State of Arizona

Arizona Broadband Assessment Project (AZ BAP)

Arizona Broadband Coverage

Submission 10 - October 1, 2014

for Fall 2014 (V2)

State of Arizona

Arizona Strategic Enterprise Technology Office (ASET)

Arizona Broadband Assessment Project (AZ BAP)

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Arizona Broadband Assessment Project Overview

The purpose of the Arizona Broadband Assessment Project (AZ BAP) is to identify both the availability and speed of broadband services, and the location of broadband infrastructure throughout Arizona, including middle mile infrastructure and Community Anchor Institutions (CAIs). This project is provided through the American Recovery and Reinvestment Act of 2009 (ARRA) and the Broadband Data Improvement Act (BDIA), and in conjunction with the National Telecommunications and Information Administration (NTIA) and the Federal Communications Commission (FCC). AZ BAP is managed by the Arizona Strategic Enterprise Technology Office (ASET) under the Arizona Department of Administration (ADOA) in partnership with the Arizona State Land Department (ASLD), contractor Data Site Consortium, Inc. and their GIS subcontractor, TerraSystems Southwest (TSSW).

Submission 10 (Fall 2014) for the broadband availability and CAI data set was duly submitted to NTIA prior to the October 1, 2014 deadline. This was the tenth and final semi-annual submission by the State of Arizona and attempts to capture and reflect broadband availability and conditions in the field as of June 30, 2014. See the complementary Arizona Methodology White Paper for Fall 2014 for details on broadband data collection, validation, and mapping, as well as regional policy initiatives. And see the Arizona Broadband Provider (BP) Changes & Corrections (C & C) section at the back of this document for a list of included Broadband Providers and relevant notes for each.

Arizona Digital Landscape and Situational Analysis

From the Arizona Broadband Assessment Project (AZ BAP) data for Fall 2014, we know that a healthy 99.6% of Arizona households can get broadband of at least 768 Kbps download from at least one provider, not including available satellite service. As we move to rural areas that decreases to 98.1% of households. And for sparsely populated rural areas, the percentage decreases further to 96.6% of households, leaving about 3.4% of sparsely populated rural households without any broadband coverage at all except satellite.

When we consider the more reasonable modern connection speed of at least 3 Mbps download, the availability percentages start to decline to 98.8% of households statewide, 94.4% for rural areas, and 89.8% for sparsely populated rural areas leaving some 10.2% of households in sparsely populated rural areas without what we would consider adequate bandwidth. At a somewhat higher connection speed of 6 Mbps download, the availability percentages decline slightly to 98.3% of households statewide, 92.1% for rural areas, and 86.7% for sparsely populated rural areas leaving about 13.3% of households in sparsely populated rural areas without such higher performance services.

For the availability of more than a single Broadband Provider with at least a 3 Mbps download speed, analysis shows that for All Technologies, 98.8% of statewide households have access to at least one provider, 97.9% access to at least two providers, and 96.9% access to at least three providers. For Arizona's rural areas, 94.4% of households have access to at least one provider, 90.0% access to at least two providers, and 85.1% access to at least two providers with at least a 3 Mbps download speed. And for Arizona's sparsely populated rural areas, 89.8% of households have access to at least one provider, 84.3% access to at least two providers, and 78.0% access to at least three providers with at least a 3 Mbps download speed. These percentages have been steadily rising, mostly due to expanded coverage for 3G and 4G mobile wireless networks.

Looking at specific technologies, DSL, xDSL & other copper delivered services at connection speeds of at least 3 Mbps download are available to 89.2% of households statewide, 63.4% for rural areas, and 49.8% for sparsely populated rural areas. At a somewhat higher connection speed of 6 Mbps download, the availability percentages more precipitously decline to 82.0% of households statewide, 50.3% for rural areas, and only 39.3% for sparsely populated rural areas.

Cable modem services at connection speeds of at least 3 Mbps download are available to 88.6% of households statewide, 55.2% for rural areas, and 33.2% for sparsely populated rural areas. The cable industry has invested heavily in a new generation of DOCSIS 3.0 services to be able to deliver connection speeds of 10 Mbps download or greater to 88.6% of households statewide, but that percentage declines to 54.9% of rural households and only 32.9% of sparsely populated rural households. Overall, wherever cable modem services are available in Arizona, they are delivering download speeds of 10 Mbps or greater.

Fixed wireless services at connection speeds of at least 768 Kbps download, including Wi-Fi networks and other fixed wireless technologies, are available to 94.6% of individuals statewide, 75.7% for rural areas, and 68.0% for sparsely populated rural areas. At connection speeds of at least 3.0 Mbps, fixed wireless services are available to only 62.2% of individuals statewide, 63.7% of those living in rural areas, and 54.4% of those in sparsely populated rural areas. A precipitous drop is seen at connection speeds of at least 10.0 Mbps, where fixed wireless services are available to only 27.1% of individuals statewide, 48.7% of those living in rural areas, and 41.5% of those in sparsely populated rural areas.

Mobile wireless services at connection speeds of at least 768 Kbps download, generally 3G services edging into 4G, are available to 98.9% of individuals statewide, 94.5% for rural areas, and 91.5% for sparsely populated rural areas. At connection speeds of at least 3.0 Mbps, well into 4G service range, mobile wireless services have continued to rapidly expand and are now available to 98.1% of individuals statewide, 90.6% of those living in rural areas, and 85.9% of those in sparsely populated rural areas. Mobile wireless connection speeds of at least 10.0 Mbps are now available to 97.7% of individuals statewide, 88.5% of those living in rural areas, and 82.5% of those in sparsely populated rural areas. An evolving trend of mobile wireless providers partnering with satellite television providers to offer fixed location wireless broadband services (sometimes called wireless local loop or WLL) with pricing and data tiers competitive with wired broadband bodes well for further rural broadband availability and choices going forward.

Satellite broadband services at connection speeds of at least 1.5 Mbps download are available to all individuals statewide with a view of the southern sky and ability to mount a small satellite dish on or near a structure. Connection speeds of up to 10 Mbps and beyond are available selectively within defined geographic footprints depending on the provider, but increasingly available to large swaths of the State. However for rural customers, higher prices and data tiers/surcharges remain a concern and impediment to wider use. Future generations of satellites will deliver higher speeds and potentially be competitively positioned against terrestrial broadband services.

Arizona Broadband Data Set for Fall 2014

During this cycle we received data from a total of 82 entities, which included 78 Broadband Providers (BPs), 3 resellers and 1 entity classified as other. There were 2 BPs who declined to participate and provide data, so they are not represented in the submittal. For more details see the Arizona Broadband Provider Changes & Corrections Document section at the back of this document for a list of included Broadband Providers and relevant notes for each.

For the State of Arizona broadband availability data set submitted to NTIA October 1, 2014 for BP coverage declared as of 6/30/14, the summary of the data submission is as follows:

BB_Service_CensusBlock: 460,731 Census 2010 polygons less than or equal to two square miles in area representing the service area of 38 broadband providers (unique FRN's). Multiple instances of a census block polygon may exist where a provider has two or more technology types and/or end-user categories in a block or multiple providers have service in that block. Only the fastest upload and download speeds in a census block are reported for a given provider, technology type and end-user category. Some providers supplied a list of census blocks they serve, while others reported their service as a list of addresses or as census blocks/road segments or a service polygon in KML or shapefile format. Addresses were geocoded using a combination of local, TIGER 2009, TIGER 2010 and Navteq road networks and then aggregated to census blocks. Footprint geography for landline providers was used to select the underlying census blocks using a "centroid in" rule.

BB_Service_RoadSegment: 55,078 road segments that fall inside Census 2010 polygons greater than two square miles representing 28 broadband providers (unique FRN's). Multiple instances of a road segment may exist where a provider has two or more technology types or end-user categories on a segment or multiple providers have service on the segment. Only the fastest upload and download speeds on a segment are reported for a given provider, technology type and end-user category. The TIGER segments have all been clipped to fit entirely within a census block. Local road networks may overlap into the census block geography. The address ranges were not interpolated to accommodate any clipping. Some providers supplied a list of TIGER road segments they serve by TLID number, while others reported their service as a list of address ranges or as a road segment or service polygon (KML or shapefile). Address range submittals were geocoded using both low and high address values and then aggregated to the road segment in census blocks greater than two square miles to which they geocoded. Footprint geography was used to select the underlying road segments using a "centroid in" rule.

BB_Service_Wireless: 57 wireless service area polygons representing 38 broadband providers. Polygons fully or partially overlap where a single provider offers service over two or more technology types or spectrums or where multiple providers offer service in an area. Only the fastest upload and download speeds are reported for a given provider, spectrum and technology type. Wireless providers submitted their service area in either KML or shapefile formats. In some cases the Arizona Broadband Mapping project consultant "reverse engineered" a service KML file from publicly available data sources on tower locations, technology types and spectrum information. These service areas were shared back with the provider with varying levels of response.

BB_Service_MiddleMile: 1,025 middle mile points representing 24 broadband providers, up from 899 middle mile points representing 20 broadband providers in the Spring 2014 submittal. Middle mile points were generated from provider data using either latitude/longitude or address information. Elevation attributes were included from overlaying a statewide 10-meter Digital Elevation Model and moving the elevation attribute into the database.

Arizona Community Anchor Institutions (CAI) Data Set for Fall 2014

For the Fall 2014 submittal cycle, the DSCI team focused on further reductions in non-compliant addresses, additional improvements in K-12 broadband information and the addition of selected demographics, confirmation and augmentation of public safety CAI information, and the addition of substantial numbers of additional healthcare CAIs, mining data from several licensing or tracking sources. In the Spring 2014 submittal cycle, we performed a comprehensive review and update of public safety CAIs and added over a thousand new Wi-Fi (Category 7) CAIs.

This cycle, additional columns were added to the master CAI spreadsheet allowing for the indication of the source for broadband data, geolocation, and other critical elements. The master CAI spreadsheet now also makes accommodation for the addition of speed test average results, number of tests, and date range of testing for multiple crowdsourced results sets (State portal, EducationSuperHighway, and Mobile Pulse). A total of 10,514 CAI records were developed, reviewed, and maintained of which 10,348 (98%) were able to be submitted (up from 7,827 in the Spring 2014 cycle and 6,299 in the Fall 2013 cycle) as follows:

CAICAT	CAI Type	Total Records	Federal ID Present	BBService		
				Yes	No	Unknown
1	School - K through 12	2,932	95.6%	46.4%	0.0%	53.6%
2	Library	231	95.2%	92.2%	0.0%	7.8%
3	Medical/Healthcare	2,497	---	4.4 %	0.0%	95.6%
4	Public Safety	1,240	---	40.0%	0.0%	60.0%
5	University, College, Other Post-Secondary	251	25.8%	43.0%	0.0%	57.0%
6	Other Community Support - Government	2,047	---	44.7%	0.0%	55.3%
7	Other Community Support - Nongovernmental	1,316	---	99.8%	0.0%	0.2%
Total	---	10,514	---			

Changes between Spring 2014 and Fall 2014

Spring caicat	Description	Spring total	Spring IDed	Delta description
1	Public education	3,019	92.9%	Lower number (-87) because of duplicates, miscategorized, and does-not-exist status
2	Library	231	96.0%	Higher number (+2) Added Nogales and Pinetop libraries.
3	Medical/Health	194	-	Higher number (+2,303) because sourced ADHS database and allowed multiple entities at the same physical address.
4	Public Safety	1,238	-	Higher in fall (+2) because of fire entities sourced USFD.
5	Post-secondary	211	-	Higher in fall (+40) because of sourcing from federal IPEDs database and other local sources.
6	Other government	2,051	-	Fewer in fall (-4) because of duplication and non-existence.

Arizona Broadband Coverage for Fall 2014

Data presented in nine statewide maps that follow is as collected by the State of Arizona for the NTIA and FCC broadband maps and submitted in Fall 2014 for Arizona Broadband Provider (BP) coverage declared as of 6/30/14.

Arizona Broadband Coverage Table for Fall 2014

Maximum Advertised Download Speed:

All Technologies (except Satellite)

DSL, xDSL & Other Copper Technologies (Tech 10-30)

Cable Modem Technologies (Tech 40-41)

Fixed Wireless Technologies (Tech 70-71)

Mobile Wireless Technologies (Tech 80)

Satellite Technologies (Tech 60)

Broadband Provider Count (except Satellite)

Optical Carrier/Fiber to End User (Tech 50)

Middle Mile Provider Locations

Arizona Broadband Coverage Table for Fall 2014

	Statewide		Rural		Sparsely Pop. Rural	
All Broadband Tech (Except Satellite) 1 or More Providers	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	99.60%	99.60%	97.99%	98.13%	96.08%	96.59%
≥ 3 Mbps Down	98.97%	98.82%	94.84%	94.40%	89.94%	89.78%
≥ 6 Mbps Down	98.40%	98.32%	92.00%	92.08%	86.65%	86.74%
≥ 10 Mbps Down	98.33%	98.23%	91.61%	91.64%	85.88%	85.93%
All Broadband Tech (Except Satellite) 2 or More Providers	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	98.97%	99.04%	94.84%	95.44%	91.27%	92.47%
≥ 3 Mbps Down	98.05%	97.89%	90.21%	90.03%	84.60%	84.33%
≥ 6 Mbps Down	97.14%	96.86%	85.68%	85.18%	78.99%	77.71%
≥ 10 Mbps Down	96.88%	96.53%	84.34%	83.60%	76.82%	75.28%
All Broadband Tech (Except Satellite) 3 or More Providers	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	98.29%	98.23%	91.44%	91.64%	86.39%	86.88%
≥ 3 Mbps Down	97.09%	96.85%	85.41%	85.11%	78.77%	78.02%
≥ 6 Mbps Down	95.44%	94.99%	77.15%	76.31%	70.06%	67.44%
≥ 10 Mbps Down	94.82%	94.13%	74.71%	73.34%	66.70%	63.15%
DSL, xDSL & Other Copper Tech	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	94.22%	93.89%	77.67%	77.72%	65.07%	66.65%
≥ 3 Mbps Down	89.86%	89.16%	63.42%	63.35%	49.20%	49.79%
≥ 6 Mbps Down	83.27%	81.96%	50.85%	50.31%	39.14%	39.30%
≥ 10 Mbps Down	74.90%	73.48%	41.90%	41.60%	30.52%	29.91%
Cable Modem Technologies	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	89.37%	88.77%	55.74%	55.69%	31.98%	33.55%
≥ 3 Mbps Down	89.24%	88.63%	55.27%	55.20%	31.76%	33.24%
≥ 6 Mbps Down	89.18%	88.57%	54.99%	54.89%	31.39%	32.87%
≥ 10 Mbps Down	89.18%	88.57%	54.99%	54.89%	31.39%	32.87%
Fixed Wireless Technologies	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	94.62%	94.30%	75.69%	75.44%	68.01%	67.90%
≥ 3 Mbps Down	62.17%	63.03%	63.65%	62.70%	54.36%	52.63%
≥ 6 Mbps Down	53.79%	54.64%	54.33%	54.28%	46.11%	43.95%
≥ 10 Mbps Down	27.12%	27.85%	48.70%	48.27%	41.50%	39.65%
Mobile Wireless Technologies	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	98.91%	99.08%	94.52%	95.64%	91.51%	93.30%
≥ 3 Mbps Down	98.13%	98.08%	90.62%	90.95%	85.86%	86.44%
≥ 6 Mbps Down	97.72%	97.61%	88.55%	88.70%	82.50%	82.69%
≥ 10 Mbps Down	97.71%	97.60%	88.53%	88.67%	82.47%	82.64%
	Population Count	**Household Count**	**Population Count**	**Household Count**	**Population Count**	**Household Count**
Arizona Totals (2010 Census)	6,392,017	2,844,526	1,274,234	601,889	651,358	329,022

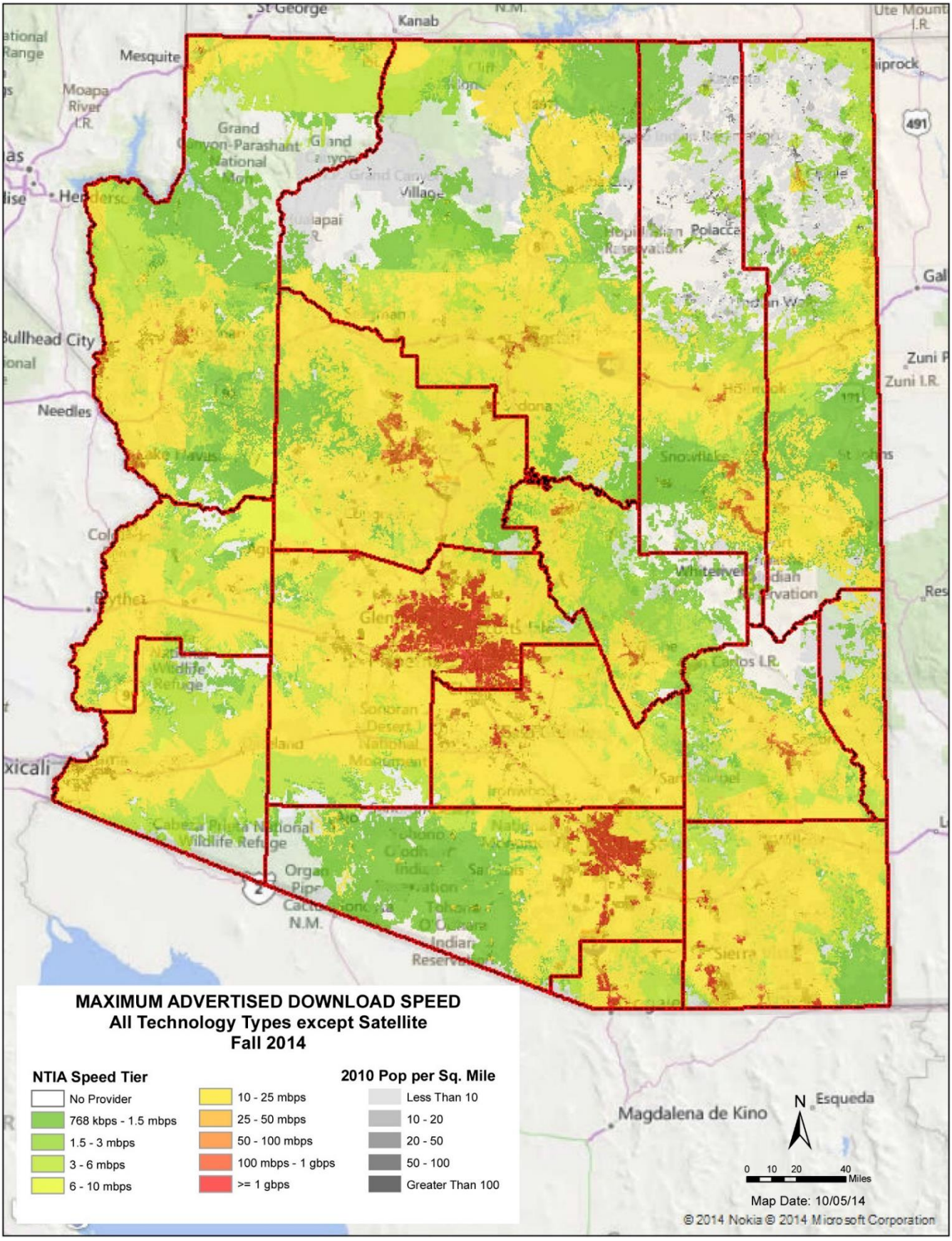
Arizona Broadband Coverage Table Notes:

Data presented in table above is as collected by the State of Arizona for the NTIA and FCC broadband maps and submitted in Fall 2014 for Arizona Broadband Provider (BP) coverage declared as of 6/30/14.

The Census Bureau identifies two types of urban areas: **Urbanized Areas (UAs)** of 50,000 or more people and **Urban Clusters (UCs)** of at least 2,500 and less than 50,000 people. Per the Census Bureau, **"Rural"** encompasses all population, housing, and territory not included within Urbanized Areas (UAs). For Arizona analysis purposes, **"Sparsely Populated Rural"** encompasses all population, housing, and territory not included within either Urbanized Areas (UA) or Urban Clusters (UC). Using an Urban Area/Cluster GIS Layer, Arizona is calculated to have a total of 241,666 Census Blocks per the 2010 Census of which:

- 86,648 Census Blocks are in Urban Areas (UAs)
- 19,479 Census Blocks are in Urban Clusters (UCs)
- 106,127 Census Blocks total are in Urban Areas (UAs) or Urban Clusters (UCs)
- 155,018 Census Blocks are in Rural areas (Outside UAs only) with a population count of 1,274,234 and household count of 601,889
- 135,539 Census Blocks are in Sparsely Populated Rural areas (Outside both UAs and UCs) with a population count of 651,358 and household count of 329,022

For wireline providers, census blocks greater than 2 square miles intersected by covered road segments were added to their reported list of census blocks less than or equal to 2 sq. mi. For fixed and mobile wireless providers, census block counts were based on census blocks that intersected (were touched by) an overlaying wireless provider's service area. Satellite providers which tend to offer lower downstream and upstream data rates are not included in the Broadband Providers (BPs) for purposes of this analysis. All census blocks, regardless of area or water characteristic were included in this analysis.


MAXIMUM ADVERTISED DOWNLOAD SPEED
All Technology Types except Satellite
Fall 2014
NTIA Speed Tier
No Provider
768 kbps - 1.5 mbps
1.5 - 3 mbps
3 - 6 mbps
6 - 10 mbps
10 - 25 mbps
25 - 50 mbps
50 - 100 mbps
100 mbps - 1 gbps
>= 1 gbps
2010 Pop per Sq. Mile
Less Than 10
10 - 20
20 - 50
50 - 100
Greater Than 100
St George
Kanab
Mesquite
Moapa River I.R.
Grand Canyon-Parashant National
Bullhead City
Needles
Zuni I.R.
Magdalena de Kino
Esqueda
N
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Miles
Map Date: 10/05/14
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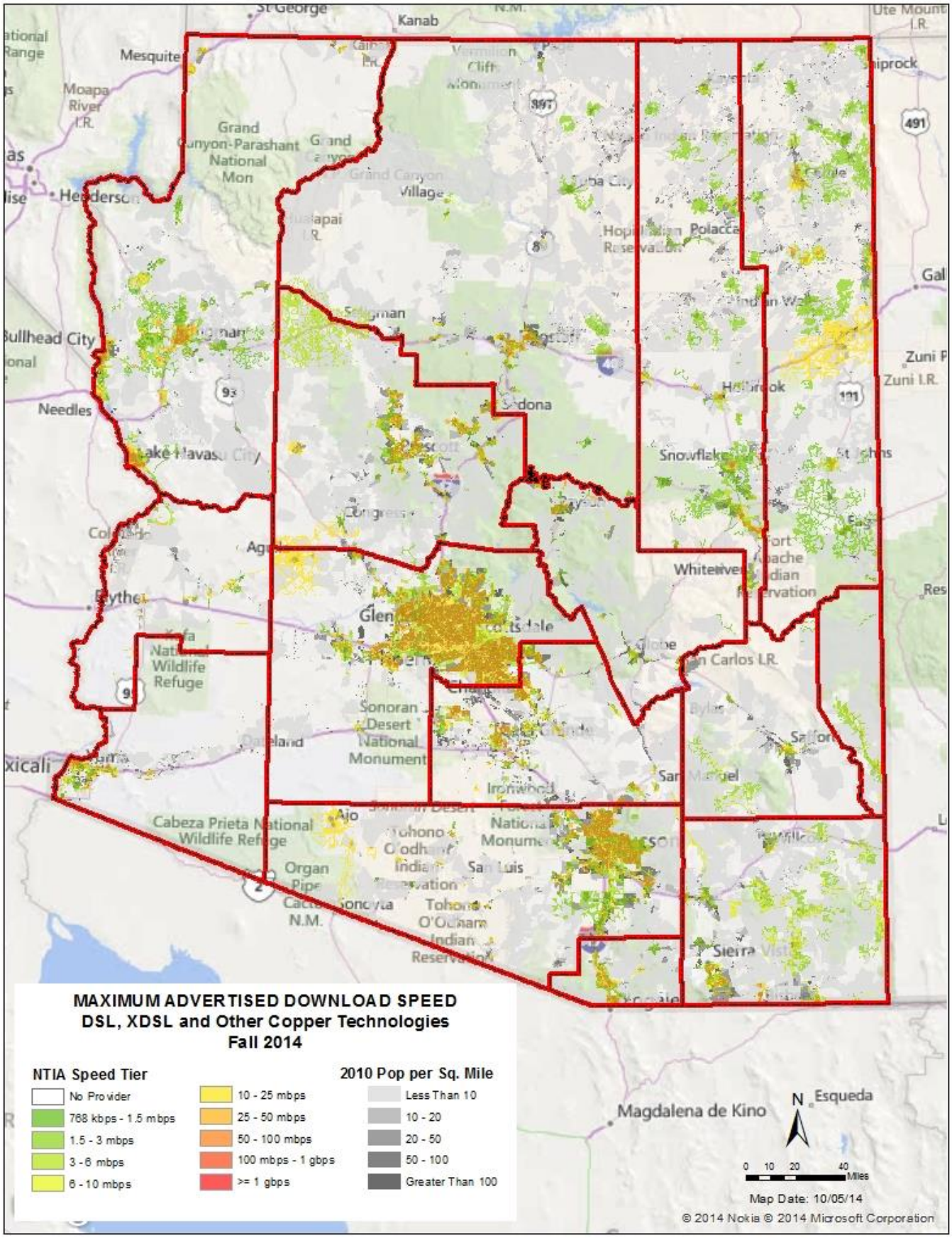
MAXIMUM ADVERTISED DOWNLOAD SPEED
DSL, XDSL and Other Copper Technologies
Fall 2014
NTIA Speed Tier
No Provider
768 kbps - 1.5 mbps
1.5 - 3 mbps
3 - 6 mbps
6 - 10 mbps
10 - 25 mbps
25 - 50 mbps
50 - 100 mbps
100 mbps - 1 gbps
>= 1 gbps
2010 Pop per Sq. Mile
Less Than 10
10 - 20
20 - 50
50 - 100
Greater Than 100
Map Date: 10/05/14
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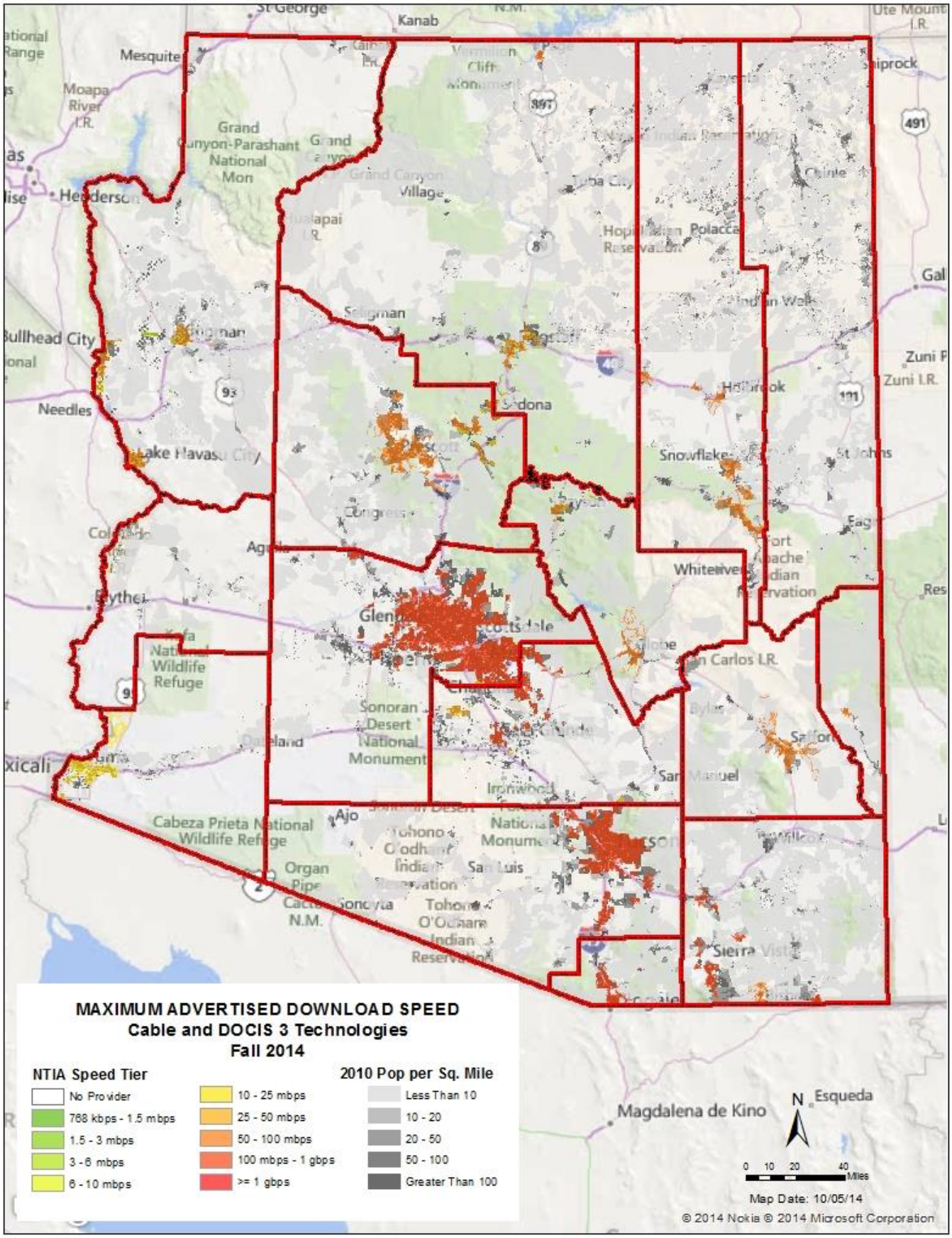
MAXIMUM ADVERTISED DOWNLOAD SPEED
Cable and DOCIS 3 Technologies
Fall 2014
NTIA Speed Tier
No Provider
768 kbps - 1.5 mbps
1.5 - 3 mbps
3 - 6 mbps
6 - 10 mbps
10 - 25 mbps
25 - 50 mbps
50 - 100 mbps
100 mbps - 1 gbps
>= 1 gbps
2010 Pop per Sq. Mile
Less Than 10
10 - 20
20 - 50
50 - 100
Greater Than 100
Map Date: 10/05/14
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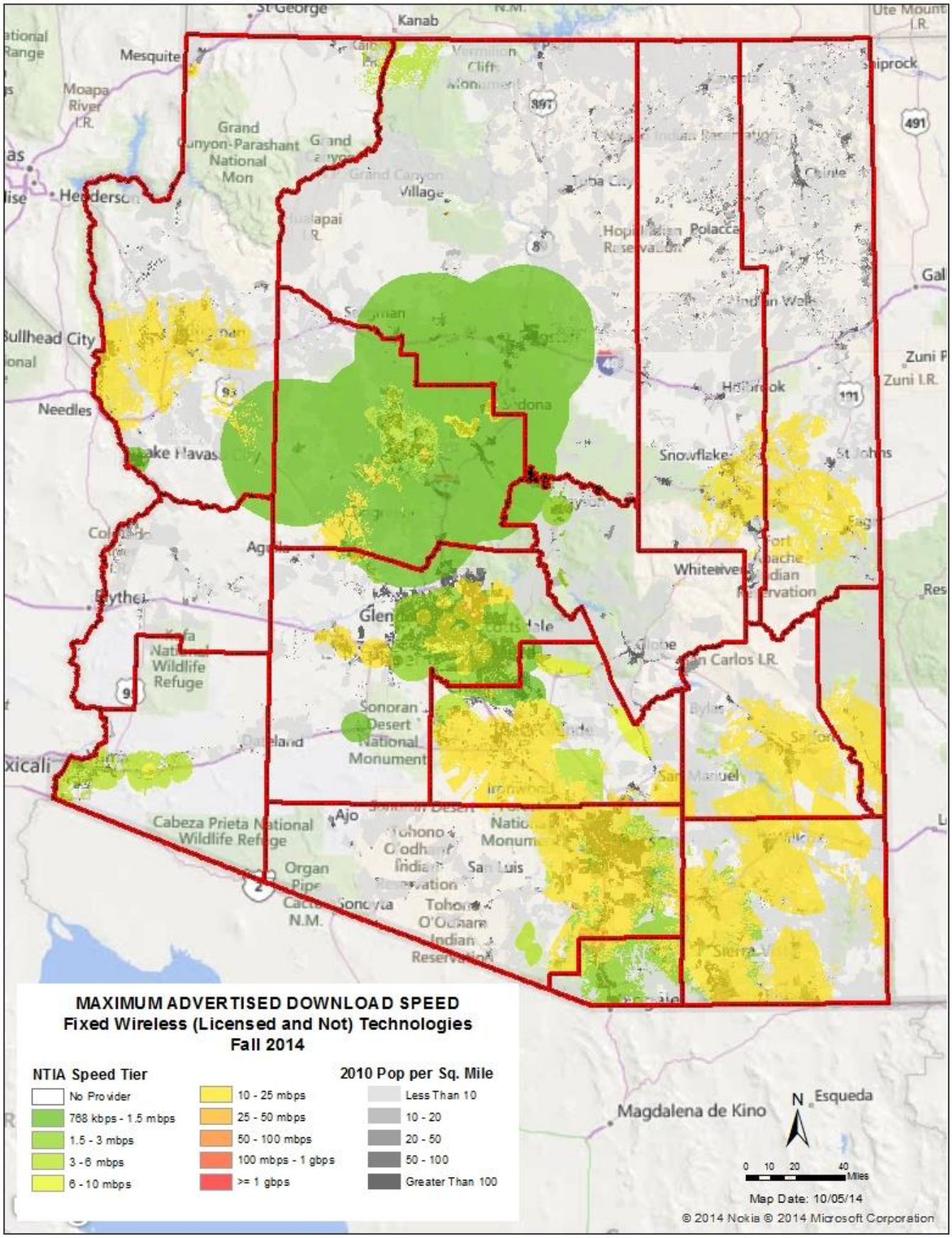
MAXIMUM ADVERTISED DOWNLOAD SPEED
Fixed Wireless (Licensed and Not) Technologies
Fall 2014
NTIA Speed Tier
No Provider
768 kbps - 1.5 mbps
1.5 - 3 mbps
3 - 6 mbps
6 - 10 mbps
10 - 25 mbps
25 - 50 mbps
50 - 100 mbps
100 mbps - 1 gbps
>= 1 gbps
2010 Pop per Sq. Mile
Less Than 10
10 - 20
20 - 50
50 - 100
Greater Than 100
Map Date: 10/05/14
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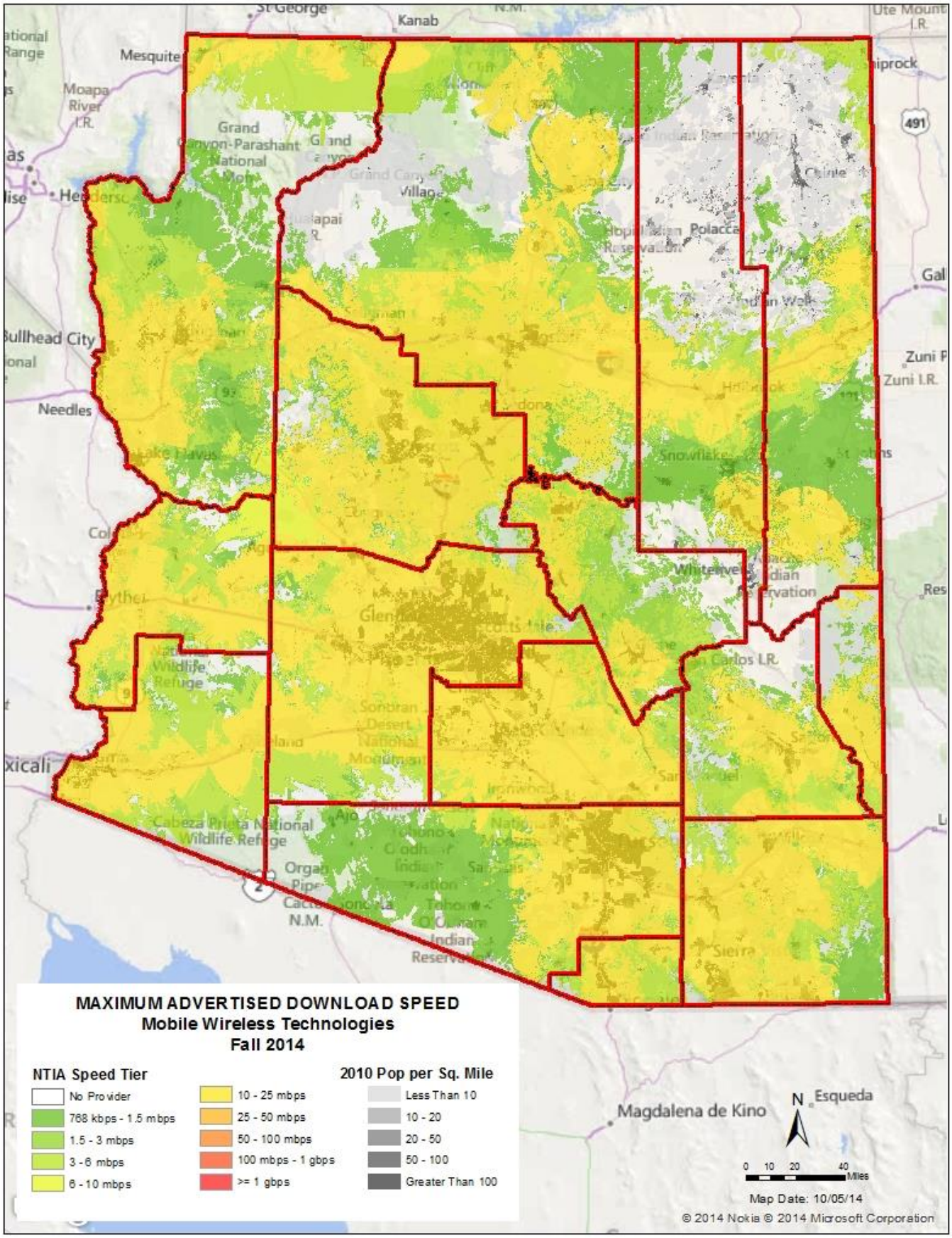
MAXIMUM ADVERTISED DOWNLOAD SPEED
Mobile Wireless Technologies
Fall 2014
NTIA Speed Tier
No Provider
768 kbps - 1.5 mbps
1.5 - 3 mbps
3 - 6 mbps
6 - 10 mbps
10 - 25 mbps
25 - 50 mbps
50 - 100 mbps
100 mbps - 1 gbps
>= 1 gbps
2010 Pop per Sq. Mile
Less Than 10
10 - 20
20 - 50
50 - 100
Greater Than 100
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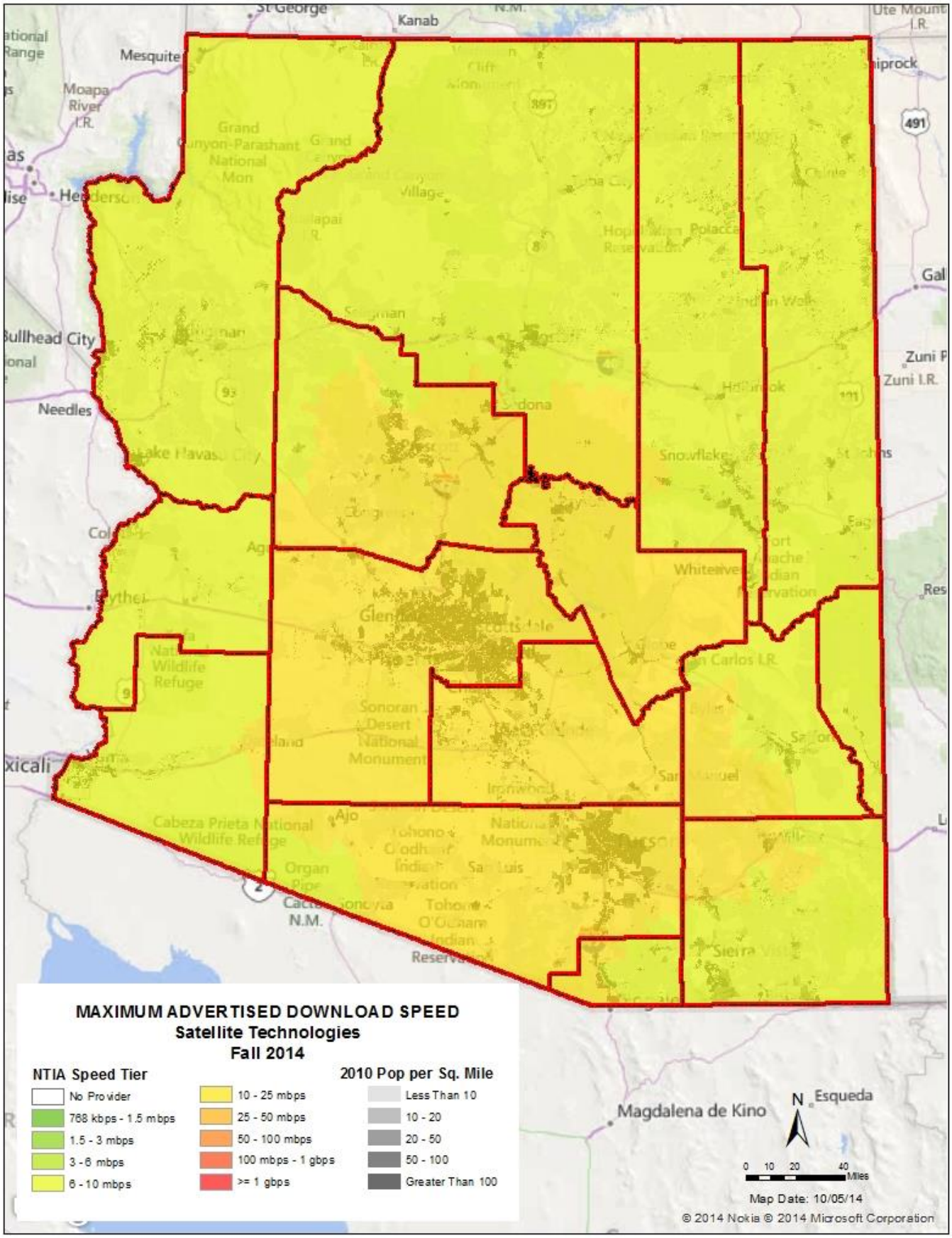
MAXIMUM ADVERTISED DOWNLOAD SPEED
Satellite Technologies
Fall 2014
NTIA Speed Tier
No Provider
768 kbps - 1.5 mbps
1.5 - 3 mbps
3 - 6 mbps
6 - 10 mbps
10 - 25 mbps
25 - 50 mbps
50 - 100 mbps
100 mbps - 1 gbps
>= 1 gbps
2010 Pop per Sq. Mile
Less Than 10
10 - 20
20 - 50
50 - 100
Greater Than 100
Map Date: 10/05/14
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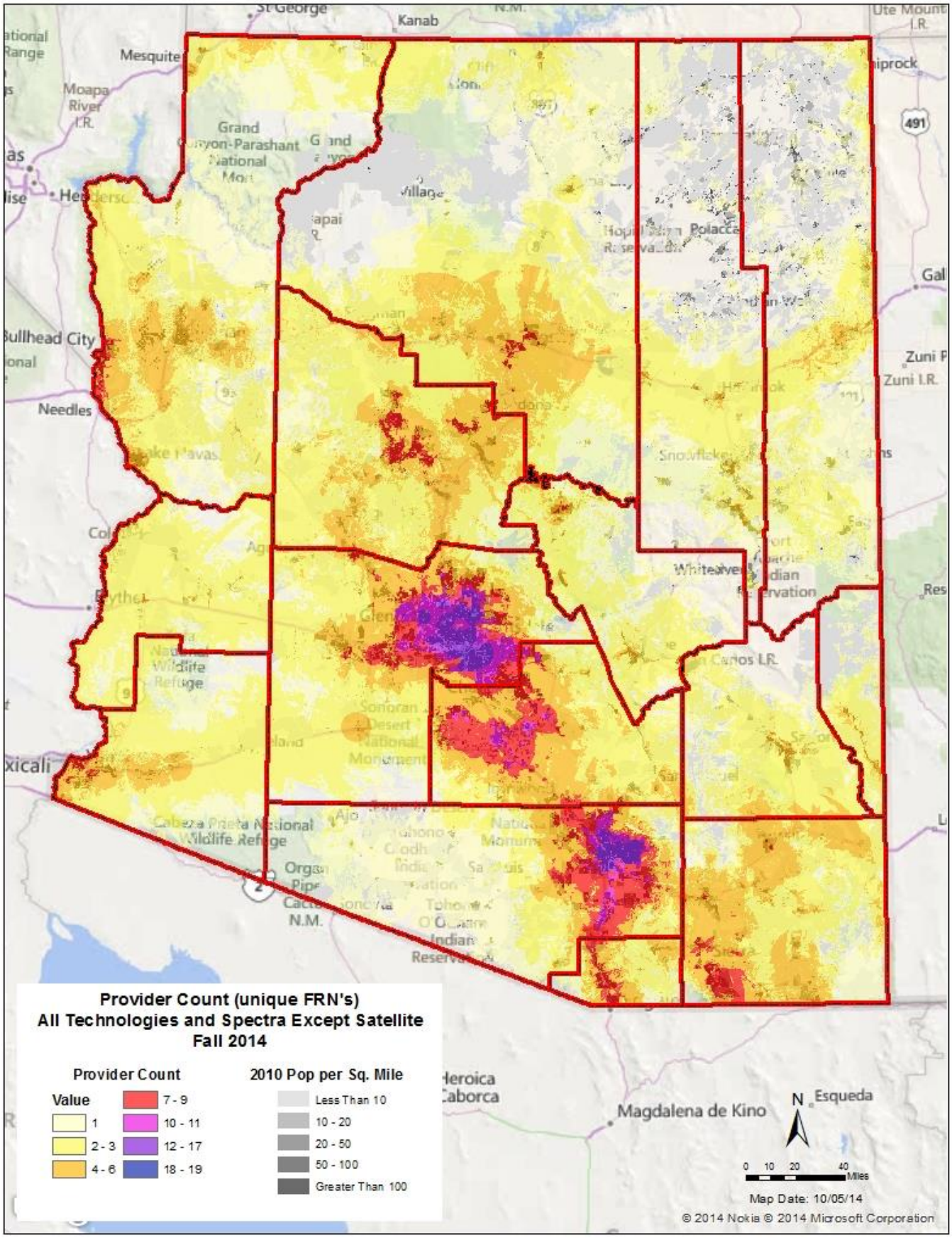
Provider Count (unique FRN's)
All Technologies and Spectra Except Satellite
Fall 2014
Provider Count
Value
1
2 - 3
4 - 6
7 - 9
10 - 11
12 - 17
18 - 19
2010 Pop per Sq. Mile
Less Than 10
10 - 20
20 - 50
50 - 100
Greater Than 100
St George
Kanab
Mesquite
Moapa River I.R.
Grand Canyon-Parashant National Monument
Bullhead City
Needles
Lake Havasu
Parker
Yuma
Wildlife Refuge
Cabeza Prieta National Wildlife Refuge
Organ Pipe Cactus N.M.
Sonoran Desert National Monument
Ajo
Tohono O'odham Indian Reservation
Hopi Indian Reservation
Polacca
Whiteriver Indian Reservation
Carlos I.R.
Snowflake
Zuni I.R.
Gallup
Ute Mountain I.R.
Shiprock
491
Magdalena de Kino
Heroica Caborca
Esqueda
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Miles
Map Date: 10/05/14
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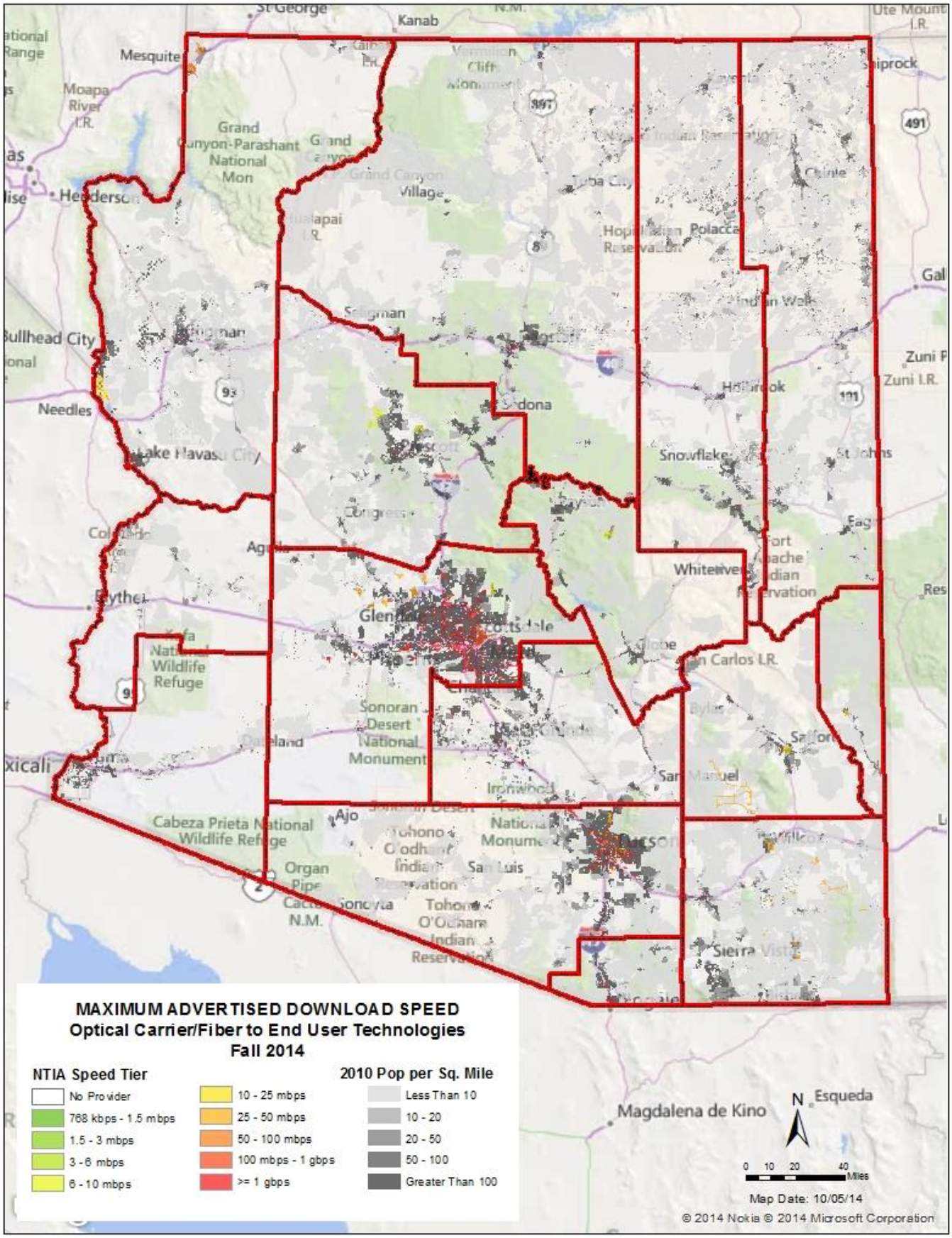
MAXIMUM ADVERTISED DOWNLOAD SPEED
Optical Carrier/Fiber to End User Technologies
Fall 2014
NTIA Speed Tier
No Provider
768 kbps - 1.5 mbps
1.5 - 3 mbps
3 - 6 mbps
6 - 10 mbps
10 - 25 mbps
25 - 50 mbps
50 - 100 mbps
100 mbps - 1 gbps
>= 1 gbps
2010 Pop per Sq. Mile
Less Than 10
10 - 20
20 - 50
50 - 100
Greater Than 100
N
0 10 20 40
Miles
Map Date: 10/05/14
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St George
Kanab
Mesquite
Moapa River I.R.
Grand Canyon-Parashant National Mon
Grand Canyon Village
Hoover Dam
Bullhead City
Needles
Lake Havasu City
Kingman
Sedona
Flagstaff
Snowflake
Holbrook
Whiteriver
Show Low
Globe
San Carlos I.R.
Parker
Blythe
Quartzsite
Yuma
Wildlife Refuge
Sonoran Desert National Monument
Ajo
Cabeza Prieta National Wildlife Refuge
Organ Pipe Cactus N.M.
Tohono O'odham Indian Reservation
San Luis
Tucson
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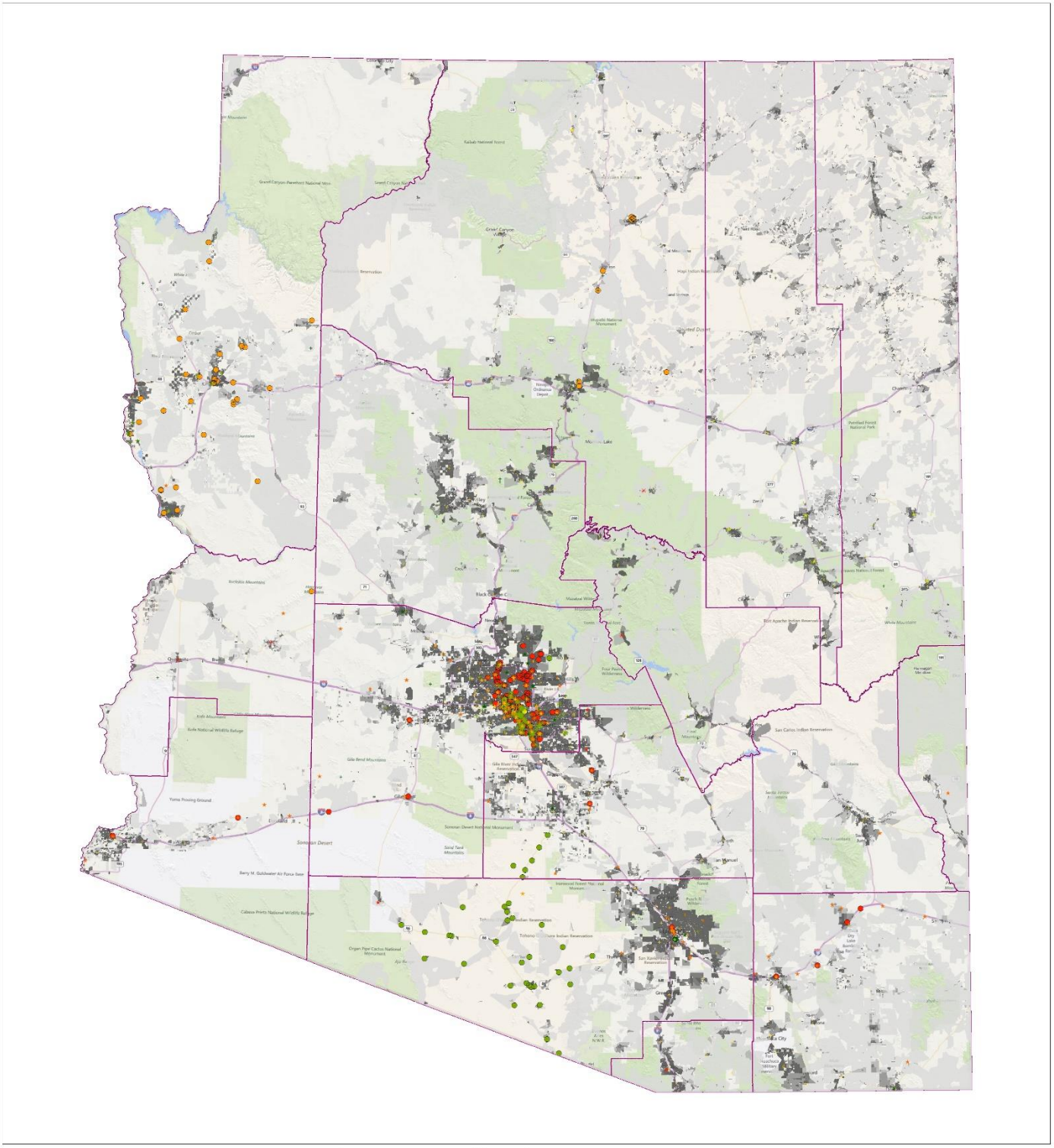
Magdalena de Kino
Esqueda
Ute Mountain I.R.
Shiprock
Zuni I.R.
Gallup



Arizona Broadband Mapping Program

Middle Mile Providers
FALL 2014 SUBMITTAL

Census Population/Sq. Mile

- Less Than 10
- 10 - 20
- 20 - 50
- 50 - 100
- Greater Than 100

DBA NAME, PROV_COUNT

- Airband Communications Inc, 52
- AT&T Mobility LLC, 14
- Cellular One of NE Arizona, 17
- CenturyLink, 164
- Cogent Communications, 19
- Covad Communications Company, 47
- CoxCom Inc, 14
- Fort Mojave Telecommunications Inc., 5
- Frontier Citizens Utilities Rural , 4
- Frontier Communications of White Mountains , 6
- Frontier Navajo Communications , 1
- Integra Telecom, 31
- Level3 Communications LLC, 65
- Mediacom Southeast, 4
- Saddleback Communications, 2
- Salt River Project, 268
- Sprint, 3
- T-Mobile, 6
- TDS Telecom, 4
- TW Telecom of Arizona LLC, 2
- Tohono O Odham Utility Authority, 37
- Trucom, 4
- Wecom, 44
- Zayo Enterprise Networks LLC, 212

N

Miles
0 5 10 20 30 40

Map Date: 10/07/14
Author: TerraSystems SW, Inc.
File: AZBB_MMPoints_Fall2014.mxd

Arizona Community Anchor Institution (CAI) Maps

The following set of maps represent the occurrence of Community Anchor Institutions (CAIs) across the State with the first map including all CAI entities and subsequent maps showing the occurrence of a single CAI category included in the Fall 2014 submittal. For statistics on CAIs, see the earlier Arizona Community Anchor Institutions (CAI) Data Set for Fall 2014 section.

All CAI Category Locations Map for Fall 2014

Schools (K-12) - CAI Category 1 Map

Libraries - CAI Category 2 Map

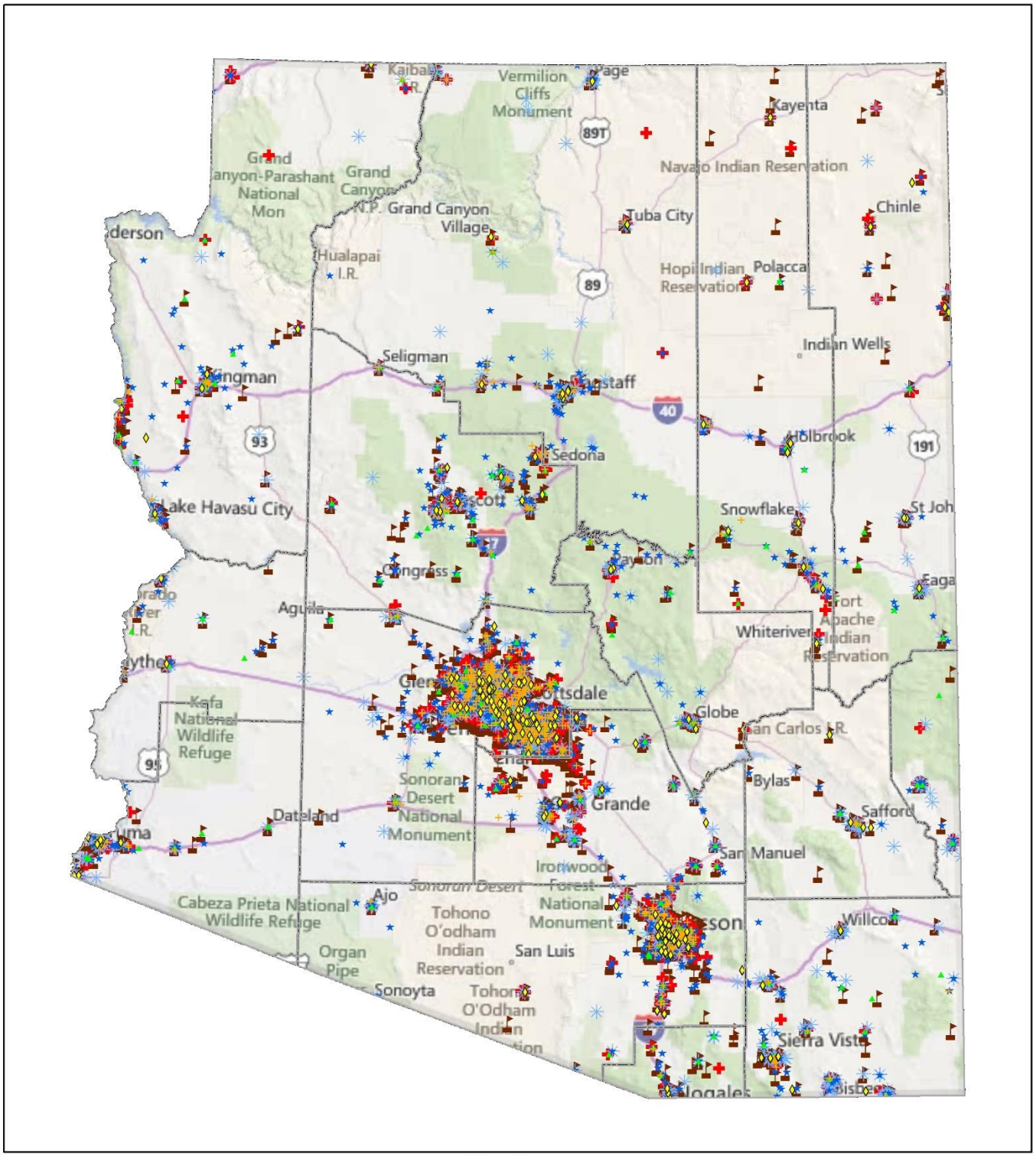
Medical/Healthcare - CAI Category 3 Map

Public Safety - CAI Category 4 Map

University/College/Post Secondary CAI Category 5 Map

Other Community Support - Governmental CAI Category 6 Map

Other Community Support – Non-Governmental CAI Category 7 Map



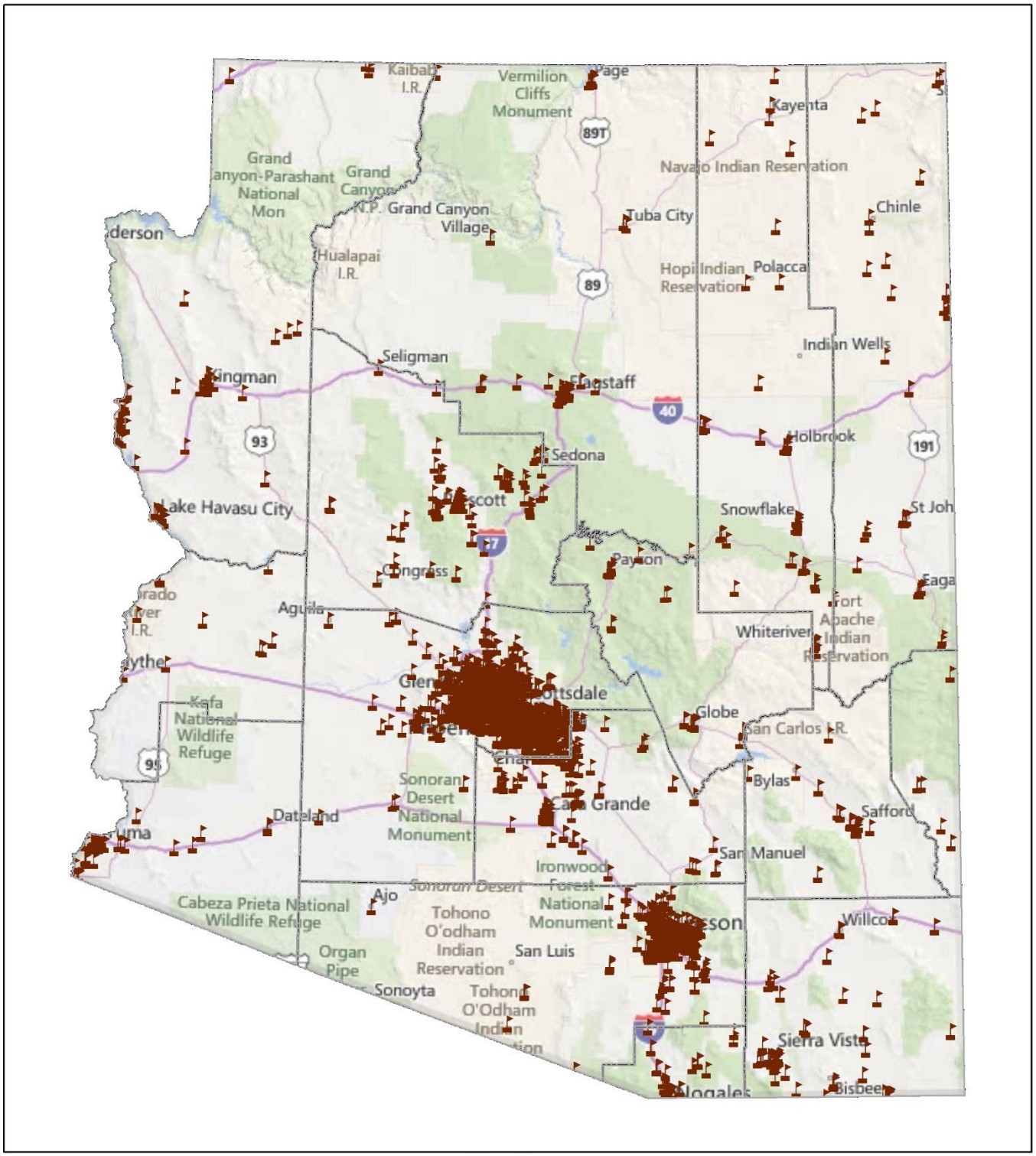
Arizona Broadband Mapping Program
NTIA Community Anchor Institutions (CAI)
All CAI Categories, FALL 2014 SUBMITTAL

- University, college or other post-secondary
- Other community support - nongovernmental
- Library
- Public safety
- Other community support - government
- Medical/healthcare
- School (K through 12)

N

Miles
0 5 10 20 30 40

Map Date: 11/18/2014
Author: TerraSystems SW, Inc.
File: Fall2014_AZ_CAI_AllTypes.mxd



Arizona Broadband Mapping Program
NTIA Community Anchor Institutions (CAI)
CAI Category 1: Schools (K - 12), FALL 2014 SUBMITTAL

School (K through 12)

County Boundaries

N

Miles
0 5 10 20 30 40

Map Date: 11/19/2014
Author: TerraSystems SW, Inc.
File: Fall2014_AZ_CAI_AllTypes_CAI_1.mxd

Arizona Broadband Mapping Program
NTIA Community Anchor Institutions (CAI)
CAI Category 2: Library, FALL 2014 SUBMITTAL

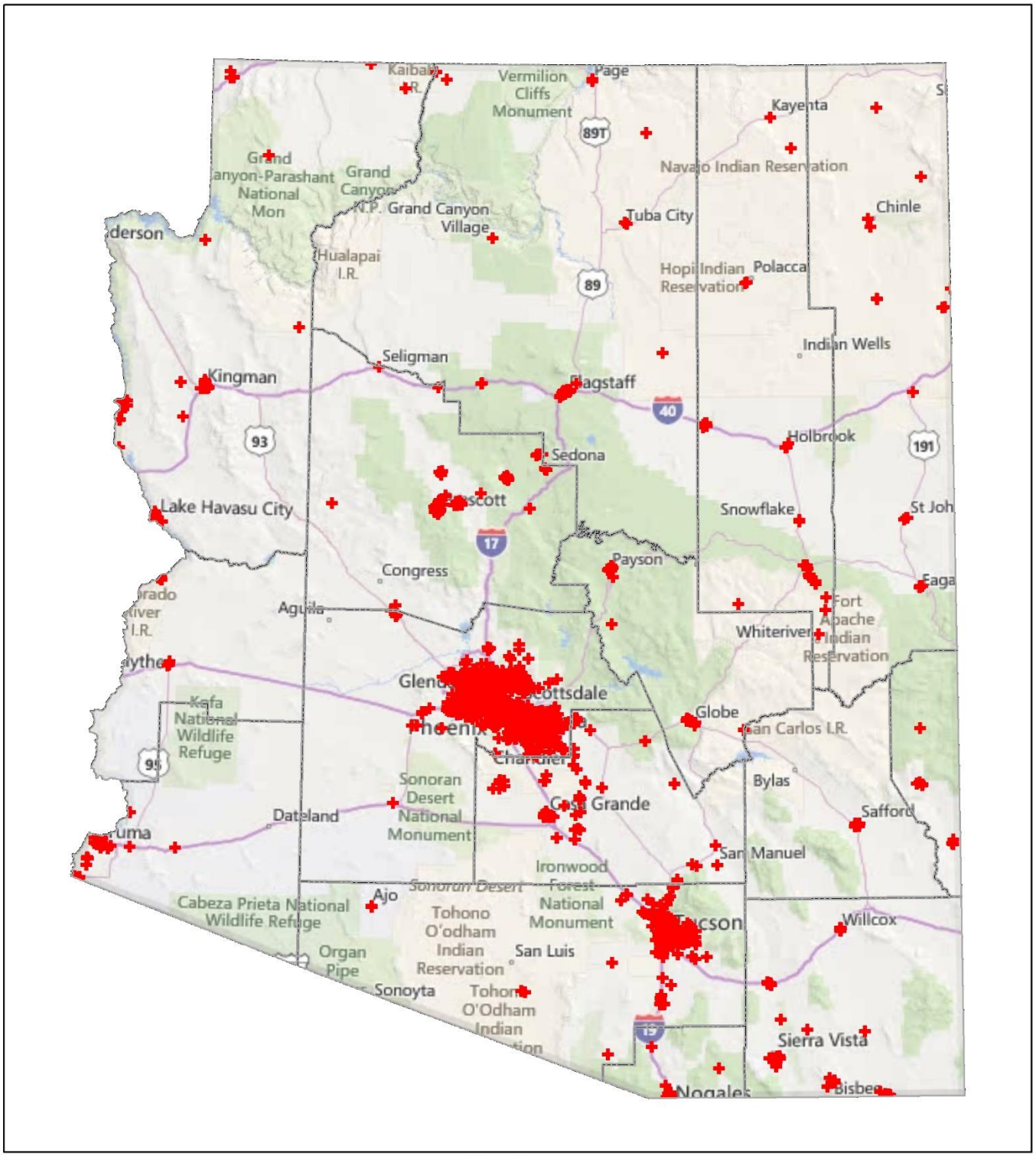
Library

County Boundaries

N

Miles
0 5 10 20 30 40

Map Date: 11/19/2014
Author: TerraSystems SW, Inc.
File: Fall2014_AZ_CAI_AllTypes_CAI_2.mxd



Arizona Broadband Mapping Program
NTIA Community Anchor Institutions (CAI)
CAI Category 3: Medical/healthcare, FALL 2014 SUBMITTAL

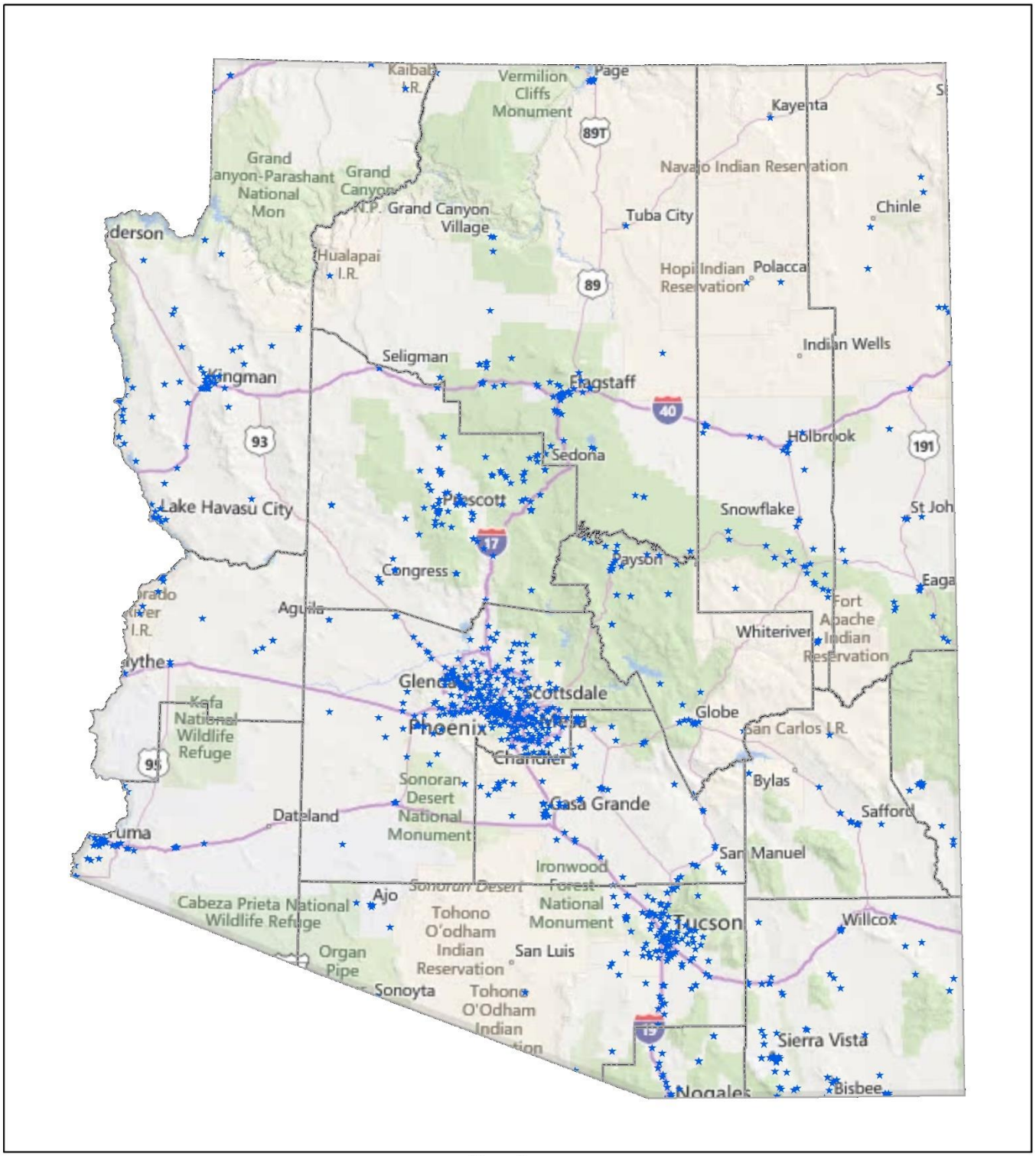
Medical/healthcare

County Boundaries

N

Miles
0 5 10 20 30 40

Map Date: 11/19/2014
Author: TerraSystems SW, Inc.
File: Fall2014_AZ_CAI_AllTypes_CAI_3.mxd



Arizona Broadband Mapping Program
NTIA Community Anchor Institutions (CAI)
CAI Category 4: Public Safety, FALL 2014 SUBMITTAL

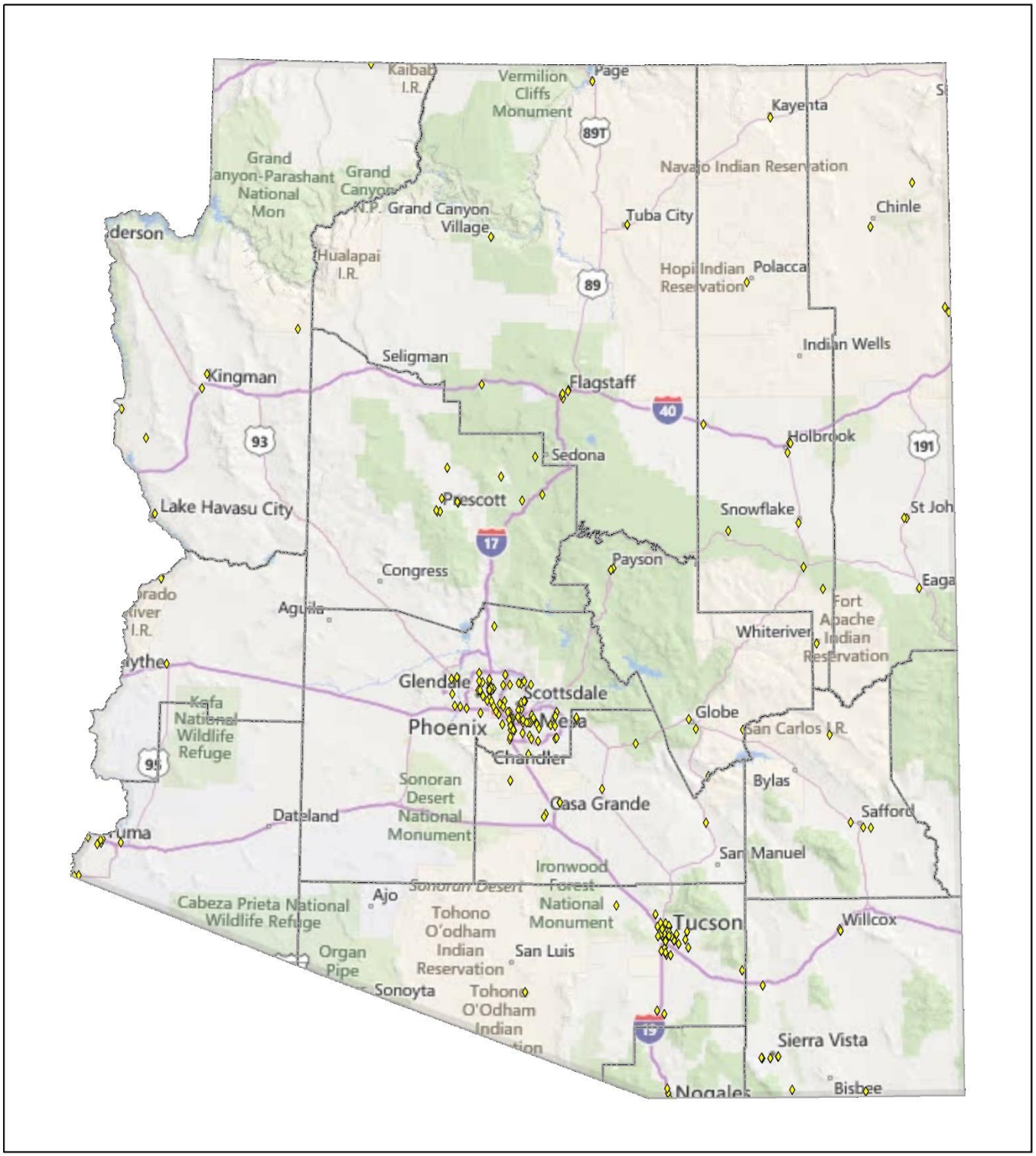
★ Public Safety

County Boundaries

N

Miles
0 5 10 20 30 40

Map Date: 11/19/2014
Author: TerraSystems SW, Inc.
File: Fall2014_AZ_CAI_AllTypes_CAI_4.mxd



Arizona Broadband Mapping Program

NTIA Community Anchor Institutions (CAI)

CAI Category 5: University, College, Other Post-secondary; FALL 2014 SUBMITTAL

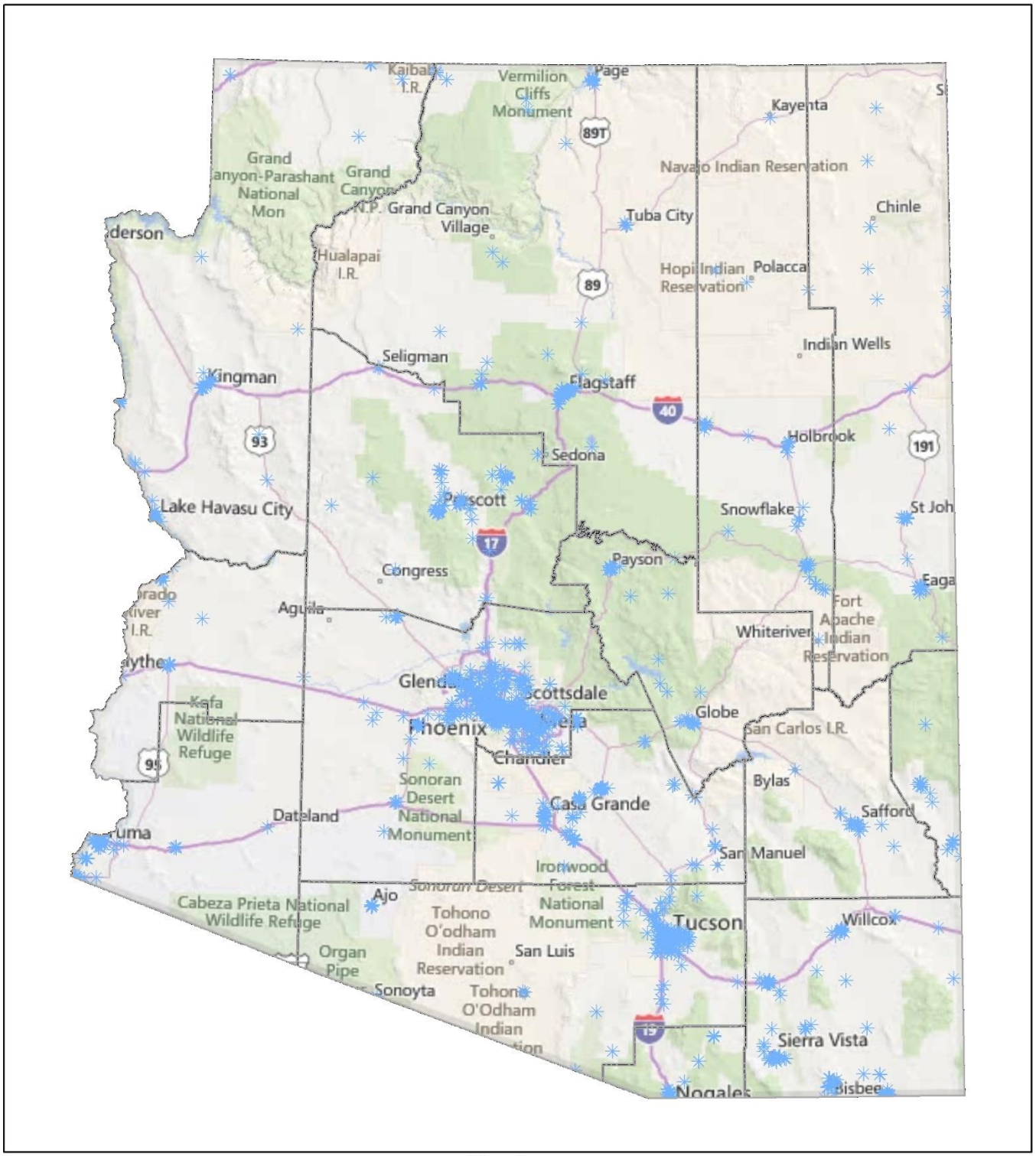
University, College or other Post-secondary

County Boundaries

N

Miles 0 5 10 20 30 40

Map Date: 11/19/2014
Author: TerraSystems SW, Inc.
File: Fall2014_AZ_CAI_AllTypes_CAI_5.mxd



Arizona Broadband Mapping Program
NTIA Community Anchor Institutions (CAI)
CAI Category 6: Other Community Support - Government; FALL 2014 SUBMITTAL

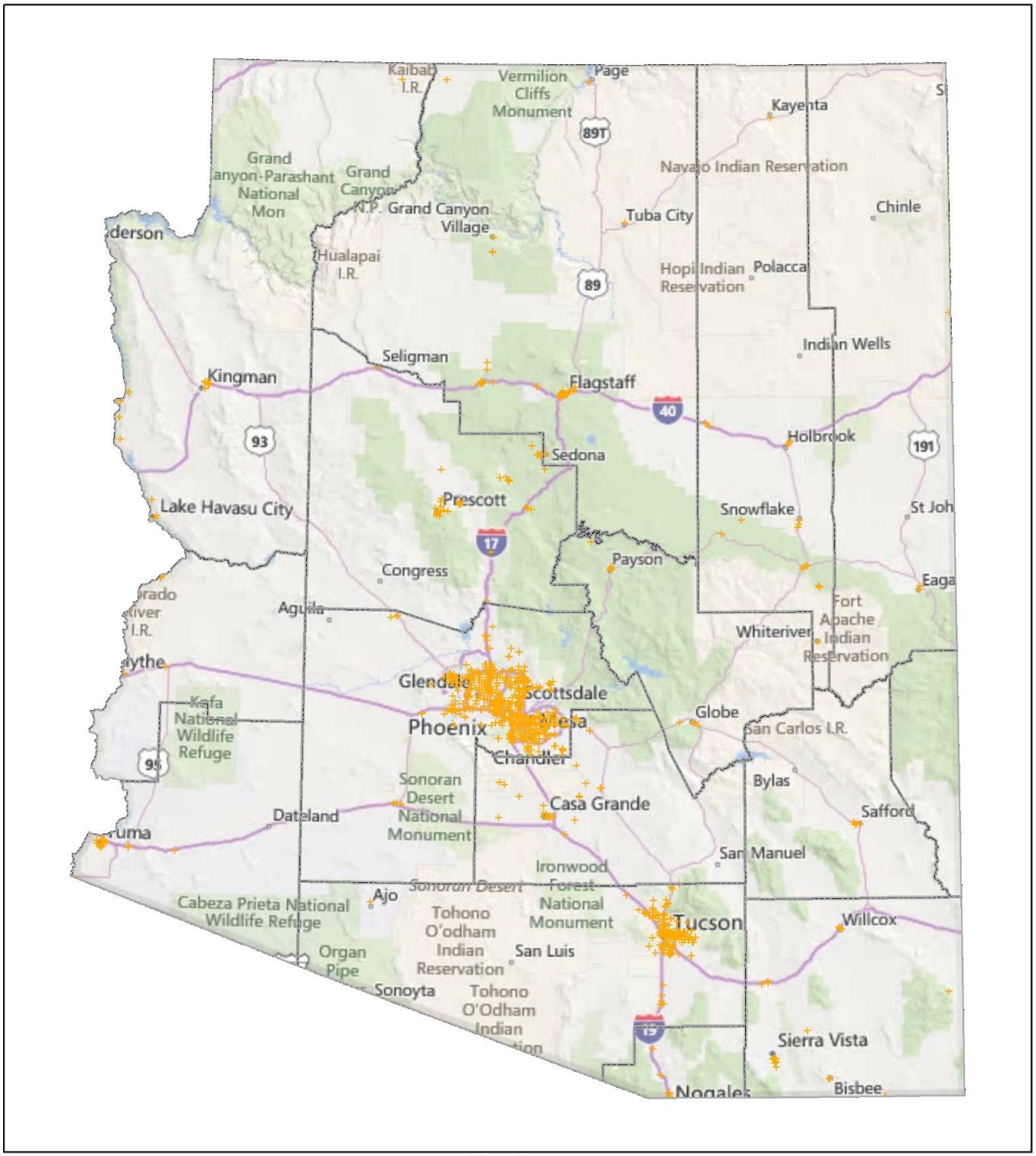
Other Community Support - Government

County Boundaries

N

Miles
0 5 10 20 30 40

Map Date: 11/19/2014
Author: TerraSystems SW, Inc.
File: Fall2014_AZ_CAI_AllTypes_CAI_6.mxd



Arizona Broadband Mapping Program

NTIA Community Anchor Institutions (CAI)

CAI Category 7: Other Community Support - Nongovernmental; FALL 2014 SUBMITTAL

Other Community Support - Nongovernmental

County Boundaries

N

Miles

0 5 10 20 30 40

Map Date: 11/19/2014
Author: TerraSystems SW, Inc.
File: Fall2014_AZ_CAI_AllTypes_CAI_7.mxd

Arizona Broadband Coverage Speed Changes From Spring 2014 to Fall 2014

The following set of maps represent the speed changes for statewide broadband coverage for Fall 2014 (as of 6/30/14) compared to the Spring 2014 data (as of 12/31/13), a six month span for All Technologies and selected individual technologies. The heat maps represents the delta in NTIA speed tiers from the Spring 2014 submittal cycle to the current one. The most significant speed and coverage increases are to be found for Fixed Wireless (Tech 70 & 71) and Mobile Wireless (Tech 80) technologies.

Arizona Broadband Coverage Table for Spring 2014

All Technologies (except Satellite) Map

DSL, xDSL & Other Copper Technologies (Tech 10-30) Map

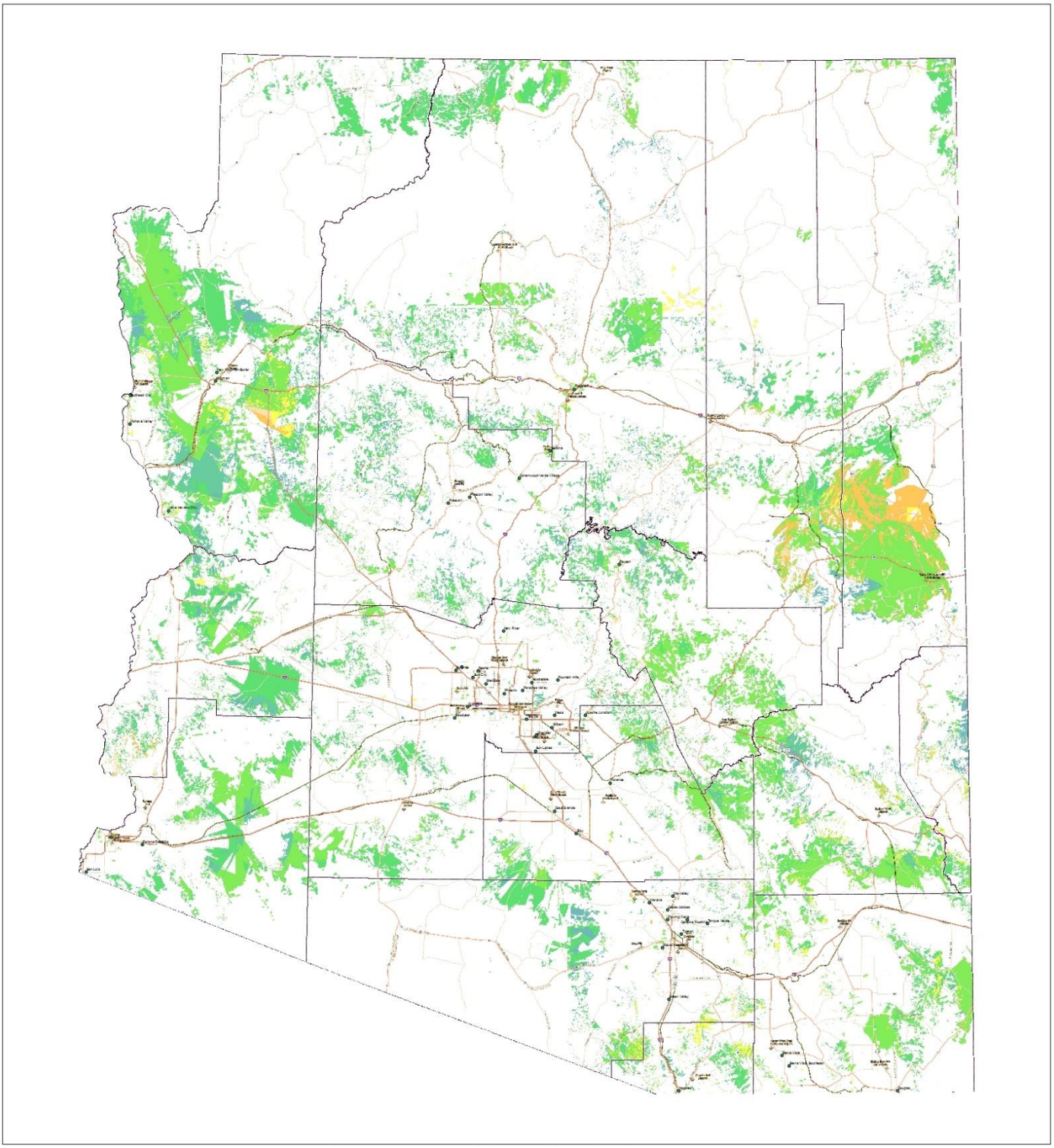
Cable Modem Technologies (Tech 40-41) Map

Fixed Wireless Technologies (Tech 70-71) Map

Mobile Wireless Technologies (Tech 80) Map

Arizona Broadband Coverage Table for Spring 2014

	Statewide		Rural		Sparsely Pop. Rural	
All Broadband Tech (Except Satellite) 1 or More Providers	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	99.55%	99.56%	97.76%	97.92%	95.62%	96.20%
≥ 3 Mbps Down	98.80%	98.59%	93.99%	93.33%	88.31%	87.85%
≥ 6 Mbps Down	98.32%	98.19%	91.60%	91.45%	85.86%	85.59%
≥ 10 Mbps Down	97.70%	97.41%	88.48%	87.75%	81.12%	80.06%
All Broadband Tech (Except Satellite) 2 or More Providers	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	98.90%	98.93%	94.49%	94.95%	90.65%	91.62%
≥ 3 Mbps Down	97.75%	97.57%	88.71%	88.50%	82.20%	81.78%
≥ 6 Mbps Down	96.66%	96.37%	83.47%	83.34%	76.59%	75.47%
≥ 10 Mbps Down	95.12%	94.60%	75.75%	75.01%	63.86%	62.24%
All Broadband Tech (Except Satellite) 3 or More Providers	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	98.20%	98.10%	90.97%	91.04%	85.36%	85.63%
≥ 3 Mbps Down	96.47%	96.14%	82.31%	81.74%	74.23%	72.89%
≥ 6 Mbps Down	93.50%	92.74%	72.17%	71.53%	62.99%	60.55%
≥ 10 Mbps Down	90.07%	89.02%	56.72%	55.64%	46.95%	44.84%
DSL, xDSL & Other Copper Tech	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	93.65%	93.33%	75.41%	75.65%	63.32%	64.99%
≥ 3 Mbps Down	89.03%	88.29%	60.31%	60.31%	46.07%	46.65%
≥ 6 Mbps Down	82.36%	81.09%	47.97%	47.91%	36.58%	37.15%
≥ 10 Mbps Down	73.90%	72.46%	39.31%	39.28%	28.21%	28.27%
Cable Modem Technologies	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	89.25%	88.66%	55.39%	55.58%	31.80%	33.71%
≥ 3 Mbps Down	89.03%	88.41%	54.63%	54.73%	31.23%	33.02%
≥ 6 Mbps Down	88.95%	88.34%	54.27%	54.39%	30.78%	32.59%
≥ 10 Mbps Down	88.95%	88.34%	54.27%	54.39%	30.78%	32.59%
Fixed Wireless Technologies	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	94.68%	94.39%	75.98%	75.90%	68.29%	68.54%
≥ 3 Mbps Down	62.00%	62.87%	63.18%	62.22%	53.68%	52.11%
≥ 6 Mbps Down	53.70%	54.57%	53.63%	53.44%	44.77%	42.55%
≥ 10 Mbps Down	5.85%	5.85%	12.35%	10.10%	9.49%	7.80%
Mobile Wireless Technologies	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	98.87%	99.01%	94.31%	95.32%	91.17%	92.76%
≥ 3 Mbps Down	97.46%	97.26%	87.27%	87.05%	81.27%	80.75%
≥ 6 Mbps Down	97.13%	96.79%	85.60%	84.83%	78.19%	76.90%
≥ 10 Mbps Down	97.13%	96.79%	85.59%	84.82%	78.18%	76.88%
	Population Count	**Household Count**	**Population Count**	**Household Count**	**Population Count**	**Household Count**
Arizona Totals (2010 Census)	6,392,017	2,844,526	1,274,234	601,889	651,358	329,022



Arizona Broadband Mapping Program

NTIA Maximum Download Speed Category Change All Providers and Technologies Except Satellite

SPRING 2014 to FALL 2014 SUBMITTAL

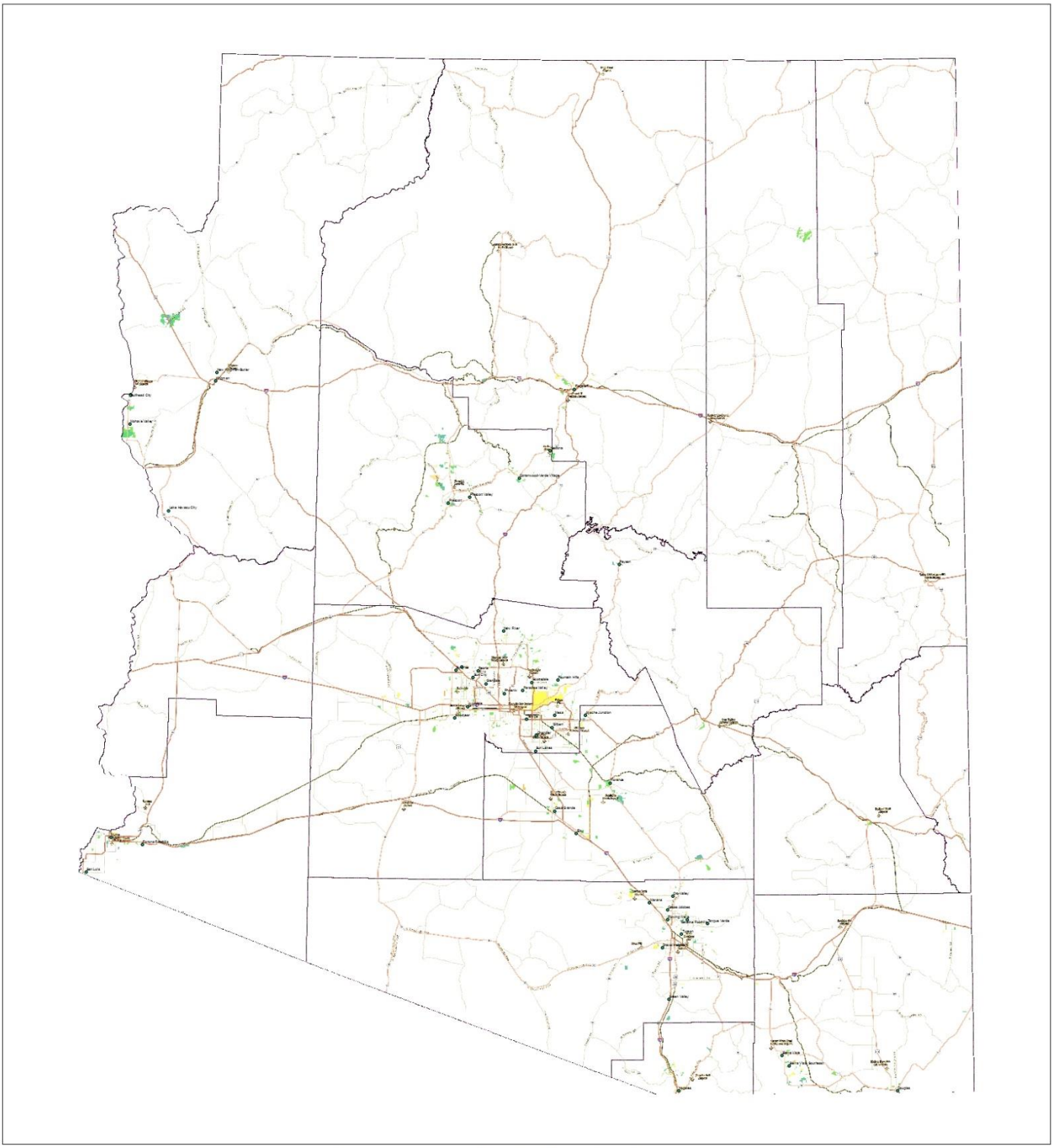
Value -4 -3 -2 -1 0 1 2 3 4 5 7

N

Miles 0 5 10 20 30 40

Map Date: 11/14/14
Author: TerraSystems SW, Inc.
File: Fall2014_AZ_SpeedChange_AllTech.mxd

Note: Analysis for Census Block, Road Segment Buffers and Wireless Polygons. Does not include Satellite Providers.



Arizona Broadband Mapping Program

NTIA Maximum Download Speed Category Change All Providers
Technology Types 10 - 30
SPRING 2014 TO FALL 2014 SUBMITTAL

Value

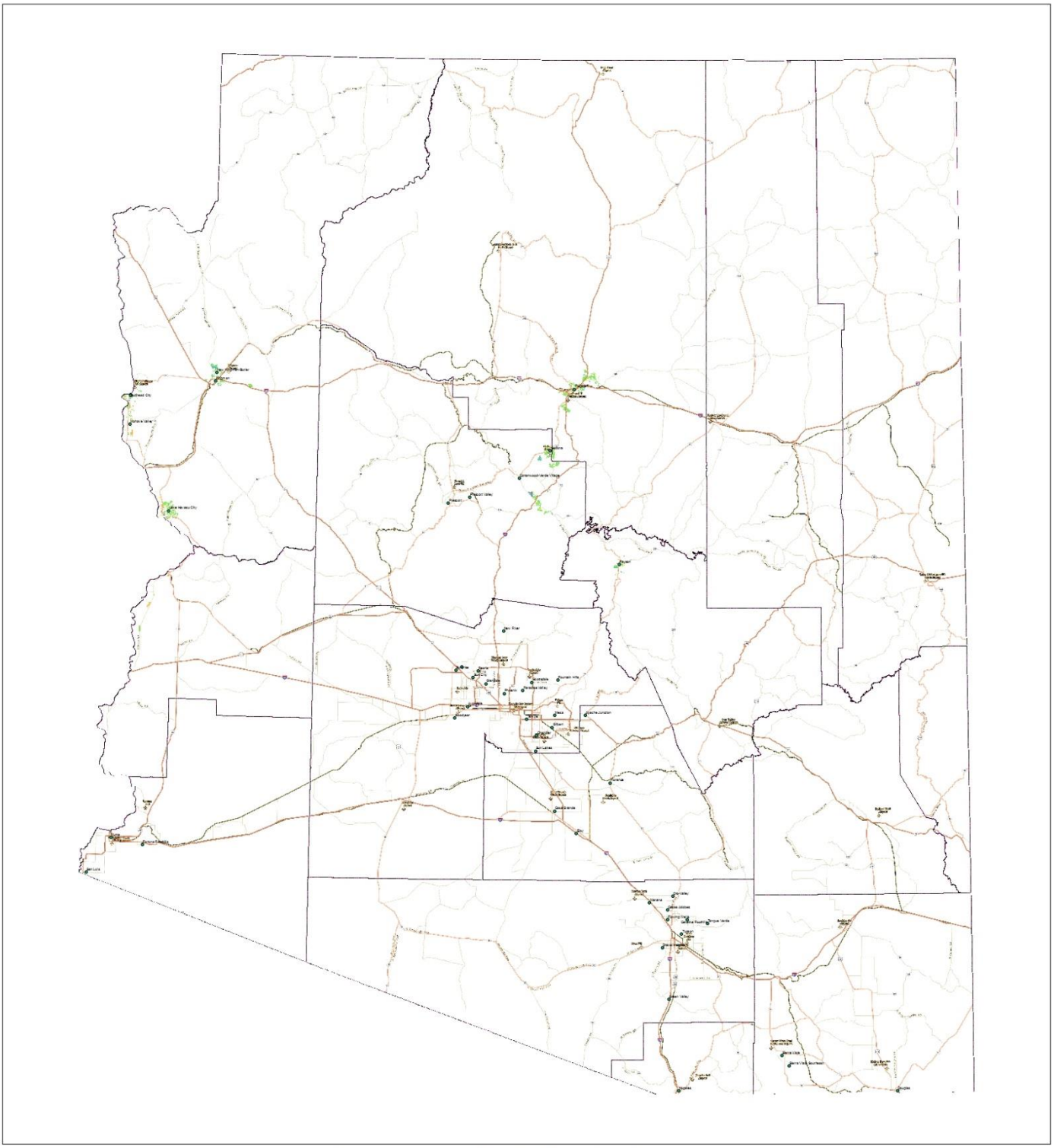
-4 -3 -2 -1 0 1 2 3 4

N

Miles
0 5 10 20 30 40

Map Date: 11/14/2014
Author: TerraSystems SW, Inc.
File: Fall2014_AZ_SpeedChange_Tech1030.mxd

Note: Analysis for Census Block, Road Segment Buffers and Wireless Polygons. Does not include Satellite Providers.



Arizona Broadband Mapping Program

NTIA Maximum Download Speed Category Change All Providers
Technology Types 40 and 41
SPRING 2014 TO FALL 2014 SUBMITTAL

Value

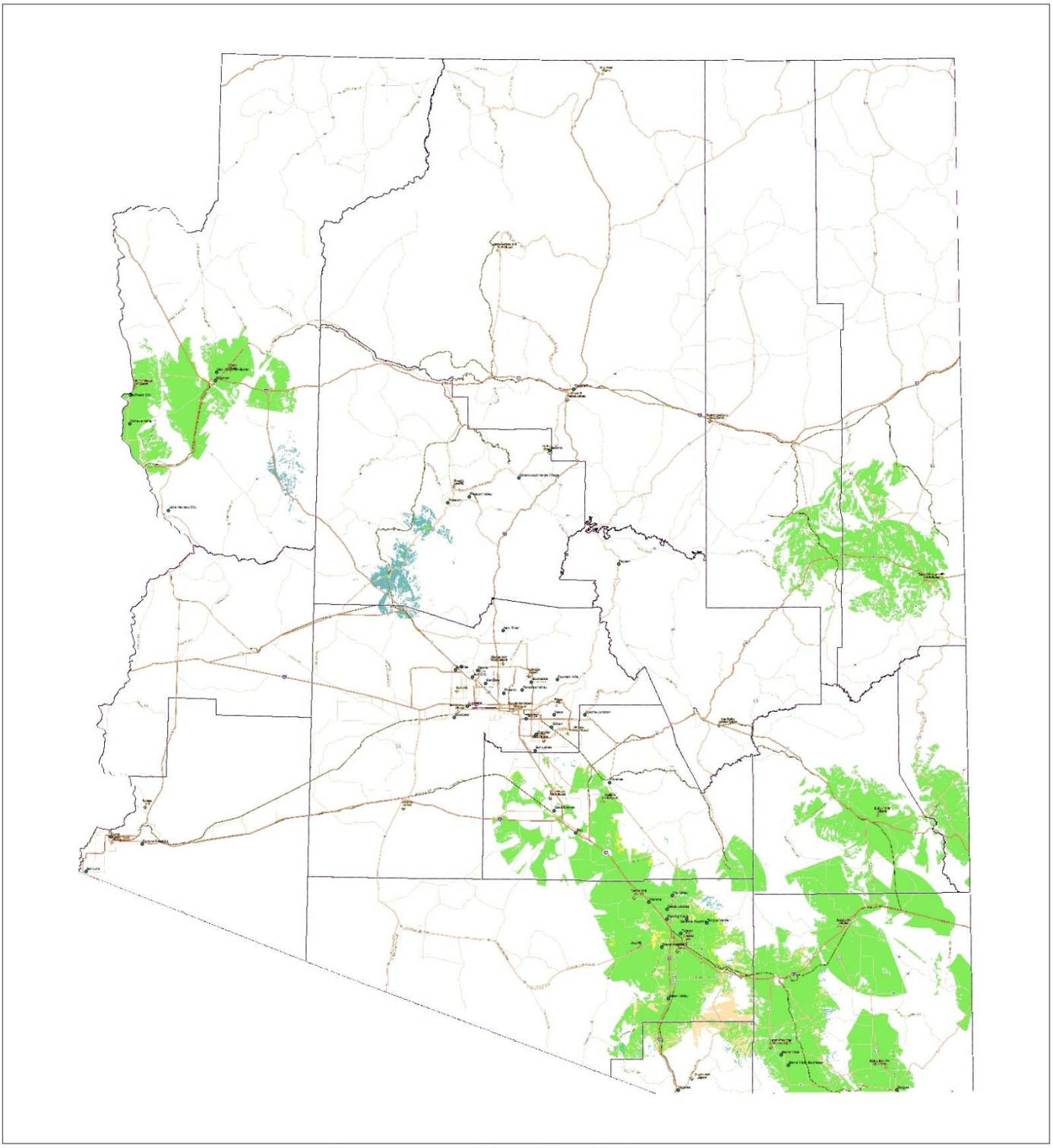
-5 -4 -3 -2 -1 0 1 2 3 4 5

N

Miles
0 5 10 20 30 40

Map Date: 11/14/2014
Author: TerraSystems SW, Inc.
File: Spring2014_AZ_SpeedChange_Tech4041.mxd

Note: Analysis for Census Block, Road Segment Buffers and Wireless Polygons. Does not include Satellite Providers.



Arizona Broadband Mapping Program

NTIA Maximum Download Speed Category Change All Providers
Technology Types 70 and 71
SPRING 2014 to FALL 2014 SUBMITTAL

Value

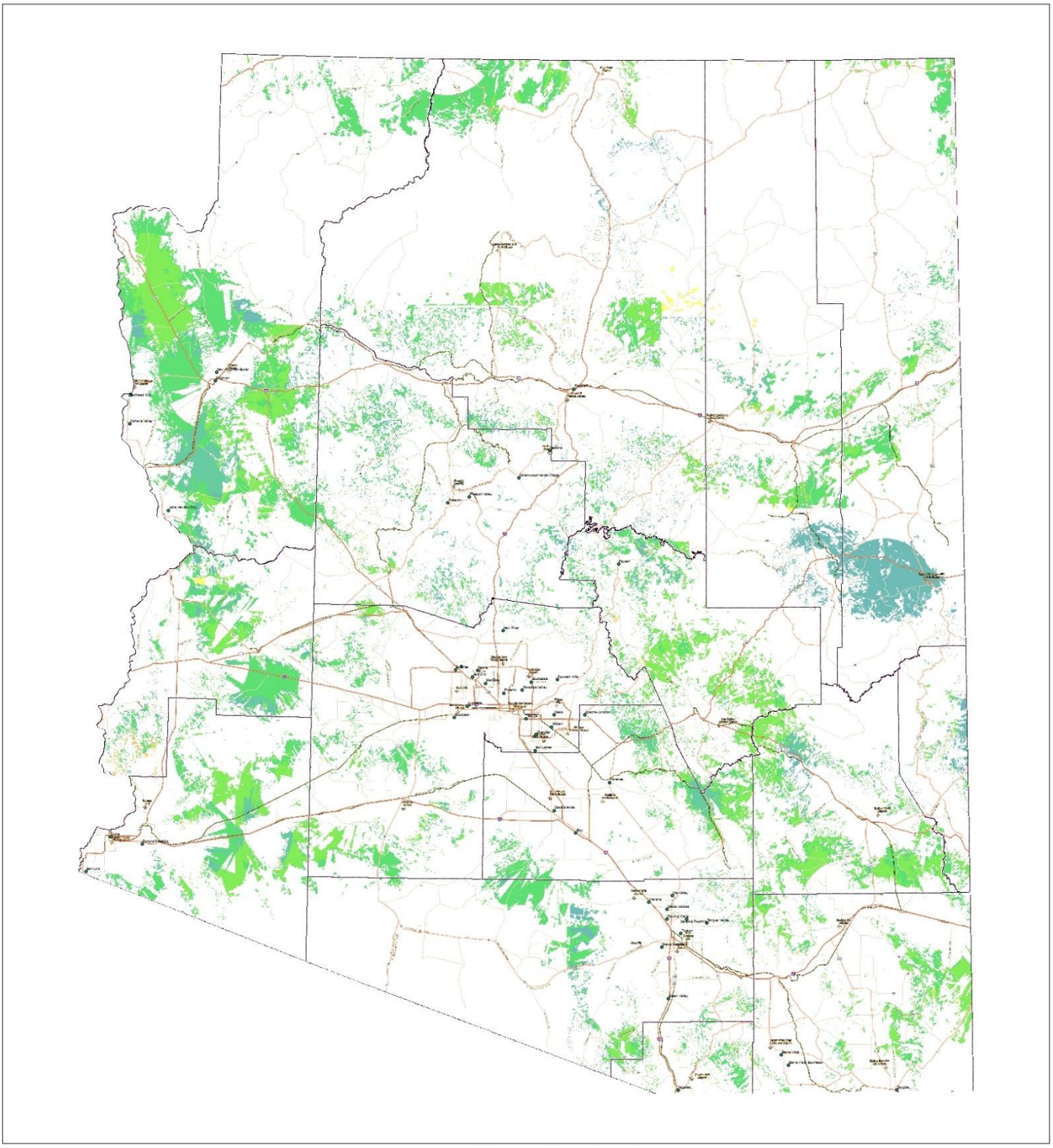
-3 -2 -1 0 1 2 3 4

N

Miles
0 5 10 20 30 40

Map Date: 11/14/2014
Author: TerraSystems SW, Inc.
File: Fall2014_AZ_SpeedChange_Tech7071.mxd

Note: Analysis for Census Block, Road Segment Buffers and Wireless Polygons. Does not include Satellite Providers.



Arizona Broadband Mapping Program

NTIA Maximum Download Speed Category Change All Providers
Technology Type 80
SPRING 2014 to FALL 2014 SUBMITTAL

Value

-4 -3 -2 -1 0 1 2 3 4

N

Miles
0 5 10 20 30 40

Map Date: 11/14/2014
Author: TerraSystems SW, Inc.
File: Fall2014_AZ_SpeedChange_Tech80.mxd

Note: Analysis for Census Block, Road Segment Buffers and Wireless Polygons. Does not include Satellite Providers.

Arizona Broadband Coverage Speed Changes From Fall 2012 to Fall 2014

The following set of maps represent the speed changes for statewide broadband coverage for Fall 2014 (as of 6/30/14) compared to the Fall 2012 data (as of 6/30/12), a two year span for All Technologies and selected individual technologies. The heat maps represents the delta in NTIA speed tiers from the Fall 2012 submittal cycle to the current one. The most significant speed and coverage increases are to be found for Fixed Wireless (Tech 70 & 71) and Mobile Wireless (Tech 80) technologies. The summary coverage statistics were evolved and improved over time, so the legacy table for Fall 2012 does not include all values included in the later tables.

Arizona Broadband Coverage Table for Fall 2012

All Technologies (except Satellite) Map

DSL, xDSL & Other Copper Technologies (Tech 10-30) Map

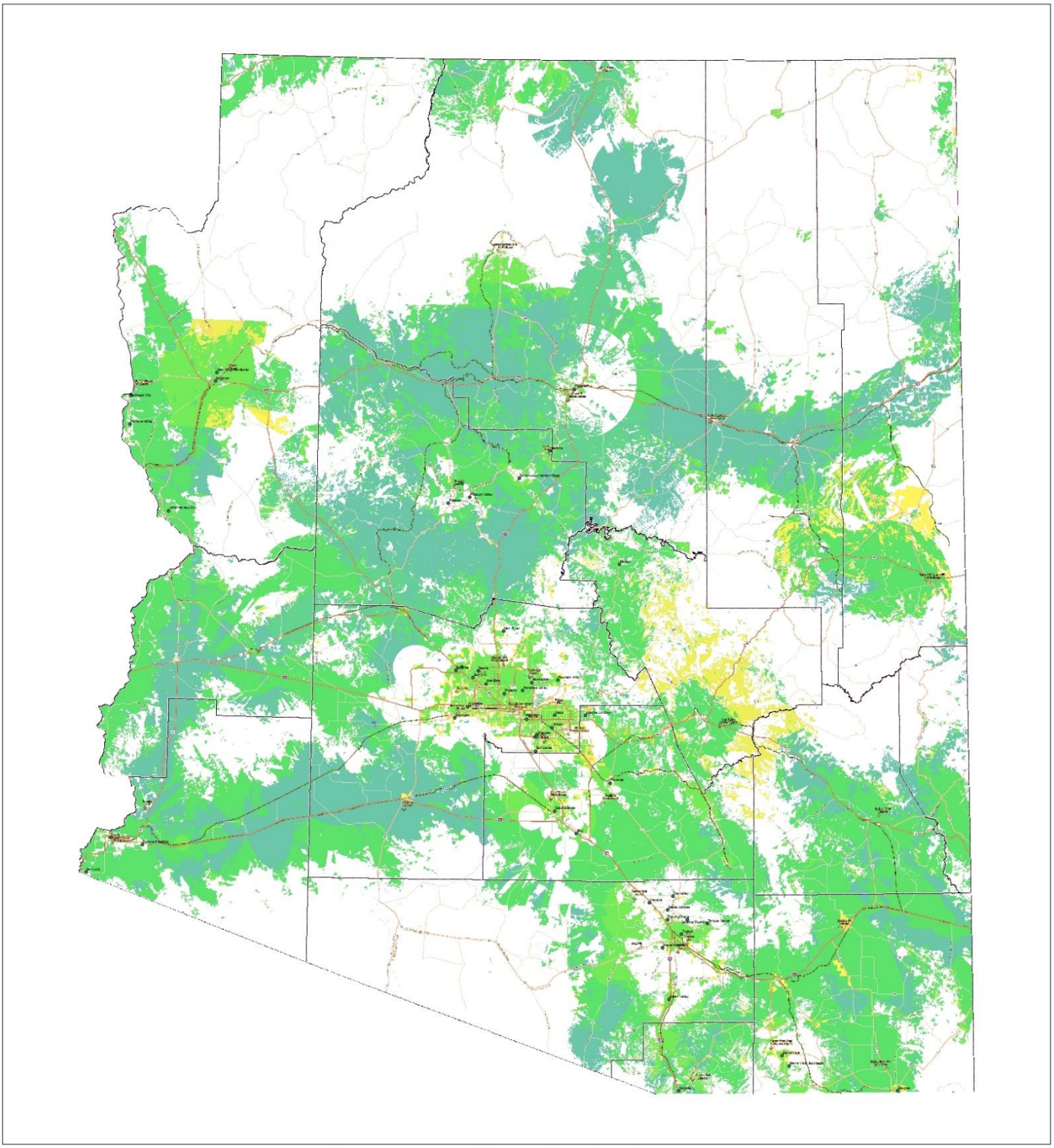
Cable Modem Technologies (Tech 40-41) Map

Fixed Wireless Technologies (Tech 70-71) Map

Mobile Wireless Technologies (Tech 80) Map

Arizona Statewide Broadband Coverage for Fall 2012

	Statewide		Rural		Sparsely Pop. Rural	
All Broadband Tech (Except Satellite) 1 or More Providers	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	99.50%	99.50%	97.50%	97.63%	95.13%	95.68%
≥ 3 Mbps Down	97.71%	97.36%	88.50%	87.51%	81.23%	79.77%
≥ 6 Mbps Down	95.12%	94.46%	75.84%	74.43%	63.74%	60.96%
≥ 10 Mbps Down	-	-	-	-	-	-
All Broadband Tech (Except Satellite) 2 or More Providers	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	98.50%	98.52%	92.48%	93.01%	87.46%	88.36%
≥ 3 Mbps Down	95.63%	94.88%	78.10%	75.86%	67.54%	64.26%
≥ 6 Mbps Down	88.10%	86.65%	52.85%	50.59%	40.15%	37.16%
≥ 10 Mbps Down	-	-	-	-	-	-
All Broadband Tech (Except Satellite) 3 or More Providers	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	-	-	-	-	-	-
≥ 3 Mbps Down	-	-	-	-	-	-
≥ 6 Mbps Down	-	-	-	-	-	-
≥ 10 Mbps Down	-	-	-	-	-	-
DSL, xDSL & Other Copper Tech	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	98.50%	98.41%	92.48%	92.49%	86.25%	87.32%
≥ 3 Mbps Down	96.37%	96.00%	83.54%	82.89%	72.83%	72.34%
≥ 6 Mbps Down	93.56%	92.89%	71.57%	70.86%	55.82%	54.70%
≥ 10 Mbps Down	-	-	-	-	-	-
Cable Modem Technologies	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	89.55%	88.83%	56.08%	56.22%	33.37%	35.18%
≥ 3 Mbps Down	89.54%	88.81%	56.08%	56.22%	33.37%	35.18%
≥ 6 Mbps Down	89.49%	88.77%	55.87%	56.00%	33.02%	34.84%
≥ 10 Mbps Down	84.56%	83.68%	46.81%	49.00%	29.09%	31.68%
Fixed Wireless Technologies	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	98.73%	98.87%	93.65%	94.64%	90.24%	91.63%
≥ 3 Mbps Down	94.18%	93.14%	71.02%	67.86%	63.86%	60.08%
≥ 6 Mbps Down	81.04%	78.85%	30.52%	28.10%	29.97%	26.49%
≥ 10 Mbps Down	-	-	-	-	-	-
Mobile Wireless Technologies	**Population**	**Household**	**Population**	**Household**	**Population**	**Household**
≥ 768 Kbps Down	98.73%	98.87%	93.65%	94.64%	90.24%	91.63%
≥ 3 Mbps Down	94.18%	93.14%	71.02%	67.86%	63.86%	60.08%
≥ 6 Mbps Down	81.04%	78.85%	30.52%	28.10%	29.97%	26.49%
≥ 10 Mbps Down	-	-	-	-	-	-
	Population Count	**Household Count**	**Population Count**	**Household Count**	**Population Count**	**Household Count**
Arizona Totals (2010 Census)	6,392,017	2,844,526	1,274,234	601,889	651,358	329,022



Arizona Broadband Mapping Program

NTIA Maximum Download Speed Category Change All Providers
All Technologies Except Satellite
FALL 2012 to FALL 2014 SUBMITTAL

Value

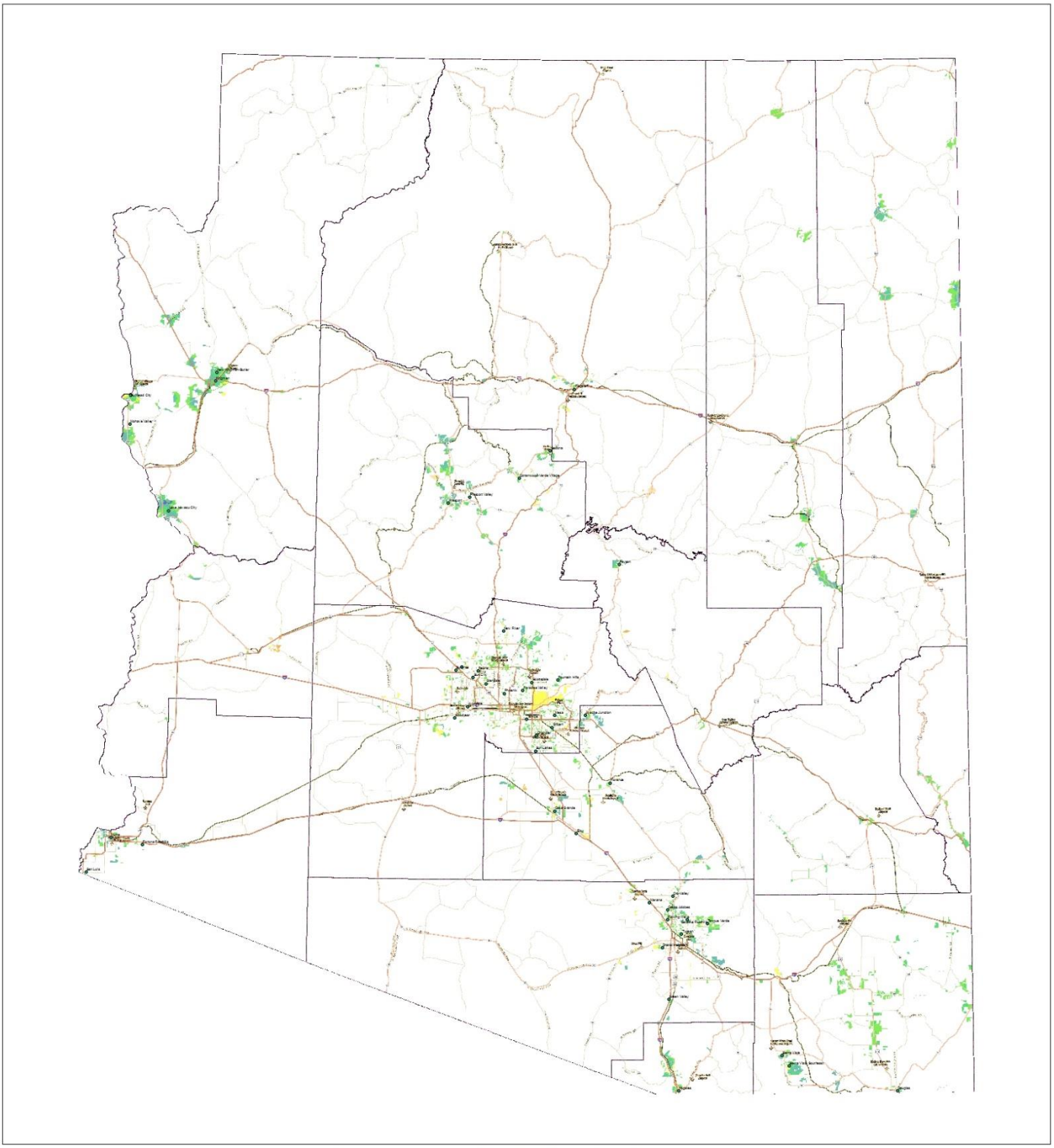
-8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8

N

Miles
0 5 10 20 30 40

Map Date: 11/14/14
Author: TerraSystems SW, Inc.
File: Fall2014_AZ_SpeedChange_FromFall2012_AllTech.mxd

Note: Analysis for Census Block, Road Segment Buffers and Wireless Polygons. Does not include Satellite Providers.



Arizona Broadband Mapping Program
NTIA Maximum Download Speed Category Change All Providers
Technology Types 10 - 30
FALL 2012 TO FALL 2014 SUBMITTAL

Legend

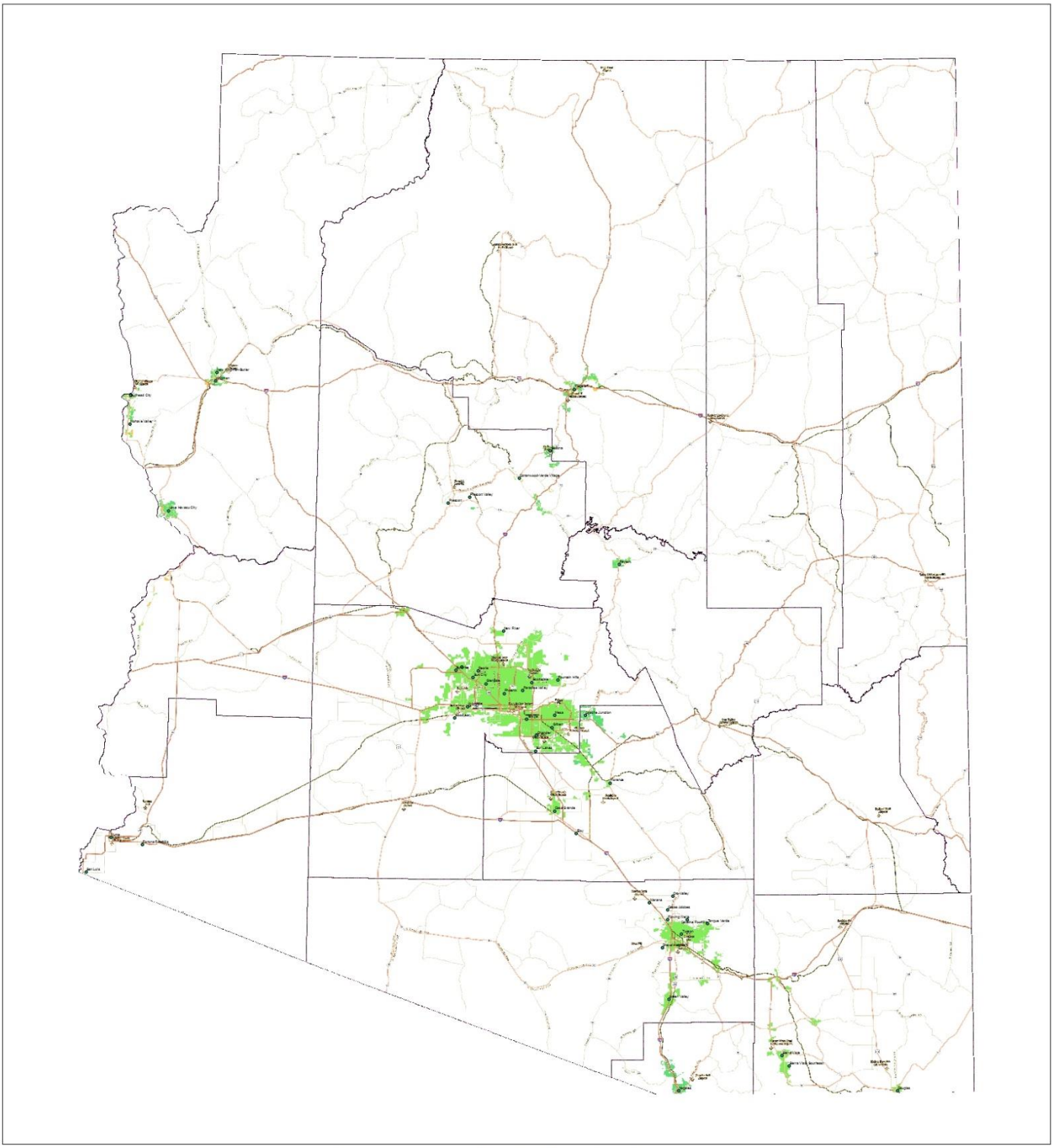
Value -5 -4 -3 -2 -1 0 1 2 3 4 5

N

Map Date: 11/14/2014
Author: TerraSystems SW, Inc.
File: Fall2014_AZ_SpeedChange_FromFall2012_Tech1030.mxd

Note: Analysis for Census Block, Road Segment Buffers and Wireless Polygons. Does not include Satellite Providers.

Miles
0 5 10 20 30 40



Arizona Broadband Mapping Program
NTIA Maximum Download Speed Category Change All Providers
Technology Types 40 and 41
FALL 2012 TO FALL 2014 SUBMITTAL

Value

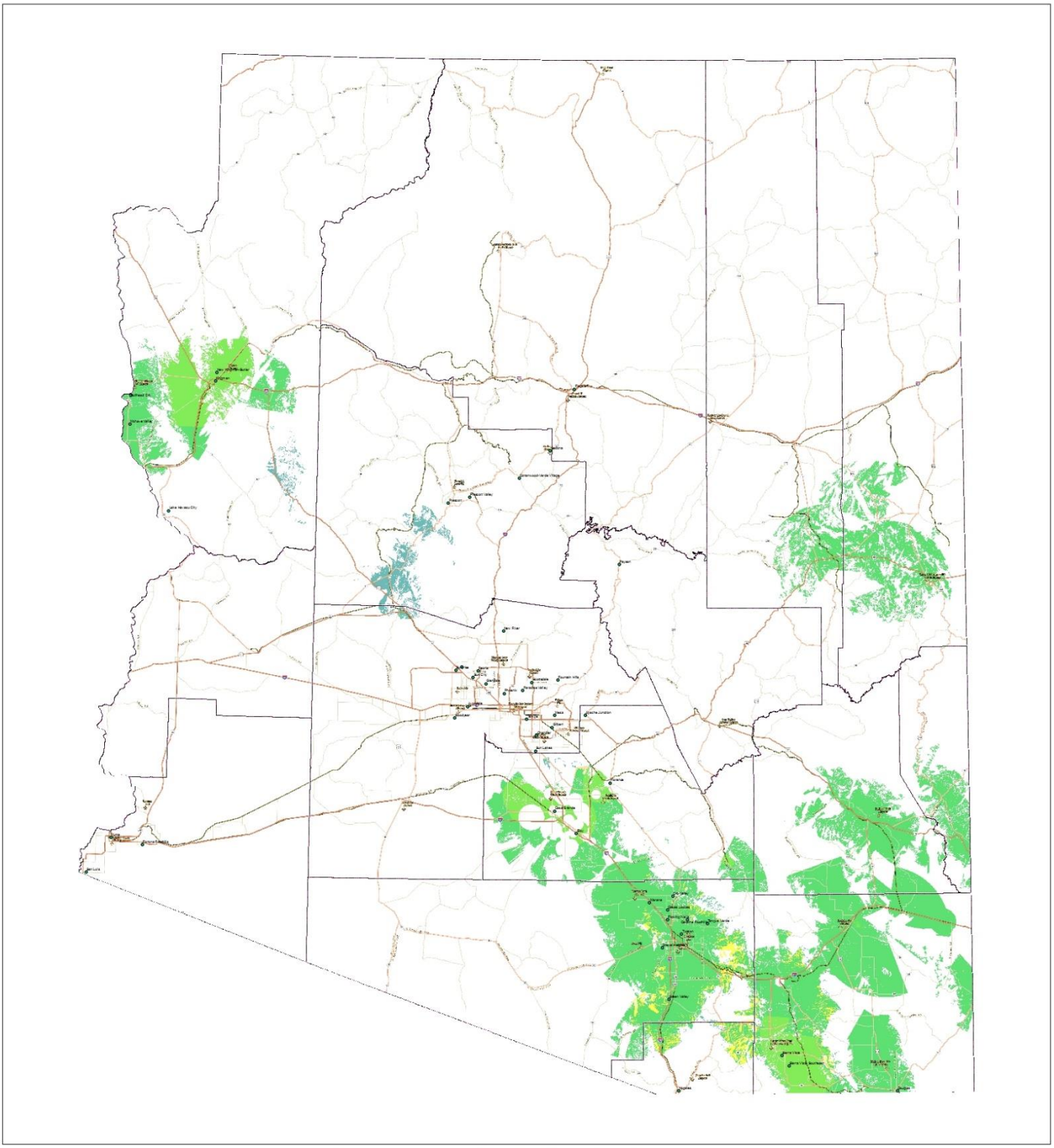
-3 -2 -1 0 1 2

N

Miles
0 5 10 20 30 40

Map Date: 11/14/2014
Author: TerraSystems SW, Inc.
File: Spring2014_AZ_SpeedChange_FromFall2012_Tech4041.mxd

Note: Analysis for Census Block, Road Segment Buffers and Wireless Polygons. Does not include Satellite Providers.



Arizona Broadband Mapping Program

NTIA Maximum Download Speed Category Change All Providers
Technology Types 70 and 71
FALL 2012 to FALL 2014 SUBMITTAL

Legend

USA_Major_Cities

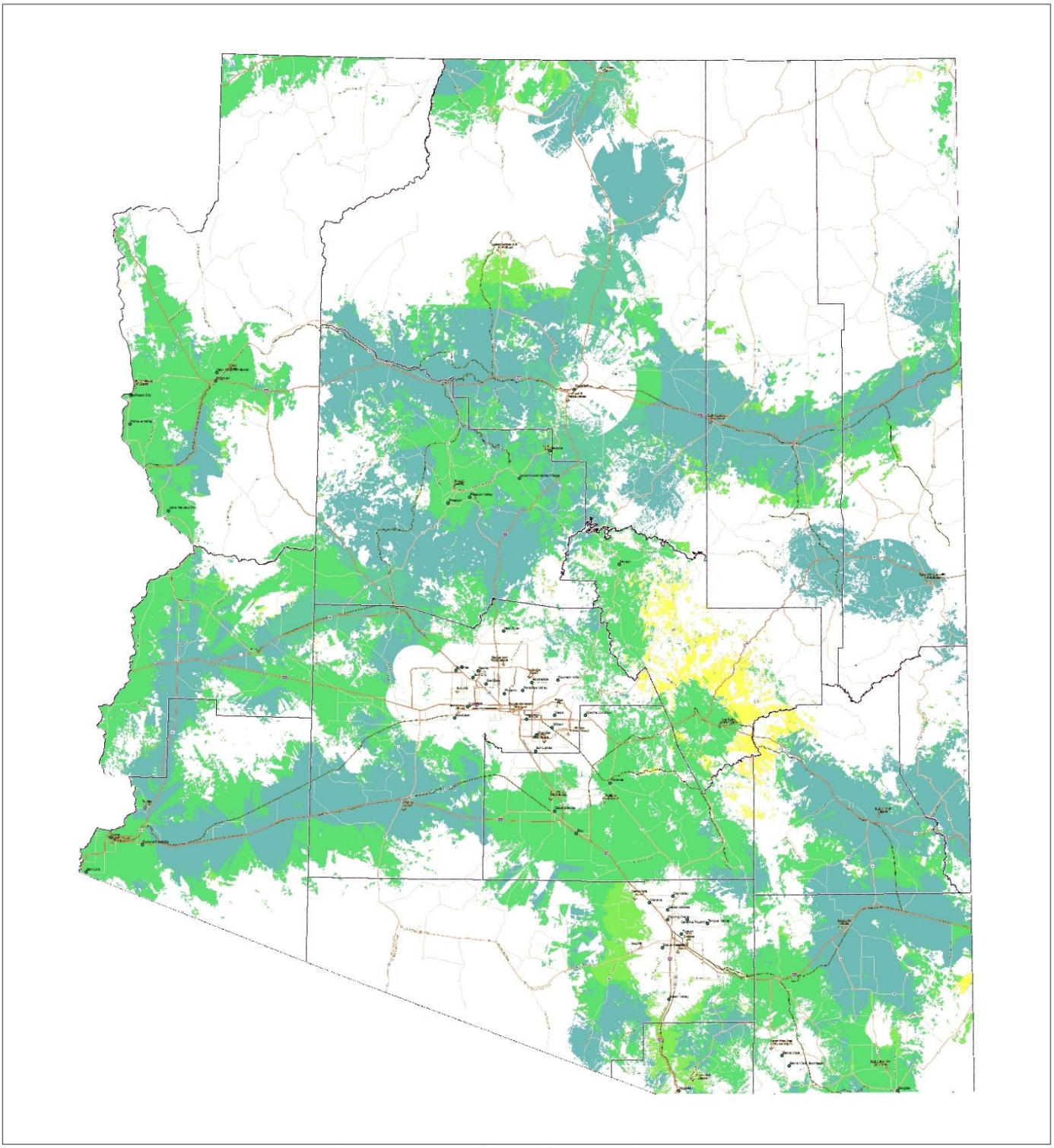
World Transportation **Value** -2 -1 0 1 2 3 4

N

Miles
0 5 10 20 30 40

Map Date: 11/14/2014
Author: TerraSystems SW, Inc.
File: Fall2014_AZ_SpeedChange_Tech7071.mxd

Note: Analysis for Census Block, Road Segment Buffers and Wireless Polygons. Does not include Satellite Providers.



Arizona Broadband Mapping Program

NTIA Maximum Download Speed Category Change All Providers
Technology Type 80
FALL 2012 to FALL 2014 SUBMITTAL

Legend

Value -3 -2 -1 0 1 2 3 4

N

Miles
0 5 10 20 30 40

Map Date: 11/14/2014
Author: TerraSystems SW, Inc.
File: Fall2014_AZ_SpeedChange_FromFall2012_Tech80.mxd

Note: Analysis for Census Block, Road Segment Buffers and Wireless Polygons. Does not include Satellite Providers.

Arizona Broadband Assessment Project (AZ BAP)

Arizona Broadband Provider (BP) Changes and Corrections (C & C)

Fall 2014 (Submission 10)

Provider Name	Changes	Corrections	Notes
AireBeam			No change
Arivaca	X		Coverage did not change, but speed went up from tier three to four.
AT&T			No change
AT&T Mobility	X		Now owns Cricket assets. Cricket still appears as its own entity. Major addition on northern border; decrement in HSPA, increase in HSPA+ and LTE.
AZ Airnet	X		Speeds available increased to seven up and down. Coverage increased by 300 sq. miles.
(Baja Broadband)	X		Bought by TDS and appears under them as “TDS Baja”. Not in submittal.
BeamSpeed			No change
Bolt Internet			No change
Cable One			No change
Casa Grande Internet			No change
CenturyLink	X		Fiber coverage increasing, overall increase in coverage with some drops and adds.
CIS Wireless Broadband			No change
City of Phoenix (Sky Harbor Airport)			No change
Cogent Communications	X		New Tech 50 and middle mile provider this submittal.
Comcast Cable	X		Minor decrease in census blocks and area; increase in roads and length of roads.
CommSpeed			No change
Copper Valley	X		Small increase in census block coverage, small decrease in road segment; one new census block in tech 50.
CopperNet			No change
Covad Communications (Megapath)			No change
Cox Communications			No change

Provider Name	Changes	Corrections	Notes
Cricket Communications	X		Owned by AT&T New coverage in Bullhead City region. Some loss of coverage in edges of coverage in Tucson and Casa Grande.
Datamax/Wecom			No change
Desert iNET			No change
eSedona			No change
Fort Mojave Telecom			No change, concurs with VITA data.
Frontier Citizens Utilities Rural	X		Some increased coverage, Increased speeds by a tier in most areas.
Frontier Communications of the White Mountains	X		462 new census blocks, some increased speeds.
Frontier Navajo Communications	X		Increased coverage in an incremental submittal.
Frontier Southwest			No change
(Gila River Telecom)			Declines to participate. Not in submittal
Golden Valley Cable			No change
Grand Avenue Broadband			No change
Greenfield Communications			No change
HNS (Hughes, Echostar)			No change
Hopi Telecom (HTI)	X	X	VITA had different and updated coverage which we used this cycle. This shows less coverage than we represented last cycle.
HPAZ	X		Provider coverage available online; increased coverage without change in frequency or speed.
InfoWest			No change
Integra Telecom			No change
Last Mile Research			No change
Level 3 Communications	X		Processed as an incremental submittal.
Mediacom Arizona	X		Adds and drops, 150 square miles of increased coverage over unpopulated land.
MTE Communications			No change
Phoenix Internet			No change
Pointe Wireless			No change
Rio Verde Wireless			No change

Provider Name	Changes	Corrections	Notes
Rio Virgin Telephone (Reliance Connects)			No change
RuralNet Wireless			No change
Saddleback Communications	X	X	VITA had different and updated coverage which we will use this cycle. Tech 10 changed to Tech 30 and 50, lost coverage in unpopulated areas; also a significant decrement of road segment coverage.
Salt River Project (SRP)	X		Four road segments lost in road segments, and gained in census blocks
San Carlos Apache Telecom Utility (SCATUI)			No change
Schurz Communications			No change
Simply Bits			No change
Skycasters			No change
Smith Bagley			No change
South Central Utah Telephone Association			No change
Sprint Communications			Minor coverage increase, add 6 Down, 4 Up Max Speed Tier.
StarBand Communications			No change
Suddenlink	X		Minor contraction at edges of coverage.
T-Mobile (Deutsche Telekom)	X		10% increase in coverage in each spectrum, primarily in Yuma, Wickenburg, and Casa Grande.
Table Top Telephone			No change
TDS Telecom/TDS Baja	X	X	Corrections incorporated per last cycle's response. TDS now owns Baja Broadband. Changes are represented in minor drops of fragmented coverage. TDS Baja is unchanged, though a new FRN represents new ownership.
Time Warner Cable			No change
Tohono O'Odham Utility (TOUA)			No change
Transcend Broadband			No change
Transworld Network	X	X	Used a more accurate way to process the nested KMZ's yielding a better depiction of coverage with a decrease in coverage of 3,000 square miles.

Provider Name	Changes	Corrections	Notes
TruCom			No change
TW telecom	X		Minor increase in coverage; 3 sq. miles in each tech type.
UNSI			No change
Valley Connections			No change
Valley Telephone Group	X		Census block increase of 1 sq. mile. Manual audit of road segments significantly reduced coverage
Verizon Wireless	X		Dropped one 3G spectrum; 4G spectrum 2 increased by 4000 sq. miles; 4G spectrum 4 increased by 30,000 square miles.
ViaSat	X		Added the 5000 square miles on their slower tier (eastern Arizona) missing from Spring submittal
Webhiway Communications			No change
(Western WiMax)			Declines to participate. Not in submittal
WydeBeam			No change
XO Communications			No change
Xpressweb Internet			No change
Ygnition			No change
Zayo Enterprise Networks	X	X	Some drop and adds, corrected processing for Tucson area leading to significant increase in area.
Zona Communications			No change, in bankruptcy proceedings.
Totals	**27**	**5**	**78 BPs included in submittal.**