



Broadband and Digital Equity

City Council Connectivity Subcommittee

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June 18, 2024

PURPOSE OF PRESENTATION

Council Strategic Framework Guidance:

- **Forward-thinking transportation and technology networks with fiber and wireless technology providers that quickly and reliably connect people and business.**
 - **Assess the current state of Chandler's level of service from broadband providers, identifying gaps and recommending strategies for improved coverage.**

Chandler strives to be the Most Connected City and a Community of Innovation

- **Broadband infrastructure and digital equity are crucial for Chandler's goal to be the most connected city.**
- **High-speed internet fosters economic growth, education, healthcare access, and social inclusion.**
- **Digital equity ensures all residents can participate fully in the digital age.**

What role can the City play in meeting these goals?

LICENSE AGREEMENTS

Initiatives and policies related to broadband infrastructure:

- Federal Code (Telecommunications Acts)
- State Law (ARS 9-581 et. Seq.)
- City Code (Chapter 46 and others...), Engineering Standards & City Policies ([DSP-201](#))
 - Class 4, Class 5, Class 6 or Class 7 “Broadband” provider / mixed use

City’s role in regulating/providing broadband:

- Right-of-Way Management – Enforcement of CCC, Standards & Policies
- Project Coordination (project tracking, but not project management)
- Influence/encourage direction – FTTH = Improved Reliability

Challenges the city faces with agreements and regulations:

- Limited authority – State and Federal pre-emption
 - Treating like providers similarly (Fee models, PEG Channels, etc.)
- Resident education and outreach

Background – Broadband Service Levels

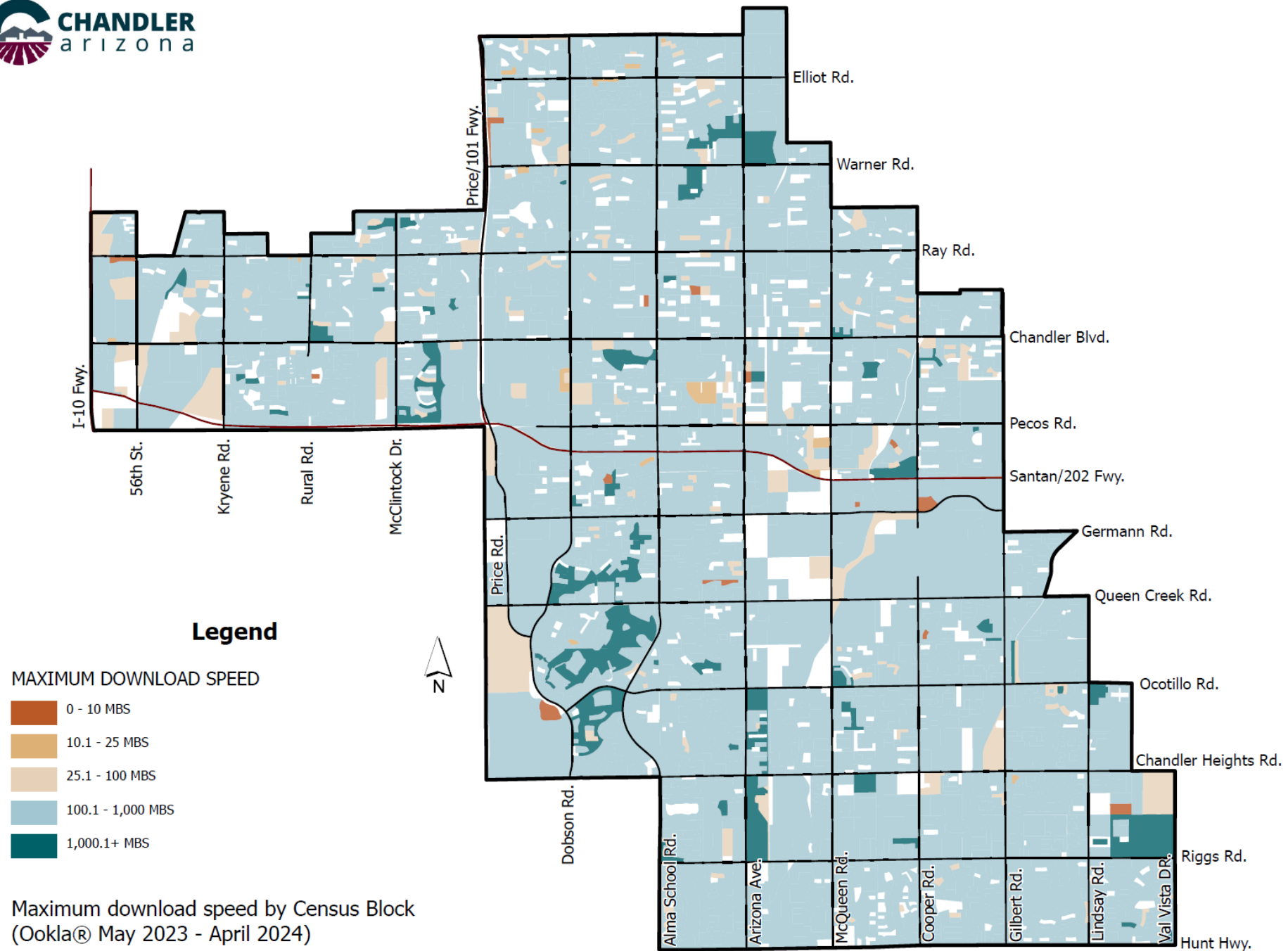
- What does it mean to be well served?
 - Availability –
 - Competition
 - Network Congestion (time of day, a.k.a. peak internet usage hours)
 - Reliability –
 - Copper/Coax, HFC or FTTH
 - HFC – FTTN vs. FTTP vs. FTTH
- Broadband Level of Service Standard:
 - 3/14/2024 – FCC Officially upgraded Broadband Standard from 25/3 Mbps to 100/20 Mbps

Background – Broadband Service Levels

- Are there gaps in service currently?
 - What is an unserved area?
 - <25/3 Mbps
 - What is an underserved area?
 - >25/3, but <100/20Mbps
 - What is a low “take rate”?
 - Service is available, but customers are not subscribing.
- So, when and how will these gaps be filled?
 - Let’s take a look at a few facts before we answer this question.

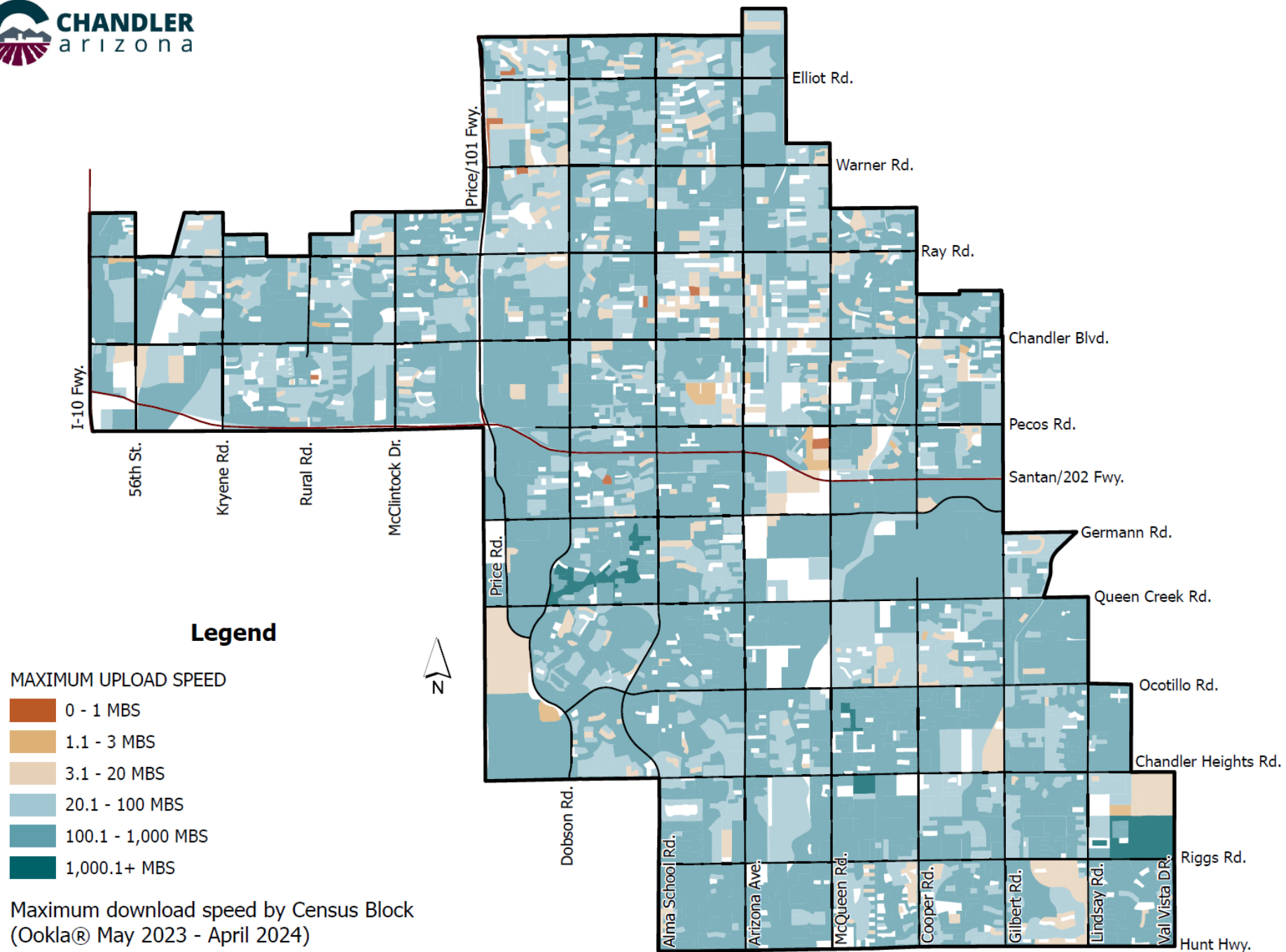
Competition

- Served =
only requires 1
provider
>100/20 Mbps
- Well served =
Multiple providers
>100/20 Mbps
- *Both download and
upload speeds
must be met.*



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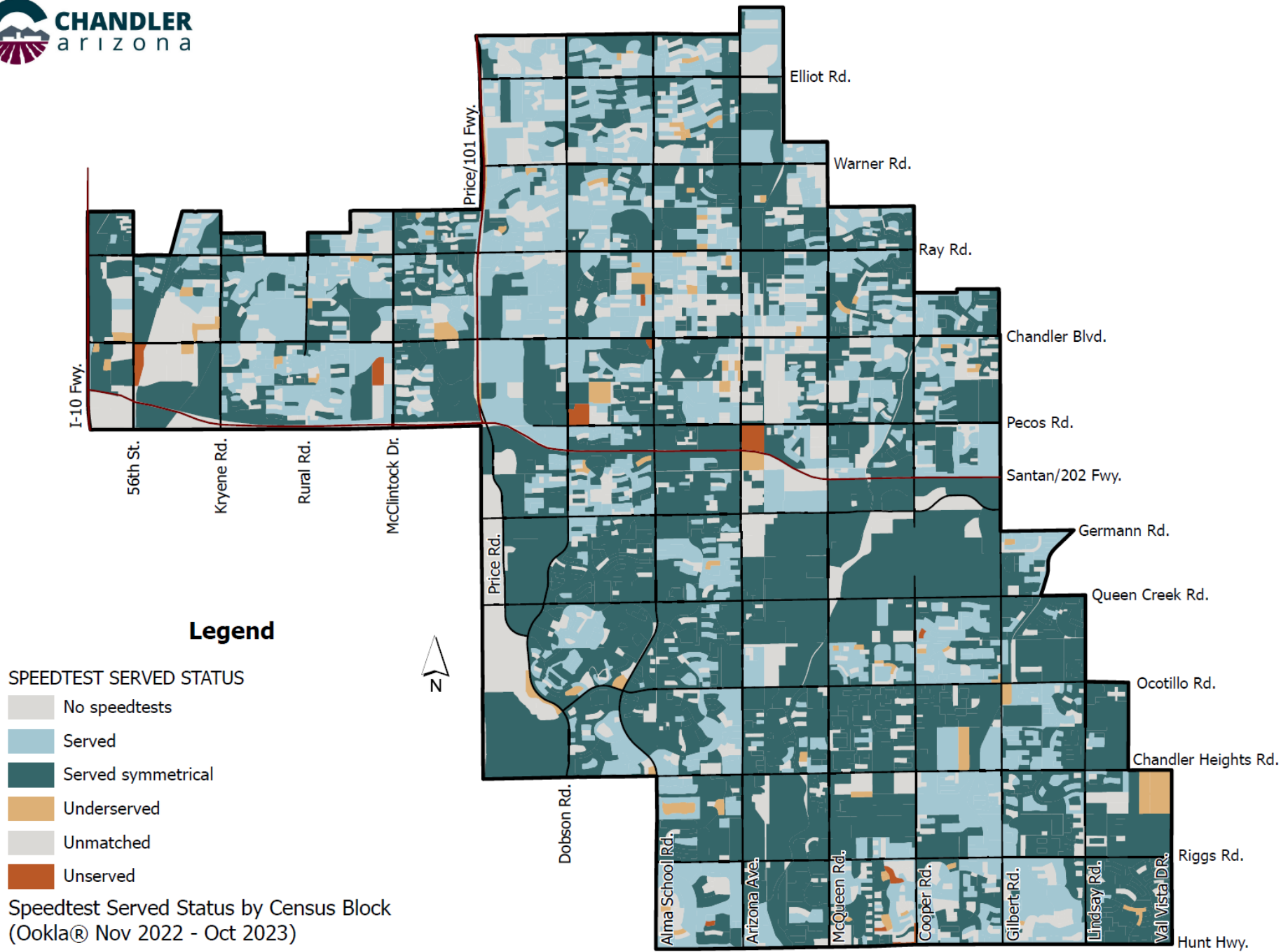
Speedtest Served Areas

- 3rd party crowd sourced data
- Only takes 1 provider at >25/3 Mbps

Getting the public to perform speed tests would help improve this data.

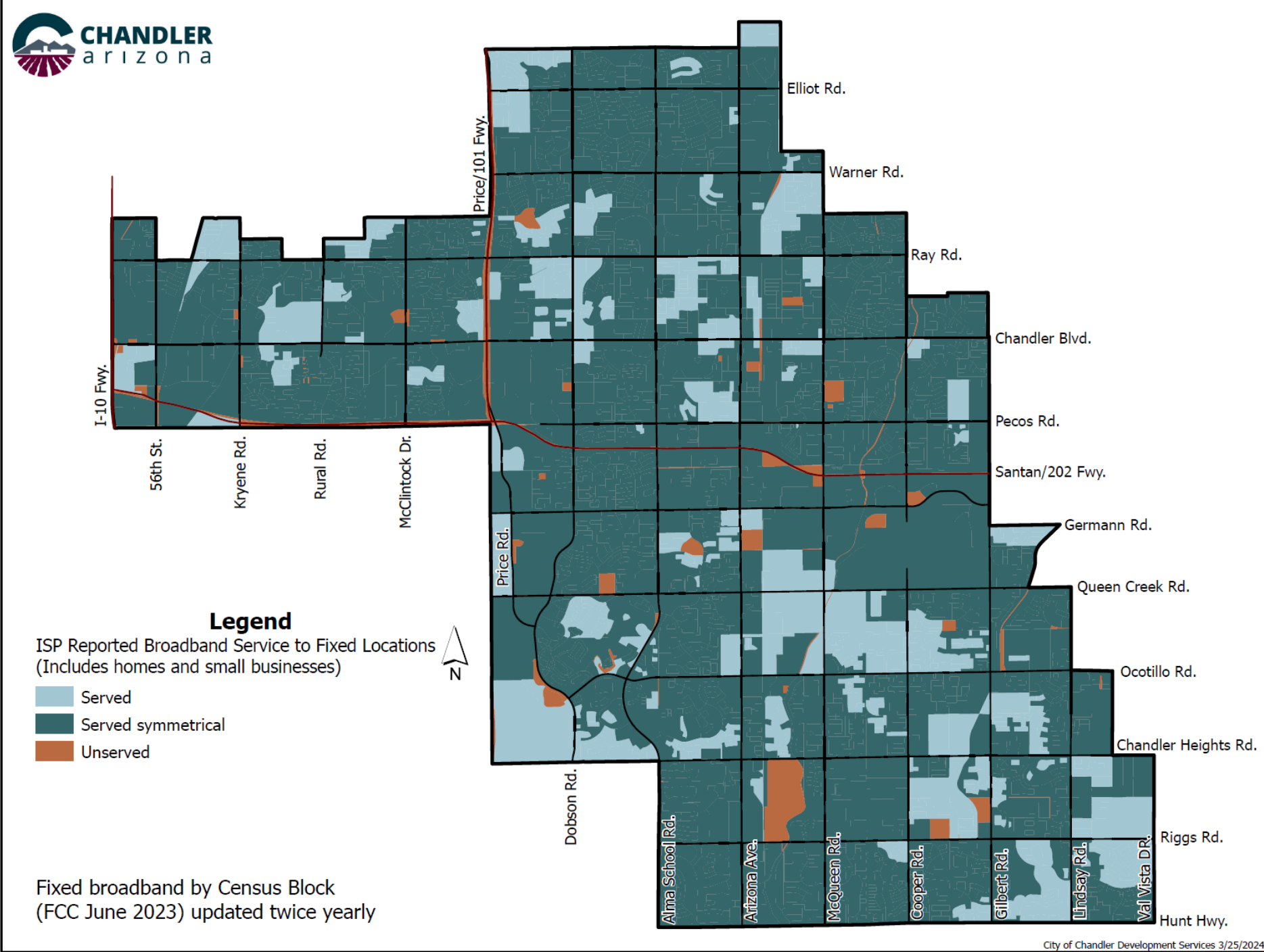
CityScope outreach?

Source: Ookla



Served Areas

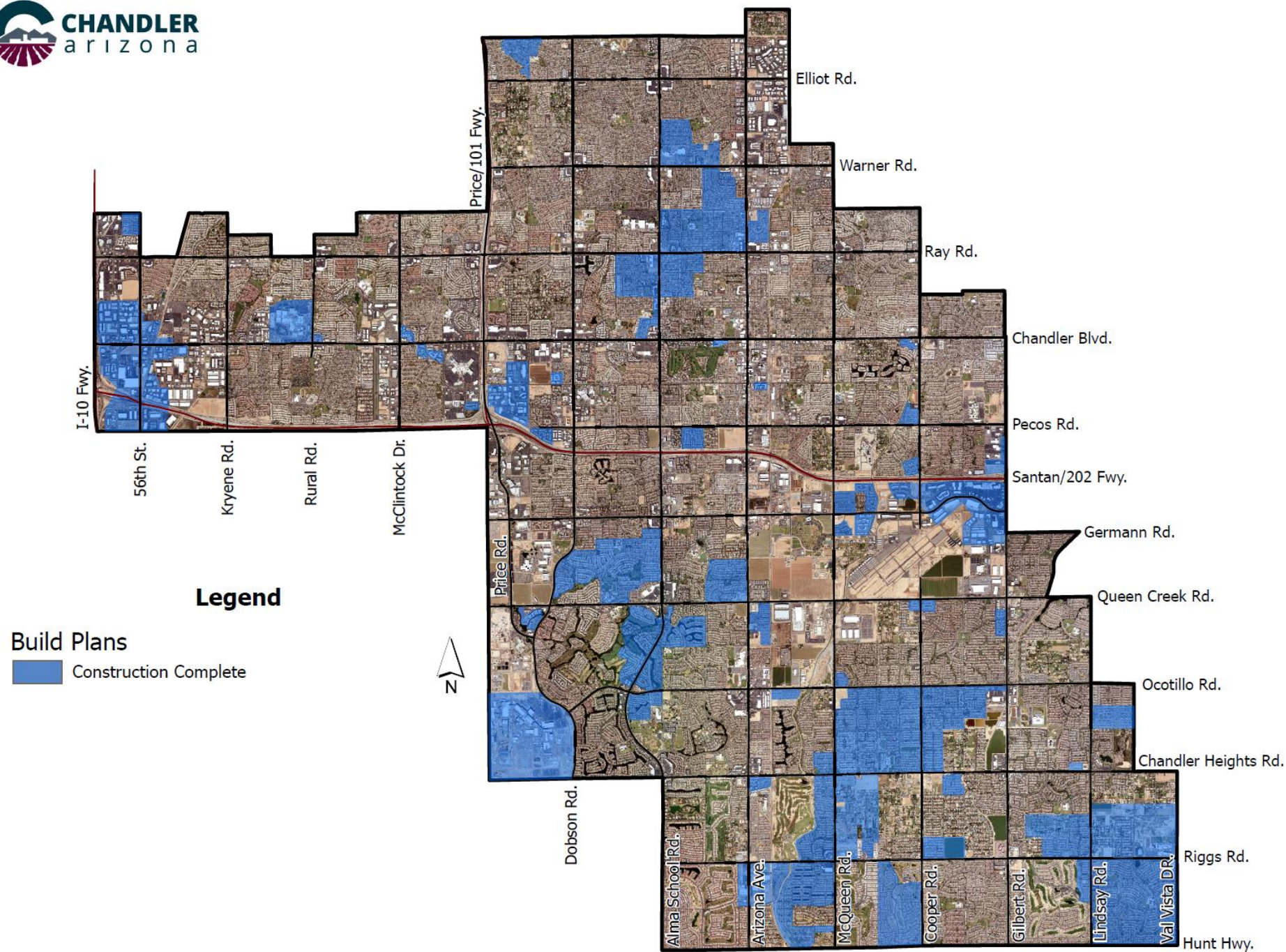
- Provider reported data
- Only takes 1 provider at >25/3 Mbps



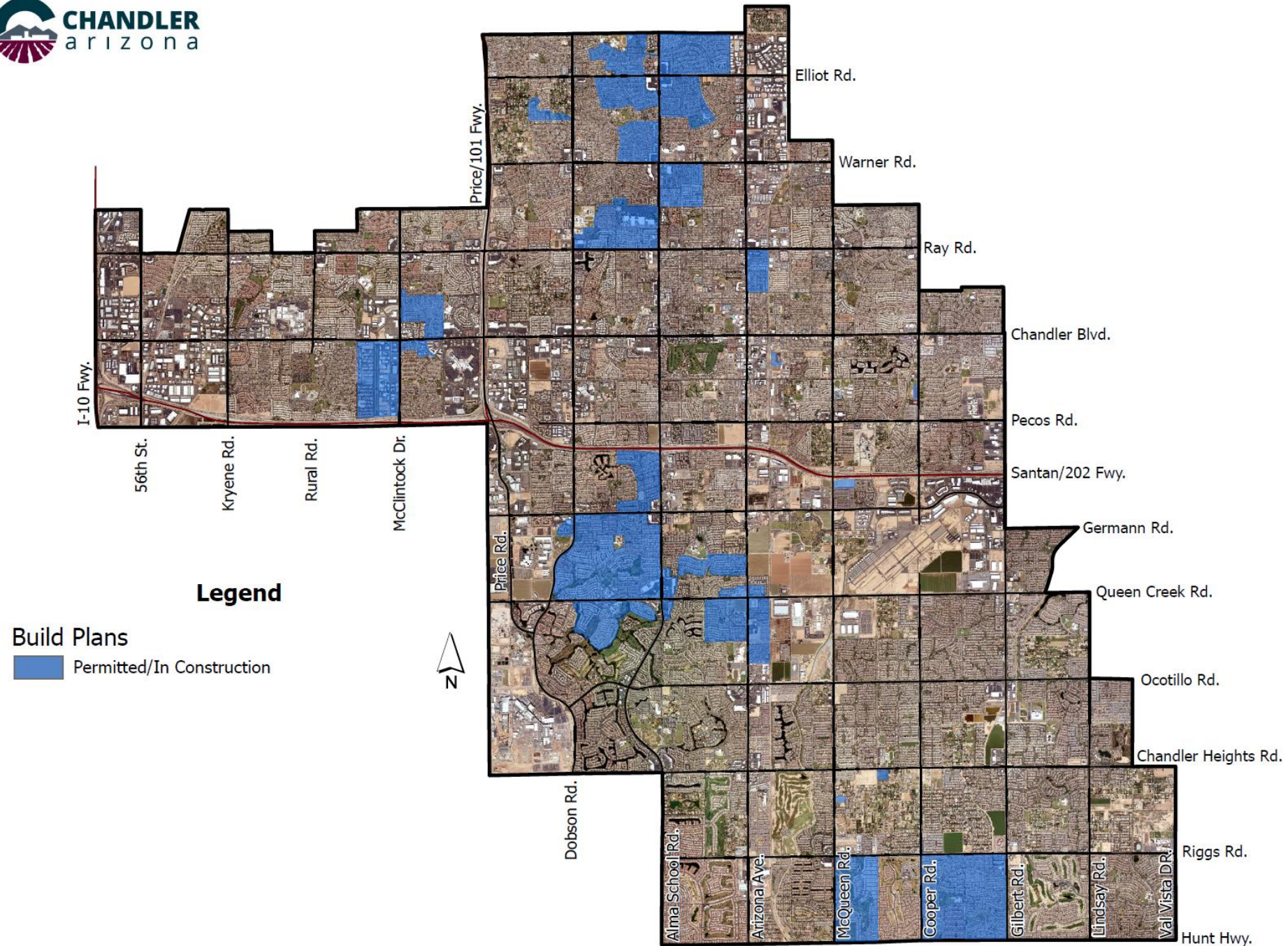
Background – CCC Permit Class system

- Provider projects – 15 fiber providers in Chandler
 - What's a like provider? How do we treat them similarly?
- Class 4 Provider (ILEC) – CenturyLink/Lumen (Copper/HFC/FTTH)
- Class 5 Providers –
 - Commercial/Industrial Focus – Alluvion, Light Source, MCI, TCA, Zayo
 - FTTH Focus –
 - Traditional – Google Fiber, Zoom Tech AZ
 - Open Access – Gigapower and Ubiquity
 - SWF Focus – Crown Castle Fiber
- Class 6 Providers – Cox (Coax/HFC/FTTH) and Orbitel (Coax/HFC/FTTH)
- Class 7 Providers (Easements) – SRP (Commercial/Industrial Focus), City of Chandler (Municipal and IGA partners)

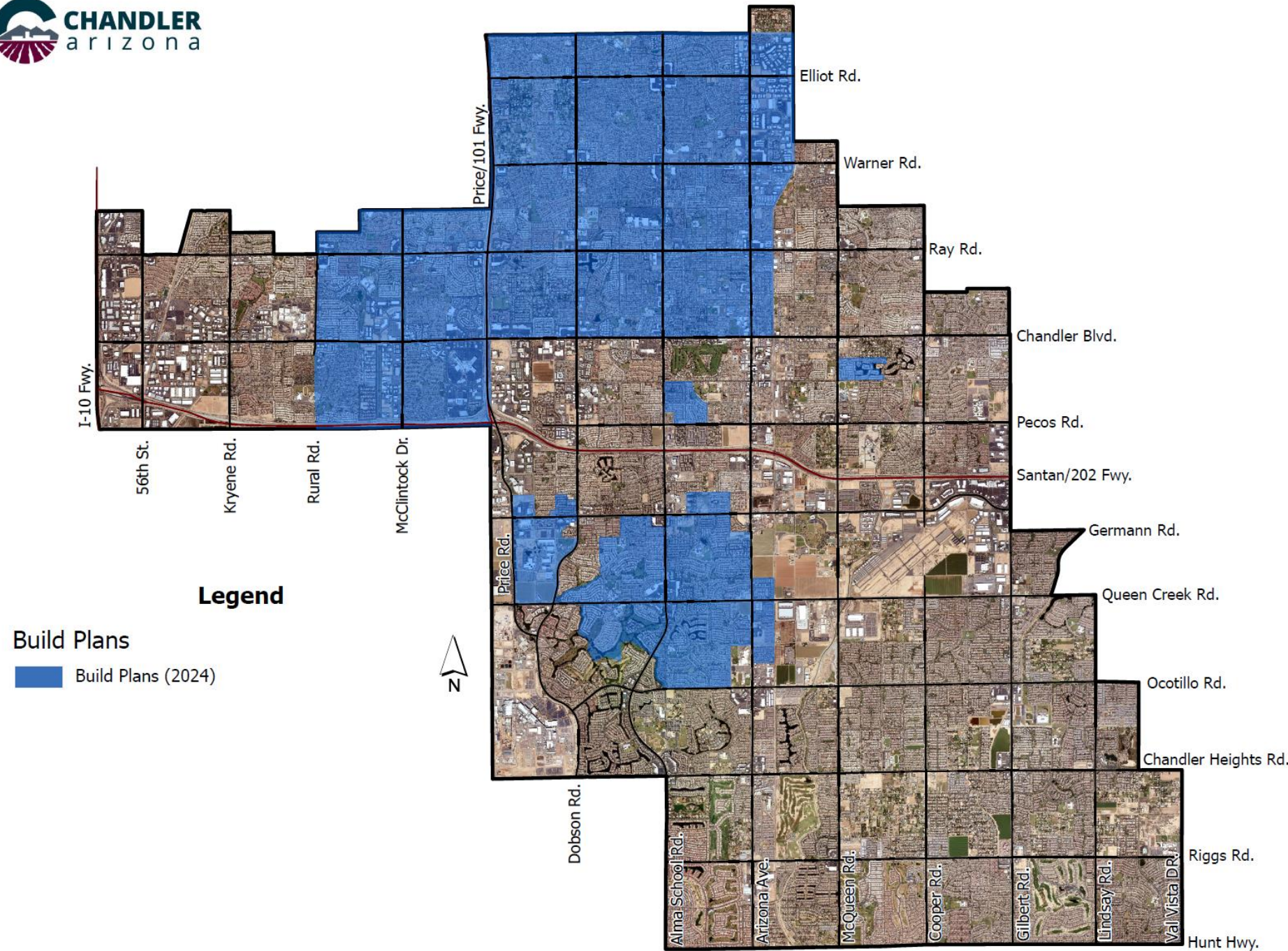
FTTP - Construction Complete



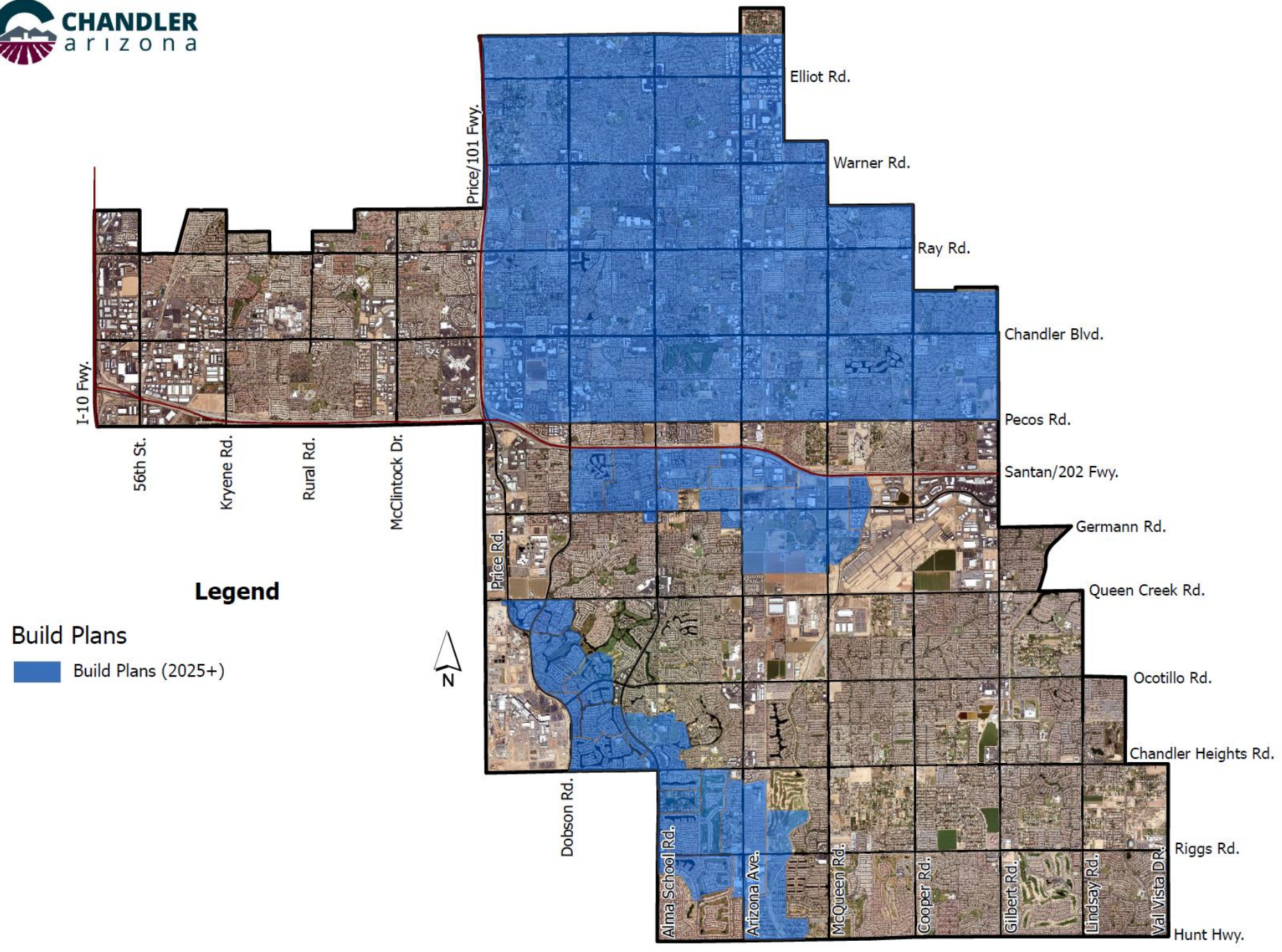
In Construction



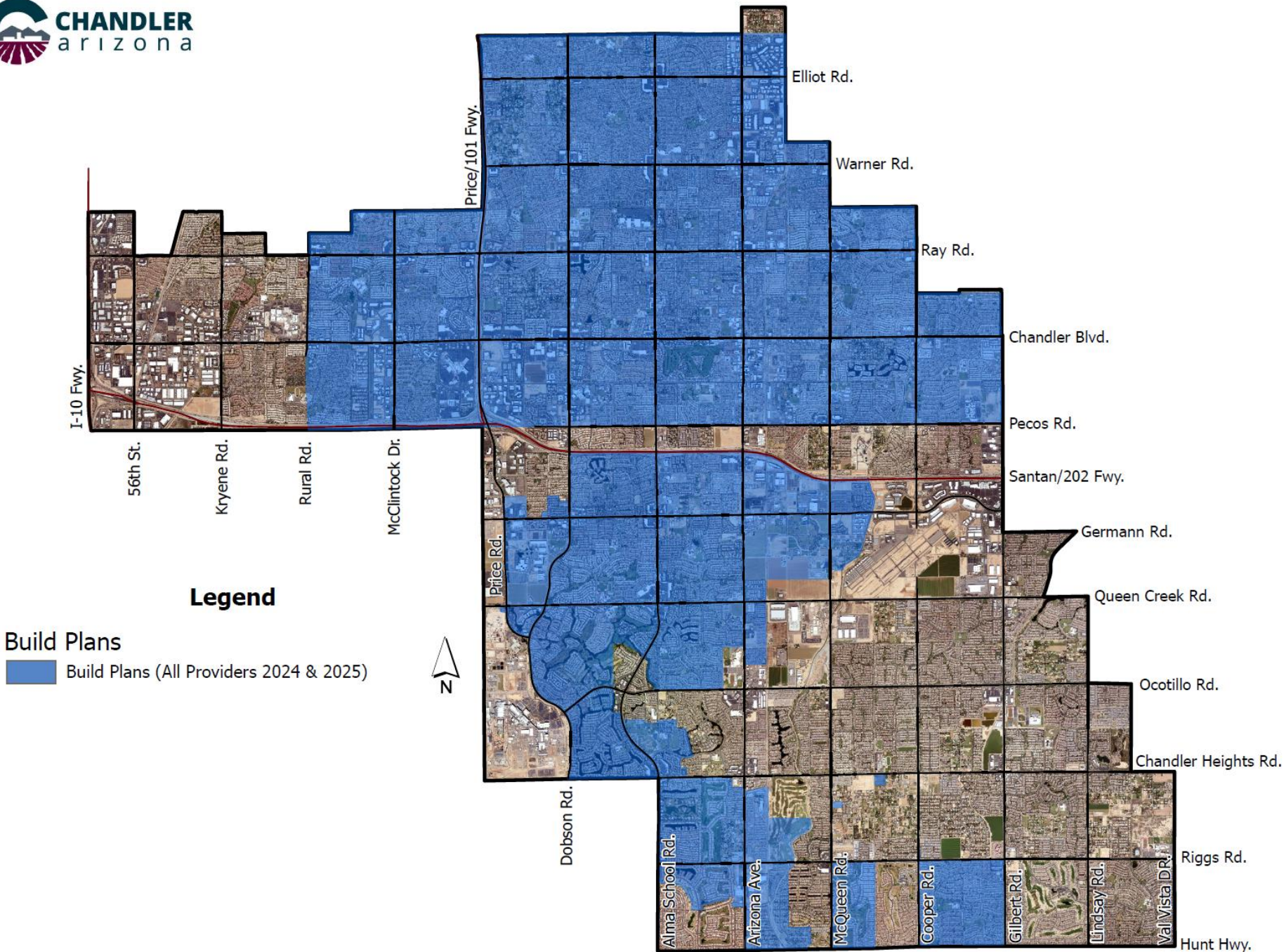
Build plans for 2024



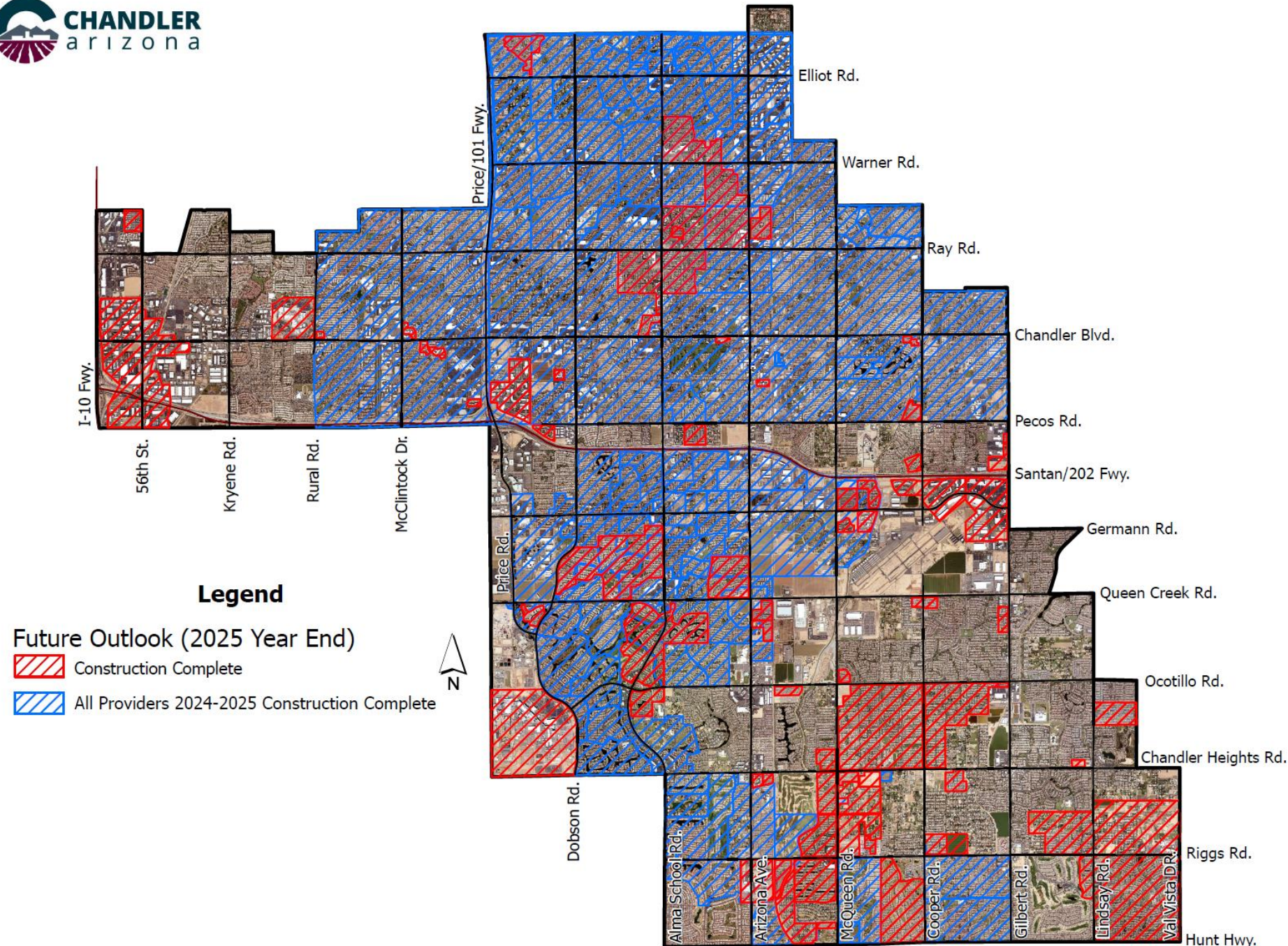
Build Plans 2025 +



Build Plans All Providers (2024 & 2025)



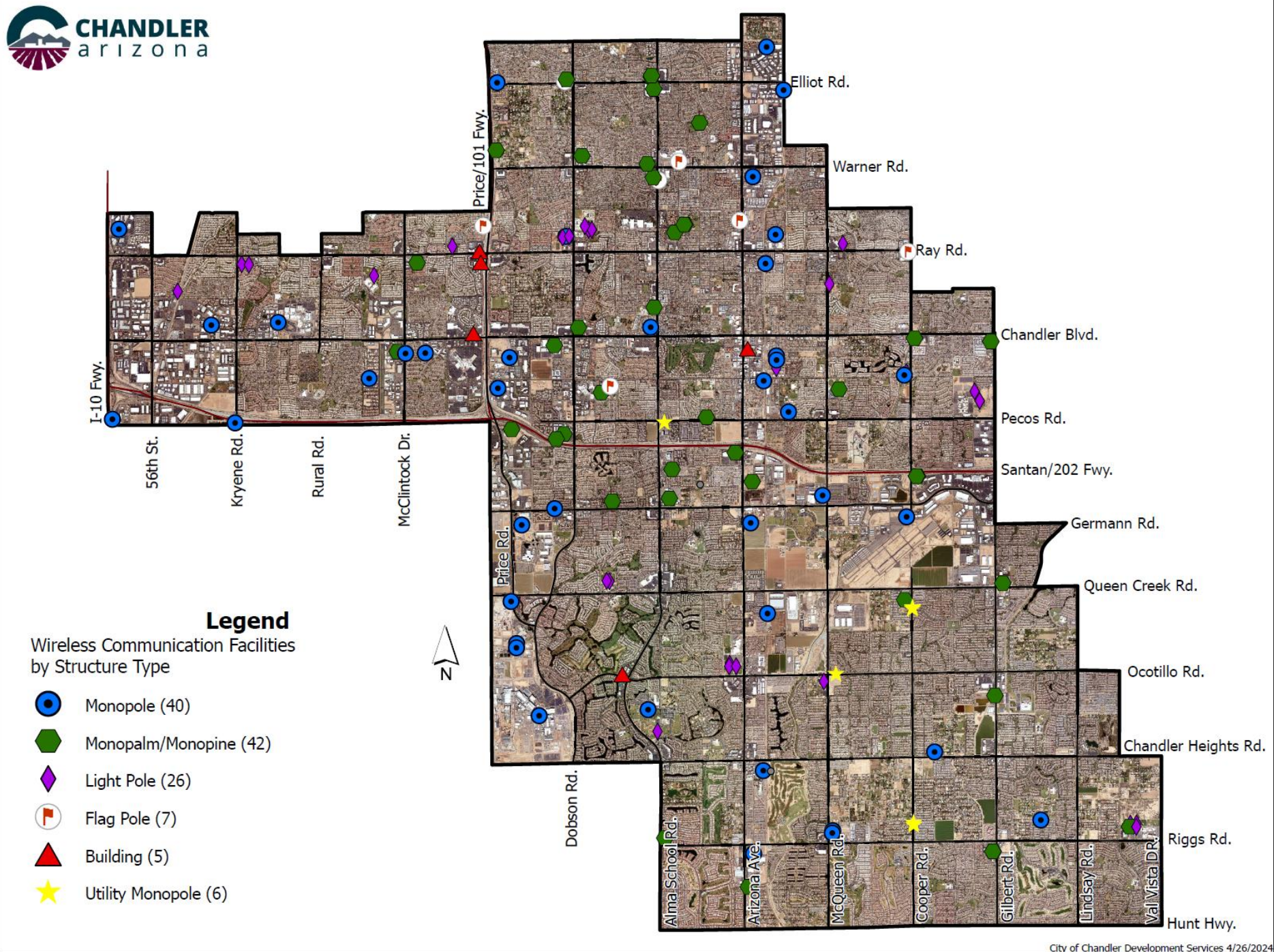
Future Outlook (2025 Year End)



Background – Wireless Broadband

- Provider projects – 3 primary wireless broadband providers in Chandler
 - AT&T
 - Verizon
 - T-Mobile + former Sprint sites
- Site Types:
 - Macro Sites
 - Small Wireless Facilities
- Heat Maps

Macro Cell Sites



Small Cell Sites



Small Wireless Facilities - 199 Construction Complete City Wide

(of 374 previously approved)



Legend

SWF Streetlights (185)

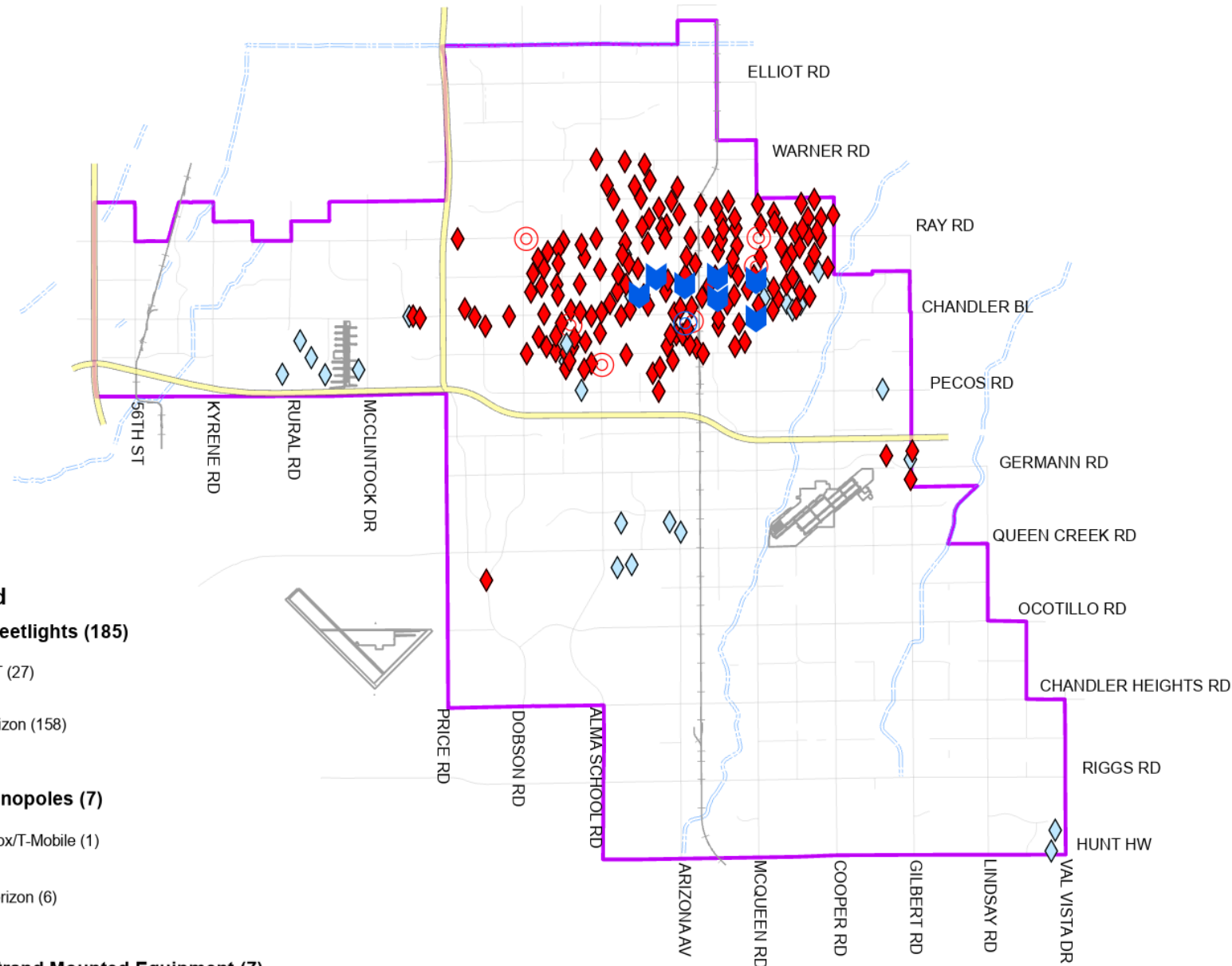
- ATT (27)
- Verizon (158)

SWF Monopoles (7)

- Cox/T-Mobile (1)
- Verizon (6)

Aerial Strand Mounted Equipment (7)

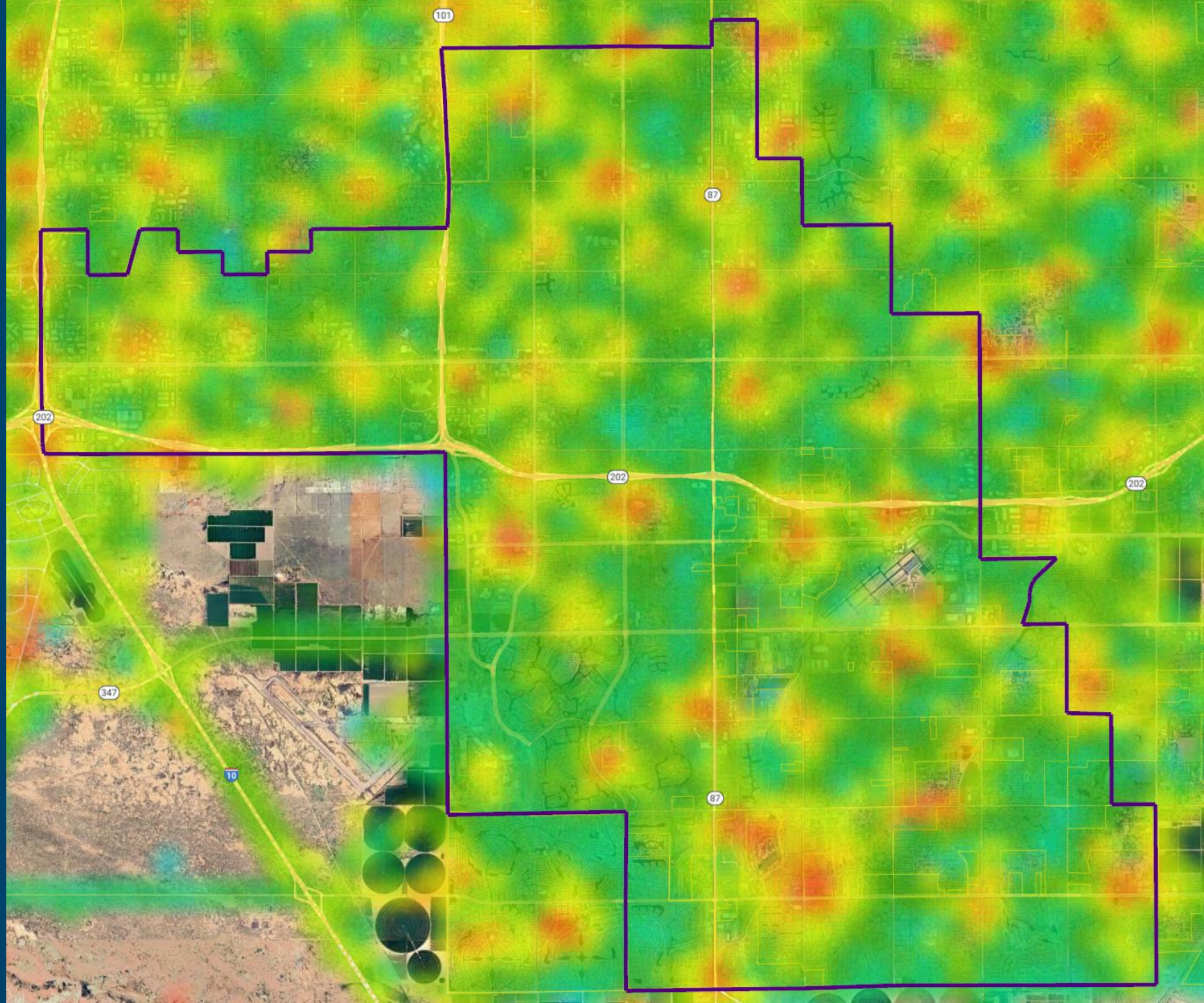
- Cox/T-Mobile (7)



All Carriers

Heat map shows the following:

- Red = great service
- Yellow = good service
- Green = Not the best service



<https://cellanalytics.ookla.com/>

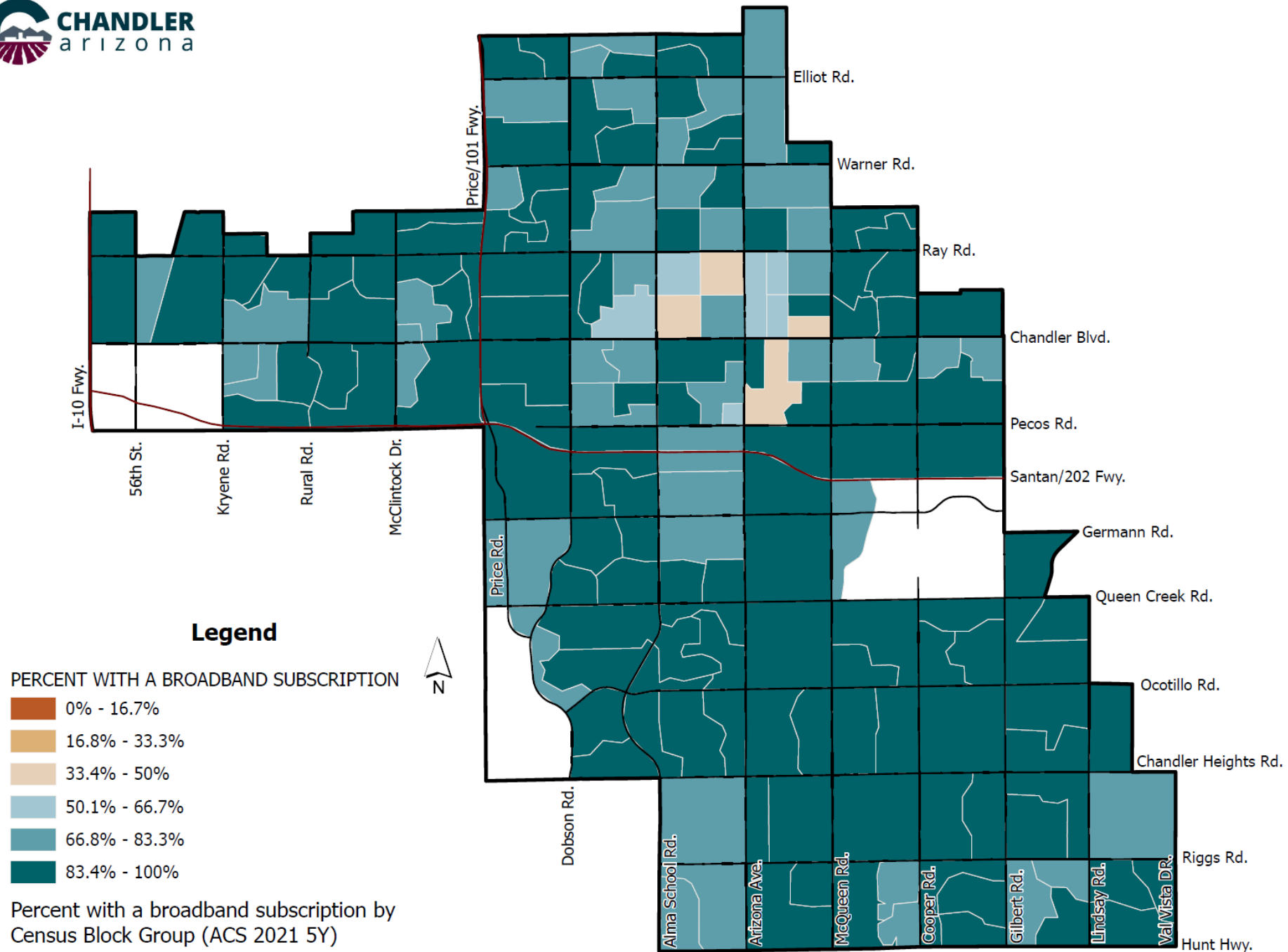
Background – Service Gaps?

- Is Chandler underserved?
 - Maybe in terms of a lack of reliability and competition, but we certainly have low “take rates” in some areas.
- Why?
- Here are some data points that may help explain:
 - Median Household Income
 - CDBG Eligible Census Blocks
 - Households without a laptop or a desktop
 - Areas with no broadband subscription (i.e. low take rates)
- When and how will these gaps be filled?

Percent with Broadband Subscriptions

As we've seen, availability isn't really the problem.

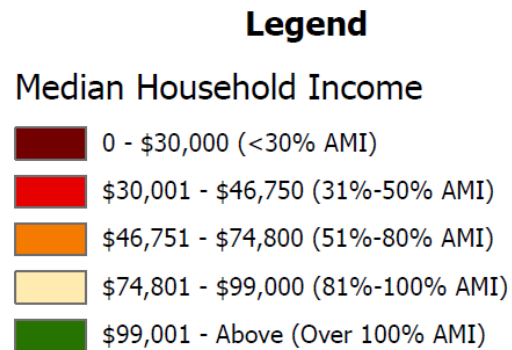
Affordability might be, though.



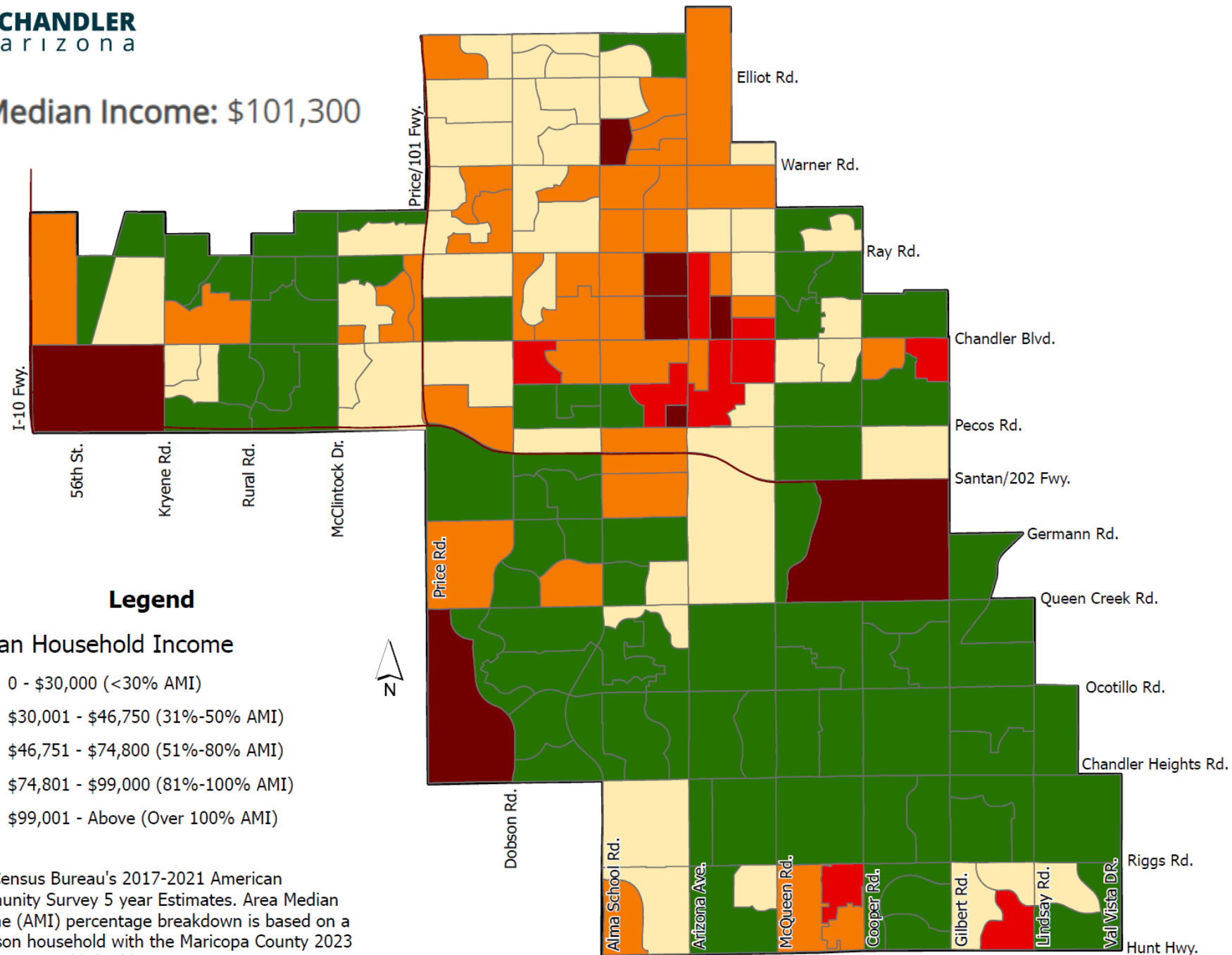
Median Household Incomes



Median Income: \$101,300

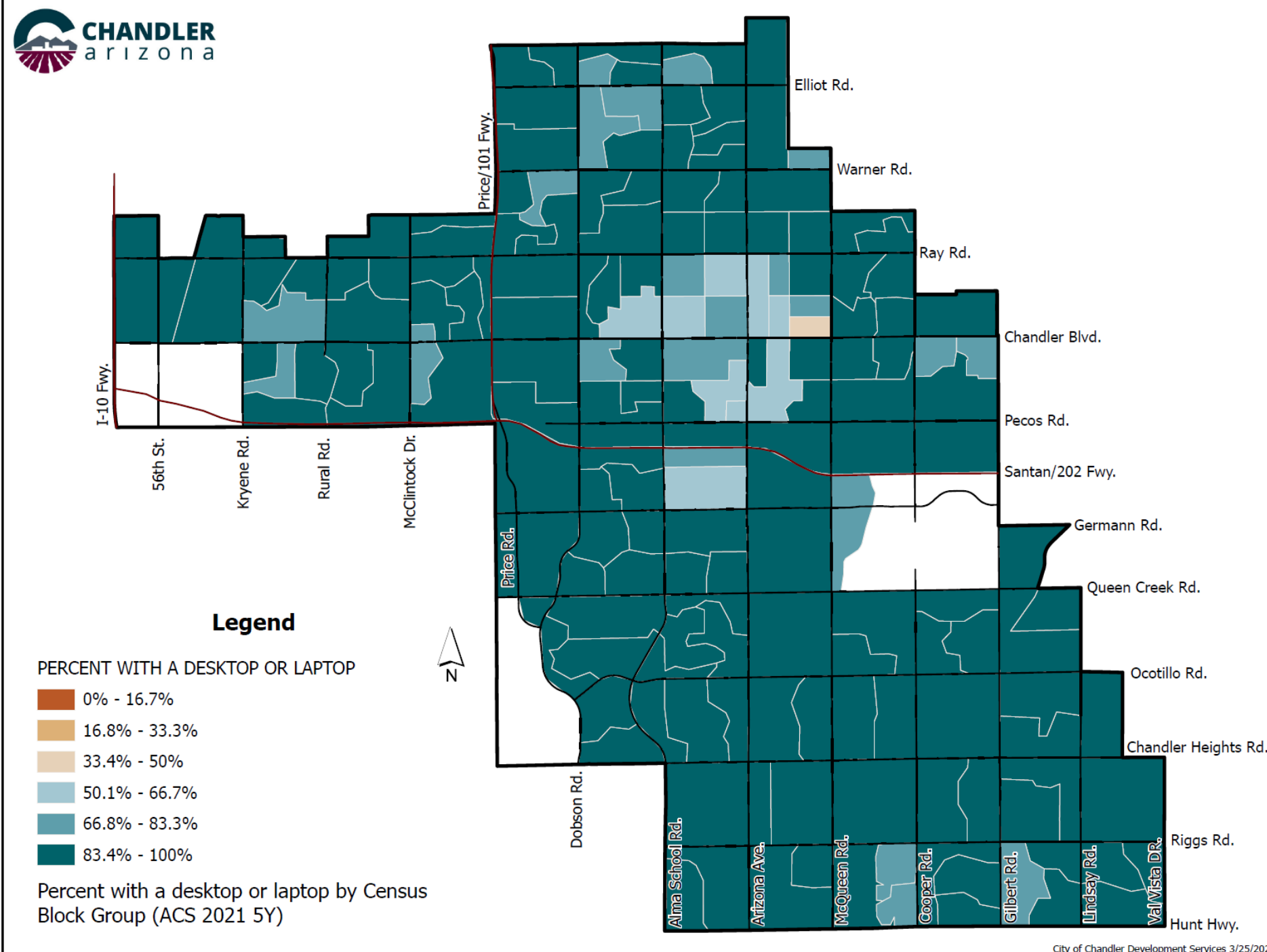


U.S. Census Bureau's 2017-2021 American Community Survey 5 year Estimates. Area Median Income (AMI) percentage breakdown is based on a 4-person household with the Maricopa County 2023 AMI data as published by HUD.

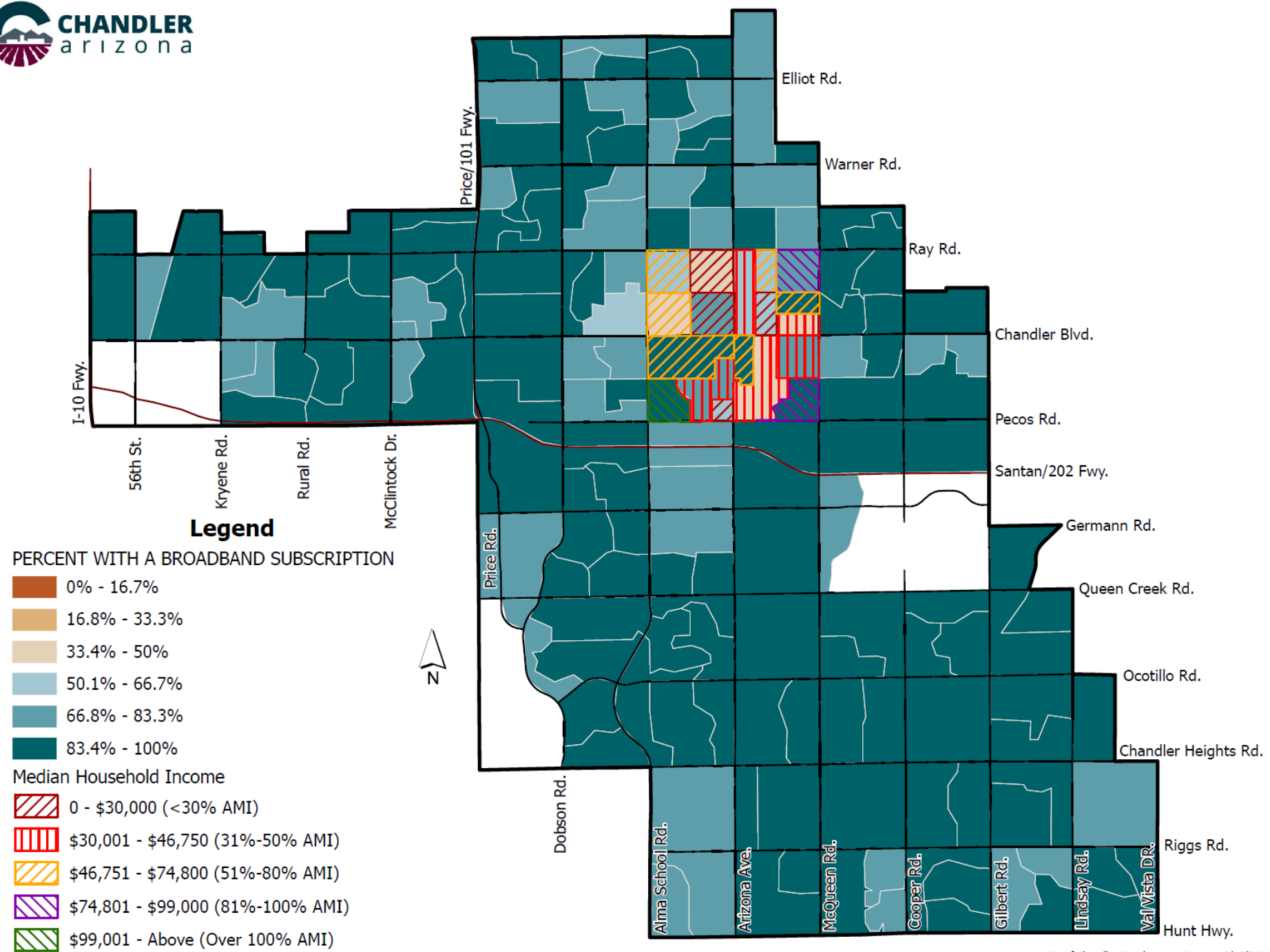


Percent with Desktop or Laptop

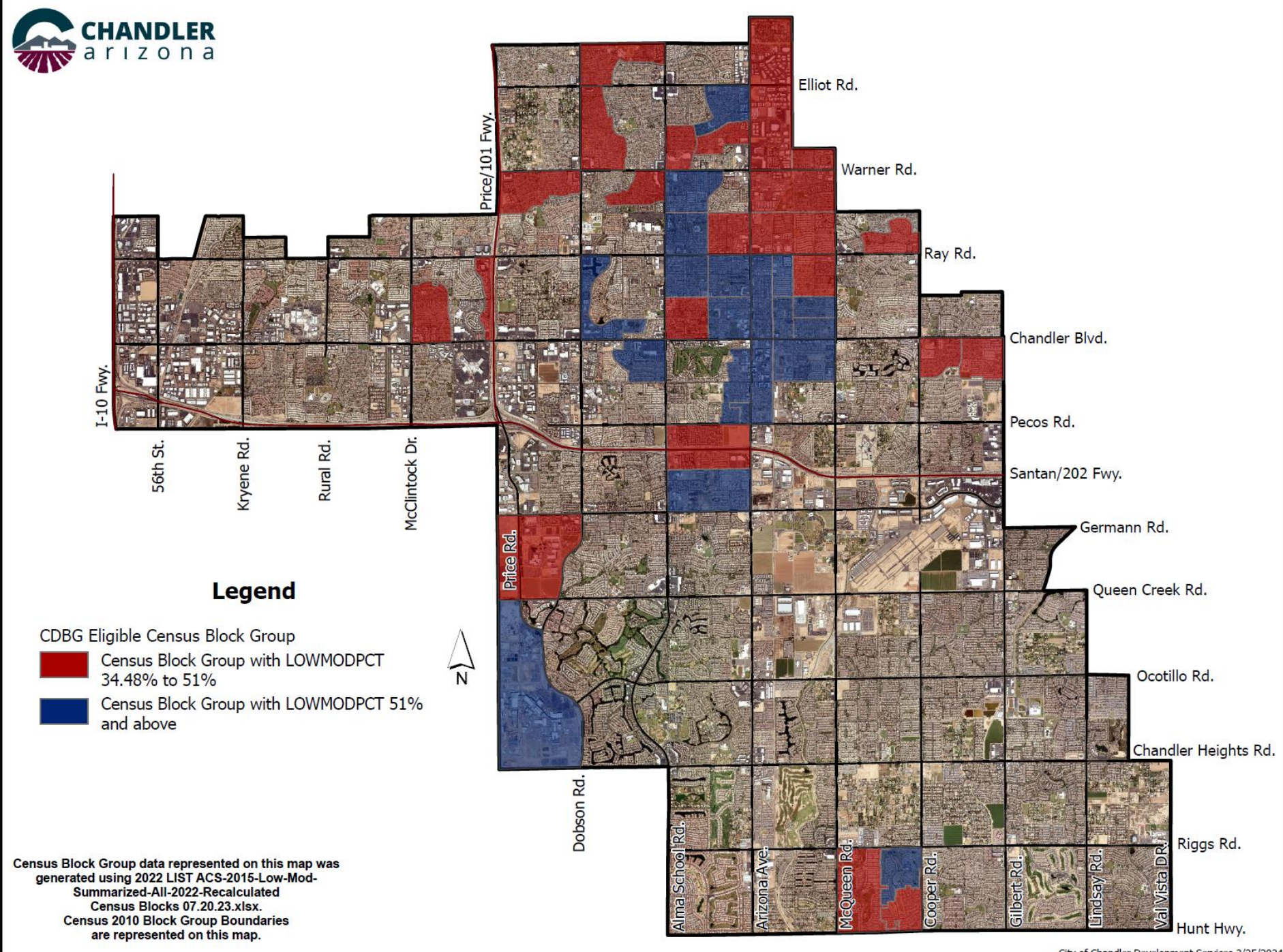
Another sign pointing to affordability as the biggest factor of the digital divide in Chandler.



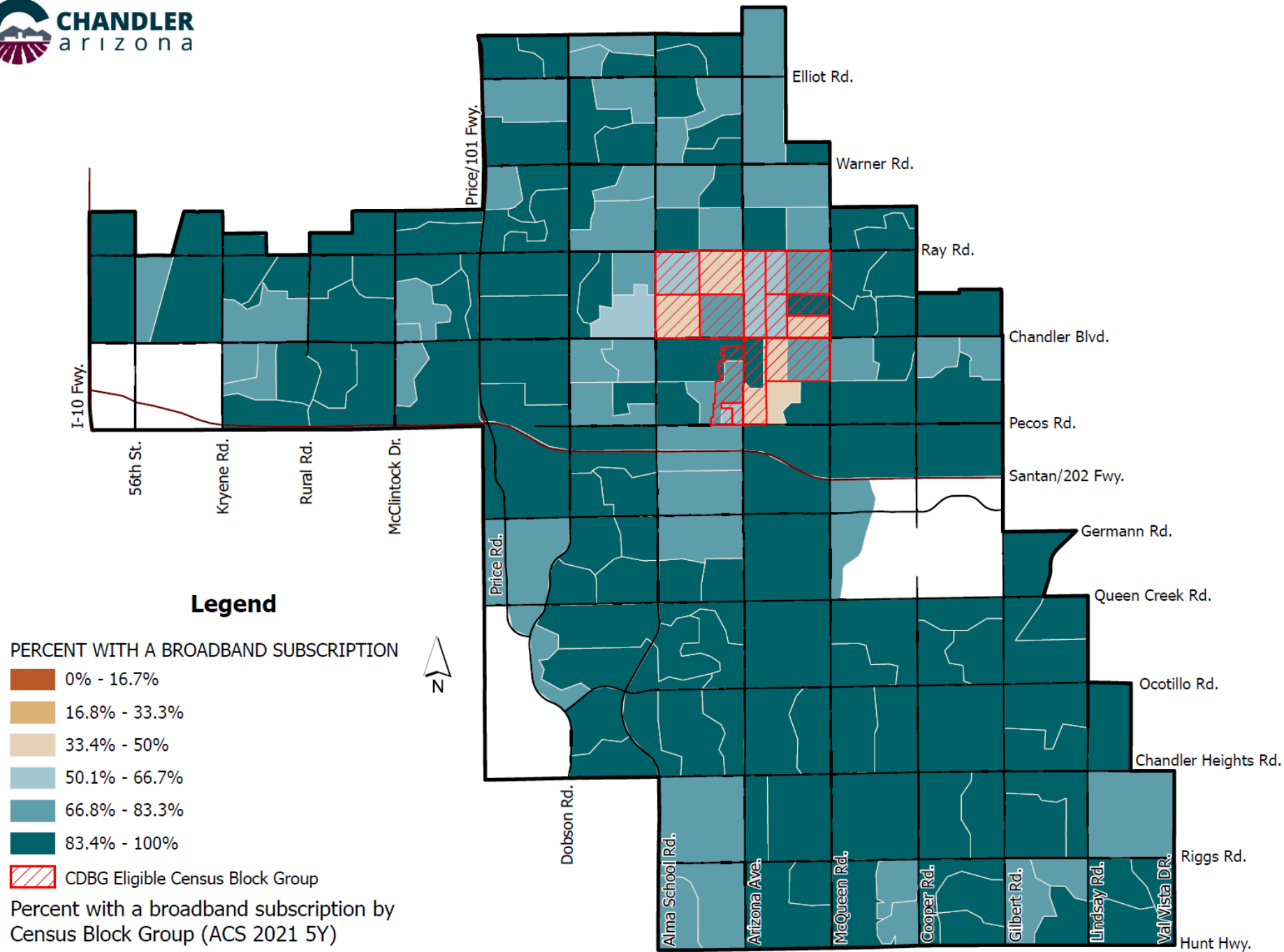
A correlation between Low Income areas and Low Take Rates.



CDBG Eligible Census Block Group



A correlation between CDBG eligible areas and Low Take Rates.



Next Steps

What role can the City play in supporting digital equity?

- Supporting initiatives:
 - HIVEs (ASU Digital Equity Institute)
 - School District Initiatives
- Staff ideas:
 - Public Wi-Fi at Public Housing Sites
 - Broadband Digital Equity Resolution

HIVE by Digital Equity Institute (ASU)

Where Community Meets Technology

- Support underserved communities to thrive in the digital world.
- Provide tailored assistance from specialized "digital navigators."
- Offer free access to tablets, laptops, and desktops.
- Assist with personal devices: smartphones, tablets, and laptops.
- Conduct Internet Safety workshops teaching digital essentials.
- Introduce new tech like VR goggles and 3D printers.
- Operate six HIVE locations throughout the Valley, including one in Chandler.
- Funded by the ASU Digital Equity Institute (DEI).
- City facilitating CUSD, AZCEND and ASU partnership on future HIVE location in Chandler.

Public Wi-Fi

Leverage public housing sites to improve underserved areas and take-rates:

Options:

- Service Area 1 (Chandler Blvd. & Hamilton St.)
- Service Area 2 (McQueen & Chandler Blvd.)
- *Service Area 3 (71 S. Hamilton St.)
- Service Area 4 (Pecos Rd. & Palm Ln.)
- **Villas on McQueen

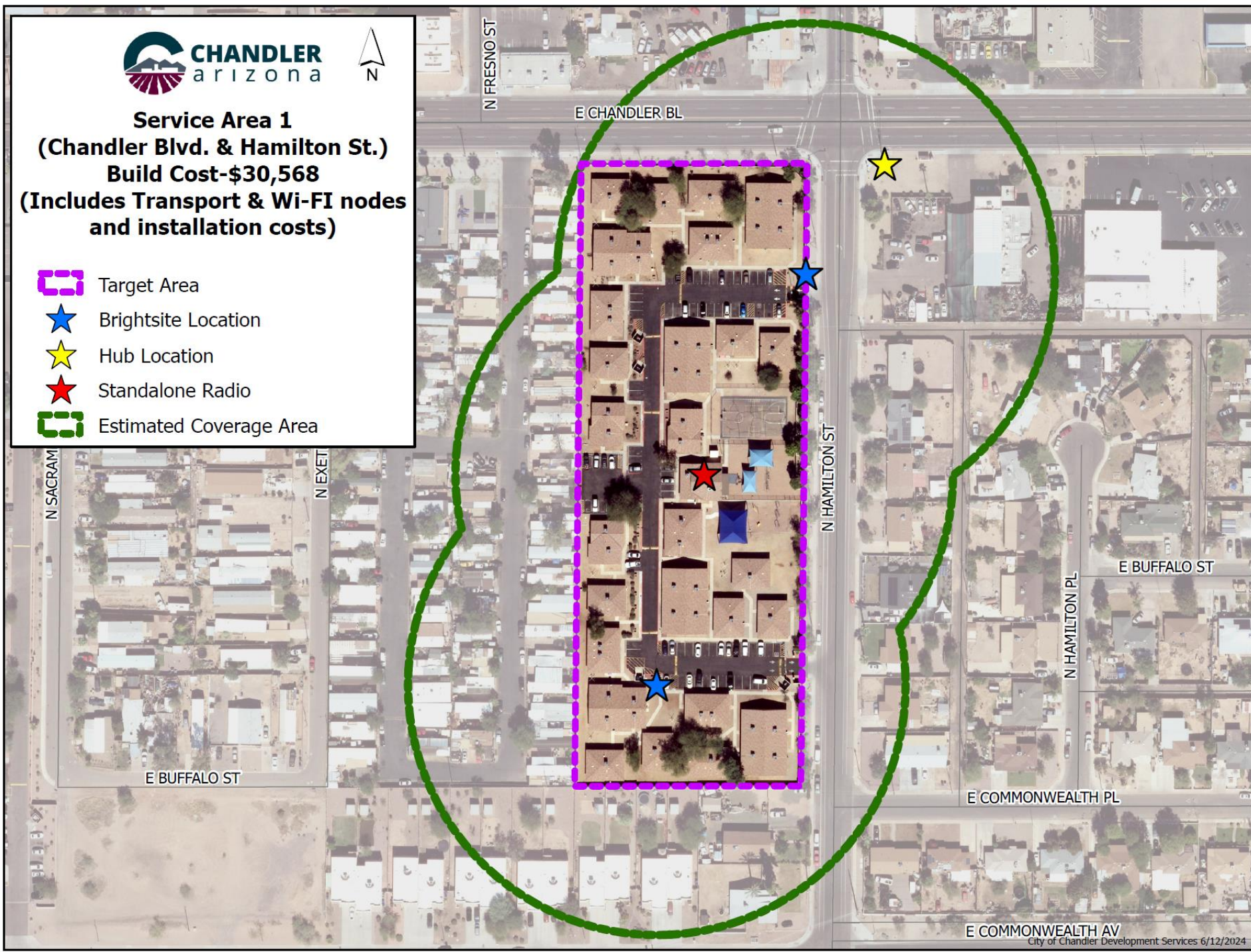
Build into construction costs while sites are redeveloped.

*Already served by City of Chandler fiber.

**City fiber exists along the property frontage.

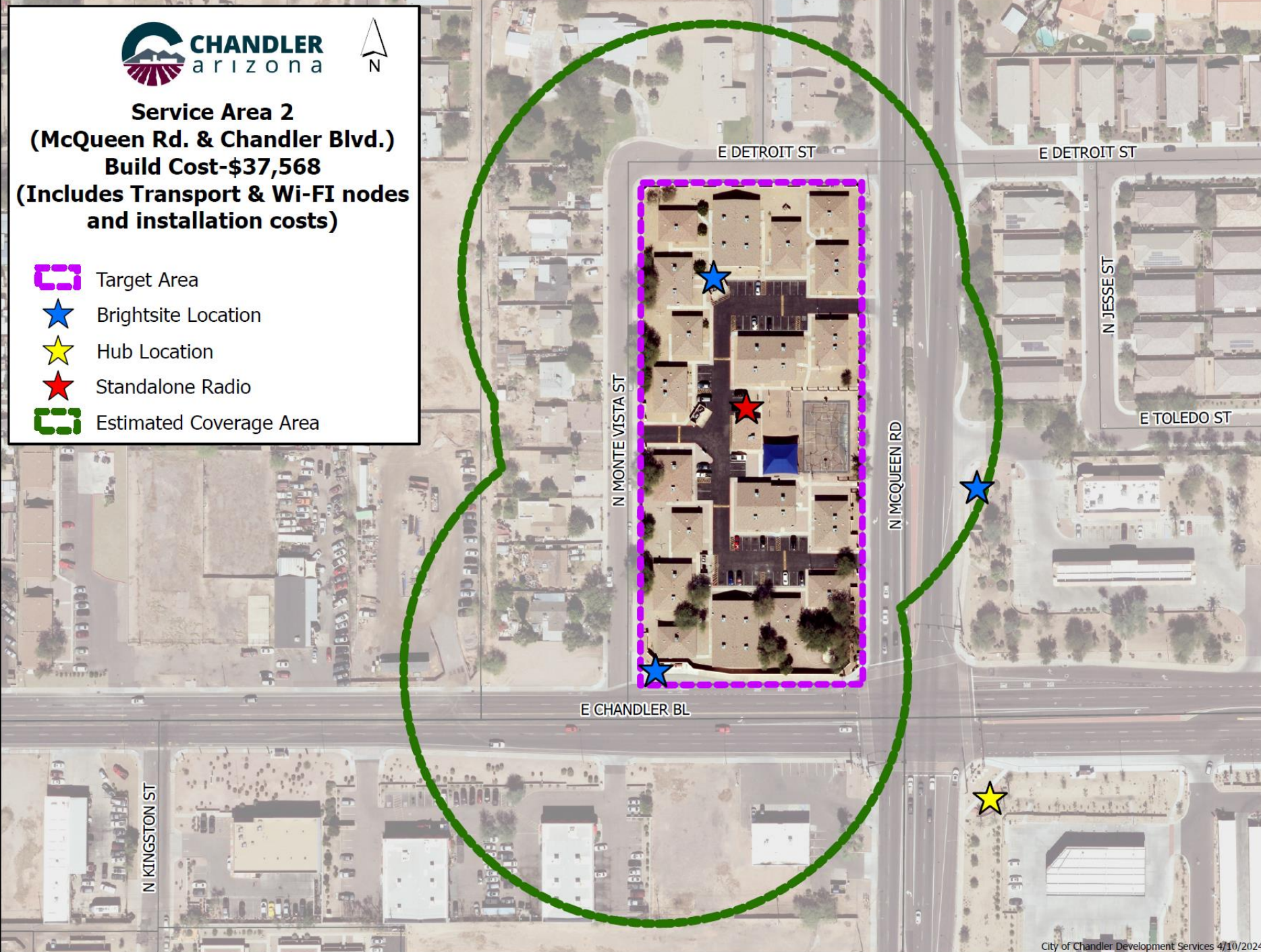
Service Area 1

Chandler Blvd. &
Hamilton St.



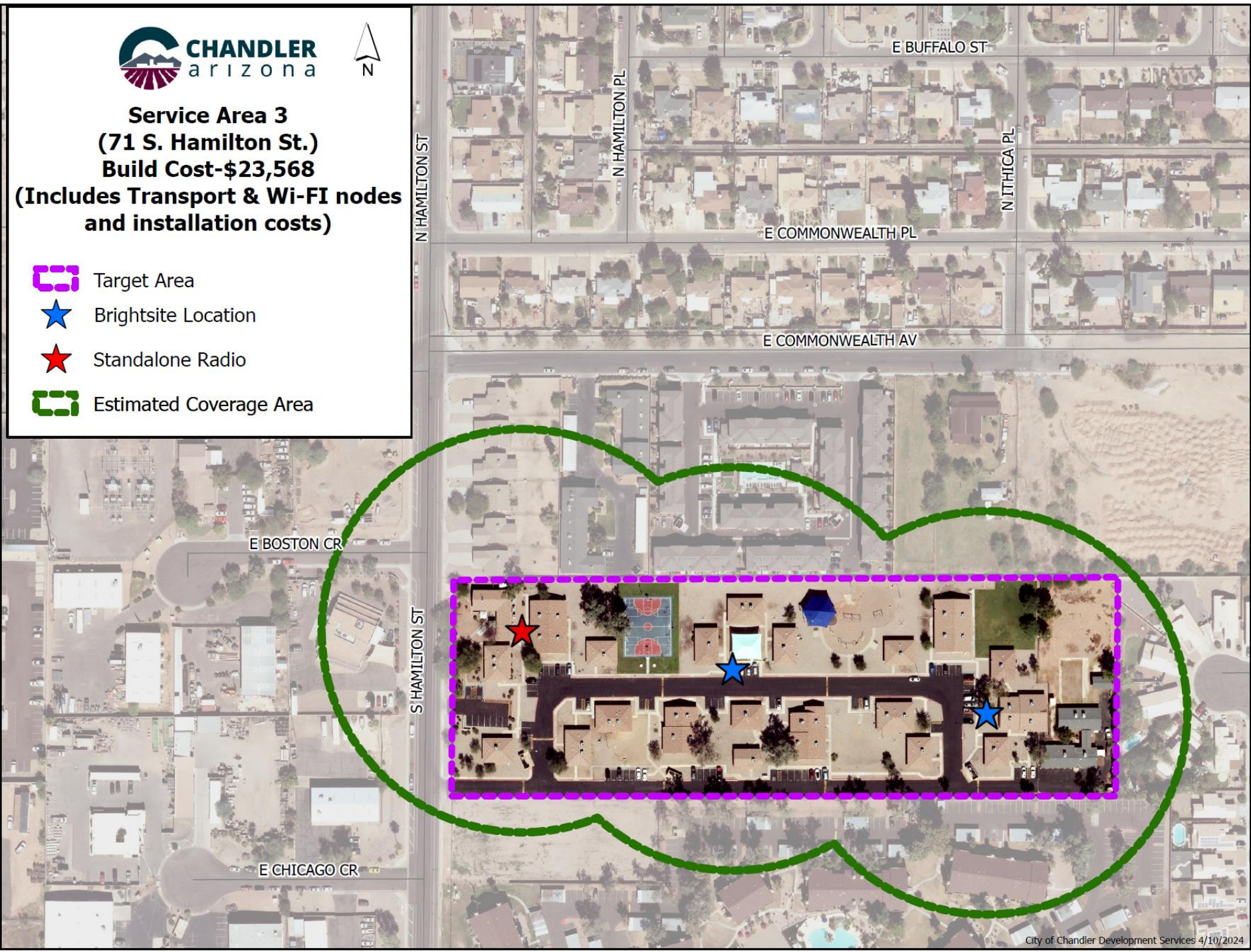
Service Area 2

McQueen Rd. &
Chandler Blvd



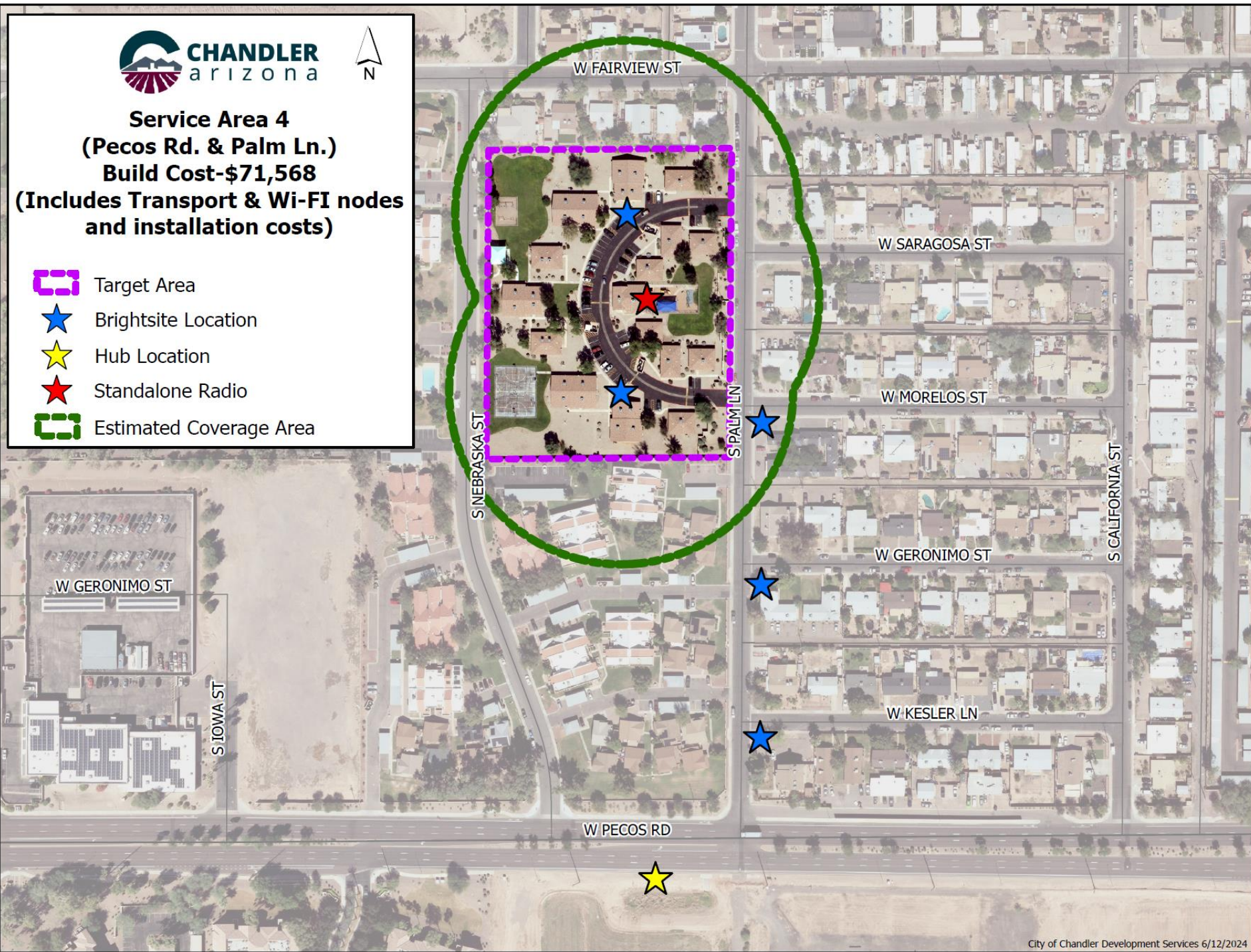
Service Area 3

71 S. Hamilton St.



Service Area 4

Pecos Rd. & Palm Ln.



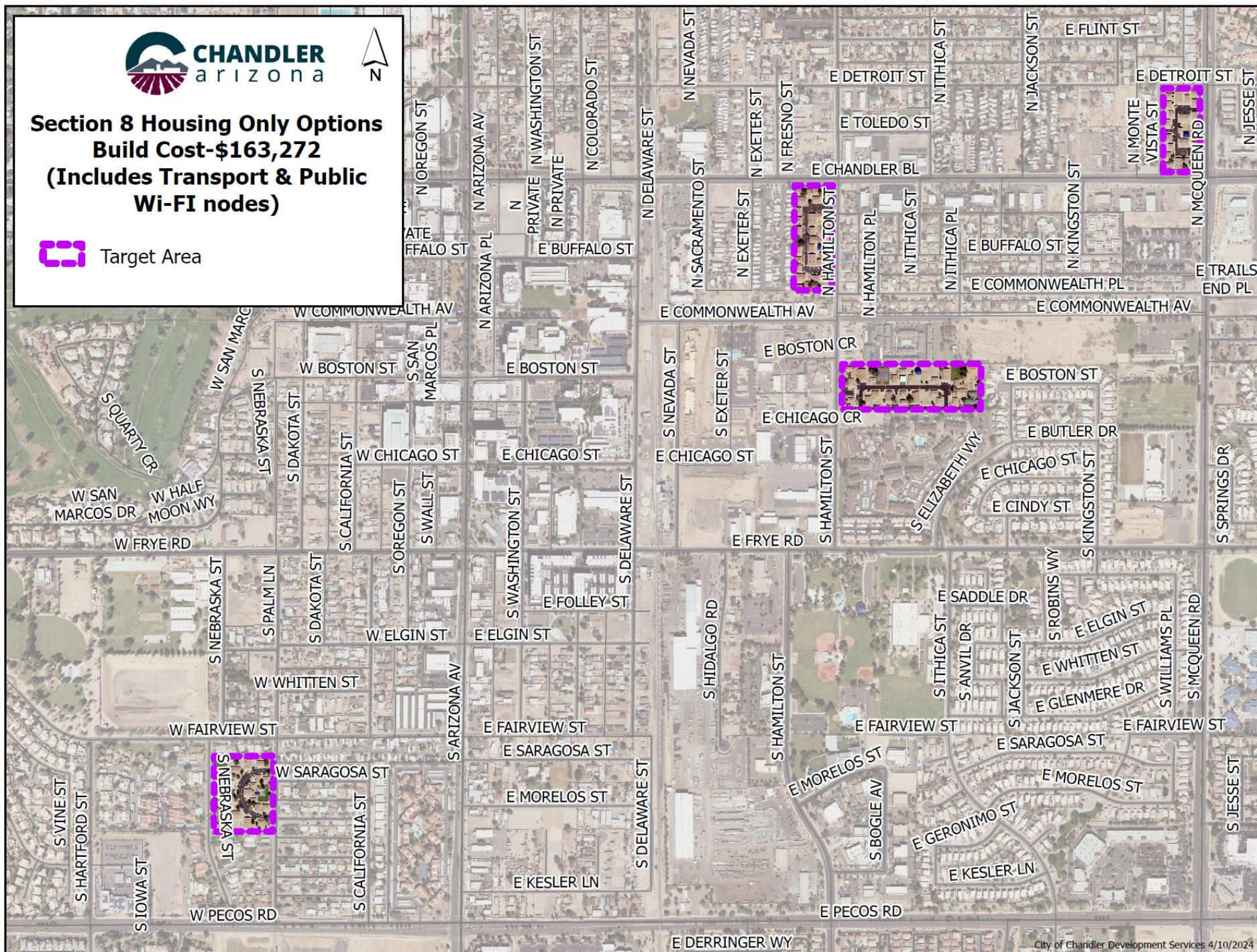
All 4 Section 8 Housing Options



Section 8 Housing Only Options
Build Cost-\$163,272
(Includes Transport & Public
Wi-Fi nodes)



Target Area



Broadband Digital Equity Resolution

Purpose:

- The purpose of this Resolution is to reduce the digital divide, foster competition among broadband companies and reduce construction impacts to neighborhoods by reducing the need for companies to overbuild one-another.

Key Points:

- Set a 1-year moratorium on overbuilt neighborhoods.
- Providers must install within alleys when they are not congested.
- Providers should offer a low-cost Internet Service package for those who qualify.
- Fee transparency.
- Incent participation.
 - Revenue model incentives, microtrenching, expedited plan review for 6 months, etc., for providers that participate.

Formalizes existing practices into cohesive strategy to address digital equity.

Broadband Facts

Provider Name	
Service Plan Name and/or Speed Tier	
[Fixed or Mobile] Broadband Consumer Disclosure	
Monthly Price	\$00.00
This monthly price is an introductory rate	
Time the introductory rate applies	YY months
Monthly price after the introductory rate	\$00.00
Length of contract	YY months
Link to Terms of Contract: https://www.example.com/terms-of-contract	
Additional Charges & Terms	
Provider Monthly Fees	
Fee description	\$00.00
Fee description	\$00.00
Fee description	\$00.00
Fee description	\$00.00
One-Time Purchase Fees	
Fee description	\$00.00
Fee description	\$00.00
Early Termination Fee	\$00.00
Government Taxes	Included/Varies by Location/\$00.00
Discounts & Bundles	
Visit the link below for available billing discounts and pricing options for broadband service bundled with other services like video, phone, and wireless service, and use of your own equipment.	
https://www.example.com/discounts	
Speeds Provided with Plan	
Typical Download Speed	000 Mbps
Typical Upload Speed	000 Mbps
Typical Latency	00 ms
Data Included with Monthly Price	
Charges for Additional Data Usage	\$/GB
https://www.example.com/data-usage	
Network Management Policy	
https://www.example.com/network-management	
Privacy Policy	
https://www.example.com/privacy	
Customer Support	
Phone:	(555) 555-5555
Website:	https://www.example.com
Learn about the terms used on this label. Visit the Federal Communications Commission's Consumer Resource Center.	
fcc.gov/consumer	
Unique Plan Identifier: F0005937974123ABC456EMC789	

Summary of Options

- Public Wi-Fi for Public Housing Sites
 - Makes broadband available for free to help close the digital divide in our community.
- Broadband Digital Equity Resolution
 - Helps reduce the impact to city roads.
 - Helps reduce the construction impact to residents.
 - Encourages providers to offer affordable plans.
 - Encourages providers to be transparent about their fees.
 - Encourages providers to be more competitive.

A woman with blonde hair, wearing a dark blue sweater, stands at night, looking at a large vertical digital screen. The screen displays a complex network diagram with glowing blue nodes and connecting lines. The background shows a blurred city street at night with warm lights from buildings and streetlights. In the top left corner, the word "Questions?" is written in white. At the bottom, there is a teal banner containing a URL.

Questions?

<https://www.chandleraz.gov/government/departments/development-services/telecommunications-and-utility-franchise>

A woman with blonde hair, wearing a dark blue sweater, is shown in profile, interacting with a large, vertical digital screen. The screen displays a list of services, including 'Public Works', 'Police Department', 'Fire Department', 'Public Health', 'Public Safety', 'Public Works', 'Police Department', 'Fire Department', 'Public Health', 'Public Safety', and 'Public Works'. The background is a blurred city street at night, with warm lights from buildings and streetlights. Overlaid on the right side of the image is a glowing blue network graphic consisting of interconnected lines and nodes, resembling a circuit or data network. The overall tone is futuristic and technological.

Questions?

<https://www.chandleraz.gov/government/departments/development-services/telecommunications-and-utility-franchise>