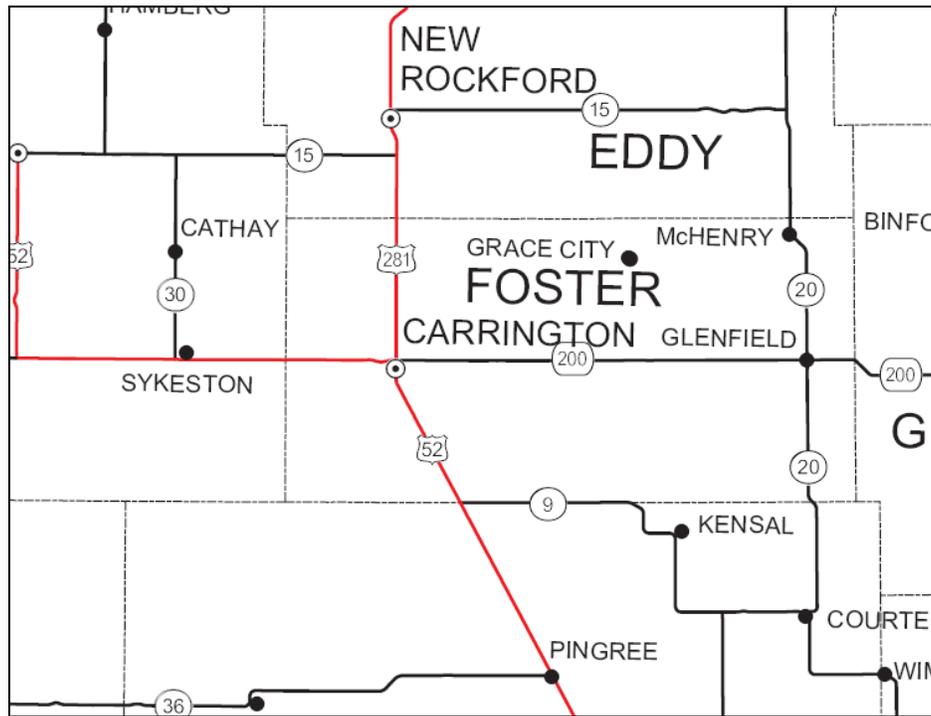


# Labor Availability Study

## The Community of Carrington and Surrounding Area

2006



A collaboration of:

North Dakota Department of Commerce  
University of North Dakota – Social Science Research Institute  
Job Service North Dakota

Prepared by LMI Center of Job Service North Dakota

Maren L. Daley, Executive Director

Duane Broschat, Labor Market Information Manager

Marcia Slag, Product Development and Outreach Supervisor

Compiled by Kevin Iverson, Research Analyst

## **Carrington Labor Availability and Surrounding Area**

## Carrington Labor Availability and Surrounding Area

### Major Findings

#### Summary of Findings

Site developers, economic planners, and others will often refer to the unemployment rate to determine if there is an available labor force; but while the unemployment rate is a consistent measure across the country, it is incomplete. Being unemployed is defined as not working but actively seeking work. However, some individuals who are working would be interested in changing jobs or occupations, others would want additional hours, and some are planning to find work within the year. These individuals are not normally counted as part of the available labor pool in an area.

In 2006, the state of North Dakota, in cooperation with local partners, funded a study to measure the available labor pool.

In the area including and surrounding the community of Carrington, there exists a potential labor force of 3,730 individuals, or approximately 50 percent of the adult population. The majority of these individuals are currently working but would be willing to consider alternative jobs. The labor force (those employed, which includes the self-employed, as well as those actively seeking work) is estimated to be 49 percent of the adult population, or 3,646 individuals.

#### Characteristics of the Potential Job Seekers

	<u>Number*</u>	<u>Percentage of 18+</u>
<b>Potential Job Seekers</b>	1,763	23.6%
<b>Actively Seeking Work</b>	108	1.4%
<b>Planning to Look Within the Year</b>	72	1.0%
<b>Interested in Changing Jobs</b>	1,451	19.4%
<b>Interested in Additional Jobs</b>	636	8.5%
<b>Those Discouraged From Looking</b>	12	0.2%

\*The numbers will not total to the Potential Job Seekers, as duplication is possible.

## Carrington Labor Availability and Surrounding Area

### Scope of Study

The purpose of this study was to explore the size and characteristics of the potential labor pool in and around Carrington, North Dakota. A telephone survey was conducted by the University of North Dakota – Social Science Research Institute (SSRI), who contacted 626 respondents in Foster County plus portions of Eddy, Wells, Stutsman and Barnes Counties. This area was determined by the developer and was based on community and business trade patterns. According to 2000 Census estimates, there are approximately 7,471 people age 18 and older living in these areas.

Area/Counties	Census	
	2000	Adult 18+
Foster County	3,759	2,774
Select Areas of Eddy County	2,624	2,026
Select Areas of Wells County	2,286	1,721
Select Areas of Stutsman County	1,039	768
Select Areas of Barnes County	237	182
<b>Total</b>	<b>9,945</b>	<b>7,471</b>

### The Population

Approximately 37 percent of the survey respondents live in Foster County, another 23 live in Wells County – closest to Carrington. Slightly more women (52.4 percent) than men (47.6 percent) completed the survey. The typical respondent is 56.3 years old. Forty-seven percent are currently working and travel approximately 9 minutes or 15 miles to get to work. The largest occupations in the Carrington area are Education, Training and Library (17 percent), Sales and Related (10 percent), and Office and Administrative Support (10 percent). In general, respondents are well-educated with 91 percent having received a high school diploma and 29 percent having received a college degree.

These results are similar to the 2000 Census data for the region.<sup>1</sup> According to the Census Bureau, 52.5 percent of the population is female while 47.5 percent is male, and the median age is 39.9. The Census Bureau also found that 74 percent of the population has a high school diploma and 22 percent has a college degree.

The median age of respondents (56.3) is older than as the population of the 2000 Census. In comparison, the median age of the nation was 35.3 in 2000. Among survey respondents, 14 percent were between the ages of 18 and 34.

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<sup>1</sup> Census data is for the City of Carrington, ND

## Carrington Labor Availability and Surrounding Area

Education Level	Percentage that Attained This Level
Less Than HS Diploma	9.1%
HS GED Graduate	31.5%
Some College and Vo-tech	23.1%
Vo-tech Graduate	7.4%
College Grad and Advanced Degree	28.9%
<b>Total</b>	<b>100.0</b>

At the time of this study the unemployment rate in the Carrington area was 4.7 percent<sup>2</sup>. Among the respondents, 47.1 percent are currently working, 1 percent are actively seeking work, and 1 percent are not actively seeking work. Also, an additional 14 percent are considered potential job seekers (PJSs), who are people willing to change jobs or take an additional job if the circumstances are right. These PJSs will be covered later in the paper. The remainder of the population over age 18 is not in the workforce.

### The Current Workforce

A typical employed respondent works 41.5 hours per week and makes \$15.53 per hour. A majority of these respondents has only one job and works full-time, which is defined in this study as 30 hours per week or more. Eighteen percent held more than one job. Generally, if a respondent works more than one job, the additional job is part-time. Nineteen percent of employed respondents have shift-oriented schedules, but an additional 20 percent of working respondents who do not currently work shifts said they would be willing to consider shift work. The following table shows the most recent occupations of the current employees in the Carrington area.

Occupational Group	Numbers <sup>3</sup>		Percentage of Workforce	
Managerial, Professional and Related Occupations	1,647		46.6%	
Managerial		100		2.8%
Business and Financial Operations		115		3.2%

<sup>2</sup> This figure reflects Foster County as of March, 2006. Regional data is not available to the specific geographical region defined by this study.

<sup>3</sup> Estimates are rounded to the nearest whole number and may not sum.

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Occupational Group	Numbers <sup>4</sup>		Percentage of Workforce	
Computer and Mathematical Science		-- <sup>5</sup>		--
Architecture and Engineering		86		2.4%
Life, Physical and Social Services		--		--
Community and Social Services		72		2.0%
Legal Occupation		57		1.6%
Education, Training and Library		602		17.0%
Arts, Design, Entertainment, Sports and Media		86		2.4%
Healthcare Practitioner and Technicians		201		5.7%
Healthcare Support		329		9.3%
Service Occupations	258		7.3%	
Protective Services		14		0.4%
Food Preparation and Serving		143		4.0%
Building and Grounds, Cleaning, Maintenance		43		1.2%
Personal Care		57		1.6%
Sales and Office Occupations	702		19.8%	
Sales		358		10.1%
Office and Administrative Support		344		9.7%
Farming and Related Occupations	158		4.5%	
Farming and Related Occupations		158		4.5%
Construction, Extraction, Installation and Repair	372		10.5%	
Construction and Extraction		129		3.6%
Installation and Repair		243		6.9%
Production, Transportation and Material Moving	372		10.5%	

<sup>4</sup> Estimates are rounded to the nearest whole number and may not sum.

<sup>5</sup> Insufficient data sample

## Carrington Labor Availability and Surrounding Area

Occupational Group	Numbers		Percentage of Workforce	
Production		143		4.0%
Transportation and Material Moving		229		6.5%
Other Occupations not Classified Elsewhere	29		0.8%	
Other Occupations not Classified Elsewhere		29		0.8%

The demographics of the workforce in the area are different from those of the general population. Current employees have a median age of 47.5. As shown in the chart, 19 percent of these current employees are between the ages of 18 and 34. Also, 43.4 percent are male, 38 percent have a college degree, and the average wage of current employees is \$15.53 per hour.

Age Group	Percentage
18 – 24	5%
25 – 34	14%
35 – 44	26%
45 – 54	31%
55 – 64	17%
65 Plus	7%

Typically, current employees travel 8 minutes or 15 miles to get to work. This, however, depends on the occupation of the employee. For instance, the majority of those in Education, Training and Library occupations travel, on average, less than 10 minutes to get to work while those in Construction occupations travel an average of 24 minutes to get to work.

The average length of tenure for employees in the Carrington area is 9.2 years. Of the currently employed respondents, 86 percent work full-time--defined here as more than 30 hours a week--and most (88 percent) work year round jobs. The following table shows the benefits that currently employed respondents receive at their jobs.

Benefit	Percentage Provided
Healthcare	62%
Retirement Plan	52%
Life Insurance	32%
Disability Insurance	21%
Child Care	3%
Other	18%
Provided No Fringe Benefits	42%

The following table shows various occupations in the area by number of employed respondents as well as by years with employer, hours worked and hourly wages. In the

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Carrington area, the highest percentage of employees are in Education, Training and Library, Sales and Related, and Office and Administrative Support occupations. The occupations with the oldest employees are Transportation and Material Moving at 53, while those in Architecture and Engineering have the youngest employees at 40. Legal occupations pays the highest with an average wage of \$29.70 per hour. On average, employees in Farming work the most hours (57).

Occupational Group	Estimated Number	Percent-age	Years with current employ-er	Hours worked in average week	Hourly wage
Management	100	3%	12	47.67	\$50.00
Business and Financial Operations	115	3%	6	37.50	\$12.25
Computer and Mathematical Science	-- <sup>6</sup>	--	--	--	--
Architecture and Engineering	86	2%	11	48.00	\$15.50
Life, Physical, and Social Science		--	--	--	--
Community and Social Services	72	2%	6	46.00	\$17.00
Legal Occupations	57	2%	14	37.50	\$29.70
Education, Training, and Library	602	17%	12	40.78	\$15.17
Arts, Design, Entertainment, Sports, and Media	86	2%	4	39.17	\$33.80
Healthcare Practitioner and Technical	201	6%	10	37.93	\$15.84
Healthcare Support	329	9%	7	35.14	\$16.65
Protective Service	--	<1%	32	40.00	\$0.00
Food Preparation and Serving Related	14	4%	7	39.50	\$8.09
Building and Grounds Cleaning and Maintenance	143	1%	2	35.67	\$9.00
Personal Care and Service	43	2%	13	34.50	\$0.00
Sales and Related	57	10%	9	42.24	\$13.86
Office and Administrative Support	358	10%	9	37.30	\$12.02
Farming, Fishing, and Forestry	344	4%	14	57.00	\$44.23
Construction and Extraction	158	4%	5	39.89	\$14.86
Installation, Maintenance, and Repair	129	7%	9	46.00	\$15.19
Production	243	4%	4	45.00	\$14.22
Transportation and Material Moving	143	6%	10	48.56	\$14.23
Miscellaneous	229	1%	--	15.50	\$7.38

<sup>6</sup> Insufficient data sample

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### Potential Job Seekers

Potential job seekers (PJSs) may either be employed or unemployed and are interested in either taking an additional job or changing jobs if the circumstances are right. In the Carrington area, 24 percent or approximately 1,763 people age 18 or over fall into this category. The five types of potential job seekers are listed in detail below.

1. The unemployed:  
Those who are 18 and older, unemployed, and actively seeking work.
2. Individuals who plan to seek a job within the next year:  
Those who are not working, not seeking work, but plan to be looking for work within the year would be included in this category.
3. People who are working, but would be willing to change jobs:  
Using Bureau of Labor Statistics definitions, these people would be classified as employed. This group includes those individuals who are presently working who may or may not be actively seeking work, but would consider changing employers.
4. People who are currently working and are willing to take an additional job:  
Like the previous group, these individuals would be defined as employed. However, they would be willing to work an additional job and, as such, are part of the possible labor pool for different businesses.
5. Individuals who are discouraged and do not look for work:  
For the purpose of this study, the discouraged worker is defined as someone who is not working, is not actively seeking work nor planning to find a job within the next year, but would accept a job if it met their minimum acceptable wage requirements.

<b>Characteristics of the Potential Job Seekers</b>		
	<b>Number</b>	<b>Percentage of Population 18 Years of Age and over</b>
Potential Job Seekers <sup>7</sup>	1,763	23.6%
Actively Seeking Work	108	1.4%
Planning to Look Within the Year	72	1.0%
Interested in Changing Jobs but No Additional Jobs	935	12.5%
Interested in Both Changing Jobs and Additional Jobs	516	6.9%
Interested in Additional Jobs -but not changing jobs	120	1.6%
Those Discouraged From Looking	12	0.2%

<sup>7</sup> Will not sum as PJSs can be in multiple categories.

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The demographics of PJSs are different from those of the sample population. In general, the median age of a PJS is 44.5, making them slightly younger than the rest of the sample. In addition, PJSs are more likely to be female (59.4 percent), have about the same education, have shorter tenure at their jobs (8.2 years), have slightly less years of management experience (11.3 years), and have approximately the same (10.6 years) experience with computers.

The typical PJS travels 13 minutes or 13 miles one-way to get to his or her job. This varies by occupation. PJSs in Production travel an average, of 24 minutes to get to work while PJSs work in Sales and Related only travels 4 minutes. The typical PJS would be willing to travel 34 minutes or 28 miles to go to work, but this also depends on their occupation. A PJS employed in Production is willing to travel 45 minutes, while a PJS in Healthcare Practitioner and Technical occupations is only willing to travel 30 minutes.

On average, 23 percent of PJSs work shifts. Of those who do not currently work shifts, 35 percent would be willing to work shifts. Specifically, many PJSs (63 percent) say they would work shifts if it resulted in better pay. The most popular choice of shift for this group is day time (64 percent). Currently, 79 percent of PJSs work year round while 12 percent work seasonal jobs. Generally, in the Carrington area, year round jobs are preferred (75 percent). On average, 71 percent of PJSs are interested in flexible work schedules in which their work hours are arranged around their personal schedules. Of those interested in full-time employment they are currently working an average of 23 hours per week.

The reasons why PJSs would consider alternative employment vary. As shown in the following table, the most common reason to choose alternative employment is an increase in pay (45 percent). However, 12 percent would seek alternative employment for more career advancement opportunities.

Reason	Percentage
Increase in pay	45%
Increase in benefits	14%
Improvement in working conditions	10%
More career advancement opportunities	12%
Feel you are underutilized	7%
Gain more job status/prestige	<1%
Something else <sup>8</sup>	12%

The next table shows that currently employed PJSs would generally accept a lower wage to work at an additional job. Similarly, many of those who would consider changing jobs would also be willing to accept a lower wage. The previous table indicates that 45 percent of PJSs would consider taking a different job for an increase in pay, but 14 percent would

<sup>8</sup> Of those who selected “Something else” the most common cited reasons dealt with variety of work experienced, quality of management and desire to reduce stress.

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consider different employment if it meant an increase in benefits. The most desirable benefit, to PJSs is healthcare – overwhelmingly desired by 73 percent of those responding—distantly followed by a retirement plan (6 percent) and on-the-job training (6 percent).

<b>Current Occupation</b>	<b>Current Pay</b>	<b>Minimum Pay to Accept New Job</b>
Architecture and Engineering	\$16.50	\$14.00
Healthcare Practitioner and Technical	\$14.36	\$11.00
Healthcare Support	\$16.75	\$13.19
Food Preparation and Serving Related	\$7.55	\$7.30
Building and Grounds Cleaning and Maintenance	\$9.00	\$8.71
Sales and Related	\$12.33	\$15.83
Office and Administrative Support	\$11.41	\$10.07
Farming, Fishing, and Forestry	\$10.09	\$9.47
Construction and Extraction	\$11.75	\$10.50
Installation, Maintenance, and Repair	\$19.43	\$14.20
Production	\$18.50	\$11.75
Average of Above	\$14.34	\$12.38

Approximately 93 percent of PJSs in the area have at least a high school education, and 37 percent have a college degree. Among the PJSs, 65 percent have some management experience. The median length of time for this experience is 11.3 years.

<b>Education Level</b>	<b>Percent Attainment</b>
Less than High School	7.0%
High School	27.0%
Some College	21.0%
Vo-tech Graduate	8.0%
College and Advanced Degree	37.0%

A majority of PJS respondents have experience using computers (83 percent), and 74 percent report experience using office suite productivity software. However, there were differences in levels of proficiency with different types of applications. Many respondents

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(70 percent) have high levels of proficiency<sup>9</sup> with word processing, but fewer are proficient at databases (38 percent).

Technical Skill	Not Skilled	Some Skills	Average	Above Average	Very Skilled	No Answer
Word Processing	5%	11%	13%	34%	36%	0%
Spreadsheets	3%	23%	28%	23%	23%	0%
Databases	11%	23%	28%	25%	13%	0%
Desktop Publishing	21%	16%	23%	21%	18%	0%

Twelve percent or the equivalent of 210 PJs indicated they have specialized computer technology training. They identified their level of proficiency as follows:

Technical Skill	Not Skilled	Some Skills	Average	Above Average	Very Skilled	No Answer
Installing Computer Hardware	0%	17%	25%	33%	25%	0%
Writing Computer Program	50%	17%	17%	17%	0%	0%
HTML Programming	25%	17%	33%	25%	0%	0%

Although PJs in the Carrington area have impressive education and skill levels, there is still the acknowledgement by the group that more training may be necessary in certain professions. There are, however, some differences in the type of training these people would be willing to consider. As shown in the table below, the industry that PJs were most interested in receiving training in Computer related fields (67 percent) while the industry with the least amount of interest is Engineering fields (31 percent).

Industry	Percent Interested
Information Computer Technology	67%
Business Services	66%
Production	31%
Healthcare Service Fields	54%
Engineering Fields	31%
Construction Trades	32%

<sup>9</sup> High levels of skill is interpreted as meaning that the respondent selected either 4 or 5 on a 5 point scale with the higher number indicating a higher level of skill.

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Respondents were asked “what type of training would they be most likely to consider, such as 2 – 4 years of training including apprenticeships, associate or bachelor’s degrees, licenses and/or certification.” Overall, the most desirable type of training was “on-the-job” according to 63 percent of PJSs.

<b>Training Desired</b>	<b>Percent Interested</b>
On-the-job	63%
Eighteen months or less of training	17%
Nineteen to twenty three months of Training	5%
Two to four years of training	9%
Over four years of training	3%
Did not know / Refused	3%

Many PJSs have received Job Skills training in the past three years. Fifty-percent indicated they have received some Job Skill training. The most common training received was Technical Training followed by Safety Training. The majority of these individuals are PJS who currently hold jobs but are interested in a new job or an additional job.

<b>Job Skills Training</b>	
Basic Skills	3%
Product Sales	11%
Interpersonal Skills	13%
Thinking and Organizing	14%
Quality Improvement	18%
Technical Training	28%
Safety Training	21%
No Training/Refused	7%

### **Discouraged Workers<sup>10</sup>**

In the Carrington area there are approximately 12 individuals who are categorized as discouraged workers. The typical discouraged worker in this area has been out of the labor force for one year. In general, these workers are older than the average PJSs, with a median age of over 60 years. These individuals tend to be fairly well educated with most holding at least a high school diploma. Discouraged workers are not in the labor force for a number of reasons. The most common reasons a person may be a discouraged worker are childcare, care for ill or disabled adult members of the family, or lack of interest in work.

<sup>10</sup> The Discouraged Worker sample size for the Carrington area is too small to provide a demographic description.

## **Carrington Labor Availability and Surrounding Area**

### **How the Study was Done**

The Workforce Development Division of the Department of Commerce selected the Social Science Research Institute (SSRI) to conduct Labor Availability and Underemployment Studies for several North Dakota communities, including designated counties in Minnesota and South Dakota. The goal of the studies are to provide the “core” data elements which have been identified as being needed to support businesses attraction, expansion and retention by a workgroup consisting of representatives from local development organizations, Job Service North Dakota, and the Department of Commerce.

SSRI uses a proven research methodology that has been adopted by the Bureau of Labor Statistics which establishes standards for collection of the core data. The following is a detailed description of SSRI’s research methodology utilized in these studies.

### **Methodology**

**Target Population.** The target population was defined as adults 18 years of age or older who had the most recent birthday residing in telephone households in the selected labor market county areas.

**Target Labor Market Areas.** As defined by the Department of Commerce, the 2006 study included 40 North Dakota counties, 8 Minnesota counties and 4 South Dakota counties.

**Target Labor Market County Area Sample Sizes.** County sample sizes provide accuracy at plus or minus five percent<sup>11</sup> with a 90 percent confidence level. The samples are distributed in proportion to the total adult population age 18 or older in each of the target labor market county areas.

**Field Period.** The survey was pre-tested January 3 and 4 and the data were collected February 1 through June 21, 2006.

**Sample Design.** Information about how survey samples are developed is important in assessing the validity and reliability of the results of the survey. While a fully random design is the most desirable approach in developing a representative sample of the population, this approach often results in under-sampling demographic groups with low rates of telephone ownership. These groups most often include young adults, minorities and individuals with low education and income. Increasingly, researchers use stratified random designs to guard against under-sampling. To determine whether a representative sample was obtained, it is helpful to calculate the response rate for the sample as a whole as well as to examine how closely the sample matches the known demographic characteristics of the population. If substantial differences are detected, post-stratification weights can be applied during analysis to ensure that the results of the survey can be generalized to the larger population.

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<sup>11</sup> This means that one can be 90 percent confident that the mean response for any question in the survey will not vary any more than 5.0% in either direction from the actual mean for that response if all persons age 18 or older in the target county area were surveyed.

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To obtain a representative sample for the labor market survey, random selection of households and random selection of respondents within households by county were used during the data collection process. The survey of adults (18 or older) performed by SSRI was conducted by telephone. A random sample of 10-digit telephone numbers were generated for each county labor market area utilizing Genesys Sampling Systems Random Digit Dialing (RDD) in-house software. The list from which the numbers were drawn included only selected North Dakota, Minnesota and South Dakota area codes and telephone banks (that is, blocks of 1,000 consecutive numbers) that had been determined to contain a threshold number of active residential numbers.

Overall, SSRI called 5,728 numbers in the selected labor market counties to determine whether it was a working residential number in contrast to a nonworking number, a commercial/business line, a cell phone, data or fax line, or a non-primary household telephone. SSRI staff classified 1,085 of these numbers as working residential numbers eligible for interview and successfully interviewed 604 of these households. Throughout the study, completed interviews were monitored to determine whether the county samples matched population estimates in terms of gender and the age distribution of North Dakota and Minnesota residents' age 18 or older.

**Response Rates.** Survey professionals in general have found that response rates for telephone surveys have declined in recent years. These declines are related to the proliferation of fax machines, answering machines, blocking devices and other telecommunications technology that make it more difficult to identify and recruit eligible individuals. These declines are also related to the amount of political polling and market research that is now done by telephone and to the higher likelihood that eligible households will refuse to participate in any surveys. The consequence has been that response rates for telephone surveys are now calculated in several different ways although all of these approaches involve dividing the number of respondents by the number of contacts believed to be eligible. Differences in response rates result from different ways of calculating the denominator, i.e. the number of individuals eligible to respond. The most liberal approach is called the Upper Bound method and takes into account only those individuals who refuse to participate or who terminate an interview. This approach is used by the federal government because of controversies about the eligibility of numbers that could not be reached. The Upper Bound method of calculating the response rate for the overall project yields an average rate of 59%. The most conservative approach is the method adopted by the Council of American Survey Research Organizations (CASRO). The CASRO method uses the known status of portions of the sample that are contacted to impute characteristics of portions of the sample that were not reached. The CASRO method of calculating the response rates for the overall project yields an average completion rate of 68.5% if over-quota eligible are assumed to qualify as "good numbers." Table 1 shows the dispositions and the Upper Bound and CASRO response rates by county for the sample numbers classified.

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### County Area Labor Market Sample Dispositions

County	Dates	C	NW	NP	B	R	T	HCNI	U-Bound	CASRO	Total
<b>Carrington</b>											
Foster	4-23 to 4-26	246	1,431	97	6	105	19	79	66.5%	54.8%	1,983
Eddy	4-27 to 5-1	246	2,425	29	7	79	17	106	71.9%	54.9%	2,909
Surrounding Cities	5-10 to 5-16	112	628	17	3	21	6	49	80.6%	59.6%	836
<b>Totals</b>	Succ. Interviewed	604	4,484	143	16	205	42	234	71.0%	55.7%	5,728

<b>C</b>	Completed Interviews	<b>R</b>	Refused
<b>NW</b>	Non-working	<b>T</b>	Terminated Interview
<b>NP</b>	Non-Primary Household	<b>HCNI</b>	Household Contacted Not Interviewed
<b>B</b>	Language Barrier		

**Interviewing Procedures.** Telephone interviews were conducted from SSRI and the Department of Sociology at the University of North Dakota by trained interviewers with supervision and random monitoring for technique and adherence to established procedures. Production interviewing began after a pre-test of the survey in a series of actual telephone interviews. The majority of interviews were conducted on weekday and Sunday evenings. Throughout the study, completed interviews were monitored to determine whether the samples match U.S. Census 2000 North Dakota County population figures in terms of gender and the age distribution of respondents age 18 or older. Efforts to complete interviews with selected respondents were extensive. The number of callbacks to complete an interview with an eligible respondent ranged from 1 to 12.

**Computerized Assisted Telephone Interviewing (CATI).** To ease telephone interviewing, all telephone interviews were conducted with a computer assisted telephone interview (CATI) system. The SSRI version of CATI is implemented with microcomputers, which display survey questions on interview terminals and collect telephone interview data as the interview is being conducted. For CATI telephone interviews, all coding of numeric and categorical responses is done by microcomputer software, with error checking to catch out-of-range values at the time of the interview.

The use of CATI increases both the speed of data collection and the accuracy of data collected. All CATI questionnaires are tested prior to conducting telephone interviews to ensure accurate encoding of survey responses and accurate branching and skip patterns in the questionnaire. The system prompts interviewers for a valid response to every question in the survey. For numeric questions, legitimate ranges of responses are entered into the computer so that the computer can detect out-of-range values. When these are detected during the interview, the computer warns the interviewer that the entered value is out of range and prompts the interviewer for a legitimate response.

Data validation at the data management step consists of accounting for all cases in the

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survey, and ensuring that data record exists for every completed interview in the sample. Data records were passed through a SPSS program to ensure that all data fields are readable, and that all fields are reading the format specified for that variable. A separate data-cleaning step will also be reviewed and spell-checked for readability. The final validation step consists of checking the consistency of respondents' answers to objective and verifiable survey questions. All survey data will be backed up and stored on micro-computer diskettes for immediate access and corrections, should data corrections be needed.