



MEMORANDUM

Date: May 27, 2020

To: The Honorable Chairman and Members
Pima County Board of Supervisors

From: C.H. Huckelberry
County Administrator 

Re: **Vulnerable Populations Impacted by COVID-19**

Individual members of the Board of Supervisors have expressed concern about how the COVID-19 pandemic is impacting various vulnerable segments of the community. The Health Department and GIS has compiled an analysis (Attachments 1 and 2) that further sheds light on COVID-19 related deaths in Pima County.

Not surprisingly 80 percent of deaths in this community has occurred in individuals 65 years of age or older, and are almost evenly distributed between women and men (48 percent and 52 percent). With regards to racial/ethnic identity breakdown is 56 percent White (non-Hispanic), 32 percent Hispanic, 7 percent American Indian, 3 percent Black, 2 percent Asian/Pacific Islander, and 1 percent unknown. Diabetes, cardiac, pulmonary and kidney disease were the most common chronic conditions complicating the care of decedents.

To look at the impact of socio-economic status in this pandemic, the analysis applied the Centers for Disease Control (CDC) vulnerability index which takes into account poverty, educational attainment, housing type and language preference to the Pima County census tracts. Residential mapping of COVID deaths reveal that they are distributed throughout the entire geography of the County, however highest vulnerability (lowest socio-economic status) census tracts also have the highest number 38 and 27 percent of deaths in comparison to the lowest vulnerability (highest socio-economic status) census tracts which have the lowest COVID-19 mortality, 23 deaths and 16 percent death. Likewise, licensed long-term care and assisted living facilities which take care of the oldest and most medically frail members have been particularly hard-hit by the pandemic nationally and in this County. These facilities are dispersed through the community but tend to be located in areas of greater population density and some also fall in census tracts with high vulnerability.

The COVID-19 pandemic has impacted the entirety of this community, but the burden of mortality appears to be impacting low-income/low socio-economic status individuals, in part because a disproportionate burden of medical co-morbidities which increase the lethality of this infection especially among older populations. Additionally, the partnership with the Federally Qualified Health Centers (Desert Senita, El Rio, Marana and United Community health centers) is predicated on the unique role they serve in meeting the medical needs of our most vulnerable Pima County Residents. For these groups, we have assisted in the very significant expansion of testing capacity, provision of PPE, and coordination of care for those

The Honorable Chairman and Members, Pima County Board of Supervisors

Re: **Vulnerable Populations Impacted by COVID-19**

May 27, 2020

Page 2

impacted with COVID-19. Our Health Department fully recognizes the uneven medical and social vulnerability of segments of our community and is pledged to continue to address these unique needs.

CHH/lab

Attachments

- c: Jan Leshner, Chief Deputy County Administrator
- Francisco García, MD, MPH, Deputy County Administrator & Chief Medical Officer
Health and Community Services
- Bob England, MD, MPH, Director, Health Services

ATTACHMENT 1

Vulnerability assessment and trend analysis for COVID-19 cases in Pima County

Introduction

The following report contains two parts. The first includes a trend analysis of COVID-19 case demographics observed since the start of the pandemic up to May 16, 2020. The second part includes a series of maps highlighting vulnerable populations by census tract in Pima County. The report in its entirety is intended to provide a preliminary analysis of COVID-19 deaths and confirmed cases in Pima County. It is not meant to capture the nature of the disease itself. Instead, this is an objective review of data to establish a demographic overview of important trends and geographic clusters. The primary interest is to document the indirect impacts to vulnerable populations, define the vulnerability measures, and to detect disproportionate outcomes associated with the current environmental changes stemming from isolation, decreased access to resources, and severe economic decline.

Part 1: Demographics and trend analysis

The data below represent COVID-19 deaths from March 22 – May 16, 2020. Cases include decedents with a finalized death certificate (167). There are 6 pending cases not included at this time. All decedent demographic data is based on death certificate. Medical comorbidities were collected from hospital discharge data, death certificate, and MEDSIS.

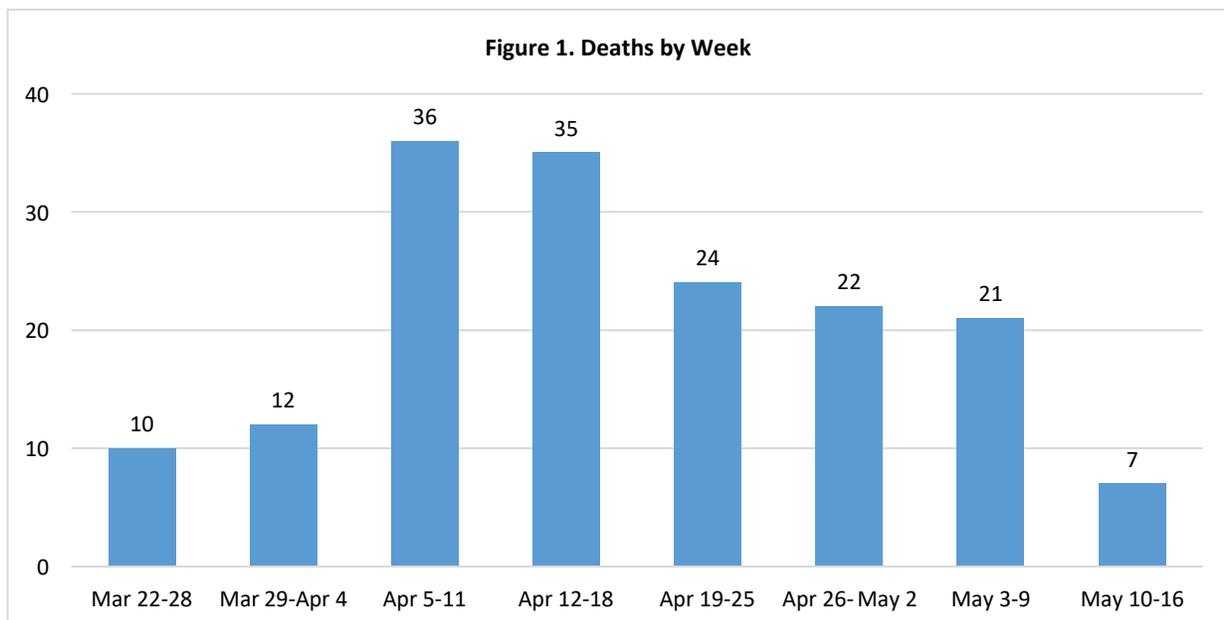


Figure 2. Decedents by Sex

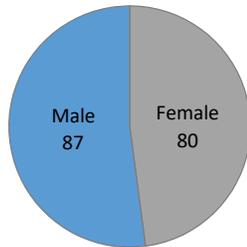


Figure 3. Decedents by Age Group

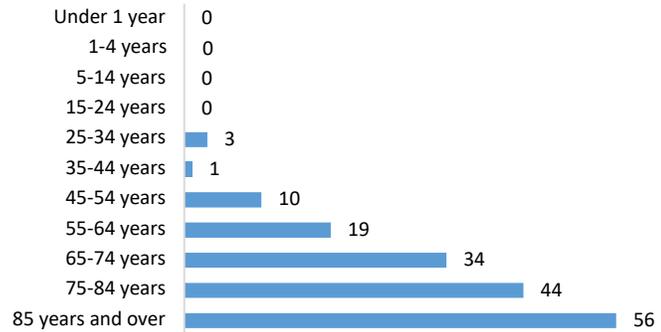


Figure 4. Decedents by Race/Ethnicity

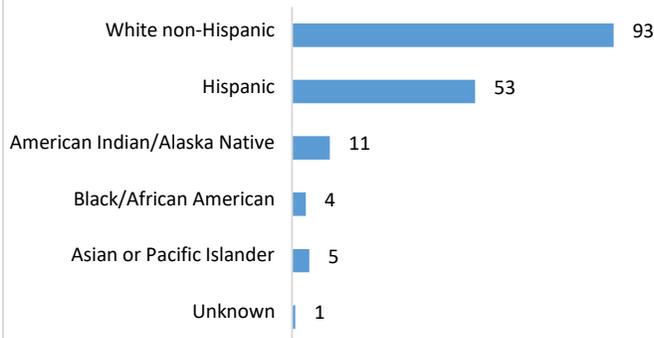


Figure 5. Decedents' Educational Attainment

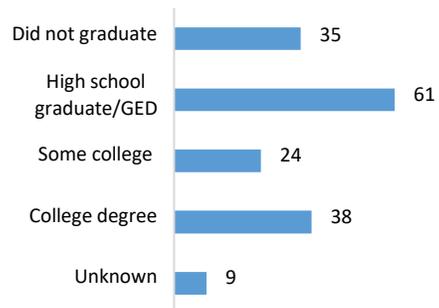
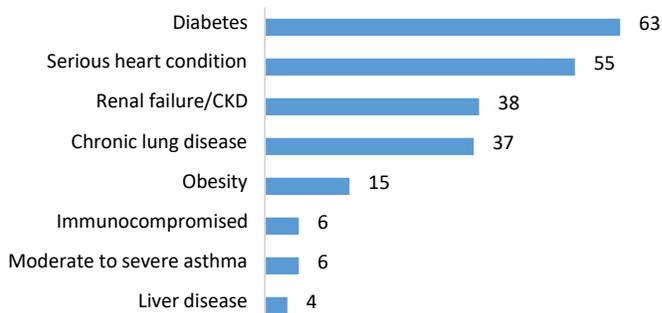
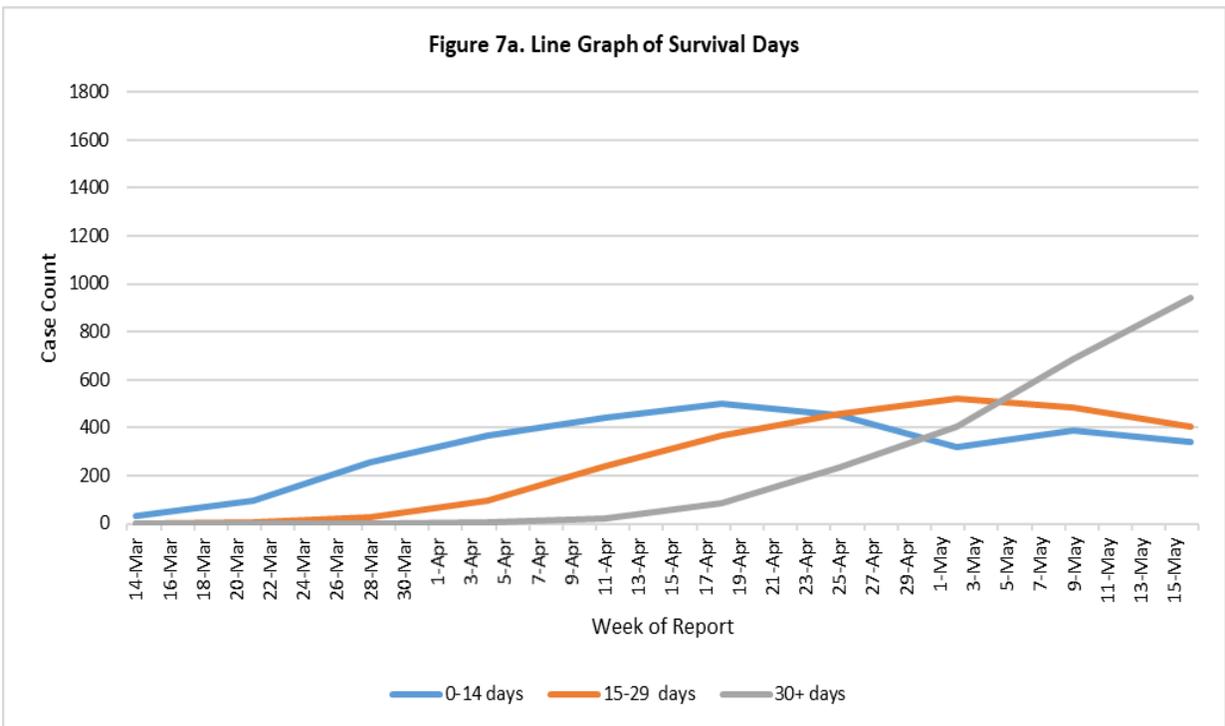
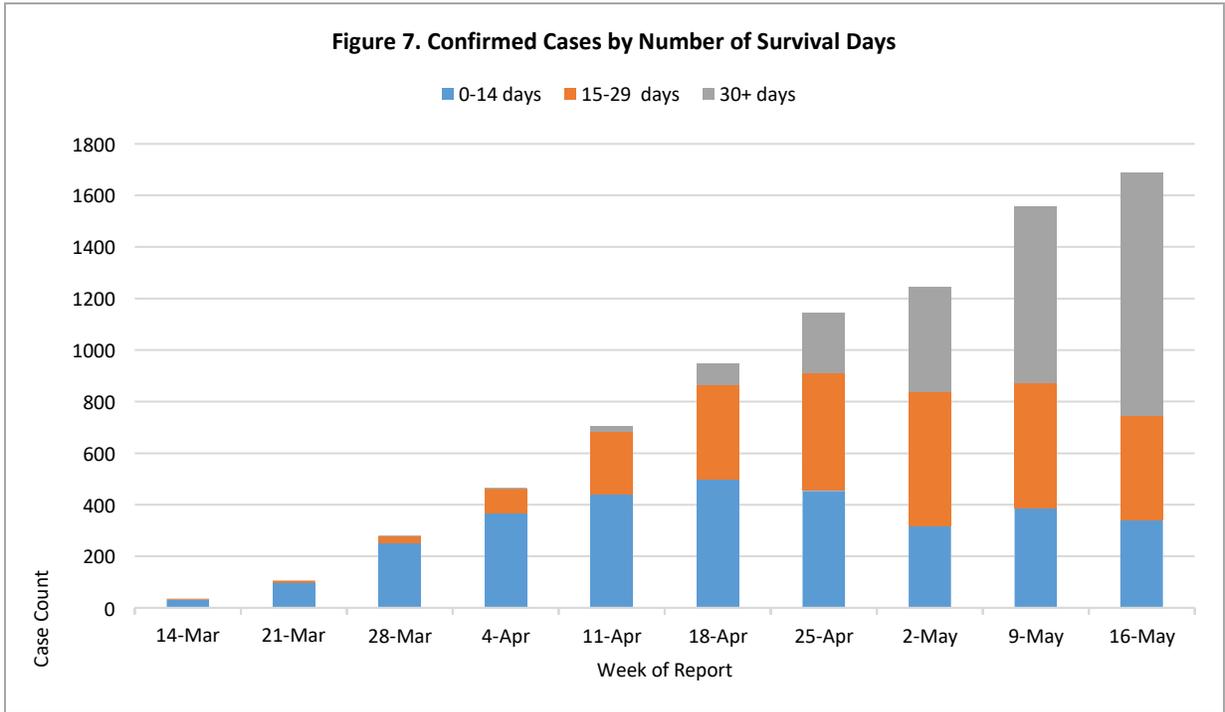


Figure 6. Presence of High-Risk Chronic Condition





Part 1 Summary:

Morbidity trends – The number of deaths continues to drop and has been on a downward trend since the middle of April (*figure 1*). The most significant factor for severe illness/death from this virus continues to be individuals over the age of 50 who have underlying medical conditions. The top three chronic conditions decedents share in common in Pima County include diabetes, heart disease, and renal failure (*figure 6*).

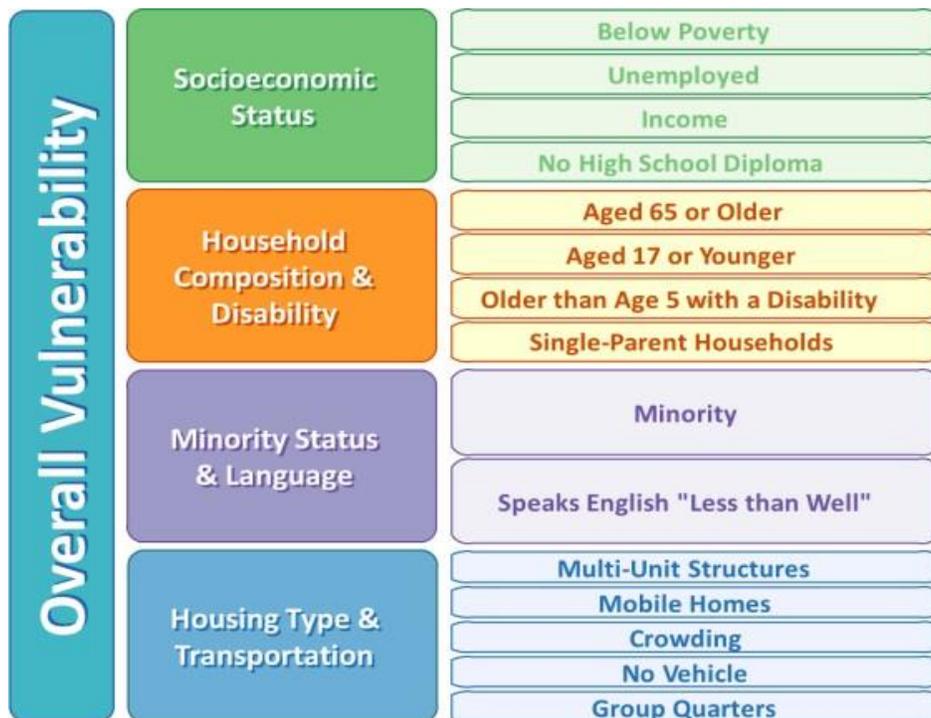
Confirmed case “survival days” trends – There are encouraging trends seen in the number of COVID-19 survivors here in Pima County (*figure 7*). Since March, the number of survivors who have made it beyond 30 days post event date (date diagnosed) continues to climb. While data alone is not an exact indicator of the rate of recovery, the sharp upward trend certainly speaks to the growing number of patients who have not died from the virus and are in some phase of recovery. If these estimates are accurate and the trends are truly decreasing, we would expect to see the 0-14 day (blue bar) and 15-29 day (orange bar) continue to decrease and the 30+ days (grey bar) continue to increase over time.

Demographic trends – Race and ethnicity in Pima County appears to be less of a risk factor for severe illness and death from COVID-19 in comparison to age, underlying medical conditions, and poverty. The most statistically significant indicators include individuals over the age of 50 and those without college education. The latter is likely more closely related to poverty and decreased access to resources.

Part 2: Vulnerability census tract mapping

The vulnerability measures pictured below are from the CDC's Social Vulnerability Index (CDC-SVI), which maps out physical boundaries based on census tracts and indicates relative vulnerability of each tract based on social factors. The CDC-SVI approach was critical in this analysis as it incorporates an expanded list of risk factors that will help capture how our local vulnerable populations are being impacted based on their geographic location. This may also help support widespread community outreach and engagement efforts to assist individuals most negatively impacted.

Figure 8. CDC-SVI Variables



For comparison across Pima County, a social vulnerability scale (Pima-SVS) based on the CDC-SVI overall vulnerability scores was created. Values ranged from zero to one. The scale consists of four categories Q1, Q2, Q3, and Q4, defined by 25th, 50th, and 75th percentile of overall vulnerability scores for the county.

Figure 9. Pima County Social Vulnerability Scale Map by Census Tracts:

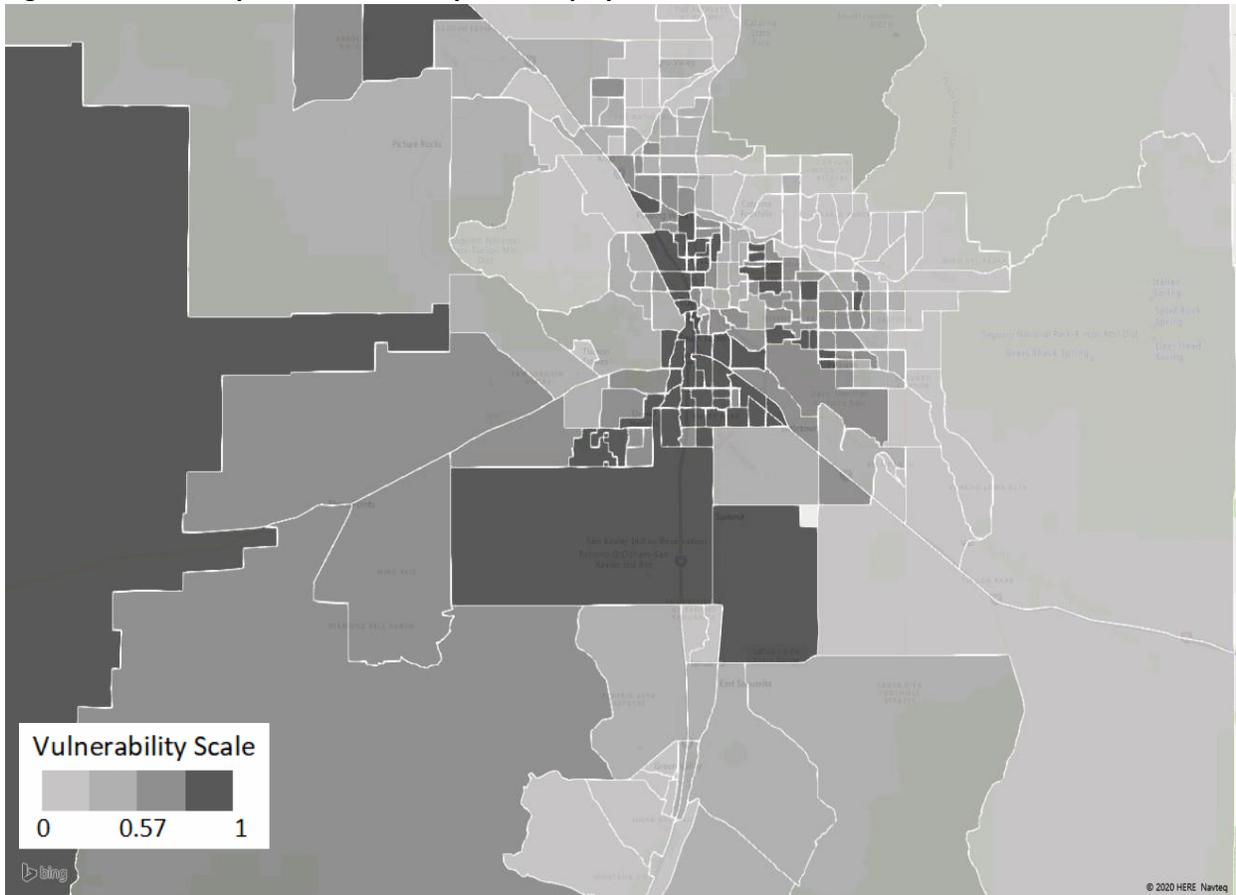


Figure 10. All Confirmed COVID-19 Cases as of 5/14/2020: The heat map pictured below contains concentrations of all confirmed COVID-19 cases in Pima County in correspondence with the social vulnerability scale map. This map includes decedents but excludes cases on the Tohono O’odham Nation and Pascua Yaqui Reservation.

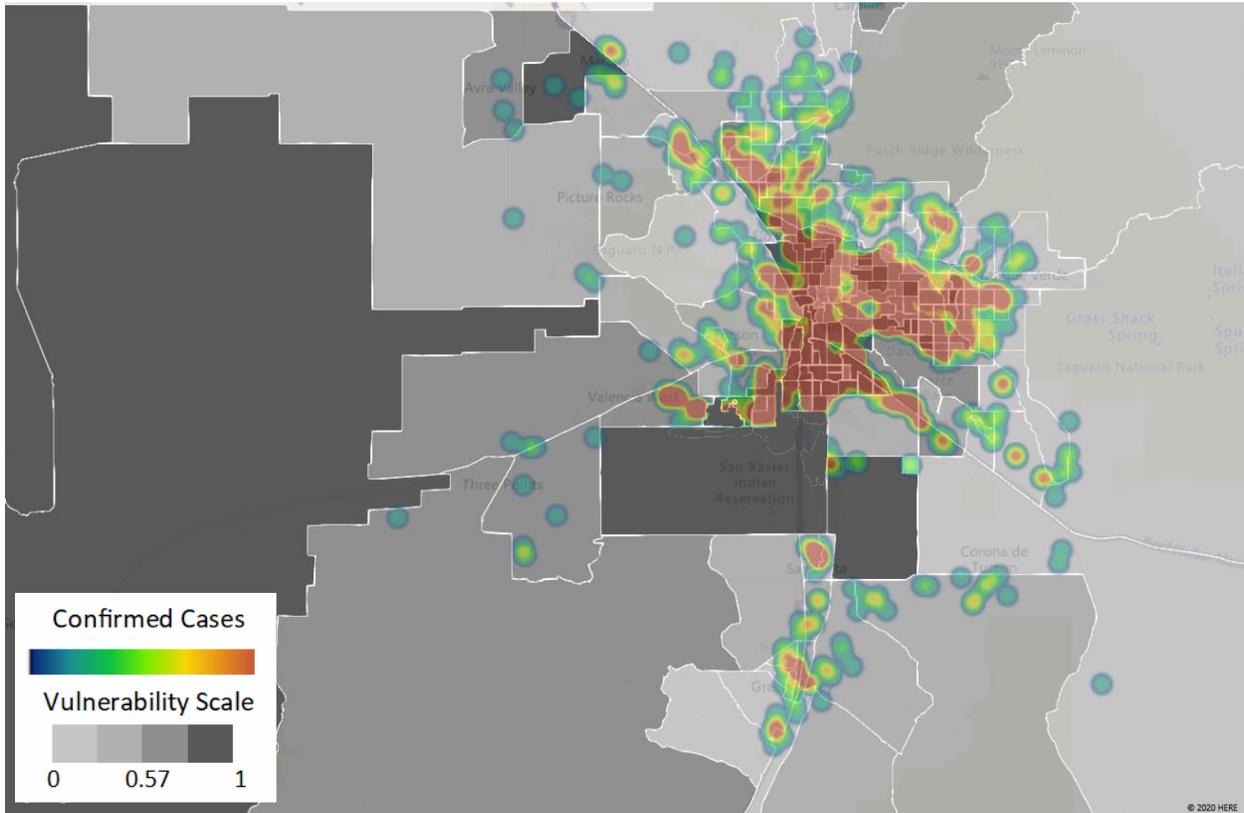


Figure 11. Most Recent Confirmed COVID-19 Cases: The heat map pictured below contains concentrations of confirmed COVID-19 cases for 5/1/2020 – 5/14/2020 in Pima County in correspondence with the social vulnerability scale map. This map includes decedents but excludes cases on the Tohono O’odham Nation and Pascua Yaqui Reservation.

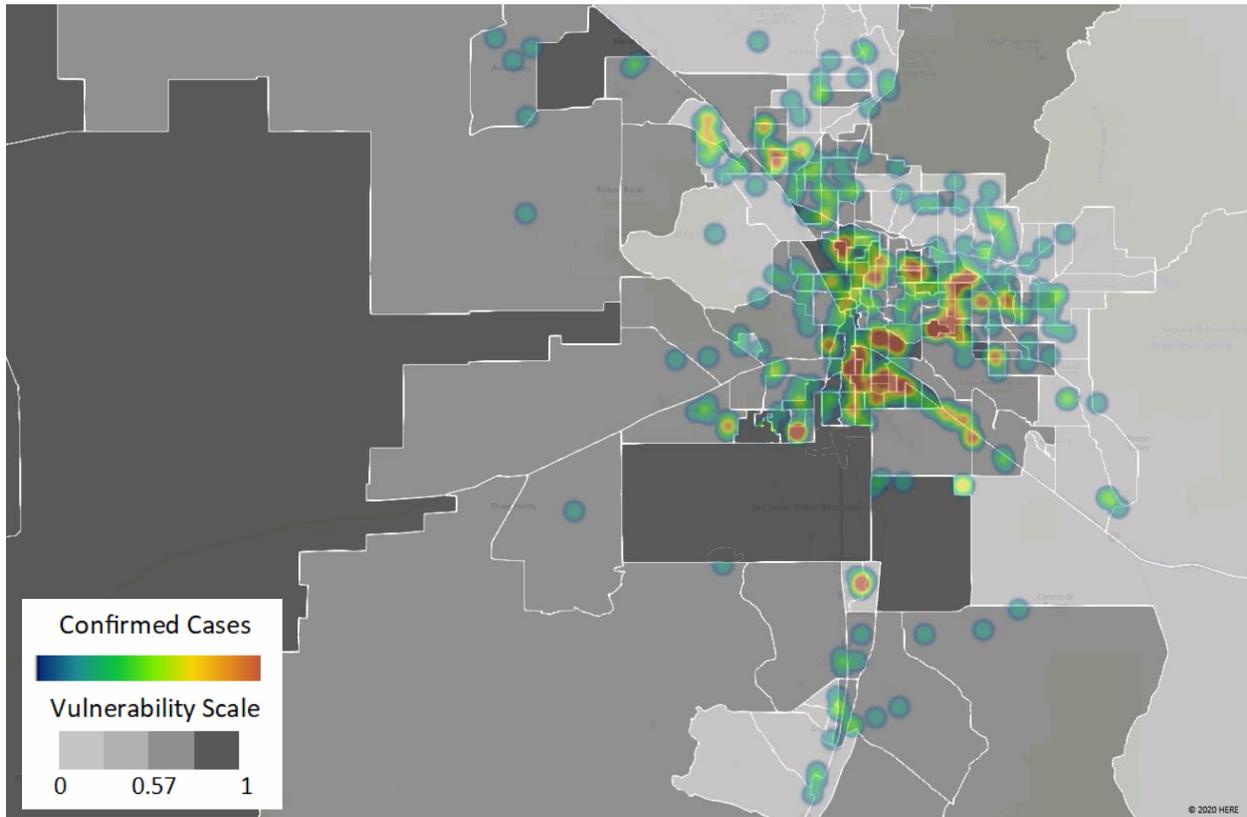


Figure 12. Facilities with Certified COVID-19 Fatalities: The image below shows a heat map of licensed long term care (LTC) and Assisted Living Facilities (ALF) by location. Locations with a white circle represent facilities that have reported one or more COVID-19 deaths. Note: the larger the circle the greater the number of COVID-19 deaths at a given location. Areas without a white dot indicate facilities that have no reported deaths to date. This data does not include retirement communities or apartment living settings.

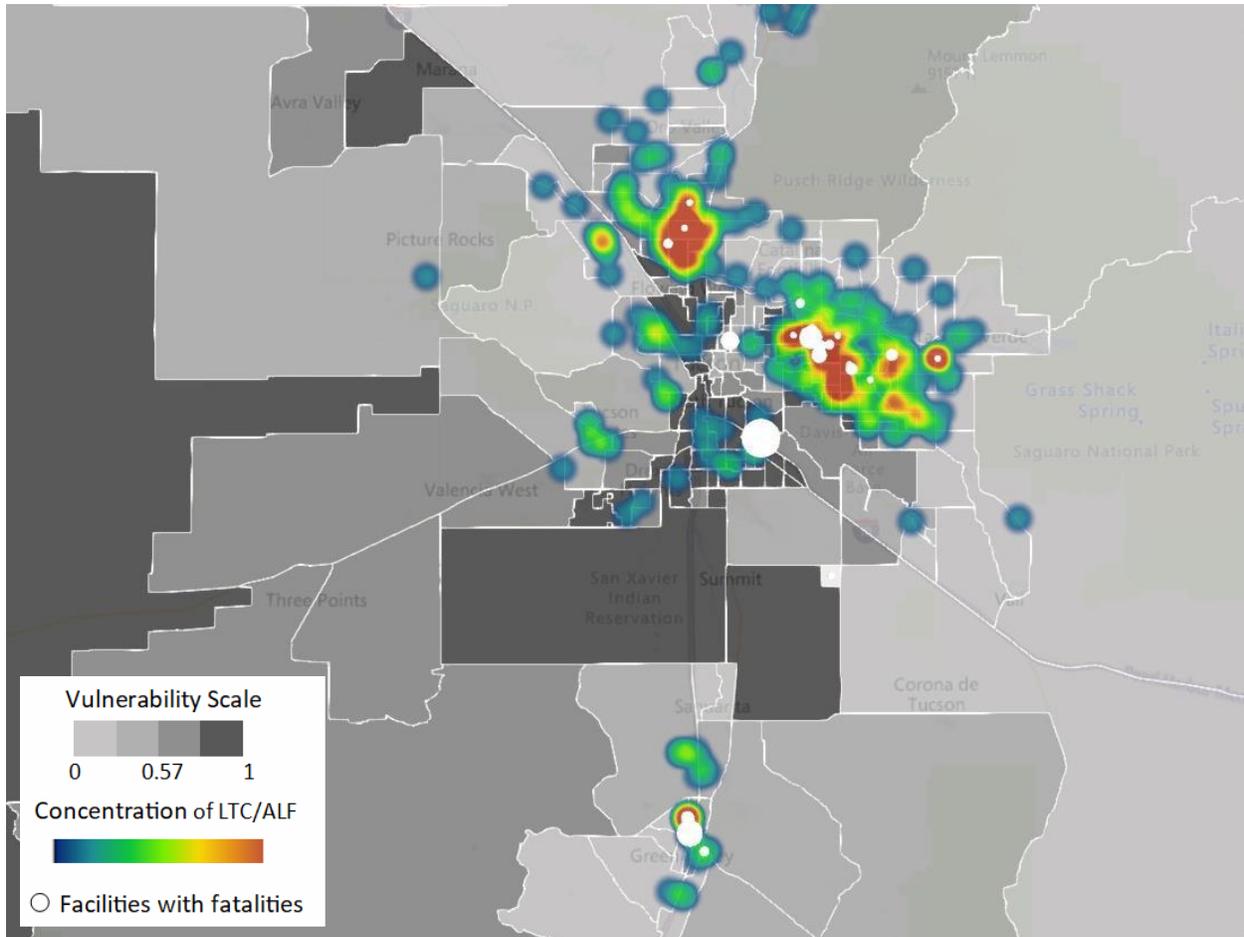
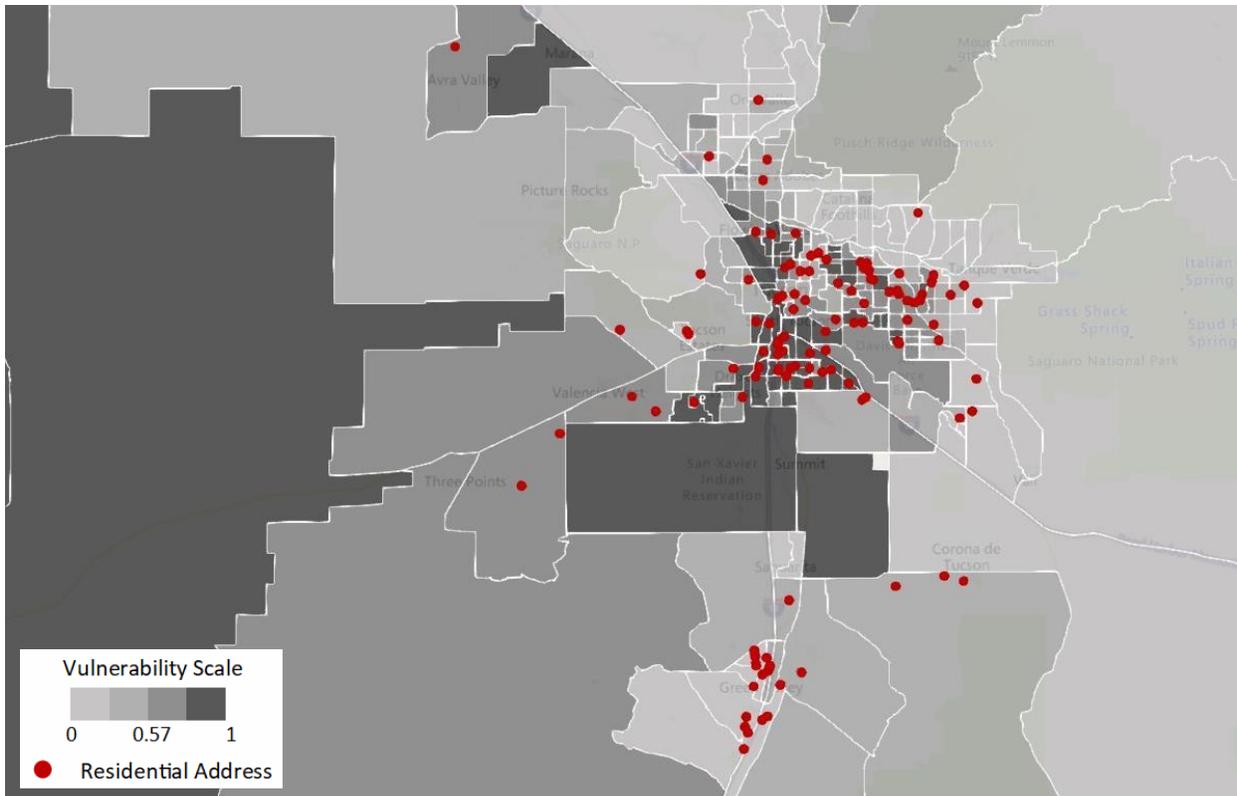
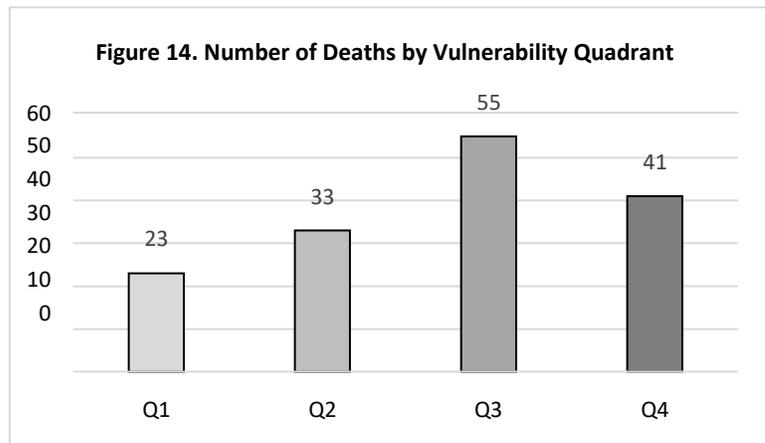


Figure 13. Residency of Certified COVID-19 Deaths: Below is a map of decedents’ residential address corresponding with the Pima-SVS. Mapped residential addresses indicate at least one death at that address. Multiple addresses have more than one fatality. Out of 167 decedents, two decedents with unknown addresses and thirteen with residential addresses outside the county are not mapped. Data does not incorporate any deaths from tribal nations. The purpose of this map is to display a decedent’s normal residence in proximity to the vulnerability scale. It does not show the location where a person died as some people may have died in their own residence or elsewhere.



The graph to the right shows residential location of 152 decedents according to where they fall on each quartile of the Pima-SVS. Level of vulnerability increases on the graph from left to right (i.e. lowest vulnerability is Q1 and the highest is Q4). In terms of percentages Q1 contained 15% of the total number of decedents, Q2 contained 22%, Q3 contained 36%, and Q4 contained 27%.



Part 2 Summary:

While all four quadrants of the census tracts shown above indicate some level of vulnerability, the overall trend shows a correlation between higher vulnerability scores and clusters of fatalities. There were a total of 96 decedents in quartiles scoring 0.57 – 1.0 in vulnerability compared to 56 decedent in the quartiles scoring 0 – 0.57. The quartile with the lowest number of decedents (23) was also the lowest on the vulnerability scale. These trends are pictured above in *figure 14*.

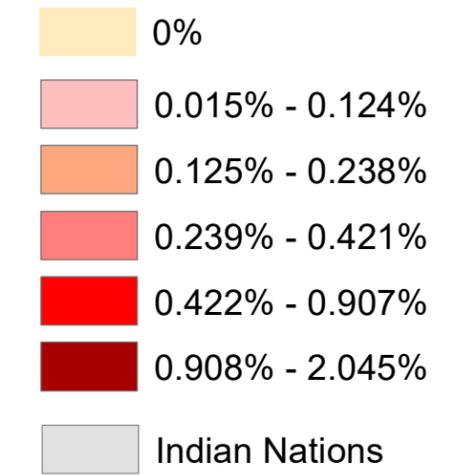
A similar trend can also be seen in *figure 12*, with the majority of the long term care and assisted living facilities experiencing fatalities also being located in vulnerable regions, mainly in central Tucson and Green Valley. Population density certainly plays a major factor in these clusters. However, adjustments should be made to analyze a more in depth review of the local population in alignment with the major risk factors for severe illness and death from COVID-19. Population density alone is not a fair representation. We recommend further detailed review to adjust population denominators by age and comorbidities.

ATTACHMENT 2

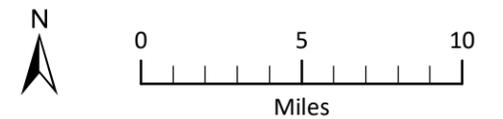
COVID-19 Reported Cases Up Until May 23 by Census Tract

Cases As Percentage of Census Tract Population

● Locations where Cases \geq 5



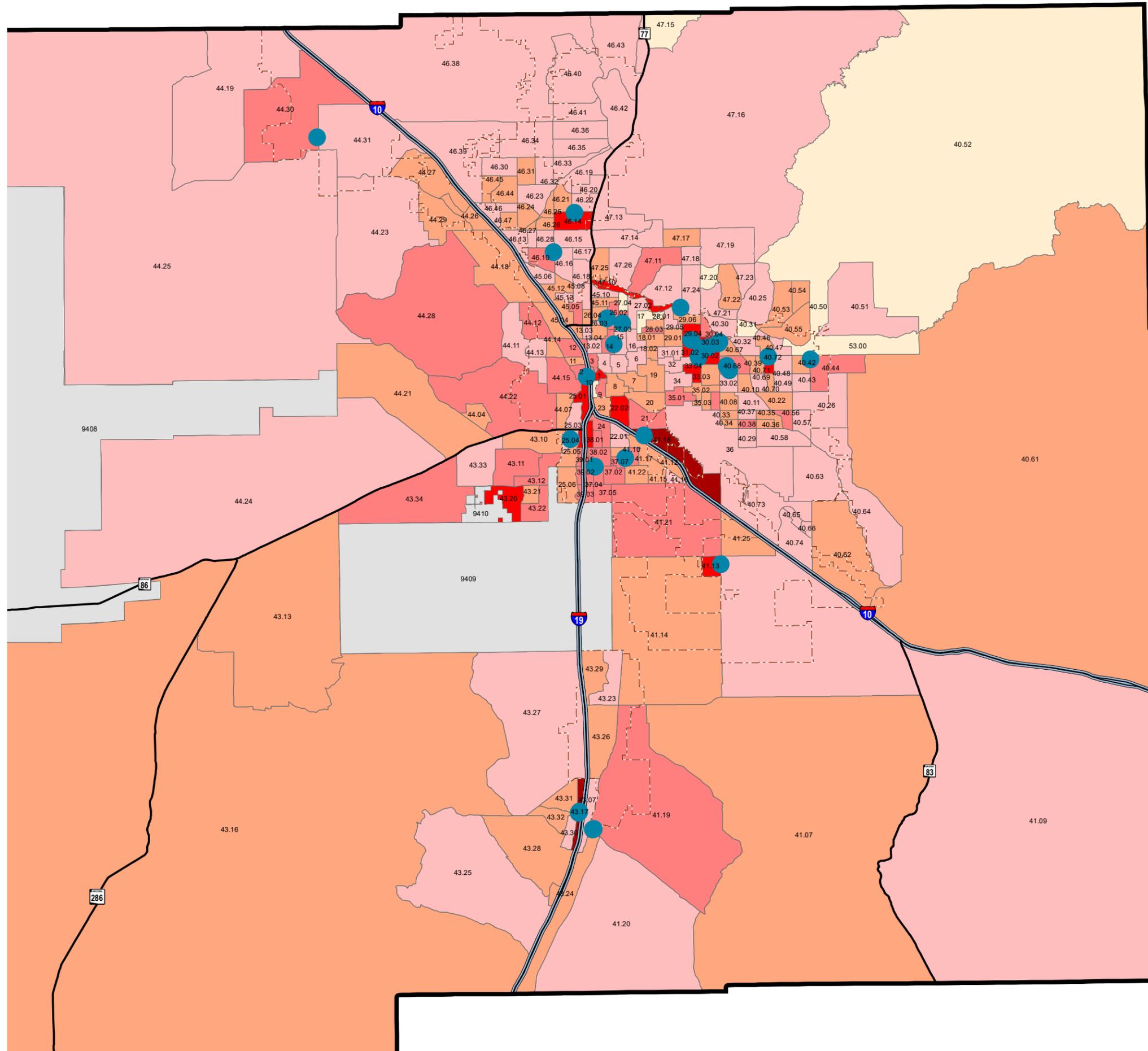
Not Mapped (50)
i.e. PO Box, Outside County,
Invalid County Address



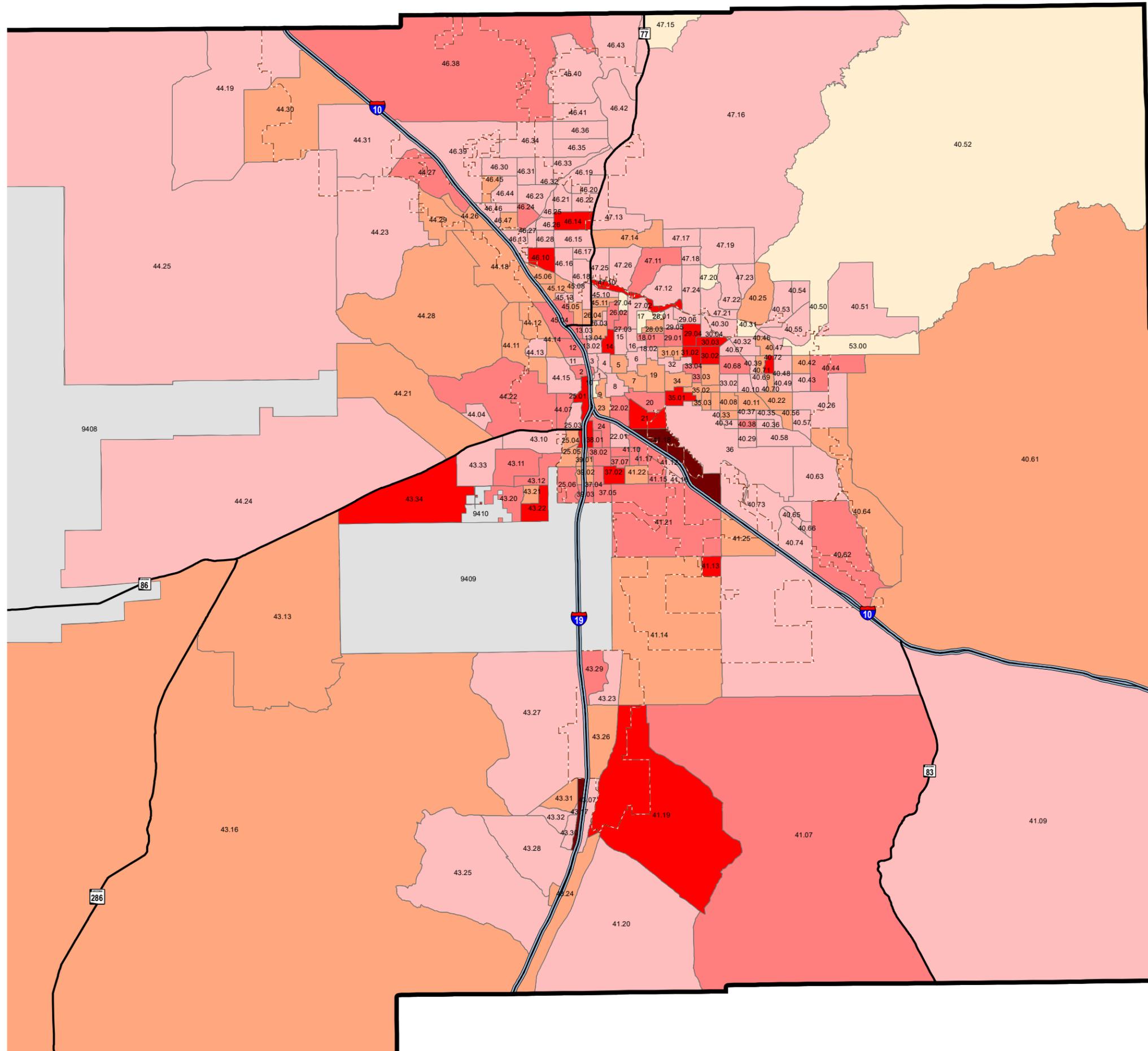
GEOGRAPHIC INFORMATION SYSTEMS

Pima County Info. Tech. Dept.
33 N. Stone Ave., 15th Floor
Tucson, AZ 85701-1207
phone: (520)740-6670
fax: (520)798-3429

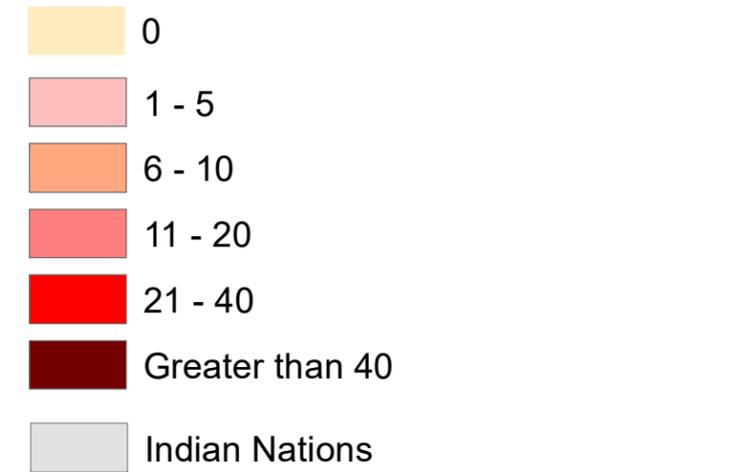
5/26/2020



COVID-19 Reported Cases Up Until May 23 by Census Tract



Number of Cases per Census Tract



Not Mapped (50)
i.e. PO Box, Outside County,
Invalid County Address

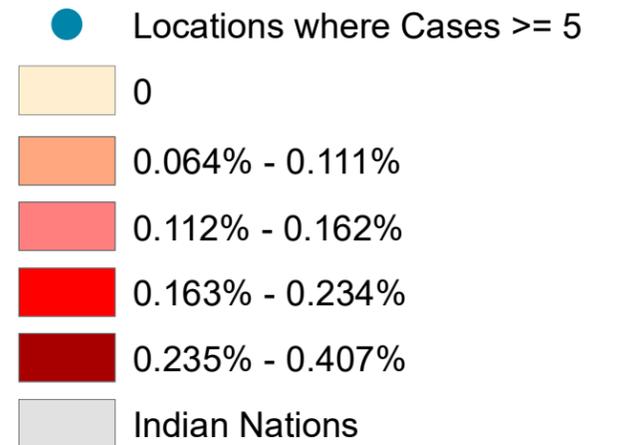



PIMA COUNTY
GEOGRAPHIC INFORMATION SYSTEMS
Pima County Info. Tech. Dept.
33 N. Stone Ave., 15th Floor
Tucson, AZ 85701-1207
phone: (520)740-6670
fax: (520)798-3429

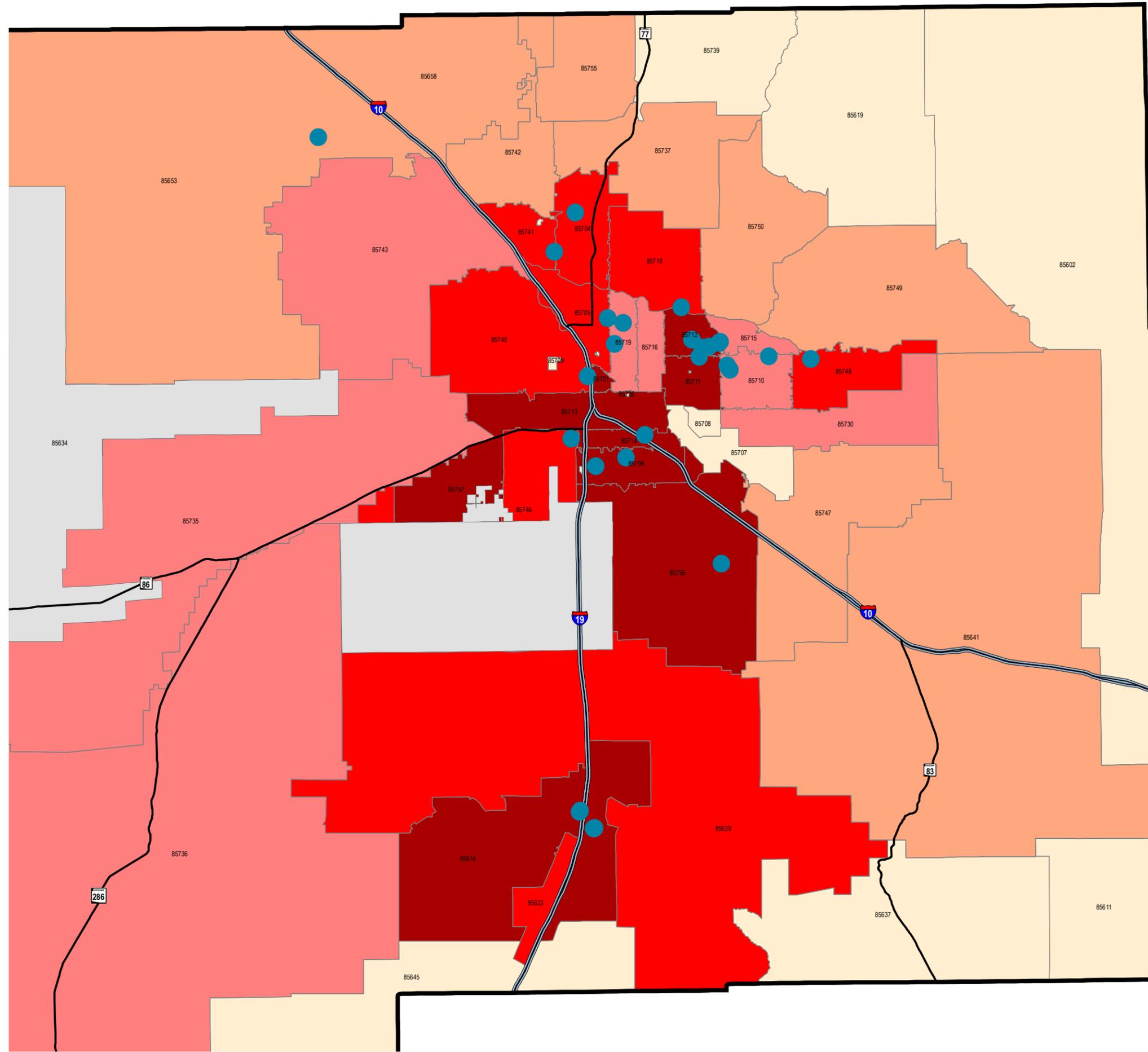
5/26/2020

COVID-19 Reported Cases Up Until May 23 by Zip Code

Cases as Percentage of Zip Code Population

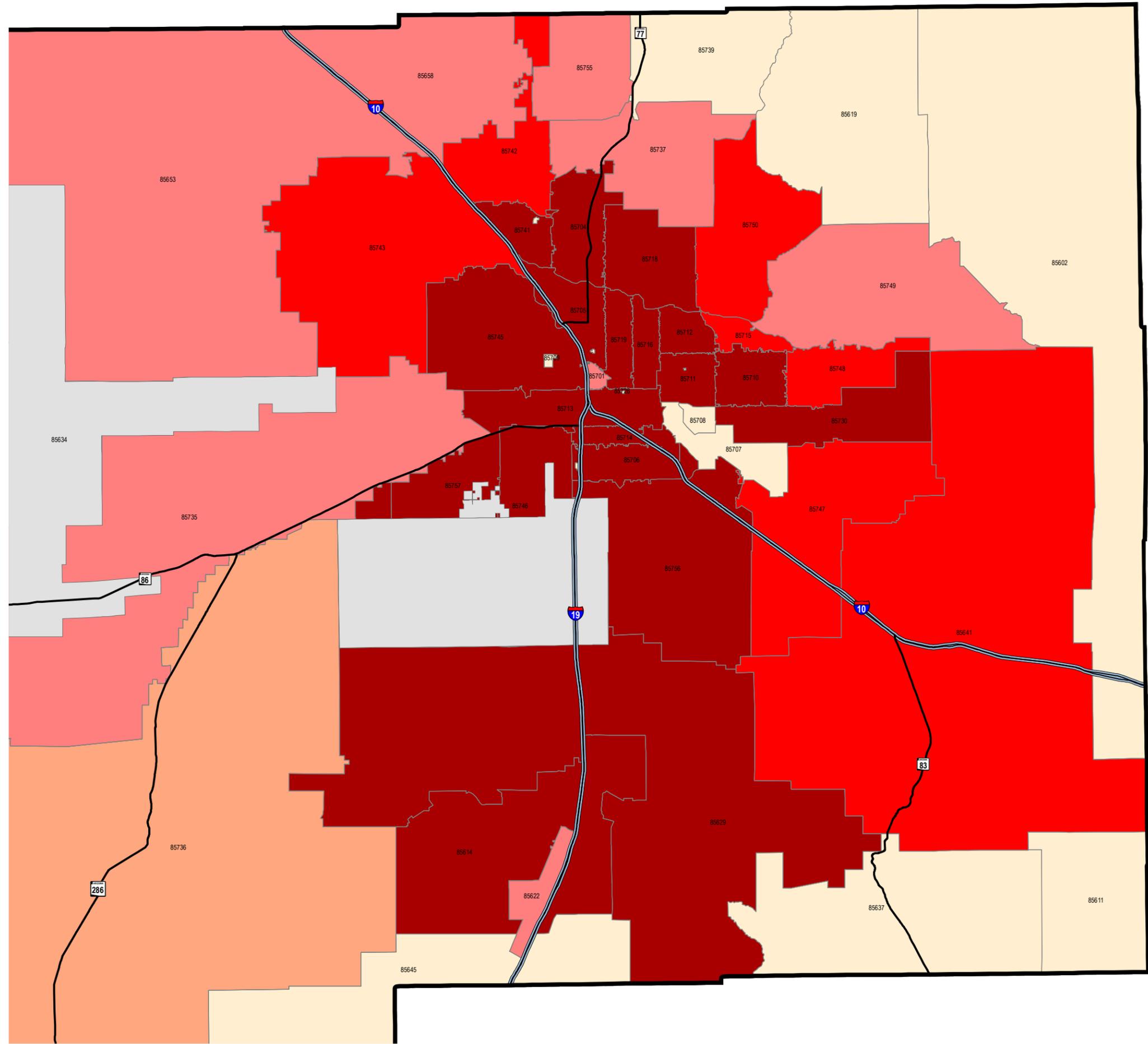


Not Mapped (50)
i.e. PO Box, Outside County,
Invalid County Address

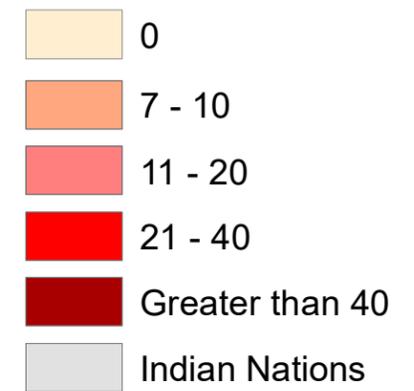


5/26/2020

COVID-19 Reported Cases Up Until May 23 by Zip Code



Number of Cases per Zip Code



Not Mapped (50)
i.e. PO Box, Outside County,
Invalid County Address



GEOGRAPHIC INFORMATION SYSTEMS

Pima County Info. Tech. Dept.
33 N. Stone Ave., 15th Floor
Tucson, AZ 85701-1207
phone: (520)740-6670
fax: (520)798-3429

5/26/2020