Roughrider Area Career & Technology Center

Original Grant Application

Introduction/Overview

The Roughrider Educational Service Program, in response to the needs of students and employers of southwestern North Dakota, wishes to establish the region's first area career and technology center.

A Virtual Delivery System

The Roughrider Career and Technology Center will not be housed at a single location. The Center will make use of existing facilities, including Dickinson State University, which are electronically (ITV, video conferencing, asynchronous transfer, etc.) networked to provide students quality educational programs and services.

Meeting 21st Century Student Needs

Although the primary focus will be on serving high school age students attending the member districts, this proposal will include information regarding the schools' commitment to a K-college system of school to future employment. In future years, the Center will establish programs that meet the needs of adults (industry trainings, GED, adult workshops, etc.). The new center will be student-centered. Local administrators believe that all student populations should have:

a. the skills and knowledge (career awareness, exploration, planning and preparation, etc.) to make life-long, informed career decisions.
b. necessary skills to seek and keep employment.
c. the skills necessary to access, analyze, evaluate, organize, and present information in a technology-driven society.
d. access to rigorous and relevant coursework and achieve documented core and career-specific educational standards.
e. education/training beyond high school and understand the need for lifelong learning.
f. an educational system (including highly qualified teachers) that continually responds to the rapidly changing needs of employers and society.

Opportunities for All

The Roughrider Career and Technology Center will provide all students quality career planning and technical education programs. Students are defined as those seeking short-term training updates, immediate employment after high school, admittance in the U.S. military, post-secondary technical training, and university degrees. The Center will respond to students with special needs, including those with disabilities as well as those considered gifted. All Center programs and services will be equal opportunity and will not discriminate based on gender, national origin, or ability.

1. The Secondary Schools Submitting this Proposal

	Secondary School	Local Contact	Phone
1	Beach High School Box 368 Beach, ND 58621	Larry Helvik, Supt.	701-872-4161
2	Belfield High School Box 97 Belfield, ND 58622	Darrel Remington, Supt.	701-575-4275
3	Dickinson High School Box 1057 Dickinson, ND 58602	Dr. Paul Stremick, Supt.	701-456-0002
4	Glen Ullin High School Box 548 Glen Ullin, ND 58631	Kyle Christensen, Supt.	701-348-3509
5	Hebron High School Box Q Hebron, ND 58638	Gary Quintus, Supt.	701-878-4442
6	Hettinger High School Box 1188 Hettinger, ND 58639	Brian Christopherson, Supt.	701-567-5094
7	Killdeer High School Box 579 Killdeer, ND 58640	Gary Wilz, Supt.	701-764-5877
8	New England High School Box 307 New England, ND 58647	Kelly Rasch, Supt.	701-579-4160
9	Richardton/Taylor High School Box 289 Richardton, ND 58652	Brent Bautz, Supt.	701-974-2111
10	South Heart High School Box 159 South Heart, ND 58655	Riley Mattson, Supt.	701-677-5671

2. Governance of the Roughrider Career and Technology Center

The Roughrider Career and Technology Center will comply with North Dakota Century Code 15-20.2-01.

The school boards of all 10 schools listed above have convened to approve the submission of this application and their intent to participate in the new center. Should this application for funding be approved, local administrators will submit a plan to establish the area's first career and technology center. The plan will comply with the state plan for career and technology education and meet all rules, standards, and procedures adopted by the North Dakota State Board for Career and Technical Education. After State Board approval, all 10 school districts will enter into an agreement of participation as evidenced by a majority vote of approval by their local

school boards. Each local school board will publish this action at least once in the official newspaper of its county.

A new area center governing board will be formed by the member districts. The new board will include one member from each of the member districts with a high school population of fewer than 300 (nine schools). Dickinson Public Schools will also have one member on the center board. The term of office for each board member will be for at least one year and will terminate upon the expiration of her/his term on her/his perspective school board. Local school boards can reappoint members to the area center board for multiple years. Vacancies on the center board will be filled by the school board whose representation was lost when the vacancy occurred. Compensation for participation on the area center board will be paid out of center funds.

The initial organizational meeting of the center governing board will be conducted by the current chair of the North Dakota State Board for Career and Technical Education. Subsequent meetings will be conducted by the chair of the center board. The center board will select (by vote) a chair and vice chair that are not from the same school district. Each center board member will have one vote. A majority of the members will be in attendance to constitute a quorum. The power and duties of the center board will comply with the eight center board functions listed in ND Century Code 15-20.2-07.

Year one funding of the area center (required State Board matching) will be based on a three-part funding mechanism. All center schools will contribute matching funds based on a set formula for student participation starting at $2,000 for the first 10 students attending the center (schools enrolling zero students in a given year will still be assessed $2,000). This set fee increases by $1,500 for every 10 students. For example if Richardton/Taylor enrolls 12 students in center programs, the base participation fee will be $3,500. If Dickinson enrolls 43 students, the base fee will be $8,000.

The second funding mechanism is based on actual student enrollments in center programs. Each school will be assessed an additional $300 for every student enrolled. Accordingly, if Richardton/Taylor enrolls 12 students, it will be assessed $3,500 (base-fee) plus another $300 per student ($3,600) for a total of $7,100. Dickinson's 43 students will cost the district a total of $20,900 (base-fee of $8,000 plus an additional $12,900 for per-student participation).

Finally, each school will be assessed at an individual level based on their actual usage of other center programs and services including career counseling services, ITV labs, internet costs, asynchronous equipment and software license, mobile technology labs, student transportation, etc.

Distribution of state and appropriated federal funds will comply with ND Century Code 15-20.2-09-10.

Currently, there are many local educators teaching in approved CTE areas. These individuals will provide instruction through the new center but their contracts will be retained by their individual school districts. New teachers in areas such as health careers will be hired by the center. The center will also hire one full-time director (see below).

Any school district wishing to join or withdraw from the Roughrider Career and Technology Center will comply with regulations listed in ND Century Code 15-20.2-11-12-13-14.

The Roughrider Career and Technology Center board of directors will receive input from area students, parents, industry leaders, and civic leaders. Each center program area (e.g., agriculture, business, guidance, etc.) will establish a regional advisory committee that will meet at least twice per year. At these meetings, center educators will inform advisory member of all progress made by the program area and gather input regarding necessary improvements and/or changes. This information will be submitted to the center board and be reflected in each program areas' annual educational plan.

The Roughrider Career and Technology Center will employ a full-time director who will oversee the daily operations of the center, including but not limited to, the identification of center staff members, establishment of student/course schedules, monitoring of curriculum, organizing professional development, etc. Because this individual will oversee the "virtual" aspects of the new center, the best candidate for this position will meet State Board credentialing requirements and have a background in a program area such as information technology, technology education, and/or business education. The center director will update the center board of directors on progress made, needs, etc. of the area center. The director will attend all monthly meetings of the center board of directors.

3. Needs Assessment

The Roughrider Education Services Program conducted research in four related areas to establish a comprehensive picture of the region's employment and training needs. State and national Bureau of Labor statistics were analyzed and then compared to local data in the form of an extensive survey conducted by Stark Development Corporation of Dickinson. State, national, and regional data were then compared to the results of a recent survey of 9th and 10th graders' career interests and educational needs. This information results in specific course recommendations/offerings to be provided by the Roughrider Career and Technology Center.

National Employment Needs

One may question the value of national employment trends in a request to establish an area Career and Technical Education Center in southwestern North

Dakota. In more populace states, local employment needs are far more important than what is happening nation-wide. Unfortunately, the current "state" of North Dakota is best described as one of "out-migration." The population of the state has dropped significantly during the last several decades. In 1984, the state boasted a total population of 680,499. By 2004, that number declined to 636,308. Much of the state is currently considered "frontier" (population density less than seven people per square mile). Of the state's 53 counties, 38 (72%) meet the criterion of frontier. The great majority of the state's counties have populations of less than four persons per square mile. Almost every county in the Roughrider Education Services Program meets this classification. Young adults comprise the largest percentage of residents leaving the state. (Bureau of Census, 2000)

If North Dakota students are to be successful in the world of work, North Dakota educators must be willing to prepare them for employment opportunities at home and far beyond the borders of the state.

Making wise career decisions is a difficult process in an ever changing, increasingly technical workplace. The dilemma is complex. Today's junior and senior high school students may be preparing for careers that, at present, do not even exist. The U.S. Department of Labor recommends that good career decisions be based on reliable information about opportunities in the future. These opportunities result from the relationships between the U.S. population, labor force, and the demand for goods and services.

Population ultimately limits the size of the labor force which constrains how much can be produced. (What percentage of the U.S. population will be in the working age-bracket?) The demand for various goods and services results from the needs of the various age groups. This results in either increasing or decreasing employment opportunities within an industry. Population trends help educators predict the actual size of the future workforce and the skills they will need to be successful.

The U.S. population is changing. Although the population is expected to increase by 24 million over the 2003-12 periods, this is a slower rate of growth than during both the 1992-2002 and 1982-92 periods. This population is also aging. In 1950, 24% of our population was 55 and older. In 2000, this group moved up to 27%. It is projected that this trend will continue. By 2050, 38% of the American population will be 55 and older. The youth population, aged 16-24, will grow by 7% over the 2002-12 period while at this same time, the age group 55-64 will increase by an astounding 43.6%.

What do these trends mean for North Dakota's youth? First of all, even though they will be a smaller percentage of the population (and much smaller in North Dakota because their age group is leaving the state at the highest levels), they will be a much larger percentage of the labor force. In the near future, individuals in the 16-34 age groups will disproportionably be asked to meet the labor force needs of a much larger overall population. Accordingly, the career planning needs of even those attending

elementary school are significant. Education is the foundation of a quality of life and a globally competitive workforce. Now, more then ever, K-college educators must effectively integrate and deliver coursework that establishes the vital link between school and future employment.

National Employment and Training Needs

It is not surprising to discover that, according to the U.S. Bureau of Labor Statistics, computer and healthcare occupations are expected to grow the fastest over the current projection period, 2002-12. In fact, healthcare occupations make up 10 of the 20 fastest growing occupations in the economy. Computer-related occupations account for 5 out of the 20 fastest growing occupations. In combination, these two industries will result in a projected 1.5 million new jobs. The 19 occupations listed in the graph below will account for more than 1/3 of all new jobs, 8 million combined, over the 2002-12 period.

Occupations Projected to Grow the Fastest (in descending order)
1. Medical Assistants
2. Network Systems and Data Analysts
3. Social and Human Service Assistants
4. Physicians Assistants
5. Home Health Aides
6. Physical Therapy Aides
7. Medical Records and Health Information Technologists
8. Physical Therapy Assistants
9. Computer Systems Software Engineers
10. Hazardous Materials Removal Workers
11. Vet Technologist and Technicians
12. Database Administrators
13. Fitness Trainers
14. Dental Hygienists
15. Dental Assistants
16. Occupational Therapist Aides
17. Self-enrichment Education Teachers
18. Personal and Home Care Aides
19. Computer Systems Analysts

One can continue to make a case for the tremendous growth in these areas by examining the occupations projected to show the largest overall growth (not the fastest growing). Careers in health services continue to top the charts. Ultimately, more young people will be needed to care for a growing and aging population. Maintaining quality health care in states like North Dakota and especially in the rural regions of the state continues to be a daunting challenge. Because so many of North Dakota's young people are projected to leave the state, this data is significant.

Occupations Projected to show the Largest Numerical Increase (in descending order)
1. Registered Nurses
2. Postsecondary Teachers
3. Retail Salespersons
4. Computer Service Representatives
5. Food Preparation and Serving (including fast food)
6. Cashiers (non-gaming)
7. Janitors and Cleaners (not maids)
8. General and Operations Manager
9. Waiters and Waitresses
10. Nurses Aides and Orderlies
11. Truck Drivers (heavy and tractor trailer)
12. Receptionists and Information Clerks
13. Security Guards
14. General Office Clerks
15. Teacher Assistants
16. Sales Representatives (wholesale and manufacturing)
17. Home Health Aides
18. Personal and Home Care Aides
19. Truck Drivers (light and delivery)
20. Landscaping

North Dakota State Employment Needs

Current state data supports the national numbers. The U.S. Bureau of Labor statistics provides state data by using various indicators. The following chart shows the state's career areas that are projected to grow the most between 2004 and 2014. The Roughrider Education Services Program lists only those career areas with a projected growth of over 18%. The reader will note, once again, the emphasis on technology and health care but also greater emphasis on various engineering careers as well as a need for those working in retail sales, manufacturing and assembly, construction, heating and air conditioning, and welding.

North Dakota Career Title	% of Increase by 2014	Average Annual Openings
Network Systems & Data Communications Analysts	48	20
Industrial Engineers	43	20
Computer Software Engineers (applications)	41	30
Computer Software Engineers (systems software)	41	30
Agricultural Engineers	34	NA*
Home Health Aides	32	100
Management Analysts	31	20

Database Administrators	30	10
Computer-controlled Machine Tool Operators, Metal & Plastic	30	10
Veterinary Technologists & Technicians	30	10
Heating, Air Conditioning, & Refrigeration Mechanics & Installers	29	40
Cementing & Gluing Machine Operators & Tenders	28	10
Medical Assistants	28	20
Network & Computer Systems Administrators	27	20
Mechanical Engineers	27	20
Mechanical Engineers Technicians	27	10
Team Assemblers	27	140
Merchandise Displayers & Window Trimmers	26	NA*
Retail Salespersons	26	670
Chemical Engineers	26	NA*
Computer Systems Analysts	26	20
Coating, Painting, & Spraying Machine Operators	26	20
Separating, Filtering, Clarifying, & Precipitating Machine Operators	25	20
Industrial Engineer Technicians	25	10
Physicians Assistants	25	10
Welders, Cutters, Solderers, & Braziers	24	100
Structural Metal Fabricators	24	10
Helpers-Pipe Layers Plumbers, & Pipe Fitters	23	10
Helpers-Roofers	23	10
Residential Advisors	23	30
Cost Estimators	23	20
Athletic Trainers	23	NA*
Physical Therapy Assistants	22	NA*
Helpers-Production Workers	22	50
Computer Support Specialists	22	30
Sales Representatives for Technical & Scientific Products	22	30
Customer Service Representatives	22	160
Helpers-Brick Masons & Stonecutters	22	10
Sheet Metal Workers	22	20
Tool and Die Makers	22	10
Cement Masons & Concrete Finishers	21	30
Architectural Architects	21	10
Paralegals	21	10
Sales Managers	21	20
Compensation & Benefits Managers	21	10
Extruding, Forming, & Compacting Machine Operators	20	NA*
Painters (Transportation Equipment)	20	NA*

Market Research Analysts	20	10
Plumbers	20	40
Electronic Equipment Installers	20	NA*
Drilling & Boring Machine Operators	20	NA*
Roustabouts (oil and gas)	19	20
Mechanical Drafters	19	10
Computer Information & Systems Managers	19	20
Industrial Production Managers	19	10
Registered Nurses	19	280
Respiratory Therapists	19	10
Dental Hygienists	18	20
Cardiovascular Technologists	18	10
Marketing Managers	18	10
Electricians	18	70
Machinists	18	20

* NA = less than 10 openings projected

Source: National projections are developed by the Bureau of Labor Statistics, U.S. Department of Labor. State projections are developed in the labor market information sections of each State Employment Security Agency.

The actual number of projected openings for many of these careers is relatively small. Much of this is due to the states dwindling population. However, these small numbers can help North Dakota schools predict the state's future employment needs. When examining a similar chart showing the states projected "greatest number of openings," the actual numbers fall to fewer than 100 employees quickly. Although the state data include many careers that are low paying and do not require a great deal of education and/or training, some of the career titles (retail sales, nurses, manufacturing, welding, carpentry, etc.) are still significant in planning educational opportunities for young people living in southwestern North Dakota.

Southwestern North Dakota Employment Needs

In August 2007, Stark Development Corporation, Dickinson, North Dakota, established and implemented a survey of labor force/education needs. Stark Development sent the survey (see attachment) to 300 southwestern employers representing the major industries of the region. Within a short time (most surveys were returned within days), 134 surveys were returned. The response came from all industry groups including health services, manufacturing, finance, sales and service, engineering, and construction.

The survey was clear in its purpose. Local employers were told that Stark Development was concerned about efforts needed to bolster the population with trained and motivated people as a quality workforce. The survey asked for input regarding the

actual number of employees needed during the next five years as well as the knowledge and skills these employees would need.

Employers were asked: "In the next five years, how many new people will your business need to hire as a result of retirement, turn-over, and expansion?"

Industry	Retirement	Turn-over	Expansion
Banking/Finance	27	56	50
Agriculture	28	59	21
Auto/Truck Repair	35	60	47
Oil & Gas	69	627	353
Healthcare	92	744	116
Building Construction	57	320	126
Manufacturing	63	595	305
Telecommunications	13	15	21
Engineering/Surveying	14	28	16
Government	32	15	7
Road Construction	30	100	15
Sales	16	81	29
Plumbing & Heating	2	3	3
Electrical	4	1	0
Education	25	10	0
Tourism	21	11	13
Printing & Publishing	5	22	10
Other, Misc.	2	46	41
Totals	515	2793	1173

Survey respondents indicated an overall need of nearly 4,500 new employees. When considering that Stark Development surveyed a sample of 300 employers representing the wide-range of industries located throughout the region, and that 134 responded, one can conclude that the southwest region of North Dakota projects a substantial need for new employees, especially in healthcare, manufacturing, sales, and construction. Given the short-term in which most of the surveys were returned and the large percentage of surveys returned, there may be a "dire" need for trained citizens in these areas.

Many of the industries responding fit into multiple categories. For example, some of the Auto/Truck respondents only sold vehicles, while others only serviced vehicles. Others both sold and serviced vehicles. The same was true in the oil field industry. Some respondents only service existing pipelines. Others established new pipelines, while others sold pipeline materials and serviced them. This industry cross-over makes it difficult to actually disaggregate the data by industry. One cannot assume for example, that the need for individuals working in manufacturing will be employed as assembly line workers. Nor can one assume that all those needed in agriculture will actually work on ranches or be employed as farm laborers. Specifically, the nine

employers who responded to the survey (and identified themselves as agriculture) listed their employment needs as: *using computer technology, having customer services skills, finance skills,* and a host of needs related to welding, mechanics, and other technical skills.

Employers were also asked to identify specific skills and career titles that are currently in need throughout the region. In many ways, these responses are much more revealing. For example, every respondent listed the skill, *use computer technology tools and methods,* as a critical skill needed by those who would be hired in the next five years. The following chart shows the skills and or career titles (in descending order) identified at least 20 times by southwest region employers.

Skills Needed	# Identified (of 134)
Use computer technology tools and methods	134
Customer service skills	106
Work individually on problem solving	101
Work in groups/teams	99
Sales and marketing skills	79
Cement masons and finishers	70
Basic finance skills	59
Certified nurse assistant	51
Math and science applications to engineering	47
Welders	45
Engineering technology	40
Heavy equipment safety and use	37
Pre-engineering - technology	34
Communications technology	34
Construction technology methods	34
Computer aided drafting/design	31
Computer design methods	30
Nurses	28
Applying technology standards	28
Carpentry	26
Electronic systems	24
Pre-engineering - design	24
Diesel technicians	24
Mechanical systems	23
Assembly of products	22
Heating, ventilation, and air conditioning	21
Technology literacy standards and knowledge	21
Automotive technicians	21
Oil field laborers	20
Manufacturing processes	20

Employers were also given the opportunity to list specific needs and/or concerns. In most surveys, individuals who take the time to "write in" information are those with critical needs. Comments included:

Employees need a background in accounting, finance, and economics.
We need drywall finishers, painters, flooring specialists, etc.
Provide basic math skills needed in manufacturing.
We need every kind of nurse.
We have an auto body tech from NDSCS. We hired him as soon as we could.
We are currently short 10 truck drivers. They need CDL certification.
Employees need a better knowledge of basic finance.
Provide leadership skills! (a manufacturing employer)
We are suffering a 40% turnover! (a healthcare employer)

Student Needs

Recently, every school associated with this application surveyed its current 9th and 10th grade classes for career and course interests. The survey (see attachment) asked students questions about their career aspirations as well as their knowledge and use of the career planning process. There were 678 surveys returned from eight of the school districts. Because Dickinson Public Schools is so much larger than the "combined" smaller districts, the administrators decided to disaggregate that data as "Dickinson only" and "combined small schools."

Dickinson Public Schools

In Dickinson, 418 9th and 10th graders completed the survey. A high percentage of these students are planning to further their education after high school. Students were asked, "What do you plan to do the first year after you graduate from high school?" Nearly 50% reported that they will attend a four-year college. Another 48 students (11%) listed a two-year college or technical school. An equal number said that they would go directly to work, and 21 students (5%) indicated that they would join the military. Of these students, 25% reported that they are still undecided about their plans after high school.

Only 60 of these students indicated that they were not in need of any career planning assistance. They were asked, "If you need career planning help, which of the following are the most important?"

"Learning about my interests and abilities."
"Planning my career."
"Setting goals and learning how to make career decisions."
"Getting information about careers, education, and training."

Over 90% of these students selected one or more of these career planning topics.

Students were asked if they had ever taken a career interests survey or aptitude test. The majority (68%) reported that they had not or were not certain if they had ever taken any sort of career interest survey or aptitude test.

Students were asked where they have received MOST of their guidance about careers. The majority (85%) said that they received guidance from parents, family members, and friends. The remaining 15% reported that guidance counselors and other school officials provided them career information.

Nearly 50% of Dickinson 9th and 10th graders felt that their teachers worked to "connect" what they learn to future careers. The remaining 50% felt that their teachers "sometimes" or "never" made these important connections.

The students were asked about the value of such activities as job shadows, internships, apprenticeships, and career mentors. Of the students, 44% selected job shadows as being important. Another 36% indicated that internships would be important. Nearly 37%, however, reported that they did not have enough information about any of these activities to make a choice.

Even at this grade level, 44% of the students have been or currently are enrolled in a career and technology education course. But when asked, "If you could add more courses to your high school's offerings to help you prepare for a career, which kind of courses would you add?", the largest percentage (31%) chose additional career and technology education courses. An additional 8% of these students chose the "other" category and then listed various career and technical courses like computer studies, equine classes, culinary arts, electrical, etc. The second highest percentage (24%) chose courses that provide college dual-credit. Art courses were chosen by 14% of the students. Additional advanced math and science course were chosen by only 8% of the students. The remaining students felt that Dickinson High School did not need additional course offerings.

Dickinson students were asked to list, in order of importance, the three National Career Clusters they were most interested in pursing (the list included all 16 clusters and short descriptions). The highest rankings were given to (in descending order):

Architecture and Construction (135)
Arts/AV Technology and Communications (125)
Health Science (122)
Science, Technology, Engineering, and Mathematics (114)
Law, Public Safety, Corrections, and Security (95)
Education and Training (85)
Business Management and Administration (83)

Finally, Dickinson students were asked, "If you could add more career-specific courses, what type would you be the most interested in taking?" A large majority, 317 students (76%) indicated that they would like to enroll in career-specific coursework.

The following list shows, in descending order, the types of CTE courses selected by the students:

Health Careers (97)
Welding/Machining (53)
Information Technology 38)
Agriculture (31)
Technology Education (29)
Business Education (27)
Construction Trades/Drafting (27)
Marketing (15)

The Combined Small Schools

A total of 260 surveys were completed by 9th and 10th graders currently enrolled at Hebron, Killdeer, Glen Ullin, Hettinger, Richardton/Taylor, Beach, and South Heart Public Schools. Much of the data matches those obtained at Dickinson High. For example, 50% of Dickinson students indicated that they would pursue a four-year degree after completing high school. Of these 9th and 10th graders, 54% have the same plan. A greater percentage of students attending the smaller schools (16%) are considering a technical school. Fewer students (9%) plan to go directly to work. Eleven students (4%) indicated that they would join the military. While 25% of Dickinson students are still "undecided," 19% of the students in the smaller school are still "undecided."

As with Dickinson, the majority of the 9th and 10th graders indicated that they are in need of career planning assistance. They were asked, "If you need career planning help, which of the following are the most important?"

"Learning about my interests and abilities."
"Planning my career."
"Setting goals and learning how to make career decisions."
"Getting information about careers, education, and training."

Nearly 90% of these students selected one or more of these career planning topics.

Students were asked if they had ever taken a career interests survey or aptitude test. The data showed a clear split. One third of all students said that they had participated in some sort of interest survey or aptitude test. Equally, 1/3 indicated that they had not and 1/3 indicated that they were not certain.

Students in the smaller schools were asked where they have received MOST of their guidance about careers. The majority (76%) said that they received guidance from parents, family members, and friends. The remaining 24% reported that guidance counselors and other school officials provided them career information. One should note that students in the smaller schools reported that school officials played a greater

role in providing career information (16% of Dickinson students indicated that MOST of their guidance about careers came from educators.).

Of the 9th and 10th graders attending the small schools, 40% felt that their teachers worked to "connect" what they learn to future careers. The remaining 60% felt that their teachers "sometimes" or "never" made these important connections. At Dickinson the split was 50/50%.

The students were asked about the value of such activities as job shadows, internships, apprenticeships, and career mentors. The results were almost identical to that provided by Dickinson. The majority of students selected job shadows as being important. Another 36% indicated that internships would be important. Similar to the Dickinson data, nearly 34% reported that they did not have enough information about any of these activities to make a choice.

Even at this grade level, 45% of the students have been or currently are enrolled in a career and technology education course. But when asked, "If you could add more courses to your high school's offerings to help you prepare for a career, which kind of courses would you add?", the largest percentage (35%) chose additional career and technology education courses. An additional 12% of these students chose the "other" category and then listed various career and technical courses like computer studies, cooking, home economics, photography, design, etc. The second highest percentage (21%) chose courses that provided college dual-credit (matching Dickinson). Art courses were chosen by 19% of the students. Additional advanced math and science course were chosen by only 9% of the students. The remaining students felt that their school did not need additional course offerings.

Students attending the smaller schools were asked to list, in order of importance, the three National Career Clusters they were most interested in pursing (the list included all 16 clusters and short descriptions). The highest rankings were given to (in descending order):

Arts/AV Technology and Communications (188)
Architecture and Construction (96)
Health Science (87)
Science, Technology, Engineering, and Mathematics (68)
Law, Public Safety, Corrections, and Security (56)
Business Management and Administration (54)
Education and Training (51)

One should note that the rankings given the National Career Clusters by students attending the smaller schools is almost identical to those given by students at Dickinson.

Finally, students were asked, "If you could add more career-specific courses, what type would you be the most interested in taking?" There were 217 students (83%) that

indicated that they would like to enroll in career-specific coursework. The following list shows, in descending order, the types of Career and Technical Education courses selected by the students:

Health Careers (61)
Welding/Machining (42)
Agriculture (33)
Information Technology (32)
Business Education (20)
Technology Education (12)
Construction Trades/Drafting (11)
Marketing (6)

When comparing the national, state, and regional employment and training needs to those of high school students in southwestern North Dakota, clear patterns arise. Using these data comparisons, administrators of the Roughrider Education Services Program are committed to a regional career and technical education initiative that meets the following student and community needs:

a. Providing a more comprehensive career guidance and counseling system throughout the K-12 educational system. This system should include greater emphasis on the use of interest inventories, aptitude tests, career awareness, and career exploration.
b. Providing teachers (at all grade levels) assistance in making connections between what they teach and future careers. Teachers of career-specific classes should strive to include job shadows, internships, and other workplace activities in their coursework.
c. Establishing stronger ties with post-secondary programs so that a greater number of students can earn dual-credit in career and technical education.
d. Providing students general knowledge and skills in the use of computers in a variety of settings using multiple applications.
e. Providing students general knowledge in problem solving skills both individually and in teams/groups.
f. Providing students general knowledge and skills pertaining to basic and advanced (career-specific) business skills (accounting, finance, and economics).
g. Providing students career-specific marketing skills, especially in customer service and entrepreneurship (many regional employers are small business owners).
h. Providing students advanced math and science skills foundational to engineering careers.
i. Providing students career-specific skills in telecommunications, electronics, and pre-engineering.
j. Providing students career-specific skills in the use of computer design and drafting.
k. Providing students career-specific skills necessary for various occupations in health services, especially certified nurse assistants, nurses' aides, LPNs, and RNs.

l. Providing students career-specific skills necessary in manufacturing careers.
m. Providing student career-specific skills in welding, electrical, construction, and auto/diesel repair.

4. Projected Career and Technical Course Offerings

Local administrators cross-referenced the analysis of national, state, and local employments needs with data provided by students. Almost every offering reflects the employment needs of the region and the wishes of students. Marketing education courses, however, were added based on the needs assessment conducted by Stark Development Corporation. The Roughrider Career and Technology Center intends to offer the following courses beginning in grade seven.

Grade 7-8

Family and Consumer Sciences
Technology Education

Many of the schools submitting this application currently offer these programs at the junior high school level. The new center will work with these programs to increase course emphasis on career exploration, personal finance, entrepreneurial studies, and basic computer usage.

Grades 9-12 (Center Offerings)

Agriculture
- Introduction to Agriculture (01011)
- Agricultural Sales and Service (01034)

Business Education
- Business Technology and Procedures I and II (14079-80)
- Accounting I-IV (14010-14013)
- Business Entrepreneurship (14111)
- Spreadsheets/Data Base (14025 – 14026)
- Desktop Publishing (14098)
- Web Design (14022)

Marketing Education (New program offering)
- Marketing I and II (04210 – 04215)
- (Major emphasis will be placed on sales, customer service, and entrepreneurial studies)

Health (New program offering)
- Health Careers I (07033)
- Advanced Health Careers (07035)

(Advanced Health Careers will include CNA training and certification)
Medical Terminology (07036)

Information Technology
Computer Hardware and Operating Systems (27219)
IT Essentials (27220)

Trade and Technical Education
In future years, the new center will establish funding for programs such as welding and construction trades. To facilitate this action, the center may establish mobile learning laboratories that can be transported to various schools based on student/community needs.

Technology Education
Family and Consumer Science
Many of the center-member schools currently offer and will continue to offer these courses.

Dual Credit Programs with Dickinson State University
Desktop Publishing
Advanced Welding
Introduction to Visual Arts
Medical Terminology

The Roughrider Career and Technology Education Center will begin discussions with Dickinson State University to expand this list to include advanced business education/entrepreneurship courses, agricultural studies, and nursing. The Roughrider Career and Technology Center and DSU will also begin discussions with the North Dakota State Board to establish these dual credit programs as "State Board Approved."

Grades 7-12 Career Counseling

There are currently 5.5 CTE certified counselors working in the schools submitting this application. There are an additional three counselors in the region who are not credentialed by the State Board. These counselors will seek credentialing increasing the total counseling staff to 8.5. The Roughrider Career and Technology Center will bring these counselors together in efforts to standardize their services. Counselors will establish common grade-level themes. For example, all seventh graders will complete a personal career interest inventory as the foundation for an eight-year career plan.

Career counselors will establish career planning workshops that can be delivered electronically throughout the regions. These workshops will emphasis career awareness at the junior high level moving to career exploration and career planning as students move into the upper grades.

Career counselors will make use of video-conferencing technology to meet with individual students and small groups. For example, this technology will allow students attending Killdeer to schedule individual counseling time with a counselor working at South Heart.

Finally, area career counselors will play a pivotal role in assisting students in making course selections based on their career plans, interests, abilities, etc. Student need to make better connections regarding the role of language arts, mathematics, and sciences in technology education. Students need more information regarding the blend of Career and Technical Education and general courses necessary to be successful in post-secondary education and the world of work.

Grades K-6 Career Exploration

Local administrators are committed to a more comprehensive, school to employment, education system. To further this goal, beginning in 2008 and beyond, teachers of grades K-6 will be provided professional development activities that infuse career awareness and exploration within these grade levels. For example, the focus of grades K-2 will be placed on why people work and what kinds of jobs people have. In grades 3-6, the emphasis will move towards a greater understanding of the 16 National Career Clusters, the skills necessary for each cluster, and a special emphasis on the clusters as they apply to North Dakota.

The new center will also endorse additional professional development opportunities for general (e.g., science, social studies, etc.) educators wishing to make stronger connections between what they teach and the world of work.

CTE Professional Development

The new center will work with local administrators to provide center educators the skills necessary to understand and use new state and national standards for CTE program areas. At present, a single course (e.g., Agriculture I) can take many forms throughout the state. Through the staff development process, all center educators will provide instruction that closely supports what students should know and be able to do as listed in the state standards.

5. Locations and Facilities

It is anticipated that the "sending" and "receiving" of CTE course work will change over time based on the number of "highly qualified" teachers working in the districts, the individual needs of the rural districts, and the projected growth of the new center. The new center, however, will begin with those "sending" schools with currently approved CTE coursework and highly qualified instructors.

The response from area students has been tremendous. A total of 324 students at various "receiving" sites have indicated a desire to enroll in at least one CTE program offered via telecommunications (i.e., ITV, video-conferencing, and asynchronous transfer). The student numbers listed below do not include students enrolled at the sending sites.

Currently, highly qualified agriculture teachers are employed at Beach, Belfield, Dickinson, Glen Ullin, Hebron, Hettinger, Killdeer, New England, and South Heart. In 2008-09, agriculture courses will radiate from Hettinger or New England and Hebron with 65 students enrolled via telecommunications at Beach, Belfield, Glen Ullin, Hettinger, Killdeer, Richardton/Taylor, and South Heart.

Highly qualified business education teachers are currently employed at Beach, Dickinson, Glen Ullin, Hebron, Hettinger, and Richardton/Taylor. In 2008-09, business education courses will radiate from Hettinger, Glen Ullin, Dickinson, and Beach or South Heart with 97 students enrolled via telecommunications at Beach, Belfield, Dickinson, Glen Ullin, Hettinger, Killdeer, Richardton-Taylor, and South Heart.

Highly qualified information technology teachers are currently employed at Dickinson, South Heart, and Richardton-Taylor. In 2008-09, information technology courses will radiate from South Heart with 32 students enrolled via telecommunications at Glen Ullin, Hettinger, Hebron, and Richardton/Taylor.

Highly qualified marketing education teachers are currently employed at Richardton/Taylor, Beach, and Dickinson. In 2008-09, marketing education courses will radiate from Richardton/Taylor with 10 students enrolled via telecommunications at Beach, Hebron, and Dickinson.

Currently, health courses are not offered by any of these schools. A highly qualified instructor will be employed by the new center. This new program will radiate from a school to be announced with 120 students participating via telecommunications at Beach, Dickinson, Glen Ullin, Hettinger, Killdeer, New England, Hebron, Richardton/Taylor, and South Heart.

The data outlined above is based on actual surveys of students attending the schools. A total of 324 students (not including those who will attend at the "sending" site) have indicated a desire to enroll in at least one of the five CTE program areas. Local administrators have agreed that, in all likelihood, the new system will not be able to initially accommodate this many students. In year one, as a pilot, the new center will begin by "filling" empty chairs in existing approved CTE programs throughout the region, offer at least one new marketing education program, and add the new health careers program. In year two and beyond, the center will increase the number of sections offered by these instructors and eventually add additional staff members to better meet the needs of so many students.

6. The Delivery of CTE Coursework

The Roughrider Career and Technology Center will, for the most part, be "virtual." The five CTE program areas outlined in Part #4 above, will radiate from current State Board approved programs throughout the region (one new program area, health, will be offered in 2008-09, marketing education will be expanded beyond diversified occupations).

The new center will expand on the current ITV system (Dickinson and Hettinger are the only current members) to include eight new studios at Beach, Belfield, Glen Ullin, Hebron, Killdeer, New England, Richardton/Taylor and South Heart (see letter of support from SPICE).

The schools will also be tied via video-conferencing hardware/software. This technology will allow single and small groups of students to participate in course work while their school ITV lab is being used for another purpose.. Students will be able to use the video-conferencing network from within or outside of the ITV studio network.

Finally, both the ITV labs and the video-conferencing system will integrate Tegrity asynchronous transfer technology. This new delivery system (hardware and software) gives teachers the ability to create web-based instructional materials integrating audio video, and multiple forms of content. For example, teachers can write on the marker-board or touch-sensitive LCD monitor, annotate slides, use the document camera to show close-ups, and access other resources during a live lecture. This material can be delivered live via a streaming media web cast, and/or archived for asynchronous viewing by students at a later date.

Tegrity supports the streaming of lectures and audio in a low-bandwidth stream over the web. Students may connect at 56K (modem speed) or broadband. Tegrity allows students to view the lectures in real-time (live) and interact with the professor through voice-over-IP or a "chat-type" interface, or students can view the archived lectures at times when there are schedule conflicts.

Dickinson State University currently uses Tegrity campus-wide. DSU has agreed to increase its license agreement to include the high schools of the Roughrider Career and Technology Center (see DSU letter of support).

Career counselors will also meet electronically with students using this same virtual technology combination.

As the new center grows, administrators will establish mobile high-tech labs in the trade and industry program area. Students will also be able to travel to new mobile and existing labs (e.g., welding, construction trades, etc.) based on local approvals (e.g., open seats, fees, transportation, etc.).

7. Scheduling of Courses

Like other rural regions, the 10 schools associated with this request already share various educational services which have already led to an alignment of school calendars and class schedules. For example, because the schools "pool" Title II professional development funds, school starting dates and other professional development days are identical. Dickinson and Hettinger are already members of the regional ITV network so their schedules are very similar. The administrators of the other eight schools who will be joining the ITV system have agreed to make minor adjustments in their schedules to match those already established by the ITV schools.

The major scheduling difference is found at Dickinson. Dickinson is the only school that currently uses block scheduling. Through its involvement with ITV, however, Dickinson has proven that the two types of schedules do not pose a problem. Students enrolled at Dickinson who participate in ITV courses originating from the smaller schools either attend two different ITV courses offered in sequence (e.g., 5th and 6th period) or attend a one-hour ITV course followed by a study hall. Asynchronous transfer technology will also assist in reducing scheduling problems by allowing students to attend courses that meet at conflicting times.

As stated earlier, discussions will soon begin with Dickinson State University regarding State Board and dual-credit approval of their CTE courses. A two-year regional class schedule will result.

8. Current and Projected High School Enrollments

				High School Projected*		
	School	Current K-12	Current 9-12	2008-09	2012-13	2018-19
1	Beach School	289	130	123	89	92
2	Belfield School	204	81	79	60	58
3	Dickinson Public Schools	2580	928	899	700	670
4	Glen Ullin School	142	60	55	43	40
5	Hebron School	170	54	50	40	37
6	Hettinger School	312	128	117	73	74
7	Killdeer School	360	120	135	119	98
8	New England School	169	69	47	43	39
9	Richardton/Taylor Schools	256	91	76	93	67

10	South Heart School	236	93	93	76	77

* 2008-09 projected enrollments are based on the districts' current 8-11th grade class sizes. Five and ten-year enrollments are based on data provided by the North Dakota Department of Public Instruction.

9. Projected Course Enrollments

The administrators of the districts conducted two student surveys to gain data regarding student course interests. The student survey of career and course interests (see Part #3) provided a general picture of the program areas students currently enrolled in grades 9 and 10 would pursue. The districts complimented this information by conducting a second survey that listed specific course names in the five areas of study identified in Part #4, CTE Offerings. The following table is based on these two surveys.

Program Area	Projected Enrollment 08-09
Agriculture	90-100 Students
Business Education	90-100 Students
Health	48-50 Students
Information Technology	48-50 Students
Marketing Education	48-50 Students
Total Projected	324-350 Students

10. Fiscal Information (Next 11 Pages)