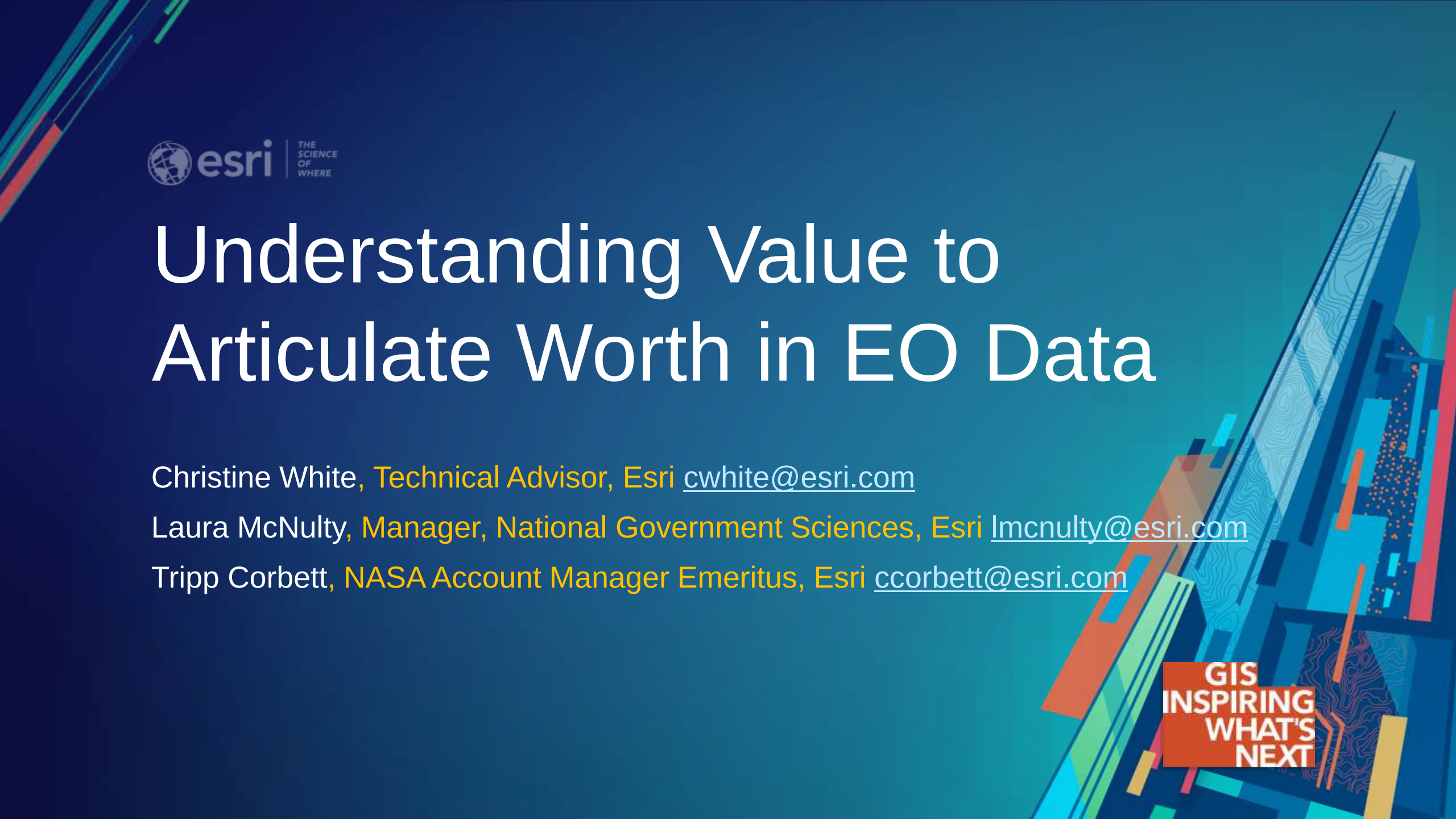
Understanding Value to Articulate Worth in EO Data

Christine White, Technical Advisor, Esri cwhite@esri.com

Laura McNulty, Manager, National Government Sciences, Esri lmcnulty@esri.com

Tripp Corbett, NASA Account Manager Emeritus, Esri ccorbett@esri.com



Defining Worth & Value

- **Hartman:** “Real value refers to how much it costs to produce the product, how useful it is to the buyer and how much value its individual components have. Perceived value is a more abstract measurement that represents how much customers feel a product is worth.[1]”

- **Anderson & Narus:** “Value in business markets is the worth in monetary terms of the technical, economic, service, and social benefits a customer company receives in exchange for the price it pays for a market offering.[2]”
  - Important to understand total cost vs. acquisition price

- **Almquist:** Understanding the functional, emotional, life-changing, and social impact aspects of value are needed to develop a customer value model.[3]

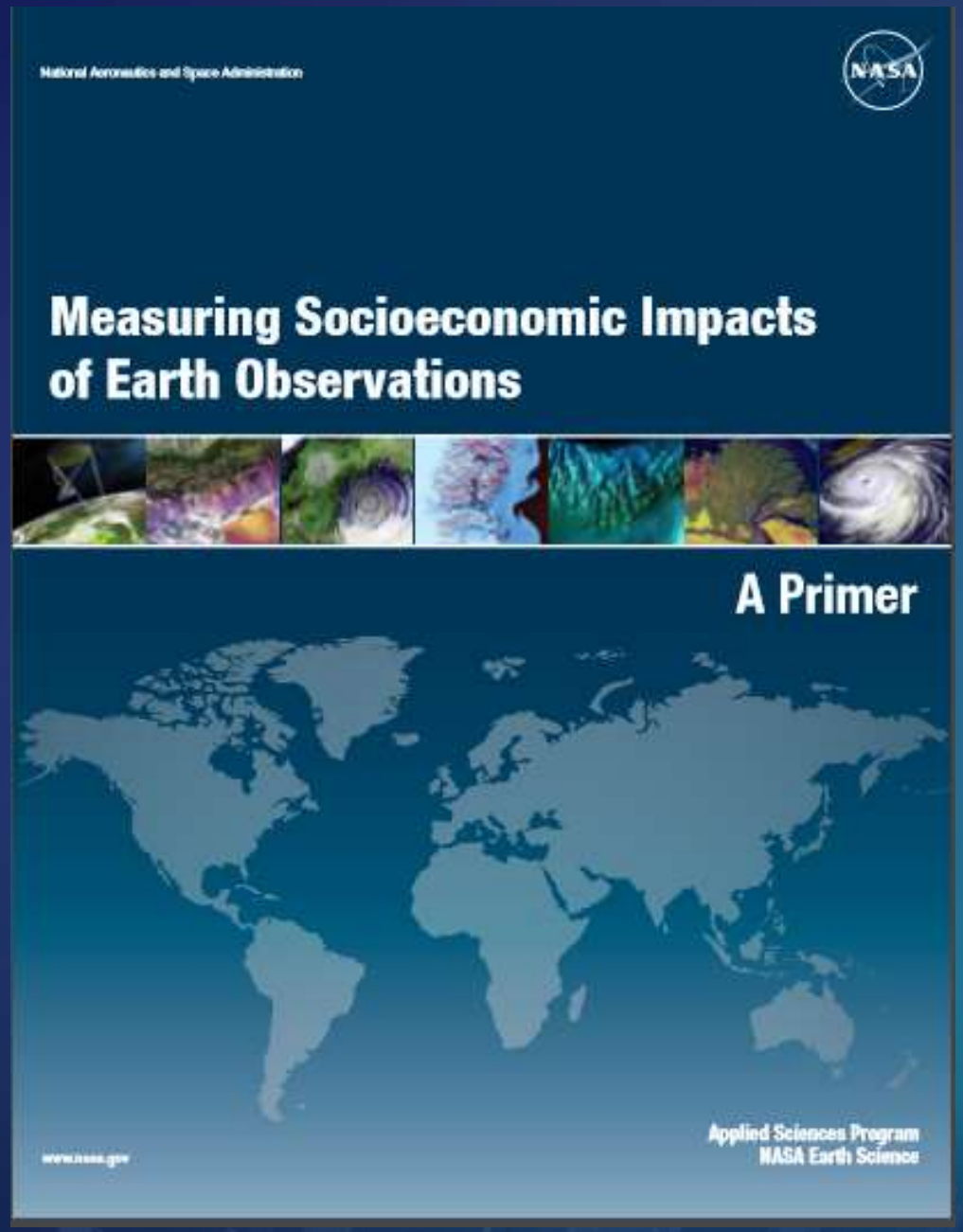
Derived Valued

GIS Helps in Understanding the Worth-Value Relationship

Value:

- **Functional/Technical –** Save time, money, effort; Reduce risk, cost, hassles; Simplify, organize, integrate, connect, inform [e.g. Solar Suitability]
- **Economic –** Make money, increase production, drive development, increase employment [e.g. Sea-level Rise]
- **Emotional –** Reduce anxiety, provide access, therapeutic value [e.g. Air Quality]
- **Service/Lifechanging –** Convenience, motivation, affiliation, hope [e.g. Wildfire Risk]
- **Social Impact –** Self-transcendence [e.g. Environmental Damage]

No One-Size Fits All



Integrating Value Datasets

Esri U.S. Demographics

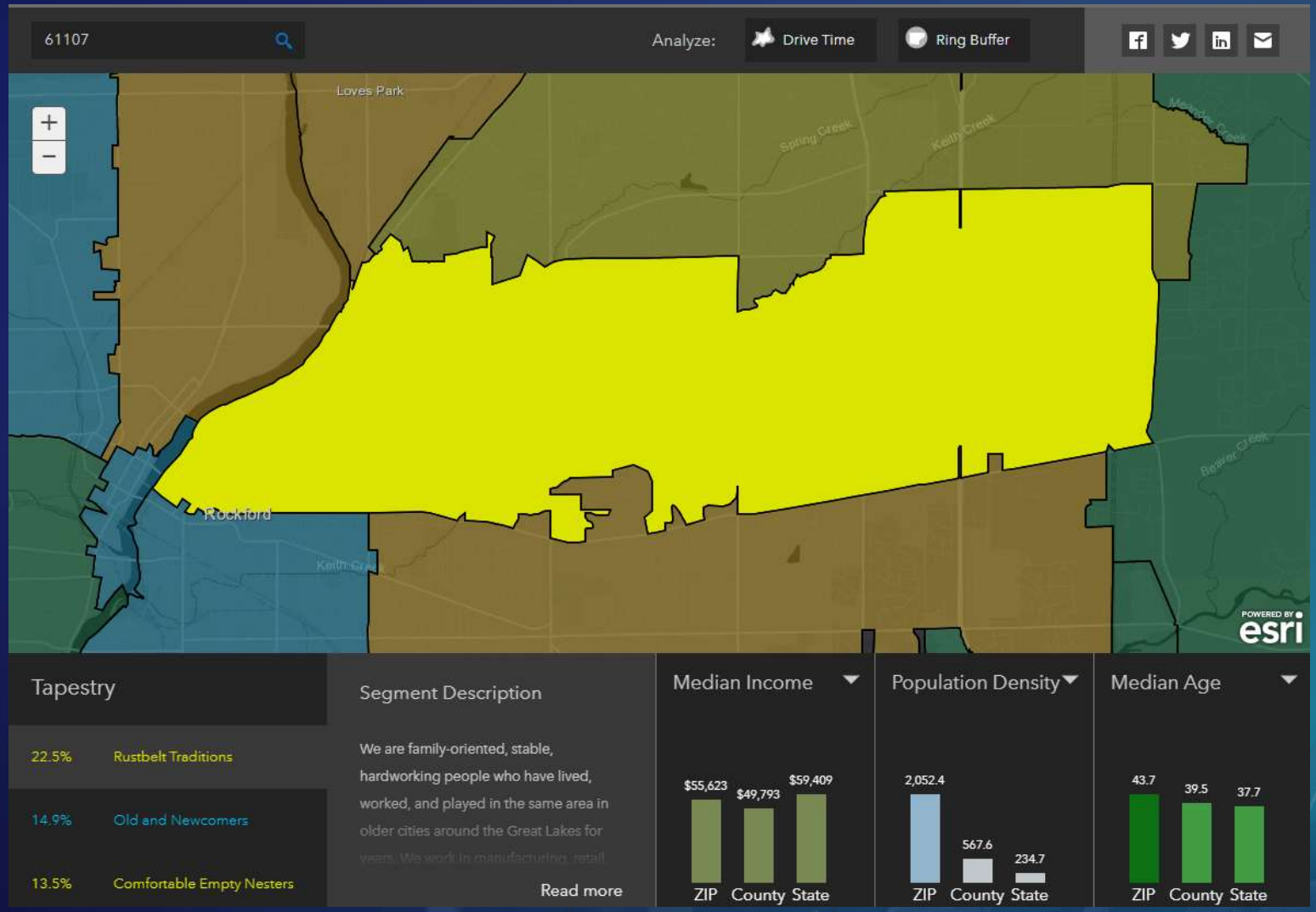
http://doc.arcgis.com/EN/ESRI-DEMOGRAPHICS/DATA/US-INTRO.HTM

- **Used in: Living Atlas of the World, ArcGIS Business Analyst, ArcGIS Community Analyst, ArcGIS Maps for Office and ArcGIS Maps for Power BI, and the ArcGIS GeoEnrichment Service**
- **“Enrich” option from Web or from Desktop (ArcMap or ArcGIS Pro)**
- **Multiple geographies**

- Updated Demographics
- Census and ACS
- Tapestry Segmentation
- Consumer Spending
- Market Potential
- Retail MarketPlace
- Business Data
- Major Shopping Centers
- Crime Indexes
- Traffic Counts

Tapestry & and other datasets

https://www.esri.com/en-us/arcgis/products/tapestry-segmentation/zip-lookup



Local Data

Tucson_schools2_WFL1

Overview | Data | Visualization

★ Add to Favorites

More schools from Arizona

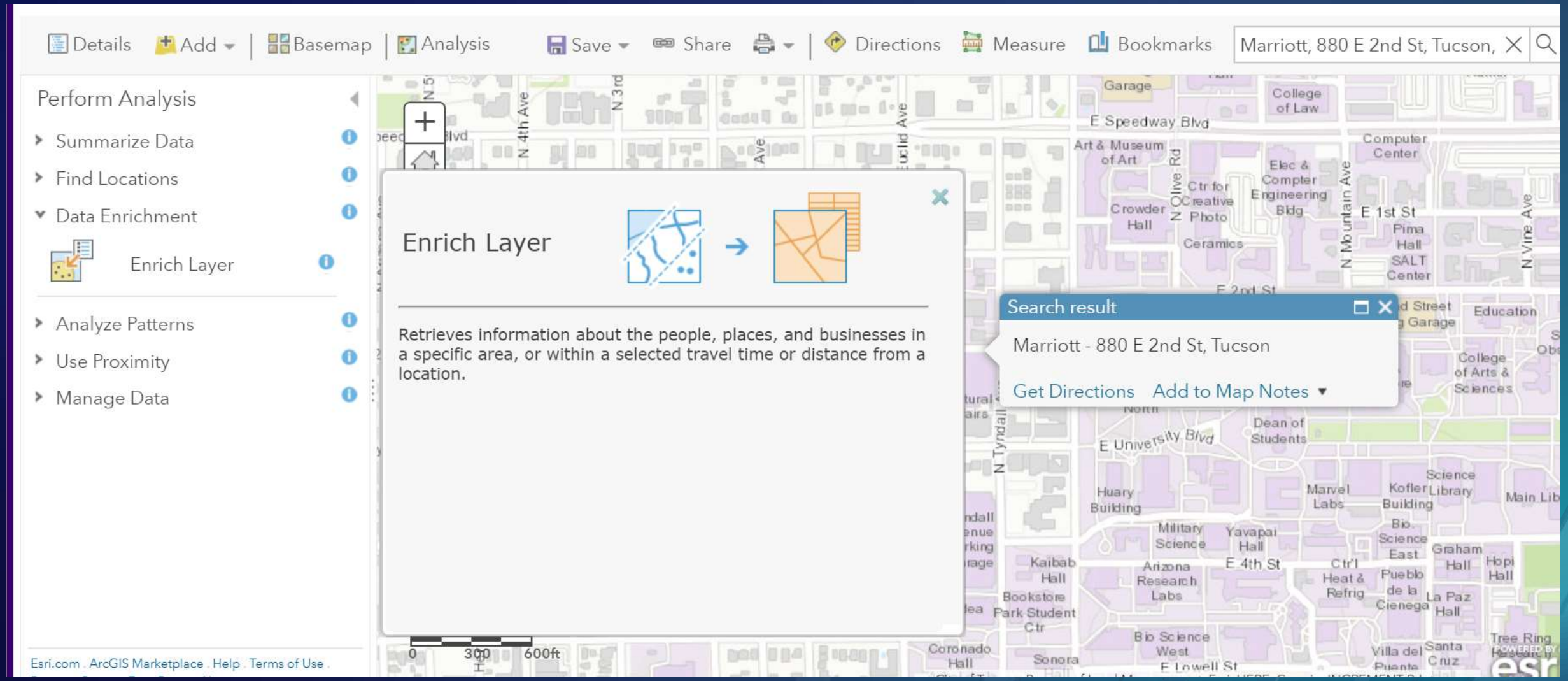
Feature Layer by ericharrison_uagis

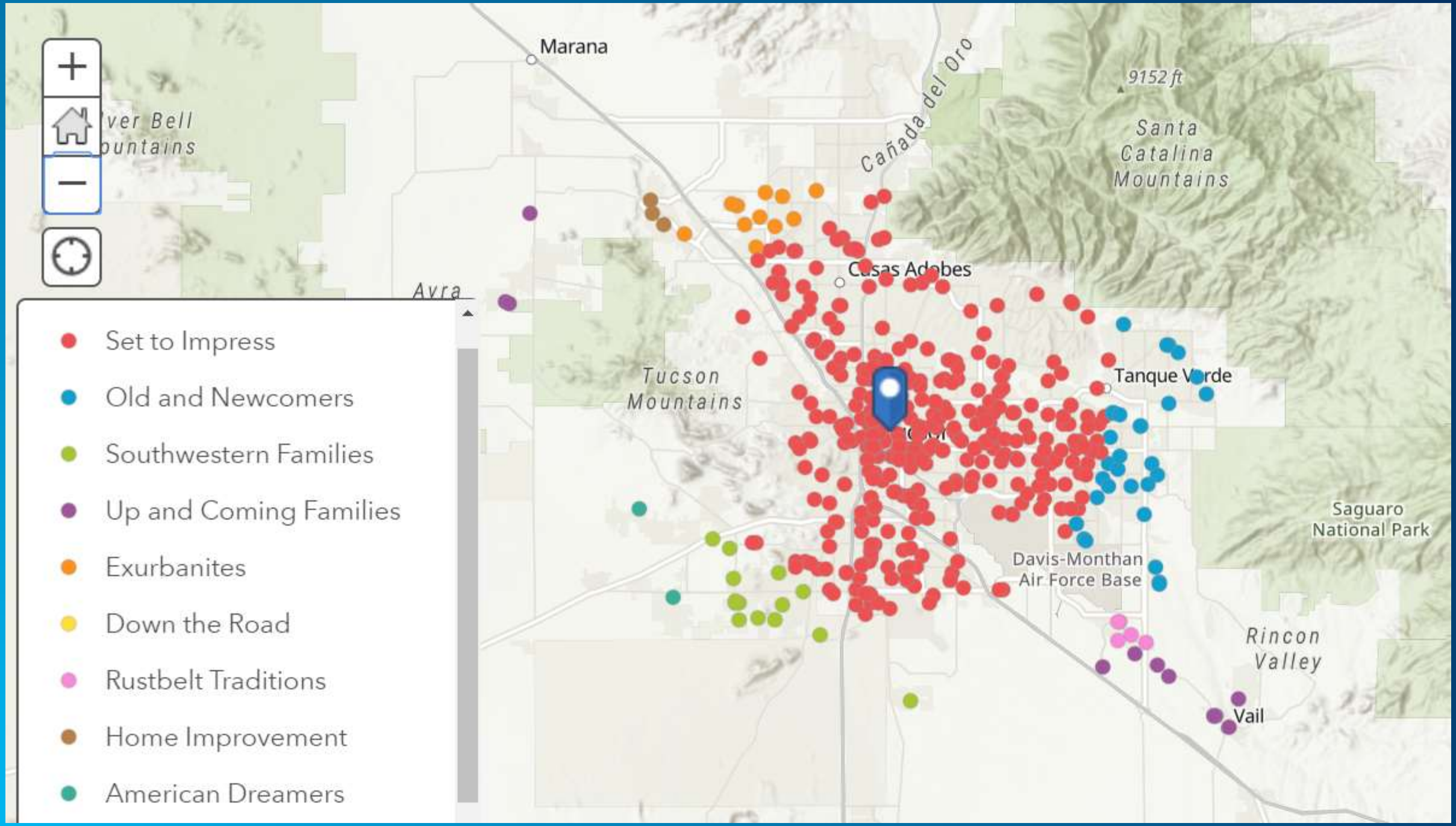
Created: Jun 8, 2018 Updated: Jun 8, 2018 View Count: 10

Description

This data set is a general reference for schools or "learning sites" in Arizona. It represents schools from the AZ Department of Education (CTDS numbers, charter and public schools), AZ School Facilities Board, private schools, some technical schools, colleges and universities.

Enrich Layer




Marana
Cañada del Oro
9152 ft
Santa Catalina Mountains
Casas Adobes
Tucson Mountains
Tanque Verde
Saguaro National Park
Davis-Monthan Air Force Base
Rincon Valley
Vail
Set to Impress
Old and Newcomers
Southwestern Families
Up and Coming Families
Exurbanites
Down the Road
Rustbelt Traditions
Home Improvement
American Dreamers

LifeMode Group: Midtown Singles

Set to Impress

11D

Households: 1,714,100

Average Household Size: 2.12

Median Age: 33.9

Median Household Income: $32,800

WHO ARE WE?

Set to Impress is depicted by medium to large multiunit apartments with lower than average rents. These apartments are often nestled into neighborhoods with other businesses or single-family housing. Nearly one in three residents is 20 to 34 years old, and over half of the homes are single person and nonfamily households. Although many residents live alone, they preserve close connections with their family. Income levels are low; many work in food service while they are attending college. This group is always looking for a deal. They are very conscious of their image and seek to bolster their status with the latest fashion. *Set to Impress* residents are tapped into popular music and the local music scene.

OUR NEIGHBORHOOD

- Apartment complexes represented by multiple multiunit structures are often nestled in neighborhoods with either single-family homes or other businesses.
- Renters make up nearly three quarters of all households.
- They're found mostly in urban areas, but also in suburbs.
- Single-person households make up over 40% of all households.
- It is easy enough to walk or bike to work for many residents.

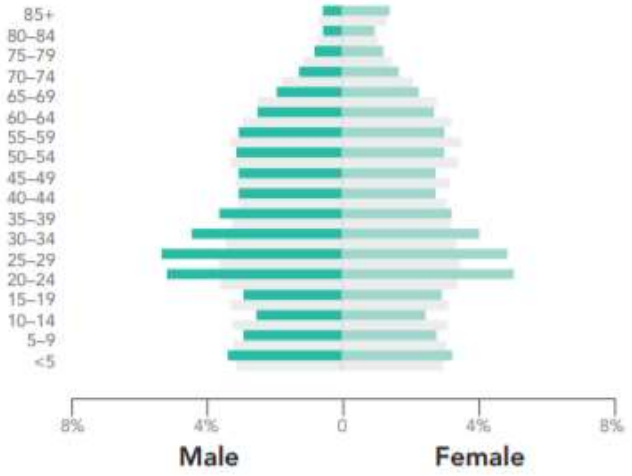
SOCIOECONOMIC TRAITS

- Residents are better educated and mobile.
- Unemployment is higher, although many are still enrolled in college (Index 141).
- They always have an eye out for a sale and will stock up when the price is right.
- They prefer name brands, but will buy generic when it is a better deal.
- Quick meals on the run are a reality of life.
- They're image-conscious consumers that dress to impress and often make impulse buys.
- They maintain close relationships with family.

AGE BY SEX (Esri data)

Median Age: 33.9 US: 38.2

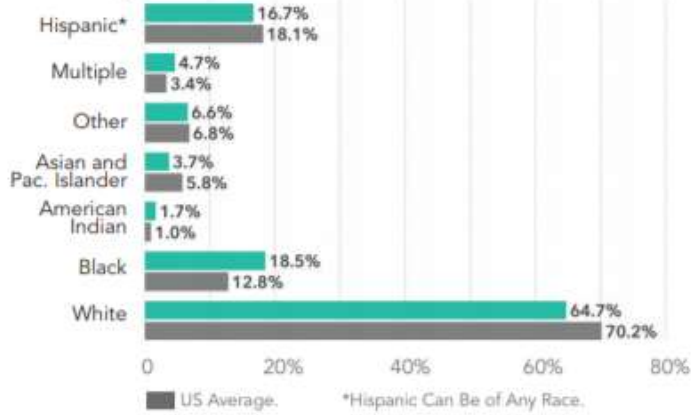
Indicates US



RACE AND ETHNICITY (Esri data)

The Diversity Index summarizes racial and ethnic diversity. The index shows the likelihood that two persons, chosen at random from the same area, belong to different race or ethnic groups. The index ranges from 0 (no diversity) to 100 (complete diversity).

Diversity Index: 67.2 US: 64.0



INCOME AND NET WORTH

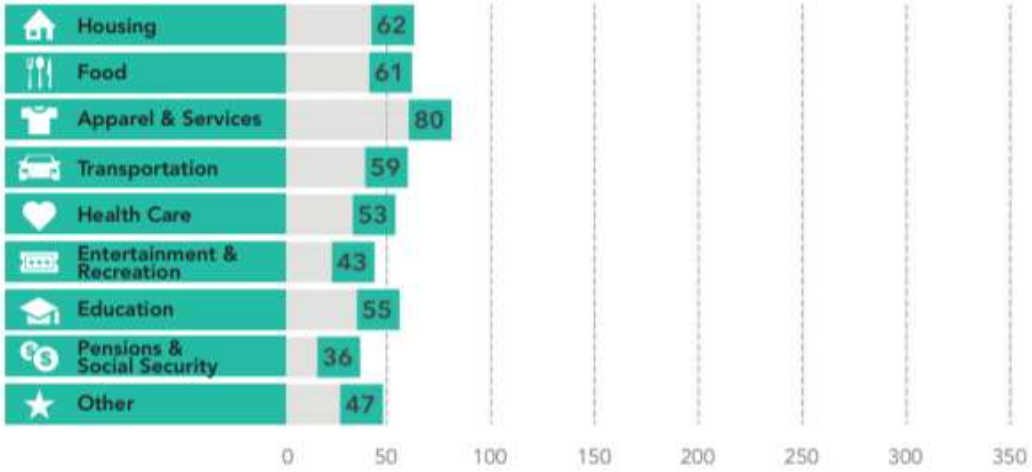
Net worth measures total household assets (homes, vehicles, investments, etc.) less any debts, secured (e.g., mortgages) or unsecured (credit cards). Household income and net worth are estimated by Esri.

Median Household Income

Median Net Worth

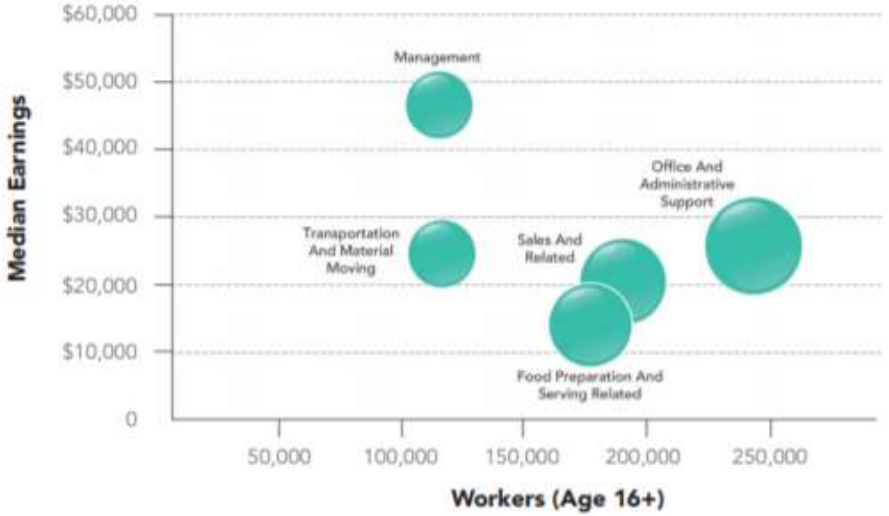
AVERAGE HOUSEHOLD BUDGET INDEX

The index compares the average amount spent in this market's household budgets for housing, food, apparel, etc., to the average amount spent by all US households. An index of 100 is average. An index of 120 shows that average spending by consumers in this market is 20 percent above the national average. Consumer expenditures are estimated by Esri.

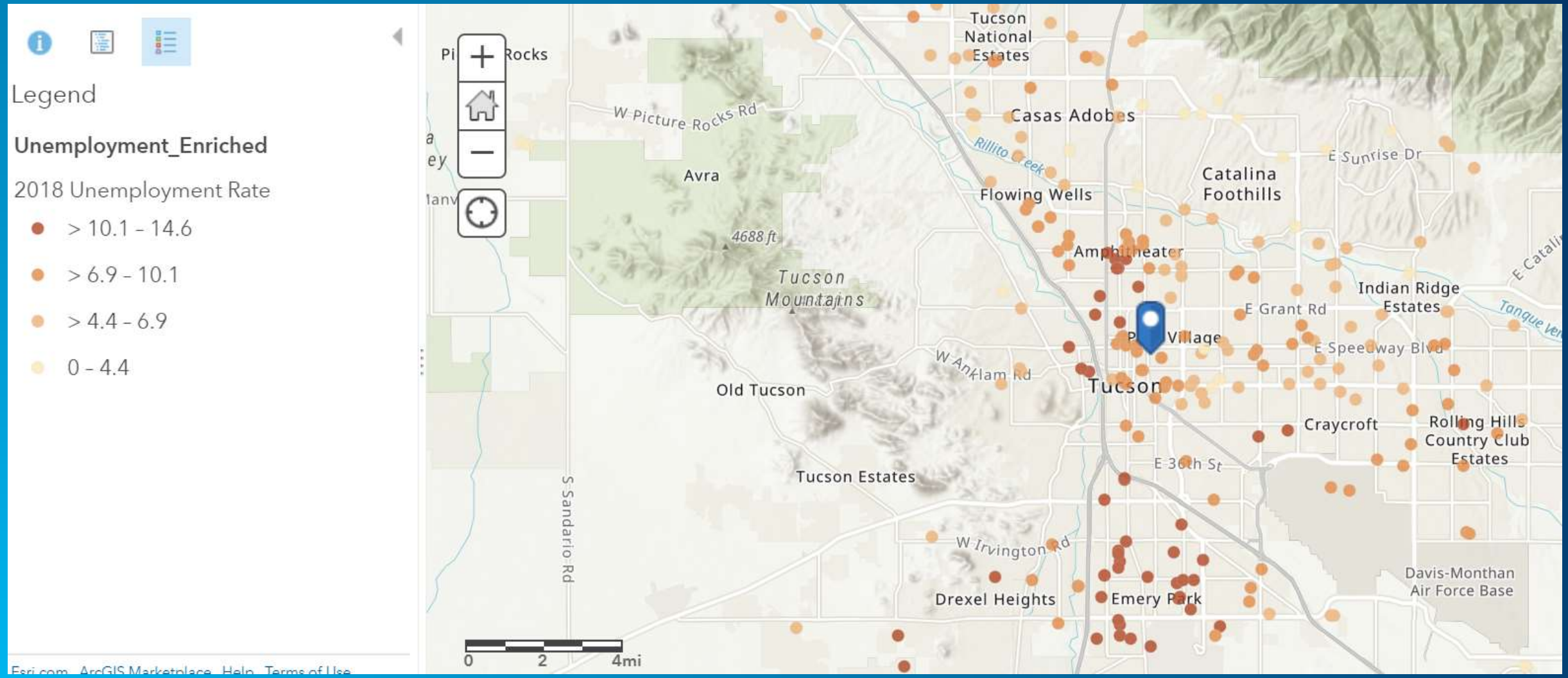


OCCUPATION BY EARNINGS

The five occupations with the highest number of workers in the market are displayed by median earnings. Data from the Census Bureau's American Community Survey.

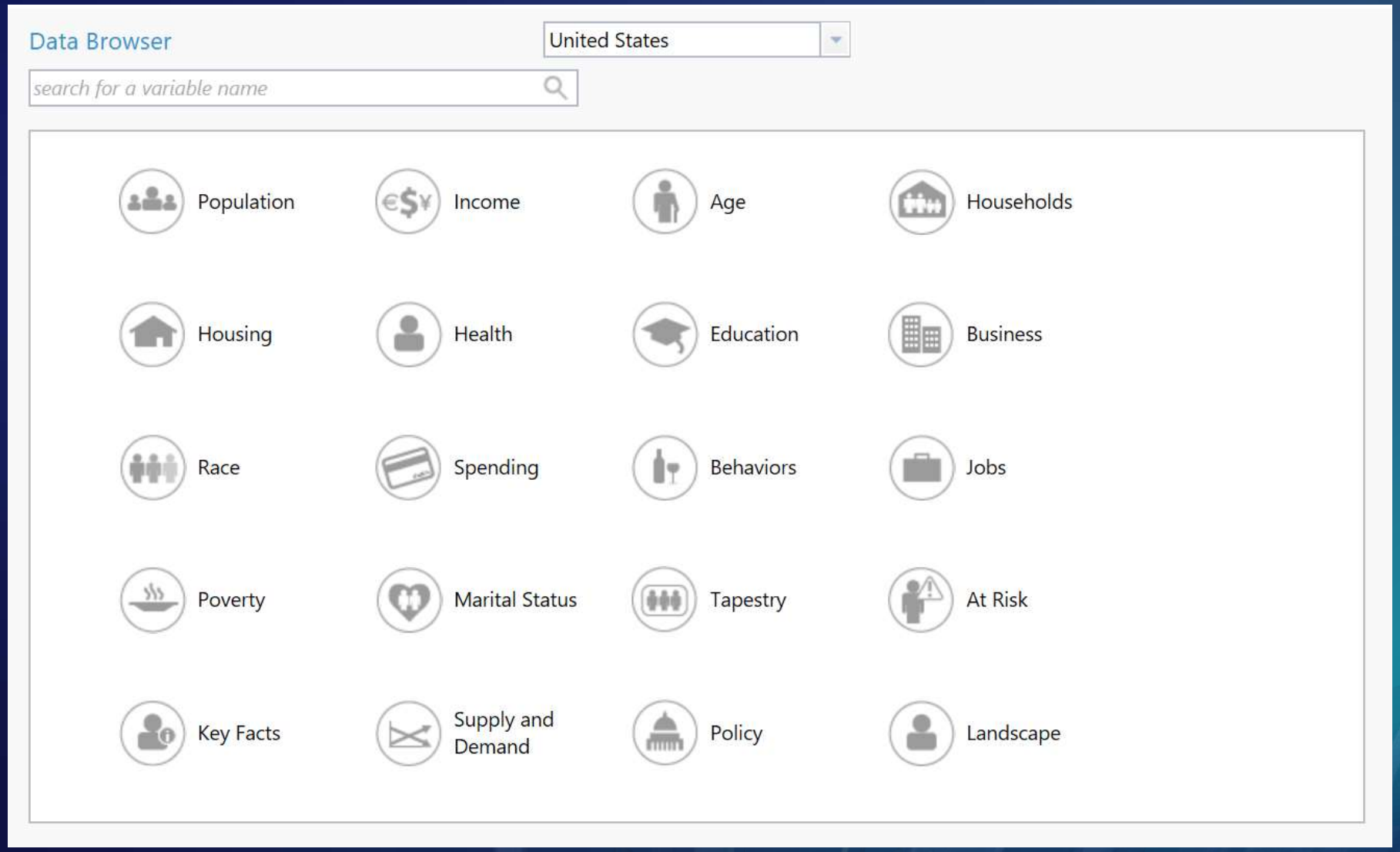


Lets Look at Unemployment…



Other Variables

http://doc.arcgis.com/en/esri-demographics



Dataset Fact Sheet, & Methodology

http://www.esri.com/data/esri_data/methodology-statements

- **Fact Sheet:** http://www.esri.com/library/fliers/pdfs/esri-data-fact-sheet.pdf

- **Tapestry Methodology:** https://support.esri.com/en/Products/More-Products/arcgis-living-atlas/esri-demographics/2017#knowledge-base/whitepaper?id=3571

Conclusion

- Worth is composed of subjective and objective factors, but can be quantified…
- … the audience is a key factor

- Using additional datasets in concert with earth observation data can help frame value measures

- Take a look at the enrichment tools, it may help with the framing…

- … or even better, provide a new dataset you can integrate for communicating worth

Sources

1. Hartman, Chron: http://smallbusiness.chron.com/real-value-vs-perceived-value-20857.html
2. Anderson & Narus, Harvard Business Review (HBR), Definition of Business Marketing Value: https://hbr.org/1998/11/business-marketing-understand-what-customers-value
3. Almquist, Senior, Bloch, Bain & Co., HBR, The Elements of Value…: https://hbr.org/2016/09/the-elements-of-value
4. http://humancond.org/analysis/economics/price_vs_worth_vs_value
5. Promodo Team, Promodo: https://www.promodo.com/blog/pricing-strategies-in-marketing-6-pricing-methods-for-your-business/

Laura McNulty, Manager, National Government Sciences, Esri
lmcnulty@esri.com

Christine White, Technical Advisor, Esri cwhite@esri.com

Tripp Corbett, NASA Account Manager Emeritus, Esri ccorbett@esri.com