Gridded Traffic Density Estimates for Southern California, 1995-2014

User Notes authored by Beau MacDonald, 11/28/2017

METADATA:

Each raster file contains Traffic Density data for one year (1995, 2000, 2005, 2010, and 2014). Traffic density files depict traffic volumes. Traffic density represents distance-decayed AADT volume in both directions from all roads (FCC1-FCC4) within the circular buffer. Traffic density is symmetric on both sides of each roadway and is computed as if the wind directions are uniformly distributed around the compass. The density values are computed using the Esri density function using a kernel with a 300m search radius and 10m grid resolution. The results are virtually identical for locations on a diagonal equidistant between two intersecting roads each with 50,000 vehicles per day as those for one road at the same distance with 100,000 vehicles/day. Traffic density with a 300m falloff function is scaled to represent distance decayed annual average vehicles per day. Traffic volume estimates were calculated from a southern California multi-year traffic dataset developed by Sonoma Technology, Inc. Created using Esri ArcMAP v10.3.1. The domain extends from ~32.51 to ~35.795 degrees latitude and from ~ -121.345 to ~ -114.192 degrees longitude. Each individual raster is ~9.04 GB; download size is ~ 13GB.

These datasets were prepared for USC NIEHS by Bryan Penfold, Sonoma Technology, Inc., 11-2-2016. Shared as map image data services by USC Spatial Sciences Institute, 2017.

TO ACCESS AND DOWNLOAD DATA:

Rasters are "Mosaic Datasets" shared as "Image Services" with ArcGIS Online using ArcGIS for Server. Traffic Density rasters for each year (1995, 2000, 2005, 2010, 2014) are shared as separate image services,

for a total of five "Layers." **Access these data through the Keck School of Medicine of USC ArcGIS Online account: http://keck.maps.arcgis.com/home**

You must have ArcGIS Desktop software ("ArcMap") installed on your computer.
Do you need a newer software version? To obtain Esri software through the USC Spatial Sciences Institute, please see **http://spatial.usc.edu/index.php/software/proprietary-software-free/** (ArcMap is free for students) or **http://spatial.usc.edu/index.php/software/proprietary-software** (faculty, postdoctoral associates, or staff).

To download data for analysis, you will first add the selected service/s to an ArcMap (ArcGIS Desktop or ArcGIS Pro) map document. You may then select individual (or all) layers from a service to download separately. We tested this on a PC with ArcMap versions 10.5.1, 10.5, and 10.4; it will also work with 10.3.

Where are the data? Layers are uploaded to the Keck School of Medicine of USC ArcGIS Online account. ArcGIS Online is a collaborative web GIS. The data layers are shared with "Everyone." **Go to the Keck School of Medicine of USC ArcGIS Online account: http://keck.maps.arcgis.com/home and sign in to ArcGIS Online.**

Use the top Menu Bar to access the "Gallery" and "Keck School of Medicine of USC Featured Content."

Your monitor should look similar to the screenshot below. There are many ways to sort, filter, and search for data and information in ArcGIS Online. Enter search terms in the search box at the top right.
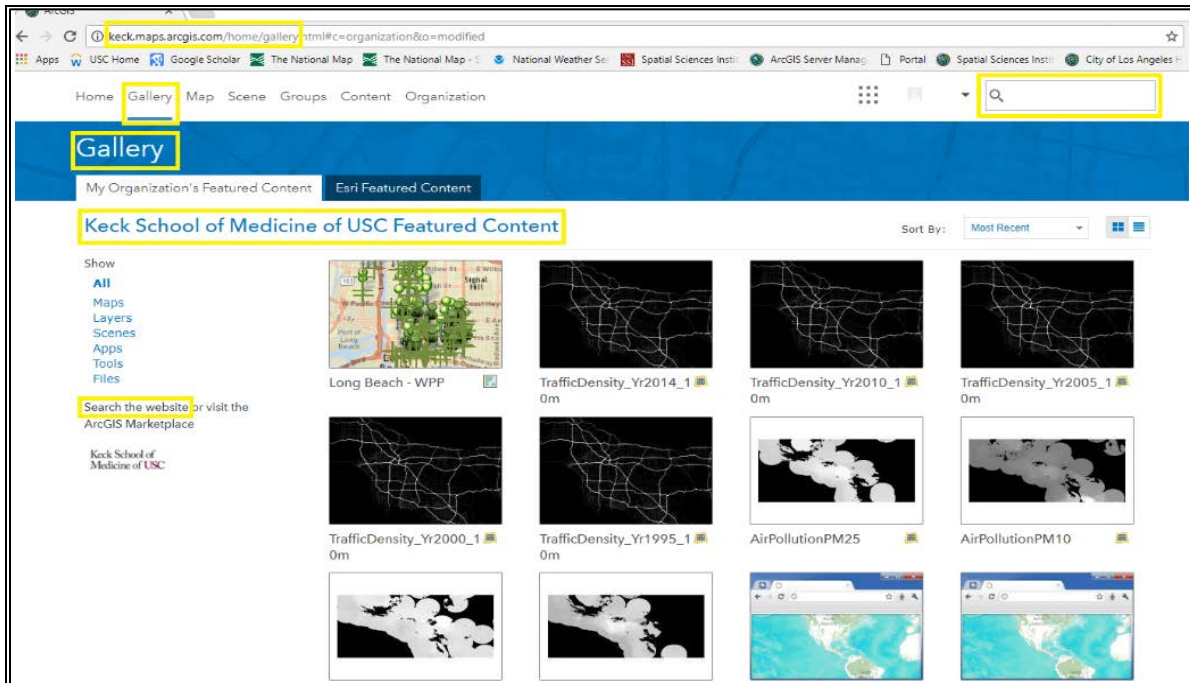
Search results using "**traffic density**" key words are shown.

File/service/layer names are TrafficDensity_Yr1995_10m, TrafficDensity_Yr2000_10m, TrafficDensity_Yr2005_10m, TrafficDensity_Yr2010_10m, and TrafficDensity_Yr2014_10m. Choose ONE dataset to download first. Click the name (e.g., "TrafficDensity_Yr1995_10m" below) in the search results to access more details and the data.
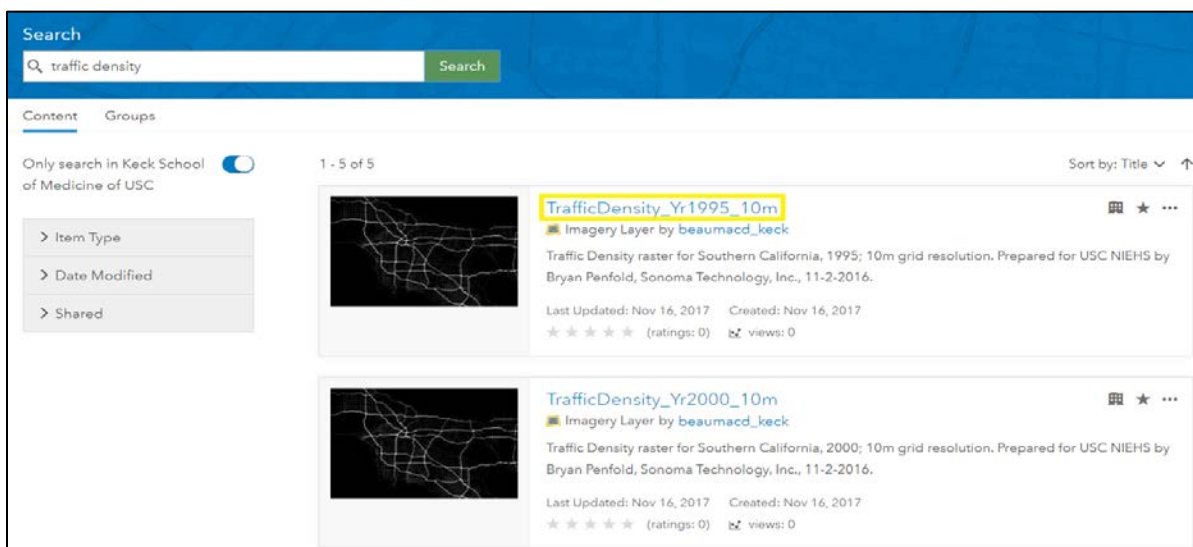

More information and options are here. This is an example for the Traffic Density 1995 raster dataset. Click on "Open in ArcGIS Desktop" at the top right of the page and a GIS Layer will download:
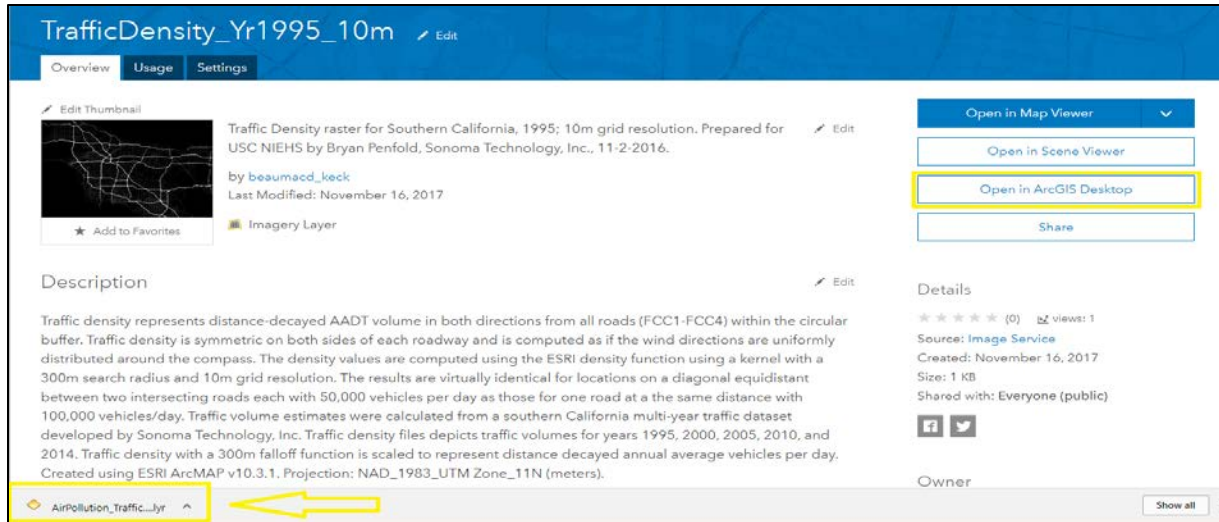
Double-click on the Layer file to open in ArcGIS Desktop ("ArcMap") or right-click to save the file first to a location you select. Repeat the process to access multiple years of traffic density data. The 1995 Layer is shown below, opened in ArcMap:
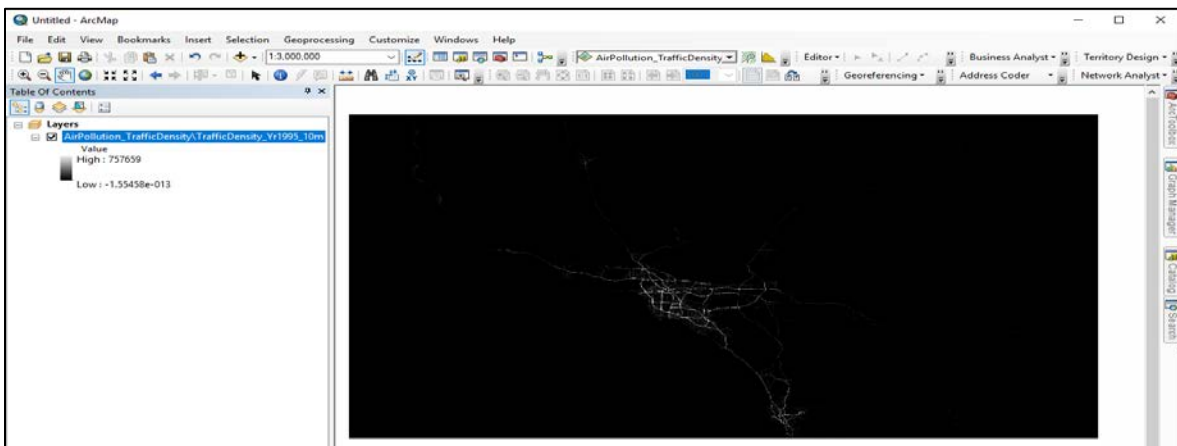
Within ArcMap, you can work with the rasters or export the data. To export data, right-click the layer in the Table of Contents: **Data > Export Data.**
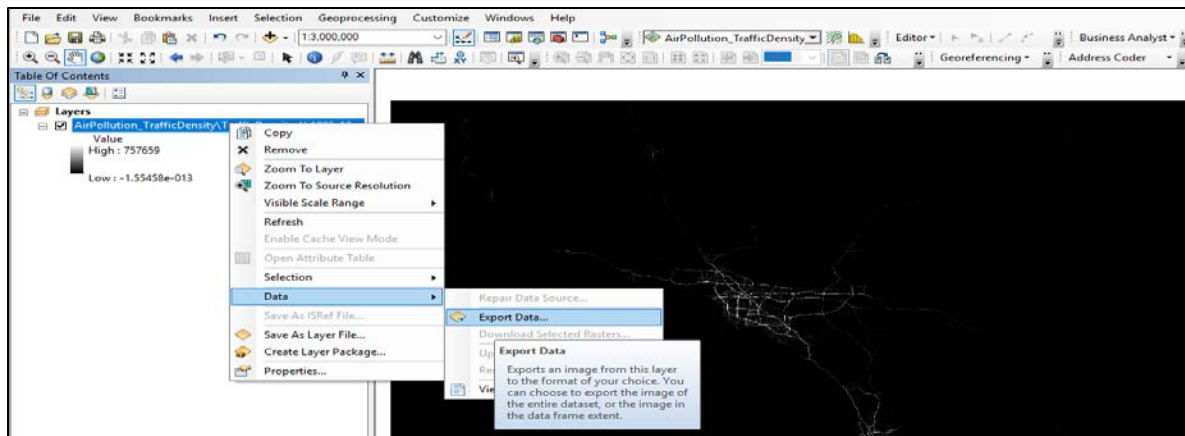
"Image Service" downloads are like any other rasters and can be used in spatial analyses as desired. ArcGIS has extensive online help files accessed with "Help" on the top Menu Bar. Traffic Density data are in **NAD83 UTM Zone 11N** projection – you may re-project downloaded data using GIS software.

FURTHER HELP:

Faculty, staff and/or students with additional questions can contact spatial_support@usc.edu or check the Spatial Sciences Institute website for the days and times "office" hours are scheduled (see https://spatial.usc.edu/index.php/help-desk/ for additional details).