**Assignment 1**

I have chosen three datasets with spatial extents that approximately correspond to the boundaries of San Luis Obispo County, California. The first is a set of polygons representing the census tract boundaries with San Luis Obispo County. The second is a set of lines representing trails managed by San Luis Obispo County Parks and Recreation. The third is a set of points representing bus stops served by the San Luis Obispo County Regional Transit Authority

Details about each of these datasets are listed in the table below.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Census tract boundaries | County trails | Regional Transit Authority Bus Stops |
| Spatial extent | San Luis Obispo County | San Luis Obispo County | San Luis Obispo County |
| Unit of observation | Census tracts | Named trails | Bus stops |
| Number of observations | 54 | 34 | 345 |
| Spatial data type | Multipolygon | Multiline | Point |
| Spatial data format | R simple features | geoJSON | GTFS (csv) |
| Coordinate reference system | NAD 83 | WGS 84 | WGS 84 |
| Data source | Walker and Herman (2022) | County of San Luis Obispo (2020) | San Luis Obispo Regional Transit Authority (2022) |

**Variables**

* Census tract boundaries
  + **GEOID:** An identifier for the census tract
  + **NAME:** The name of the census tract
  + **P00100:** The population of the census tract, based on the 2010 decennial census
* County trails
  + **TrailName:** The name of the trail
  + **SystemName:** The name of the trail system the trail belongs to
  + **Region:** The region of the county in which the trail is located
  + **Length:** The length of the trail
  + **LengthUnits:** The units associated with the length in the length column
  + **TrlSurface:** The type of surface on the trail
  + **AgencyName:** The name of the agency that owns the trail
  + **ZipCode:** The zip code in which the trail is located
  + **ImageURL:** A URL to an image of the trail.
  + **ManagingAgency:** The level of the agency that manages the trail.
  + **Dogs:** Indicates whether dogs are allowed on the trail.
  + **Equestrian:** Indicates whether horses are allowed on the trail.
  + **MtnBike:** Indicates whether mountain bikes are allowed on the trail.
  + **StBike:** Indicates whether the trail is suitable for street bikes
  + **Hike:** Indicates whether the trail is suitable for hiking
  + **Difficulty:** Indicates whether the trail is easy, moderate, challenging, or strenuous
* Bus stops
  + **Stop name:** The name of the bus stop

**References**

County of San Luis Obispo (2020). County Trails. County of San Luis Obispo Open Data. https://opendata.slocounty.ca.gov/datasets/SLOCounty::county-trails/about. Accessed August 11, 2022.

San Luis Obispo Regional Transit Authority (2022). GTFS Feed. http://slo.connexionz.net/rtt/public/resource/gtfs.zip. Accessed August 11, 2022.

Kyle Walker and Matt Herman (2022). tidycensus: Load US Census Boundary and Attribute Data as 'tidyverse' and 'sf'-Ready Data Frames. R package version 1.2. <https://CRAN.R-project.org/package=tidycensus>

**Acknowledgements**

My classmate, Alicia Seeley showed me how to get the number of bus stops from a GTFS feed.