City of West Sacramento
Broadband Infrastructure Assessment & Action Plan

5 April 2017

Tellus Venture Associates

Report card

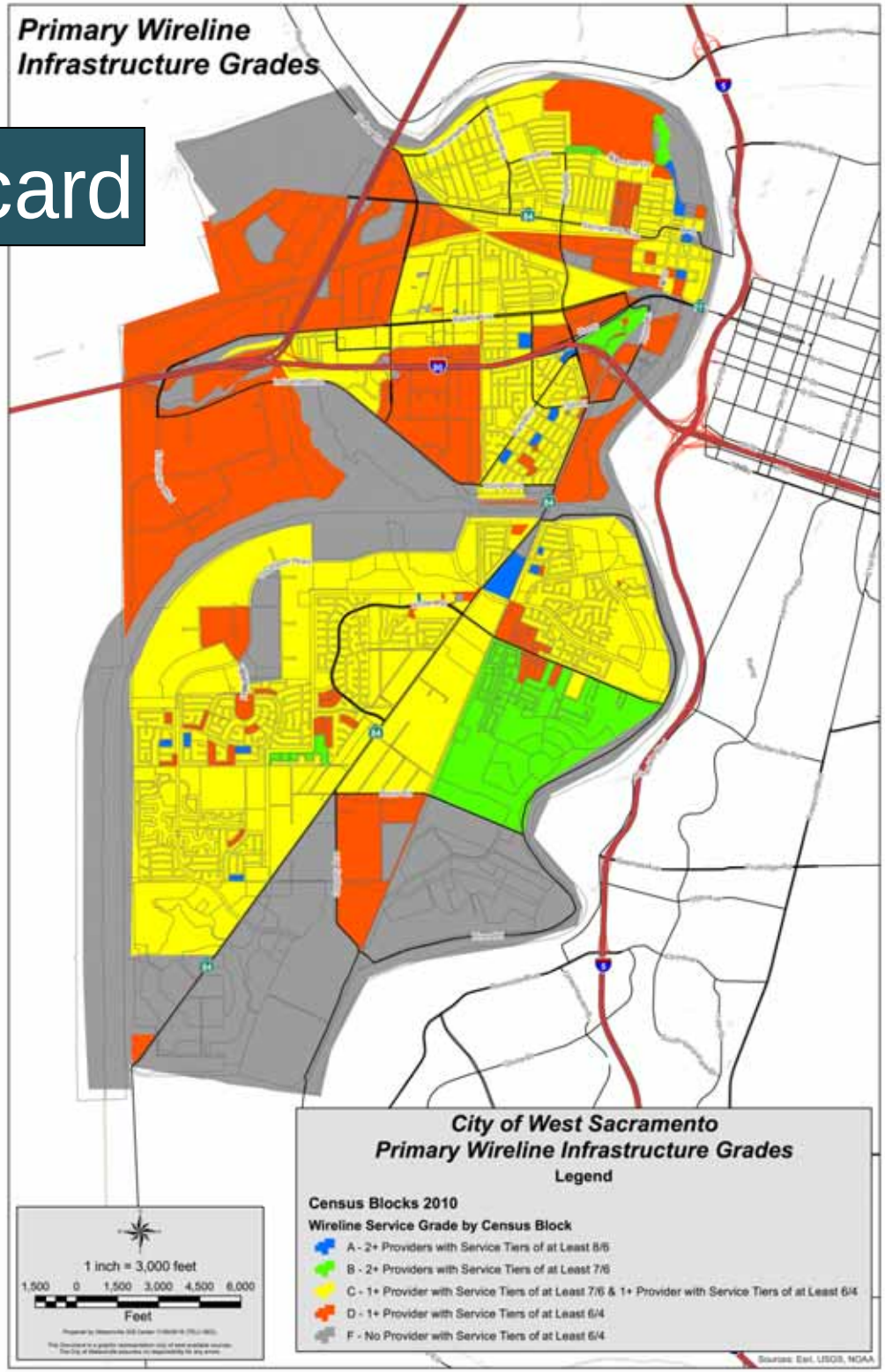
Primary infrastructure in West Sacramento is average

- Compares well to region, state
- On a par with much of Silicon Valley
- GPA of all of West Sac: 1.9
- GPA of commercial and industrial areas only: 1.0

Broadband infrastructure grades

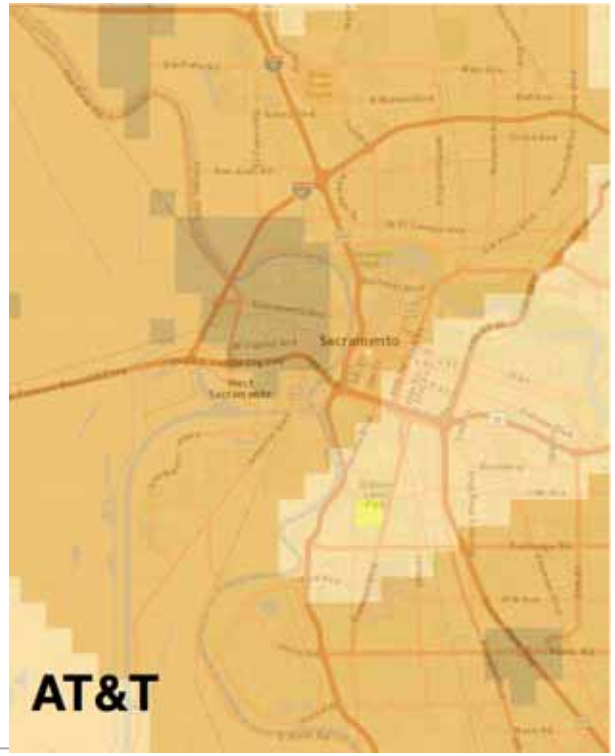
	Grade	GPA
Arden-Arcade	A-	3.7
Elk Grove	B+	3.3
Sacramento	C+	2.5
Woodland	C-	1.9
Folsom	C-	1.9
West Sacramento	C-	**1.9**
Cupertino	C-	1.9
Davis	C-	1.8
Mountain View	C-	1.8
Galt	C-	1.7
Winters	D	1.0
Clarksburg	F	0.0

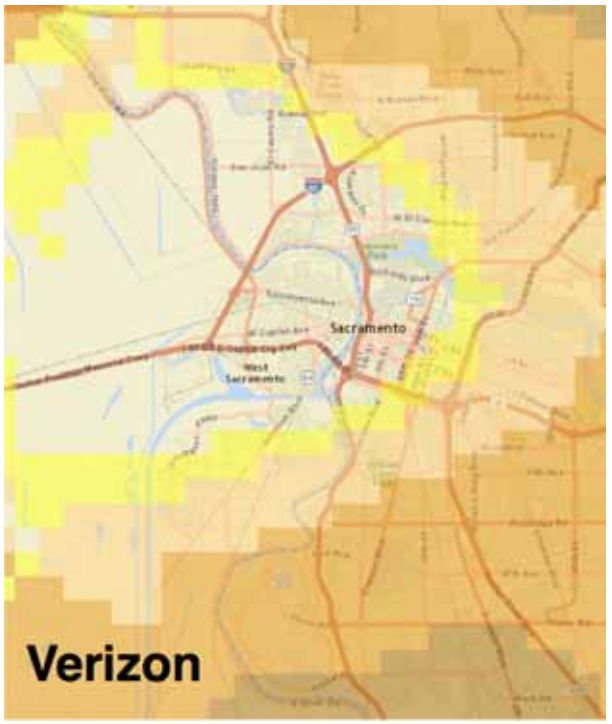
Report card

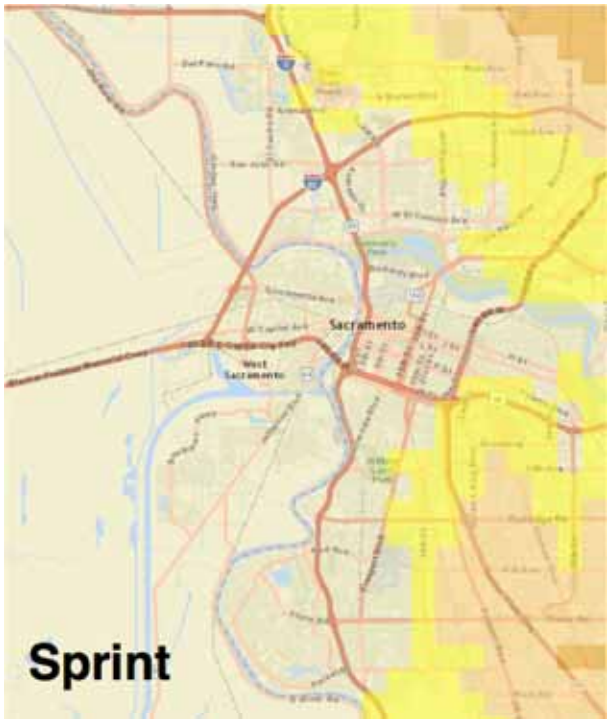

Primary Wireline
Infrastructure Grades
City of West Sacramento
Primary Wireline Infrastructure Grades
Legend
Census Blocks 2010
Wireline Service Grade by Census Block
A - 2+ Providers with Service Tiers of at Least 8/6
B - 2+ Providers with Service Tiers of at Least 7/6
C - 1+ Provider with Service Tiers of at Least 7/6 & 1+ Provider with Service Tiers of at Least 6/4
D - 1+ Provider with Service Tiers of at Least 6/4
F - No Provider with Service Tiers of at Least 6/4
1 inch = 3,000 feet
1,500 0 1,500 3,000 4,500 6,000
Feet

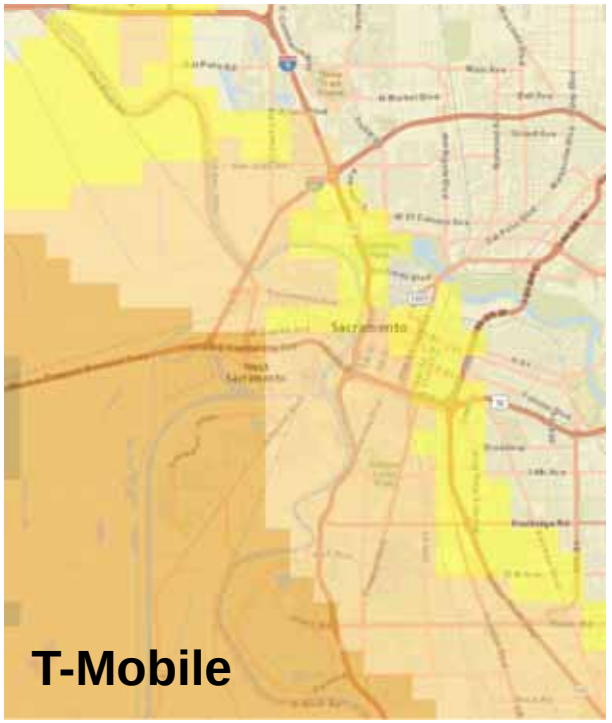
Mobile service fair to poor

- Based on CPUC field testing and analysis
- Reflects user experience, not company marketing claims
- Poor results due to infrastructure, heavy usage
- Dark brown = 6 - 10 Mbps

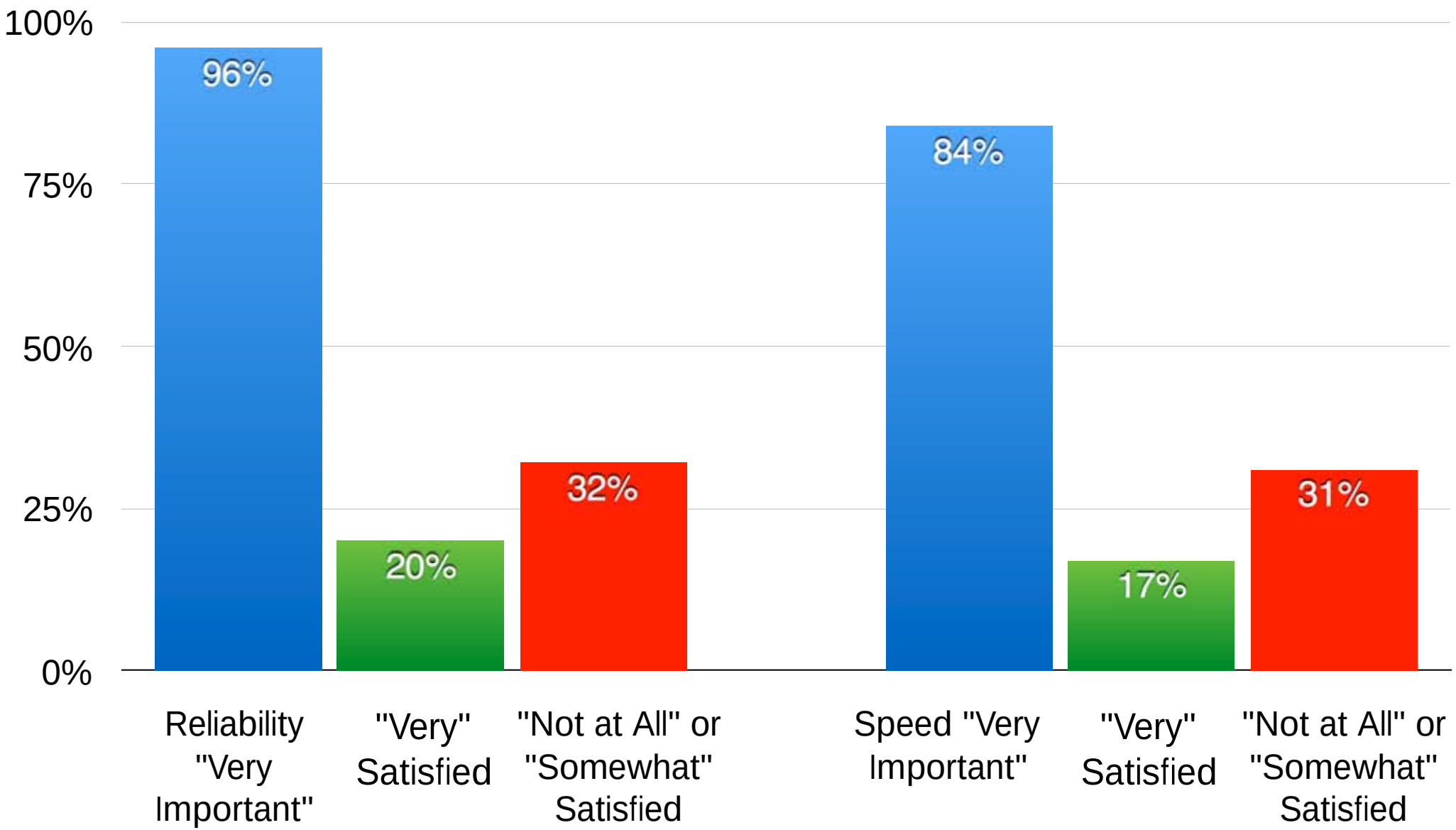




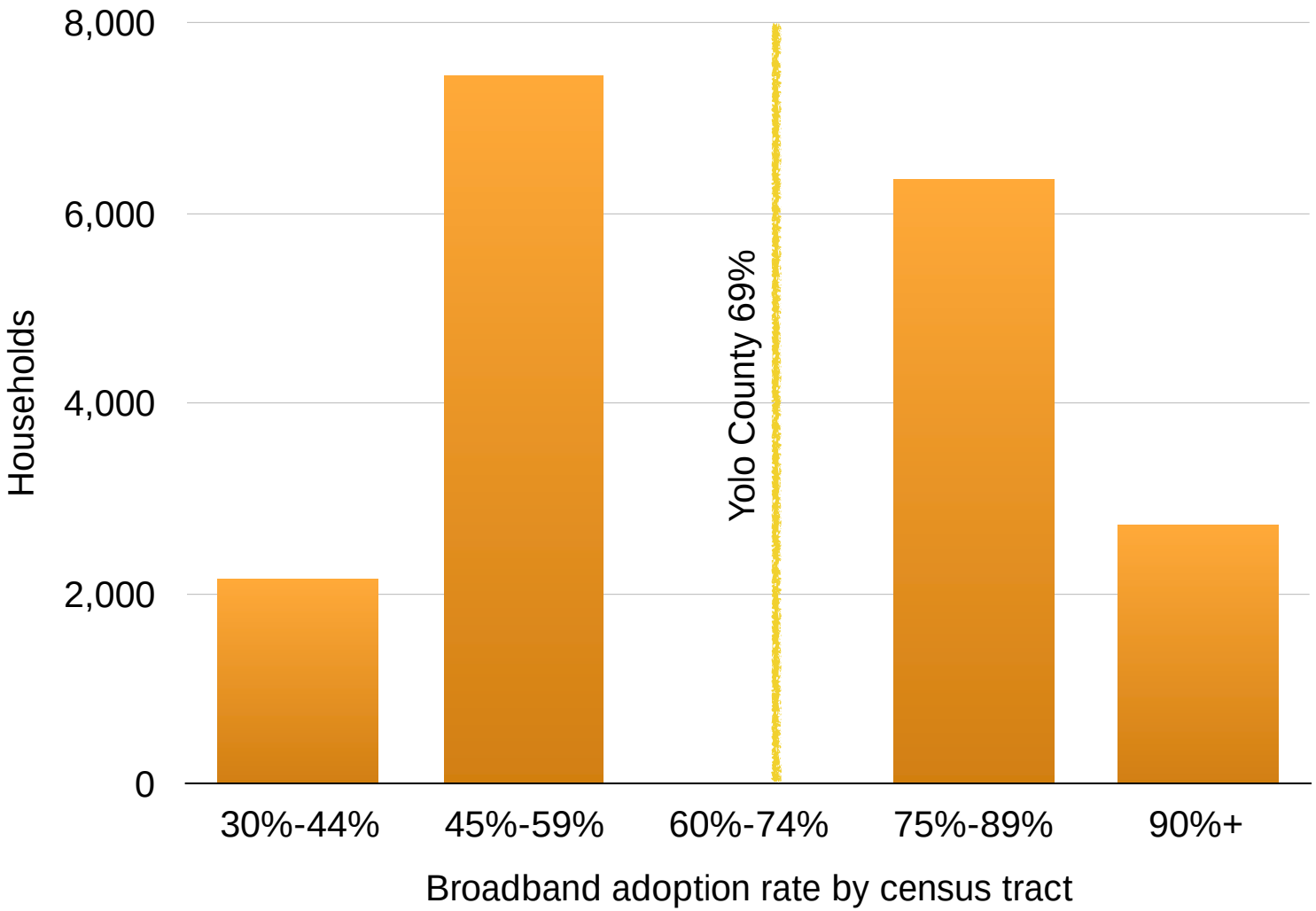




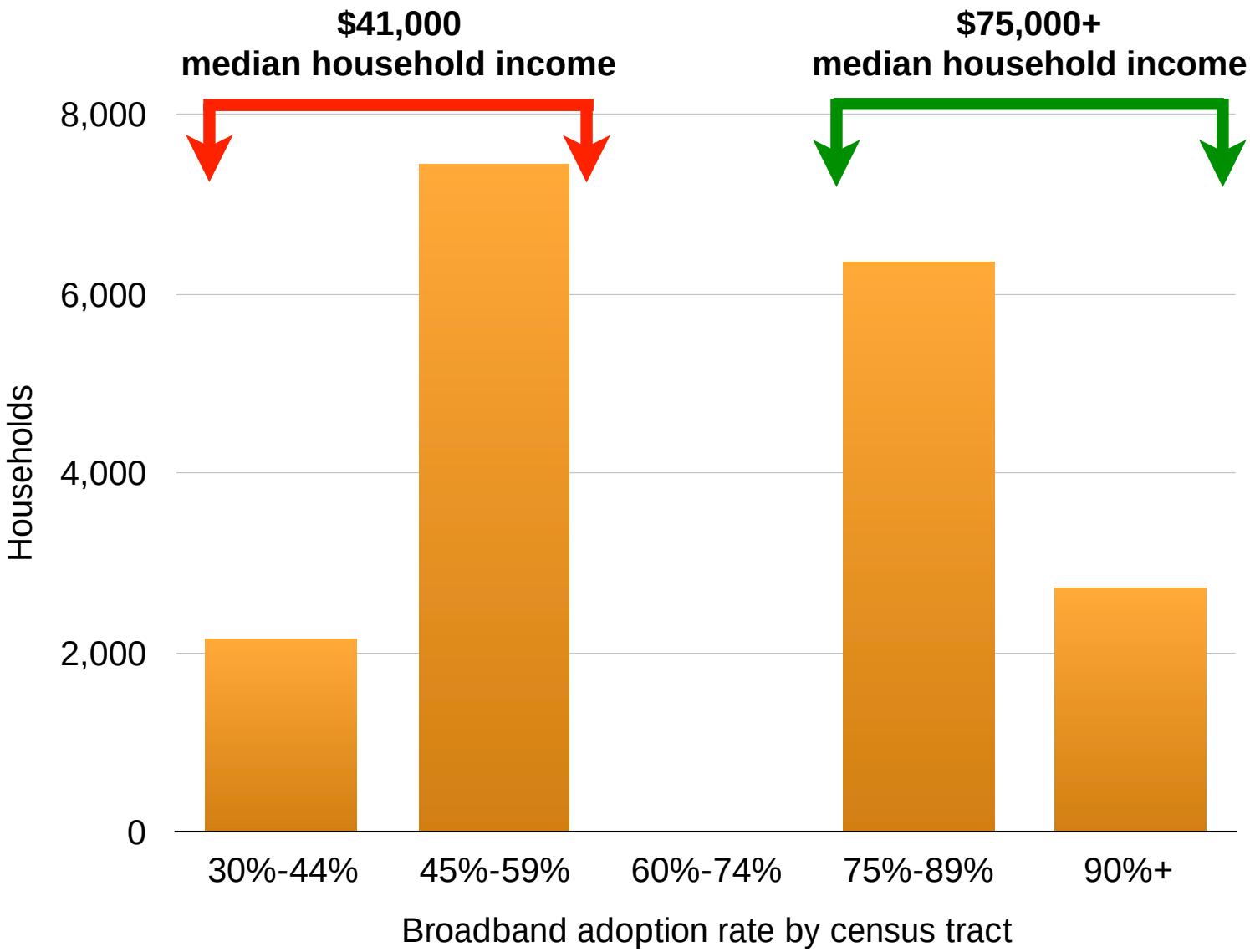
West Sacramento Consumer Survey



West Sacramento's digital divide

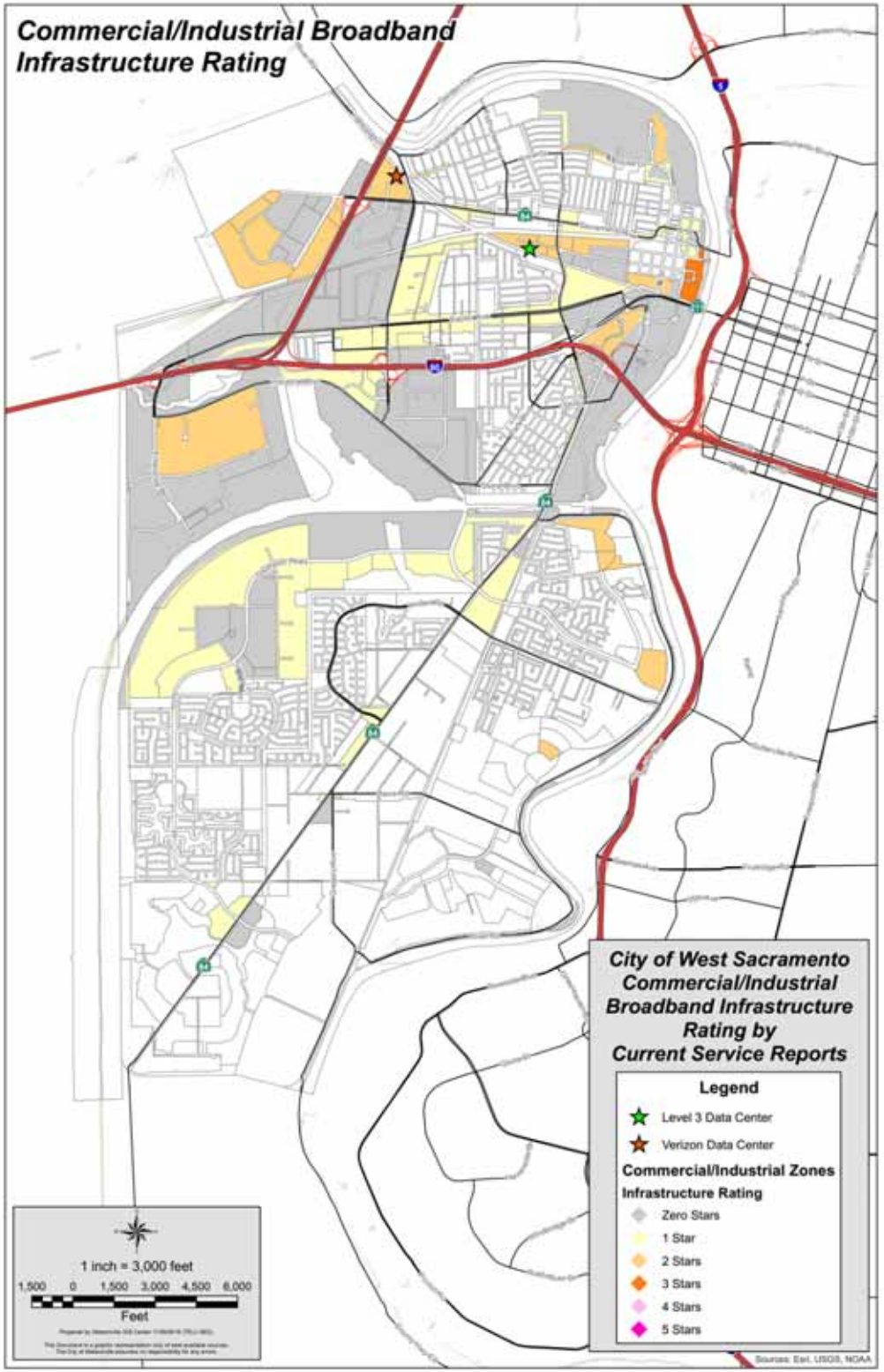


West Sacramento's digital divide

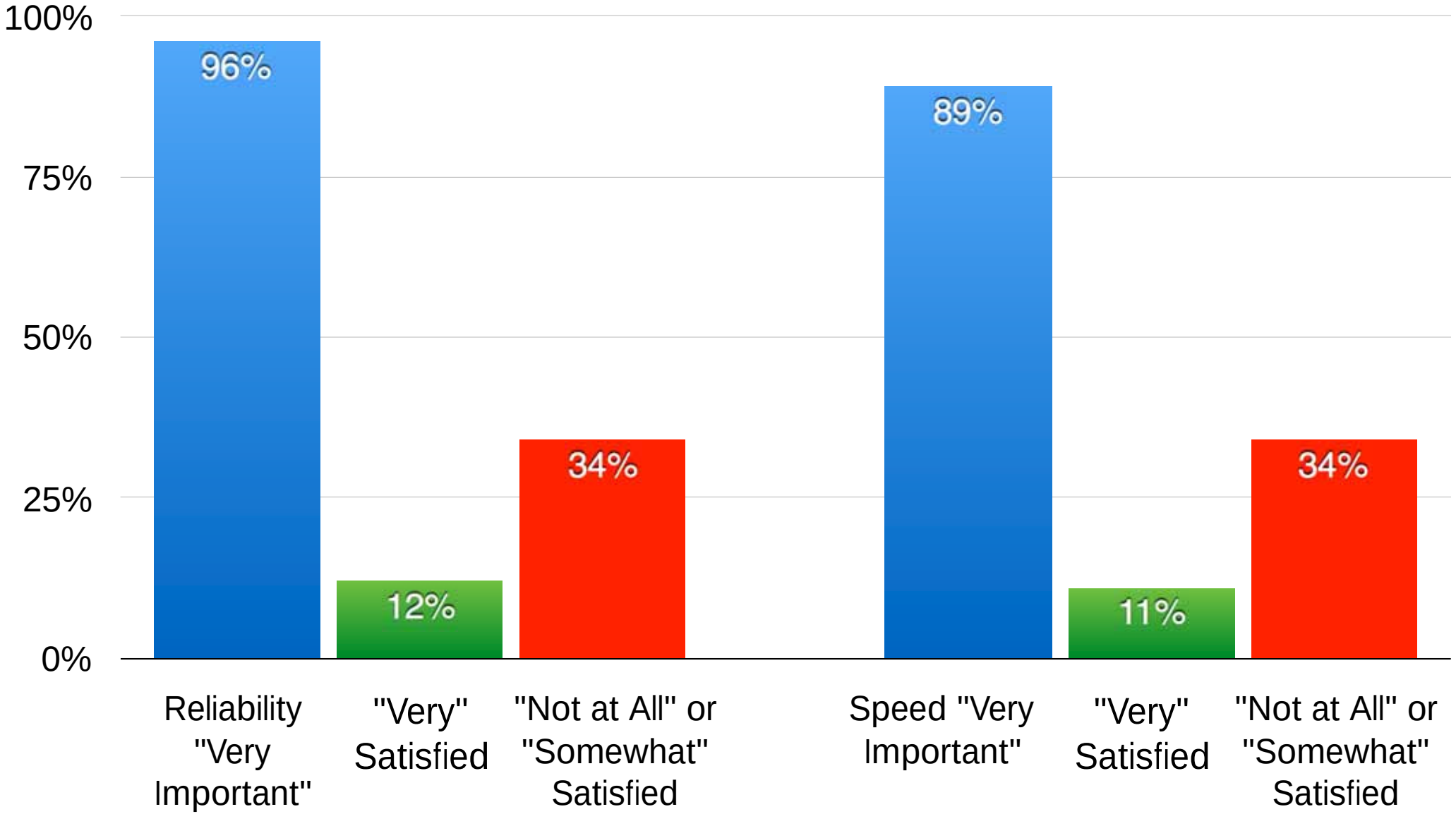


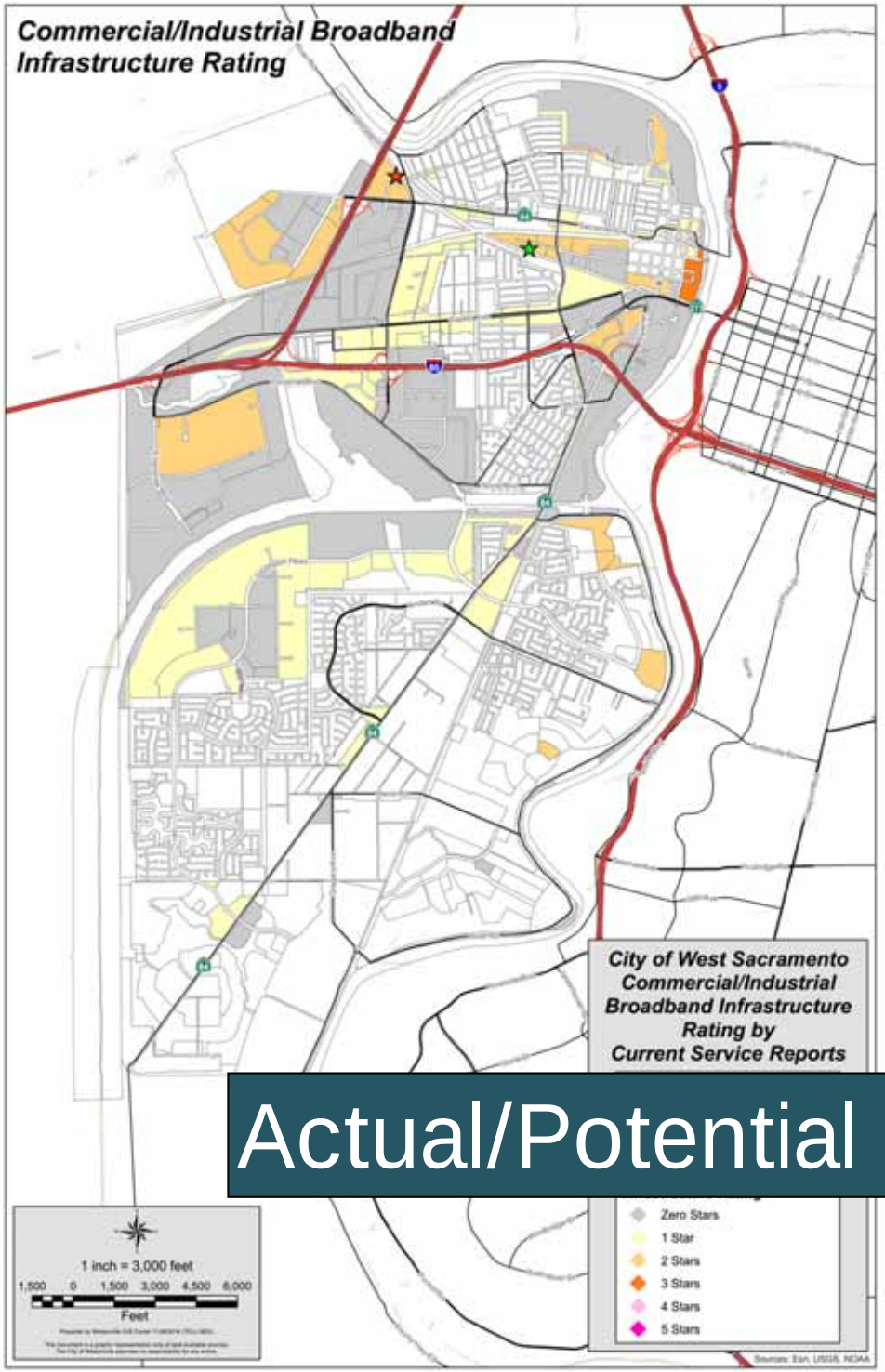
Commercial/ Industrial status

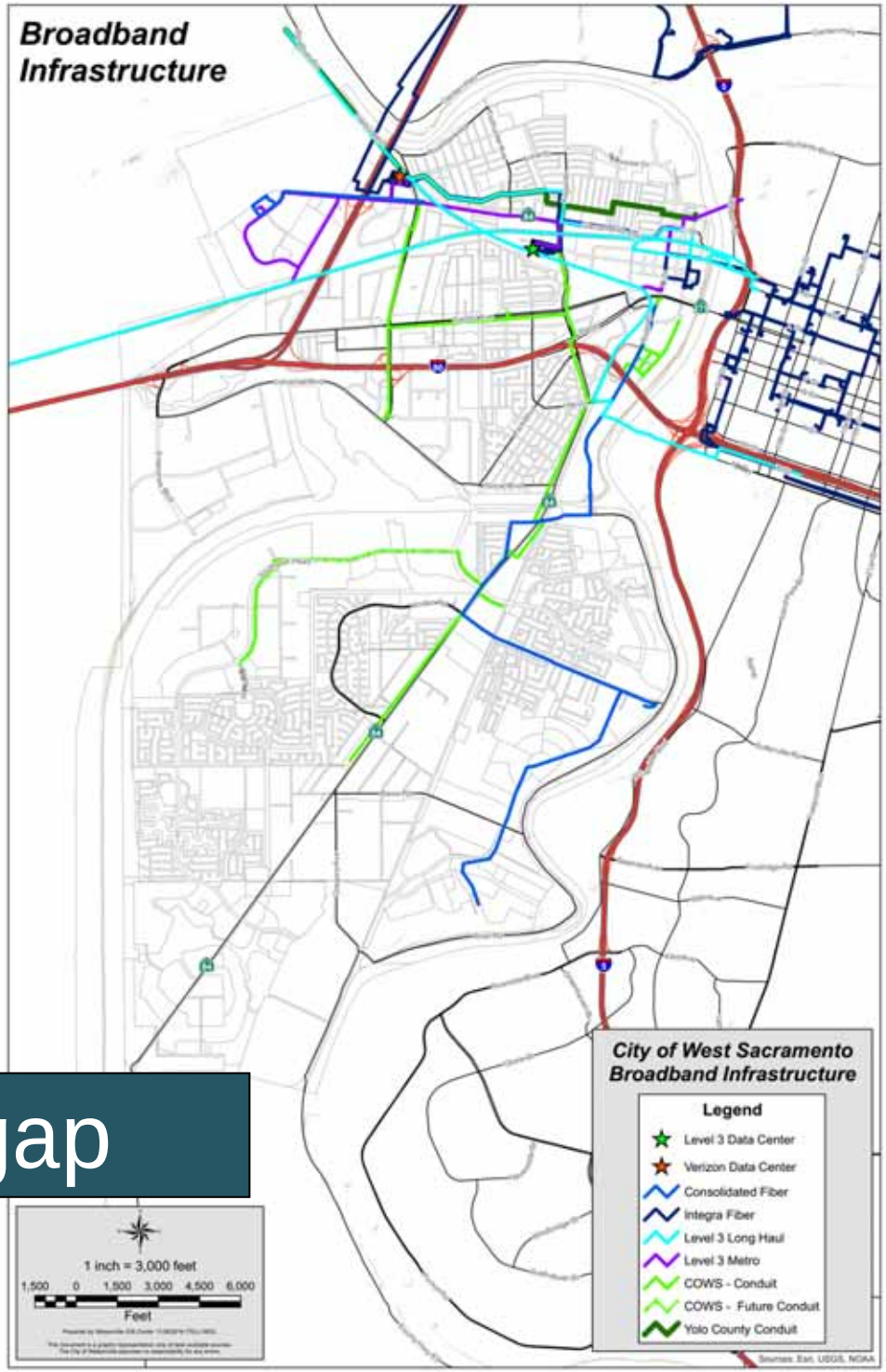
- One-half star out of 5
- Most commercial/industrial zoned areas lack broadband service at average California levels
- 1 Star areas have average service
- 2+ Star areas have spot service from secondary providers



West Sacramento Business Survey





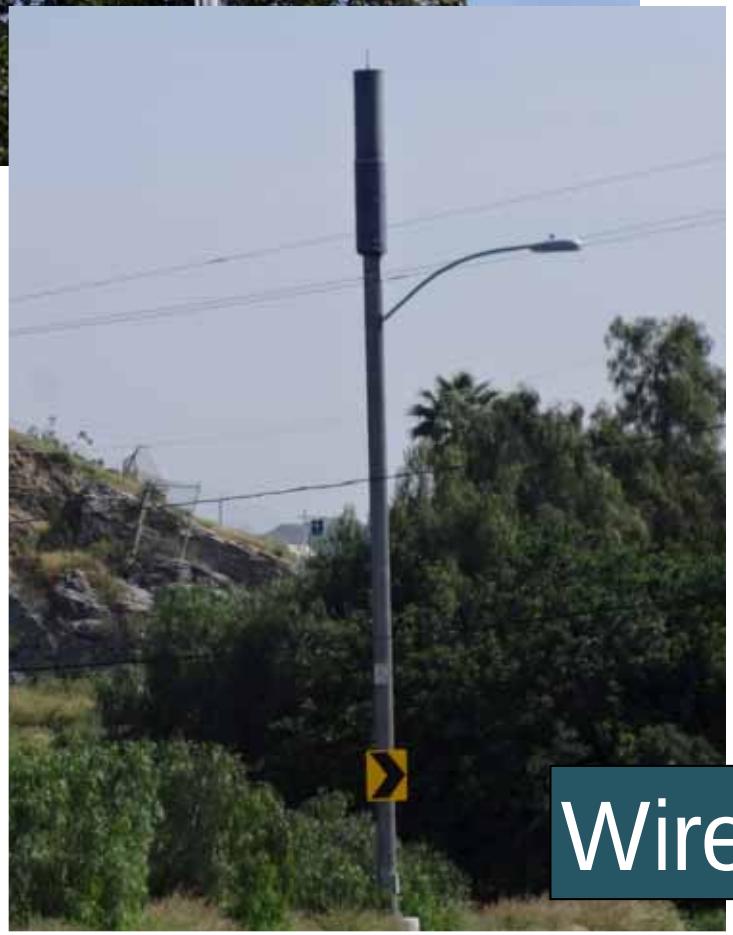


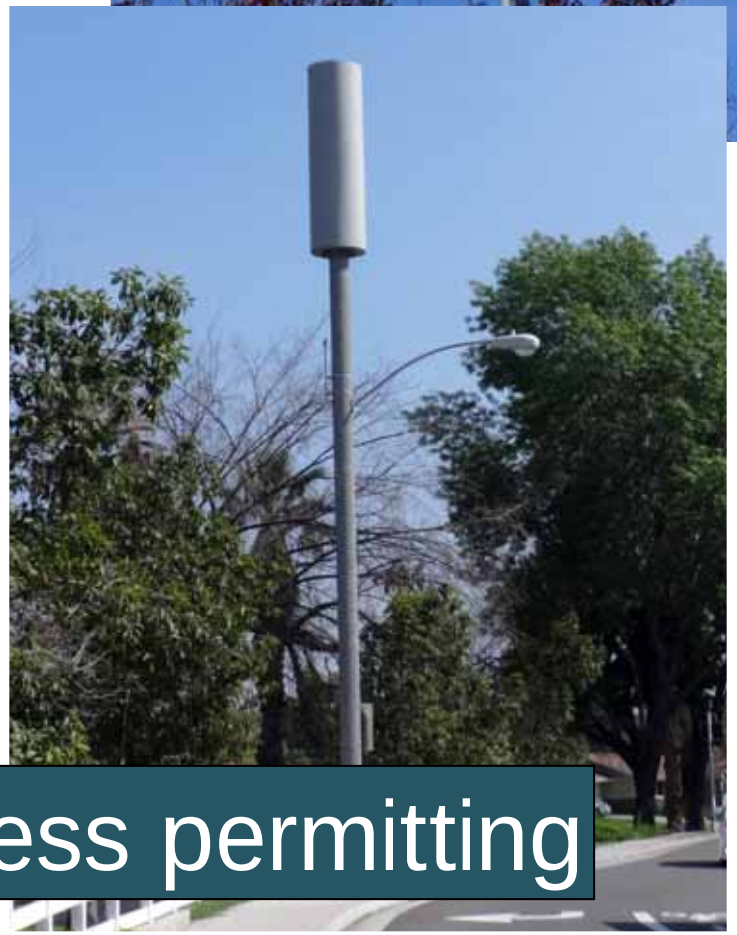
Actual/Potential gap

Action Plan
Advocacy, access, adoption
Remove barriers
Wireless permitting
Infrastructure development

Advocacy, access, adoption

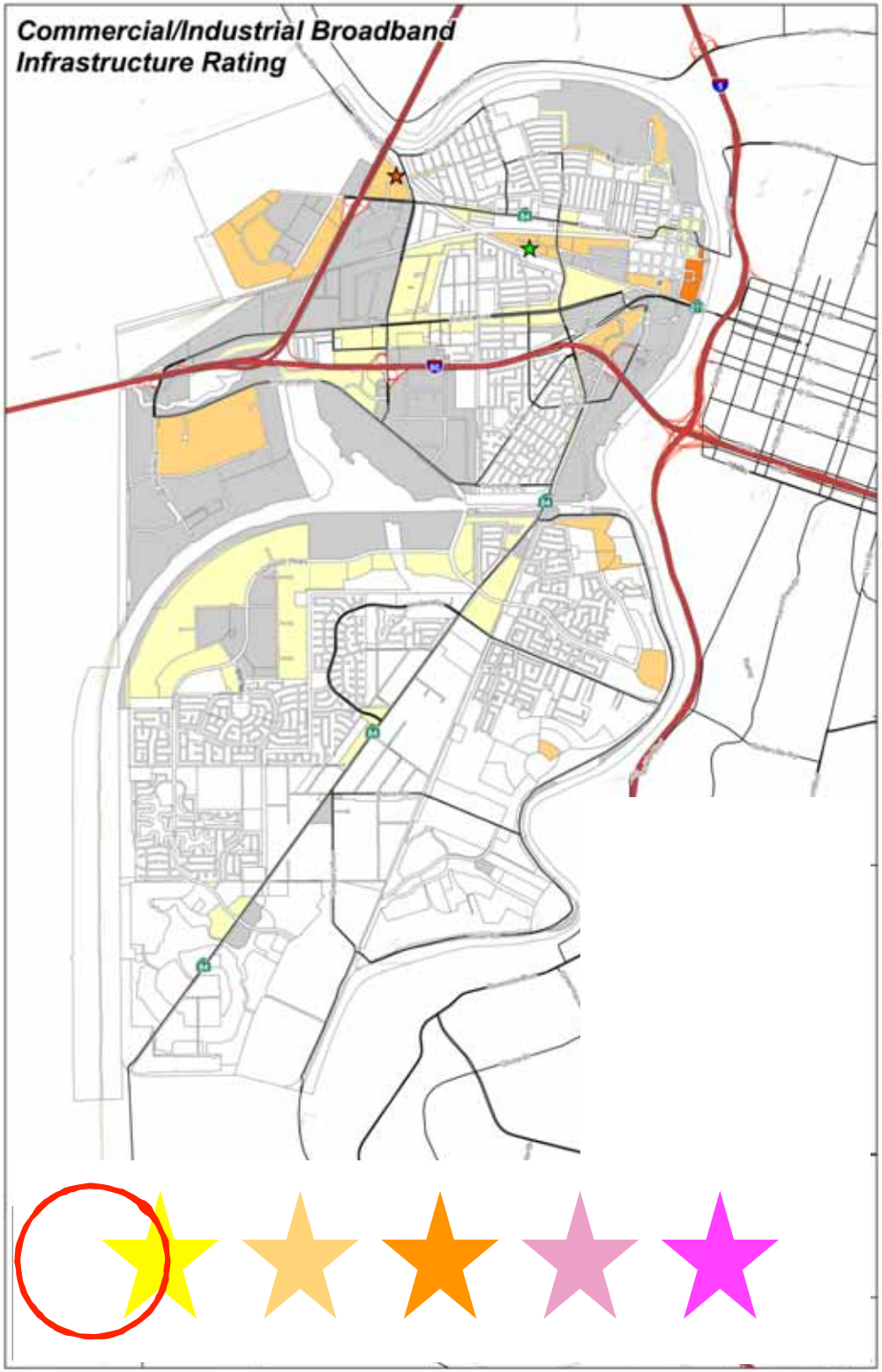
Remove barriers





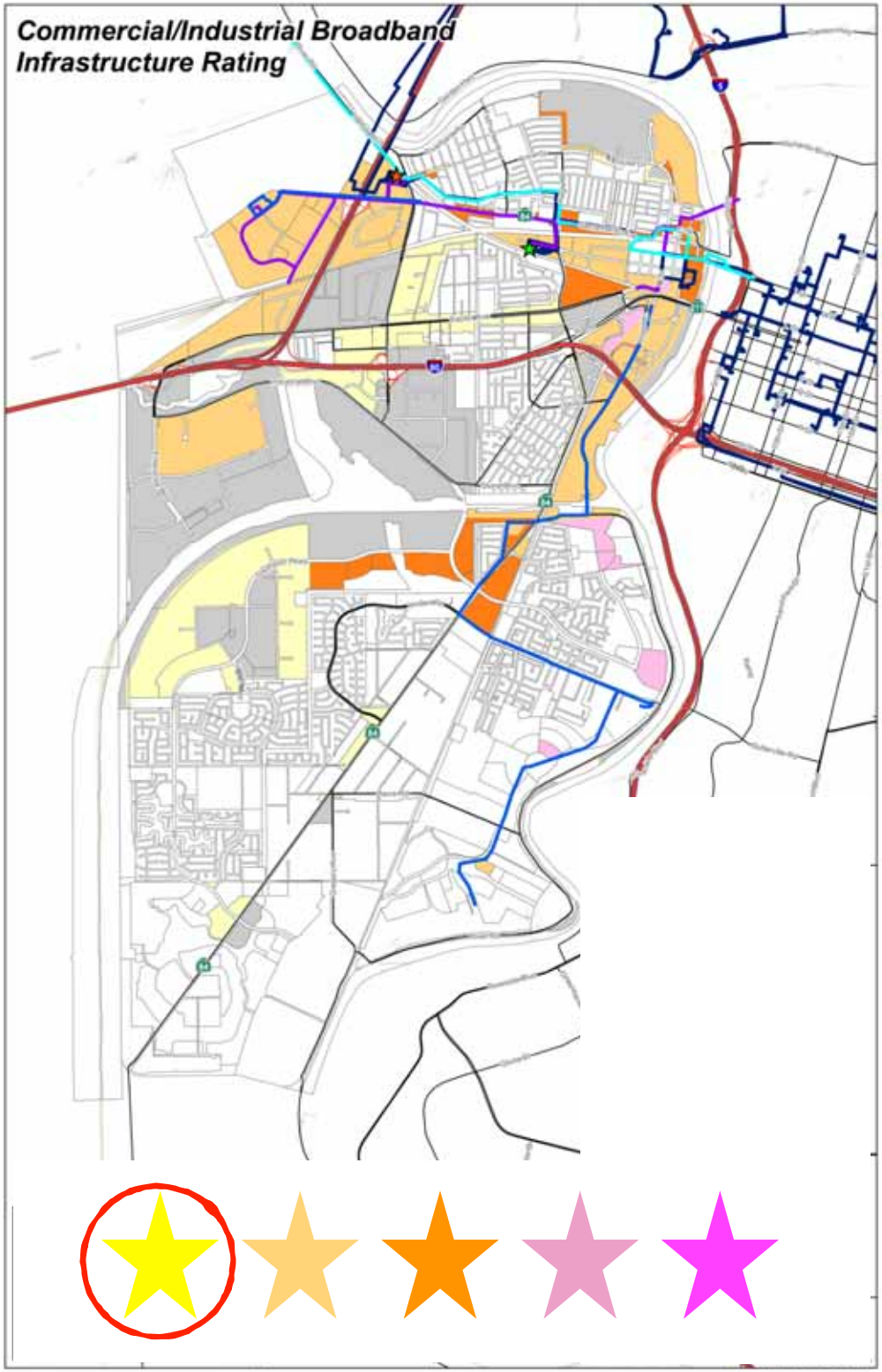
Wireless permitting

Infrastructure development



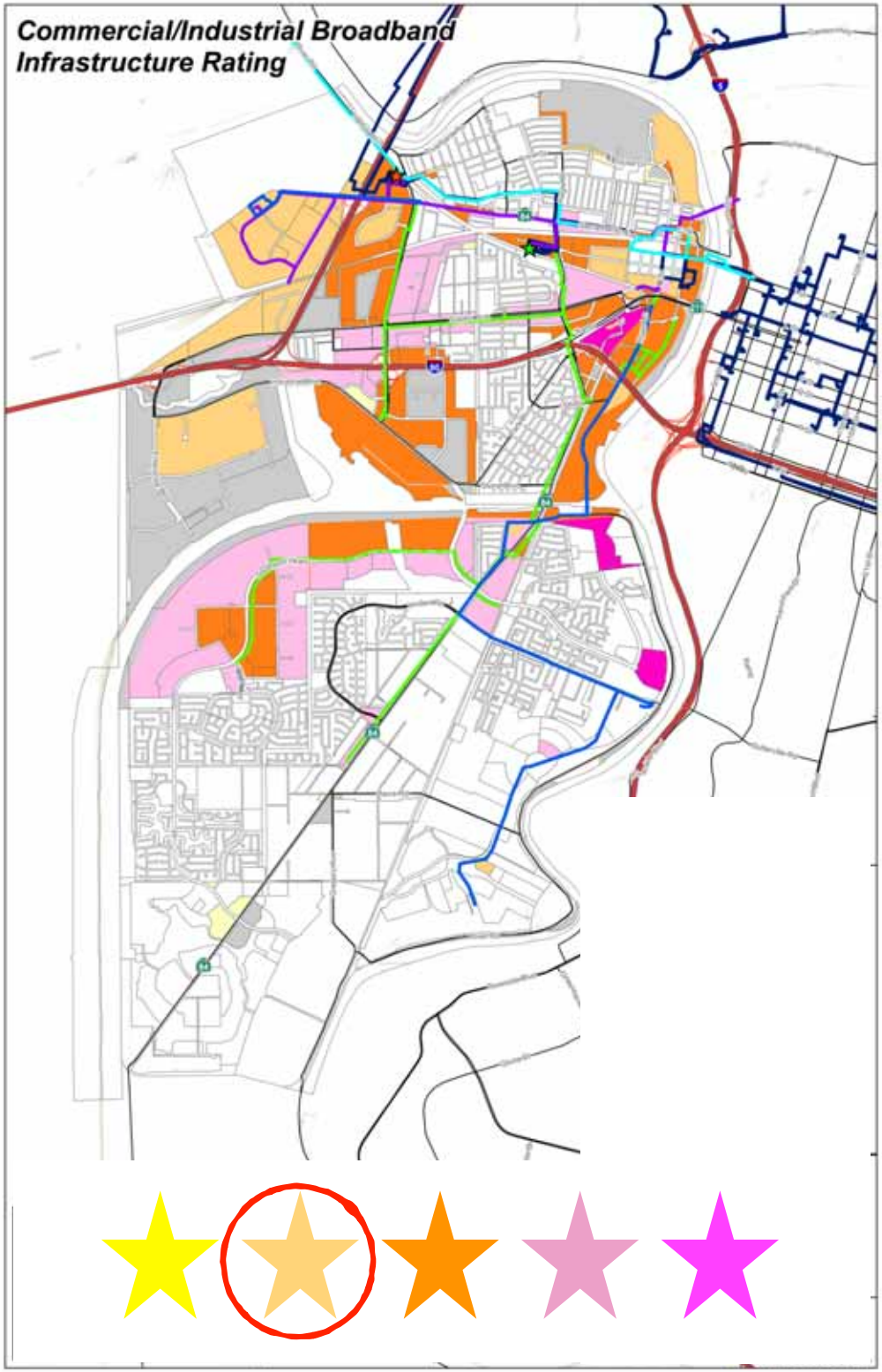
Current Service

Infrastructure development



Current Service
+
Current Fiber
Routes

Infrastructure development



Current Service
+
Current Fiber
Routes
+
City Conduit

Infrastructure development

Questions?

Back up slides

A	Two competing providers, both advertising maximum download speeds of at least 25 Mbps and maximum uploads speeds of 6 Mbps, or 3 or more competing providers offering that standard of service in combination.
B	Competing providers, both advertising maximum download speeds of at least 10 Mbps and maximum uploads speeds of 6 Mbps.
C	Competing providers, one advertising max down/up speeds of at least 10/6 Mbps and the remainder meeting CPUC's minimum 6 down/1.5 up standard.
D	Either one provider advertising speeds that at least meet the CPUC's minimum of 6 Mbps down/1.5 Mbps up, or more than one that just meet the standard.
F	At least one provider offers service, but no service is available that meets the CPUC's minimum standard of 6 Mbps down and 1.5 Mbps up (underserved). Or no service at all (unserved).

Report card based on average Californian infrastructure

Primary wireline infrastructure only; upload speeds key to grades

Verifiable open access dark fiber, *and* meets 4-star criteria.

Megabit *and* Gigabit fiber with "C" grade basic infrastructure

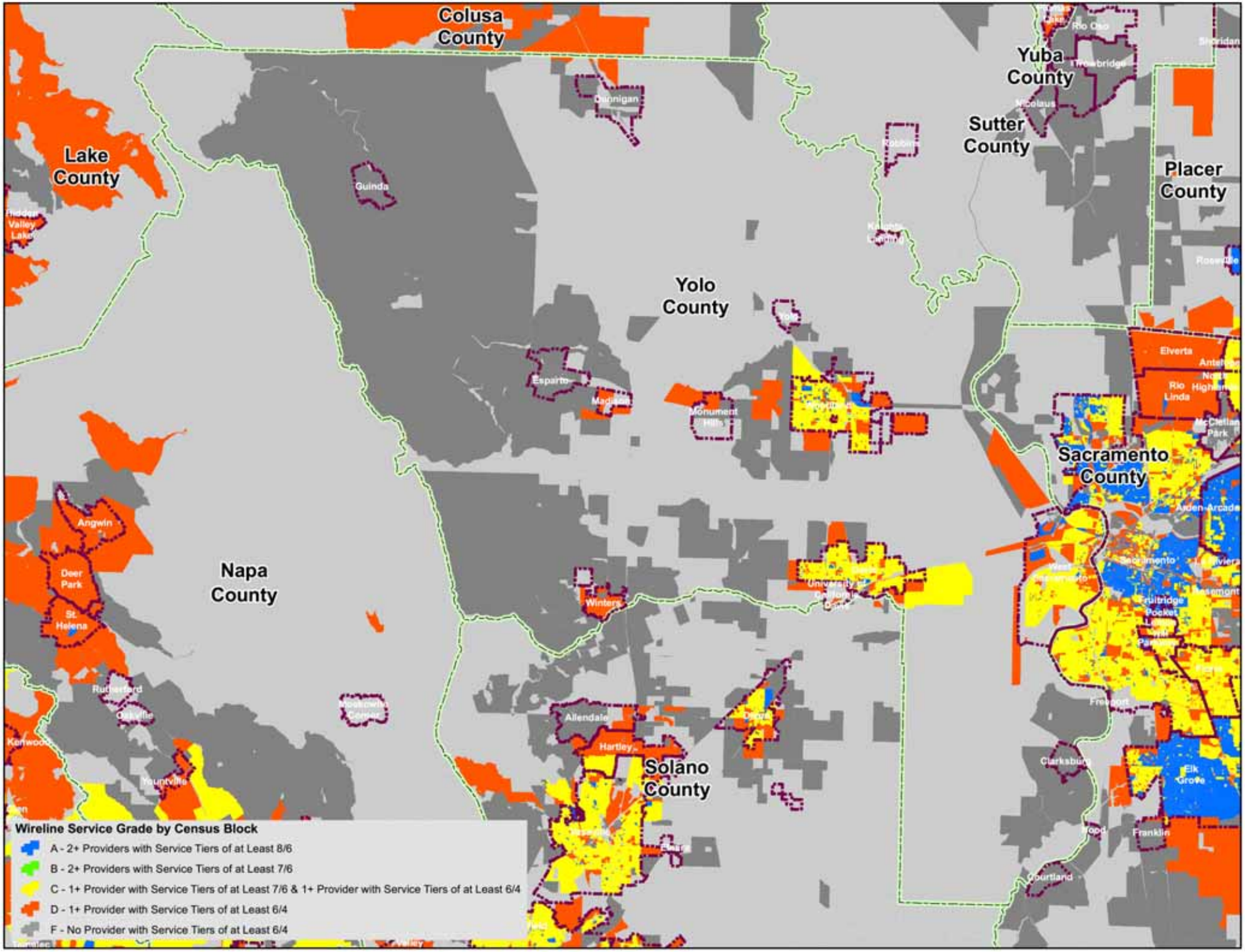
Gigabit fiber with "C" grade basic infrastructure, or Gigabit *and* Megabit fiber with "D" grade

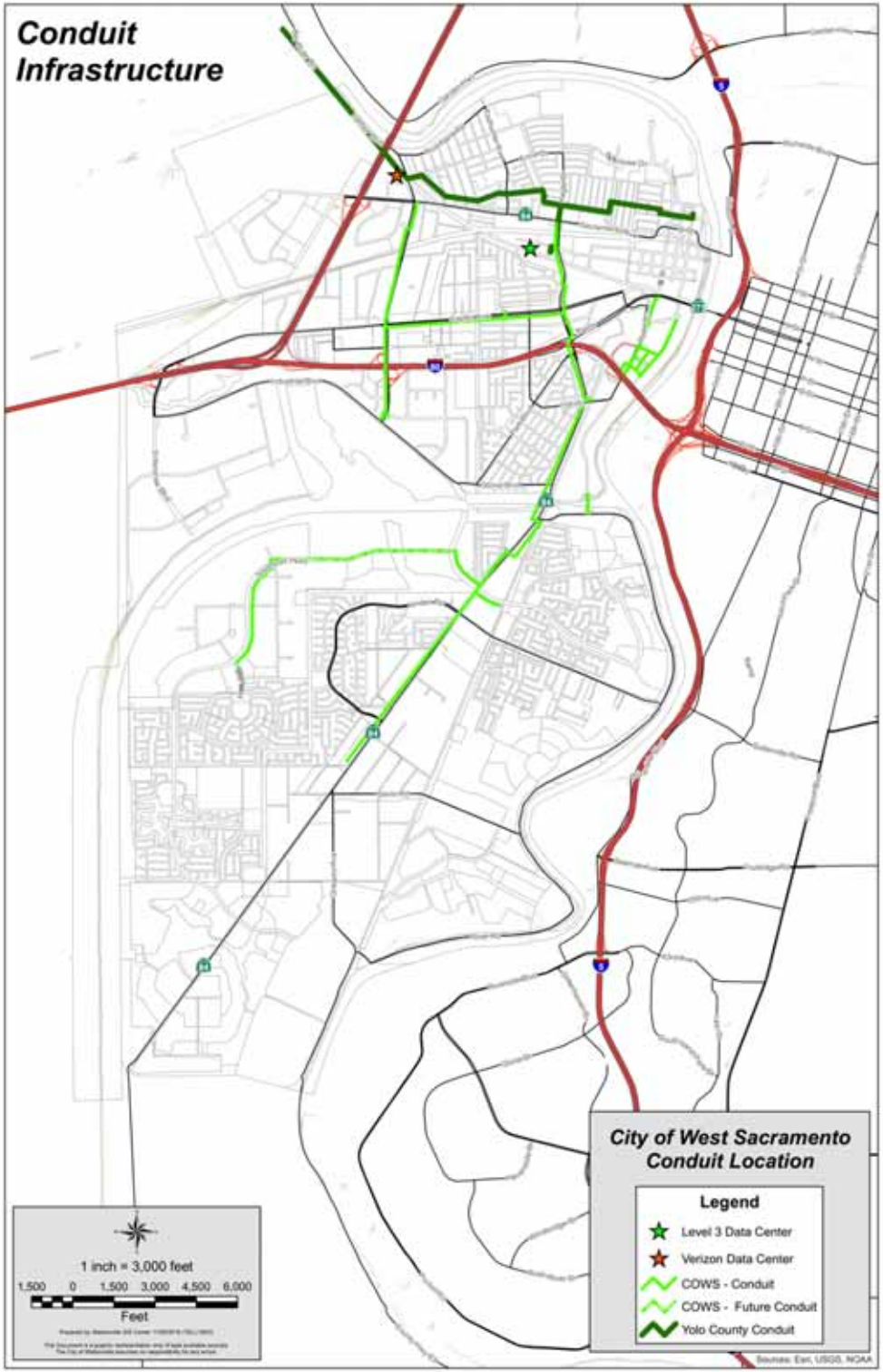
Megabit fiber with "C" grade basic infrastructure, or Gigabit fiber with "D" grade

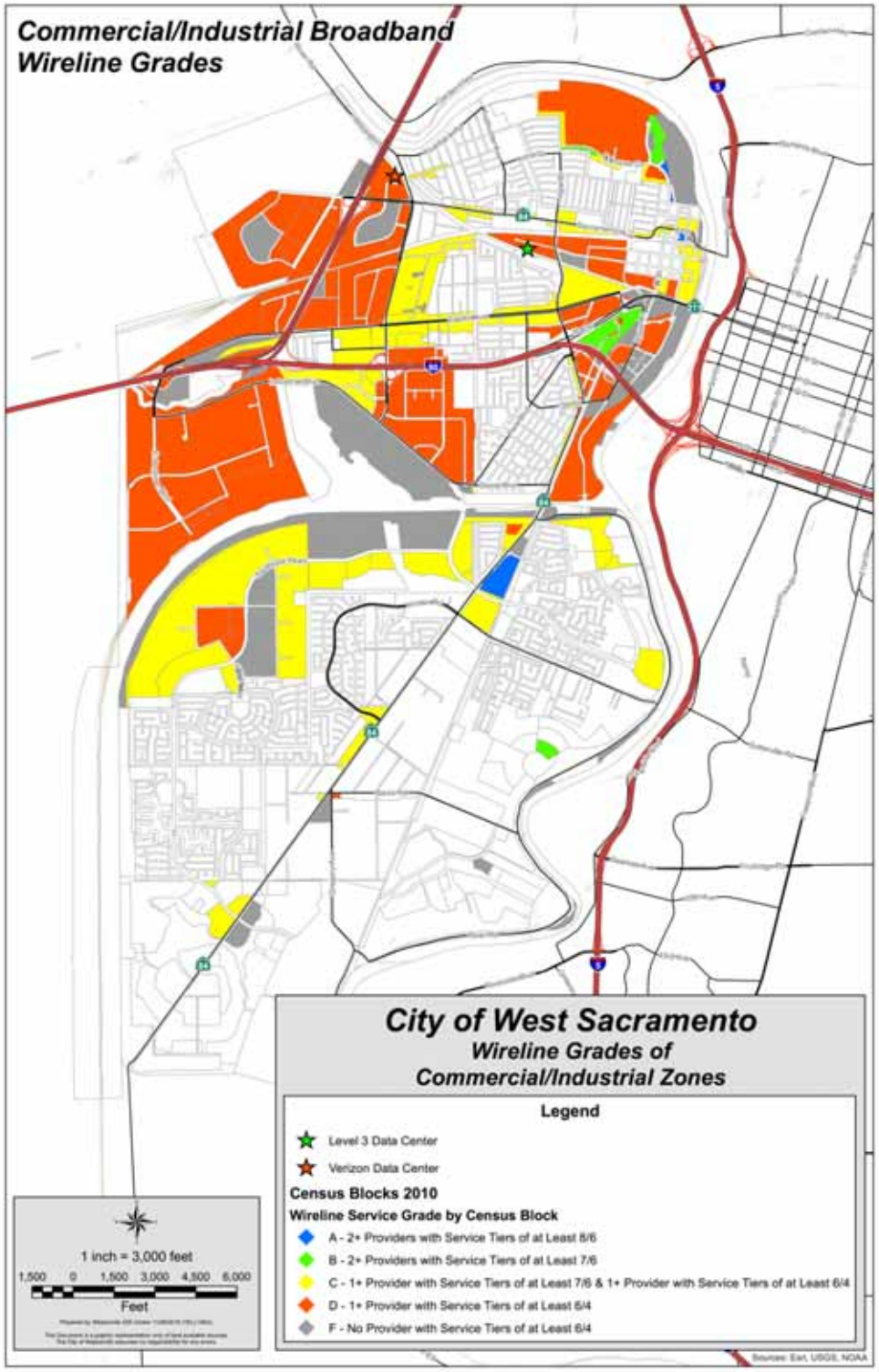
"C" grade basic infrastructure alone, or Megabit fiber with "D" grade

Star rating based on fiber availability, basic infrastructure of commercial, industrial zones

Gigabit and Megabit fiber, basic infrastructure serve different needs


Colusa County
Yuba County
Sutter County
Placer County
Lake County
Yolo County
Sacramento County
Napa County
Solano County
Wireline Service Grade by Census Block
A - 2+ Providers with Service Tiers of at Least 8/6
B - 2+ Providers with Service Tiers of at Least 7/6
C - 1+ Provider with Service Tiers of at Least 7/6 & 1+ Provider with Service Tiers of at Least 6/4
D - 1+ Provider with Service Tiers of at Least 6/4
F - No Provider with Service Tiers of at Least 6/4


Conduit
Infrastructure
City of West Sacramento
Conduit Location
Legend
Level 3 Data Center
Verizon Data Center
COWS - Conduit
COWS - Future Conduit
Yolo County Conduit
1 inch = 3,000 feet
1,500 0 1,500 3,000 4,500 6,000
Feet


Commercial/Industrial Broadband
Wireline Grades
City of West Sacramento
Wireline Grades of
Commercial/Industrial Zones
Legend
Level 3 Data Center
Verizon Data Center
Census Blocks 2010
Wireline Service Grade by Census Block
A - 2+ Providers with Service Tiers of at Least 8/6
B - 2+ Providers with Service Tiers of at Least 7/6
C - 1+ Provider with Service Tiers of at Least 7/6 & 1+ Provider with Service Tiers of at Least 6/4
D - 1+ Provider with Service Tiers of at Least 6/4
F - No Provider with Service Tiers of at Least 6/4
1 inch = 3,000 feet
1,500 0 1,500 3,000 4,500 6,000
Feet

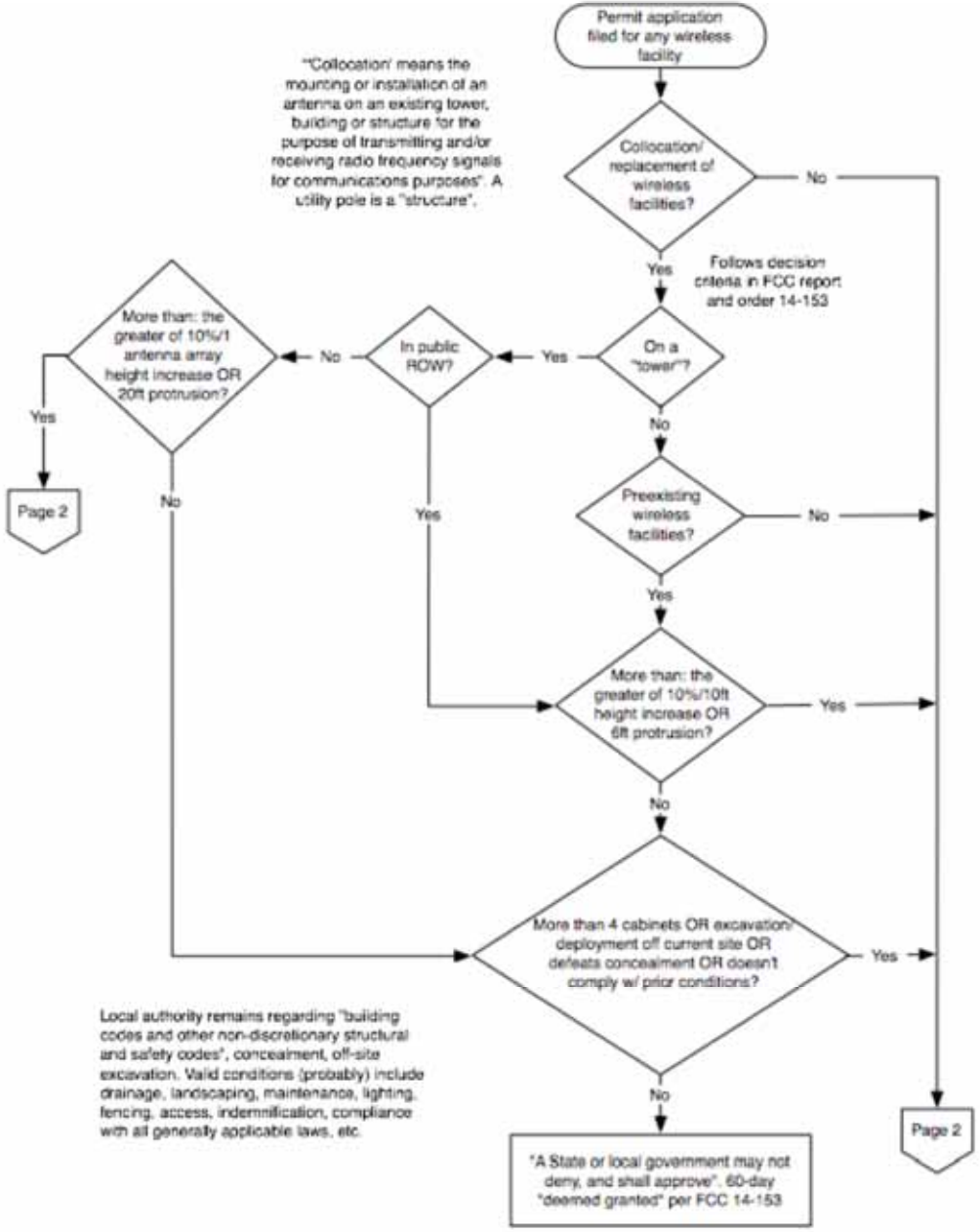


Figure 1 – Wireless permit "shot clock" flowchart, page 1.

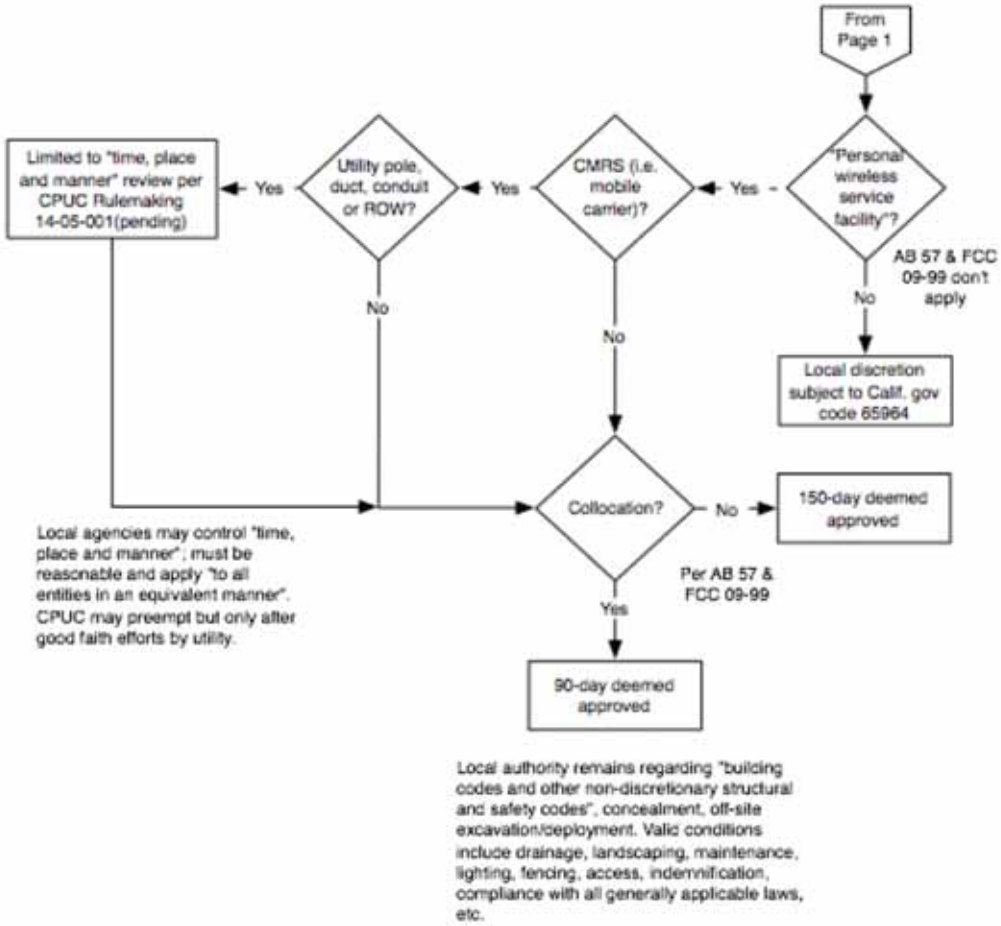
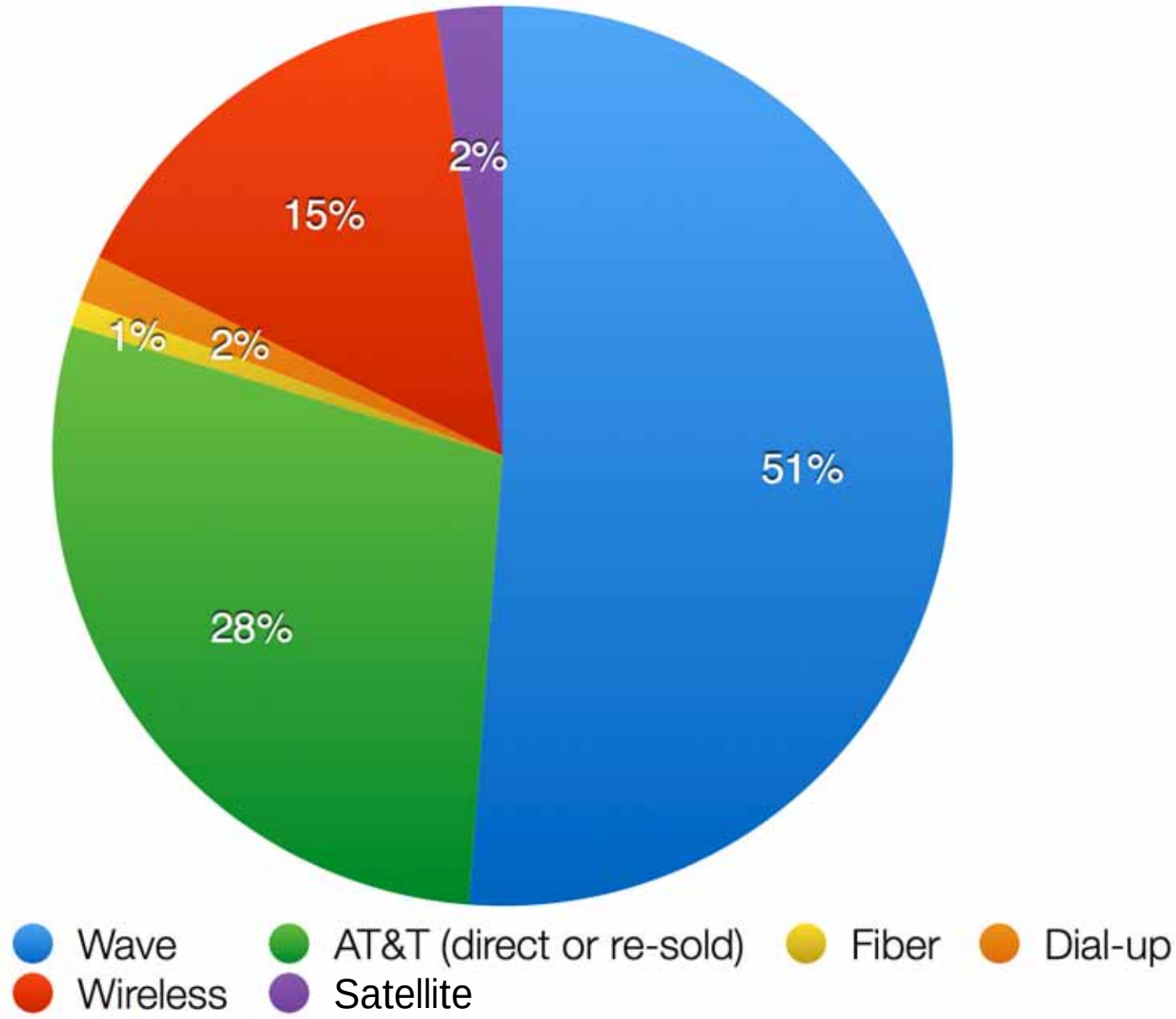


Figure 2 – Wireless permit "shot clock" flowchart, page 2.

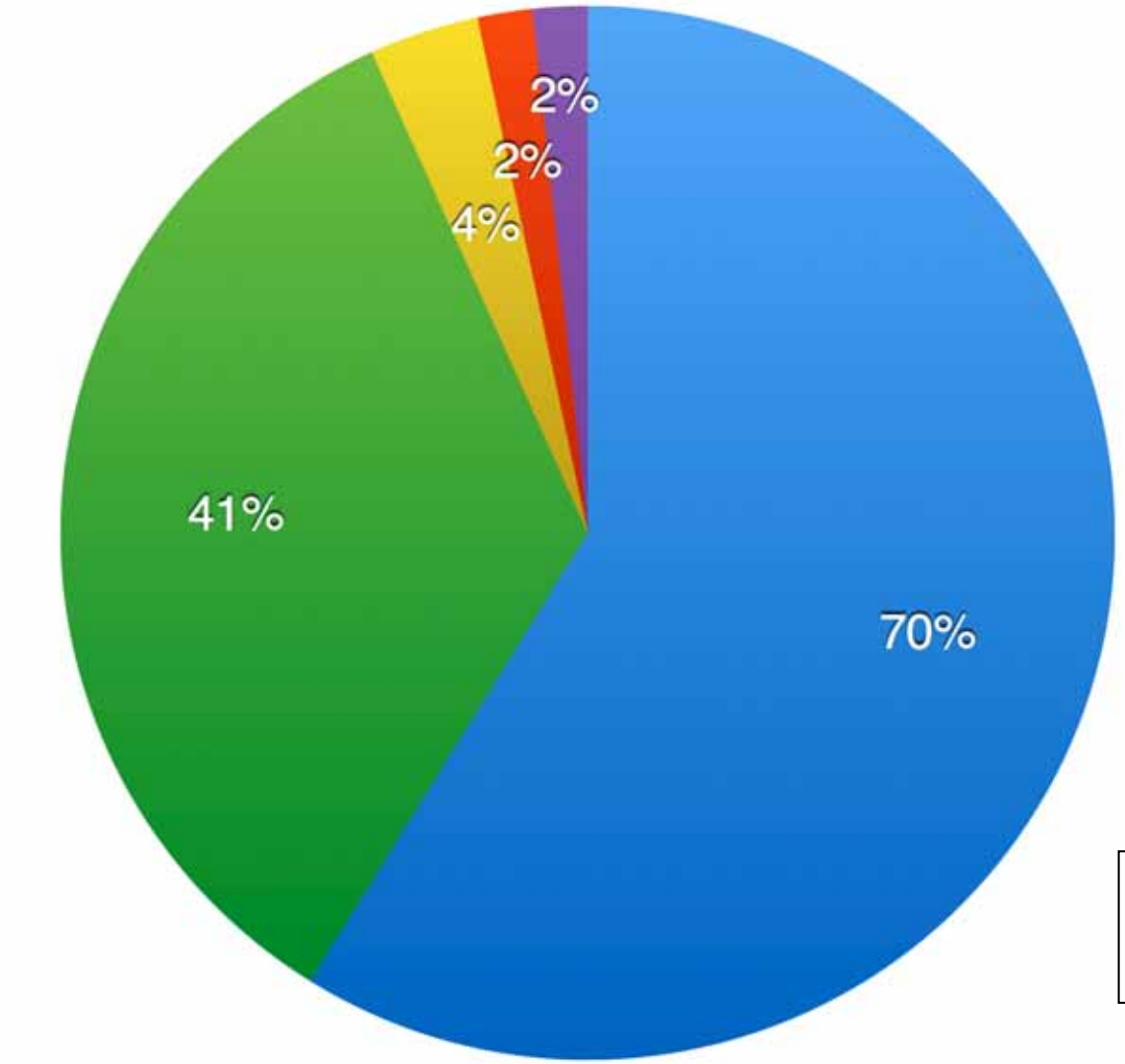
Primary broadband availability in West Sacramento

	Census blocks	Housing units	Population
AT&T	536	18,289	47,815
Wave	507	18,141	47,188
Combined availability (both carriers)	559	18,478	48,235
West Sacramento total	707	18,681	48,744
AT&T	76%	98%	98%
Wave	72%	97%	97%
Combined availability (both carriers)	79%	99%	99%

Consumer survey: primary Internet connection?



Business survey: primary Internet connection?



Note: total greater than 100% due to multiple responses.

Minimum acceptable upload speed for Internet service

	Businesses	Consumers
1.5 Mbps or less	0%	4%
3 Mbps	13%	14%
6 Mbps	21%	23%
10 Mbps	34%	36%
25 Mbps or greater	32%	23%

Minimum acceptable download speed for Internet service

	Businesses	Consumers
1.5 Mbps or less	2%	2%
3 Mbps	4%	5%
6 Mbps	11%	13%
10 Mbps	23%	29%
25 Mbps or greater	60%	50%

Adoption rate by census tract

Tract	Adoption rate	HUs	Population	Average income	Location
6113010101	45%-59%	2,736	6,645	$40,539	NE corner of West Sac
6113010102	45%-59%	2,515	7,534	$39,767	NW corner of West Sac
6113010201	75%-89%	1,210	2,538	$50,894	East - North & South of I-80
6113010203	30%-44%	2,142	5,397	$41,399	West - North & South of I-80
6113010204	45%-59%	2,197	4,922	$43,694	Center - North & South of I-80
6113010302	90%+	2,733	7,270	$84,779	Top middle and NE of Southport
6113010310	75%-89%	1,853	5,485	$76,937	NW corner of Southport
6113010312	75%-89%	1,942	5,130	$71,105	Center of Southport
6113010402	75%-89%	1,353	3,823	$101,323	Southernmost - south of Davis/Marshal

Adoption rate by demographics

Adoption rate	HUs	Population	% HUs	% Population	Average income
30%-44%	2,142	5,397	11%	11%	$41,399
45%-59%	7,448	19,101	40%	39%	$41,333
75%-89%	6,358	16,976	34%	35%	$75,064
90%+	2,733	7,270	15%	15%	$84,779
Total	18,681	48,744			

AT&T Access program rate plans, by housing units

Download speed	Monthly data cap	Monthly price (plus tax)	Housing units
10 Mbps	1,000 GB	$10	16,978
5 Mbps	1,000 GB	$10	0
3 Mbps	1,000 GB	$5	29
1.5 Mbps	1,000 GB	$5	949
768 Kbps	1,000 GB	$5	128
768 Kbps	150 GB	$5	205
Unavailable	--	--	392
			18,681

Only one rate plan, determined by available speed & service, is offered to a household.

Wireless service, including mobile service, is not included in the program.

Primary broadband service providers - West Sacramento

AT&T, service by census block

Download speed	768 Kbps	1.5 Mbps	3 Mbps	6 Mbps	12 Mbps	18 Mbps	24 Mbps	45 Mbps	75 Mbps
Legacy DSL	109	5	292	79					
ADSL	9	32	7	5	19	13			
VDSL					8	340	28	23	7
Fiber						6	21		4
Total	118	37	299	84	27	359	49	23	11

Upload speed	384 Kbps	1 Mbps	1.5 Mbps	3 Mbps	6 Mbps
Legacy DSL	114	371			
ADSL	41	44			
VDSL		7	348	28	23
Fiber		4	6	21	
Total	155	426	354	49	23

Wave - cable modem (DOCSIS 3.0) speeds claimed throughout service area

Download	110 Mbps
Upload	10 Mbps

Major California cable company maximum upload speed, as a percentage of census blocks

	5 Mbps	20 Mbps
Charter Communications	100%	
Comcast		100%
Cox Communications		100%
Time Warner Cable	14%	86%

Major California cable company maximum download speed, as a percentage of census blocks

	30 Mbps	50 Mbps	100 Mbps	105 Mbps	150 Mbps	300 Mbps
Charter Communications	3%		97%			
Comcast				3%	97%	
Cox Communications					100%	
Time Warner Cable	1%	14%				86%

Star Rating based on C/I centroids

	Stars
By current service reports	0.5
By current fiber routes	1.0
With utilization of city assets	2.0

Cross tab of C/I centroid Star Ratings

	No Stars	1 Star	2 Star	3 Star	4 Star	5 Star
By current service reports	94	30	12	0	0	0
By current fiber routes	66	17	38	13	2	0
With utilization of city assets	44	2	20	46	22	2