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Retail Trade Area Analysis

Rolla North Dakota

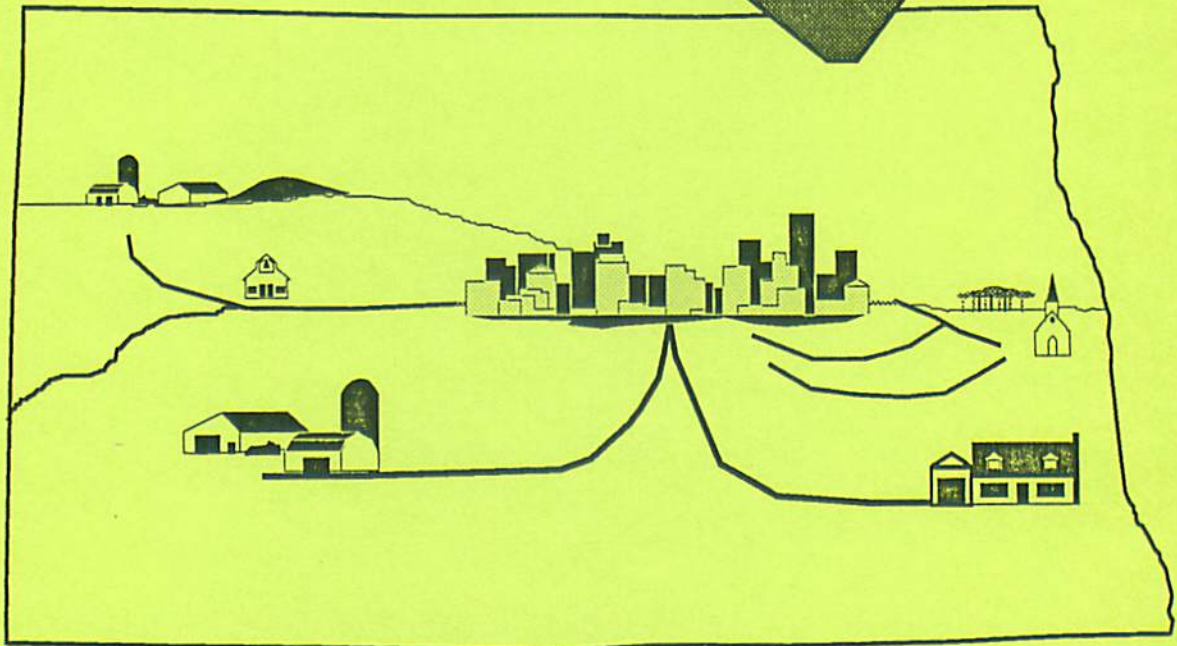
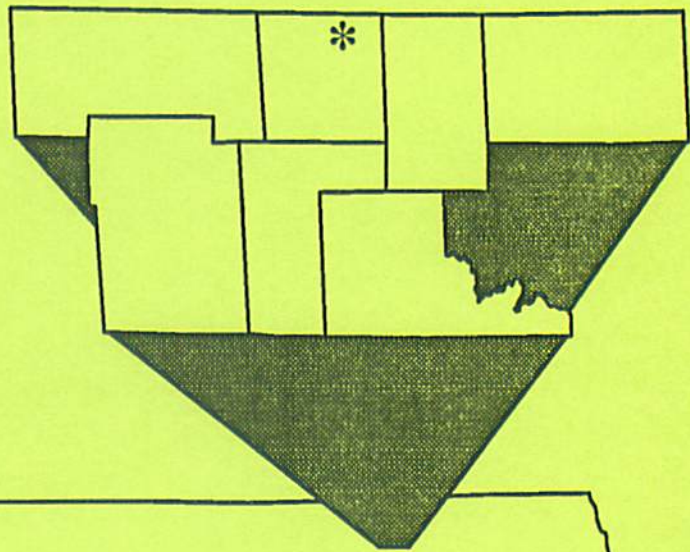
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ACKNOWLEDGMENTS

The information in this report was assembled through the combined efforts of a number of people and organizations. First, the authors wish to express appreciation to the Center for Rural Revitalization and the Institute for Business and Industry Development at North Dakota State University for their partial financial support of the study and to Ronald Anderson and Wallace Eide of those organizations, respectively, for their support and encouragement. The authors also wish to thank our former colleagues, Tim Mortensen and Brenda Ekstrom, whose assistance in designing and conducting the survey as invaluable.

The authors also extend sincere appreciation to Sharon Hilber for her editorial and graphics assistance, to Charlene Lucken for her editorial contribution, and to numerous support personnel whose efforts in coding and inputting the survey data made this report possible. Thanks are also extended to our colleagues in the Department of Agricultural Economics for their helpful reviews.

The authors accept sole responsibility for any remaining errors or omissions.

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HIGHLIGHTS

This report is intended to provide an indepth trade area analysis of Rolla, North Dakota. Specific analyses included determining Rolla's main and greater trade areas, identifying the demographic profile of Rolla shoppers, examining important and less important services for patron shoppers of Rolla, identifying neighboring cities that area shoppers patronize, determining distances area shoppers traveled to Rolla, and listing popular newspapers and radio stations among area residents.

Current trade area information for Rolla was obtained from a statewide trade area survey conducted by the Department of Agricultural Economics at North Dakota State University in 1989.

Recent trends (1980 to 1989) in Rolla population, retail sales, per capita income, pull factors, and Rolette County population and employment were identified and discussed. Rolla's population, trade area population, retail sales, and pull factors along with Rolette County average annual employment and per capita income have all decreased throughout the 1980s. Although most demographic and economic measurements have decreased, Rolla has fared as well as other North Dakota cities with similar populations, and has fared favorably compared to smaller competing trade centers. The economic situation found in Rolla and Rolette County are somewhat typical of the problems found in rural North Dakota communities in the 1980s.

Rolla's trade areas were broken down into main and greater trade areas. A main trade area (MTA) was defined as an area where the majority of township residents purchase a majority of selected goods and services in one city. A greater trade area (GTA) was defined as the area beyond the MTA where some township residents purchase some selected goods and services in one city. Rolla's MTA decreased in size by one township, compared to MTA boundaries determined in 1974.

The typical household for survey respondents appears to be a middle-aged married couple, who have completed high school, have few children at home, primarily are employed in agriculture and professional/technical professions, and have resided in the area a large portion of their lives.

Main trade area residents traveled an average of 13.3 and 13.9 miles to Rolla to purchase selected convenience and specialty goods and services, respectively. Many (40.8 percent) of the respondents who purchased 50 percent or more of convenience and specialty goods in Rolla traveled between 11 and 20 miles to purchase the item.

Rolla appears to be an important trade center for those who shop in Rolla; however, Rolla could capture more of the available market for nearly half of the goods and services listed on the survey, with clothing items having the lowest market capture.

Minot, Belcourt, Rolette, Bottineau, Devils Lake, St. John, Rocklake, and Grand Forks were the most popular cities for the purchase of nonagricultural goods and services by Rolla MTA residents who did not purchase a majority of the good or service in Rolla. Rocklake, Hansboro, and Perth were popular for purchasing agricultural goods and services.

Outshopping analysis revealed no substantial demographic or socioeconomic differences between Rolla MTA residents purchasing 50 percent or more and those purchasing less than 50 percent of selected goods and services in Rolla. Slight differences between groups were evident in miles traveled and average income.

The Minot Daily News and The Forum (Fargo) were the most popular daily newspapers for both Rolla MTA and GTA residents. The Turtle Mountain Star and The Towner County Star were the most popular weekly newspapers for Rolla MTA and GTA residents. The most popular radio stations for Rolla MTA residents included KBTO of Bottineau, KEYA of Belcourt, and KFYZ of Bismarck.

Although economic times have been difficult, Rolla appears to be doing a good job of retaining most of its past trade area; however, as decreases in retail sales and pull factors have shown, Rolla has been losing retail activity to other trade centers.

RETAIL TRADE AREA ANALYSIS: ROLLA, NORTH DAKOTA

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INTRODUCTION

North Dakota has witnessed considerable demographic and economic change in the 1980s. Rural population in North Dakota has continued to decline, due, in part, to instate migration to larger cities and outmigration of state residents. The economic base for many of North Dakota's smaller cities has continued to decline due to economic stress in both the farm sector and the energy industries. The combination of rural economic stress and reduced population has had significant impacts on retail trade for most geographic areas of North Dakota.

In addition to demographic and economic influences on retail activity in North Dakota, relative income levels, improved transportation, and changes in consumer tastes and preferences contribute to changes in retail trade patterns. The number and severity of factors influencing retail activity in North Dakota during the 1980s make trade area information crucial to concerned businesses and policymakers interested in developing effective strategies to cope with changing economic conditions. Dissemination of trade area information to rural cities and towns can help communities meet the challenges of the 1990s.

Purpose

The Department of Agricultural Economics at North Dakota State University has prepared two levels of trade area reports. An overview report was prepared discussing previous trade area work, outlining the methods and procedures used to determine trade areas for all cities in North Dakota, determining trade areas for the 11 largest North Dakota cities, and comparing purchases of services by patrons of different sized trade centers within the state (Bangsund et al. 1991). Other reports have been prepared to disseminate specific trade area information for individual cities.¹ The purpose of this report is to provide specific information about the Rolla trade area.

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¹ Copies of individual city reports can be obtained from the Department of Agricultural Economics, North Dakota State University, Fargo, North Dakota, 58105, (701) 237-7441.

This report will describe Rolla's main and greater trade areas, provide information on the demographic characteristics of Rolla area shoppers, and identify essential and nonessential services Rolla businesses provide.

Methods and Scope

The data for this report were obtained from a statewide trade area survey which the Department of Agricultural Economics at NDSU conducted in 1989. The NDSU Extension Service and the North Dakota Agricultural Experiment Station, through their respective Rural Development Center projects, partially financed the study.

The survey was designed to obtain information about geographic shopping preferences for 37 nonagricultural and 12 agricultural goods and services and selected demographic characteristics of those responding. Although the survey provided information on all North Dakota cities and towns where people purchase goods and services, material presented in this report primarily covers the Rolla trade area.

This report is organized into four sections: (1) population and other demographic information about Rolla, (2) trade area delineation criteria and boundaries, (3) trade patterns of Rolla area shoppers, and (4) summary and conclusions.

ROLLA AND SURROUNDING AREA PROFILE

Understanding changes in population and economic activity is helpful to businesses and community planners. Much of the prosperity of rural trade areas hinges on the population base. The following briefly highlights the patterns and trends from 1980 to 1989 in Rolla population, retail sales, market share, per capita income, pull factors, and Rolette County population and employment.

Population figures presented in this section are based on the 1980 Decennial Census count, with population estimates for years 1981 through 1989 reflecting adjustments to the 1980 Census count. Population figures from the 1990 Decennial Census count were not available for use in this report. Trade area information in this section is based on trade area boundaries which were determined in the 1970s. Although population and trade area information in this section was not adjusted for current findings (i.e., 1990 Census numbers and new trade area boundaries), the economic information used was current and the general condition of rural communities can be described using this information.

Rolla's population declined about 13 percent from 1980 to 1988 (Table 1). Of the North Dakota cities in the population range 1,500 to 2,500, only five had population increases from 1980 to 1988. If Hazen, the population of which increased almost 42 percent, was removed from the group, the size category would have decreased in population about 7 percent. Rolla's trade area population decreased about 7.4 percent from 1980 to 1988. The population trends of Rolla's competing trade centers were mixed, with Dunseith, Cando, and Langdon increasing in population. Dunseith and Rolette trade areas increased in population from 1980 to 1989.

Since Rolla's trade areas cover parts of counties other than Rolette County, population, average annual employment, and per capita income have been identified for surrounding counties (Table 2). Population in Rolette County increased only 0.19 percent from 1980 to 1988, and it was the only county in the area which increased in population.

TABLE 1. CITY AND TRADE AREA POPULATION FOR ROLLA AND SELECTED CITIES, NORTH DAKOTA, 1980 AND 1988

City	County	City Population		Percent Change	Trade Area Population ^a		Percent Change
		1980	1988	1980-88	1980	1988	1980-88
Population over 10,000							
Group Total		253,628	274,280	8.14	--	--	--
Population 2,500 to 10,000							
Bottineau	Bottineau	2,829	2,700	-4.56	6,902	6,627	-3.98
Rugby	Pierce	3,335	3,020	-9.45	6,723	5,882	-12.51
Group Total		43,813	45,650	4.19	9,602	9,579	2.52
Population 1,500 to 2,500							
Langdon	Cavalier	2,335	2,360	1.07	6,348	5,382	-15.22
Rolla	Rolette	1,538	1,340	-12.87	3,829	3,546	-7.39
Group Total		39,095	37,540	-3.98	--	--	--
Population 1,000 to 1,500							
Cando	Towner	1,496	1,680	12.30	3,416	3,330	-2.52
Group Total		29,622	27,540	-7.03	--	--	--
Population 500 to 1,000							
Dunseith	Rolette	625	740	18.40	2,749	2,846	3.53
Rolette	Rolette	667	610	-8.55	1,728	1,870	8.22
Group Total		32,154	31,200	-2.97	--	--	--
Population 200 to 500							
St. John	Rolette	401	390	-2.74	.	.	.
Group Total		28,746	27,373	-4.78	--	--	--
All Population Categories							
State Total		427,058	443,583	3.87	--	--	--

^aTrade areas were based on previous work by North Dakota State University Extension Service.

SOURCE: Leistritz et al. 1990.

TABLE 2. POPULATION, AVERAGE ANNUAL EMPLOYMENT, AND PER CAPITA INCOME FOR ROLETTE AND SURROUNDING COUNTIES, NORTH DAKOTA, 1980 TO 1989

County	1980	1982	1984	1986	1988	1989	Percent Change 1980-88/89	
----- Population -----								
Rolette	12,177	12,500	13,500	12,300	12,200	---	0.19	
Surrounding Counties								
Benson	7,944	7,800	7,800	7,600	7,400	---	-6.85	
Bottineau	9,239	9,300	9,300	8,800	8,700	---	-5.83	
Pierce	6,166	6,100	6,000	5,600	5,400	---	-12.42	
Towner	4,052	4,100	4,200	3,900	3,900	---	-3.75	
North Dakota	652,717	672,000	687,000	679,000	667,000	---	2.19	
----- Average Annual Employment ^a -----								
Rolette	4,090	4,239	4,396	4,561	3,875	3,964	-3.08	
Surrounding Counties								
Benson	2,879	2,974	3,041	3,108	3,205	2,782	-3.37	
Bottineau	3,788	3,999	3,653	3,512	3,310	3,221	-14.97	
Pierce	2,847	2,885	2,585	2,525	2,470	2,448	-14.01	
Towner	1,968	2,022	1,744	1,713	1,718	1,704	-13.41	
North Dakota	228,002	297,002	310,953	313,001	316,000	317,000	10.07	
----- Per Capita Income ^b -----								
	1979 ^c		1987					Percent Change 1979 to 1987
Rolette	\$6,489		\$6,117					-5.7
Surrounding Counties								
Benson	7,758		7,296					-6.0
Bottineau	9,020		9,101					0.9
Pierce	8,260		8,472					2.6
Towner	9,720		9,082					-6.6
North Dakota	10,041		9,641					-4.0

^aJob Service North Dakota. Various Issues. North Dakota Labor Force by County, by Region. Bismarck.

^bU.S. Department of Commerce, Bureau of the Census, "Current Population Reports," Series P-26 (Spring 1990).

^cReal Dollars, 1979 dollars inflated to 1987 dollars using Consumer Price Index inflators (U.S. Department of Labor, Bureau of Labor Statistics).

SOURCE: Leistritz et al. 1990.

Average annual employment in Rolette County decreased 3.1 percent from 1980 to 1988. Employment in most counties surrounding Rolla declined substantially. Along with declines in population and employment in Rolette County, real per capita income (i.e., adjusted for inflation) also decreased (5.7 percent) from 1979 to 1987. Per capita income decreased in half of the surrounding counties.

Rolla's deflated taxable sales (i.e., adjusted for inflation) decreased 30.07 and 8.3 percent from 1980 to 1989 and 1987 to 1989, respectively (Table 3). Rolla's decreases in taxable sales were less than the group average of 45.56 and 10.06

TABLE 3. DEFLATED TAXABLE SALES AND PURCHASES FOR ROLLA AND SELECTED CITIES, NORTH DAKOTA, 1980 TO 1989

City	Deflated Taxable Sales and Purchases (1989 Dollars)			Percent Change	
	1980	1987	1989	1980-89	1987-89
----- dollars -----					
Population over 10,000					
Group Total	2,578,781,160	2,337,648,605	2,396,999,678	-7.05	2.54
Population 2,500 to 10,000					
Bottineau	35,721,366	20,603,595	18,404,403	-48.48	-10.67
Rugby	30,349,378	22,029,173	23,437,887	-22.77	6.39
Group Total	398,731,612	315,496,552	298,875,168	-25.04	-5.27
Population 1,500 to 2,500					
Langdon	26,352,679	19,015,503	17,544,619	-33.42	-7.74
Rolla	18,018,874	13,741,231	12,601,335	-30.07	-8.30
Group Total	415,612,668	251,583,986	226,276,758	-45.56	-10.06
Population 1,000 to 1,500					
Cando	15,032,301	7,930,244	6,214,370	-58.66	-21.64
Group Total	222,752,746	141,859,953	130,721,134	-41.32	-7.85
Population 500 to 1,000					
Dunseith	3,167,485	3,058,705	3,200,031	1.03	4.62
Rolette	5,668,616	2,579,671	2,271,592	-59.93	-11.94
Group Total	197,005,522	124,426,751	123,454,776	-37.33	-0.78
Population 200 to 500					
St. John	674,199	630,366	695,078	3.10	10.27
Group Total	150,696,574	96,258,478	83,084,913	-44.87	-13.69
All Population Categories					
State Total	3,963,580,282	3,267,274,325	3,259,412,427	-17.77	-0.24

SOURCE: Leistritz et al. 1990.

percent for 1980 to 1988 and 1987 to 1989, respectively. All competing cities also suffered large decreases in their adjusted taxable sales for the same time periods, except Dunseith and St. John. Statewide, taxable sales decreased 17.77 and 0.24 percent from 1980 to 1989 and 1987 to 1989, respectively.

Pull factors measure a community's success in capturing the potential purchasing power of residents in its trade area. Pull factors greater than 1.0 mean a community's retail sales are greater than the purchasing power of its trade area, suggesting the community may be "pulling" customers from outside its normal trade area. Conversely, if a pull factor is less than 1.0, the community is not capturing its share of the purchasing power in its trade area.

Rolla's pull factor decreased nearly 62 percent from 1980 to 1989 (Table 4). Only Drayton and Walhalla, in the population group 1,500 to 2,500, increased their pull factor from 1980 to 1989. Rolla's pull factor is below the group average, indicating the community captures less of its trade area purchasing power than most of the cities with similar population. Pull factors for all competing cities decreased substantially from 1980 to

TABLE 4. PULL FACTORS FOR ROLLA AND SELECTED CITIES, NORTH DAKOTA, 1980 TO 1989

City	Pull Factor			Percent Change		
	1980	1987	1989	1980-87	1980-89	1987-89
Population over 10,000 Group Average	1.12	0.96	1.01	-14.20	-9.63	5.32
Population 2,500 to 10,000						
Bottineau	0.90	0.64	0.53	-28.78	-41.10	-17.31
Rugby	0.88	0.80	0.70	-9.32	-19.96	-11.73
Group Average	0.79	0.73	0.64	-8.40	-19.82	-12.47
Population 1,500 to 2,500						
Langdon	0.68	0.63	0.70	-8.31	2.82	12.14
Rolla	1.18	1.14	0.45	-3.22	-61.52	-60.24
Group Average	0.89	0.65	0.52	-26.93	-42.26	-20.99
Population 1,000 to 1,500						
Cando	0.72	0.49	0.35	-32.84	-51.17	-27.29
Group Average	0.65	0.53	0.43	-18.35	-34.55	-19.84
Population 500 to 1,000						
Dunseith	0.29	0.30	0.14	5.58	-50.27	-52.90
Rolette	0.82	0.46	0.16	-43.60	-81.13	-66.54
Group Average	0.60	0.49	0.42	-18.94	-29.78	-13.38
Population 200 to 500						
St. John	*	*	*	*	*	*
Group Average	0.41	0.35	0.28	-14.30	-30.65	-19.07

SOURCE: Leistritz et al. 1990.

1989, except Langdon, which increased its pull factor 2.8 percent. Pull factors in 1989 for competing cities were close to Rolla's pull factor, suggesting Rolla does an average job of capturing its available market, when compared to neighboring cities.

Both city and county populations have declined in the geographic area near Rolla, excluding the 0.19 percent population growth in Rolette County. Rolla's deflated taxable sales and pull factors have decreased in the 1980s. Real per capita income and average annual employment in Rolette County also decreased in the 1980s. Changes in economic activity and population for Rolla have been similar to other North Dakota cities in the 1,500 to 2,500 population range, suggesting Rolla is no worse off than other cities of comparable size.

Although Rolla suffers from decreased economic activity and population declines, the city is doing as well as its smaller competing cities. Smaller cities and towns competing with Rolla appear to be suffering as much economic decline as is evident in larger cities. Economic pressures and population declines found in Rolette County and Rolla are somewhat typical of the economic problems found in rural North Dakota communities in the 1980s.

TRADE AREA DELINEATION

A trade area can be loosely defined as the geographic area from which a business or city draws its customers. Determining a trade area depends heavily on the city size, location of the city with respect to other trade centers, and the criteria used to distinguish the trade area boundaries. Trade area criteria can vary according to trade center classification and type of trade area, and these trade areas can be broken down into primary and secondary trade areas.

Generally, primary (main) trade areas (MTAs) are those geographic regions where a trade center draws a significant portion of its retail activity. Secondary (greater) trade areas (GTAs) are geographic areas outside of the primary trade area where the trade center still extends some retail influence; however, only limited retail or service activity is generated from this region.

A primary trade area (main) was defined as an area where the majority of the people purchase a majority of their goods and services at one location. A secondary trade area (greater) was defined as an area where some of the people purchase some of their goods and services at one location.

Two major criteria were used in determining trade areas in North Dakota. The first criterion was to classify each trade center according to the level of retail activity and use the trade center classification to determine a mix of goods and services, and the second criterion determined how townships were included in the main trade area and greater trade area (Bangsund et al. 1991). The scope of this report does not permit the detailed discussion of all the procedures involved in determining a city's main and greater trade area; however, a brief synopsis is included of the trade area criteria used for Rolla.

North Dakota cities were put in seven size classifications, and the types of services expected to be provided by each size classification were outlined (Bangsund et al. 1991). Each size of trade center was expected to provide a different number of goods and services and different amounts of similar services across trade center sizes. Thus, trade area boundaries were defined by using a mix of goods and services most appropriately provided by a city of that size.

Rolla was classified as a partial shopping center based on average retail sales from 1987 to 1989. The mix included some convenience, specialty, and agricultural goods and services. Convenience goods and services are those that typically have a small unit value, are frequently purchased with a minimum of effort, and are purchased soon after the idea of the purchase enters the buyer's mind. Specialty goods are those nonstandardized goods and services that typically have a large

unit value, are purchased only after comparing price, quality, features, and type among stores, and customers are willing to travel and exert more energy to secure the good or service than convenience items.

Convenience Goods and Services

Banking and savings	Groceries
Eating places	Hardware
Gas and diesel service	Prescription drugs

Specialty Goods and Services

Auto repair	Legal services
Beautician	Men's clothing
Furniture	Radios, TVs, VCRs
Hospital	Sporting goods

Agricultural Goods and Services

Farm machinery	Farm supplies
----------------	---------------

The main trade area for Rolla was defined by townships where 50 percent or more of the residents purchased 50 percent or more of the selected mix of goods and services in Rolla. The greater trade area was defined by townships where 10 percent or more of the residents purchased at least 10 percent of a selected mix of goods and services in Rolla.

Several problems arise when trying to define trade areas using survey information. The most common problems were lack of usable responses from some townships and unclear distinction of purchase behavior in some townships, i.e., respondents diversified their shopping equally among several trade centers. Bangsund et al. (1991) discussed the procedures and criteria for handling townships which did not clearly meet the requirements for the main and greater trade areas.

Rolla's MTA captures more townships to the north of the city than in any other direction, with the GTA extending almost evenly around the MTA (Figure 1). The Rolla GTA has an even influence on the townships located to the west, south, and east of town. Rolla's ability to attract customers appears limited by competition from other trade centers, primarily Bottineau (to the west), Rugby (to the south), and Langdon (to the east).

CHARACTERISTICS OF ROLLA AREA RESIDENTS

Business people and community leaders usually are interested in the characteristics of local shoppers and shopping patterns. The characteristics of Rolla shoppers were analyzed, using 132 survey responses from the Rolla MTA. Other analyses included examination of important and less important services for patron shoppers of Rolla, identification of neighboring cities area shoppers patronize, determination of distances area shoppers

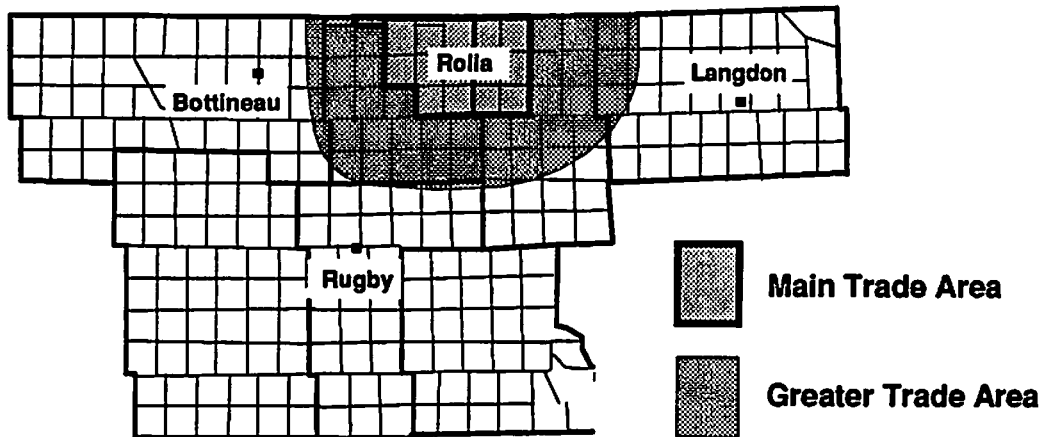


Figure 1. Main and Greater Trade Areas for Rolla, North Dakota, 1989

traveled to Rolla, and listing popular newspapers and radio stations among area residents.

Demographic Profile of Shoppers in Rolla Main Trade Area

Demographic characteristics of the survey respondents for the Rolla MTA were identified (Table 5). The typical household for survey respondents appears to be a middle-aged married couple who have completed high school, have few children at home, are primarily employed in agriculture and professional/technical professions, and have resided in the area a large portion of their lives.

Distance Traveled by Rolla Area Shoppers

Average distances that area residents traveled to Rolla were determined for each convenience and specialty good or service in the 16-item goods and services mix (Table 6). Distances were determined by averaging respondents' estimated miles between

TABLE 5. DEMOGRAPHIC PROFILE OF RESPONDENTS IN MAIN TRADE AREA,
ROLLA, NORTH DAKOTA, 1989

Demographic Characteristic	Average of Survey Responses	
Age (Years)	48.4	
Education (Years)	12.4	
Lived in County (Years)	34.0	
Household Size (People)	3.0	
Average Household Income	\$25,285	
Occupation	Respondent	Spouse
	---%---	---%---
Farming	20.7	17.0
Retired	19.0	18.2
Tech/Sales/Admin	19.0	14.8
Professional	18.2	18.2
Service Jobs	9.1	13.6
Equipment Operator	6.6	3.4
Craft/Repair	5.0	8.0
Housewife	0.8	4.5
Other	1.7	2.3
Martial Status	--- % ---	
Single	10.2	
Separated/Divorced	7.8	
Married	72.7	
Widowed	9.4	
Male	50.8	
Female	49.2	

Rolla and their home residence. Rolla residents and any respondents who lived one mile or less from Rolla were not included in the analysis. Once the average distance was determined for each township, the number of respondents purchasing 50 percent or more of the 16 items in the service mix in Rolla was multiplied by the average distance to determine total miles of travel for that township (for the specific good or service).

Townships included in the distance analysis were not limited to those in the MTA; instead distances traveled were included for anyone (living in surrounding counties) who purchased 50 percent or more of the selected good or service in Rolla. Total miles of travel were summed for all townships for that good or service and

TABLE 6. AVERAGE DISTANCE TRAVELED BY AREA RESIDENTS WHO PURCHASED 50 PERCENT OR MORE OF SELECTED SERVICES IN ROLLA, NORTH DAKOTA, 1989^a

<u>All Respondents Purchasing 50 Percent or More of the Service in Rolla</u>			
<u>Convenience Items</u>		<u>Specialty Items</u>	
<u>Goods and Services</u>	<u>Average Miles Traveled</u>	<u>Goods and Services</u>	<u>Average Miles Traveled</u>
Gas & Diesel Stations	11.8	Auto Repair	13.5
Groceries	13.3	Beautician	11.0
Eating Places	12.9	Radios, TVs, VCRs	12.0
Banking and Savings	11.4	Sporting Goods	16.1
Hardware	14.6	Men's Clothing	11.6
Prescription Drugs	<u>15.0</u>	Hospital	16.1
		Legal Services	14.4
		Furniture	<u>12.6</u>
Average	13.3	Average	13.9
<u>MTA Respondents Only Who Purchase 50 Percent or More of the Service in Rolla</u>			
<u>Convenience Items</u>		<u>Specialty Items</u>	
<u>Goods and Services</u>	<u>Average Miles Traveled</u>	<u>Goods and Services</u>	<u>Average Miles Traveled</u>
Gas & Diesel Stations	10.1	Radios, TVs, VCRs	9.4
Eating Places	12.1	Auto Repair	11.5
Prescription Drugs	13.0	Furniture	10.4
Groceries	11.1	Beautician	10.4
Banking and Savings	10.4	Legal Services	10.7
Hardware	<u>11.6</u>	Hospital	12.3
		Men's Clothing	9.9
		Sporting Goods	<u>14.2</u>
Average	11.3	Average	11.1

^aOne-way distance to Rolla only.

divided by the total number of respondents who purchased 50 percent or more of that item in Rolla.

The average distance traveled to Rolla to purchase convenience goods and services was less than that traveled for specialty goods and services for all respondents (regardless of residence location). The average distance traveled to purchase convenience goods and services was slightly more than that traveled for specialty goods and services for respondents in the MTA who purchased 50 percent or more of the item in Rolla. For those respondents living in the MTA, the average distance traveled for both types of goods and services was nearly identical.

Distance traveled by type of good or service (convenience and specialty) was broken down into distance categories. Many (40.8 percent) of the respondents (regardless of residence location) who purchase 50 percent or more of a convenience and specialty good or service travel between 11 and 20 miles to purchase the item in Rolla (Table 7). For those living in the MTA, both the number of respondents per distance category and most common distance traveled were similar.

Area Shoppers' Utilization of Goods and Services Provided in Rolla

The importance of Rolla as a trade center for those who shop in Rolla and the ability of Rolla to capture the MTA market for selected goods and services were determined (Table 8). The importance of shopping in Rolla was determined by examining the number of respondents who purchased some of their goods and services in Rolla and comparing those responses to the number who purchased a majority of their goods and services in Rolla. A high percentage meant if respondents shopped in Rolla, they likely would purchase a majority of those goods and services in

TABLE 7. MILEAGE BREAKDOWN FOR AREA SHOPPERS PURCHASING 50 PERCENT OR MORE OF A CONVENIENCE AND SPECIALTY SERVICE IN ROLLA, NORTH DAKOTA, 1989

<u>All Respondents Purchasing 50 Percent or More of a Service in Rolla</u>				
Distance (Miles) ^a	<u>Convenience Goods</u>		<u>Specialty Goods</u>	
	Number	Percent	Number	Percent
1 to 5	10	9.3	10	8.2
6 to 10	28	26.2	26	21.3
11 to 15	16	15.0	17	13.9
16 to 20	26	24.3	30	24.6
21 to 25	10	15.0	25	20.5
over 25	11	10.3	14	11.5

<u>MTA Respondents Only Who Purchase 50 Percent or More of a Service in Rolla</u>				
Distance (Miles) ^a	<u>Convenience Goods</u>		<u>Specialty Goods</u>	
	Number	Percent	Number	Percent
1 to 5	9	15.5	9	14.5
6 to 10	21	36.2	21	33.9
11 to 15	13	22.4	14	22.6
16 to 20	10	17.2	13	21.0
21 to 25	4	6.9	4	6.5
over 25	1	1.7	1	1.6

^aThose living in Rolla or traveling less than one mile to Rolla were not included in the analysis.

TABLE 8. RELATIVE IMPORTANCE OF ROLLA TO SHOPPERS PURCHASING SOME GOODS AND SERVICES AND FOR THOSE PURCHASING A MAJORITY OF THEIR GOODS AND SERVICES IN ROLLA, NORTH DAKOTA, 1989

Goods and Services	Responses in Rolla Main Trade Area					Measure of Market Capture
	Purchase the Goods & Services Somewhere	Purchase Some of the Goods & Services in Rolla		Purchase Majority of the Goods & Services in Rolla		
		No.	% ^a	No.	% ^b	
Chiropractor	38	14	36.8	14	100.0	36.8
Mortician	82	81	98.8	81	100.0	98.8
Heating Fuel/Propane	101	72	71.3	71	98.6	70.3
Accounting Services	84	58	69.0	57	98.3	67.9
Legal Service	96	72	75.0	69	95.8	71.9
Auto Repair	124	106	85.5	100	94.3	80.6
Plumber	94	70	74.5	66	94.3	70.2
Dentist	126	69	54.8	65	94.2	51.6
Appliance/Elec Repair	95	84	88.4	79	94.0	83.2
Building Supplies	116	112	96.6	104	92.9	89.7
Hospital	124	101	81.5	93	92.1	75.0
Family Doctor	128	108	84.4	99	91.7	77.3
Hardware	126	119	94.4	107	89.9	84.9
Barber	88	58	65.9	52	89.7	59.1
Banking and Savings	124	105	84.7	94	89.5	75.8
Optometrist	120	55	45.8	49	89.1	40.8
Prescription Drugs	127	100	78.7	88	88.0	69.3
Beautician	103	66	64.1	58	87.9	56.3
Groceries	131	124	94.7	108	87.1	82.4
Gas/Diesel Service	128	107	83.6	92	86.0	71.9
Auto Sales	121	98	81.0	83	84.7	68.6
Veterinarian (Sm Animals)	67	25	37.3	21	84.0	31.3
Nursery (Plants)	85	62	72.9	51	82.3	60.0
Radios, TVs, VCRs	110	84	76.4	69	82.1	62.7
Major Appliances	114	88	77.2	71	80.7	62.3
Florist	106	88	83.0	71	80.7	67.0
Eating Places	118	97	82.2	77	79.4	65.3
Furniture	111	90	81.1	69	76.7	62.2
Drinking Places	70	55	78.6	40	72.7	57.1
Shoes	122	86	70.5	59	68.6	48.4
Computers	25	6	24.0	4	66.7	16.0
Jewelry	69	50	72.5	33	66.0	47.8
Sporting Goods	88	58	65.9	37	63.8	42.0
Women's Coats	102	60	58.8	38	63.3	37.3
Men's Clothing	109	86	78.9	53	61.6	48.6
Women's Clothing	119	90	75.6	51	56.7	42.9
Teenage Clothing	49	39	79.6	21	53.8	42.9
----- Agricultural Goods and Services -----						
Commercial Feeds	14	10	71.4	10	100.0	71.4
Farm Machinery	28	27	96.4	27	100.0	96.4
Farm Mach Repair/Parts	30	28	93.3	27	96.4	90.0
Farm Fuel & Lubricant	29	23	79.3	22	95.7	75.9
Crop Consultants	13	12	92.3	11	91.7	84.6
Other Farm Chemicals	27	23	85.2	21	91.3	77.8
Fertilizer	26	21	80.8	19	90.5	73.1
Other Farm Supplies	26	24	92.3	21	87.5	80.8
Crop Seeds	23	12	52.2	10	83.3	43.5
Veterinary Services	14	8	57.1	6	75.0	42.9
Grain Marketing	26	20	76.9	15	75.0	57.7
Livestock Marketing	13	0	0.0	0	0.0	0.0

^aDetermined by dividing number of responses of those who purchase some of the service in Rolla by the number who purchase some of the service anywhere. Number indicates how many buyers of the service are willing to purchase some of the service in Rolla.

^bDetermined by dividing number of responses of those who purchase majority of the service in Rolla by the number who purchase some of the service in Rolla. Number is proxy for relative importance of Rolla as a provider of the service for those purchasing the item.

^cDetermined by dividing number of responses who purchase majority of the service in Rolla by the number who purchase some of the service anywhere. Number is proxy for ability of Rolla to capture potential market for that service.

Rolla. A low percentage meant that, although some of the goods and services were purchased in Rolla, the majority of the goods and services was purchased elsewhere.

Goods and services that appear to be most utilized by those shopping in Rolla include chiropractor, mortician, heating fuel and propane, accounting services, and legal services (services where 95 percent of those buying the service in Rolla purchase a majority of the service in Rolla). The goods and services that people are less likely to purchase a majority of in Rolla include teenage clothing, women's clothing and coats, men's clothing, sporting goods, jewelry, computers, and shoes.

The ability of Rolla to capture the potential market within the MTA was determined by comparing those who purchase the good or service (not necessarily in Rolla) to the number of respondents who purchase a majority of the good or service in Rolla. A high percentage meant that Rolla captures a large amount of the potential market for the good or service. A low percentage meant that Rolla does not capture much of the market for that good or service.

Goods and services for which Rolla is capturing a large amount of the potential market (80 percent or more) within the MTA include mortician, building supplies, hardware, appliance and electrical repair, groceries, and auto repair. Goods and services for which Rolla does not capture the existing market (less than 60 percent) include computers, chiropractor, shoes, women's coats and clothing, men's clothing, veterinarian (small animals and livestock), teenage clothing, optometrist, beautician, drinking places, jewelry, and crop seeds.

Mortician goods and services are important to Rolla shoppers and those for which Rolla is capturing a large percentage of the market. Chiropractor, dentist, optometrist, veterinarian (small animals) services are important to shoppers in Rolla, but few of the potential buyers purchase a majority of those goods and services in Rolla.

Most patrons are purchasing a majority of their goods and services in Rolla; however, Rolla could capture more of the potential market for these items, suggesting some trade center loyalty for those shopping in Rolla but at the same time a good portion of the market is being lost to other trade centers. Most of the goods and services for which Rolla is capturing much of the potential market are also important to Rolla shoppers, suggesting that most of the potential shoppers (within the MTA) feel Rolla is an important source for most of their services.

Where Services Are Purchased When Not Purchased In Rolla

For most of the goods and services listed in the survey, some respondents did not purchase any of the good or service in Rolla or purchased more of the good or service in other cities. For people living in the Rolla MTA and not purchasing a majority of the services in Rolla, the cities where the majority of those services were purchased were identified (Table 9). Minot was the most popular choice for services purchased outside of the Rolla MTA. Other popular cities included Belcourt, Rolette, Bottineau, Devils Lake, St. John, Rocklake, and Grand Forks. Rocklake, Hansboro, and Perth were popular for purchasing agricultural goods and services.

Rolla will always lose some shoppers to surrounding cities and towns for several reasons. First, many shoppers in the Rolla MTA live close to other towns where it may be more convenient to shop for some goods and services (e.g., some agricultural services and convenience items). Second, Minot, and to a lesser extent other larger neighboring cities, because of their size, will have an image of greater variety and more favorable prices for many goods and services. Thus, many people will travel to those cities to shop even if the same merchandise is available locally and is competitively priced. Third, some towns have businesses which have a reputation for providing excellent service and/or quality products, often drawing customers from areas not normally considered within its trade area. Finally, when people travel to other towns, primarily for reasons other than shopping, they likely may spend some time shopping (e.g., when parents/students travel to a state basketball tournament in Bismarck, Fargo, Minot, etc., they are likely to shop while in town; also trips to larger trade centers to see medical specialists or attend recreational events can result in considerable outshopping).

Analysis of Outshoppers in Rolla Main Trade Area

Responses were analyzed to determine if those who bought 50 percent or more of selected goods and services in Rolla differed from those who bought less than 50 percent. Differences between the two groups also were analyzed by convenience and specialty services.

According to selected demographic characteristics, little difference exists between those who purchase a majority of their goods and services in Rolla and those who purchase a majority of their goods and services elsewhere (Table 10). Also, little difference exists between groups and within each group for either convenience or specialty goods and services.

Household income was higher for convenience goods and services for the group purchasing 50 percent or more of the

TABLE 9. MOST POPULAR CITIES FOR THE PURCHASE OF GOODS AND SERVICES BY ROLLA MAIN TRADE AREA RESIDENTS WHO DID NOT PURCHASE A MAJORITY OF THE GOOD OR SERVICE IN ROLLA, NORTH DAKOTA, 1989

Goods and Services	Most Popular Cities	Responses Per City	Percent Purchased	Goods and Services	Most Popular Cities	Responses Per City	Percent Purchased	
Grocery	Belcourt	9	76.1	Eating Places	Belcourt	13	62.1	
	St. John	9	65.0		Minot	7	49.9	
	Dunseith	3	56.7		St. John	5	71.0	
Drinking Places	Belcourt	11	67.5	Men's Clothing	Minot	29	67.2	
	St. John	6	78.3		Devils Lake	6	57.5	
	Rocklake	4	75.0		Grand Forks	5	68.0	
Women's Clothing	Minot	44	64.4		Fargo	4	52.5	
	Bismarck	3	76.7		Rugby	4	45.0	
	Grand Forks	3	70.0	Teen Clothing	Minot	18	74.2	
	Devils Lake	3	66.7		Devils Lake	3	70.0	
Women's Coats	Rugby	3	50.0	Shoes	Minot	34	68.8	
	Minot	40	66.9		Devils Lake	8	70.6	
	Devils Lake	6	61.7		Grand Forks	5	71.0	
	Grand Forks	4	83.8	Radios, TVs, VCRs	Minot	19	72.1	
Bismarck	4	80.0	Grand Forks		5	64.0		
Jewelry	Minot	18	68.6		Bottineau	4	80.0	
	Grand Forks	5	69.0	Florist	Belcourt	20	73.3	
	Bottineau	4	65.0		St. John	8	82.5	
Major Appliance Repair	Rolette	5	67.0	Gas Station	Belcourt	14	81.6	
	Minot	3	96.7		St. John	13	89.9	
	Devils Lake	3	70.0	Plumber	Belcourt	12	93.8	
Auto Sales	Minot	9	58.9		Rolette	11	75.5	
	Devils Lake	5	48.8		Nursery (Plants)	St. John	10	86.5
	Rugby	5	46.0			Belcourt	7	65.0
	Grand Forks	4	65.0	Bottineau		4	72.5	
Furniture	Minot	30	78.3	Minot		4	50.0	
	Devils Lake	3	76.7	Legal Service	Cando	7	97.1	
Auto Repair	St. John	9	81.0		Belcourt	6	71.7	
	Belcourt	5	84.0		Bottineau	4	83.8	
	Rocklake	3	91.7		Accounting Service	Bottineau	10	89.0
Heating Fuel/Propane	St. John	14	99.3	Devils Lake		6	91.7	
	Rolette	4	85.0	Barber		Belcourt	16	89.4
	Belcourt	3	100.0		Rolette	6	83.3	
	Cando	3	100.0		Rocklake	4	78.8	
Beautician	Rocklake	19	91.3	Family Doctor	Belcourt	22	87.7	
	Belcourt	10	84.0		Banking and Services	Dunseith	12	91.7
	Minot	5	76.0	Cando		7	76.4	
Optometrist	Minot	16	86.9	Rolette		5	91.0	
	Belcourt	12	90.8	Building Supplies		Grand Forks	7	67.1
	Rugby	10	83.1		Mortician	One city with 1 response		
	Grand Forks	8	93.8	Hospital		Belcourt	19	92.1
	Bottineau	7	90.0			Grand Forks	4	92.5
Fargo	5	73.0	Hardware	Belcourt	6	71.7		
Computers	Minot	8		74.0	St. John	5	83.0	
	Grand Forks	4	97.5	Farm Machinery	One city with 1 response			
	Belcourt	4	87.5		Crop Consultant	Two cities with 1 resp ea.		
Appliance	Minot	24	77.7			Fertilizer	Hansboro	3
	Devils Lake	7	71.4	Rocklake	2		32.5	
	Rolette	5	78.0	Crop Seeds	Bottineau	4	48.8	
Chiropractor	Bottineau	7	76.4		Perth	3	90.0	
	Devils Lake	5	100.0		Rocklake	3	58.3	
	Rugby	4	68.8	Grain Marketing	Perth	4	83.8	
Dentist	Belcourt	27	93.9		Hansboro	2	67.5	
	Cando	6	94.2		Rocklake	2	37.5	
	Killarney, Man	6	87.5	Farm Supplies	Rocklake	2	54.5	
	Rolette	5	96.0		Bottineau	2	40.0	
Prescription Drugs	Belcourt	27	92.2	Commercial Feed	Four cities with 1 resp each			
	Out of Stato	4	92.5		Farm Chemical	Hansboro	3	63.3
Vot (Small Animal)	Rocklake	20	81.0		Livestock Marketing	Rugby	10	80.0
	Rolette	19	82.6	Farm Fuel	Rocklake	3	100.0	
Sporting Goods	Minot	22	67.7		Farm Machinery Repair	Three cities with 1 resp each		
	Devils Lake	9	62.2	Veterinary Services		Rolette	4	85.0
	St. Johns	5	85.0			Rocklake	3	66.7

TABLE 10. DEMOGRAPHIC CHARACTERISTICS FOR PEOPLE IN THE MAIN TRADE AREA WHO PURCHASE LESS THAN 50 PERCENT AND THOSE WHO PURCHASE MORE THAN 50 PERCENT OF THEIR SERVICES IN ROLLA, NORTH DAKOTA, 1989

Attribute	Group Purchasing 50 Percent or More of Goods in Rolla				Group Purchasing Less Than 50 Percent of Goods in Rolla			
	Groc-eries	Gas Station	Building Supplies	Major Appliances	Groc-eries	Gas Station	Building Supplies	Major Appliances
Age	47.6	49.0	47.3	47.4	51.3	46.4	46.5	48.8
Education	12.4	12.4	12.4	12.4	12.3	12.2	13.1	12.4
Years Lived In County	33.0	32.9	34.6	32.8	37.8	36.5	26.3	34.1
Number in Household	3.1	2.8	3.2	3.2	3.0	3.5	3.1	3.0
Number in Grade School	0.6	0.5	0.6	0.6	0.6	0.9	0.7	0.6
Number in High School	0.4	0.4	0.4	0.4	0.5	0.5	0.3	0.4
Average Miles Traveled ^a	11.3	10.3	12.4	13.5	15.4	11.5	23.0	67.8
Household Income	26,556	26,084	26,989	26,328	20,208	23,056	27,813	26,628

^aThose living in Rolla and those traveling less than one mile to Rolla were not included in the analysis.

than for the group purchasing less than 50 percent; the opposite was true for specialty goods and services.

Both the average age and years resided in county were very high, suggesting either that the survey respondents were older individuals or the MTA is composed of older clientele (providing the survey is a representative sample of the MTA). Other demographic variables suggest that households in the Rolla MTA are small, with few school children. Only slight differences were evident between the two main groups, with no substantial differences appearing between those purchasing 50 percent or more and those purchasing less than 50 percent of the goods and services in Rolla.

Newspaper Subscriptions of Rolla Area Residents

Newspaper subscriptions of respondents in the Rolla main and greater trade areas were identified (Table 11). Newspaper subscriptions were divided into daily and weekly papers for both main and greater trade area respondents. The most popular daily newspapers for both the main and greater trade areas were *The Minot Daily News* and *The Forum* (Fargo). The most popular weekly papers for the main and greater trade areas were the *Turtle Mountain Star*

TABLE 11. NEWSPAPER SUBSCRIPTIONS FOR MAIN AND GREATER TRADE AREA RESPONDENTS, ROLLA, NORTH DAKOTA, 1989

Main Trade Area			Greater Trade Area		
Newspaper	Numbers of Respondents	Percent	Newspaper	Number of Respondents	Percent
----- Daily Newspapers -----					
Minot Daily News	38	55.9	Minot Daily News	46	45.5
Fargo Forum	6	8.8	Fargo Forum	10	9.9
Grand Forks Herald	21	30.9	Grand Forks Herald	29	28.7
Devils Lake Journal	3	4.4	Devils Lake Journal	7	6.9
			Others	9	9.0
Total	<u>68^a</u>		Total	<u>101^b</u>	
----- Weekly Newspapers -----					
Turtle Mountain Star	101	76.5	Turtle Mountain Star	100	48.8
Towner County Record	17	12.9	Towner County Record	46	22.4
Bottineau Courant	3	2.3	Bottineau Courant	23	11.2
AgWeek - Grand Forks	2	1.5	Pierce County Tribune	13	6.3
Others	9	6.8	Cavalier Cty. Republican	6	2.9
			Agweek - Grand Forks	5	2.4
			Others ^c	12	5.9
Total	<u>132^d</u>		Total	<u>205^c</u>	

^a62 respondents subscribe to a daily paper with 6 respondents subscribing to more than one paper.

^b97 respondents subscribe to a daily paper with 14 respondents subscribing to more than one paper.

^cOther popular weekly newspapers included Tri-County Sun, Harvey Herald, Benson County Farmer, Walsh County Press, Pierce County Tribune, West Hope Standard, Foster County Independent, Todd County Tribune, Billings County Herald, Bowman County Pioneer, Cavalier Chronicle, Grand Forks Herald (Sunday), Wibaux Press, Grand Forks Record.

^d104 respondents subscribe to a weekly paper with 28 respondents subscribing to more than one paper.

^e134 respondents subscribe to a weekly paper with 71 respondents subscribing to more than one paper.

and *Towner County Record*. Other popular weekly newspapers for respondents included *Bottineau Courant* and *Pierce County Tribune*.

Radio Stations of Rolla Area Residents

The most popular radio stations that respondents in Rolla's main trade area listened to were KBTO of Bottineau, followed by KEYA of Belcourt and KFYZ of Bismarck (Table 12).

TABLE 12. MOST POPULAR RADIO STATIONS FOR
RESPONDENTS IN THE MAIN TRADE AREA,
ROLLA, NORTH DAKOTA, 1989

Radio Station	Respondents	Number of Percent
KBTO-Bottineau	35	31.8
KEYA-Belcourt	31	28.2
KFYR-Bismarck	13	11.8
KNDK-Langdon	9	8.2
KDLR-Devils Lake	6	5.5
Others	16	14.5

Comparison of Current and Previous Rolla Trade Area Boundaries

Vangness (1974) discussed general information on retail trade and identified both main and greater trade areas for Rolla. Information from the past Rolla retail trade report was based on a different questionnaire; however, some comparisons to information in this report can be made. Probably the most valid and worthwhile comparison is to examine changes in Rolla's main and greater trade areas. Although trade area delineation criteria used in the previous Rolla trade area report differ, enough similarity exists to make comparisons with the trade area boundaries determined in this report.

The main trade area for Rolla has changed little from 1974. Rolla lost one and gained one township from Rolette. Rolla lost one township to Cando for an overall net loss of only one township overall since the early 1970s. The greater trade area appears to have diminished to the south of Rolla; however, the GTA appears to have remained constant to the west and east of Rolla. Some of the differences in trade areas may be attributed to different trade area delineation criteria and to changes in the relative strength of the Rugby trade center.

SUMMARY AND CONCLUSIONS

Trade area analysis was conducted for Rolla based on a statewide trade area survey which the Department of Agricultural Economics at NDSU conducted in 1989. The demographic and economic profile for Rolla was discussed. Rolla has suffered in the 1980s from decreased population, reduced taxable sales, and lower pull factors. Changes in economic activity and population for Rolla have been similar to other North Dakota cities in the 2,500 to 10,000 population range, suggesting Rolla, during the 1980s, fared

at least as well as other cities of comparable size. Although Rolla suffers from decreased economic activity and population declines, the city is doing relatively better than its smaller competing cities. The depressed economic conditions Rolla experienced in the 1980s were common to most cities in North Dakota.

Main and greater trade areas were defined for Rolla, using several delineation criteria. Townships where the majority of the respondents purchased 50 percent or more of a mix of goods and services in Rolla were included in the main trade area. Townships where 10 percent of the respondents purchased at least 10 percent of the goods and services mix in Rolla were included in the greater trade area (not including main trade area townships). The goods and services mix contained six convenience and eight specialty items.

Rolla's main trade area decreased slightly since 1974. Rolla lost three townships to neighboring cities but gained two townships, for an overall reduction in MTA size of one township. The greater trade area decreased to the south; however, pull from the west and east has remained unchanged. The shape of the greater trade area appears to reflect competition from Rugby and Cando.

Rolla could improve the market capture for a large cross section of the goods and services listed on the survey. Rolla patrons appear to be purchasing a majority of their goods and services in Rolla; however, considerable patronization of other trade centers exists with Rolla's MTA residents. Large decreases in Rolla's pull factor during the 1980s appear to confirm this phenomenon.

Minot, Belcourt, Rolette, Bottineau, Devils Lake, St. John, Rocklake, and Grand Forks provide most of the shopping locations for area residents who do not purchase the good or service in Rolla. No substantial differences were found in the demographic characteristics of those purchasing less than 50 percent and those purchasing more than 50 percent of selected convenience and specialty goods and services in Rolla. Those purchasing 50 percent or more of one or more convenience or specialty goods or services in Rolla traveled an average distance of about 13.5 miles.

Even though the 1980s have been difficult for rural North Dakota cities, Rolla appears to have fared as well as other cities of comparable size and somewhat better than smaller neighboring towns. Rolla is faced with decreasing city and trade area population and decreasing county employment and per capita income. Although economic times have been difficult, Rolla appears to be doing a good job of retaining most of its past trade area and remaining a competitive trade center in north central North Dakota.

REFERENCES

- Bangsund, Dean A., F. Larry Leistritz, Janet K. Wanzek, Dale Zetocha, and Holly E. Bastow-Shoop. 1991. North Dakota Trade Areas: An Overview. Agricultural Economics Report No. 265. Fargo: North Dakota State University, Department of Agricultural Economics.
- Job Service of North Dakota. Various Issues. North Dakota Labor Force by County, by Region. Bismarck, N.D.
- Leistritz, F. Larry, Janet Wanzek, and Rita R. Hamm. 1990. North Dakota 1990: Patterns and Trends in Economic Activity and Population. Agricultural Economic Statistics Series No. 46. Fargo: North Dakota State University, Department of Agricultural Economics.
- U.S. Department of Commerce, Bureau of the Census, "Current Population Reports," Series P-26 (Spring 1990). Washington D.C.: U.S. Government Printing Office.
- U.S. Department of Labor, Bureau of Labor Statistics, Consumer Price Index Inflatons. Washington D.C.: U.S. Government Printing Office.
- Vangsness, Elmer C. 1974. Retail Trade and Services Area Survey and Report: Rolla, North Dakota. North Dakota Agricultural Economics Extension Service Paper, North Dakota State University, Fargo.

APPENDIX

Please continue here

- 32. Prescription drugs
- 33. Veterinarian (sm. animal)
- 34. Banking & savings
- 35. Building supplies
- 36. Hardware
- 37. Sporting goods

TOWN NAME	%	DO NOT WRITE IN THIS AREA	TOWN NAME	%	DO NOT WRITE IN THIS AREA	TOWN NAME	%	DO NOT WRITE IN THIS AREA

- 38 Overall, what are your three main trading centers and the distance to each from your residence?
- | Town Name | Miles |
|-----------|-------|
| | |
| | |
| | |
- 39 What town do you consider to be your main trade center?
40. Are you ..
- | | |
|--|--|
| <input type="checkbox"/> single, never married | <input type="checkbox"/> separated or divorced |
| <input type="checkbox"/> married | <input type="checkbox"/> widowed |

41. What is your age? _____
42. What is your gender? male female
43. How many years of formal education have you had? _____
44. How many years have you lived in the county? _____
45. If employed (other than farming), in what town do you work?
- _____
- 46a. How many people live in your household, including yourself? _____
- b. How many of these people are in grade school? _____
- c. How many of these people are in high school? _____

Please continue with question 47

47. Please check the category that best fits your occupation (and your spouse's):
- | Respondent | Spouse | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | farming (also forestry, fishing) |
| <input type="checkbox"/> | <input type="checkbox"/> | professional/management (e.g., teachers, registered nurses) |
| <input type="checkbox"/> | <input type="checkbox"/> | technical, sales, or administrative support (e.g., office workers, salespersons, nurses-LPNs, mail carriers, health care support jobs) |
| <input type="checkbox"/> | <input type="checkbox"/> | service jobs (e.g., health care aides, policemen, firemen, cooks, barbers, janitors) |
| <input type="checkbox"/> | <input type="checkbox"/> | precision production, craft, and repair jobs (e.g., mechanics, welders, construction trades) |
| <input type="checkbox"/> | <input type="checkbox"/> | equipment operators and fabricators (e.g., bus/truck drivers, laborers) |
| <input type="checkbox"/> | <input type="checkbox"/> | other (explain) _____ |

If you are a farm operator (not strictly a landlord), please continue with question 49 below

	TOWN NAME	%	DO NOT WRITE IN THIS AREA	TOWN NAME	%	DO NOT WRITE IN THIS AREA	TOWN NAME	%	DO NOT WRITE IN THIS AREA
49. Farm machinery									
50. Farm mach. repair/parts									
51. Farm fuel & lubricants									
52. Commercial feeds									
53. Crop seeds									
54. Crop consultants									
55. Fertilizer									
56. Other farm chemicals									
57. Veterinary services									
58. Other farm supplies									
WHERE ARE YOUR FARM PRODUCTS MARKETED?									
59. Grain									
60. Livestock									

48. What was your total family net income before taxes last year?
- | | |
|--|--|
| <input type="checkbox"/> under \$5,000 | <input type="checkbox"/> \$25,001-\$30,000 |
| <input type="checkbox"/> \$5,000-\$10,000 | <input type="checkbox"/> \$30,001-\$35,000 |
| <input type="checkbox"/> \$10,001-\$15,000 | <input type="checkbox"/> \$35,001-\$40,000 |
| <input type="checkbox"/> \$15,001-\$20,000 | <input type="checkbox"/> \$40,001-\$45,000 |
| <input type="checkbox"/> \$20,001-\$25,000 | <input type="checkbox"/> over \$45,000 |

IF YOU ARE A FARMER, PLEASE COMPLETE QUESTIONS 49-60 TO THE LEFT