Villages of New York State

- Many New York residents live in villages scattered throughout New York State.

- Villages have some of the same issues as cities without the resources of cities.

- This study grouped together villages of similar attributes.

- Villages that are far from hospitals are identified.

- New York State government officials and politicians can use this report to provide necessary services to villages.

Data Acquisition and Cleaning

- Wikipedia

  - Data on villages was obtained from the Wikipedia page: "https://en.wikipedia.org/wiki/List_of_villages_in_New_York_(state)"

  - The table contained village names, location, population and other data.

- Foursquare, Folium

  - Foursquare was used to get the primary features of each village

  - Folium was used to map the villages

- New York Web sites

  - Data on hospitals in New York State was obtained from: https://www.health.ny.gov/regulations/hcra/provider/provhosp.htm

    - This site contained the hospitals, addresses, and current operating status

- Geopy

  - Was used to determine the distance from each village to each hospital

  - The minimum distance between a village and it's nearest hospital was determined.
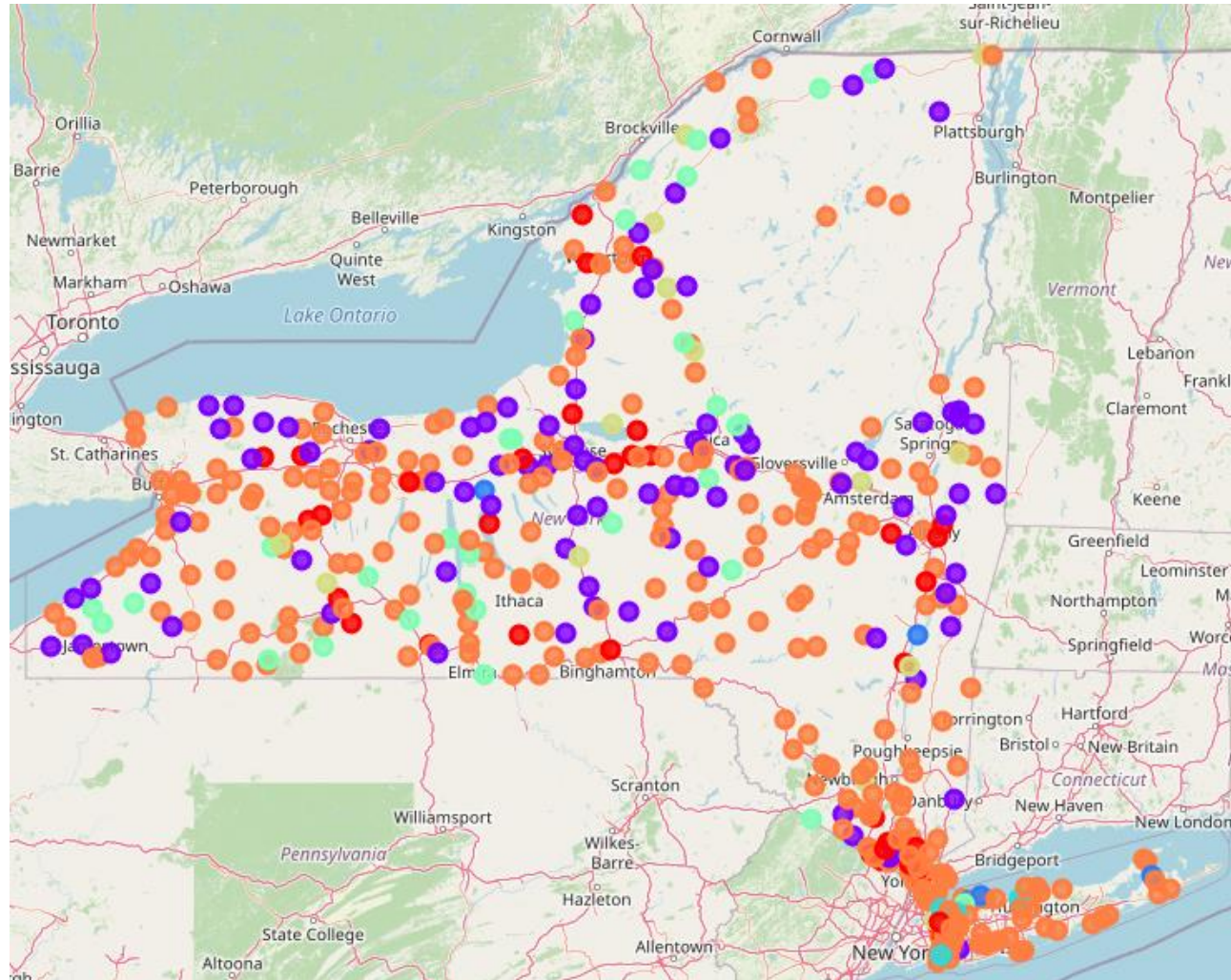
Methodology - Village clustering

- Gather Village information.

  - Needed to use Google Chrome developer tools to find table

  - Used BeautifulSoup to extract village table from website

- Group Villages by similar characteristics

  - Used Foursquare to find venues in villages

  - Grouped villages into 7 clusters by common venues

    - Investigated multiple different numbers of clusters. 7 gave the smoothest result

Methodology – Hospital distance

- Determine distance from villages to hospitals

  - Extracted hospital address from website.

  - Converted addresses to latitude and longitude

  - Used geopy to determine the distance from each village to each hospital

- Group Villages by distance from the nearest hospital

  - Determined which hospital was closest to each village

  - Sorted the villages into groups by distance from closest hospital

Results – Villages in NY identified by cluster

533 villages, 7 clusters

Results

- Distance between villages and hospitals

Distance from Hospitals	Number of Villages
Less then 5 miles	218
Between 5 and 20 miles	134
Between 10 and 20 miles	163
More than 20 miles	18

Discussion

- **More Hospitals needed**

  - 18 villages that are more than 20 miles from the nearest hospital.

  - Some of these villages are near each other

    - Pulaski and Sandy Creek

  - single emergency care facility could service them

- **Rural Villages**

  - Are far from cites

  - Do not have the financial means of urban villages

  - Will need state government funding to provide medical services

Conclusion

- Emergency Medical care shortfall

  - Study identified villages that require medical facilities

- Additional study required

  - Further study of the data sources collected will reveal additional services required by individual clusters of villages.