The Green Route

A transportation system connecting communities to their public lands, in and around Charlotteville, Virginia

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Access to our parks is a complex issue involving race, age, vehicle-access, and the availability of information. Increasingly, environmental justice activists, planners, and policymakers alike are prioritizing access to parks due to their recognized health, social, and environmental benefits. Now more than ever, there is a focus on breaking down barriers between populations and their natural spaces. While progress has been made at the federal level, particularly through National Park Service initiatives, there is an equally urgent need to address the same accessibility issues within local communities such as Charlottesville.

Transportation Challenges

Transportation is a primary obstacle deterring groups from visiting natural parks. Disadvantaged groups, such as those with low-income, households with children, older adults, and people with a disability status are more likely to:

- 1) Rely on public transportation
- 2) Live farther away from parks, and
- 3) Live farther away from public transportation services

Furthermore, in comparison to previous generations, young adults are less likely to rely on personal vehicles, instead electing to use multimodal or shared vehicles. On the other side of the age spectrum, adults over 65 in age drive, walk, and bike less.

Demographic Disparities

The National Park Service found that those who visited parks in the last two years were disproportionately white and more educated. They also found that while visitation had increased since 2000, the makeup of their visitors had not changed greatly. The most common reason cited by visitors who had not visited in the last two years was that they 'don't know much about national parks'. This statement was more likely to be agreed upon by Hispanic, Asian, and African Americans, indicating a concurrent lapse in information that is readily available to these populations.

The Green Route

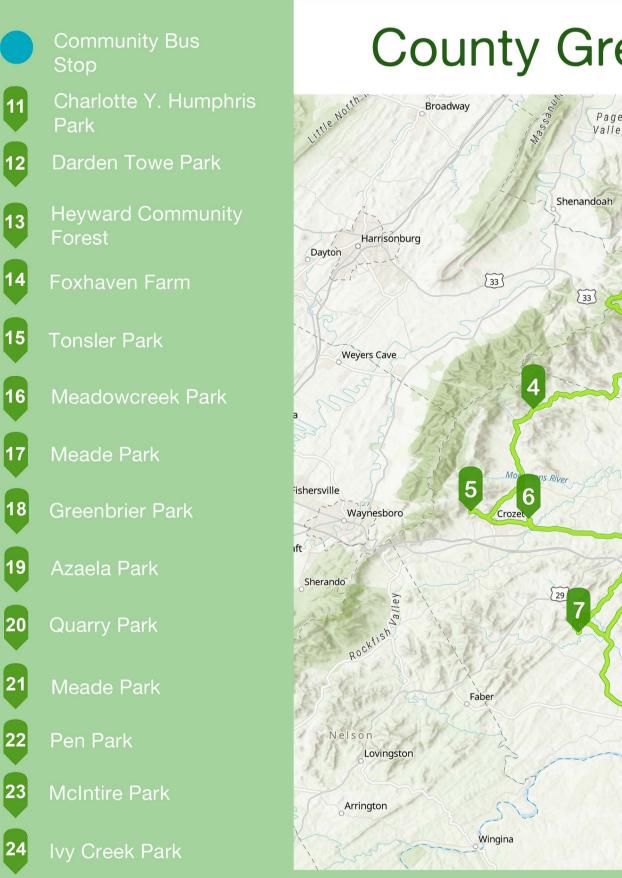


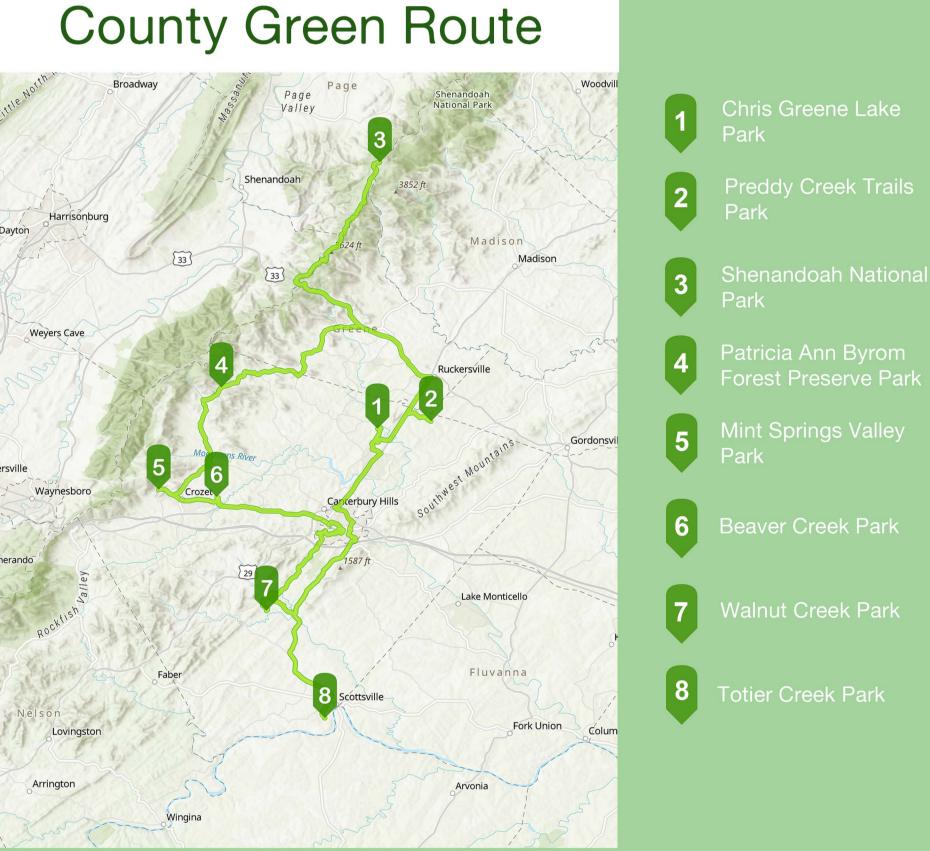
Through identification of critical communities, selection of natural spaces, and route optimization, the public bus system will connect historically underrserved populations to their public lands. The system involves two primary routes:



The Local Green Route: aims to service visitors daily after work to primarily city parks

- Dropoff Bus Departure Time: 4pm
- Pickup Bus Departure Time: 7pm
- Est. Time Between Buses: 3 hrs • Entire Route Length: 3 hr 45 min





The County Green Route: provides weekend access to more distant parks throughout Albemarle County

- Dropoff Bus Departure Time: 8am
- Pickup Bus Departure Time: 12pm
- Est. Time Between Buses:4hrs • Entire Route Length: 6 hr 30 min

Leverage attribute table data to

create Route Time spreadsheet

Use total block group Metholodogy population to calculate Upload origin and bus stop layers Run Plan Routes Tool for both percentages for all variables to ArcGIS Online. County and Local Routes by block group. **Demographic Variables: Identify route origin** at Charlottesville Parks & Rec • Age 65+ (a) by creating feature class and Merge point layers Data Cleaning **Spatial Join** locating point. Download Route layers back in Excel Variables to onto ArcGIS Pro Charlottesville Overlay city and county parks Block Group layers to identify bus stops Boundaries at park destinations. Create Overlay city zoning layer to identify locations for community bus feature class and drop points. stops in residential areas. Create feature class and drop points. Symbolize and use Layout to create maps of both routes

Identify top 10 block groups with

highest Critical Community Scores

Calculate Critical Community Score:

Weight values and sum according to

C = 0.2(n + b + v) + 0.1(a + c + p)

Save score in New Field

equation:

Data Sources

Geospatial Data Source Charlottesville Block Group Boundaries US Census Bureau City Parks Charlottesville Open Data County Parks Albemarle County GIS Data Shenandoah National Park Albemarle County GIS Data Charlottesville City Zoning Layer Charlottesville Open Data Landcover Data National Landcover Dataset American Community Survey (US Census Bureau) Data B02001: Race (2022) B01003: Total Population (2022) B09002: Own Children Under 18 Years by Family Type and Age (2022) B17101: Poverty Status in the Past 12 Months of People in Housing Units (2022) B23024: Poverty Status in the Past 12 Months by Disability Status by Employment Status for the Population 20 to 64 Years (2022) B25044: Tenure by Vehicles Available (2022) B01001: Sex by Age (2022)

Total Population Households w/ Children (c) Residents Below Poverty Line (b)

- Households w/ no Vehicle (v)
- Disability Status (d)
- Non-White (n)

Distance from Block Group to Nearest Park (p): Calculated for each block group using Near Tool in ArcGIS Pro