The Minneapolis Digital Divide

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EXECUTIVE SUMMARY/KEY FINDINGS

The demographic gap between those with access to computers and the Internet and those without is commonly known as "digital divide." (NTIA, 1999). Access to computer technology has a workforce impact – people who use computers on the job earn 43% more than other workers (Minnesota Planning Commission, 2001). The divide is most often measured in terms of household computer penetration and Internet access. While household computer penetration and Internet access continue to rise nationwide, household income and race are key demographic factors that contribute to the divide. (Newburger, 2000).

- In 2000, 51% of all U.S. households owned a computer and 42% connect to the Internet, up from 42% household computer penetration and 26% with Internet access in 1998.
- Eighty-eight percent (88%) of households with incomes of $75,000 or more had at least one computer while 28% of households with incomes below $25,000 owned a computer in 2000.
- White, non-Hispanic (56%) and Asian-American households (65%) are almost twice as likely to own a computer as black (33%) and Hispanic households (34%) in 2000.

Libraries and schools are the most common means to provide public access to those who cannot afford to personally own a computer. Due in large part to programs like E-rate, a federal program that subsidizes Internet connectivity in libraries and public schools, 95% of all public libraries provide public access to the Internet (Bertot & McClure, 2000) and 98% of all public schools are connected to the Internet (NCES, 2001). In communities with high poverty rates, 94% of all libraries offered public Internet access and 94% of public schools are connected to the Internet. Community technology centers provide underserved communities with alternatives to schools and libraries for public computer access.

Governments in high-technology focused cities, like Seattle and San Diego, as well as more economically and racially diverse cities like Atlanta and Chicago have instituted city-sponsored programs and partnerships to further narrow the digital divide in their local communities. While each of these cities has taken slightly different approaches, all of these cities have been able to leverage financial resources, partnerships with businesses and nonprofit organizations, and local leadership to improve public access to computer technologies in urban neighborhoods with the least household computer penetration. Efforts in

these cities are coordinated, strategic, and mindful of the economic impact of improving access to and knowledge of computer technologies in their impoverished communities.

The City of Minneapolis has neither assessed the extent of its digital divide nor developed any initiatives to address the local divide. By extrapolating digital divide data by race, an estimated 75,000 residents of the Minneapolis Empowerment Zone, where the poverty rate exceeds 20%, do not own a computer. In the Minneapolis Empowerment Zone, there are simply not enough computer workstations in the libraries, public schools, and community centers for the number of residents who need them, especially for residents of the North side of the Empowerment Zone.

The City of Minneapolis should take cues from other cities and embark on a strategic, concerted effort to address the local digital divide. The key recommendations for the City are as follows:

- Assign a City department, such as Planning or the MCDA, and a person to develop and account for local digital divide initiatives. The Mayor needs to be the visible, public champion of these initiatives.
- To incorporate ideas and insights from the business, government, and nonprofit sector, the City should establish a blue ribbon committee to advise the Mayor and the City about directions to close the digital divide.
- Partner with nonprofit organizations and businesses to institute City-sponsored community technology centers and offer these centers subsidized high-speed Internet access.
- Focus digital closure efforts in the North side of Minneapolis, where public computer access is extremely limited.
- Find funding through foundations and telecommunications franchise agreements or renewals.

BACKGROUND-REPORT OVERVIEW

The City of Minneapolis has not yet undertaken any comprehensive community initiatives to either measure or address the local “digital divide,” defined as the divide between those with access to computers and the Internet and those without (NTIA, 1999). The purpose of this report is to assess the

extent of the Minneapolis digital divide and recommend options for the City to pursue to close the local divide. To achieve this purpose, this report first examines the measurements federal agencies and foundations employ to determine the extent of the digital divide. Next, the report presents case studies from local government initiatives in four major U.S. cities to measure and address the digital divide in their respective communities. Finally, the report estimates the extent of the digital divide in Minneapolis and recommends actions the city government should institute to address the divide in Minneapolis.

I conducted and researched this project independently as a graduate student at the Humphrey Institute because I have a strong personal interest in addressing the digital divide in the Twin Cities. However, I intend to share the findings of this report with Minneapolis Mayor-elect Rybak's administration, along with Migizi Communications and C-CAN, two local nonprofits with digital divide program interests.

This study set out to address the following questions:

1) What are the key measurements to determine the extent of the digital divide?
2) What are the best practices from other major U.S. city governments to measure and address the digital divide in their respective communities?
3) What is the extent of the digital divide in Minneapolis and what should the City of Minneapolis pursue to address to address the local digital divide?

THE DIGITAL DIVIDE – NATIONAL MEASUREMENTS AND SCOPE

Defining the Digital Divide

Until 1975, no one owned a personal computer and only the military and a few academic institutions had access to what would become the Internet. A quarter of a century later, 51% of U.S. households had one or more computers and 42% of U.S. households access the Internet (Newburger, 2000). Yet, the distribution of computer usage and Internet access remains far from equitable. Wealthy and well-educated adults are far more likely to have computers in the home and access to the Internet than are the less well-off and less educated population (NTIA, 2000). Race matters, too, as whites and Asian-

Americans are significantly more likely to own a computer or access the Internet than are blacks or Hispanics.

The persistent demographic patterns related to the lack of technological access have been termed the "digital divide." The National Telecommunications and Information Administration (NTIA) in the Department of Commerce first defined the digital divide as the divide between those with access to new technologies and those without (NTIA, 1999). Lloyd Marisett, former president of the Markle Foundation succinctly portrays this digital divide as "the information have and have-nots." (Hoffman and Novak, 2000) A recent five-year study from The Children's Partnership demonstrated that the digital divide extends into online content; existing online information is often not relevant to those on the wrong side of the digital divide because of language and cultural barriers (Children's Partnership, 2000).

Why the Divide Matters: An Economic Perspective

Access to a personal computer and the Internet is critical to personal economic success. Larry Irving, former Assistant Secretary of Commerce for Communications and Information under President Clinton, estimated that by 2000, 60% of jobs would require technology skills in the form of computer literacy (Goslee, 1998). Employment in the computer and data processing services (SIC 737) is expected to grow 117% between 1998 and 2008 (Bureau of Labor Statistics, 2000). The BLS anticipates this sector needing more than two million highly skilled workers to fill new jobs or replace other IT workers in that 10-year period (21st Century Workforce Commission, 2001). Using a broad definition of an IT worker[*], the Information Technology Association of America, anticipated a demand for at least 0.9 million new workers between 2001 and 2002 and predicted 425,000 IT jobs would go unfilled (ITAA, 2001).

Wages for jobs requiring computer skills tend to be higher than those not using computer technology. The U.S. Department of Labor has estimated that in 1999 almost 50 percent of all workers

[*] An IT worker includes creators of information technology, such as computer programmers and electrical engineers, implementers of information technology, such as network administrators and website maintainers, and users of information technology, such as administrative assistants and data entry personnel.

currently use a computer on the job, with these workers earning about 43 percent more than their less wired peers (FAIR, 2001). Table 1 lists a few examples of entry-level jobs, both those requiring computer skills (shaded in gray) and not, and average hourly wages in the U.S. and in Minnesota. As Table 1 illustrates, entry-level administrative occupations that require computer skills, such as data entry keyers and word processors, have a higher average hourly wage than the average of all occupations in several occupational sectors.

Table 1: Hourly Wages: A Sample of Entry level Occupations

Occupation	**SOC code**	**1999 Average hourly wage (National)**	**1999 Average hourly wage (Minnesota)**
Computer support specialist	15-1041	$18.95	$18.83
Computer, automated teller, and office machine repairers	49-2011	$15.04	$15.42
Data entry keyers	43-9021	$10.13	$10.54
Word processors	43-9022	$11.67	$12.01
Healthcare support occupations	31-0000	$9.51	$10.47
Food preparation and serving related occupations	35-0000	$7.50	$7.67
Building and grounds cleaning and maintenance occupations	37-0000	$9.09	$9.75
Personal care and service occupations	39-0000	$9.76	$9.81
Construction and extraction occupations	47-0000	$16.18	$19.26
Production occupations	51-0000	$12.21	$13.34
Transportation and material moving occupations	53-0000	$11.84	$12.74

Data from Bureau of Labor Statistics, 1999

Closing the digital divide, however, matters beyond just obtaining better jobs and wages. Opportunity, whether it is economic, social or educational, is based on having good information. As more people and institutions both communicate by providing information online, those who cannot access that information will become disenfranchised. If 75% of all government transactions will take place online, including delivery of food stamps and information about Medicaid (Goslee, 1998), and more than 72% of households with incomes under $25,000 do not have a computer at home (Newburger, 2000), then missing that information could be detrimental to poor households. James Katz, a Bellcore researcher and co-author of an Internet usage survey stated:

> The information poor will become more impoverished because government bodies, community organizations, and corporations are displacing resources from their ordinary channels of communication onto the Internet…To the extent that any demographic group becomes excluded from and underrepresented on the Internet, it will also be excluded from the economic fruits that such participation promises. (Goslee, 1998)

Measuring the Divide

Household Ownership and Access

The extent of the digital divide is primarily determined from household ownership and use of a computer and computer-related technologies. Home computer use is generally considered more important and more valuable than computer access outside of the home because a person can spend more time learning and practicing computer skills when a computer is in the home. Since 1995, with the help of the U.S. Census Bureau, the NTIA has undertaken four studies about the demographic disparities in computer technology, entitled Falling Through the Net, generally broken into demographic categories of race, age, gender, education level, household type, geographic area, and household income (NTIA, 1995, 1998, 1999, 2000).

The common measurements throughout the four studies are household computer penetration, and household access to the Internet. As Internet technology expanded from e-mail technologies to the World Wide Web, the NTIA added new measurements in 1999 to determine how people use the Internet as well as whether they just access it. The 2000 study measured the following:

- Household computer penetration
- Household Internet access
- Speed of household Internet access
- Why households do not have Internet access
- Internet access outside of the home
- Online activities
- Internet access among the disabled

The latest computer penetration analyses reveal a persistent divide. In 2000, 88% percent of households with incomes of $75,000 or more had at least one computer while 28% of households with incomes below $25,000 owned a computer (Newburger, 2000). More than three-fourths (78%) of adults with bachelor's or higher degrees owned a computer but less than half (46%) of those with only a high school diploma had one. Roughly one-third of black (33%) and Hispanic households (34%) had a computer while more than half of white, non-Hispanic (56%) and almost two-thirds of Asian-Pacific Islander households (65%) had a computer in the home.

While a divide still exists, the traditional digital "have-nots" are making significant gains in both computer ownership and Internet access. Table 2 compares computer penetration and Internet access gains by race, education, and income. The expansion rate is indicated in bold if it exceeds the national average.

Table 2: Household Computer Ownership and Internet Access by Race, Education and Income.

	Percent Household Computer Ownership			**Percent Household Internet Access**		
	1998	**2000**	**% change in 2 years**	**1998**	**2000**	**% change in 2 years**
National Average	42.1	51.0	21.1	26.2	41.5	58.4
Race						
White, non-Hispanic	46.6	55.7	19.5	29.8	46.1	54.7
Black	23.2	32.6	**40.5**	11.2	23.5	**109.8**
Hispanic	25.5	33.7	**32.2**	12.6	23.6	**87.3**
Asian-American	55.0	65.6	19.3	36	56.8	57.8
Education						
< High School	12.5	18.2	**45.6**	5.0	11.7	**134.0**
HS Diploma	31.2	39.6	**26.9**	16.3	29.9	**83.4**
Some college	49.3	60.3	**22.3**	30.2	49.0	**62.3**
Bachelor's Degree	66.9	74.0	10.6	46.8	64.0	36.8
Post-graduate	72.2	79.0	9.4	53.0	69.9	31.9
Income						
< $15 K	14.5	19.2	**32.4**	7.1	12.7	**78.9**
$15-24.9K	23.7	30.1	**27.0**	11.0	21.3	**93.6**
$25-34.9K	35.8	44.6	**24.6**	19.1	34.0	**78.0**

$35-49.9K	50.2	58.6	16.7	29.5	46.2	56.6
$50-74.9K	66.3	73.2	10.4	43.9	60.9	38.7
$75+ K	79.9	86.3	8.0	60.3	77.7	28.9

Data Provided by NTIA, 2000

Minnesota, the 21st most populous state and 10th in per capita income, tends to be on the better side of the digital divide in general household numbers (U.S. Census, 2000; BEA, 2000). The state ranks 10th in home computer penetration and 13th in home Internet access (NTIA, 2000).

Public access

As not every household can afford a computer, other studies have measured computer penetration and Internet access in community public spaces, primarily public libraries and public schools. Of those who access the Internet outside of the home, those with household income levels below $25,000 are more likely to use schools or libraries than are households with incomes above $75,000 (NTIA, 2000). Although studies in the 1990s pointed to institutional technological divides between wealthier and poorer communities in both libraries and schools, many of those divides are closing. The key measurements for libraries and schools are similar to household studies and include:

- Number of computers
- Number of computers with Internet access
- Speed of Internet access
- Internet training availability
- Funding sources
- Special Internet provisions, such as Internet blocking software or access to online databases

For libraries, these measurements are analyzed by type of metropolitan area (urban, suburban, and rural) and degree of community poverty rates (< 20%, 20-40%, 40% or higher) (Bertot & McClure, 2000). In schools, these measurements were analyzed by metropolitan area, instructional level (elementary or secondary schools), percent of minority enrollment, school size, and percent of students eligible for free or reduced lunch (National Center for Education Statistics, 2001).

Libraries

Because of public initiatives such as the E-rate program, a federal program that subsidizes Internet connectivity in libraries and public schools, and private funding primarily from the Bill and Melinda Gates Foundation U.S. Library Program, 95% of all public libraries provide public access to the Internet (Bertot & McClure, 2000). Even in communities with at least a 40% poverty rate, 94% of all libraries had Internet access. Urban communities with 40%+ poverty rates, however, still had the lowest library Internet access penetration (91%). Libraries in communities with high poverty rates also provided more Internet training opportunities for both children and the adult public than their wealthier counterparts. On average, each library has 8.3 computer workstations with 17.3 in urban settings. Unfortunately, neither the Bertot & McClure study nor the National Center for Education Statistics, which last evaluated public library patronage in 1996, has any data on library patronage or computer use by income level.

The Gates Library Program recently evaluated its grantee libraries in five states to analyze the impact of the foundation's activities. The Gates Library program only funds libraries in communities with 10% or higher poverty rates. According to its evaluation, more than 86% of people with a household income of less than $25,000 use the public library computers. (Gordon, et al., 2001) Additionally, black (93%), Hispanic (91%), Asian-American (94%), and Native American (85%) library patrons are all more likely to use library computers than are white patrons (78%).

Schools

By the fall of 2000, 98% of all U.S. public schools were connected to the Internet, with very little difference in school access by either poverty-level or metropolitan status (NCES, 2001). By contrast, only 35% of all public schools had Internet access in 1994. The E-rate program likely affected the dramatic increase in Internet access. Table 3 below contrasts 2000 and 1998 Internet figures among

schools with a high poverty level (determined by having at least 75% of the students eligible for a free or reduced school lunch):

Table 3: Internet connectivity among public schools with a high poverty level

	2000	**1998**
Schools with Internet access	94%	38%
Ratio of students to computers with Internet access	9:1	17:1
High-speed Internet connection	99%	81%

National Center for Education Statistics, 2001

In 2000, 56% of schools with high levels of poverty made Internet access available to students outside of school hours. It is not known whether the schools provided public Internet access to adults in the community.

School computers and Internet access are affecting children's computer usage and access and seems to be a key in closing the digital divide. In 2000, 80% of school-age children have access a computer at school, contrasting with 66% having access at home. Only 35% of school-age children with household incomes of $25,000 or less have a computer at home, contrasting with 94% in households of $75,000 or more, a 60 percentage point difference. However, 72% of children in the lowest household income brackets can access a computer at school, compared to 87% in the highest income bracket, a difference of only 15 percentage points.

Other public spaces

Computer labs with Internet access are appearing in a variety of other locations in underserved communities. Community technology centers or CTC's are appearing across the country in social service nonprofits, church basements, vacant retail spaces, and low-income housing (CTCNET, 2001). The U.S. Department of Housing and Urban Development (HUD) funds the Neighborhood Networks program to develop on-site computer learning centers for privately owned low-income housing sites that receive some HUD funding. Although most of the Neighborhood Networks stories present anecdotal evidence of success in providing computer access to residents, researchers from MIT and Northwestern are evaluating

a Neighborhood Networks program in Chicago to measure its effectiveness in bridging the divide and providing economic assistance to the current residents (Turner and Pinkett, 2000).

CASE STUDIES

Cities across the country took note that in an economy propelled by information technologies, some of their constituents on the wrong side of the divide and cannot prosper without access to and training in computers. This section presents case studies from four cities, Atlanta, Chicago, San Diego, and Seattle, whose local governments are actively working on initiatives to bridge the digital divide. As seen in Table 4, the case study cities vary in racial makeup and size and are all more racially diverse and larger than Minneapolis. While San Diego and Seattle are known for their technology-based businesses and economies, Atlanta and Chicago have a more diverse economic base, much like Minneapolis. All, however, have in some form measured the digital divide in their cities and are conducting planned programs with the support and guidance from their communities. These cities will serve as benchmarks and contrasts for possible digital divide efforts in the City of Minneapolis.

Table 4: Population and Racial Makeup of Case Study Cities (City Data Only)

	Atlanta	**Chicago**	**San Diego**	**Seattle**	**Minneapolis**
Population	416,474	2,896,016	1,223,400	563,374	382,618
White	33.2%	42.0%	60.2%	70.1%	72.3%
Black	61.4%	36.8%	7.9%	8.4%	14.3%
Asian	1.9%	43.0%	16.3%	13.1%	4.8%
Hispanic	4.5%	26.0%	25.4%	5.3%	6.7%

Data from 2000 U.S. Census - race percentages are based on those classifying themselves as one race.

Atlanta

Key Digital Divide Actions

In December 1999, Atlanta Mayor Campbell created the Atlanta Community Technology Initiative (ACTI) to address the digital divide in Atlanta (City of Atlanta Press Release, Dec. 1999). The mission of the ACTI is to ensure that information and communication technology improve the quality of life of Atlanta residents by providing public access to training, equipment, information and knowledge

(ACTI website, 2000). The Mayor appointed Jabiri Simama, a professor at Georgia Tech's Ivan Allen public policy school and former city council member, to direct ACTI activities and head up a new Office of Community Technology in the city government (Simama, 2000). Mayor Campbell also established a blue ribbon committee of 25 academic and business leaders to advise him on how ACTI could close the digital divide. (City of Atlanta Press Release, Feb. 2000)

Information is largely anecdotal regarding the Mayor's motivations to close the digital divide. As Mayor Campbell headed the U.S. Conference of Mayor's Telecommunications Committee and serves on the FCC's Committee for Local State and County Officials, one could surmise that he had a personal interest in computer and Internet technologies (City of Atlanta Press Release, Feb. 2000). Additionally, and fundamentally, the Mayor and Dr. Simama played key roles in devising a cable television franchise agreement with Media One that provided Atlanta with $8.1 million (ACTI website, 2000) The Mayor opted to use the cable money to seed the ACTI.

The ACTI 2000 strategic plan outlined the following objectives: (ACTI Strategic Plan, 2000)

- Determine the optimal locations for city-run public community technology centers (what the ACTI terms community cyber centers);
- Establish 15 cyber centers by summer 2002;
- Build private partnerships to sustain the program beyond 2002; and
- Evaluate the centers' effectiveness

Measuring the Divide

The ACTI analyzed both national and local demographic data to determine cyber center locations (ACTI Strategic Plan, 2000). Atlanta did not appear to collect information specifically about computer penetration and Internet usage, the key measurements used in the NTIA digital divide studies. However, the ACTI first established the cyber centers in the Atlanta Empowerment Zone, where the poverty rate exceeds 20% in a census tract population (HUD website, 2001) and linkage neighborhoods, which border the Empowerment Zone. "Over half of the households in these areas are below the poverty level and

more than three-quarters of the households have children under the age of 18 years…. Over 60% of the population functions at the lowest literacy level." (ACTI Strategic Plan, 2000) ACTI likely deducted from available information that residents of these areas did not own a computer but would require access to find work, gain job skills, and work on school projects.

The ACTI has demonstrated some success in the past two years in bridging the divide through the cyber centers. By July 2001, more than 7,000 people have used a one of six established cyber centers (Post, 2001). Almost half (46%) are over the age of 50 and 43% have less than a high school education (Simama, 2001). Race figures have not been published, but given the demographic characteristics of Atlanta in general, one could deduct that the cyber center participants are predominantly African-American. To date, the ACTI has also leveraged $600,000 in additional private funding to sustain the program (Simama, 2001).

Chicago, IL

Measuring the Divide

The City of Chicago has taken more comprehensive approach than Atlanta to measuring the extent of the digital divide. Chicago measured the divide on two fronts – reviewing economic data specific to information technology and determining household computer and Internet access. In 1998, the city enlisted Northwestern University to research the economic opportunities and impacts of the Internet driven, information-based economy, termed the digital network infrastructure, in Chicago (Widmayer and Greenberg, 1998). In 1998, technology-based companies represented 11.6% of the gross state product; 75% of all of Illinois' technology-based firms were in metropolitan Chicago and 56% of them were in Cook County, the central Chicago county. In addition to jobs and industry data, the report also reviewed technology's impact on metro traffic and transportation as well as the extent of the current telecommunications infrastructure in Chicago. The report outlined five key recommendations for Chicago to become a leader in the digital network infrastructure:

1. Build the Metropolitan Chicago Digital Network Infrastructure and Expand Community Networks

2. Expand the Region's Information Economy

3. Use Technology to Strengthen Workforce Training and Education

4. Implement Aggressive Plans to Mitigate the "Digital Divide"

5. Harness Technology to Shape "Sensible Growth"

The city has also conducted citywide surveys to determine the extent of the digital divide in Chicago through household computer penetration and Internet access measurements. In 2000, only 26% of lower-income households had a personal computer and 11% accessed the Internet (Goldstein, 2001). In Pilsen, a severely economically distressed neighborhood, less than 5% of residents owned a computer (Goldstein, 2000). In 2001, the city surveyed nonprofit groups that offer public computer access to determine how well these nonprofits are connect to the Internet and to measure the number of workstations available for public use. The city found that 510 workstations connected to the Internet are available for public use in nonprofit organizations, but that almost half of the workstations (47%) connect through a dial-up service (Goldstein, 2001).

Key Digital Divide Actions

In 1999, Chicago Mayor Daley created the Mayor's Council of Technology Advisors (MCTA), composed of government, business, and community leaders, to position metro Chicago as a world leader in high technology (Goldstein, 2000). Based on the Northwestern University report and work from Chicago's Metro Planning Council (MPC), the city devised a Technology Action Plan in 1999 to:

- Launch "Chicago CivicNet," a public-private 10-year plan to link all parts of the city to high-speed Internet;
- Locate community web centers throughout the city. (Goldstein, 2000)

CivicNet is working first on connecting less advantaged neighborhoods, especially key public computer centers such as libraries, schools, community technology centers, and park districts. By the plan's conclusion, every home and business in Chicago will have high-speed Internet access. The CivicNet plan also includes placing more city services online. CivicNet financing will come from existing government spending on information technology – all government agency technology needs will be aggregated into a single, central amount to reduce the cost of implementing CivicNet (Goldstein, 2000).

The MPC has also been working on other community economic development plans to bridge the digital divide. The MPC has formed partnerships with four community organizations and Chicago's IT Resource Center to create model community technology centers in economically distressed neighborhoods. Four centers in different geographic areas of the city serve as the models. Additionally, the MPC is considering using tax increment financing (TIFs) to attract high-technology firms into economically distressed neighborhoods. Neighborhoods with MPC supported community technology centers would likely be the first candidates for designation as a "High-Tech TIF." (Goldstein, 2000)

In June 2001, a state telecommunications bill included a Digital Divide Elimination Fund and a Digital Divide Elimination Infrastructure Fund, allocating a minimum of $30 million over the next three years to provide money for public computer access centers and for improved broadband infrastructure in disadvantaged communities in Illinois (Batchu, 2001). Money from these funds will come from a settlement with Ameritech, Illinois' primary telecommunications provider, penalties from telecommunications carriers, and voluntary contributions.

San Diego, CA

Headquarters to high technology companies like headquarters of Qualcomm and Gateway Computers, San Diego has two government agencies focusing on building its information technology industries and bridging the digital divide. First, the San Diego Region Technology Alliance (SDRTA) is a private/public partnership to assist San Diego's high tech industries through technical assistance,

workforce development, and research (SDRTA website, 2001). Second, the City of San Diego has a Science and Technology Commission, comprised of business and government executives, to advise the Mayor and city council on policy and issues affecting the technology industry and to ensure the region continues to attract and foster growth and investment (Science and Technology Commission website, 2001). Both agencies have a keen interest in bridging the digital divide in San Diego.

SDRTA – Digital Divide Measurements

In 2000, the SDRTA conducted a study determining the extent of the divide among San Diego households through a residential survey and supported with interviews among those affected by the divide (Zaslavsky, et al, 2001). The residential survey measured household computer penetration and Internet access, the key NTIA measurements, by age, race, income, education, local geography, and employment status. The survey also evaluated the extent of computer access outside of the home, beliefs toward computers and technology, reasons for no computers or Internet access, and computer purchase intentions. The key survey findings are as follows:

- While San Diego has a higher computer penetration (73%) and Internet access (66%) across all demographic categories compared to the national averages (51% and 42%, respectively), the gap between the technology haves and have-nots is still quite large.
- Hispanics are especially disadvantaged: 52% own a computer compared to 59% of African-Americans, 80% of whites and 81% of Asians. The white/Hispanic gap in computer penetration (38 percentage points) is larger than the national average (22 percentage points). Although Hispanics comprise 25% of the San Diego population, they represent 42% of the non-Internet-connected population.
- A key factor for someone to access the Internet is if someone knows another with experience in computer technologies.
- African Americans (14%) and Hispanics (8%) are most likely to use community centers to access the Internet.

The study also included findings from the San Diego Workforce Partnership where 80% of 30 occupations among 450 local employers required some computer knowledge.

The SDRTA recommended the city pursue the following based on the study:

- Increase outreach to those not connected to the Internet about the use and benefits of technology;
- Support community technology centers;
- Test new ideas to support computer ownership and access, such as computer purchase subsidies for disadvantaged populations; and
- Convene a community forum to discuss best practices.

SDRTA Actions

The SDRTA primarily partners with other nonprofit, private, and public agencies to help bridge the digital divide. Currently, the SDRTA provides technical assistance and training for community centers in disadvantaged neighborhood through its Digital Connections program (SDRTA website, 2001). Through Digital Connections, the SDRTA has wired and helped staff 25 community centers in San Diego. The SDRTA has partnered with PowerUP, a national digital divide initiative to open and support 17 additional centers throughout San Diego. The SDRTA also acts as a clearinghouse for community technology center volunteers.

San Diego Science and Technology Commission – Digital Divide Measurements and Actions

In 2001, the Commission drafted a report about the implications and recommendations for the digital divide in San Diego (Myrland, 2001). The report outlines five key benchmark measurements to determine the extent of the divide:

Home computer ownership: completed with the SDRTA study

Presence of accessible community technology centers: mapping the current sites and cross-referencing with income data to determine which neighborhoods need more support.

High-technology workforce readiness: determining the workforce gap, which is the percent of people outside of the local area filling high-technology jobs (both commuters and outside recruits), plus the percent of unfilled positions.

Educational readiness: determining high school graduation rates, enrollment in math/science courses and engineering programs, and technology literacy and fluency.

Economic health and quality of life: estimating standard economic metrics such as job growth, wages, and exports along with civic engagement, community strength, and livability.

The Commission recommended the Mayor and city council to:

- Designate income from cable franchise renewals or wireless licensing contracts to create a community technology matching fund for nonprofit organizations and neighborhood groups;
- Designate funds targeted specifically for Hispanic and African –American communities in areas with lowest household computer ownership; and
- Actively lead and promote high-profile digital divide government initiatives to leverage additional funding.

Seattle, WA

As world headquarters for Microsoft and Amazon.com, the City of Seattle has an obvious interest in building a technology-fluent workforce. The city's Department of Information Technology has assisted community technology centers since 1995, and in 1997 instituted the Citizens Literacy and Access Fund with cable television franchise revenues to focus on digital divide initiatives (Keyes, 2001). In 1995, the city also convened the Citizens Telecommunication and Technology Advisory Board (CTTAB), comprised of 15 business, education and community leaders, to advise the Mayor and the City

Council on issues of community-wide interest relating to telecommunications and technology (CTTAB website, 2001).

Digital Divide Measurements

In 2000, the Department of Information Technology and the CTTAB developed a set of indicators to measure the impact of information technology on the health and vitality of Seattle (Keyes and Bancroft, 2000). In the indicators report, information technology is defined as information and communication tools, including personal computers computer applications software, Internet and web-based communications, and devices for storage and retrieval of information. The indicators are as follows:

Access: ownership of information technology, public access to information technology, and patterns and types of computer use.

Literacy: basic computer and Internet literacy, technological fluency (the ability to apply information technology in a new situation or acquiring a new technological skill), and ways computer technologies are used in K-12 education.

Business and Economic Development: basic technology literacy for employment, the extent of local students and workforce pursuing IT careers, the IT business environment, the local impact of the IT industry, and computer usage in small businesses.

Community Building: the extent of electronic participation in local communities, neighborhood Internet presence, and nonprofit technology usage.

Civic Participation: extent of contact with elected officials through electronic means and access to online government services.

Human Relationships to Information Technology: privacy concerns, satisfaction with web content, influence of computers on personal time, and impact of technology on the quality of life.

Partnerships and Resource Mobilization: investment in community technology centers and volunteering time to educate others in technology skills.

In November 2000, the City of Seattle conducted a residential survey to benchmark the some of the indicators for access, literacy, community building, civic participation, and human relationships to information technology (Keyes and Bancroft, 2001). Key findings from the survey are:

- Overall, Seattle has significantly higher household computer penetration (76%) than the national average (51%). However, 52% of African-Americans have a computer in the home, compared to 70% of whites and 80% of Asian Americans.
- More than one-fourth (27%) of residents with Internet access have a high-speed connection, compared with 11% nationally.
- Almost 2/3 (63%) of Seattle computer users are considered "technologically fluent" – that is, they can continually apply knowledge about technology by learning a new program themselves or help another person learn a new program.
- Almost half (48%) of those who participate in community groups use email or the Internet to communicate with other members.

Digital Divide Actions

The Community Technology Literacy and Access (CTLA) program run through the City Department of Information Technology has been involved in several efforts since 1995 to bridge the digital divide in Seattle (Keyes, 2001). In addition to developing the Information Technology Indicators, CTLA mapped all of the existing community technology centers in Seattle. While the map is posted on the city's website, it is not clear how else the map has been distributed. The city provides free hosting of websites to all community organizations and maintains Internet terminals in 14 locations across the city and supports other community technology centers run by nonprofit organizations through technical assistance and a technology matching fund. The cable television franchise agreement provided for 500

cable modems and other hardware and maintenance for use in public access sites and other community organizations.

The City helped organize the Seattle Community Technology Alliance (SCTA), a partnership of the City, community colleges, public schools, the public library, its public housing department, and community organizations and businesses to provide computer access and training to low-income residents. The SCTA has not yet reported any outcomes from their initiatives. The SCTA has, however, leveraged more than $1.3 million in federal and private funds to support community technology literacy. The City also helped establish a Seniors Training Seniors program where seniors help each other learn new technologies.

Commonalities and Apparent Best Practices

Each of the above cities has taken slightly different approaches to bridging the digital divide. Chicago, San Diego, and Seattle are evaluating the extent of the digital divide in their cities much more comprehensively than Atlanta did. Seattle, Chicago, and Atlanta developed creative financing approaches to fund digital divide efforts while San Diego has not yet found the best approach to fund its initiatives. San Diego and Seattle, where high technology predominates the local economies, have clearly invested more resources into examining their local digital divide. However, the following key factors from these cities encourage community economic development efforts geared to the digital divide:

Leadership: Whether it is the Mayor, the director of a city agency, or an agency itself, each effort in all of these cities had a champion for digital divide programs. Each city also cultivated a blue ribbon committee or advisory group comprised of business, government, and community leaders to guide the development of community technology initiatives.

Targeted spending: Each city plans or has planned to target digital divide efforts to specific neighborhoods with the least computer penetration. Although Seattle and San Diego have specifically

discovered household computer penetration in select neighborhoods through residential surveys, Atlanta deducted household computer penetration based on other local and census data.

Partnering: Each city did not go about addressing the digital divide alone; they all enlisted the support of community groups, foundations, and businesses to develop and implement their respective initiatives.

Community Technology Centers: All of these cities supported nonprofit community technology centers as key service delivery agents for technology programs.

City Departments: Each city designated a department and staff to act as central resources to coordinate digital divide initiatives. San Diego, as the exception, had two departments and it remains unclear how well the two departments coordinate.

Targeted funding: Although San Diego is to date the exception, the other three cities all utilized novel means to secure funding specifically for community technology efforts without raising taxes.

Measuring Economic Impact: While Atlanta did not apparently conduct any economic impact of the information technology in the city's economy, the other three cities deliberately researched or planned to research how information technology affects (and could affect) their cities' economy.

MINNEAPOLIS DIGITAL DIVIDE

Overall

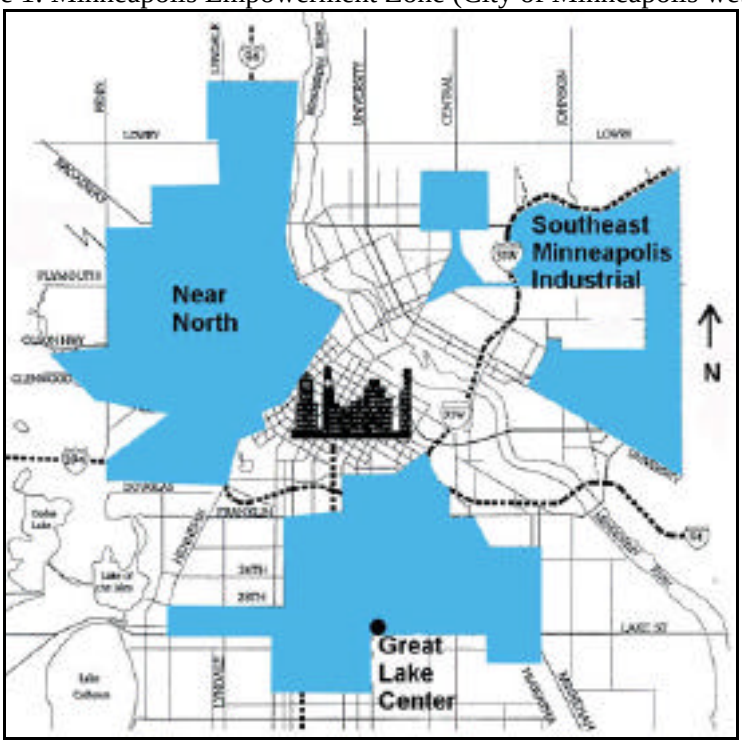
Unlike San Diego and Seattle, Minneapolis has not evaluated the extent of the local digital divide, the divide between those with access to new technologies and those without (NTIA, 2000). National marketing studies indicate Minneapolis ranks in the top 20 "most wired" cities. A February 2000 Nielsen report found 38.1% of the Minneapolis/Saint Paul households accessed the Internet, placing it 18th among other large national metropolitan areas (Pastore, 2000). As the Minneapolis-Saint Paul metropolitan area population ranks 15th in the U.S., the household Internet access ranking is just below average (Kiat.net, 2001). Fifty-seven (57%) of Minnesota households have a computer in the home and 43% access the Internet (NTIA, 2000). Both of these figures are higher than the national average of 51% household computer penetration and 41% with home Internet access. While Qwest, the telephone utility serving

Minneapolis, does not have details of the extent of high-speed DSL connectivity in Minneapolis, currently Qwest serves 50,000 Minnesota households with DSL, or about 1% of the state (Halloway, 2001). America On-Line, the nation's most extensive Internet service provider, does not provide information to the public on either a state or citywide level. I did not have the opportunity to contact AT&T about cable modem access.

Minneapolis Digital Divide – Empowerment Zone

Despite likely high overall household computer penetration and Internet access numbers, given national trends, Minneapolis most likely has a digital divide based on race and income (NTIA, 2000). Assuming a digital divide exists, it will be most prevalent in the Minneapolis Empowerment Zone, where the poverty rate exceeds 20% (HUD website, 2001). This approach is likely similar to what Atlanta used to determine where to invest funds for the digital divide. Figure 1 on the following page represents the Minneapolis Empowerment Zone as designated in 1998.

Figure 1: Minneapolis Empowerment Zone (City of Minneapolis website)



For this paper, the Southeastern Industrial Area is excluded from analysis because of its industrial development emphasis. The blue area north of downtown Minneapolis is designated as the North Zone and the one south of downtown Minneapolis is the South Zone. Because of recent changes to the census tract designations, it is unclear which census tracts still remain in the Empowerment Zone. However, the City of Minneapolis has described the neighborhoods within the Empowerment Zone and aggregate neighborhood data will be used for analysis, even though some areas within these neighborhoods are not technically in the Empowerment Zone (City of Minneapolis website, 2000). Eighteen Minneapolis neighborhoods are in the Empowerment Zone. Figure 2 on the following page presents the Minneapolis neighborhoods within the Empowerment Zone.

Table 5 illustrates the racial breakdown by the neighborhoods within the North and South Zone from the 2000 Census.

Table 5: Minneapolis Empowerment Zone by Race and Ethnicity

		% RACE						% ETHNICITY
NEIGHBORHOOD	**Total Number**	White alone	Black or African American alone	American Indian and Alaska Native alone	Asian, Native Hawaiian and Other Pacific Islander alone	Some other race alone	Two or more races	Hispanic or Latino
North Zone	**37,491**	**21.1**	**52.7**	**1.7**	**16.0**	**2.9**	**5.6**	**5.2**
Harrison	4,152	24.5	38.7	1.4	26.9	2.4	6.2	5.1
Hawthorne	6,333	20.1	50.8	2.3	16.9	3.4	6.5	5.4
Jordan	9,149	23.5	49.5	1.8	17.3	1.9	5.9	4.2
Near North	6,921	15.0	58.4	1.1	14.5	6.0	5.0	9.0
North Loop	1,515	60.3	24.9	5.1	2.7	2.6	4.4	6.3
Sumner Glenwood	144	9.0	41.0	0.7	43.1	5.6	0.7	6.3
Willard Hay	9,277	16.1	63.9	1.2	12.2	1.3	5.2	2.9
South Zone	**87,283**	**52.5**	**22.4**	**4.4**	**5.1**	**9.2**	**6.4**	**16.0**
Central	8,150	25.7	40.6	2.4	9.2	14.1	8.0	23.3
Corcoran	4,228	52.9	15.9	4.6	4.5	15.1	7.0	21.2
Downtown East	128	63.3	25.0	0.8	2.3	6.3	2.3	9.4
Elliot Park	6,476	51.9	31.5	2.8	3.3	3.3	7.2	7.7
Longfellow	4,972	71.3	10.6	4.0	3.4	5.9	4.8	9.7
Loring Park	7,501	81.0	9.7	0.8	3.8	2.1	2.6	5.1
Lowry Hill East	5,912	85.0	6.8	1.1	2.7	1.6	2.8	3.7
Lyndale	7,690	55.6	19.7	1.4	4.4	13.5	5.4	21.4
Phillips	19,805	31.6	29.4	11.9	6.1	11.9	9.1	22.1
Seward	7,174	65.1	20.1	2.1	4.3	1.6	6.8	3.0
Whittier	15,247	53.5	20.0	2.2	5.5	13.1	5.8	21.6
Total-Empowerment	**124,774**	**43.0**	**31.5**	**3.6**	**8.4**	**7.3**	**6.2**	**12.7**
Minneapolis	**382,618**	**65.1**	**18.0**	**2.2**	**6.2**	**4.1**	**4.4**	**7.6**

Data Compiled by the City of Minneapolis from the 2000 US Census

The Empowerment Zone neighborhoods represent 33% of the Minneapolis population and have a more diverse racial makeup relative to Minneapolis as a whole. The North Zone has significantly more

African Americans (52.7%) and Asian Americans (16.0%) while the South Zone has more Hispanics (16.0%) relative to the city overall.

The National Technology Information Association studies of the digital divide indicate African Americans and Hispanics are far less likely to have home Internet access than non-Hispanic Caucasians or Asian-Americans (NTIA, 2000). On a national level, 23.5% of African-Americans and 23.6% of Hispanics have Internet access at home compared to 46.1% and 56.8% of white Caucasians and Asian-Americans. By extrapolating NTIA findings with Minneapolis Empowerment Zone neighborhood census numbers, approximately 30,000 African-Americans and 12,100 Hispanics in the Minneapolis Empowerment Zone must access the Internet outside of the home. Including whites and Asian Americans, an estimated 75,000 lack Internet access at home, representing 60.6% of all Minneapolis Empowerment Zone residents. Based on these findings, public access to computer technology is crucial for residents of the Minneapolis Empowerment Zone.

Public Internet Access Measurements

Libraries

Table 6 presents data on computers with Internet access in public libraries within the Minneapolis Empowerment Zone. The Central library, while farther from most Zone neighborhoods, is easily accessible by bus and is included in the analysis. Two libraries in the South Zone, Franklin and Hosmer, have public computer lab spaces in addition to the library computers.

Table 6: Minneapolis Empowerment Zone Public Library Computers with Internet Access

Library	**# of computers**
Serving the North Zone	
North Regional	11
Sumner	4
TOTAL	**15**
Average workstations/library	**7.5**
Serving the South Zone	
East Lake	12
Franklin (Including the Franklin Learning Center & Phillips Computer Center)	13

Hosmer (Including the Hosmer Technology Center)	18
Roosevelt	3
TOTAL	**46**
Average workstations/library	**12.8**
Serving Entire Minneapolis Empowerment Zone	
Central	47
Total North Zone Library Workstations (including Central Library)	**62**
Average workstations/North Zone libraries (with Central Library)	**20.7**
Total South Zone Library Workstations (including Central)	**83**
Average workstations/South Zone libraries (with Central Library)	**16.6**
TOTAL MINNEAPOLIS EMPOWERMENT ZONE	**108**
AVERAGE WORKSTATION/LIBRARY	**15.4**

Data Provided by Sharon Kinsmith, Minneapolis Libraries Director of Information Technology

The Minneapolis Empowerment Zone is below the national average of 17.3 public Internet access workstations in urban libraries (Bertot and McClure, 2000), and every workstation has to serve 1150 Empowerment Zone residents, on average. The community libraries alone in both the North and South Zone do not have enough supply of workstations to serve the people living in these communities. Excluding Central library, on average each computer in the North Zone libraries serves about 2500 residents while those in the South Zone serves about 1900 residents. The North Zone is especially lacking, although factoring in the Central library does skew the average up, partly because the North Zone only has two public libraries with few public workstations and Central has so many workstations.

Schools

Schools are leading the way to bridging the digital divide in Minneapolis. Table 7 presents aggregated data from the Minneapolis public schools on computers in elementary, middle, and secondary schools that serve residents of the Empowerment Zone. New computers are those under five years in age and include both Macintoshes and Pentium machines.

Table 7: Aggregate Computer Technology Information for Minneapolis Empowerment Zone

Location	Downtown*	North Zone	South Zone	Empowerment Zone	Minneapolis Overall
Elementary Schools	**3**	**11**	**12**	**26**	**75**
Total computers networked to the Internet	125	848	1095	2068	5756
Total # non networked	53	350	314	717	1665
Old Macintoshes	78	301	526	905	2240
New computers	100	483	563	1146	3151
% networked computers	70.2%	70.7%	77.7%	74.2%	77.6%
% newer computers	56.1%	61.6%	51.7%	55.8%	42.5%

Location	North Zone	South Zone	Empowerment Zone	Minneapolis Overall
Middle Schools	**2**	**2**	**4**	**9**
Total computers networked to the Internet	208	295	503	1144
Total # non networked	64	187	251	296
Old Macintoshes	25	100	125	446
New computers	186	106	292	460
% networked computers	76.5%	61.2%	66.7%	79.4%
% newer computers	88.1%	51.5%	70.0%	31.9%

Location	North Zone	South Zone	Empowerment Zone	Minneapolis Overall
High Schools	**1**	**2**	**3**	**12**
Total computers networked to the Internet	283.0	631	914	2010
Total # non networked	10.0	103	113	226
Old Macintoshes	101.0	68	169	515
New computers	76.0	309	385	1194
% networked computers	96.6%	86.0%	89.0%	89.9%
% newer computers	42.9%	82.0%	69.5%	53.4%

(Data provided by the Colleen Koslowski, director of Minneapolis Public Schools Media and Information Technology)

** Three downtown elementary schools likely serve students in the Empowerment Zone.*

On average, Minneapolis Empowerment Zone elementary, middle, and high schools have much newer computers compared to the district overall. The percent of Empowerment Zone school computers connected to the Internet, however, is lower than the district average. One possible explanation of this finding is that the Empowerment Zones have not yet found monetary or human resources to wire the schools, but have received some money for improving computer hardware. Schools in high poverty areas have received attention and money through the E-rate program, a federal education program that allows schools in high poverty areas to receive discounts on Internet and computer technology. The E-rate program likely helped Empowerment Zone schools to purchase newer hardware, but further research into the utilization of this program would provide a better picture.

Community Centers

The Community Computer Access Network (C-CAN), a nonprofit organization to increase community use of and participation in existing technology access programs across the Twin Cities, contains an online database of the known community centers in Minneapolis (C-CAN website, 2001). Barring the libraries and schools, C-CAN lists twelve computer community centers for public access in Minneapolis, nine of which serve the Empowerment Zone residents. The database indicated that seven of the nine centers have 93 computer workstations open to the public; two did not have workstations numbers available. Catherine Settanni, principal of C-CAN, indicates that probably more computer community centers exist, but data collection has been problematic. Migizi Communications, a nonprofit that has served the Twin Cities Native American community, has helped establish consortium of an additional fourteen computer centers in the Twin Cities, with ten in the Empowerment Zone (Migizi website, 2001). The Minneapolis Parks and Recreation Board also lists five community centers that offer open computer labs for children after school. Table 8 lists the known computer community centers and their location in the Empowerment Zone. Currently the South Zone has three times as many computer community center facilities than the north Zone.

Table 8: Computer Community Centers in the Minneapolis Empowerment Zone

Community Center	**Source**
North Zone	
Fairview Recreation Center	Minneapolis Parks & Recreation Board
Lao Cultural Center	C-CAN
Minneapolis Urban League	Migizi
North Commons Community Center	Minneapolis Parks & Recreation Board
The City, Inc.	Migizi
Urban Ventures Learning & Technology Center	C-CAN
South Zone	
AIOIC	Migizi
Andersen Community Education	C-CAN
Catholic Charities Branch III	C-CAN
Center School	Migizi
Corcoran Computer Center	C-CAN
Corcoran Community Center	Minneapolis Parks & Recreation Board
Elliot Recreation Center	Minneapolis Parks & Recreation Board
House of Charity Computer Learning Center	C-CAN

La Escuelita	Migizi
Matthews Community Center	Minneapolis Parks & Recreation Board
Migizi Communications, Inc	Migizi
Minnesota Transitions School	Migizi
NAES College	Migizi
Park Avenue Foundation	C-CAN
Pillsbury House	C-CAN
Somali Community of Minnesota	Migizi
South East Asian Refugee Home	Migizi
Urban Ventures Learning & Technology Center	C-CAN
Volunteers of America Alternative School	Migizi

Government Actions to Address the Minneapolis Digital Divide

At the city level, no agency or commission appears to have responsibility for efforts to bridge the Minneapolis digital divide. A search on the city's website for the digital divide only revealed a press release from the Empowerment Zone Board about work to increase the number of computers in North High School (City of Minneapolis website, 2001). While in Atlanta and Seattle decided to use cable franchise agreement funding for digital divide initiatives, a similar cable franchise agreement in Minneapolis established the Minneapolis Telecommunications Network, which primarily serves as a community television network and secondarily offers low-cost ISP access to nonprofits (MTN website, 2001). At the state level, most digital divide efforts are focused on building high-speed infrastructure across the state (Ries, 2001). Currently, most state Internet infrastructure funding is directed to rural Minnesota, as the Twin Cities is relatively well-connected through cable and DSL.

RECOMMENDATIONS FOR MINNEAPOLIS DIGITAL DIVIDE

Minneapolis residents, especially those living in the Empowerment Zone, require public access to computers and the Internet to improve their economic status, acquire information, and do homework. However, current digital divide efforts in the City of Minneapolis take place in a sporadic and ad-hoc manner. Some social service nonprofits have established computer labs as part of their programs; libraries and schools continue to use government funding to improve public computer access; two nonprofit organizations are trying to organize digital divide initiatives among other nonprofits; and the

Minneapolis Parks and Recreation Board has begun to offer computer labs for children after school. These efforts, while laudable, are unfocused and miss areas of Minneapolis where public access to computer technologies is crucial. Even though Minneapolis is not a high-tech center like Seattle or San Diego, technological fluency provides people with improved economic opportunity.

To address the digital divide, the City of Minneapolis needs to develop concerted efforts that integrate current public access efforts and improve access to those most in need. Based on estimates of the local digital divide and best practices from cities proactively addressing the divide, the City should undertake the following "digital closure" efforts:

1. Designate a department in the City administration to take responsibility for digital divide initiatives. Planning or the MCDA would be the most appropriate departments to lead citywide initiatives.
2. Employ one or two City executives to chair the digital divide initiatives for accountability and simplicity in managing the program.
3. Establish a blue ribbon committee comprised of community activists, local business leaders, and government executives to advise the City and the Mayor on digital divide efforts. Businesses should include Qwest, AT&T, and ADC Telecommunications (whose foundation directs funds to digital divide initiatives). Mayor Rybak should serve on this committee.
4. Make Mayor Rybak the champion of Minneapolis digital divide initiatives through public appearances and press releases to increase the visibility of the initiatives.
5. Develop partnerships with established community nonprofits, such as Empowerment Zone neighborhood organizations and the Minneapolis Urban League, as well as nonprofits with specific digital divide programs like Migizi and C-CAN to strategically institute public community computer centers.

6. Focus initial efforts to bolster public computer access in North Minneapolis in community centers, libraries schools, and churches. This area has high need for public computer access, but lacks necessary facilities and workstations. Possibilities in North Minneapolis include
   - Establish a separate computer center in or adjacent to the North Regional Library
   - Provide adults with public computer access time at Minneapolis Parks and Recreation community centers and at the middle and high schools in North Minneapolis.
   - Work with North side community leaders to determine locations to establish community technology centers.
7. Evaluate establishing a high-technology TIF program to attract high technology businesses into economically distressed neighborhoods.
8. Publish a map of all nonprofit community technology centers, libraries, schools and other public computer access centers in Minneapolis on the City's website and include when mailing city tax or utility bills.
9. Provide matching funds to offset some of the costs of high-speed Internet access at community technology centers.
10. If funding is available, study the extent of the digital divide to more accurately determine which neighborhoods require public computer access.
11. Broaden local government-sponsored digital divide initiatives to include Saint Paul. A Twin Cities partnership to address technological disparities could rally the community and bring good political publicity for two new mayors. A digital divide blue ribbon committee then includes Lawson Software and EcoLab.

To find money to run these programs, the following are suggested:

1. With any cable or telecommunications franchise agreements or renewals, direct all or a large portion of the agreement funds to seed City-sponsored digital divide initiatives.
2. Pursue foundation and federal grants to address the local digital divide.

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