**Methodology to Compute the Median Household Income by PWS**

1. Load relevant Layers

* tl\_2010\_35\_tract10 (Census Tract)

Source: TIGER/Line Shapefile, 2010, 2010 state, New Mexico, 2010 Census Census Tract State-based. U.S. Department of Commerce, U.S. Census Bureau, Geography Division

Website: http://rgis.unm.edu/rgis6/

* pws\_nm\_geojson\_polygon (PWS Boundary)

Source: Public Water Supply areas. New Mexico Office of the State Engineer –

Note: Used the shape file version provided by Gunnar

Website: <https://catalog.newmexicowaterdata.org/dataset/public-water-supply-areas>

* Table mhi\_censustract\_2018-2014\_nm\_ibis\_imputed (MHI)

Source: American Community Survey - Median Household Income for year 2014-2018 5-Yr ACS, data grouped by 2010 Census Tract Geometries. New Mexico's Indicator-Based Information System. New Mexico department of Health

Website:

<https://ibis.health.state.nm.us/query/builder/acs/ACSEconomic/MedIncome.html>

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Note: There are two Census tract for which there is no MHI available GEOID’s 35049980000 and GEOID 35043940300. For these tracts, we used as an imputed MHI the MHI of the surrounding Census tract, GEOID 35049010308 and GEOID 35028000400, respectively.

1. Join the Census Tract shape file with the MHI table with no geometries by:

﻿shpfield='GEOID10'

csvfield='2010\_Census\_Tract\_Geometries\_ID'

1. Create a variable that computes the area of each PWS “area\_pws” with $area
2. Intersect the PWS boundries with the 2010 census tract join mhi
3. In the intersection layer, create a variable “area\_pws\_tract” with the intersections of the PWS boundary with the census tracts using $area
4. Calculate the share of the intersection area with respect to the pws area: share\_tract=area\_pws\_tract/area\_pws
5. Aggregate the mhi\_pws=sum(share\_tract\*nm\_ibis\_Median\_Income)
   1. Create the share\_times\_mhi=share\_tract\*nm\_ibis\_Median\_Income
   2. Add share\_times\_mhi by Water\_Syst id

﻿sum("share\_times\_mhi", "Water\_Syst" )

1. Keep unique values of intersection file of fields [OBJECTID, Water\_Syst, PublicSyst, pws\_mhi] and save file as “PWS\_Median\_Household\_Income.csv” and “PWS\_Median\_Household\_Income.xlsx”