

Broadband

What is it?

- FCC Definition –
 - ≤ 200 kbps is defined as Internet Access
 - ≥ 200 kbps in at least one direction is defined as Hi Speed Access ⁽¹⁾
 - ≥ 200 kbps in both directions is defined as Advanced Services ⁽¹⁾
- A software developers definition –
 - “Fast enough to support my application”
- A users definition –
 - “I’ll know it when I see it”

(1) – FCC Report on High-Speed Services for Internet Access: Status as of June 30, 2006, footnote 1

Broadband Copper Transport

- Traditional copper facilities (telephone lines)
 - Dial up connection via traditional modem. Speeds up to 56 kbps.
 - Digital Subscriber Line (DSL)
 - Most home DSL is “asymmetric DSL” (download speed is faster than the upload speed).
 - DSL is distance sensitive. Maximum distance is typically 18,000 feet (3.4 miles) from switching or repeater equipment.
 - Potential (nominal) speeds:
 - At distances of 6,000 feet or closer download speeds of 8 mbps and upload speeds of 640 kbps can be realized.
 - Most popular speed offerings are download of 1.5 mbps and upload of 64-640 kbps.

Broadband Fiber

- Fiber to the Home (FTTH) or Fiber to the Premise (FTTP) uses a fiber optic cable to enable the transmission of multiple signals (voice, Internet, video) at very high speeds over longer distances without regenerating the signal when compared to copper and coax.
- Equipment conditions the data on the fiber optic cable (voice, data, video) to be compatible with the distribution media going to and inside the customer premise.

Broadband Wireless

- Point-to-Point (PTP)
 - Radio frequencies are used to transmit and receive data from a central location to the end user.
 - Download speeds of 5 mbps and upload speeds of 1 mbps are currently available from many providers.
 - Coverage is affected by
 - Height of transmitting and receiving antenna
 - Power of transmitter and sensitivity of receiver
 - Terrain (flat or hilly)
 - Nominal coverage is reported to be 15-18 miles

Broadband

Wireless continued

- Satellite
 - Services are provided from a geosynchronous satellite.
 - Download speeds of 1.5 mbps and upload speeds of 256 kbps are reported.
 - Some providers may limit the total amount of data uploaded / downloaded
 - Latency of data may cause problems with real-time applications
 - Line of sight to satellite required.

Broadband

Providers and Methods

	Dial Up	DSL	Coax	Fiber	PTP	Satellite
Telephone Company	X	X		X	X	X
Internet Service Provider	X	X	X	X	X	
Cable TV			X	X		
Satellite TV						X

Broadband Federal Support

- Federal – while no action has been taken there is legislation in both the House and Senate that would change existing broadband policy.
- There are 5 House, 3 Senate, and 2 joint bills.
- Seven would modify existing rules and regulations
- Three would add new rules and regulations

Broadband

Federal Support – Legislation in Congress

Date Introduced	Bill Number	Title	Summary
1/4/2007	H.R.42	Serving Everyone with Reliable, Vital Internet, Communications, and Education Act of 2007	Amends the Communications Act of 1934 to require the Federal Communications Commission (FCC) to expand the Lifeline Assistance Program and the Link Up Program. Requires a report to Congress on the benefit level for the programs that will encourage low-income consumers to seek broadband service, projections on potential broadband consumers if the service was economically feasible, industry requirements to provide broadband service in underserved areas, and policy proposals regarding gaps in broadband availability.
5/3/2007	H.R.2174/S.1032	Rural Broadband Initiative Act of 2007	Amends the Rural Electrification Act of 1936 to establish in the Department of Agriculture the Office of Rural Broadband Initiatives, to be headed by the Under Secretary for Rural Broadband Initiatives. Under Secretary shall: (1) administer all rural broadband-related grant and loan programs previously administered by the Administrator of the Rural Utilities Service, including the rural broadband access loan and loan guarantee program and the community connect grant program; (2) conduct rural outreach; (3) foster development of a comprehensive rural broadband strategic vision; (4) assess relevant technologies; (5) serve as a single information source for all federal rural broadband programs and services; and (6) provide technical assistance to state, regional, and local governments to develop broadband deployment strategies. Directs the Under Secretary to submit: (1) to the President and to Congress a comprehensive rural broadband strategy report; and (2) to Congress a plan for a Rural Broadband Advisory Panel. Establishes in the Treasury the National Rural Broadband Innovation Fund.
9/14/2007		NPSC	8

Broadband

Federal Support – Legislation in Congress

Date Introduced	Bill Number	Title	Summary
8/1/2007	H.R.3281/S.1853	Community Broadband Act of 2007	No State or local government statute, regulation, or other State or local government legal requirement may prohibit, or have the effect of prohibiting, any public provider from providing advanced communications capability or services to any person or to any public or private entity.
3/29/2007	H.R.1818	Broadband Deployment Acceleration Act of 2007	Amends the Internal Revenue Code to permit taxpayers to elect to expense (i.e., deduct all expenses in the current taxable year) qualified broadband expenditures, including installation and connection costs for subscribers in rural or underserved areas. Permits mutual or cooperative telephone companies to elect to reduce their unrelated business taxable income in any year by the amount of their qualified broadband expenditures.
4/25/2007	H.R.2035	Rural Broadband Improvement Act	Amends provisions of the Rural Electrification Act of 1936 relating to loans and loan guarantees for the provision of broadband service in eligible rural communities to revise the definition of "eligible rural communities." Regulates the amount of a loan or loan guarantee. Requires full repayment of a loan or loan guarantee if a project is not entirely completed within 3 years.
6/5/2007	H.R.2569	Rural Broadband Deployment Act	Amends the Rural Electrification Act of 1936 with respect to rural broadband access loan or loan guarantee eligibility to: (1) not require a market survey for an applicant who is projecting less than 15% penetration of households in a service area; and (2) replace the credit support requirement, including the cash on hand requirement, with a minimum 20% of loan equity position (10% in specified situations of a single provider or limited broadband service participation area).

Broadband

Federal Support – Legislation in Congress

Date Introduced	Bill Number	Title	Summary
7/10/2007	H.R.2953	Rural Broadband Access Enhancement Act	Amends the Rural Electrification Act of 1936 to redefine "eligible rural community."Permits a loan or loan guarantee applicant in an area where 40% of the residents are without broadband access to qualify with a 10% loan equity position. Provides for: (1) paperwork reduction; and (2) program outreach to underserved areas. Prohibits loan or loan guarantees for new broadband service in communities with three or more service providers. Provides that for each fiscal year: (1) not more than 10% of program funds shall be available to providers with more than 10% of national subscriber lines; and (2) 40% of program funds shall be available to providers with between 2%-10% of national subscriber lines. Revises the amortization period from the life of the asset to 35 years. Requires an annual broadband program report to Congress.
5/21/2007	S.1439	Rural Broadband Improvement Act of 2007	Amends the Rural Electrification Act of 1936 to extend the rural broadband access loan and loan guarantee program. Revises the definition of "eligible rural area."Establishes a non-duplication of terrestrial lines, facilities, or systems requirement. Requires loan applications to be processed within 180 days. Eliminates the eligibility prohibition for entities that serve more than 2% of the telephone lines installed in the United States. Establishes a grant program for development of statewide initiatives to identify and track the availability and adoption of broadband services within eligible rural areas. Sets forth loan security and equity requirement provisions.

Broadband

Federal Support – Legislation in Congress

Date Introduced	Bill Number	Title	Summary
2/8/2007	S.541	Rural Opportunities Act of 2007	Requires: (1) broadband service providers to provide the Federal Communications Commission (FCC) with specified information; and (2) the FCC to provide Congress with demographic information for underserved areas.
5/27/2007	S.1492	Broadband Data Improvement Act	Requires the Federal Communications Commission (FCC) to revise the definitions of advanced telecommunications capability, or broadband, establish a new definition of second generation broadband, and revise certain reporting requirements to require reporting of broadband and second generation broadband connections by zip code plus 4 location. Requires the FCC to determine certain demographic data for geographical areas that are not served by any provider of advanced telecommunications capability. Requires expansion of the American Community Survey to elicit information to determine whether persons subscribe to Internet service and, if so, by dial-up or broadband. Requires the Comptroller General to conduct a study to evaluate additional broadband metrics or standards that may be used to provide users with more accurate information about the cost and capability of their broadband connection and to better compare the deployment and penetration of broadband in the United States with other countries. Requires the Small Business Administration Office of Advocacy to conduct a study on the impact of broadband speed and price on small businesses. Provides for grants to develop and implement statewide initiatives to identify and track the availability and adoption of broadband services within each state.

Broadband

Universal Service Funds

- Universal Service Funds support some of the cost of providing basic telecommunications service to low income families and some of the cost of serving rural areas.
- Incumbent Local Exchange Carriers (ILEC - a telephone company that was providing local service when the Telecommunications Act of 1996 was enacted) are eligible to receive funds from the Federal Universal Service Fund and upon application are eligible to receive funds from the Nebraska Universal Service Fund. These funds are generated by separate Federal and State surcharges on both wireline and wireless telephone bills.

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Eligible Telecommunications Carrier Status

- Incumbent Local Exchange Carriers were designated as Eligible Telecommunications Carriers at the start of the program.
- Competitive Local Exchange Carriers (CLEC - a telephone company that competes with the already established local telephone company) and Wireless Carriers (cell phone companies) may petition the state to be designated as an Eligible Telecommunications Carrier.
- If approved the carrier can then apply for both Federal and State Universal Service support.
- Since 1998 a total of 20 CLEC's and Wireless carriers have applied to the Nebraska Public Service Commission for ETC status.
- 17 of the carriers have been granted ETC status, 2 withdrew, and one was denied.

Broadband State Support

- State – Nebraska currently provides funding for expansion of broadband services through the grants available from the Nebraska Internet Enhancement Fund (NIEF).
- Communities that received NIEF funds in 2006 were:
 - Rural Alliance, Box Butte County; Wireless (Alliance \$50,000)
 - Rural Chadron, Dawes County; Wireless (Chadron \$50,000)
 - Rural Sidney, Cheyenne County; Wireless (Sidney \$50,000)
 - Chappell (\$29,700)
 - Nemaha County Wireless Broadband Initiative (\$76,246.47)
- Communities that received NIEF funds in 2007 were:
 - The Village of Broadwater (\$75,000)
 - The Village of Dix (\$50,000)
 - The Furnas and Harlan County Partnership (\$112,316)
- Potential legislative action to increase the amount of funding available.

Broadband

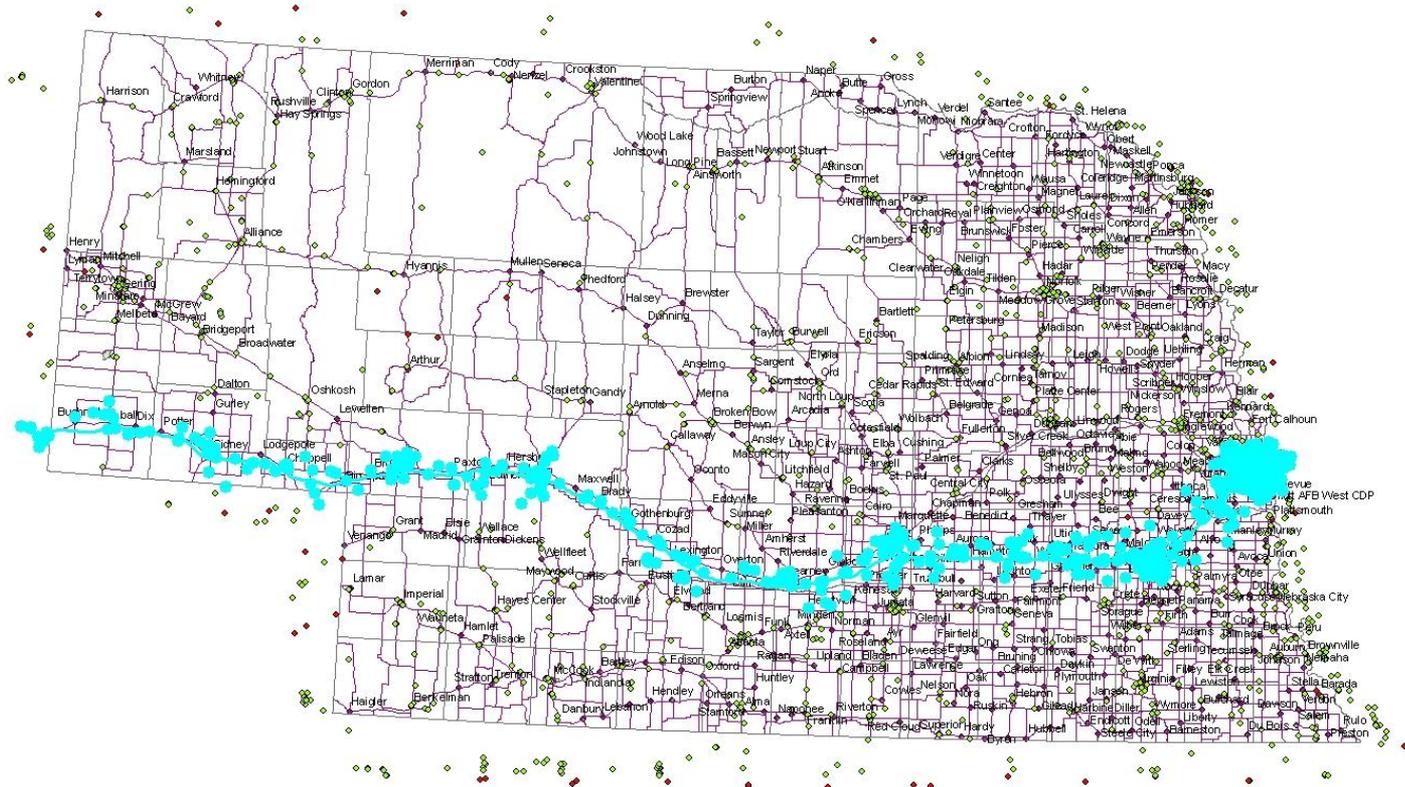
Nebraska Service Providers

- A report of Broadband service providers in Nebraska can be found on the Nebraska Public Service Commission (NPSC) web site (www.psc.state.ne.gov).
- Clicking on the words “Broadband Survey” at the bottom center of the NPSC home page will take the user to the survey.
- Appendix E and F provide broadband information by County and Population center.
- The list of service providers may not be all inclusive since only telecommunications carriers were required to report the information to the NPSC.

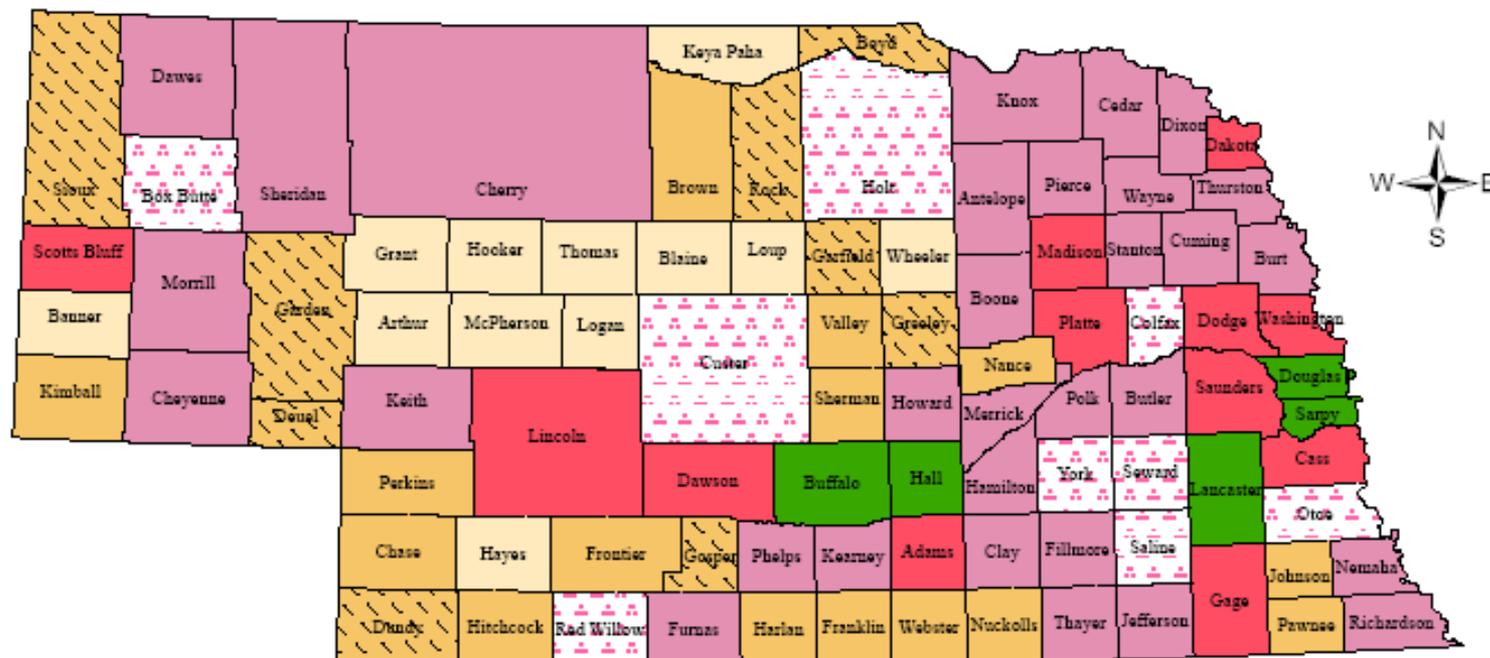
Cell Phone Coverage

- By Federal law wireless carriers are not subject to market entry regulation by states.
- Nebraska does require wireless carriers (and with the enactment of LB661 this year broadband service providers and VoIP service providers) to register with the NPSC.
- The NPSC does accept consumer complaints concerning wireless service and works with the carrier to arrive at a mutually beneficial solution.
- During the Fiscal Year 2006 (July 2006 through June 2007) the NPSC received 351 wireless complaints for more than 10 wireless carriers.
- As wireless coverage in Nebraska has expanded it has followed a pattern often referred to as the “fish hook”; I-80 from west to east form the shank and the Lincoln – Omaha metro area the hook.

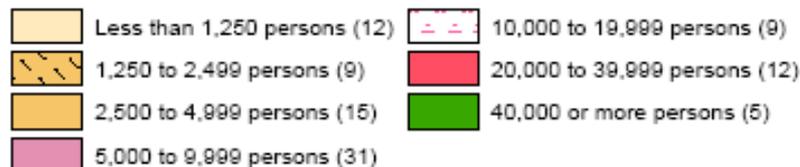
Cell Towers w/in 10 miles of I-80 (710 out of 2,131 in state)



Nebraska County Populations: July 1, 2006



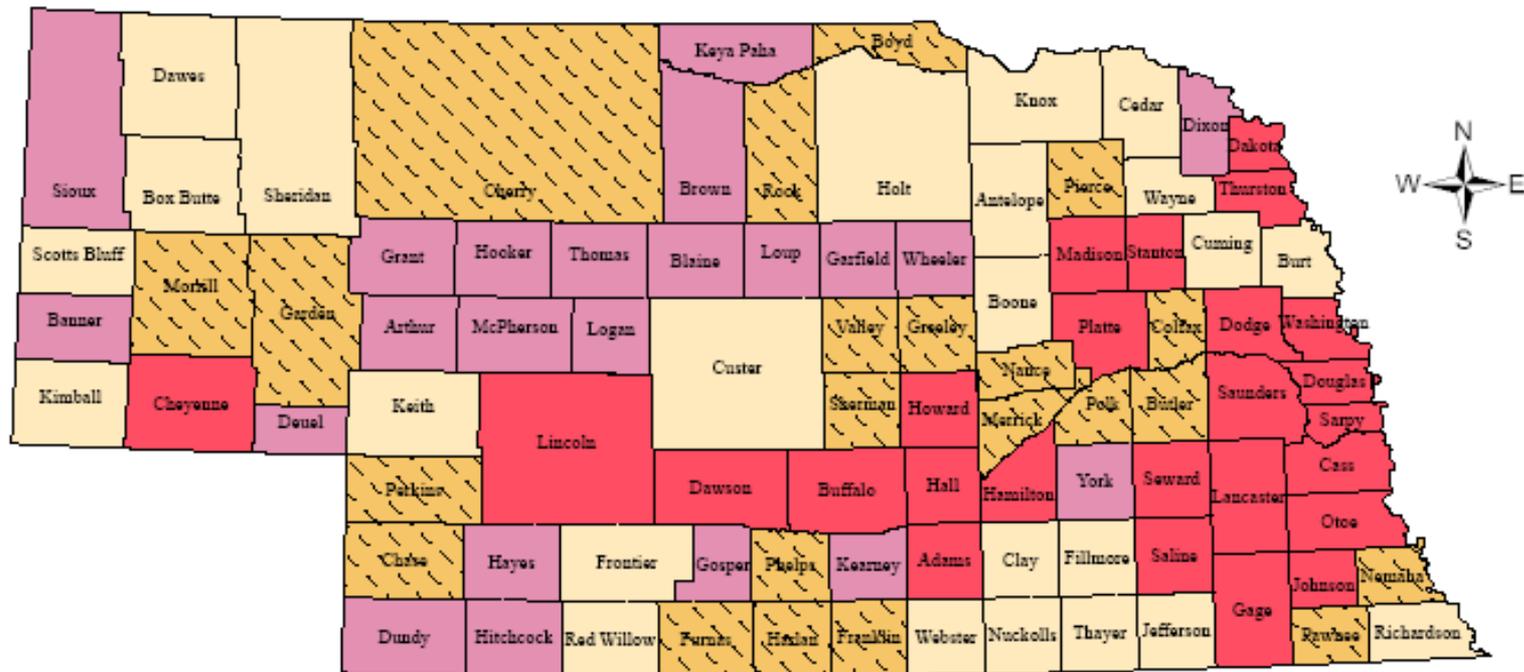
Estimated County Population: July 1, 2006



Source: Cumulative Estimates of Population Change - released March 20, 2007, U.S. Census Bureau

Prepared by: David Drozd, Center for Public Affairs Research, University of Nebraska at Omaha - March 21, 2007

Nebraska County Population Change: April 1, 2000 to July 1, 2006



County Population Change: 2000 - 2006

- Declined 350 or more persons (24)
- Declined 200 to 349 persons (22)
- Declined less than 200 persons (22)
- Population increased (25)

Source: Cumulative Estimates of Population Change - released March 20, 2007, U.S. Census Bureau

Prepared by: David Drozd, Center for Public Affairs Research, University of Nebraska at Omaha - March 21, 2007

Cell Phone Coverage

- To justify entering a market carriers must first estimate the cost of providing coverage, projected take rates, and estimated “roaming traffic” thereby determining the viability of serving the area.
- USF support does impact the viability of serving rural areas.
- As you move north or south from the I-80 corridor the population density decreases and the amount of “roaming traffic” decreases making it more difficult to justify additional cell phone towers from a cost stand point.
- The elimination of the analog cell phone technology reduced coverage for many “rural” consumers.
- The use of a “booster” on a digital phone can help regain some of the lost coverage.

Who to call

- If you should have any questions or are looking for information don't hesitate to call us. While our level of authority varies between the type of services, our consumer advocates have a great track record.
 - Gene Hand, Director of Communications, Nebraska Public Service Commission
(402) 471-0244 gene.hand@psc.ne.gov
 - Don Gray, Telecommunications Analyst, Nebraska Public Service Commission
(402) 471-0242 don.gray@psc.ne.gov
 - Jeff Pursley, Director Nebraska Universal Service Fund , Nebraska Public Service Commission
(402) 471-0264 jeff.pursley@psc.ne.gov