

# Barriers to Basic Needs: Education, Goods & Services, and Recreation Methodology

As part of our Barriers to Basic Needs section, we used the following methodology to measure transportation access to Education, Goods & Services, and Recreation:

## Education

- Public schools (grades K-12), including Dutchess BOCES
  - Though some schools share locations, we analyzed each individual school.
- Colleges, including Dutchess Community College, Dutchess Community College-South, Bard College, Marist University, Vassar College, and the Culinary Institute of America.

## Goods and Services

- **Health Care**
  - Hospitals: hospitals in Dutchess County that serve the public.
    - The VA Medical Center was not included since it is restricted to veterans. Sharon Hospital in Sharon, Connecticut, which serves northeast Dutchess residents, was also not evaluated since it is outside of Dutchess County.
  - Clinics: urgent care facilities and other clinics that serve outpatients without an appointment.
    - We did not evaluate doctors' offices due to their scale and scope.
  - Pharmacies: stand-alone pharmacies, as well as those at hospitals and large grocery stores.
    - Pharmacies within membership stores like Sam's Club were not included, since they are not available to the public at large.
- **Food Resources**
  - Grocery stores: full-service grocery stores and large stores with full grocery sections (e.g., Target and Walmart)
    - Stores requiring membership were not included, as were corner markets and health-food stores due to their scale and scope.
- **Community Facilities**
  - Community centers: senior centers, municipal centers, and privately-run centers, if open to the public, used for events, and do not require paid membership.
  - Town, Village, and City halls
  - Public Libraries and Post Offices
- **Recreation**

- All public parks, as defined in the County-maintained ‘park’s GIS layer, minus any monuments or memorials that do not serve a recreational purpose.
  - Due to their length, we divided our linear parks (i.e., rail trails and the Appalachian Trail) into several pieces, with each access point (or cluster of access points) considered a separate ‘park.’

For each location we assigned one or more access points, typically on the main public road near the entrance (not along driveways). If various roads provide access, we placed multiple access points. These access points served as proxies for the destinations. We then created a half-mile road network buffer from the access point(s). The road network buffer measures the half mile along streets, rather than as a birds-eye radius, giving a more accurate picture of access. We used ArcGIS’s Spatial Join tool to evaluate the following:

- **Transit Access**

We evaluated weekday, Saturday and Sunday bus service within a half-mile of each destination, using the frequent/somewhat frequent/infrequent levels established in our [bus access analysis](#). We did not evaluate transit access for public schools, as all school districts provide some level of bus service.

- **Sidewalk Access**

We evaluated sidewalk coverage within a half mile of each destination, using a custom sidewalk layer that distinguished between sidewalks along streets and those internal to a site. We used the on-street sidewalks to measure the percentage of sidewalk coverage using the formula:  $(sidewalk\ length / [road\ length \times 2]) \times 100$ .

To enable a county-level analysis, we measured walkability based only on the sidewalk coverage on streets near each destination. We did not account for the proximity of other destinations, the type of street network, the speed or volume on adjacent streets, or other elements that make destinations walkable. We do consider these elements in our smaller-scale studies, and we may be able to include some of them in a future countywide analysis.

- **Bicycle Access**

We evaluated whether each destination was within a half mile of a rail trail (based on the rail trail lines, not rail trail access points). In some cases, a trail may be elevated or lack a direct connection. We included these locations to identify areas of potential access.