87%**.
- However, **94%** of riders drive alone to access Brooke station, compared to **76%** to Fredericksburg station
- For **10** cars parked at Brooke station parking lot there are **11** riders boarding, compared to **23** at Fredericksburg station¹



BUILT ENVIRONMENT AROUND STATIONS MAY HELP UNDERSTAND WHY



Brooke Station
½ mile radius



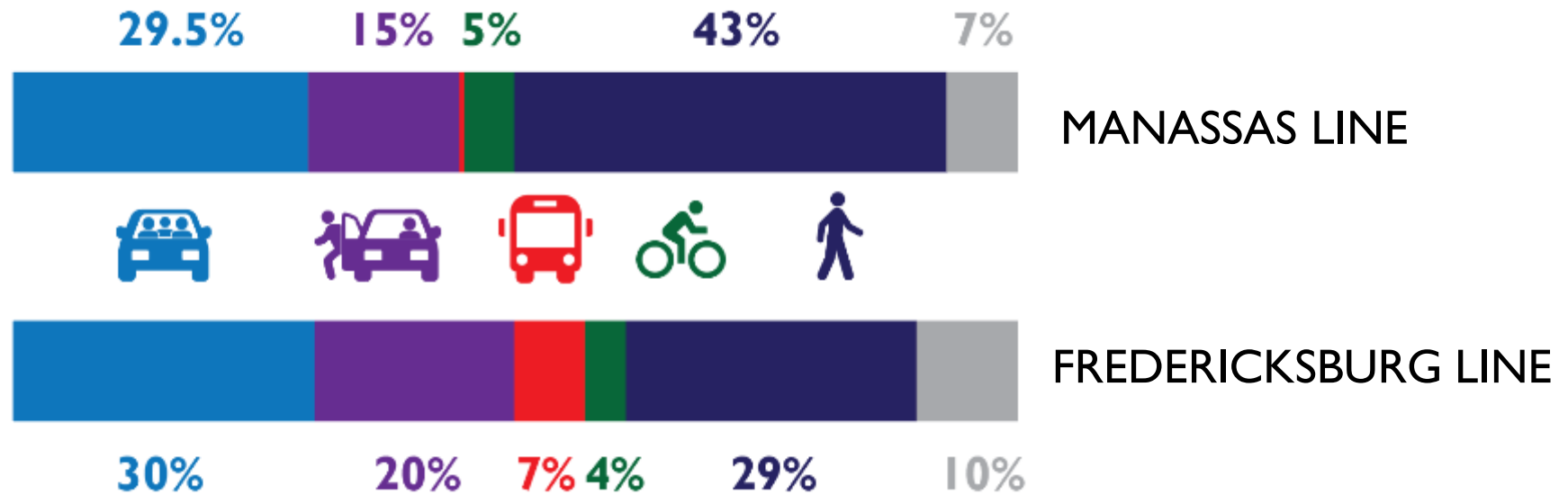
Fredericksburg Station
½ mile radius



VIRGINIA RAILWAY EXPRESS

IF NOT DRIVING ALONE...

- Riders are carpooling, or being dropped off, or walking to stations more than taking the bus or bicycling
- Also, when compared, Fredericksburg Line has a more balanced mode share than Manassas Line



HOW DO STATIONS COMPARE?

- This study aims to identify **opportunities for active and public transportation** options to access VRE stations.
- Existing and potential accessibility options to **Lorton, Woodbridge, and Fredericksburg** stations were explored.
- Fredericksburg station is inserted in a **more urban environment**, while the others are in a more suburban environment.
- Lorton station has a 20 times smaller a catchment area than Fredericksburg station and more **Transit Oriented Development (TOD)** near the station.
- Woodbridge has **potential for more TOD** near the station and more **transit service**



HOW DO RIDERS ACCESS STATIONS TODAY?



Drive
alone



Carpool



Dropped
off



Bus



Bicycle



Walk

Other

	Drive alone	Carpool	Dropped off	Bus	Bicycle	Walk	Other
Fredericksburg Line	87%	4%	2.5%	1%	0.5%	3.7%	1.3%
Lorton	84%	3%	1.5%	2%	0.5%	7.5%	1.5%
Woodbridge	86%	6%	2.0%	0%	0.5%	3.5%	2.0%
Fredericksburg	76%	4%	4.5%	4%	0.5%	8.5%	2.5%

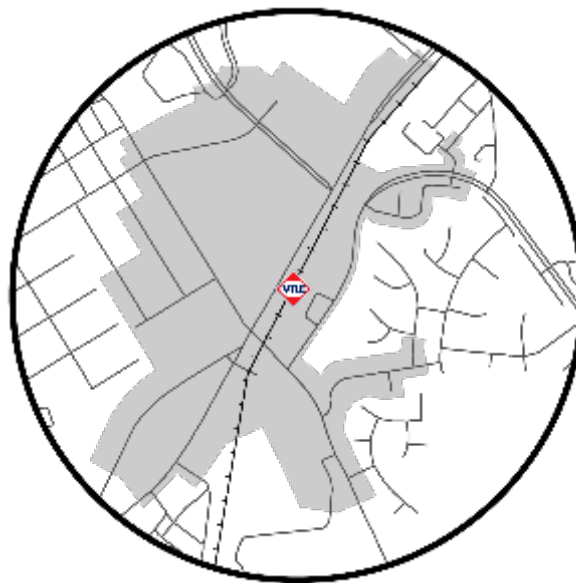


WHAT IS THE IMPACT OF THE STREET GRID?

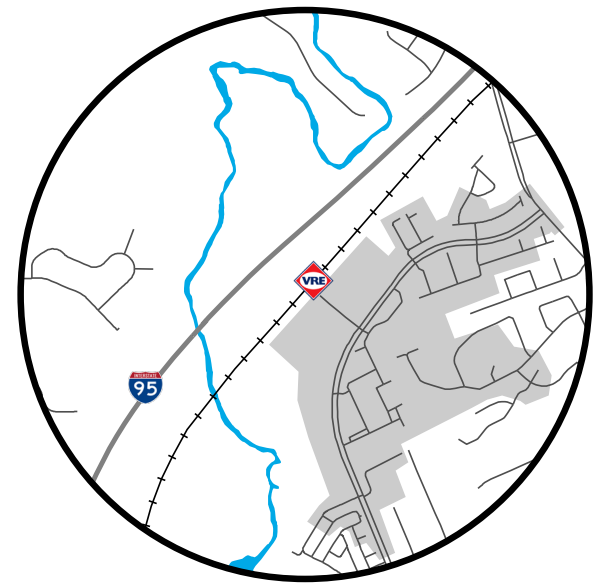
In reality this access shed is compromised by the street grid, breaks in the access network, location and number of street crossings, and fluctuations in average speed of pedestrians due to crossing characteristics and sidewalk conditions.



Fredericksburg Station
1/2 mile radius



Woodbridge Station
1/2 mile radius



Lorton Station
1/2 mile radius



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1/2 MILE FREDERICKSBURG STATION



= 2 riders walking to the station



= 2 riders driving to the station

- Almost half of all riders walking to the station (47 of 106 riders) reside within this radius;
- Walking is the mode of access of 72% of all riders residing within this radius.



Fredericksburg Station
1/2 mile radius



VIRGINIA RAILWAY EXPRESS

1/2 MILE WOODBRIDGE STATION



= 3 riders walking to the station



= 3 riders driving to the station

- 23 riders walk to this station, only 6 reside within a 1/2 mile radius;
- Walking is the mode of access of 17% of all riders residing within this radius, while 67% drive alone and park.



Woodbridge Station
1/2 mile radius



VIRGINIA RAILWAY EXPRESS

1/2 MILE LORTON STATION



= 3 riders walking to the station



= 3 riders driving to the station

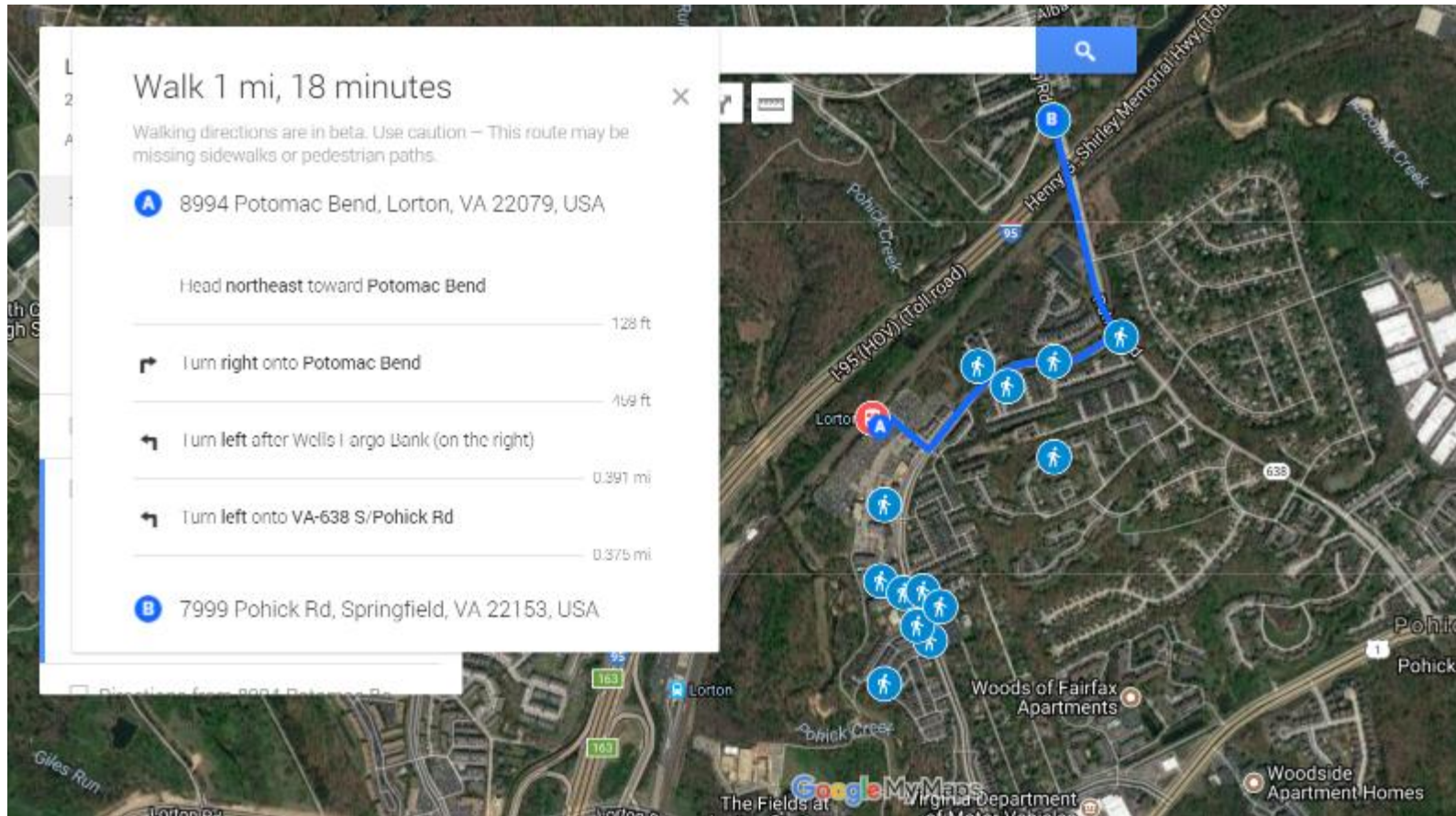
- 88% of all riders walking to the station (42 of 48 riders) reside within this radius;
- Walking is the mode of access of 57% of all riders residing within this radius, while 38% drive alone and park.



Lorton Station
1/2 mile radius

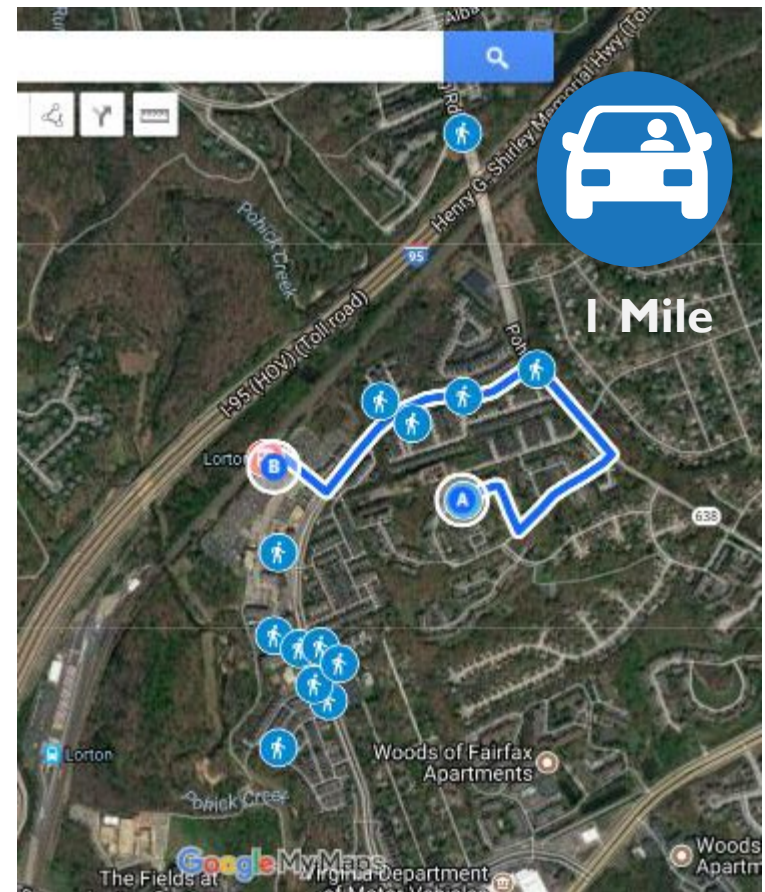
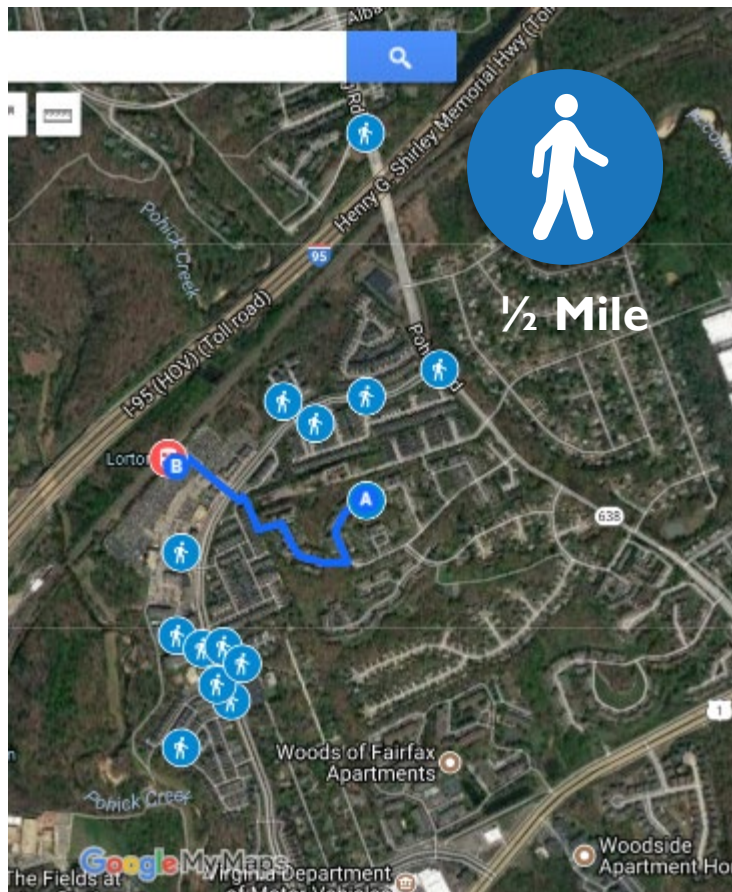


WHAT DISTANCE ARE RIDERS WALKING TO LORTON STATION?



VIRGINIA RAILWAY EXPRESS

WHAT DISTANCE ARE RIDERS WALKING TO LORTON STATION?



WHERE ARE RIDERS BICYCLING FROM?

FREDERICKSBURG

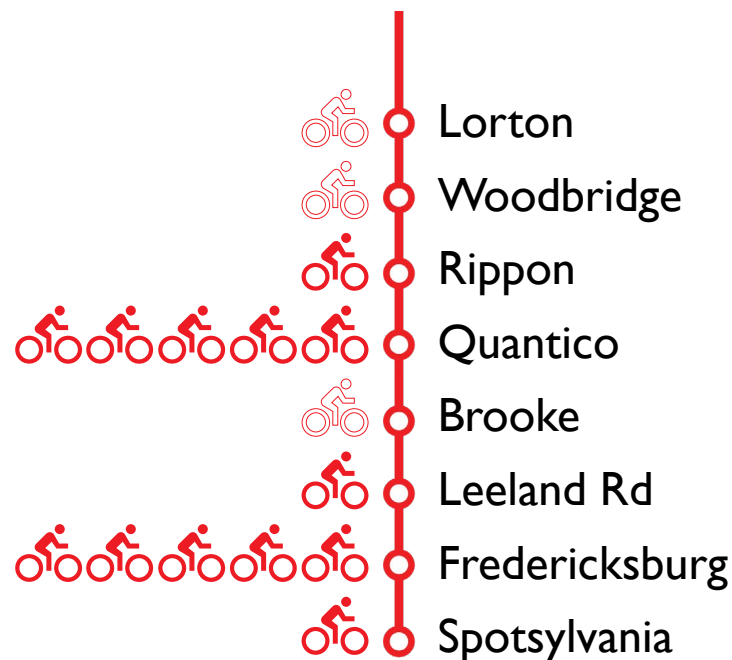
- In average there are 5 bicycles parked at the station each day;
- 4 origins were mapped and only one is along the Virginia Central Railway Trail;
- In average a rider bikes 1.2 miles to access the station.

WOODBIDGE

- 2 origins were mapped, one 5.1 miles away from the station, another 0.9 mile away
- There are not bicycle paths or lanes

LORTON

- 1 origin was mapped, 3.6 miles away from the station
- There is bicycle lanes along 75% of the way



LORTON ACTIVE TRANSPORTATION

Bicycle lane on Lorton Road

- There is a bicycle lane, but in high stress environment



VIRGINIA RAILWAY EXPRESS

LORTON ACTIVE TRANSPORTATION

Lorton Station Blvd

- High speed (35 mph), wide lanes, few intersections, lack of bicycle and pedestrian infrastructure



VIRGINIA RAILWAY EXPRESS

WHERE ARE RIDERS TAKING THE BUS FROM?

FREDERICKSBURG

- Several FRED bus routes serve the station, two of them act as feeder routes;
- Spotsylvania County VRE Feeder Bus (VSI) runs along Route 3 and connects Salem Church Crossing and Gordon Road Commuter lots;
- Fredericksburg VRE Feeder Bus connects Idlewild to the station.

Train Number	Fredericksburg Station	VSI	VFI
300	5:05	5:00	5:00
302	5:15		
304	5:31	5:25	
306	5:45		5:40
308	6:11	6:05	6:00
310	6:31	6:25	6:25
86	6:56		
312	7:16	7:10	7:10
314	7:44	7:35	7:35
174	8:00		
84	9:19		
94	11:57		

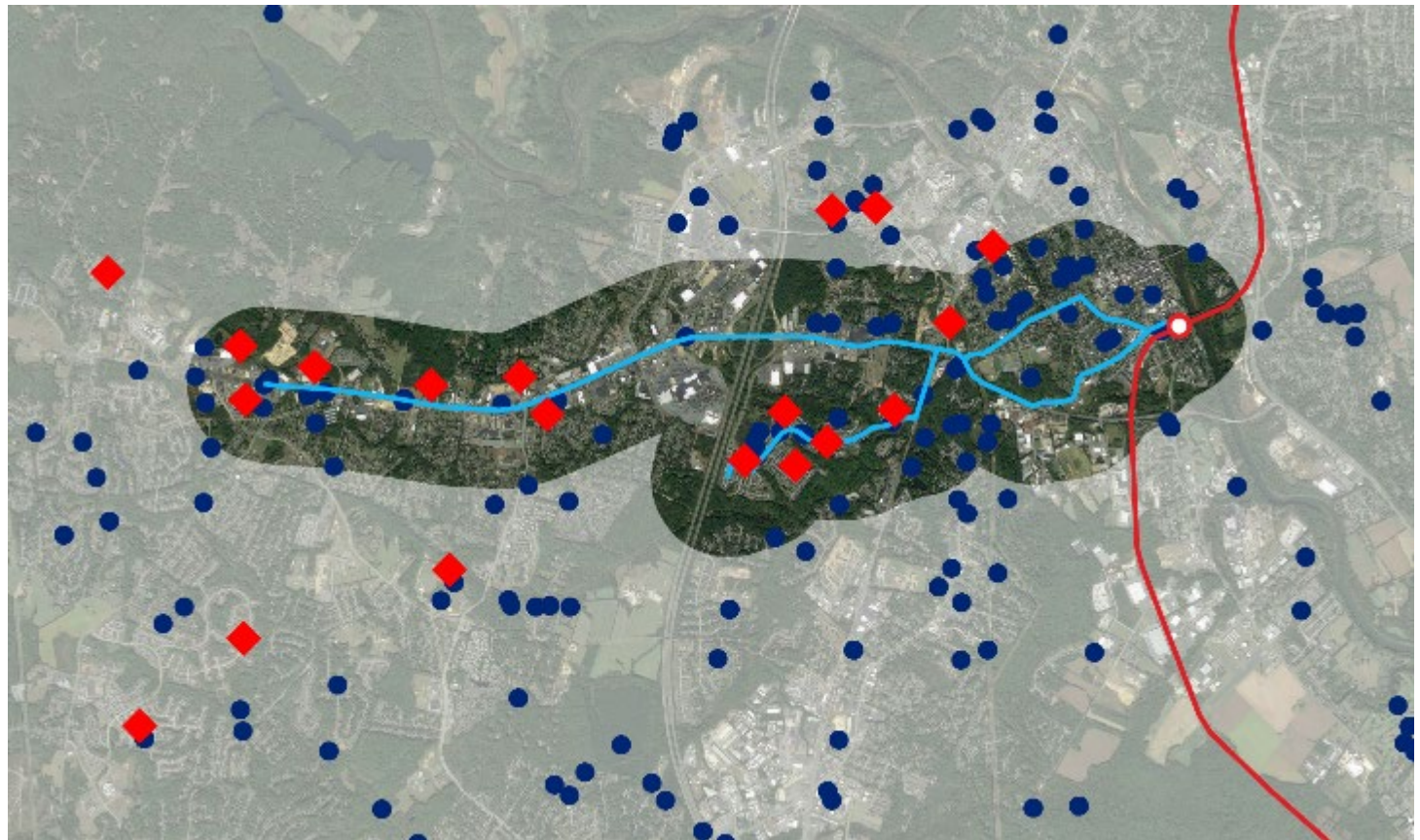


WHERE ARE RIDERS TAKING THE BUS FROM?

FREDERICKSBURG 24% of riders driving alone to the station reside within a buffer of ½ mile from one shuttle bus route



FRED Feeder
Bus routes



VIRGINIA RAILWAY EXPRESS

WHO IS ACCESSING WOODBRIDGE AND LORTON STATIONS BY BUS?

WOODBRIDGE

- According to the 2017 VRE Master Agreement survey results, no rider accessed the station by bus
- The station is served by two local bus services, OmniLink routes: Woodbridge/Lake Ridge and Route I
- Neither are operationally integrated to VRE service

LORTON

- 10 riders (2%) access the VRE by bus
- Connector buses 171, 305, 371, 372, 373, 494 serve Lorton Station
- None are operationally integrated to VRE service



OPPORTUNITIES

- Over half of the riders traveled fewer than 5 miles from their homes to a VRE station¹, improvements in a 1/2 mile (walking) or 3 mile (bicycling) radius from the stations would impact many riders.
- 0.5% of the riders access an origin station along the Fredericksburg line using bicycles² and there is opportunity to increase that share by providing infrastructure and low-stress environments.
- Operational integration between feeder buses and VRE trains could contribute to mode shift and new riders. Lorton is served by several bus routes that carry 2% of the riders boarding at the station; while FRED operates 2 bus shuttle routes with fewer trips and transport 4% of the station's riders.
- Promoting carpooling and kiss-and-ride could reduce the number of parked cars.





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A BETTER WAY. A BETTER LIFE.