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Voting Availability Visual Essay

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Human Geography with GIS

Table 1. Virginia voters must travel to their precinct's designated polling station on election day in order to cast a ballot. This poses challenges to voters who live far from their assigned polling station and don't own a personal vehicle. Taking Richmond as an example, thousands of residents don't have vehicle access, especially in precincts 602 and 701. This isn't as pressing of an issue in these precincts, as they are closer to downtown, where goods and services, including the polling stations, are more concentrated (Planning Tank 2016). However, exceptions to this trend highlight changes needed in the city's election geography.

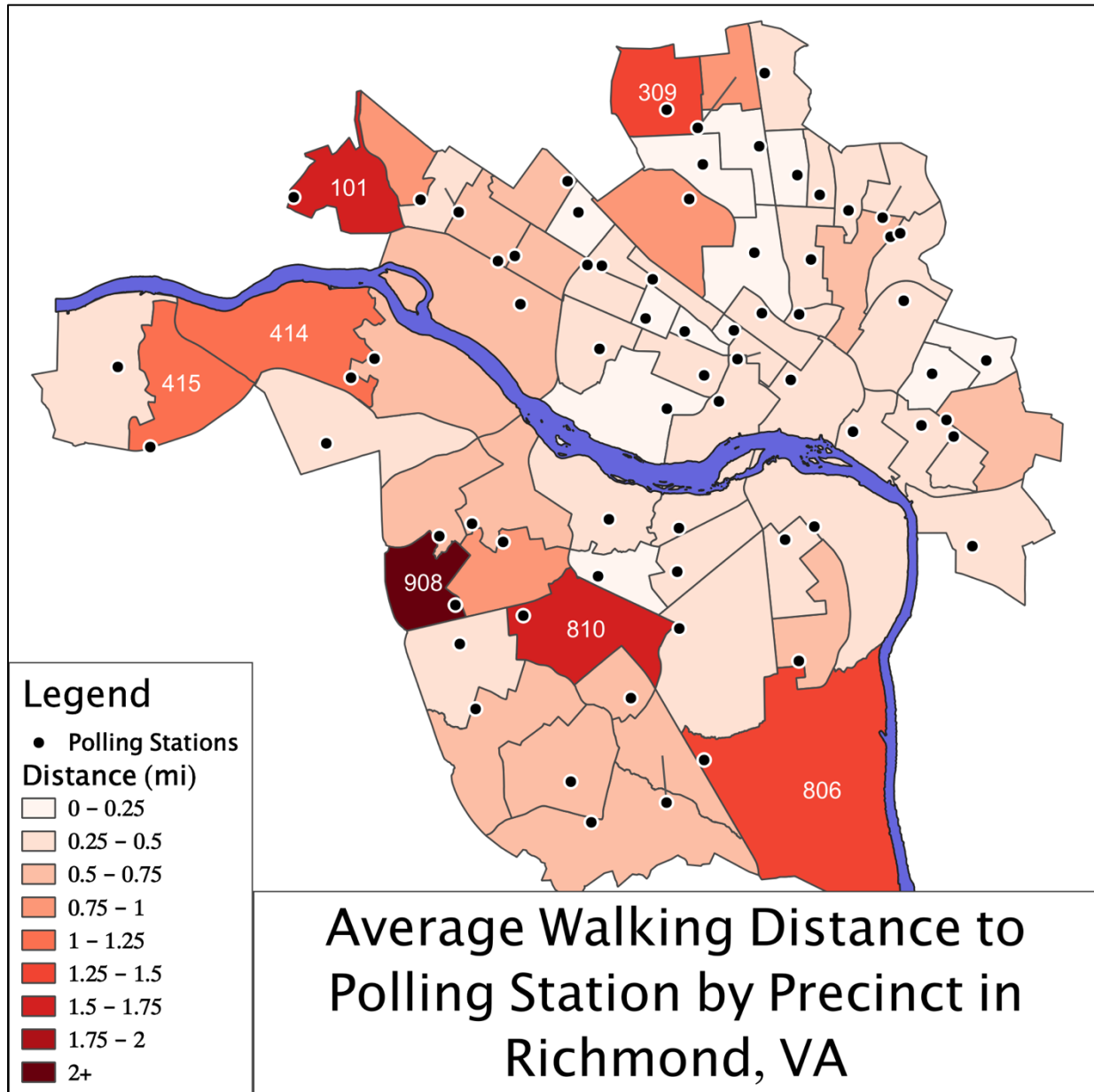| Precinct	Number of Voters without Vehicle Access (Est.)	Average Distance from Polling Station (mi)	Distance from VA State Capital (mi)
602	1982	0.42	1.07
701	1512	0.20	1.76
806	1037	1.27	4.43
702	1026	0.16	1.22
310	1003	0.30	1.00
214	937	0.34	1.03
213	854	0.35	1.11
603	836	0.65	1.56
811	824	0.34	3.08
509	751	0.14	3.10

Figure 1. The precincts where the average walking distance to the polling station is greatest tend to be on the outer edges of the city. This is largely due to the winding nature of suburban roads leading to greater travel-distances, as in precincts 309 and 908, and a greater distance from urban functions (Rodrigue). Given the roadway composition of precinct 908 and the combined effects of low vehicle access and a far-removed polling station in precinct 806, these precincts in particular need to be adjusted in order to ensure more equitable voting accessibility.
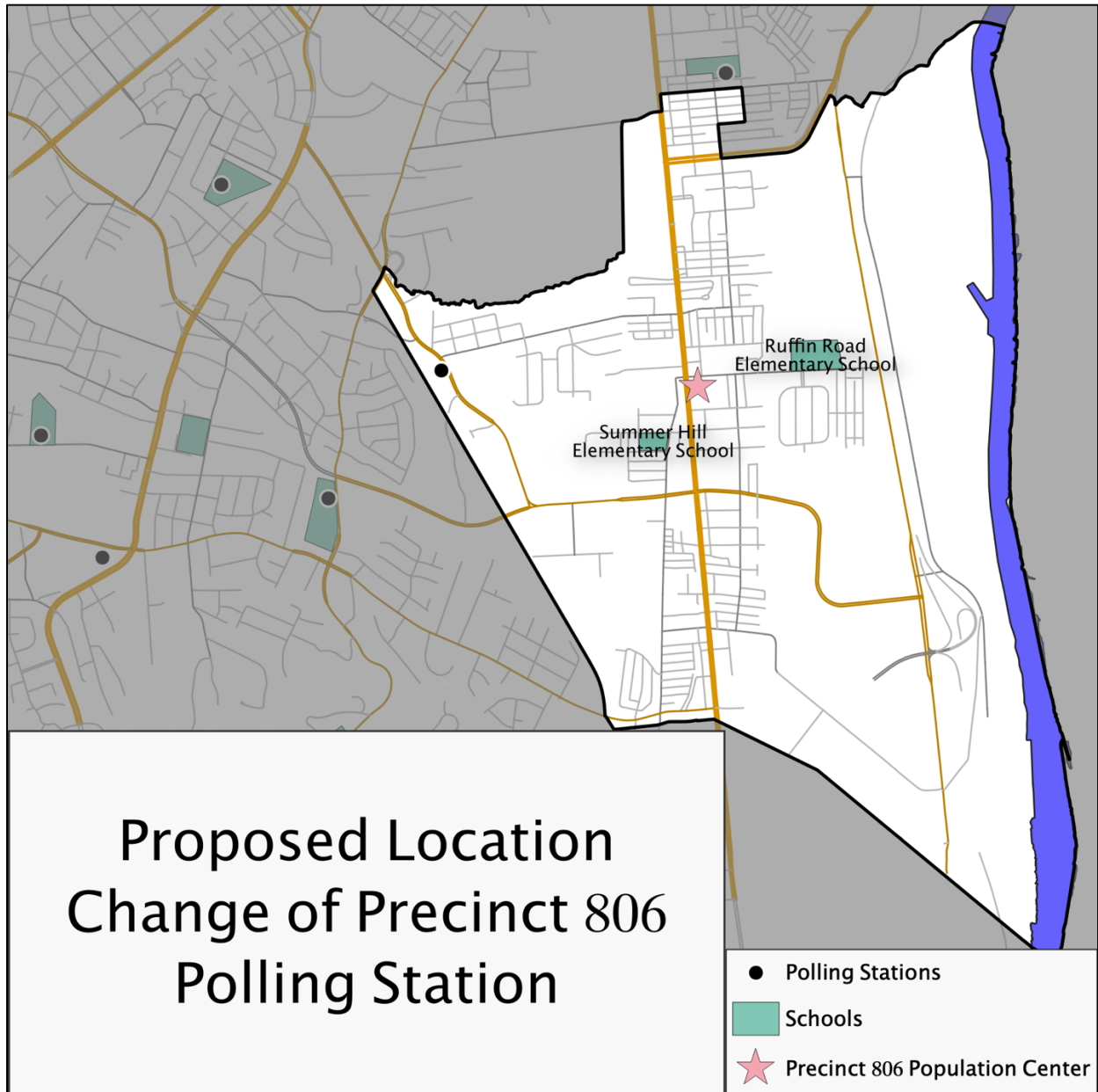
Figure 2. The current polling station of precinct 806, while within the precinct boundary, is located a long way from where the majority of the population actually lives. Given the reduced car ownership in this precinct, it is paramount that the polling station be located near the population center. Since many of the city's polling stations are located at schools, a simple solution to this disparity may be to move this precinct's polling station to either Summer Hill or Ruffin Road Elementary School.
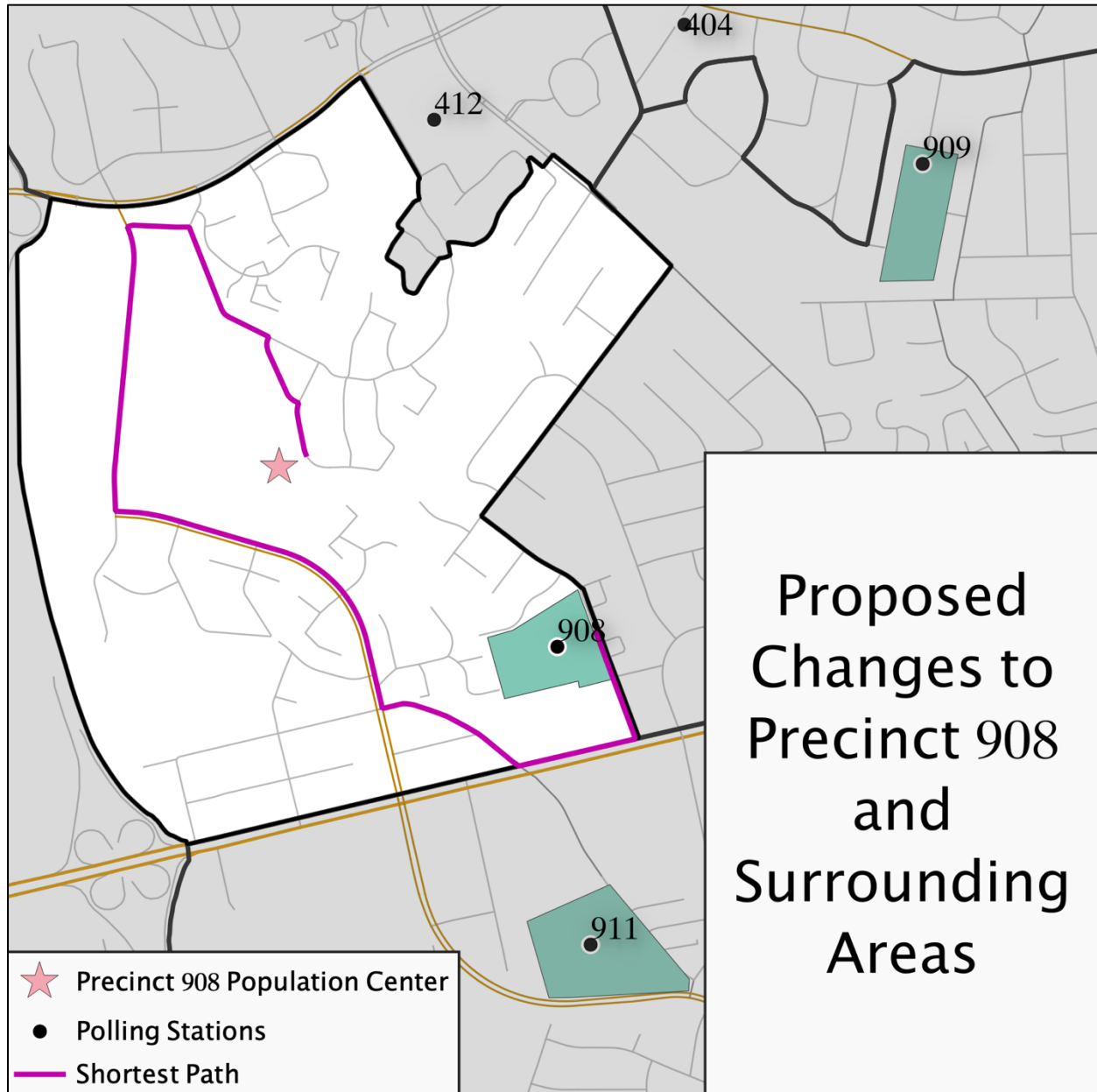
Figure 3. Precinct 908, however, poses much more difficult challenges to voter accessibility. While not the highest rate in the city, a not-insignificant number of households here (23%) don't own a vehicle. In addition, the way the precinct lines are drawn in relation to the road network makes travel within the precinct cumbersome, as demonstrated by the path from the precinct's population center to the polling station. Because of the inherent geographic challenges associated with this precinct, it may be best to dissolve it entirely and have it merged with precincts 412, 909, and 911 based on existing roadway infrastructure.

References and Data Sources

Burgess model or concentric zone model (1925) by Ernest Burgess. (2016, November 23). In

      Planning Tank. Retrieved from https://planningtank.com/settlement-geography/burgess-

      model-or-concentric-zone-model

Rodrigue, J. (n.d.). Transport and Spatial Organization. In Geography of Transport Systems, The.

      Retrieved from https://transportgeography.org/?page_id=1006

United States Census American Community Survey 2014- 2018.

All other data sources were acquired from the City of Richmond VA at https://richmond-geo-

      hub- cor.hub.arcgis.com and OpenStreetMap.