



CITIZEN POLITICAL ENFRANCHISEMENT AND INFORMATION ACCESS: TELECOMMUNICATIONS SERVICES IN RURAL AND REMOTE AREAS

MONTANA MEDIA PARTNERSHIP (MMP) REPORT TO THE SOCIAL SCIENCE RESEARCH COUNCIL
NOVEMBER 2008

Dr. Richard S. Wolff
Montana State University
rwofff@montana.edu
(406) 994-7172

Montana Common Cause
mtcommoncause@gmail.com
P.O. Box 1604
Helena, MT 59624
406-459-1377
www.commoncause.org



This research was assisted by a grant from the Necessary Knowledge for a Democratic Public Sphere Program of the Social Science Research Council with funds provided by the Ford Foundation.

Executive Summary

As an increasing number of participatory democratic processes assume access to modern, high-speed telecommunications services, the question is “*are citizens in rural/remote areas being politically disenfranchised by lack of adequate, affordable and equal communications infrastructure.*”

By some measures, access to electronic media in Montana is on par with the rest of the nation. Statewide data regarding high-speed Internet penetration is comparable to the national penetration level, and Montana’ citizens have other means of information access including wireless hot spots, schools and libraries equipped with Internet, locally owned low power FM stations and municipal web sites. **However, statewide averages are misleading.** A more careful examination of the data, using county wide and local information where available, reveals several significant patterns and gaps:

- Montana’s more metropolitan areas are experiencing significant population and economic growth, and much of the growth in information access and on-line services is centered in these areas. The rural and remote regions of the state are underserved and falling behind.
- Online services in Montana are uneven. While about two thirds of the counties have web sites, the services offered in the rural areas are not comparable to those available in the metro areas, and well behind national levels. Many of the rural county web sites are sponsored by business interests such as tourist agencies, chambers of commerce or real estate interests. These sites offer little in the way of transactional services that would enable citizen engagement in government.
- The results of our examination of county web sites show that the rural county web sites offer online services in less than 50% of the categories defined in a national county and local municipality e-government assessment.
- Even in Montana’s metro counties, there are six of the twenty service categories where none of the counties offer the service online.
- Internet access in Montana is costly - above the national averages for all categories of service
- Services that would offer alternatives to costly travel, such as streaming video, document retrieval, filings and registrations are available in Montana on an extremely limited basis. With energy and travel costs rising, expanded e-government services could be a valuable investment.
- The aging demographics and population distribution also are reflected in the trends in electronic media access.
 - o Internet services are less available in the areas with older and declining populations, and other electronic media, such as low power FM and TV coverage are very limited in these same areas.
 - o Similarly, these areas are not being served by wireless hot spots or community networks, which are much more prevalent in the more metro parts of the state, which are characterized by population growth and lower median age.

The universal service fund has made a significant impact on the availability of telecommunications services in rural areas. As noted above, the investments in internet access for schools and libraries has, on a per capita basis, favored the less populated areas of the state. While universal service fund expenditures for internet access for schools and libraries have been higher on a per capita basis in the rural areas of the state, the benefit to the general population is limited. Universal service fund expenditures for individuals are restricted to providing only basic voice telephone service for high cost areas or for low income users. These funds cannot be used to provide high speed internet service for individuals.

Unlike the local exchange telephone carriers, who are monitored and regulated by the state Public Service Commission (PSC) in Montana, the cable network operators are not subject to state oversight. While the local exchange carriers are eligible for universal service funds and the cable network operators are not, this lack of oversight makes it difficult to determine the extent to which cable-based internet service is reaching rural and remote areas. The cable operators have a presence in 70% of Montana’s counties, but it is not possible to determine how many subscribers are served, and whether these subscribers are clustered in the most densely populated areas or widely dispersed.

Recommendations:

- That an in-depth study of rural internet penetration be undertaken to more carefully identify and quantify the availability of high-speed services. Specifically, the FCC should collect data at the census tract level instead of zip code level,
- That universal service funds be extended to include provision of high-speed internet service to high cost areas and support low-income citizens,
- That the Montana information technology plan to be extended to include standards for local government web site and interactive services, and that resources be allocated to enable rural localities to implement these services.

Data Collection and Analysis

The following paragraphs summarize the results of our efforts to obtain a comprehensive picture of the availability of information via electronic means across the state of Montana.

Statewide high-speed Internet access (DSL, wireless, cable). We have invested substantial effort to obtain accurate, current and detailed information on the availability of high-speed Internet services in rural areas. The FCC annually surveys service providers and the most recently published data indicates that nationwide, high-speed line¹ penetration grew by 55% (or 35.7 million lines) in the twelve month period from July 2006 to June 2007 [7]. For Montana, the statewide results show that in June 2007, there were a total of 346,230 high-speed lines, or a 149% annual increase. On the basis of lines as a percentage of population, Montana’s high-speed line penetration in June 2007 was about 36% compared to a national level of 34%.

These state-wide results indicate that high-speed line penetration in Montana is on par with the rest of the US. However, these data do not show the gaps associated with rural areas. Figure 1, also obtained from the FCC annual survey, shows the number of high-speed internet service providers per ZIP code area.

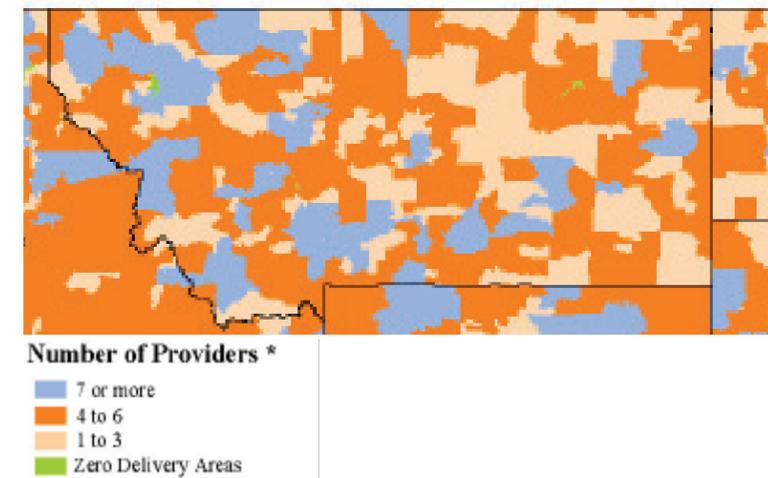


Figure 1. High-speed providers by 5-digit ZIP code as of June 2007. [7]

These data show that there are substantial areas in the state where there are three or fewer high-speed providers. Furthermore, the data do not reveal the actual coverage areas of the providers. That is, the presence of a service provider in a ZIP code does not imply that service is available throughout the area, or whether it is available in only a single community.

The number of Internet service providers (ISPs) in an area is a measure of access availability and options. We examined these data in more detail, noting the number of ISPs by ZIP code area and compared Montana with the nation overall. Table 1 provides results based on December 2006 FCC data [32].

1 The FCC defined a high-speed line as at least 200kb/sec in one direction in this data. The FCC definition of high-speed was revised to 768kb/sec in 2008.

# of ISPs	% of Montana ZIP codes	% of nationwide ZIP codes
0	1	1
1	4	7
2	18	12
3	26	15
4	25	14
5	10	10
6	6	7
7	3	6
8	2	5
9	1	4
10 or greater	4	21

Table 1. Comparison of the number of ISPs in ZIP code areas: Montana versus US overall [32]

These data indicate that a large percentage of Montana areas are served by few or no ISPs. For example, about half of the ZIP code areas in Montana have three or fewer ISPs, while only 36% of the nation's ZIP code areas overall are served by three or fewer ISPs. Conversely, on a national level, 21% of the ZIP code areas are served by ten or more ISPs, while in Montana, only 4% of the ZIP code areas are served by ten or more ISPs.

Data on the number of high-speed Internet lines on a state-wide basis as a function of technology are collected annually by the FCC [7]. These data are given in Table 1 and indicate that DSL tends to exceed cable in Montana.

DSL	Cable	Fixed wireless	Other
98,339	74,246	7653	1162
54%	41%	4%	1%

Table 1. High-speed Internet service in Montana by technology, June 2007 [7]

We examined the availability of high-speed Internet access on a county-by-county basis by using yellow page listings for each of the county seats in Montana's fifty six counties. For each community, we looked at the numbers and types of high speed service providers. While this analysis does not give a highly detailed view of coverage in remote areas, it does illustrate the extent of Internet access and the choices available. Table 2 shows the results of this study.

Type of Internet Service	DSL	Cable	Wireless	High speed celular
% MT counties with service	79%	70%	75%	57%

Table 2. Percentages of Montana counties with various kinds of high-speed Internet access

These results show that DSL, cable and wireless are widely available, at least in the county seat communities, but high-speed cellular service is lagging significantly. The data are limited in so far as it was not possible to determine the geographic extent of any of the services. For example, it may be the case that a DSL, wireless or cable network serves only the most densely populated down town area of the county seat, leaving most of the communities in the county without service. Similarly, high-speed cellular service is typically limited to city center areas and major highway corridors.

As part of our small grant effort, we have had discussions with the Montana Public Services Commission, the Montana Telecommunications Association, several of the independent and cooperative telecommunications service providers and cable television network providers. These have yielded mixed results, as the state does not regulate high-speed services or the cable industry. Our assessment is that more granular data in high-speed penetration can best be obtained by surveying specific communities.

Wireless hot spots and community networks A growing number of citizens use wireless hot spots (Wi-Fi access points) to obtain Internet connectivity. These are now widely deployed in metro areas in public places such as coffee shops, airport lounges, hotels, schools and libraries. Community and regional wireless networks have seen growing interest and use, cities such as Philadelphia and San Francisco moving aggressively to assure that low-cost high-speed access is widely available. We have examined the availability of wireless Internet in Montana and find that the state has relatively few public access points. The CNET/Jwire web site lists over 263,000 Wi-Fi sites nationwide, with only 263 in Montana [13]. The most recently available data on community wireless networks lists over 350 initiatives

nationwide with only one in Montana [14].

Schools and libraries Schools and libraries are increasingly providing high-speed network access to their communities. The Federal government, through a component of the Universal Service Fund (USF) has been subsidizing the costs of telecommunications services and infrastructure investment in rural areas. We have examined the use of the USF in Montana, and find that there has been substantial effort to reach out to rural areas. In 2007, over \$4M was made available through grants to over 300 schools and libraries in Montana, spread widely across the state [15, 16]. Figure 2 shows the locations of these investments.

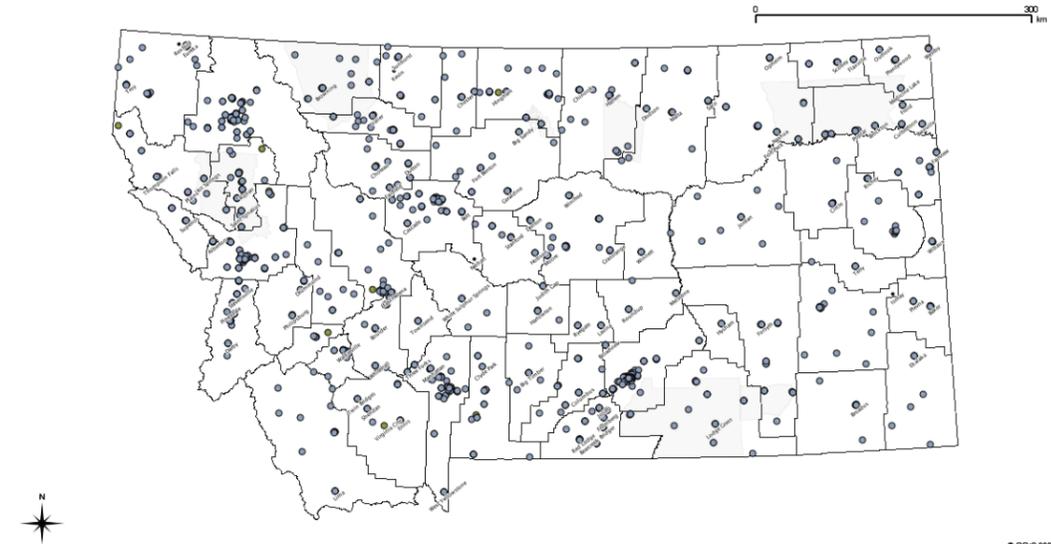


Figure 2. Schools and libraries in Montana receiving Universal Service Funds in 2006 for high-speed services and infrastructure. Data from [15, 16]

Similar programs provide grants for infrastructure development and operations to Indian reservations [17, 18] and to hospitals and health care clinics [16].

We have examined in detail the recent USF disbursements Montana schools and libraries for telecommunications services and Internet access to determine the extent to which rural areas are benefiting from this program. In 2007 the USAC disbursed over \$4M in Montana in the schools and libraries program in over 1300 grants. We aggregated the data to the county level and examined the relationship between population and investment. Figure 3 shows the results of the correlation between USF dollars per person spent on Internet and telecommunications services for schools and libraries versus total county population and indicates that the less populated areas are receiving relatively greater amounts of the investment.

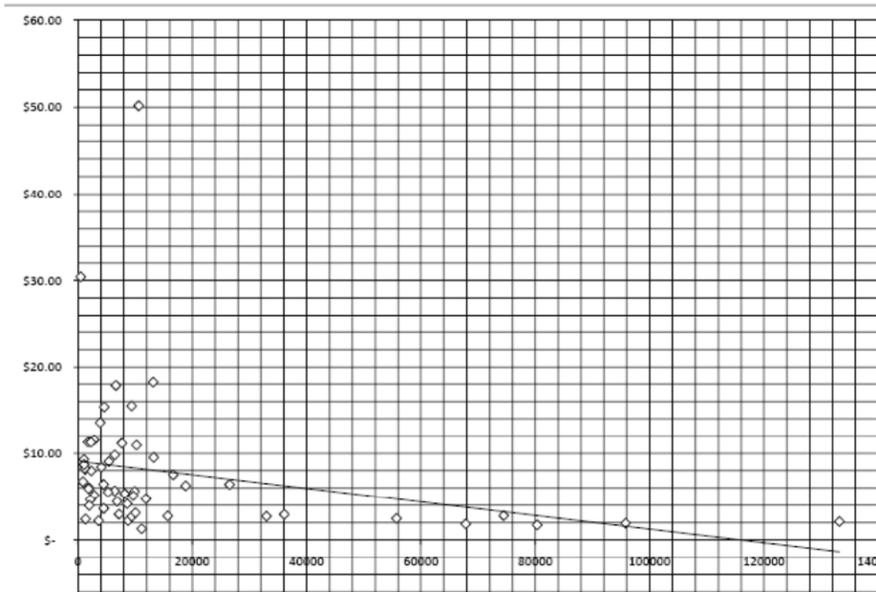


Figure 3. Correlation between County Population and USAC funds spent per capita for Internet services in schools and libraries, 2007 data

The results show that in 2007 the most populous counties received about \$4/per person, while the least populous counties received an average of \$10/person. The distribution of USF grants by county and per capita is shown in figure 4. The data indicate that the more remote areas in the north east section of the state are receiving more of the funds.

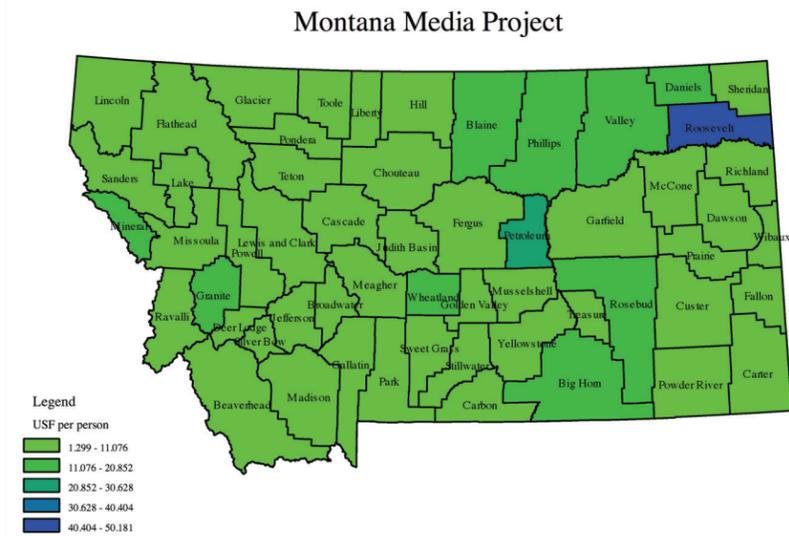


Figure 4. Use of USF funds per person for Montana counties

Community/county web sites The move toward e-government has led to widespread use of the Internet for communications with and delivery of services to citizens and a recent assessment evaluates the availability of on-line services [19]. In many communities, information ranging from school lunch menus to applications for fire permits, from tax filing to license renewals, as well as real-time audio and videocasting of town meetings and other events are available on-line. We have surveyed the use of web sites by local governments in Montana and find a wide range of services and functionality available to those who have Internet access. Table 3 provides a sample of these findings. We note that effective use of the more extensive sites is predicated on high-speed access, as many of the video and audio services, as well as some of the image-intensive interactive services, are not feasible with low-speed dial up lines. In this assessment, we used on-line service categories recently defined by the International City County Management Association (ICMA) in their 2004 survey of electronic government in communities greater than 2500 people [27].

COUNTY	Web site	Size, Sq miles	Population	Low Power FM	On-line Services												
					Streaming audio	Streaming video	GIS	data base queries	download forms	On-line filings	Meeting agendas and minutes	E-mail to officials and offices	Links to other services	software needed			
ANACONDA-DEER LODGE	www.anacondamt.org	740	9417		N	N	N	N	N	N	N	N	N	N	N	N	N
BEAVERHEAD	www.beaverheadcounty.org	5,551	8773		N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
BIG HORN	http://www.hardinmt.com/	5,023	13,149		N	N	N	N	N	N	N	N	Yes	N	N	N	Acrobat
BLAINE	http://www.co.blaine.mt.gov	4,275	8,629		N	N	N	N	N	N	N	N	Y	N	N	N	N
BROADWATER	www.townsendvalley.com	1,193	4,517	1	N	N	N	N	Y	N	Y	Y	Y	Y	Y	Y	Acrobat, Word
BUTTE-SILVER BOW	www.co.silverbow.mt.us	715	32,982	1								Y	Y	Y	Y	Y	Word
CARBON	www.co.carbon.mt.us	2,066	9,903		N	N	N	N	Y	N	Y	Y	Y	Y	Y	Y	adobe
CARTER	http://www.cartercountymt.mt.us	3,313	1,321		N	N	N	N	Y	N	N	Y	Y	Y	Y	Y	Y
CASCADE	http://www.co.cascade.mt.us/	2,698	79,561	1	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Acrobat, Word
CHOUTEAU	www.co.chouteau.mt.us	3,927	54,17		N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y
CUSTER	www.co.custer.mt.us	3,756	11,151		N	N	N	N	N	N	N	N	Y	N	N	N	N
DANIELS	None	1,422	1,774		N	N	N	N	N	N	N	N	Y	N	N	N	N

Table 3. Sample of web sites and on-line services for several of Montana's 56 counties

We investigated in detail the scope and extent of web services available across the state. As Montana has hundreds of small communities, many of which have populations of less than 1000 people, we chose to examine the services available in the most populated town in each county, which is typically the county seat. We note that this approach provides a reasonable basis for comparison with the results of the ICMA 2004 national study of on-line services in towns with populations exceeding 2500 [27]. For Montana, thirteen of the fifty six counties have populations less than 2500. We classified the seven most populous counties (Yellowstone, Gallatin, Cascade, Flathead, Butte-Silverbow, Lewis and Clark and Missoula) as "metro" and remaining forty nine as "rural", as the these more populated counties are not as representative of rural areas as the remainder of the state. Figure 5 shows the results, where we compare rural and metro Montana county Internet services with the results of the ICMA study.

Service	All Montana Counties (56), %	Rural Montana Counties (49), %	Metro Montana Counties (7), %	ICMA 2004 data (localities greater than 2500), %
Web site	79	64	100	91
tax payments	0	0	0	9
utility bill payments	2	0	14	9
payment of fines/fees	2	0	14	7
completion and submission of permit applications	2	0	14	10
completion and submission of business license applications/renewals	2	0	14	6
requests for local government records	5	0	29	27
delivery of local governments records to the requestor	2	0	14	18
requests for services, such as pothole repair	2	0	14	30
registration for use of recreational facilities/activities, such as classes and picnic areas	0	0	0	16
voter registration	2	3	0	2
property registration, such as animal, bicycle registration	0	0	0	3
Forms that can be downloaded for manual completion (e.g., voter registration, building permits, etc.)	9	6	29	28
communication with individual elected and appointed officials	57	53	86	66
GIS mapping/data	11	6	29	27
Employment info./applications	41	39	57	60
Council agendas/minutes	9	6	29	76
Codes/ordinances	2	3	0	66
Electronic newsletter sent to residents/businesses	0	0	0	28
Streaming video	0	0	0	9

Figure 5. Comparison of on-line services in Montana counties with ICMA study results.

While this figure compares results of the 2004 ICMA study with current (2008) conditions in Montana, the trend to more extensive use of the Internet would favor the availability of more on-line services nationally if more recent data were available. It is clear that Montana has fewer on-line services in almost every category. Only 64% of the rural counties even have web sites, while in 2004 over 90% of the areas surveyed by the ICMA offered web sites. None of the Montana counties offer streaming media delivery and only a small percentage offer any kind of interactive on-line services, such as registrations or access to documents or databases.

The difference in on-line services between rural and metro Montana counties is striking. Table 4 compares the average number of on-line services for the metro and rural area counties.

Region	Average number of on-line services per web site
All counties (56)	1.2
Rural counties (49)	0.9
Metro counties (7)	3.6

Table 4. Comparison of on-line services in Montana Counties

The rural areas are disadvantaged in both the availability of web sites (64%) and the number and types of on-line services provided.

Local radio and TV coverage Media consolidation has been an increasing concern for rural areas, where small market size has resulted in aggregation and with the potential for loss of local control and the availability of local content [20]. As community dialog, using broadcast media is seen as an essential component in the democratic process, we have explored the availability of locally owned and operated broadcast systems in Montana. In particular, we have examined low power FM, a relatively new means of empowering communities. Figure 6, obtained from FCC license filings, shows the coverage of conventional commercial FM broadcast services and low power FM broadcast, There are currently 33 LP-FM stations in Montana, and about half of these are locally owned [21].

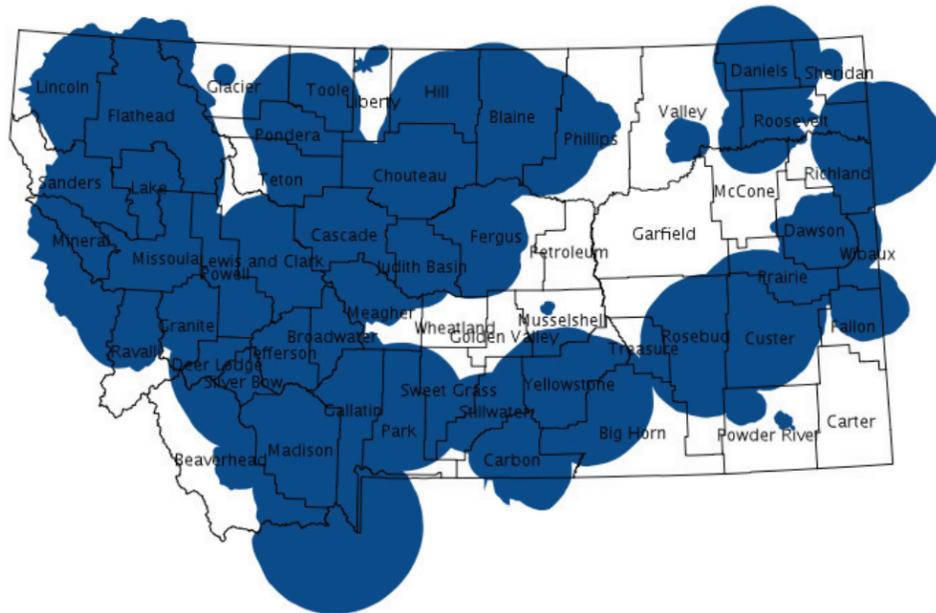


Figure 6. Coverage of Montana commercial FM stations. Data from [21].

Figure 7 shows the coverage of the low power FM stations.

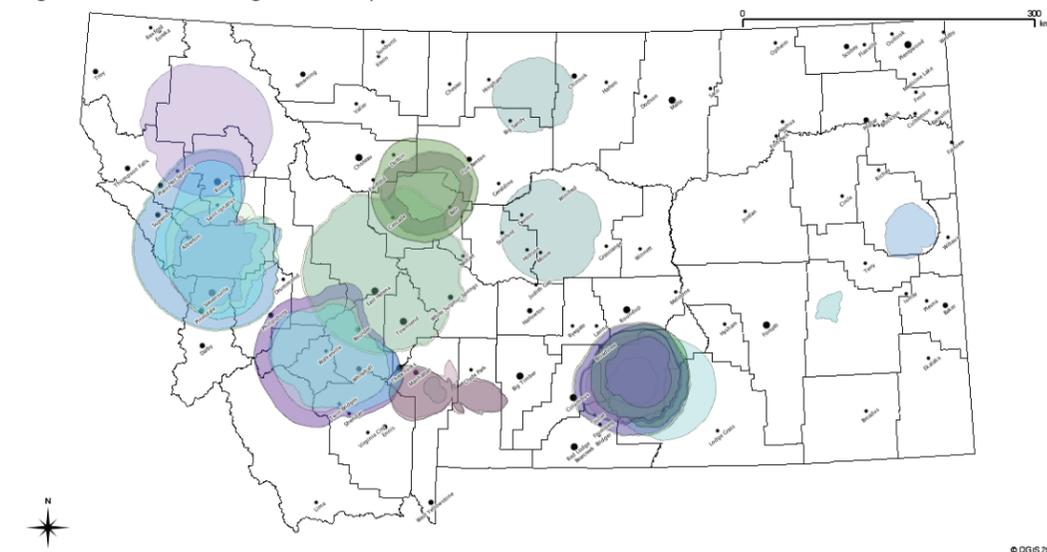


Figure 7. Coverage of low power FM stations in Montana. Data from [21].

It is apparent from these figures that large sections of the state are not served, and the low-power, locally owned FM media reaches only the most populated regions of western Montana. Television coverage in Montana is also limited. Figure 8 show the coverage areas of the commercial and not for profit licensed TV stations.

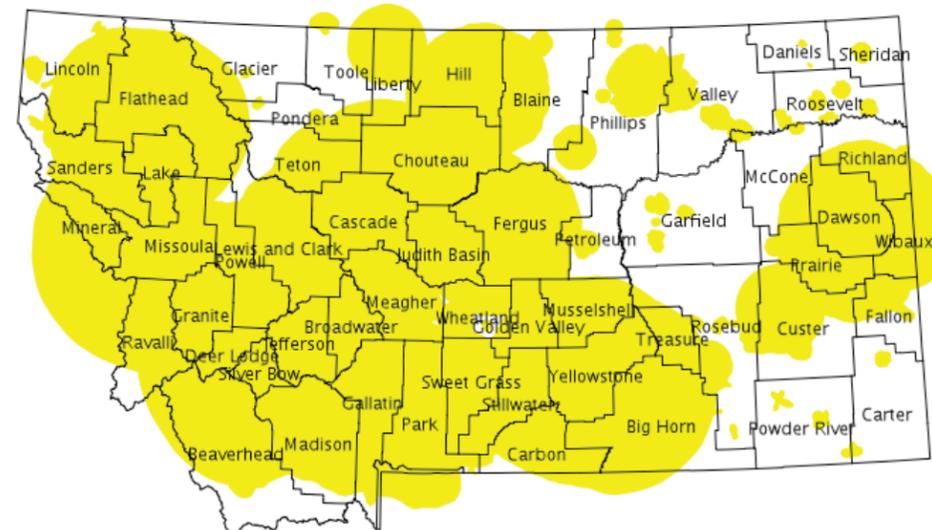
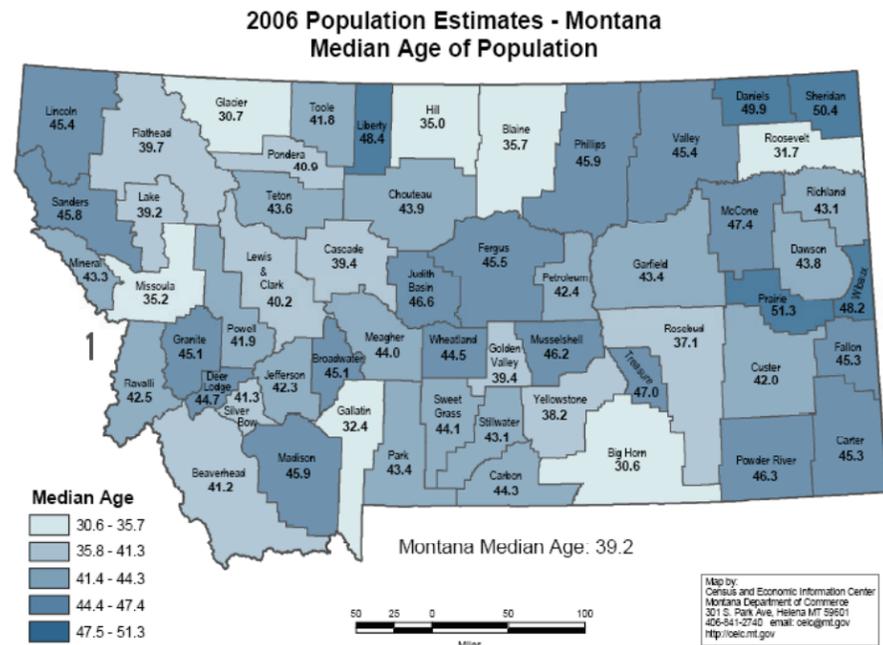


Figure 8. Coverage area of Montana TV stations

These data indicate that broadcast TV coverage is not ubiquitous. While satellite TV and satellite radio are universally available, these services typically have very limited local content.

Demographics and electronic media access

Montana has an aging population, with a statewide median age of 39.2 years in 2006 [28]. Figure 9 shows the median age by county.



Source: U.S. Census Bureau, Population Estimates Division, Released August 9, 2007.

Figure 9 Median age in Montana by county [28]

The state-wide median age in 2000 was 35.3 years and in 2006 it had increased to 39.2 years. The median age distribution across the state is marked, with the rural area tending toward even older populations, as shown in Table 5.

Region	Median Age
All Montana Counties (56)	42.6 years
Rural Counties (49)	43.3 years
Metro Counties (7)	38.2 years

Table 5. Median age of population in Montana counties, 2000 census data

These data show that the rural area population is aging relative to the metro area counties, and as indicated above, have fewer on-line services available.

The same tendency is noted in overall population distribution. The rural areas of the state, particularly the eastern regions, are experiencing a marked decline in population and an aging of the remaining residents, as indicated in figure 10, which shows the percentage change in population by county between 2000 and 2007.

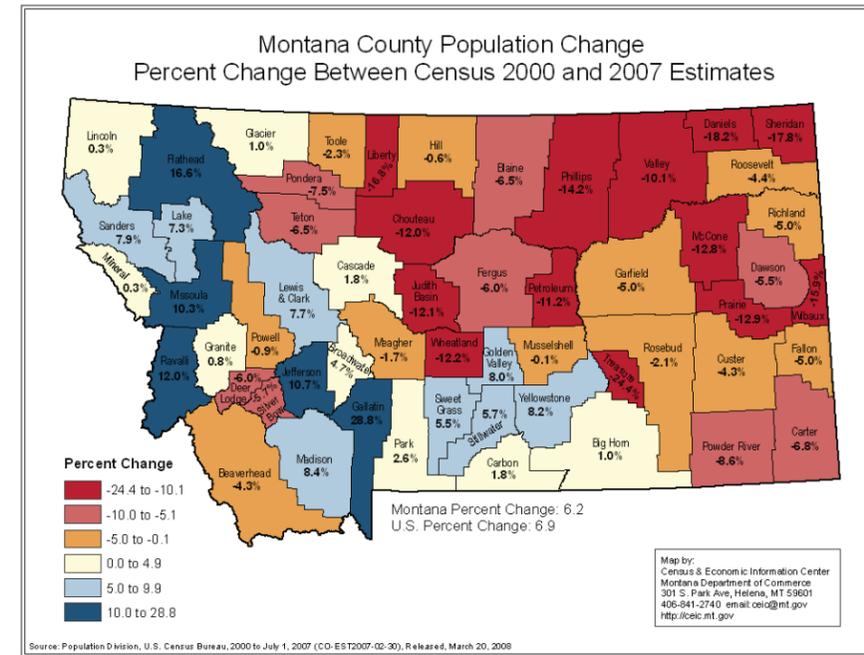


Figure 10. Percentage change in Montana population by county, 2000-2007 [28]

While the state's population overall has not changed significantly in the last decade (Montana's overall growth was 6.2%, less than the national change of 6.9%), the shift in demographics has been marked. The areas on increased population growth and lowest median age are generally in the western portion of the state and associated with the metro area counties where high speed internet access and on-line services are more widely available. The seven metro counties grew on average 11% over the past seven years, with Gallatin and Flathead counties showing growth rates of 28.8% and 16.6% respectively. These same counties have relatively younger populations, with the percentages of people 65 or older in 2006 being 8.8% and 12.9% respectively, whereas the statewide average in 2006 was 13.8%. In contrast, the areas with declining and aging population are generally much more rural and remote from the more urban population centers as shown in figures 9 and 10.

On-line service costs

We have estimated the costs of obtaining high-speed access across Montana by examining the published pricing plans of the various DSL, cable and wireless internet service providers. Side-by-side comparisons are difficult as there are no standards for upstream and downstream speeds or additional features such as multiple e-mail addresses, on-line storage space, contract terms and conditions, equipment installation and rental costs, etc. Table 6 provides a summary of our findings, where average monthly service costs over a range of speeds, for alternative access technologies are presented for Montana and compared with national averages for the various access alternatives [30]. The national cost for high-speed internet access, averaged across all technologies, is currently \$35/month [31].

Location/Service type	DSL, \$/Month (500kb/s – 1.5Mb/s)	Cable, \$/Month (1Mb/s – 8Mb/s)	Wireless, \$/Month (256kb/s-1Mb/s)
Montana	\$30 - \$70	\$70	\$50 - \$100
National average	\$30-\$40	\$45-\$55	\$50

Table 6. Monthly Prices for High-speed Internet Service

It should be noted that there are numerous “hidden” costs including modem purchase or rental, installation and bundling. It is common in the cable industry to offer Internet service only to customers subscribing to video services and then to offer discounts to customers who subscribe to voice services. The entry for Montana cable Internet service reflects a combination of basic cable and Internet service. Similarly, wireless service requires a radio transceiver and antenna.

Discussion

By some measures, access to electronic media in Montana is on par with the rest of the nation. Statewide data regarding high-speed Internet penetration is comparable to the national penetration level, and Montana’ citizens have other means of information access including wireless hot spots, schools and libraries equipped with Internet, locally owned low power FM stations and municipal web sites. However, statewide averages are misleading. A more careful examination of the data, using county wide and local information where available, reveals several significant patterns and gaps. Examination of the availability high-speed Internet access at the community level, rather than at the county level is not feasible from published data. The relatively large number of Montana’s ZIP codes (over 50%) that have three or fewer ISPs suggests that services in remote or sparsely populated areas are not readily available. Montana’s more metropolitan areas are experiencing significant population and economic growth, and much of the growth in information access and on-line services is centered in these areas. The rural and remote regions of the state are underserved and falling behind.

Online services in Montana are uneven. While about two thirds of the counties have web sites, the services offered in the rural areas are not comparable to those available in the metro areas, and well behind national levels. Many of the rural county web sites are sponsored by business interests such as tourist agencies, chambers of commerce or real estate interests. These sites offer little in the way of transactional services that would enable citizen engagement. The results of our examination of county web sites, given in Figure 5, show that the rural county web sites offer online services in less than 50% of the categories defined in the ICMA e-government assessment. Even in Montana’s metro counties, there are six of the twenty service categories where none of the counties offer the service online. Services that would offer alternatives to costly travel, such as streaming video, document retrieval, filings and registrations are available in Montana on an extremely limited basis. With energy and travel costs rising, expanded e-government services could be a valuable investment. These results are not unique to Montana. A qualitative study of broadband internet use in rural Pennsylvania identified similar trends [29]. In that study, which focused on specific communities and used a case study approach, the results indicate that highly interactive use of the Internet for e-government was generally weak in rural counties, particularly where there was little tourism, and local governments rarely made use of the internet.

The Montana state government has an IT plan that was updated in March 2008 [12]. The plan lays out goals and action items addressing a broad range of topics but most of the plan is focused on the interaction between the state government and various agencies rather than citizen engagement. The plan does include goals to improve the quality of life of Montana citizens and to improve government services. The objectives and action items associated with these goals address expansion of public safety services, share geographic data across the enterprise and require new agency applications and systems to consider geographic technology and data as a part of the design. The IT plan provides a platform for increased engagement of citizens and government and could be expanded in both scope and depth to assure greater access and broader participation.

The aging demographics and population distribution also are reflected in the trends in electronic media access. Internet services are less available in the areas with older and declining populations, and other electronic media, such as low power FM and TV coverage are very limited in these same areas. Similarly, these areas are not being served by wireless hot spots or community networks, which are much more prevalent in the more metro parts of the state, which are characterized by population growth and lower median age.

The universal service fund has made a significant impact on the availability of telecommunications services in rural areas. As noted above, the investments in internet access for schools and libraries has, on a per capita basis, favored the less populated areas of the state. While universal service fund expenditures for internet access for schools and libraries have been higher on a per capita basis in the rural areas of the state, the benefit to the general population is limited. Universal service fund expenditures for individuals are restricted to providing only basic voice telephone service for high cost areas or for low income users. These funds can not be used to provide high speed internet service for individuals.

Unlike the local exchange telephone carriers, who are monitored and regulated by the state Public Service Commission (PSC) in Montana, the cable network operators are not subject to state oversight. While the local exchange carriers are eligible for universal service funds and the cable network operators are not, this lack of oversight makes it difficult to determine the extent to which cable-based internet service is reaching rural and remote areas. The cable operators have a presence in 70% of Montana’s counties, but it is not possible to determine how many subscribers are served, and whether these subscribers are clustered in the most densely populated areas or widely dispersed.

Internet service costs in Montana tend to run higher than the US overall. The data in Table 6 show that for all access technologies, the average cost in Montana exceeds the US average by 20%-40%. In Montana and elsewhere in the US, DSL tends to be the least expensive alternative, but also tends to support lower access speeds than DSL. In Montana, while cable is available in almost as many counties as DSL, the actual number of DSL lines exceeds the number of cable lines. There is no data available on the actual extent of either the DSL network footprint or the cable network footprint, but the use of universal service funds to provide basic telephone service may have an effect, as a basic telephone line is needed to provide DSL.

Conclusions

Broadly speaking, in Montana the availability of the infrastructure that is required to enable e-government appears to be on par with the nation overall. On a statewide basis, the percentage of high speed internet lines in Montana is comparable to the national level. Internet penetration in the state has grown faster in the last year than in other areas. However, these conclusions mask the problems of achieving connectivity and useful services in rural and sparse areas, as the statistics are strongly weighted by the more populous urbanized areas. The overall population density in Montana is 6.2 people per square mile, but the population density is only 2.9 people per square mile in the rural regions. Data comparing internet penetration in rural areas in comparison to metro areas is not available. Internet penetration is a necessary but not sufficient pre-condition for e-government engagement. Our study of the availability and functionality of local web sites indicates that Montana overall, and the rural areas in particular are way behind the nation in the availability of interactive web-based services.

Recommendations

We recommend

- That an in-depth study of rural internet penetration be undertaken to more carefully identify and quantify the availability of high-speed services. Specifically, the FCC should [collect data at the census tract level instead of zip code level](#),
- That universal service funds be extended to include provision of high-speed internet service to high cost areas and to support low-income citizens,
- That the Montana information technology plan to be extended to include standards for local government web site and interactive services, and that resources be allocated to enable rural localities to implement these services.

Bibliography

1. "Geography of Frontier America: The View at the Turn of the Century", THE CONSENSUS DEFINITION – 2007 UPDATE, The National Center for Frontier Communities, <http://www.frontierus.org/index.htm>, 2007.
2. "Electronic Government: 2004", International City/County Government Association Report, 2005.
3. Montana Media Project, Small Grant Project, funded by the Social Science Research Council, http://lgc.msu.montana.edu/commoncause/index.php/Montana_Media_Project
4. "Networked Nation: Broadband in America 2007", National Telecommunications and Information Administration, United States Department of Commerce, Washington DC, January 2008.
5. John Windhausen Jr., "A Blueprint for for Big Broadband", Educause, January, 2008.
6. S. Derek Turner, "Broadband Reality Check II: The Truth Behind America's Digital Decline", Free Press, August 2006.
7. FCC, "High-Speed Services for Internet Access: Status as of June 30, 2007", Industry Analysis and Technology Division Wireline Competition Bureau, March 2008.
8. FCC, "Local Telephone Competition: Status as of December 31, 2006", Industry Analysis and Technology Division Wireline Competition Bureau, December 2007.
9. Soumitra Dutta and Irene Mia, "The Global Information Technology Report 2007-2008", The World Economic Forum, 2008.
10. John Horrigan and Katherine Murray, "Rural Broadband Use", PEW Internet and American Life Project, February 2006.
11. Michael J. Balhoff and Robert C. Rowe, "Municipal Broadband: Digging Beneath the Surface", Balhoff and Rove, LLC, September 2005.
12. "State of Montana Biennial Report for Information Technology 2007", Information Technology Services Division , Dick Clark, Montana Chief Information Officer ,Kyle Hilmer, Chief of Policy and Planning Services Bureau, January 2007.
13. Hot spot Zones search engine: <http://cnet.jiwire.com/>
14. Municipal wireless initiatives project list: <http://www.muniwireless.com/initiatives/city-initiatives/>
15. UNIVERSAL SERVICE MONITORING REPORT, CC DOCKET NO. 98-202, 2007 (Data Received Through June 2007). Prepared by Federal and State Staff for the Federal-State Joint Board on Universal Service in CC Docket No. 96-45.
16. USAC Universal Service Fund distribution report: Schools and Libraries Division, Universal Service Administrative Company, <http://www.usac.org/sl/>.
17. FCC, "Lands of Opportunity: Bringing Telecommunications Services to Rural Communities", Federal Communications Commission A Consumer & Governmental Affairs Bureau Publication, July 2006.
18. FCC, "Expanding Telecommunications in Indian Country", Federal Communications Commission Consumer & Governmental Affairs Bureau.
19. Katherine Barrett and Richard Greene, "Grading the States: The Mandate to Measure", The State Management Report Card in 2008, Governing, March 2008.
20. "Who's on Second, and What's on Third? *The Third Report and Order and Second Further Notice of Proposed Rulemaking on LPFM, and what it all means for community radio!*", the Prometheus Project, www.prometheusradio.org.
21. FCC Audio Division, LP FM stations, <http://www.fcc.gov/fcc/bin/fmq?state=MT&serv=FL&vac=&list=1>
22. Robert W. Fairlie, "Are We Really A Nation Online? Ethnic and Racial Disparities in Access to Technology and Their Consequences", Report for the Leadership Conference on Civil Rights Education Fund, September, 2005.
23. "Building the Untethered Nation II: Understanding the Vital Role of Local Governments in Wireless Broadband Implementations", Center for Digital Government, 2006.
24. USC-Annenberg Digital Future Project, <http://www.digitalcenter.org/>, 2008.
25. Robert D. Atkinson, "The Case for a National Broadband Policy", Information Technology and Innovation Foundation, 2007.
26. State Of Montana, "Information Technology Strategic Plan, 2008", April 1, 2008, Website: <http://www.mt.gov/itsd/stratplan/statewideplan.asp>
27. International City County Management Association (ICMA), "Electronic Government 2004", <http://ICMA.org>.
28. http://ceic.mt.gov/data_maps.asp
29. Amy K. Glasmeier, Chris Benner and Chandrani Ohdedar, "Broadband Internet Use in Rural Pennsylvania", The Center for Rural Pennsylvania, May, 2008.
30. <http://answers.yahoo.com/question/index?qid=1005120802688>.
31. <http://www.whitefenceindex.com/>
32. FCC, "High-Speed Services for Internet Access: Status as of June 30, 2007", Industry Analysis and Technology Division Wireline Competition Bureau, October 2007.

PEOPLE.ACTION.DEMOCRACY.



1133 19th Street, NW, 9th Floor, NW, Washington, D.C. 20036
Tel 202.833.1200 / Fax 202.659.3716
www.commoncause.org