



UTEP
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HUNT INSTITUTE
FOR GLOBAL COMPETITIVENESS



IDENTIFYING DIGITALLY UNDERSERVED COMMUNITIES: EL PASO

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Introduction

The importance of high-speed internet access cannot be overstated, as it has increasingly become essential for telework, telehealth, and remote education. The COVID-19 global pandemic hurriedly expanded the use of broadband internet access in our lives as a necessity and not a luxury. Unfortunately, El Paso, Texas finds itself as a digitally underserved county.

In 2021, under the CARES Act Funding, the Hunt Institute for Global Competitiveness at the University of Texas at El Paso was contracted by and worked with the County of El Paso and the El Paso Community Foundation to assess broadband connectivity in El Paso. The Hunt Institute found that the county's ability to access broadband is much lower than the ability reported by the Federal Communications Commission (FCC): only 56.7% of household respondents and 72.7% of business respondents reported having access meeting the broadband definition. This is in sharp contrast to the figure that the FCC reports, which states that 99.5% of the El Paso County's urban population meets the minimum standards to be considered as broadband.

The Rio Grande Council of Governments (RGCOC) is aware of El Paso County standing in digital access. In an effort to support the strategic economic prosperity and resiliency plans of the Rio Grande Comprehensive Economic Development Strategy (CEDS), the RGCOC contracted the Hunt Institute to conduct a study to create and carry out proactive action plans to seek private and public investment for broadband infrastructure improvements in the Paso del Norte region. The deliverables in this report allow the RGCOC not only to identify the communities in El Paso County that are digitally unserved and underserved and their existing broadband infrastructure but also to elucidate where these communities stand by other measures.

El Paso County is historically underserved by several other measures. The Economic Development Administration (EDA) criteria define El Paso as a county with persistent poverty. In 2021, about a fifth of the share of the population was below poverty levels (19.3%) in El Paso, much higher than that of Texas (14.0%) or the U.S. (12.6%). Additionally, median household income in El Paso (\$50,919) was about three-quarters that of Texas (\$67,321) and the U.S. (\$69,021). Furthermore, El Paso County predominantly serves a minority population, with 82.9% of its residents identifying as Hispanic in 2021.

This report complements the online interface that presents broadband connectivity assets contrasted with socio-economic indicators in El Paso County where users can interact with these layers of data. Given the limitations of describing such a dynamic environment on paper, readers are encouraged to access the online platform. The platform also includes an instruction manual of how to best utilize the platform. The interface can be accessed at this [website](#).

Methodology

The objective of this study is to identify and characterize digitally underserved and unserved communities in El Paso County and elucidate the areas with broadband infrastructure gaps and in most need of funding. This objective was achieved in three tasks.

Task 1 involved mapping the collection of selected demographic indicators from the U.S. Census Bureau against broadband connectivity needs. This involved collecting the following demographic indicators by census tract (unless otherwise specified):

- Population Density
- Housing Density
- Business Density by Zip Code
- Hispanic Population
- Non-Hispanic Population
- Median Household Income
- Population below Poverty Level (%)

For Task 2, the Institute measured and mapped the combined data for residential and business fixed broadband connectivity use through the maximum advertised download and upload speeds by census block provided by the FCC and cross-referenced these speeds with broadband infrastructure gaps in El Paso County. In November 2022 the FCC released the maximum advertised download and upload speed by census block. Since no other internet speeds were released by the FCC, this analysis covers the maximum advertised speeds by provider in El Paso by census tract, after the Institute transformed FCC census block data to census tract. The Institute further analyzed the service providers by their maximum, median, average, and the minimum of the maximum advertised upload and download speeds by census tract. For this analysis, the Hunt Institute analyzed 188 census tracts and 23 Zip Codes in El Paso County.

Task 2 was also complemented through use of information from surveys sent out in 2021 that the El Paso County and the El Paso Community Foundation contracted the Hunt Institute to conduct the assessment of broadband connectivity in El Paso under CARES Act Funding.

Finally, Task 3 involved using databases to develop an asset map to outline and illustrate the current broadband infrastructure and service gaps in El Paso County for public broadband access. The data collected was cellular towers, Fiberlight, and Lit Buildings in El Paso. For this task, the Institute mapped the maximum upload and download speeds and the broadband service providers with their maximum upload and download speeds.

The Institute estimated the indicators below with the collected data by census tract (unless otherwise specified):

- Population Density: The ratio of the overall population per square mile
- Housing Density: The ratio of the house units per square mile
- Business Density: The ratio of the business establishments per square mile by Zip Code
- Average of the Maximum Advertised Upload Speeds
- Average of the Maximum Advertised Download Speeds
- Broadband Service Providers of Maximum of the Maximum Advertised Upload Speeds
- Broadband Service Providers of Maximum of the Maximum Advertised Download Speeds
- Broadband Service Providers of Median of the Maximum Advertised Upload Speeds
- Broadband Service Providers of Median of the Maximum Advertised Download Speeds
- Broadband Service Providers of Minimum of the Maximum Advertised Upload Speeds
- Broadband Service Providers of Minimum of the Maximum Advertised Download Speeds

Proper definitions from the U.S. Census Bureau and the FCC can be found in the Glossary section.

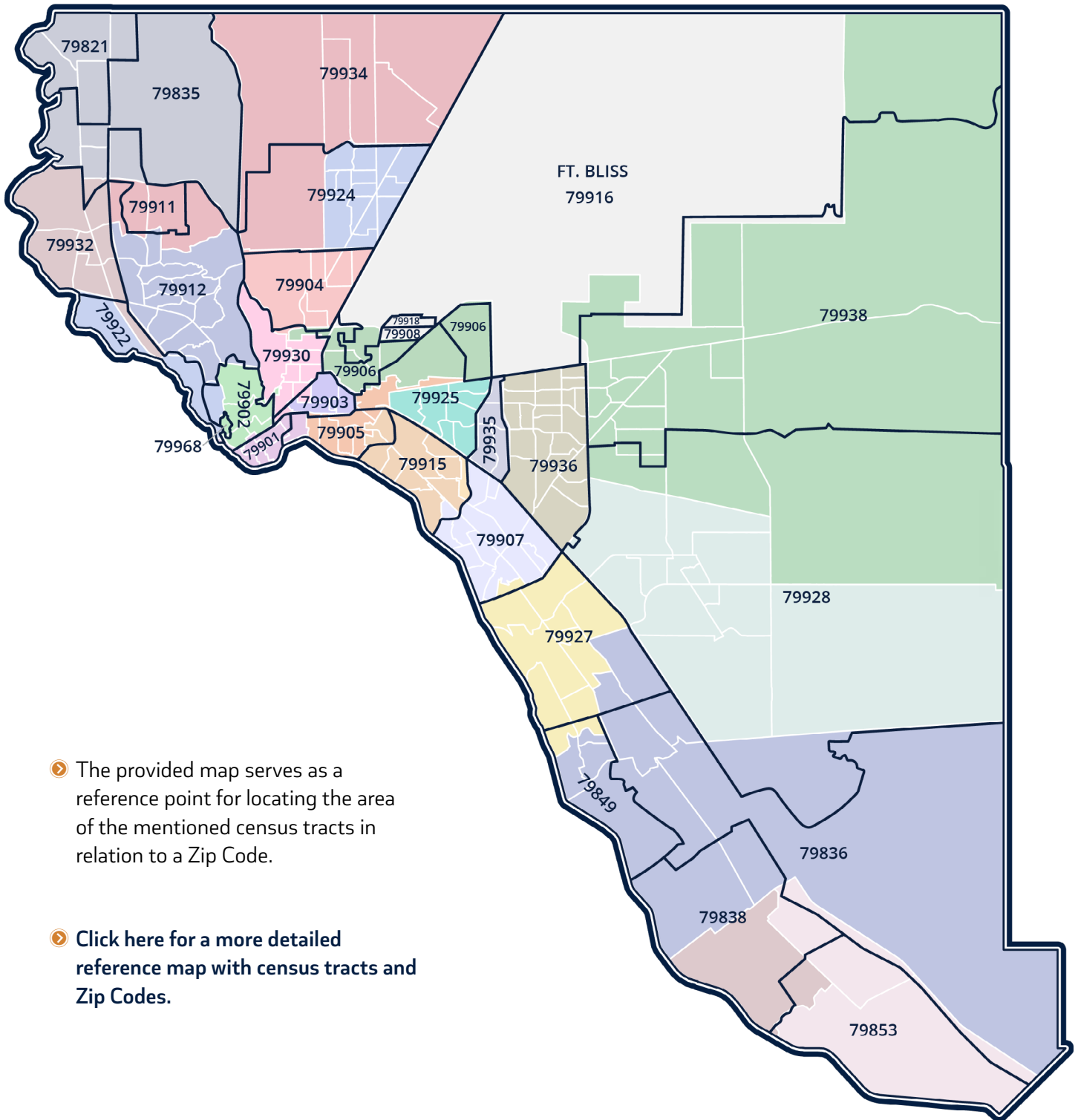
Table 1 presents the list of broadband service providers in El Paso County from the FCC internet speeds by their respective broadband coverage areas (census blocks) as of June 30, 2022. Among the 21 broadband service providers, Viasat, Inc. was the largest broadband service provider with 26.6% of the share, followed by HughesNet Communication and Charter Communications, with coverages of 13.3 % and 12.9%, respectively.

Table 1. Broadband Service Providers by Share of Coverage

Provider Name	Share of Coverage
Viasat, Inc.	26.6%
HughesNet Communications	13.3%
Charter Communications Inc.	12.9%
Starlink	12.8%
Webatron Internet Solutions Inc.	11.0%
AT&T Inc.	10.1%
Verizon Communications	4.5%
T-Mobile U.S., Inc.	4.3%
Beamspeed Internet	3.2%
Mission Valley Communications, LLC	0.8%
Valor Telecommunications of Texas, LP	0.2%
JackRabbit Wireless	0.1%
RCN Corporation	*
Conterra Ultra Broadband, LLC	*
Unite Private Networks	*
Transtelco Inc.	*
TPx Communications	*
Consolidated Communications, Fidium	*
Cogent Communication	*

Note: The Hunt Institute calculated the share of coverage area for each provider based on the number of census tracts they provide coverage for over the total number of areas covered by internet in El Paso County. An asterisk (*) indicates that the share of each of the broadband service providers is less than 0.1%. Charter Communications Inc is the parent company of Spectrum. Hunt Institute's estimations for share of coverage.

Map 1. Census Tract by Zip Code Map



- The provided map serves as a reference point for locating the area of the mentioned census tracts in relation to a Zip Code.
- [Click here for a more detailed reference map with census tracts and Zip Codes.](#)

Findings

Digitally underserved communities in El Paso County, Texas were identified using maximum advertised speeds by Zip Code and census tract information. Table 2 displays the median maximum advertised speed for every Zip Code in El Paso County, represented by the first two of the last four columns. Table 2 also provides selected socio-economic indicators (population, housing and business density, Hispanic population (%), median household income, and population below poverty level (%)) to compare with the median of the maximum download and upload speeds by Zip Code, along the first 7 columns. The cells highlighted in light red indicate that the selected indicator for that Zip Code is below the cut-off point¹; the cells highlighted in yellow refer to those Zip Codes that are above the cut-off point.

Underserved communities were identified at the Zip Code and census tract level in El Paso County. At the Zip Code level, 79938, and 79853 exhibit the lowest median maximum advertised download and uploads speeds. Between these two Zip Codes, 79938 had the lowest median maximum advertised download and upload speed, 30 Mbps and 3 Mbps, respectively. This Zip Code has less than 600 people per square mile, with 83% being Hispanic or Latino and a median household income of \$58,237.

Zip Code 79853 is in the eastern lower valley area of El Paso County, and it includes the Tornillo Census Designated Place (CDP). Zip Code 79853 has less than 80 people per square mile with 99% Hispanic or Latino population; the median household income was \$50,781. Zip Code 79853 has the second lowest median maximum advertised download and upload speeds of 86 Mbps and 5 Mbps.

¹ Cut-off points correspond to the level of El Paso County: 826 for population density; 14.9 for business density; 295 for housing density, 82.7% for the percentage of Hispanic or Latino population, \$48,292 for median household income; and 19.5% for the percentage of population below poverty level.

Table 2. Median of Maximum Advertised Speeds and Selected Socio-Economic Indicators in El Paso County

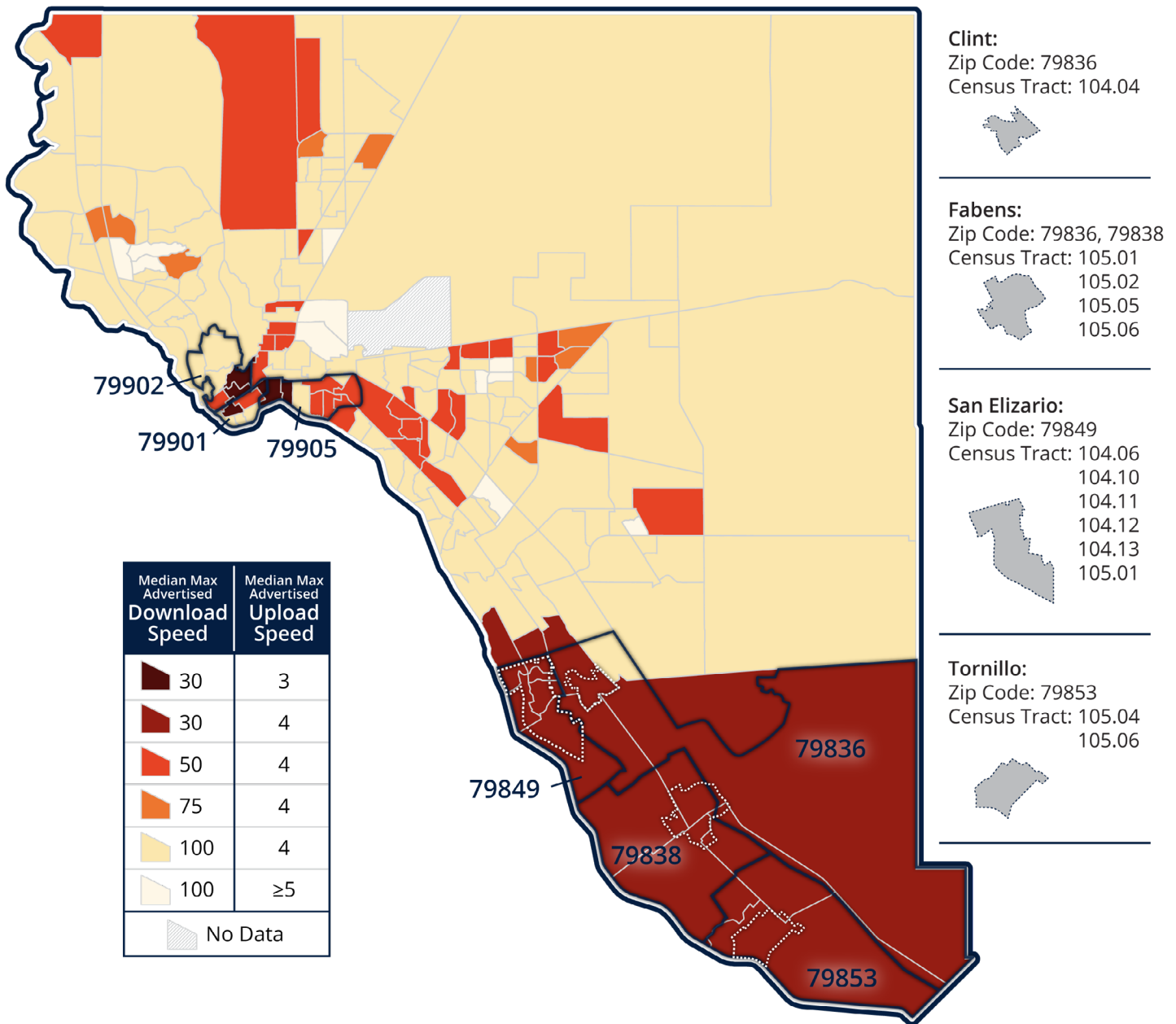
Zip Code	Population Density per Square Mile 2020	Business Density per Square Mile 2019	Housing Density per Square Mile 2020	Hispanic or Latino % 2020	Median Household Income 2020	Percentage of people below Poverty Level 2020	Median of the Maximum Advertised Speeds (FCC)		Minimum of the Actual Speeds (Hunt Institute)	
							Median of Maximum Advertised Download Speed	Median of Maximum Advertised Upload Speed	Minimum of Actual Download Speed	Minimum of Actual Upload Speed
79821	612.5	10.9	185.9	86%	\$40,556	24%	100.0	4.0	23.0	0.5
79835	937.6	18.2	339.7	88%	\$41,238	26%	100.0	4.0	1.4	5.0
79836	301.8	3.0	99.9	94%	\$42,979	18%	100.0	5.0	1.0	0.3
79838	165.1	2.0	63.0	96%	\$30,737	28%	100.0	4.0	1.8	1.0
79849	823.6	4.3	262.1	98%	\$38,937	33%	100.0	4.0	15.8	8.8
79853	73.1	0.4	23.9	99%	\$50,781	25%	86.0	5.0	2.0	40.0
79901	4009.8	422.8	1997.9	93%	\$12,025	60%	100.0	4.0	0.8	0.7
79902	3158.2	164.7	1491.9	78%	\$36,998	25%	100.0	4.0	0.8	0.3
79903	5054.9	160.6	2181.6	90%	\$29,653	30%	100.0	4.0	8.4	1.0
79904	3774.1	31.4	1474.7	74%	\$34,778	27%	100.0	4.0	16.4	0.9
79905	3443.5	82.7	1330.2	95%	\$21,847	43%	100.0	4.0	5.6	2.3
79906	831.5	46.7	243.5	24%	\$55,833	10%	100.0	4.0	14.2	6.4
79907	3752.9	53.8	1259.7	96%	\$35,539	23%	100.0	4.0	3.4	0.3
79911	946.6	10.1	374.5	68%	\$98,059	3%	100.0	4.0	26.4	8.2
79912	3363.5	82.5	1362.5	72%	\$63,307	13%	100.0	4.0	3.0	0.9
79915	4074.0	2.2	1570.6	96%	\$29,017	31%	100.0	4.0	29.4	4.7
79916	689.9	9.0	60.6	22%	\$53,841	26%	No Data	No Data	No Data	No Data
79922	1197.8	39.8	468.5	66%	\$81,992	8%	100.0	4.0	1.4	2.0
79924	4886.2	45.2	1796.4	71%	\$45,992	19%	100.0	4.0	7.8	2.1
79925	2339.1	94.0	930.8	81%	\$49,219	16%	100.0	4.0	3.1	0.6
79927	1476.7	16.1	446.5	97%	\$38,753	25%	100.0	4.0	1.1	0.3
79928	598.8	4.7	179.2	90%	\$58,608	18%	100.0	4.0	0.3	0.9
79930	2557.1	21.4	1110.0	86%	\$36,809	23%	100.0	4.0	5.3	1.5
79932	1997.0	31.7	710.7	79%	\$74,821	16%	100.0	4.0	10.0	0.9
79934	445.6	2.2	177.8	58%	\$70,975	10%	100.0	4.0	2.8	2.2
79935	5290.3	147.8	1927.2	85%	\$57,617	20%	100.0	4.0	0.8	0.9
79936	4077.5	74.0	1360.2	87%	\$57,402	14%	100.0	4.0	4.8	0.4
79938	517.2	3.5	158.7	83%	\$56,237	13%	30.0	3.0	6.3	1.6

Note: Data below El Paso County level for population density, business density, housing density, and median household income. Data above El Paso County level for the percentage of Hispanic population and the percentage of population below poverty level. *This analysis does not include data for Fort Bliss.

Source: Hunt Institute using data from the survey results, the U.S. Census, and Federal Communications Commission.

Assessing the digitally underserved areas in El Paso County required comparing the median of the maximum advertised download and upload speeds according to cut-off points. Map 2 depicts the most digitally underserved areas in El Paso represented by the darkest color, which also denotes the areas with both the lowest median of the maximum advertised download (30 Mbps) and upload speeds (3 Mbps). As the color gradient lightens, the shade marks will denote the area with either 30 Mbps, 50 Mbps, 75 Mbps, or 100 Mbps, with highly underserved areas, the darkest shade, and the average or above areas shown in the lighter shade. The same upload speed varies only from 3 to 4 Mbps following the first darker shade. The lightest shaded areas on the map represent the best median advertised download speeds of 100 Mbps and advertised upload speeds ranging from 5 Mbps to 35 Mbps.

Map 2. Digital Service in El Paso by Census Tract



Note: The maximum advertised speeds as of June 30, 2022.
 Source: Hunt Institute using data from the Federal Communications Commission (FCC)

Table 3 displays the Zip Codes and the census tracts within them that are identified as the most underserved areas in terms of digital service. When compared to all other census tracts in El Paso County, these census tracts have the lowest median of maximum download and upload speeds. The most digitally underserved communities in El Paso are in the central and downtown areas, within Zip Codes 79901, 79902, and 79905, and include census tracts 17.00, 22.01, 22.02, 28.00, and 29.00, with median of the maximum advertised download speeds (30Mbps) and upload speeds (3Mbps), respectively.

Table 3. Digital Service in El Paso by Census Tract

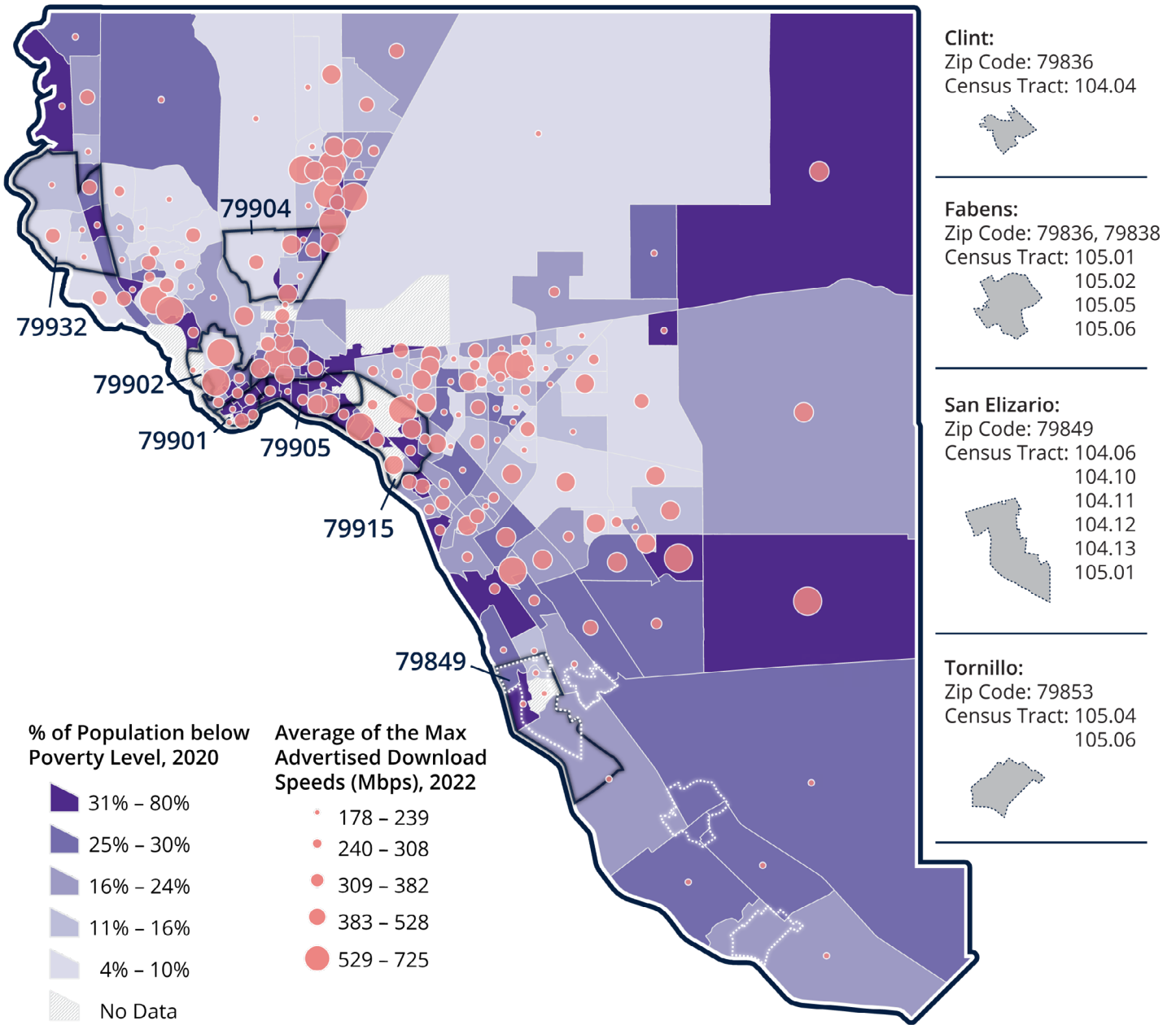
	79901	79902	79905	79849					79836 & 79838			79853				
Indicators/ CT	17.00*	22.01*	22.02	28.00*	29.00	104.06	104.10	104.11*	104.12	104.13	104.04*	105.01	105.02*	105.04	105.05*	105.06*
Median Max Advertised Download Speed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Median Max Advertised Upload Speed	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4

Note: CT - Census Tract. Census Tract 17.00 is also found in the Zip Code 79902, Census Tract 22.01 is also found in the Zip Code 79930, Census Tract 28.00 is also found in Zip Code 79901, Census Tract 104.04 is also found in Zip Code 79927, Census Tract 105.02 is also found in Zip Code 79928, and Census Tracts 105.05 & 105.06 are also found in Zip Code 79838.

Communities in the lower valley area of El Paso County, particularly Clint, Fabens, San Elizario, and Tornillo, were also identified as digitally underserved communities. In Zip Code 79853, which encompasses the Tornillo Census Designated Place (CDP), includes census tracts ending 105.04, 105.05, and 105.06. The population in these census tracts had a median maximum advertised download speed and upload speed of 30 Mbps and 4 Mbps, respectively. Census tract level ending in 104.04 encompasses Clint. The population of this census tract had a low median maximum advertised download speed and upload speed of 30 Mbps and 4 Mbps, respectively. Fabens is a CDP located in the lower valley area in Zip Code 79838. This Zip Code also includes census tracts ending 104.04, 105.01, and 105.02. The population in these census tracts had a low median maximum advertised download speed and upload speed of 30 Mbps and 4 Mbps, respectively.

Map 3 displays the population percentage that is below the poverty line along with the average of the maximum advertised download speed by census tract. The census tracts where Clint, Fabens, Tornillo, and San Elizario are located display the darkest shades of purple for these areas. This refers to a high percentage of the population living below the poverty level. The red circles represent the average of the maximum advertised download speed; the larger the circle the higher the average maximum advertised download speed.

Map 3. Digital Service Against Poverty Line in El Paso by Census Tract



Note: The maximum advertised speeds as of June 30, 2022.

Source: Hunt Institute using data from the U.S. Census Bureau and the Federal Communications Commission (FCC).

Table 4 displays the Zip Codes identified with high percentages of people living below the poverty level. The most digitally underserved communities are found in the central and downtown regions within Zip Codes 79901, 79902, and 79904, which include census tracts 17.00, 21.00, 22.02, and 4.04. Particularly in Zip Code 79901, census tract 21.00 had 65% of the population living below the poverty line, the highest of all other census tracts in Table 4.

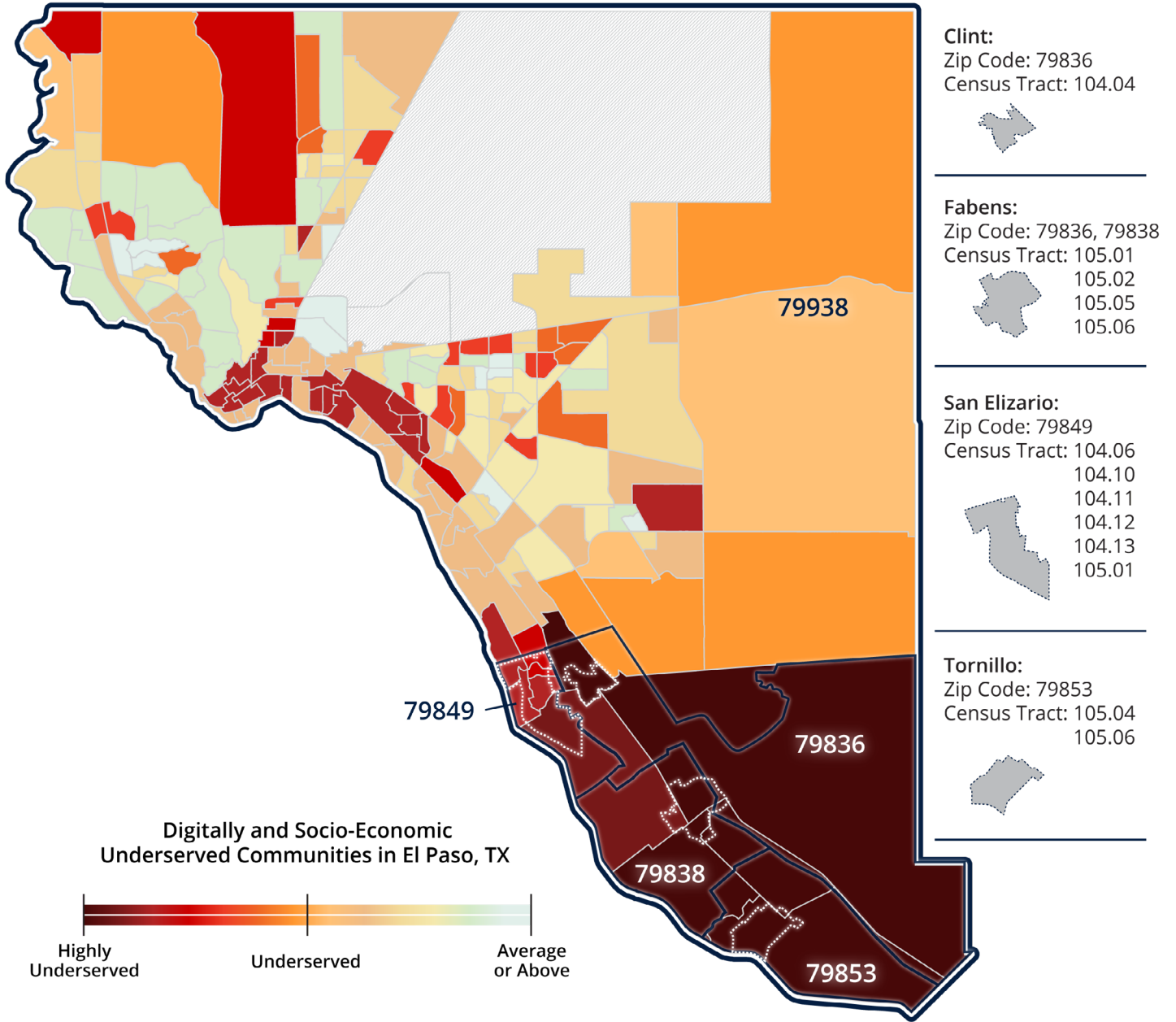
Table 4. Digital Service Against Poverty Line in El Paso by Census Tract

	79901		79902	79904	79905				79915		79932	79849		
Indicators/ CT	17.00*	21.00	22.02	4.04	28.00*	29.00	32.00	35.01	35.02	36.02*	42.01	102.27	104.06	104.12
Population below the poverty line (%)	58%	65%	39%	63%	62%	49%	35%	41%	47%	50%	31%	32%	32%	47%
Average Max Advertised Download Speed	218.2	241.0	285.8	196.0	243.5	185.9	234.1	242.8	297.3	259.7	475.1	227.0	184.9	184.7
Average Max Advertised Upload Speed	33.8	70.6	117.0	15.9	74.5	13.9	76.7	71.8	137.8	99.1	318.5	40.0	14.8	14.8

Note: CT - Census Tract. Census Tract 17.00 is also found in the Zip Code 79902, Census Tract 28.00 is also found in Zip Code 79901, Census Tract 36.02 is also found in Zip Code 79905.

Map 4 depicts the most digitally underserved communities in El Paso County by incorporating six categories, all referring to the median of the maximum advertised speeds, shaded in varying colors from darkest to brightest. This map considers the census tracts that not only have slower median of the maximum advertised download speeds but also are below predetermined cut-off points for several socio-economic indicators, including population, housing, and business density, Hispanic or Latino population (%), as well the median household income and the percentage of people living below the poverty level. This map depicts the socio-economic and digitally underserved Zip Codes and census tracts within, which are located in the far eastern lower valley region of El Paso County, specifically Zip Codes 7986, 79838, and 79853, as indicated by the darkest shade displayed on the Map.

Map 4. Digital Service Against Socio-Economic Indicators in El Paso by Census Tract



Note: The maximum advertised speeds as of June 30, 2022.
 Source: Hunt Institute using data from the U.S. Census Bureau and the Federal Communications Commission (FCC).

Table 5 displays the census tracts within El Paso County along with the Zip Codes recognized as the most socio-economically and digitally underserved communities. The majority of census tracts in this category, are located in the far eastern lower valley region, as shown in the table below.

Table 5. Digital Service Against Socio-Economic Indicators in El Paso by Census Tract

Indicators/ CT	79836 & 79838			79849					79853		
	104.04*	105.01	105.02*	104.06	104.10	104.11*	104.12	104.13	105.04	105.05*	105.06*
Population Density psm	708	189	13	1,437	1,786	1,051	3,322	3,208	44	151	177
Housing Density psm	252	55	5	488	583	318	1,086	1,020	15	54	63
Hispanic or Latino Population (%)	96%	96%	90%	99%	99%	88%	99%	100%	100%	94%	99%
Median Household Income	39.9k	46.6k	33.5k	28.7k	40.9k	39.4k	38.3k	39.9k	44.k	29.4k	45.9k
Population below Poverty Level (%)	24%	19%	30%	32%	11%	27%	47%	12%	24%	30%	26%
Median Max Advertised Download Speed	30	30	30	30	30	30	30	30	30	30	30
Median Max Advertised Upload Speed	4	4	4	4	4	4	4	4	4	4	4

Note: CT- Census Tract. Psm - Per Square Mile. Median Household Income is given in thousands of dollars. Census Tract 104.04 is also found in Zip Code 79927, and Census Tract 105.02 is also found in Zip Code 79928, and Census Tracts 105.05 & 105.06 are also found in Zip Code 79838.

Population Demographics and Average Maximum Advertised Download Speeds

This section contrasts population and housing density with the average of the maximum advertised download speeds in El Paso County. Heavily populated census tracts with low average of the maximum advertised download speed compared to other census tracts are identified as the most impacted communities in this section. This suggests that these census tracts have a higher demand for broadband service but a lower average of maximum advertised download speeds. Map 5 shows the regions within El Paso County that have high population density per square mile, as shown in darker shades of orange, contrasted with the average of the maximum advertised download speeds, as shown by the size of the red circle. Only the Zip Codes which have high population densities and the lowest average of the maximum download speeds are described below:

Census tract 19.00 (79901):

- Population density per square mile: 9,405
- Average of the maximum advertised download speed: 365.3

Census tract 22.02 (79902):

- Population density per square mile: 8,508
- Average of the maximum advertised download speed: 285.8

Census tract 43.17 (79925):

- Population density per square mile: 10,443
- Average of the maximum advertised download speed: 238.8.
-

Census tract 103.27 (79936):

- Population density per square mile: 9,490
- Average of the maximum advertised download speed: 257.1.

Census tract 103.5 (79936):

- Population density per square mile: 11,750
- Average of the maximum advertised download speed: 216.4.

Census tract 103.48 (79936):

- Population density per square mile: 8,838
- Average of the maximum advertised download speed: 209.3.

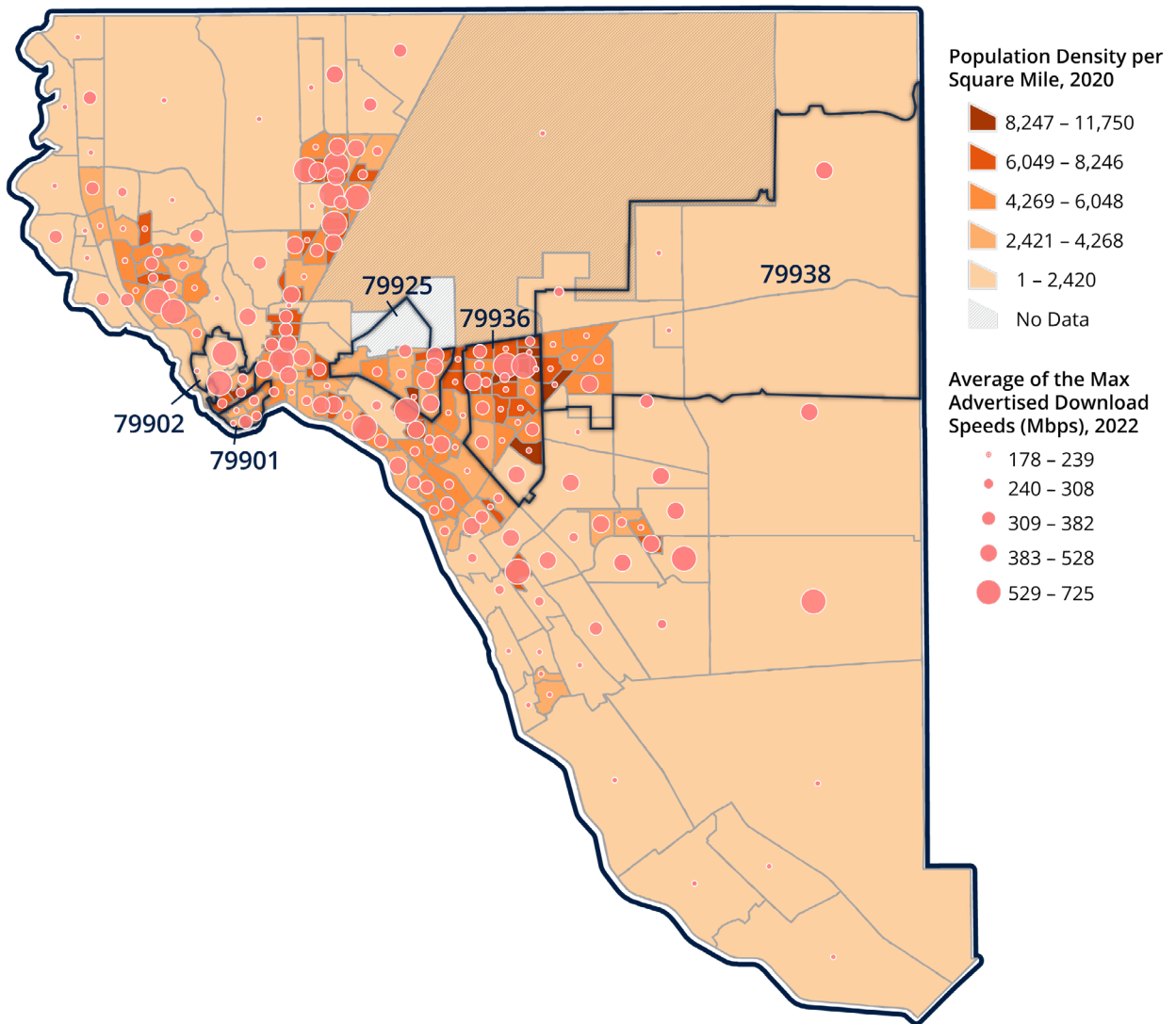
Census tract 103.48 103.29 (79938):

- Population density per square mile: 8,587
- Average of the maximum advertised download speed: 214.8.

Census tract 103.37 (79936):

- Population density per square mile: 9,325
- Average of the maximum advertised download speed: 207.1.

Map 5. Population Density and Average of the Maximum Advertised Download Speeds in El Paso by Census Tract



Note: The maximum advertised download speeds as of June 30, 2022.

Source: Hunt Institute using data from the U.S. Census Bureau and Federal Communications Commission (FCC).

Map 6 shows the regions within El Paso County that have high housing density per square mile, as shown in darker shades of blue, contrasted with the average of the maximum advertised download speeds, as shown by the size of the red circle.

Only the Zip Codes that have largest housing densities and lower average of the maximum download speeds are described below.

Census tract 16.00 (79901):

- Housing density per square mile: 3,962
- Average of the maximum advertised download speed: 287.4

Census tract 22.02 (79902):

- Housing density per square mile: 4,416
- Average of the maximum advertised download speed: 285.8.

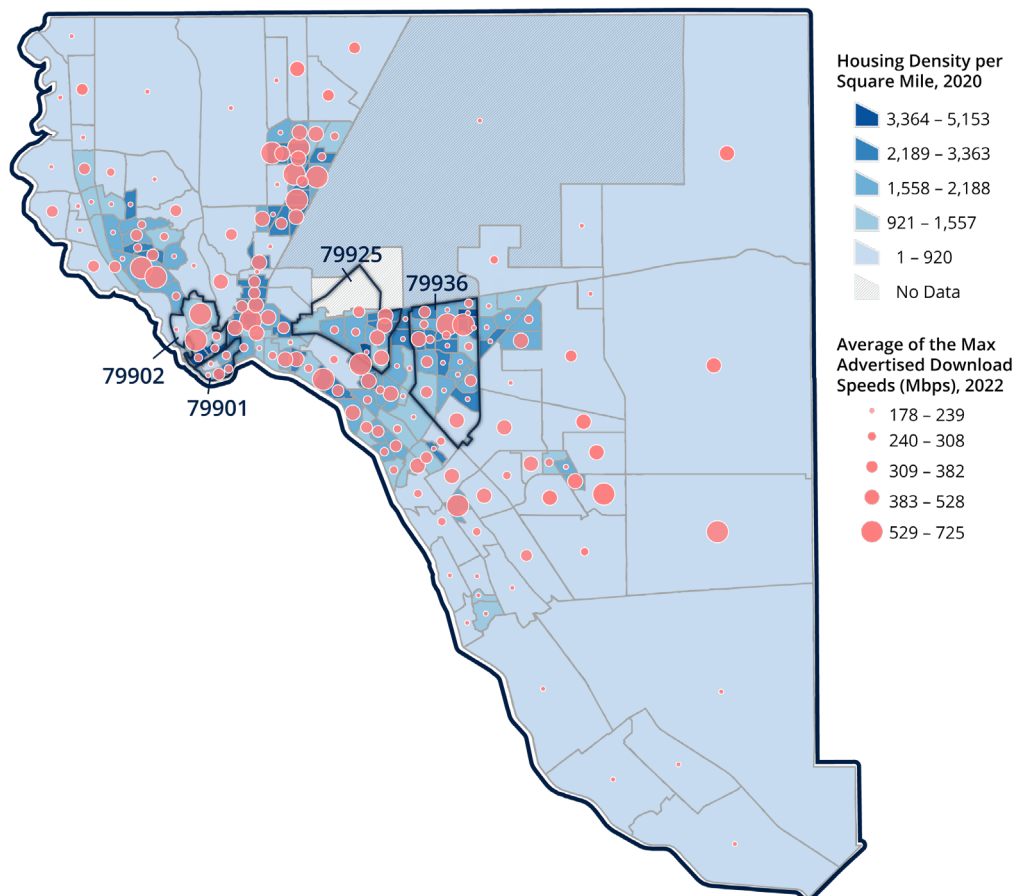
Census tract 43.17 (79925):

- Housing density per square mile: 5,153
- Average of the maximum advertised download speed of 238.8.

Census tract 103.50 (79936):

- Housing density per square mile: 3,990
- Average of the maximum advertised download speed: 216.4.

Map 6. Housing Density and Average of the Maximum Advertised Download Speeds in El Paso by Census Tract



Note: The maximum advertised download speeds as of June 30, 2022.

Source: Hunt Institute using data from the U.S. Census Bureau and Federal Communications Commission (FCC).

Business Density by Zip Code and other Economic Indicators and Average Maximum Advertised Download Speeds

This section contrasts business density per square mile and median household income with the average maximum advertised download speeds in El Paso County. Areas with many businesses per square mile that also have low average of the maximum download speed compared to other census tracts are identified.

Map 7 shows the regions within El Paso County that have high business density per square mile, as shown in darker shades of red, and contrasts with the average of the maximum advertised download speeds, as shown by the size of the orange circle. Only the Zip Codes which have high business density and lower average of the maximum download speeds are described below.

Zip code 79901:

- Business density per square mile: 408.2
- Low average of the maximum advertised download speed

Zip code 79902:

- Business density per square mile: 162.8
- Low average of the maximum advertised download speed

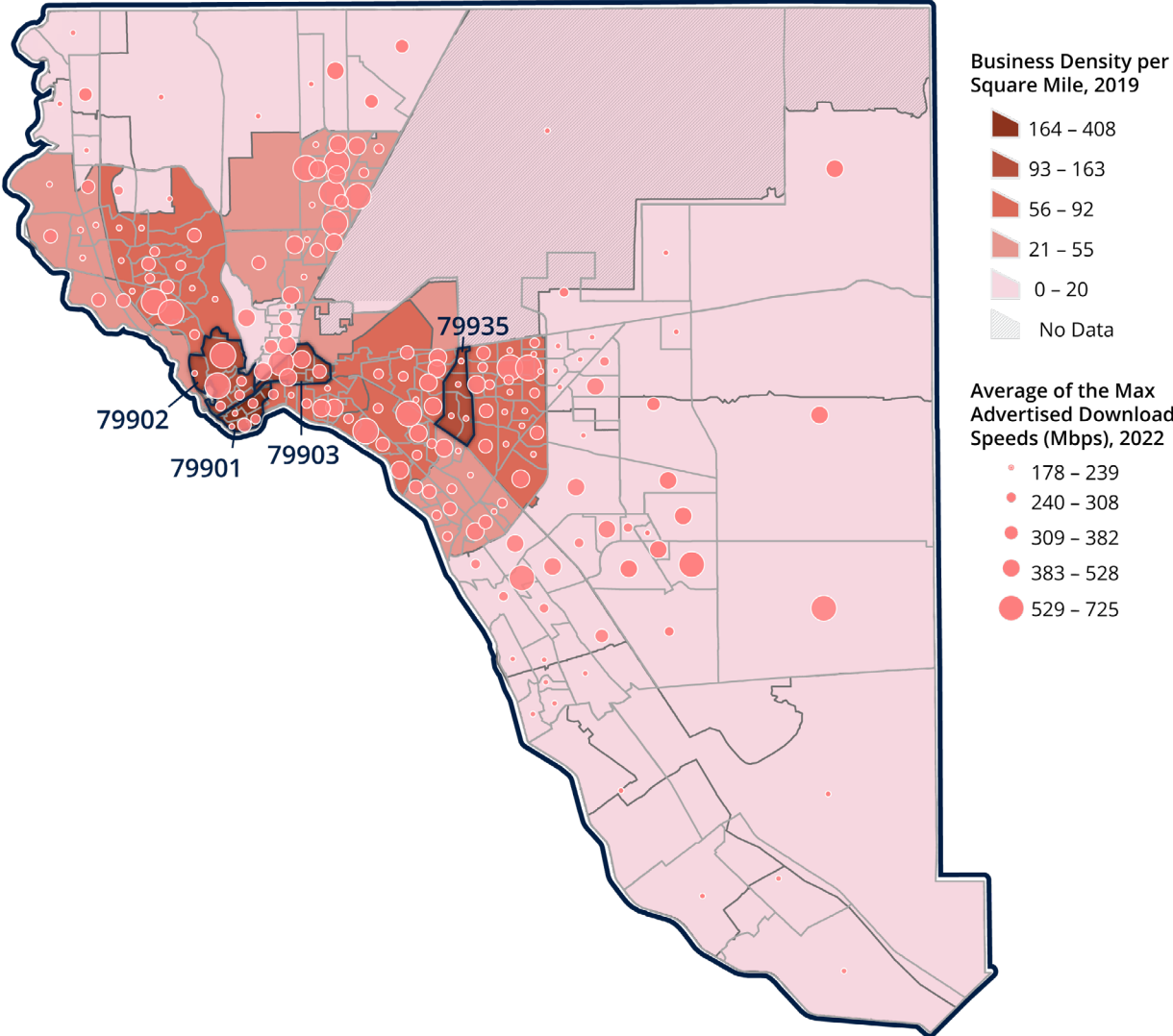
Zip code 79903:

- Business density per square mile: 162.2
- Low average of the maximum advertised download speed

Zip code 79935:

- Business density per square mile: 145.2
- Low coverage of the maximum advertised download speed

Map 7. Business Density and Average of the Maximum Advertised Download Speeds in El Paso County



Note: The maximum advertised download speeds as of June 30, 2022.
Source: Hunt Institute using data from the U.S. Census Bureau and Federal Communications Commission (FCC).

This section compares median household income with the average of the maximum advertised download speeds. As previously observed in other sections, the regions that require the most attention are concentrated within the San Elizario-Tornillo regions.

Map 8 shows the range of the median household incomes for each region within El Paso County, as shown by the shades of green, contrasted with the average of the maximum advertised download speeds, as shown by the size of the red circle. Only the Zip Codes which have low median household incomes and lower average of the maximum download speeds are described below:

Census tract 18.00 (79901)

- Median household income: \$16,957
- Average of the maximum advertised download speed: 190.8

Census tract 105.02 (79836):

- Median household income: \$33,548
- Average of the maximum advertised download speed: 188.8.

Census tract 105.05 (79838):

- Median household income in 2020: \$29,412
- Average of the maximum advertised download speed: 184.6

Census tract 104.06 (79849):

- Median household income in 2020: \$28,750
- Average of the maximum advertised download speed: 184.9

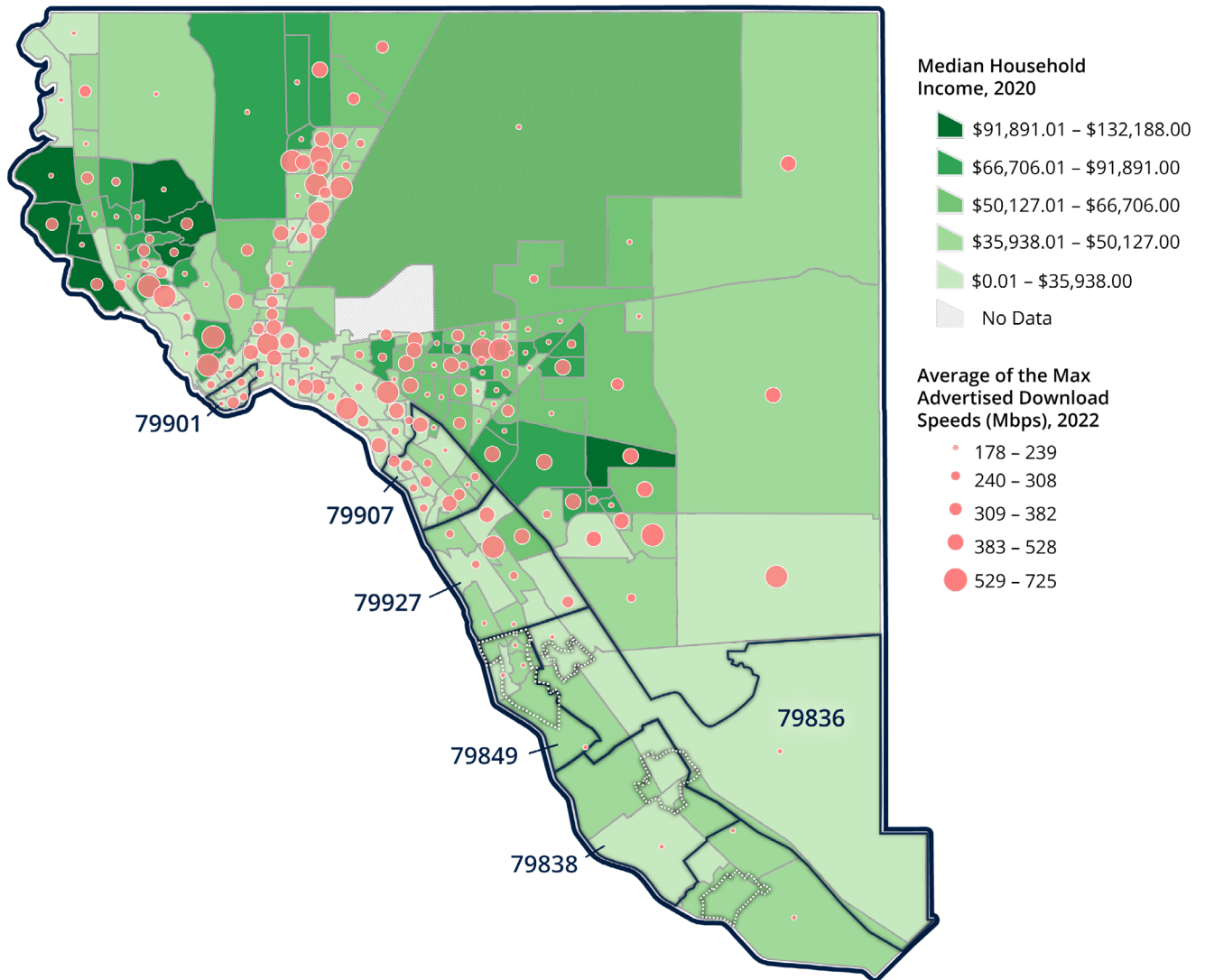
Census tract 104.01(79927):

- Median household income in 2020: \$35,910
- Average of the maximum advertised download speed: 253.8

Census tract 41.03 (79907):

- Median household income in 2020: \$30,533
- Average of the maximum advertised download speed: 207.7

Map 8. Median Household Income and Average of the Maximum Advertised Download Speed in El Paso by Census Tract



Note: The maximum advertised download speeds as of June 30, 2022.

Source: Hunt Institute using data from the U.S. Census Bureau and Federal Communications Commission (FCC).

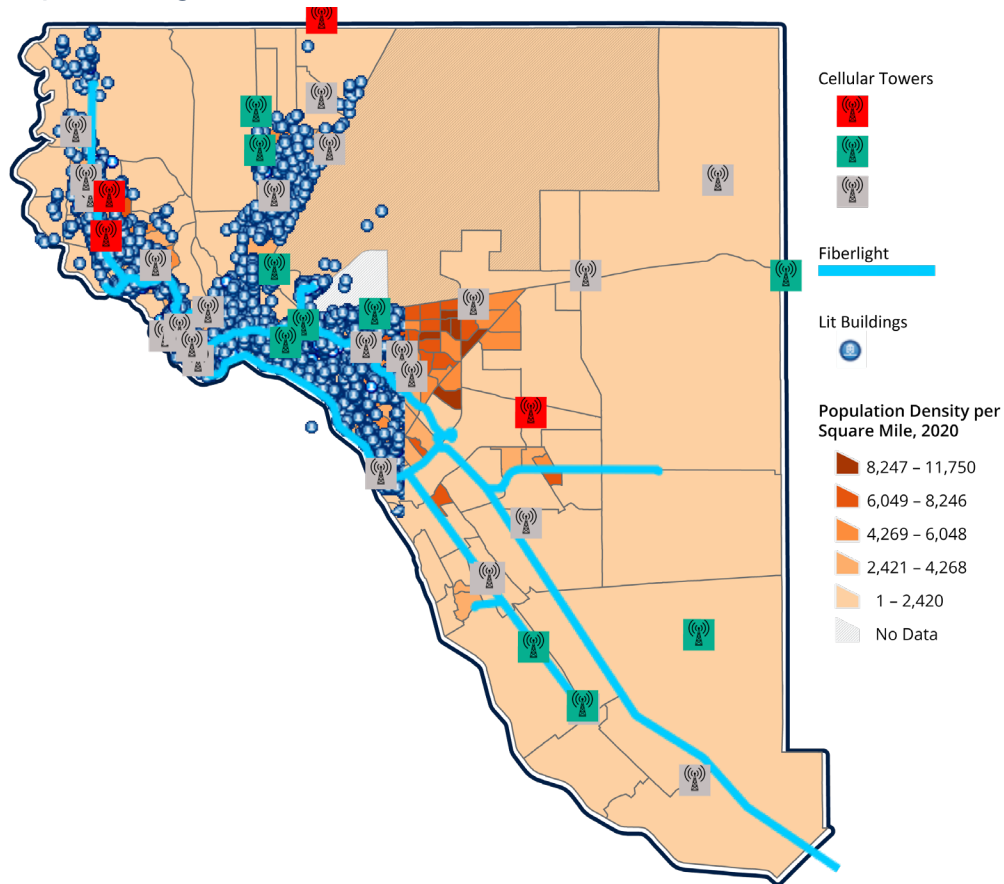
Infrastructure for Internet Access in El Paso County

Broadband infrastructure gaps were also identified using existing and external databases to create a map that outlines the current broadband infrastructure in El Paso County. Map 9 below shows the cellular tower, Fiberlight, lit buildings, and population density per square mile. Cellular towers are equipped with electronic communications equipment and antennas to support cellular communication.

As the most reliable method to deliver wireless coverage, cellular towers play an important role in wireless networks. According to the data provided by the FCC, in El Paso County only three cellular towers are licensed by the FCC. Although several other towers with different classifications are also present in the county.

The Fiberlight network provides fiber optic network services and has approximately 18,000 route miles of fiber infrastructure, servicing customers in over 30 metropolitan areas, principally in the major markets of Texas. The Fiberlight company offers ethernet, dedicated internet access, and dark fiber services. Fiberlight infrastructure runs through El Paso County, closely following Interstate 10, passing close to Clint, Tornillo, and Fabens before leaving the county lines. Lit buildings refer to the buildings that have existing telecom carrier, or internet services providers fiber facilities that are installed somewhere within the buildings. Fiber services are easier to implement and less expensive to install in lit buildings. Lit infrastructure is clustered within El Paso's city limits; however, there is little lit infrastructure in the outer parts of El Paso County, particularly in the underserved communities of Clint, Tornillo, and Fabens.

Map 9. Existing Infrastructure for Internet Access in El Paso by Census Tract



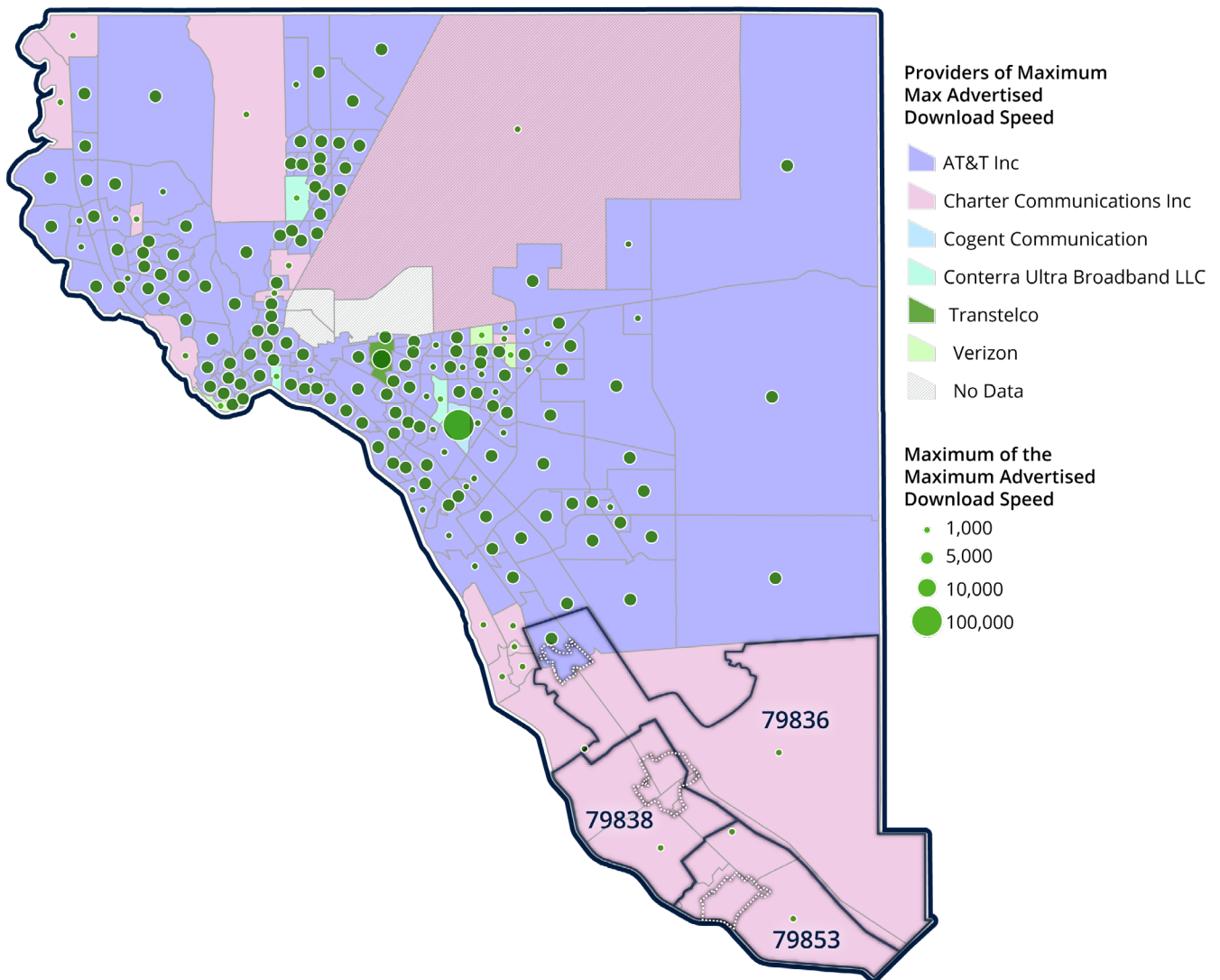
Source: Hunt Institute using data from the U.S. census Bureau and external database.

Broadband Service Providers

Although many broadband service providers operate in El Paso County, AT&T dominates the market in terms of maximum of the maximum advertised download speed, offering these services in the majority of the county's census tracts. The identified underserved communities in the lower valley area of El Paso County display the slower maximum of the maximum advertised download speeds when compared to other census tracts. These census tracts are in Zip Codes 79838, 79836, and 79853.

As shown on Map 10, different broadband service providers offer varying levels of maximum of the maximum download speeds.

Map 10. Broadband Service Providers of Maximum of the Maximum Advertised Download Speed in El Paso by Census Tract



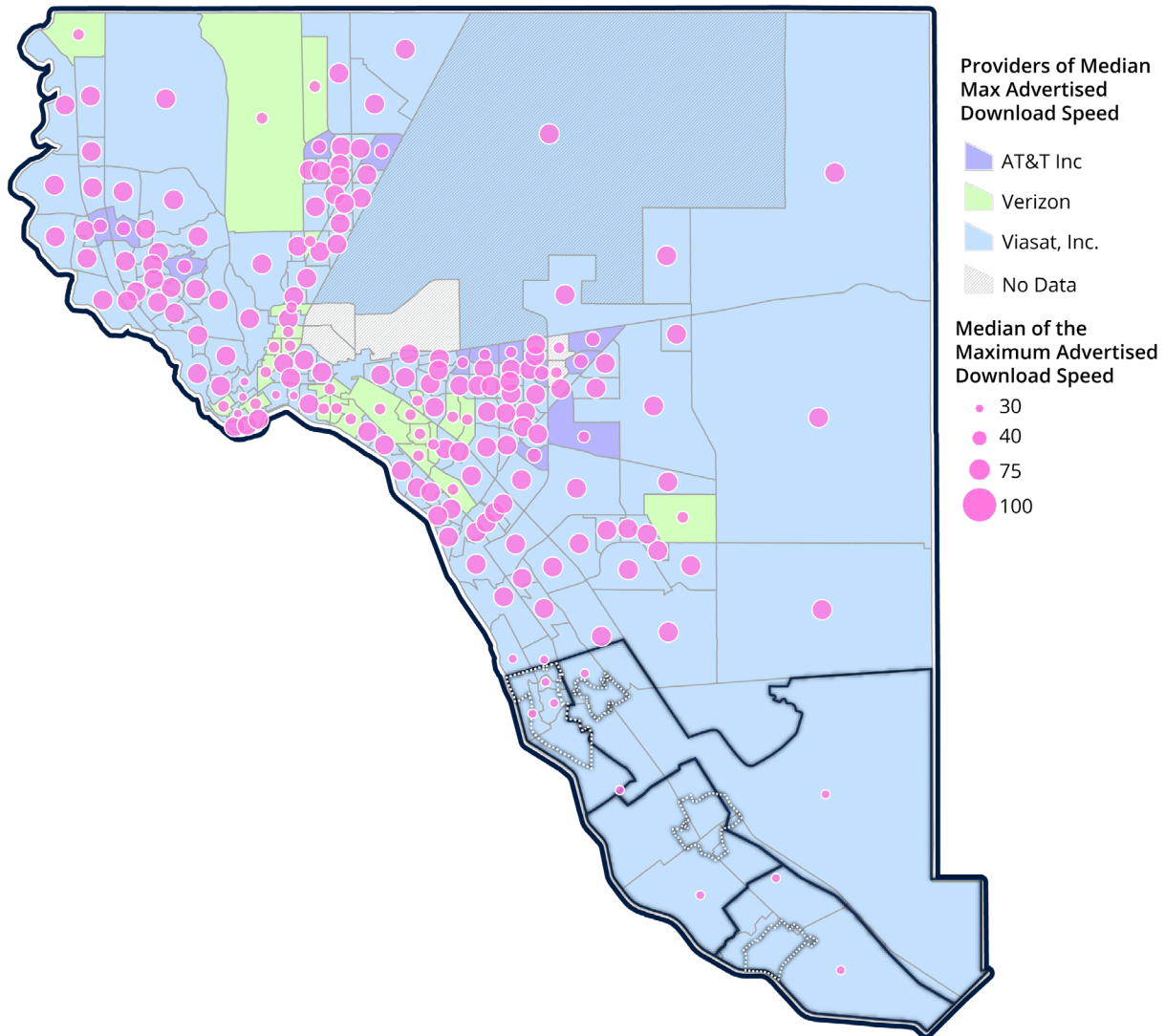
Note: Data as of June 30, 2022

Source: Hunt Institute using data from the Federal Communications Commission (FCC).

Map 11 depicts similar information to the previous map, but here the median of the maximum advertised download speed broadband service provider is shown by census tracts in El Paso County. The median of the maximum advertised download speed remains similar throughout El Paso County. Although, the underserved communities in the lower valley also have slower median of the maximum advertised download speeds when compared to other census tracts.

Map 11 displays how the different broadband service providers have different levels of median of the maximum advertised download speeds.

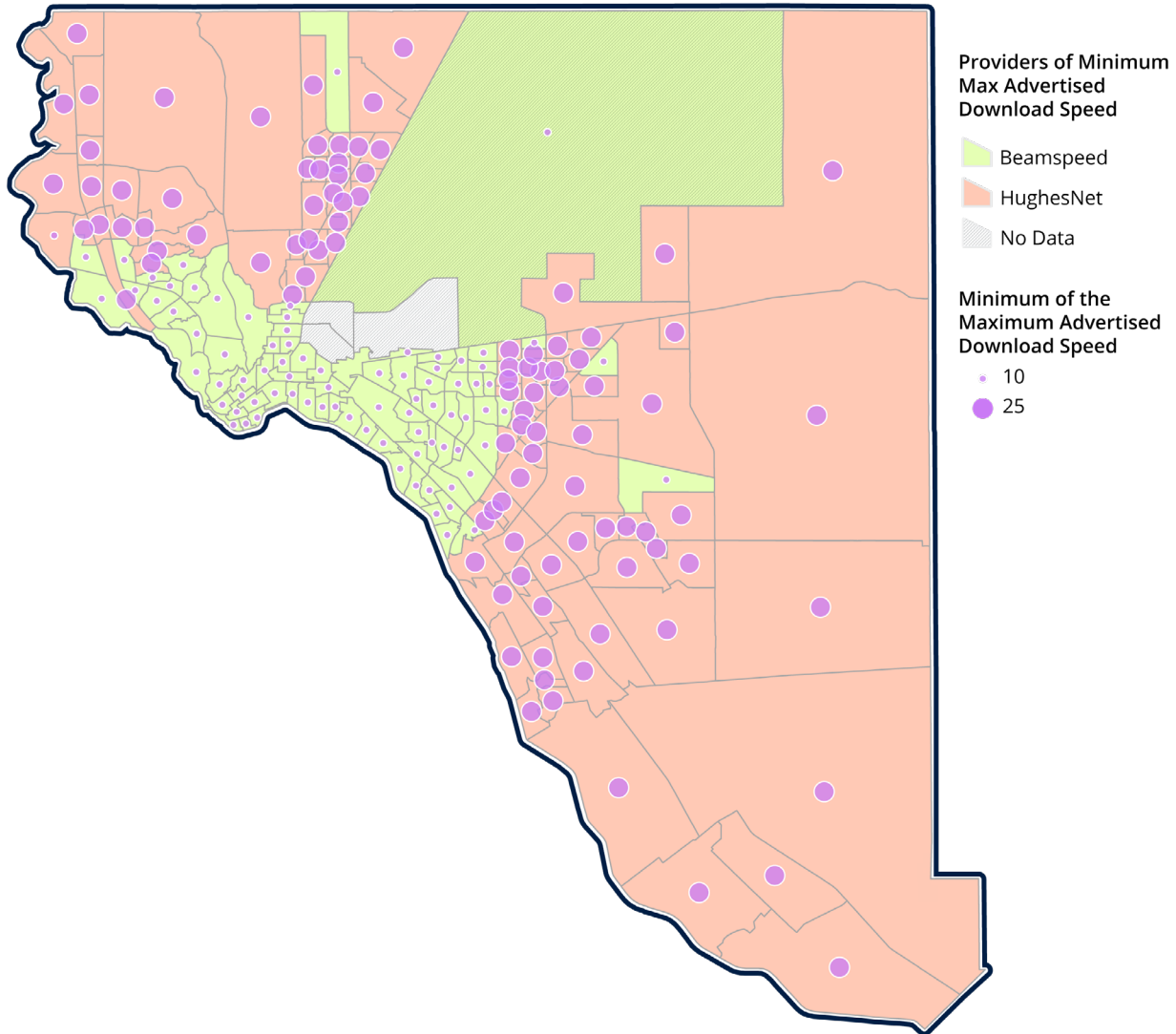
Map 11. Broadband Service Providers of Median of the Maximum Advertised Download Speeds in El Paso by Census Tract



Note: Data as of June 30, 2022.
Source: Hunt Institute using data from the Federal Communications Commission (FCC).

HughesNet and Beamspeed are the providers of minimum max advertised download speeds. As displayed in Map 12, Beamspeed provided most of the minimum of the maximum advertised download speeds broadband services throughout the center of El Paso County, while HughesNet mostly provided its services in the far west and east regions of El Paso County.

Map 12. Broadband Service Providers of Minimum of the Maximum Advertised Download Speeds in El Paso by Census Tract



Note: Data as of June 30, 2022.

Source: Hunt Institute using data from the Federal Communications Commission (FCC).

Ancillary Findings

El Paso County is experiencing rapid population growth, which necessitates the construction of new infrastructure, residential housing, and commercial facilities to meet the increased demand in these growth areas. It is critical to address the gaps in broadband infrastructure in underserved areas as well. The El Paso Lower Valley and Central areas, for example, have been identified as having weak connections and high populations and would benefit greatly from infrastructure improvements.

Conclusion

This report compares data from the U.S. Census Bureau with the U.S. Federal Communications Commission (FCC) to identify digitally underserved communities in El Paso County, Texas at the Zip Code and census tract levels, and contrasts them with selected socio-economic indicators (population, housing and business density, Hispanic population (%), median household income, and population below poverty level (%)). Certain Zip Codes and census tracts within the county were identified to have slower average, median, and maximum of maximum advertised broadband speeds. The most digitally underserved communities were found in the central and downtown areas of El Paso, within Zip Codes 79901, 79902, and 79905, which include census tracts with median of the maximum advertised download and upload speeds of 30 Mbps and 3 Mbps, respectively. These regions were followed by the communities in the eastern portion of the Lower Valley, Clint, Fabens, San Elizario, and Tornillo. These communities are the second most digitally underserved within El Paso County. Together, these two areas—downtown and central El Paso as well as the eastern Lower Valley—have much lower median maximum advertised download speeds than other areas of El Paso County.

Furthermore, when comparing census tracts in El Paso based on digital service and the selected socioeconomic indicators, the communities most impacted are those in the eastern section of the Lower Valley, specifically Clint, Fabens, San Elizario, and Tornillo. The selected socio-economic indicators were also sliced and contrasted with the average of the maximum advertised download speeds. Heavily populated census tracts with low average of the maximum advertised download speeds were concentrated in Zip Code 79936 with few others in the central and downtown areas. When compared to other areas of El Paso County, all underserved communities share lower median household income levels and higher percentages of people living above the poverty level. This report identified El Paso County's digitally underserved communities, as well as the County's broadband infrastructure gaps. This report will serve to outline the population's broadband infrastructure needs in the identified digitally underserved communities. Providing better broadband services would enable more members of these communities to participate in activities such as, telework, telehealth, and remote education.

Glossary

- ⓘ This glossary defines words and terminology specific to internet connectivity and infrastructure used in the report. The terms come from the Federal Communications Commission, the U.S. Census Bureau, internet service providers, and regulatory bodies.
- ⓘ Actual broadband speed: the authentic connection speed different from what the internet service provider advertises as given by the FCC.
- ⓘ Advertised broadband speed: The internet service provider's most prominently advertised download and upload speed.
- ⓘ Beamspeed: An internet service provider that offers data connectivity solutions to both residential and commercial clients. Its target market ranges from Yuma County in Arizona to the Imperial Valley of California, providing IP connectivity to remote and difficult-to-reach places.
- ⓘ Broadband: Broadband is described as high-speed Internet connectivity that is always active and quicker than dial-up access. Broadband uses a number of high-speed transmission methods, including fiber, wireless, satellite, cable, and digital subscriber lines. According to the FCC, consumers must have access to actual download speeds of at least 25 Mbps and upload rates of at least 3 Mbps in order to have broadband capabilities. Retrieved from <https://www.fcc.gov/general/national-broadband-plan>
- ⓘ Business Establishment: A single physical location at which business is conducted or services or industrial operations are performed.
- ⓘ Cellular Towers: Cellular towers are where electronic communications equipment and antenna are equipped, which supports cellular communication through a network. As the most reliable method to deliver wireless coverage, cellular towers play a large role in the future of wireless networks.
- ⓘ Census Tract: As part of the Census Bureau's Participant Statistical Areas Program, census tracts are tiny, comparatively permanent statistical subdivisions of a county or statistically equivalent organization that can be modified by neighborhood residents ahead of each decennial census (PSAP). In cases where no local participants replied or when state, local, or tribal governments declined to participate, the Census Bureau delineates census tracts. For the purpose of presenting statistical data, census tracts serve as a reliable set of geographic units.
- ⓘ Download Speed: the speed at which data may be transferred from a server to a user's device.
- ⓘ Federal Communications Commission: U.S. regulatory entity responsible for regulating radio, television, wire, satellite, and cable interstate and international communications in all 50 states, the District of Columbia, and U.S. territories. The Federal Communications Commission is a separate branch of the U.S. government that reports to Congress and is the country's top authority on communications law, regulation, and technological advancement. Retrieved from <https://www.fcc.gov/about-fcc/what-we-do>
- ⓘ Fiber Light: A premier provider of fiber-optic based, high-performance networking services for telecom carriers, government, enterprise, content providers and web-centric businesses.

- ⦿ Housing Density: The Number of housing units within a geographic entity (for example, United States, state, county, place) divided by the land area of that entity measured in square kilometers or square miles. Density is expressed as both “housing units per square kilometer” and “housing units per square mile” of land area.
- ⦿ Housing Unit: A house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. Separate living quarters are those in which the occupants live and eat separately from any other person in a building and have direct access from the outside of the building or through a common hall.
- ⦿ HughesNet: a subsidiary of EchoStar and provides satellite internet service.
- ⦿ Lit Building: Large bandwidth connections providing high-speed Internet or data service delivered over fiber optic lines to buildings.
- ⦿ Maximum Advertised Download Speeds: The maximum advertised downstream speed/bandwidth (in Mbps) offered by the provider in the block for Consumer service.
- ⦿ Maximum Advertised Upload Speeds: The maximum advertised upstream speed/bandwidth (in Mbps) offered by the provider in the block for Consumer service.
- ⦿ Mbps: megabits per second, a measurement of internet speed.
- ⦿ Population: All people, male and female, child and adult, living within a given geographic areas.
- ⦿ Population Density: the total population within a geographic entity (for example, United States, state, county, place) divided by the land area of that entity measured in square kilometers or square miles. Density is expressed as both “people per square kilometer” and “people per square mile” of land area.
- ⦿ Tornillo Census Designated Place: The Tornillo CDP is a urban cluster located in the eastern lower valley area of El Paso County and it is included in Zip Code 79853.
- ⦿ Upload Speed: the speed at which data may be transferred from one user’s device to a server on the internet.
- ⦿ Viasat Inc.: An American communications company and provider of high-speed satellite broadband services and secure networking systems covering military and commercial markets.
- ⦿ Verizon Communications Inc.: An American multinational telecommunications conglomerate.

Table 6. Census Tract by Zip Code

Zip Code	Census Tract	CDP: City or Town	State
79821	48141010220	ANTHONY	TX
	48141010231	ANTHONY	TX
	48141010203	ANTHONY	TX
	48141010222	ANTHONY	TX
79835	48141010231	CANUTILLO	TX
	48141010222	CANUTILLO	TX
	48141010220	CANUTILLO	TX
	48141010216	CANUTILLO	TX
79836	48141010218	CANUTILLO	TX
	48141010502	CLINT	TX
	48141010347	CLINT	TX
	48141010404	CLINT	TX
79838	48141010501	CLINT	TX
	48141010502	FABENS	TX
	48141010501	FABENS	TX
79849	48141010505	FABENS	TX
	48141010407	SAN ELIZARIO	TX
	48141010501	SAN ELIZARIO	TX
79853	48141010406	SAN ELIZARIO	TX
	48141010405	SAN ELIZARIO	TX
	48141010506	TORNILLO	TX
79901	48141010504	TORNILLO	TX
	48141010505	TORNILLO	TX
	48141001900	EL PASO	TX
	48141002000	EL PASO	TX
	48141002100	EL PASO	TX
	48141001600	EL PASO	TX
	48141002800	EL PASO	TX
79902	48141001800	EL PASO	TX
	48141001700	EL PASO	TX
	48141001700	EL PASO	TX
	48141001501	EL PASO	TX
	48141001400	EL PASO	TX
	48141001111	EL PASO	TX
	48141002201	EL PASO	TX
	48141002202	EL PASO	TX
	48141002300	EL PASO	TX
	48141001115	EL PASO	TX
48141001104	EL PASO	TX	
48141001502	EL PASO	TX	
48141001600	EL PASO	TX	
79903	48141003300	EL PASO	TX
	48141010103	EL PASO	TX
	48141003402	EL PASO	TX
	48141002500	EL PASO	TX
	48141002600	EL PASO	TX
	48141002400	EL PASO	TX
	48141002300	EL PASO	TX
	48141010600	EL PASO	TX
	48141000403	EL PASO	TX
	48141000600	EL PASO	TX
79904	48141010211	EL PASO	TX
	48141000401	EL PASO	TX
	48141000301	EL PASO	TX
	48141000101	EL PASO	TX
	48141000404	EL PASO	TX
	48141000302	EL PASO	TX
	48141003402	EL PASO	TX
	48141002000	EL PASO	TX
	48141002100	EL PASO	TX
	48141003200	EL PASO	TX
79905	48141002800	EL PASO	TX
	48141003501	EL PASO	TX
	48141003602	EL PASO	TX
	48141003000	EL PASO	TX
	48141003100	EL PASO	TX
	48141003601	EL PASO	TX
	48141002900	EL PASO	TX
	48141010101	EL PASO	TX
	48141980000	EL PASO	TX
	48141003402	EL PASO	TX
79906	48141010103	EL PASO	TX
	48141010600	EL PASO	TX
	48141010102	EL PASO	TX
	48141003902	EL PASO	TX
	48141004004	EL PASO	TX
	48141003901	EL PASO	TX
	48141004003	EL PASO	TX
	48141004103	EL PASO	TX
	48141004107	EL PASO	TX
	48141004104	EL PASO	TX
79907	48141004106	EL PASO	TX
	48141003803	EL PASO	TX
	48141003804	EL PASO	TX
	48141003903	EL PASO	TX
	48141004002	EL PASO	TX

79908	48141010101	EL PASO	TX	
	48141010220	EL PASO	TX	
79911	48141010217	EL PASO	TX	
	48141010213	EL PASO	TX	
	48141010215	EL PASO	TX	
	48141010215	EL PASO	TX	
	48141001113	EL PASO	TX	
	48141001107	EL PASO	TX	
	48141010214	EL PASO	TX	
79912	48141001104	EL PASO	TX	
	48141010217	EL PASO	TX	
	48141001110	EL PASO	TX	
	48141010220	EL PASO	TX	
	48141010213	EL PASO	TX	
	48141001111	EL PASO	TX	
	48141001501	EL PASO	TX	
	48141001114	EL PASO	TX	
	48141001112	EL PASO	TX	
	48141001109	EL PASO	TX	
	48141001202	EL PASO	TX	
79915	48141001115	EL PASO	TX	
	48141004105	EL PASO	TX	
	48141004201	EL PASO	TX	
	48141003702	EL PASO	TX	
	48141004106	EL PASO	TX	
	48141004202	EL PASO	TX	
	48141003602	EL PASO	TX	
	48141003701	EL PASO	TX	
	48141003803	EL PASO	TX	
	48141003501	EL PASO	TX	
79916	48141003801	EL PASO	TX	
	48141003502	EL PASO	TX	
	48141004104	EL PASO	TX	
	48141010101	FORT BLISS	TX	
	48141010103	FORT BLISS	TX	
	48141010102	FORT BLISS	TX	
	48141001302	EL PASO	TX	
	79922	48141001800	EL PASO	TX
		48141001400	EL PASO	TX
		48141001203	EL PASO	TX

79924	48141000302	EL PASO	TX	
	48141000101	EL PASO	TX	
	48141000111	EL PASO	TX	
	48141000207	EL PASO	TX	
	48141000106	EL PASO	TX	
	48141000204	EL PASO	TX	
	48141000112	EL PASO	TX	
	48141010211	EL PASO	TX	
	48141000205	EL PASO	TX	
	48141000206	EL PASO	TX	
	48141000109	EL PASO	TX	
	48141010212	EL PASO	TX	
	48141000107	EL PASO	TX	
	48141000110	EL PASO	TX	
	48141000108	EL PASO	TX	
	48141010207	EL PASO	TX	
	48141000301	EL PASO	TX	
	48141000208	EL PASO	TX	
	79925	48141010303	EL PASO	TX
48141003300		EL PASO	TX	
48141010103		EL PASO	TX	
48141004311		EL PASO	TX	
48141004312		EL PASO	TX	
48141003404		EL PASO	TX	
48141004303		EL PASO	TX	
48141003403		EL PASO	TX	
48141004318		EL PASO	TX	
48141004310		EL PASO	TX	
48141003200		EL PASO	TX	
48141980000		EL PASO	TX	
48141004317		EL PASO	TX	
48141003402		EL PASO	TX	
79926		48141004202	EL PASO	TX
		48141004002	EL PASO	TX
		48141010409	EL PASO	TX
	48141010401	EL PASO	TX	
	48141010405	EL PASO	TX	
79927	48141010347	EL PASO	TX	
	48141010404	EL PASO	TX	
	48141010408	EL PASO	TX	
	48141010346	EL PASO	TX	

	48141010341	EL PASO	TX
	48141010332	EL PASO	TX
	48141010335	EL PASO	TX
	48141010334	EL PASO	TX
79928	48141010344	EL PASO	TX
	48141010342	EL PASO	TX
	48141010345	EL PASO	TX
	48141001600	EL PASO	TX
	48141010343	EL PASO	TX
	48141010333	EL PASO	TX
	48141001001	EL PASO	TX
	48141001002	EL PASO	TX
	48141000401	EL PASO	TX
	48141000900	EL PASO	TX
79930	48141002500	EL PASO	TX
	48141010600	EL PASO	TX
	48141002201	EL PASO	TX
	48141002400	EL PASO	TX
	48141000800	EL PASO	TX
	48141002300	EL PASO	TX
79931	48141000800	EL PASO	TX
	48141001203	EL PASO	TX
	48141010219	EL PASO	TX
	48141001201	EL PASO	TX
79932	48141010216	EL PASO	TX
	48141010218	EL PASO	TX
	48141001302	EL PASO	TX
	48141001301	EL PASO	TX
	48141010210	EL PASO	TX
	48141010211	EL PASO	TX
79934	48141000106	EL PASO	TX
	48141010212	EL PASO	TX
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	48141004313	EL PASO	TX
	48141010303	EL PASO	TX
79935	48141004312	EL PASO	TX
	48141010101	EL PASO	TX
	48141010307	EL PASO	TX

	48141010303	EL PASO	TX
	48141004316	EL PASO	TX
	48141004319	EL PASO	TX
	48141010347	EL PASO	TX
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	48141010342	EL PASO	TX
	48141010317	EL PASO	TX
	48141010336	EL PASO	TX
	48141010323	EL PASO	TX
79936	48141010307	EL PASO	TX
	48141010311	EL PASO	TX
	48141010327	EL PASO	TX
	48141010325	EL PASO	TX
	48141004309	EL PASO	TX
	48141010316	EL PASO	TX
	48141010338	EL PASO	TX
	48141010337	EL PASO	TX
	48141010322	EL PASO	TX
	48141010326	EL PASO	TX
	48141004314	EL PASO	TX
	48141010312	EL PASO	TX
	48141010328	EL PASO	TX
	48141010324	EL PASO	TX
	48141010340	EL PASO	TX
	48141010319	EL PASO	TX
	48141010341	EL PASO	TX
	48141010329	EL PASO	TX
	48141010331	EL PASO	TX
79938	48141010339	EL PASO	TX
	48141010325	EL PASO	TX
	48229950300	EL PASO	TX
	48141010330	EL PASO	TX
	48141010328	EL PASO	TX
	48141010344	EL PASO	TX