THE IMPACT OF OIL AND ENERGY DEVELOPMENT ON OUT-OF-HOSPITAL EMERGENCY MEDICAL SERVICES

DUNN, WILLIAMS, MOUNTRAIL, AND MCKENZIE COUNTIES

For the North Dakota Rural EMS Improvement Project

By SafeTech Solutions, LLP

June 2011

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Acknowledgements

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Executive Summary

The rapid increase in oil and energy activity in Dunn, Williams, Mountrail, and McKenzie counties is creating a crisis within a crisis for out-of-hospital EMS in the region with all the characteristics of a slow disaster. This crisis presents dangers to patients, providers and the public. EMS leaders and workers in the region describe the situation as "overwhelming," "crazy" and "beyond description."

To understand the crisis facing EMS in Dunn, Williams, Mountrail, and McKenzie counties, it is first necessary to understand the crisis facing rural emergency medical responders and ambulance services throughout North Dakota. This crisis is being spawned by the slow attrition of rural EMS's largest subsidy – rural volunteer labor. This volunteer subsidy, worth more than $31 million per year, is disappearing as changes in rural demographics, socioeconomics and attitudes about volunteerism have made the recruitment and retention of rural volunteers increasingly difficult in most communities and nearly impossible in some. This subsidy funds more than 75 percent of the cost of providing rural ambulance service in North Dakota.

The disappearance of this subsidy is demanding a dramatic and evolving change in how rural EMS is understood, envisioned, valued and funded. It is also having an impact upon response reliability, causing response delays and increasing stress on local EMS leaders, all at a time when the regionalization of medical specialties and an aging population are increasing the need for EMS. This crisis presents real dangers to patients, EMS workers and the public.

This crisis in rural EMS is the backdrop to a new and rapidly developing EMS crisis brought on by an unprecedented increase in energy exploration, drilling and extraction. In four years of energy development activity, the 11 ambulance services evaluated in this report have seen at least a 46% increase in call volume (all calls are not reported). In 2010, three ambulance services reported a doubling of call volumes and are on track to double again in 2011. In 2010, services responded to 3,600 calls. By 2014, they will respond to more than 6,000 calls.

Eleven ambulance services and two quick-response units provide EMS in the 8,746-square-mile, four-county area. These services operate independently and, while providing some mutual aid to each other, do not function as a system. They have no system-wide planning, leadership, resource sharing or funding. Each service operates according to its own guidelines and traditions. They have no regular meetings together, nor do they have an organization to collectively represent their concerns.

The region's EMS leaders described the current situation as overwhelming local EMS resources. Specifically, they report:

- Difficulty keeping up with response demand;

- Staffing shortages;
- Deteriorating roads and unprecedented traffic conditions;
- Growing safety issues;
- Escalating financial issues;
- Frustration in being unable to obtain recognition and funding for EMS; and
- Not having time for regional coordination or planning.

While bringing great economic benefit to the region and state, the dramatic and rapid increase in energy development in North Dakota is creating a crisis for EMS that has many of the characteristics of a slow disaster. Disasters are events that overwhelm local resources and require help from beyond the borders of the disaster. Slow disasters are not single events, but rather are the result of happenings such as famine, disease, military conflict, migrations and major political or economic changes that, over time, overwhelm local resources. Here are some indicators of how this crisis resembles a slow disaster:

- The demand for EMS is growing faster than local EMS resource development.
- The situation carries the potential to impact morbidity and mortality.
- Funding and workforce needs are exceeding local resources.
- Populations and energy activity continue to grow with no clear end point.
- Growing safety concerns are evident for providers, patients and the public.
- A critical need exists for leadership, coordination, and planning.

The major needs for EMS in the entire oil impact region (beyond the four counties of this study) are for:

- Regional operational coordination and ongoing needs assessment;
- Unified messaging to government and industry about needs;
- Regional planning for current and future demand; and
- Funding for:
    - leadership,
    - workforce resources (permanent and temporary),
    - facilities, crew housing, equipment, supplies, vehicles,
    - reimbursement for nonpaying EMS patients and
    - safety training.

Because of the nature of this crisis and the probability that energy activity will continue to increase the demand for EMS, we recommend that local EMS agencies endeavor to organize themselves to collectively represent their needs to government and industry and to collaborate on solutions. However, because the situation is quickly overwhelming local resources, we also recommend that the North Dakota Department of Health and the Divisions of EMS and Trauma (DEMST) take immediate action to provide regional coordination and support for EMS.

Specifically, we recommend the North Dakota Department of Health and DEMST (the - agency charged with the regulation of EMS in the state):

1. Recognize the current situation has all the characteristics of a slow disaster and outside help is urgently needed.
2. Seek dedicated funds to help pay for leadership, planning, logistics and operations support, and workforce needs.
3. Create a full-time regional EMS coordinator position overseen by DEMST to facilitate a regional approach to challenges.
4. Immediately begin to provide logistical, operational and funding support to address:
    a. Temporary staffing relief
    b. Supplemental staffing grants
    c. Equipment, vehicle, facility grants
    d. Training for oil rig response and safety
    e. Housing for EMS workers
    f. Supplemental long-distance transfer resources
    g. Reimbursement for no-pays
    h. Management support and training that fits time constraints
5. Keep politicians informed about the situation.
6. Conduct long-range regional EMS planning (including workforce planning) in cooperation with local services.

Introduction

Out-of-hospital EMS is a vital part of the local infrastructure of Dunn, Williams, Mountrail and McKenzie counties. Around the clock, these services stand ready to respond to the emergent medical crisis of anyone – resident, visitor or worker – who calls for help. However, changes in socioeconomic conditions, demographics, healthcare and a rapid increase in energy exploration, drilling and extraction in the region are all having an impact on EMS.

Awareness of these growing challenges prompted the DEMST to suggest the North Dakota Rural EMS Improvement Project (NDREMSIP) conduct a focused assessment of the impact of oil and energy activity on EMS in the counties experiencing the most activity. SafeTech Solutions, LLP (STS) the contractor for the NDREMSIP, agreed to conduct a limited assessment of the impact of energy development activity in the region.

The NDREMSIP is a state-funded project to assess EMS in North Dakota, strengthen local EMS leadership, improve the quality of EMS, and address issues of recruitment and retention. STS is a nationwide EMS consulting firm with experience and expertise in assessing rural EMS systems.

Goal of the Assessment

The goal of the assessment was to investigate the impact of energy development on EMS in the region and specifically:

- Describe the characteristics and magnitude of current energy development activity as related to EMS;
- Identify the specific challenges facing EMS in the four counties resulting from energy activity;
- Identify EMS needs in the region; and
- Make practical recommendations that local and statewide stakeholders could utilize to address current needs and plan for the future.

Methodology

The assessment sought to gather relevant quantitative and qualitative data gleaned from a variety of sources including:

- Reports from local and state agencies, academia, industry, and the news media;
- A survey of area ambulance services;
- A review of relevant data from DEMST and other agencies and organizations with data related to the area;
- Interviews with emergency medical responders and ambulance service leaders in the area; and
- More than 50 conversations with key informants (local politicians, public safety officers, energy industry representatives, healthcare representatives and local citizens).

Because quantitative data was limited and because many of the issues involved in the four-county area are rooted in local practices, opinions, beliefs and traditions, the assessment sought to go beyond gross measurements and understand the subtleties of the issues and challenges. To that end, the assessment and report draw generously on qualitative data, including the observations, experiences, media reports, reflections and opinions of the key informants and numerous media reports. The identities of key informants were kept confidential to encourage participation and candor.

Data was reviewed and evaluated by the STS team looking for themes and trends with an eye toward local challenges and opportunities. Specific recommendations were formed from the data and evaluation. This report summarizes the findings and recommendations.

Limitations

This was not a scientific or technical study of EMS or the energy industry in the region and is based on limited data and research. It relies heavily upon interviews and other reports. It did not seek to fully explore the oil and energy industries and their activities in North Dakota. The project was limited by several factors, including a shortage of reliable quantitative data, incomplete data reporting, the lack of any regional EMS performance tracking systems, and limited time and resources. The assessment primarily focused on the impact on ambulance services and quick-response units. It did not include a broad survey of residents, EMS users or healthcare providers.

Because EMS in Dunn, Williams, Mountrail, and McKenzie counties involves a variety of entities and organizations, data are scattered and no single source for EMS data is available in the region. Dispatch and call center data on EMS response time and reliability is not uniformly tracked. Ambulance service data tracking and reporting varies from service to service. Some organizations and informants were reluctant to share information because of trust issues related to conflicts between some of the organizations.

Energy industry representatives were reluctant to share information related to their regional activity and the number of personnel in the region for competitive reasons. Energy development is occurring at a pace that made finding up-to-date statistics difficult.

This Report

STS has endeavored to organize and present findings in a manner that is easily searchable and readable.

The Scope of Energy Development Activity

Historically, the 8,746-square-mile area of Dunn, Williams, Mountrail, and McKenzie counties is known for open spaces, big skies, beautiful and rugged landscapes, sparse population and long uncluttered highways. But the western North Dakota landscape is changing, thanks to the largest oil and energy boom in state history.

For many, energy development is a welcome blessing, bringing with it a variety of economic stimuli in an otherwise shrinking economy. In 2009, for example, a report by the North Dakota Petroleum Council asserted that oil and natural gas exploration, extraction, transportation and processing accounted for "direct employment of 18,328 full-time jobs, economy-wide personal income of $4.9 billion, statewide retail sales of $3.3 billion, direct contributions to local and state government tax revenues of $822 million, indirect contribution of $188 million in state government general tax collections, and secondary employment of 46,800 full-time equivalent jobs."[1]

"The numbers are huge — $400 million in oil production and extraction taxes last fiscal year and more than $530 million this year," reported the *Bismarck Tribune* in May 2010."It is conceivable that at projected rates of oil development, the state's entire biennial budget of $4 billion could come from oil revenue within several years." [2]

According to Fox News, state tax collections from oil revenue exceeded $100 million in the month of March 2011 alone – a 24 percent increase from the month before and a 66 increase over last summer.[3] North Dakota is one of only four states that is able to balance its budget for FY 2012 without slashing spending or raising revenues.[4]

But with growth and economic reward also has come significant strains on the local infrastructure in the most affected counties of Dunn, McKenzie, Mountrail and Williams. In these counties, local governments, landowners and ordinary citizens struggle to cope with:

- an influx of new people into their communities;
- changes in workforce demand;
- the siphoning of workers from community-based jobs to higher paying oil-related jobs;
- a shortage of temporary and permanent housing for a fast-growing population;
- strains on local infrastructure, including roads and water supply; and
- increased traffic accidents and crime.

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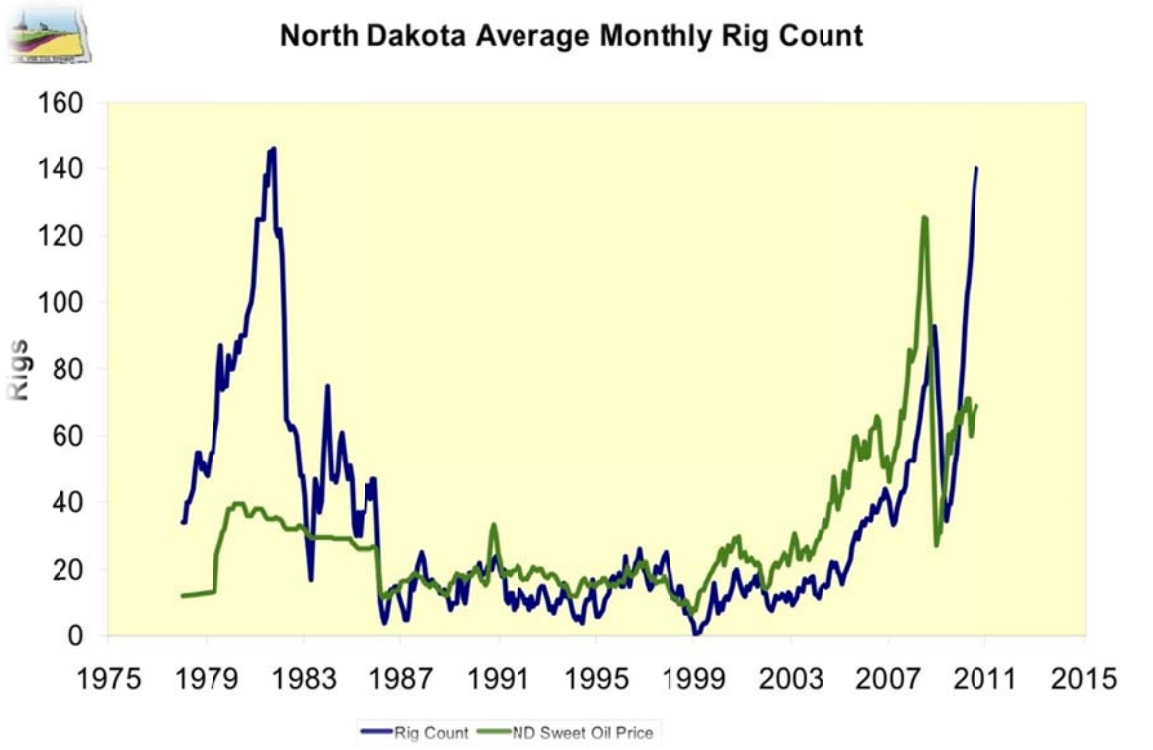
[1] *Petroleum Industry's Economic Contribution to North Dakota*, by Dean Bangsund and F. Larry Leistritz, Dept of Agribusiness and Applied Economics, North Dakota State University, December 2010 (Funded by the North Dakota Petroleum Council)
[2] *Bismarck Tribune*, May 4, 2010
[3] Fox News, May 10, 2011
[4] *The New York Times*, Jan. 22, 2011

The first impacts of new drilling were felt in Mountrail and Dunn counties, where 51 drilling rigs existed in September 2009. A year later, that number had increased to 145 drilling rigs, and the area of impact had widened to include McKenzie and Williams counties.[5]

As of May 2011, there were 178 rigs in western North Dakota.[6] Most are in Dunn, McKenzie, Mountrail, and Williams counties, in the area known as the Bakken-Three Forks Formation. Next in number are a half-dozen or so rigs in Divide, Burke and Stark counties, with a few working in Billings, Bottineau, Slope and Bowman counties.[7] The 178 drilling rigs currently operating in the state represent an all-time high; however, experts anticipate that record soon will be shattered as oil companies continue to invest dollars and resources into the Bakken-Three Forks Formation.



(Source: North Dakota Department of Mineral Resources)

As of May 2011, 5,439 active wells were operating in western North Dakota, producing 359,589 barrels of oil per day,[8] making North Dakota the fourth-highest oil producing state in the country (behind Texas, Alaska and California). Drilling activity is at record levels, with an estimated 2,000 new Bakken-Three Forks wells anticipated to come on-

[5] North Dakota Development of Bakken Formation Resources, report by Bruce Hicks, Assistant Director, NDIC-DMR-OGD
[6] Lynn Helms, NDIC Department of Mineral Resources, May 11, 2011
[7] *Bismarck Tribune*, Feb. 25, 2011
[8] Helms, May 11, 2011

line in 2011. That number would more than double the new wells drilled in 2010, and would equal the number of all Bakken-Three Forks wells ever drilled. “It’s going to be big, bigger than anything we've had yet,” said North Dakota Oil and Gas Division Director Lynn Helms.[9]

About half the new wells projected for 2011 will be drilled in a 70-mile radius around Williston, according to the Department of Mineral Resource's Oil and Gas Division overview.[10]

The Bureau of Land Management reports 1,800 oil wells are located on public and tribal land. Wells on federal land make up close to one-third of all wells in the state. Nearly 200 wells are on the Fort Berthold Indian Reservation.[11]

With some 2,000 new wells anticipated in 2011, oil production in the state is expected to double in two years and perhaps triple after that.[12] Estimates from the North Dakota Oil and Gas Division suggest that 21,250 wells will be drilled in the next 10 to 20 years. If roughly 1,500 wells are drilled each year, it would take 14 years to drill the estimated 21,250 wells.[13] Some estimates put that number even higher, saying that North Dakota could see as many as 50,000 oil wells over the next two decades. [14]

No one can be certain of the exact future growth of the oil industry in North Dakota because, “There is no certain method to determine the exact volume of oil that is contained in the Bakken Formation or any formation,” according to the U.S. Geological Survey (USGS). However, the USGS admits that the estimate of technically recoverable oil in the Bakken Formation is larger than all other current USGS oil assessments in the lower 48 states and is the largest continuous oil accumulation ever assessed by the USGS.[15]

A 2008 U.S. Geological Survey estimated that the Bakken contains between 3 billion and 4.3 billion barrels of undiscovered, technically recoverable oil. This estimate represents a 25-fold increase over the agency’s 1995 estimate of 195 million barrels.[16]

Recently, the USGS admitted that even its 2008 projection may be too low. According to U.S. Secretary of the Interior Ken Salazar, “Significant new geological information” obtained during the current drilling boom and “ever-advancing production

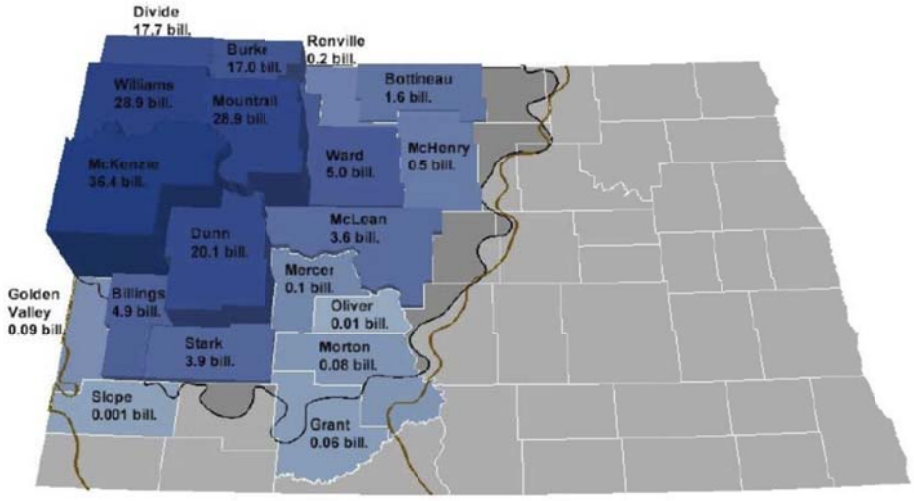
[9] *Bismarck Tribune*, Dec. 26, 2010
[10] *Bismarck Tribune*, Feb. 25, 2011
[11] *Bismarck Tribune*, Apr. 20, 2011
[12] *Bismarck Tribune*, Feb. 25, 2011
[13] *Additional Road Investments Needed to Support Oil & Gas Production and Distribution in North Dakota*, Upper Great Plains Transportation Institute, North Dakota State University, Jan 2011
[14] *Bismarck Tribune*, Feb. 25, 2011
[15] *Grand Forks Herald*, May 26, 2011
[16] Ibid.

technologies" justify a new assessment of the Bakken's resources. This new study is slated to begin in October 2011 and take one to two years to complete.[17]

Another indicator that North Dakota's oil and energy boom has great potential to continue is that it is attracting larger players than ever before. Smaller independent companies are selling out to larger companies, as evidenced by the purchase of North Dakota-based Dresser Oil Tools and Supply by McJunkin Red Man Corp. of Texas.[18]

"It's not the same oil business anymore," Helms said. "It's much bigger and faster-moving than even a few years ago. It used to be a small club, and it's not that way anymore. There are new faces in new places, and the dynamics have changed."[19]

The current oil boom also has already proven to be significantly larger than the last major oil boom in North Dakota, which occurred in the mid-1980s. At that time, the maximum monthly oil production peaked at approximately 4.5 million barrels. Since 2005, oil production has steadily increased to the current production rate of 5.5 million barrels per month – double the production of only three years ago.[20] If predictions are correct and the Bakken-Three Forks Formation holds as much potential for future oil growth in North Dakota as some experts are predicting, how *is* and *will* this growth impact jobs, resources and lifestyle in western North Dakota?



Potential Oil in Place (Source: North Dakota Department of Mineral Resources)

[17] Ibid.
[18] *Bismarck Tribune*, Dec. 26, 2010
[19] Ibid.
[20] Oil in North Dakota Brings Big Opportunity, Big Challenges by Cory Chorne, project manager, AE2S, *North Dakota Water*, December 2008

According to data from the North Dakota Department of Mineral Resources, 1,450 to 2,940 new wells and 100 to 165 rigs coming on-line each year results in 12,000 to 19,800 new jobs in the short term, and 3,000 to 3,500 jobs in the long term (10 to 20 years). At the same time, these new wells place a burden on the state's water resources to the tune of 11 to 23 million gallons of water per day.

The Department of Mineral Resources further predicted the impact of the oil and energy boom for specific parts of the impacted communities, as follows:

Area Impacted	New Wells per Year	Number of Oil Rigs	Jobs	Frack Water Needed per Day (Millions of Gallons)	Long-Term Jobs (After 10-20 Years)
Williston	150-440	15-35	4,200	2-5	500-600
Alexander	150-250	10-14	1,700	2-3	250-350
Ray-Tioga	300-600	20-40	2,800-4,800	3-6	500-1,000
Watford City-Keene	250-450	15-25	1,800-3,000	3-4	350-600
Killdeer	250-550	15-30	1,800-3,600	3-4	350-700
Parshall	300-550	20-40	2,400-4,800	1.5-2.5	500-700
Belfield-Dickinson	50-100	3-5	600	0.5-1	75-120
TOTALS	1,450-2,940	100-165	12,000-19,800	11-23	3,000-3,500

When considering how the oil boom is impacting local communities, it is useful to note the disparity between short-term and long-term impact, both in terms of jobs and demand for water. As is clear by the above chart, in the short-term – while new rigs are drilling new wells – the demand for human and environmental resources is very high (12,000 to 19,000 workers, 11 to 23 million gallons of water per day). However, once oil exploration and extraction (fracturing or fracking) is complete and the wells are fully on-line in 10 to 20 years, the demand for human resources drops substantially (3,000 to 5,000 workers). This trajectory impacts public policy decisions regarding housing and infrastructure.

Helms explained that the Bakken-Three Forks play has three distinct lifecycle phases. Phase One is underway now and involves drilling to secure leaseholds. According to Helms, this phase should be completed by 2014 with the drilling of 7,000 wells. Phase Two has started in some districts and is pattern drilling, that is drilling a number of wells to best exploit the oil and gas potential of a defined acreage. Phase Three is the production phase and has begun for completed wells. A key characteristic of the Bakken

formation is that production output is gas-driven and total fluids recovered decline rapidly after the first years of production.[21]

In the meantime, however, communities in the energy development areas must contend with a variety of impacts related to the energy boom. This is especially true for the agencies providing EMS in the region.

EMS in the Region

The rapid increase in energy development activity in Dunn, Williams, Mountrail, and McKenzie counties is creating a crisis within a crisis for out-of-hospital EMS in the region with all the characteristics of a slow disaster. This crisis presents dangers to patients, providers and the public. Understanding this crisis necessitates a review of current EMS resources, the crisis facing all rural EMS in North Dakota and the specific challenges facing the energy develop areas.

Current EMS Resources

Emergency medical needs in Dunn, Williams, Mountrail, and McKenzie counties are met through a variety of agencies and organizations including:

- 11 ambulance services
- 2 quick-response units (QRU)
- 4 Public Safety Answer Points (PSAPs)
- 25 vehicles
- 276 EMS workers
- 4 hospitals
- 1 air medical helicopter (responds from Minot)
- Fixed-wing air medical resources from outside area

Ambulance Services

Grenora Ambulance Service
Halliday Ambulance Service
Killdeer Area Ambulance Service, Inc.
McKenzie County Ambulance Service
New Town Ambulance Service, Inc.
Parshall Rural Ambulance Service, Inc.
Plaza Ambulance Service
Ray Community Ambulance District
Stanley Volunteer Ambulance Service
Tioga Ambulance Service
Williston Fire Department Ambulance

Quick-Response Units

Alexander First Responders
Trenton First Responders

Access to immediate EMS response is gained through an e911 emergency call system answered in PSAPs located in Williams, Mountrail, McKenzie and Stark counties. PSAPs summon first responders and ambulances to respond. First response (non-transporting) is provided by QRUs located in Alexander and Trenton, and by area public safety agencies and fire departments that respond when requested or able to respond. First responders provide assessment some rescue services and medical

[21] *North Dakota Communities Acutely Impacted by Oil and Gas Development: New Town, Parshall, Stanley, Tioga, Watford City and Williston Housing Demand Analyses,* by James Ondracek, Ph.D., December 20, 2010

stabilization until ambulance services arrive. The primary patient care and transportation is performed by the ambulance services.

Patients are transported to hospitals in Williston, Watford City, Stanley and Tioga (or to other area hospitals located outside the four-county area). The closest Level II Trauma Center and Cardiac Catheter Lab are located in Minot. Because of the ongoing regionalization of medical specializations such as trauma, cardiac, stroke, orthopedics and psychiatric care, patients are increasingly transported to hospitals in Minot, Bismarck and other destinations east. Medical helicopter scene response is utilized occasionally (when practical for time and distance) but is often prohibited by weather conditions. Exact air response numbers to the four counties were not available. Fixed-wing air medical resources are primarily utilized for long-distance interfacility transports.

Hospitals

McKenzie County Memorial Hospital - Watford City
Mercy Medical Center - Williston
Mountrail County Medical Center – Stanley
Tioga Medical Center – Tioga
Trinity Medical Center – Minot (nearest level II Trauma Center)

The 11 ambulance services developed locally and independently and are organized under a variety of local structures, including private not-for-profits, fire departments and governmental entities. Two of the ambulance services are licensed to provide advanced life support (ALS) with paramedics (Williston Fire Department Ambulance, New Town Ambulance Service, Inc.) and nine are licensed to provide basic life support (BLS). McKenzie County Ambulance Service provides an ALS level of care on the majority of its calls. ALS services intercept with BLS services when a higher level of care is needed and when doing so will not delay patient care and transport. Nine of the services utilize volunteer staffing in some manner. Each service has its own physician medical director and its own medical guidelines.

Annual ambulance service call volumes varied in 2010 from 9 (Plaza) to 1,319 (Williston).[22] Ambulance services attempt to provide mutual aid backup to each other. However, at times distance and the limited EMS resources impede mutual aid efforts. Ambulance services from Powers Lake, Makoti-Ryder and Dickinson also respond into the four counties.

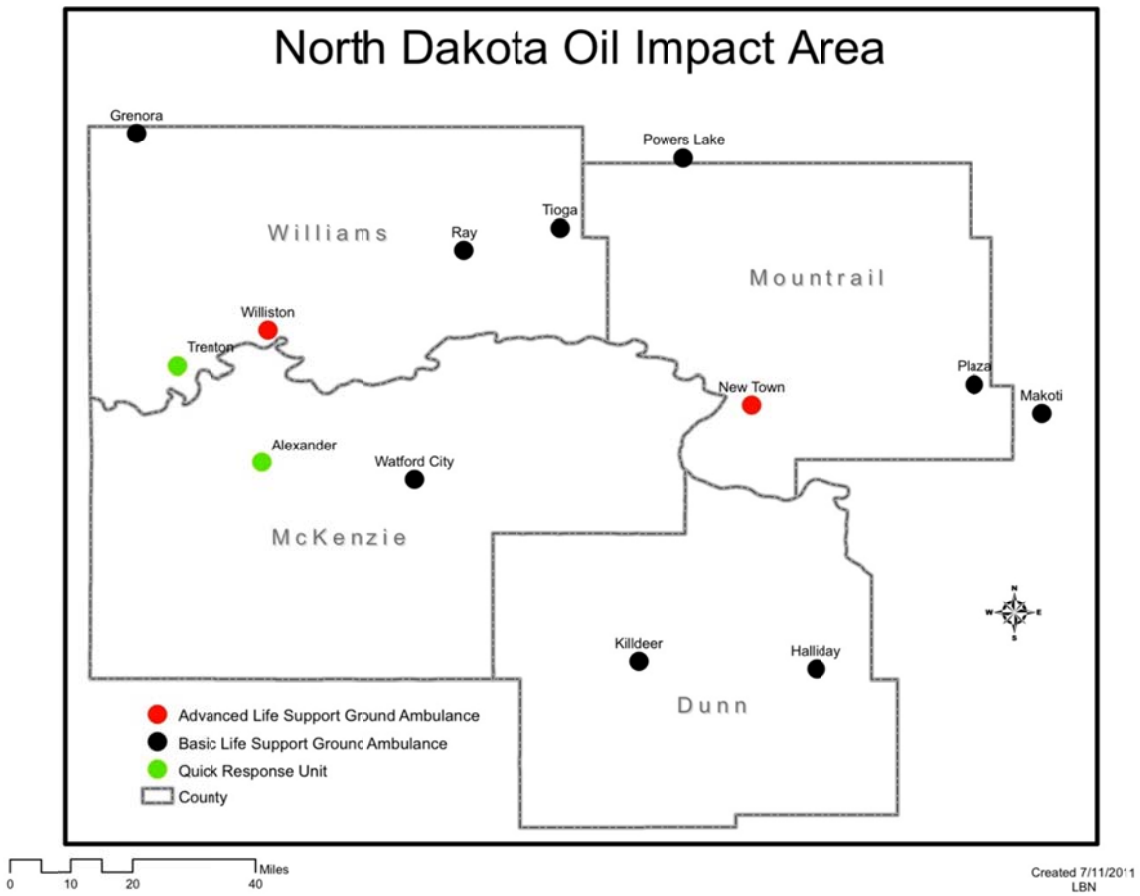
Providing EMS in this region of North Dakota presents inherent challenges related to geography, weather and sparse population. Ambulance services may respond more than 70 miles to reach a patient. Transport distances to a tertiary care center can be more than 200 miles. Winter snow and ice often make travel slow and difficult. The terrain can be rugged, and dirt roads and prairie paths can be difficult to traverse. First response is often unavailable or too far away to be practical, and ambulance service crews frequently manage emergencies alone. Ten of eleven ambulance services

[22] DEMST data

reported having difficulty with spotty radio and cell phone communications in their areas.

North Dakota Rural EMS Crisis

In addition to the inherent challenges, all the ambulance services in Dunn, Williams, Mountrail, and McKenzie counties are being impacted by a crisis that faces all rural EMS in North Dakota. This crisis is being spawned by the slow attrition of rural EMS's largest subsidy – rural volunteer labor. This volunteer subsidy, worth more than $31 million per year, is disappearing as changes in rural demographics, socioeconomics and attitudes about volunteerism have made the recruitment and retention of rural volunteers increasingly difficult in most communities, and nearly impossible in some. This subsidy funds more than 75 percent of the cost of providing rural ambulance service in North Dakota.



Finding solutions for the loss of the volunteer subsidy are difficult for the following reasons:

- The provision of rural EMS in North Dakota is not mandated by state, county or municipal governments, and there is no clarity about who is responsible for the provision and funding of EMS;

- Rural EMS in North Dakota developed locally, organically and independently over the last 40 years, engendering a deep sense of pride and ownership for the provision of local EMS; and
- The revenue from billing for the medical transportation of patients alone is not enough to cover paid labor costs in low call volume areas

Therefore, the loss of the volunteer subsidy is demanding a dramatic and evolving change in how rural EMS is understood, envisioned, valued and funded.

As volunteerism wanes, most rural ambulance services in North Dakota face significant challenges in finding enough people to sustainably staff ambulances 24 hours a day, 7 days a week.

- 35% have difficulty filling shifts during certain times of day and week;
- 46% of members on rosters are inactive;
- Only 38% of roster members frequently take calls; and
- Some services are operating with only two to five active members. [23]

The loss of volunteer labor and the volunteer subsidy are resulting in declines in response reliability, response delays and increasing stress on local EMS leaders, all at a time when the regionalization of healthcare and medical specialties and an aging population in rural North Dakota are increasing the need for out-of-hospital EMS. Ambulance response delays and failures and stressed and tired EMS workers present dangers to patients, providers and the public.[24]

The Specific Challenges of Energy Development for EMS

Emergency medical responders and ambulance services in Dunn, Williams, Mountrail, and McKenzie counties face the crisis of replacing the volunteer subsidy as well as a more immediate and growing crisis brought on by the rapid increase in oil and energy exploration, drilling and extraction.

EMS leaders and responders describe the situation that is emerging from rapid development as “overwhelming,” “crazy” and “beyond description.” An ambulance service manager said, “You can’t assess this with numbers. You have to see it.” Another said, “It’s happening so fast – faster than anyone thought – and it’s getting worse.” [25]

This situation may best be described by looking at the specific challenges energy development is having on EMS in Dunn, Williams, Mountrail, and McKenzie counties:

- Keeping up with demand;
- Difficulty recruiting and retaining staff;
- A growing housing shortage;

[23] NDREMSIP survey and interviews
[24] Ibid.
[25] NDREMSIP interviews

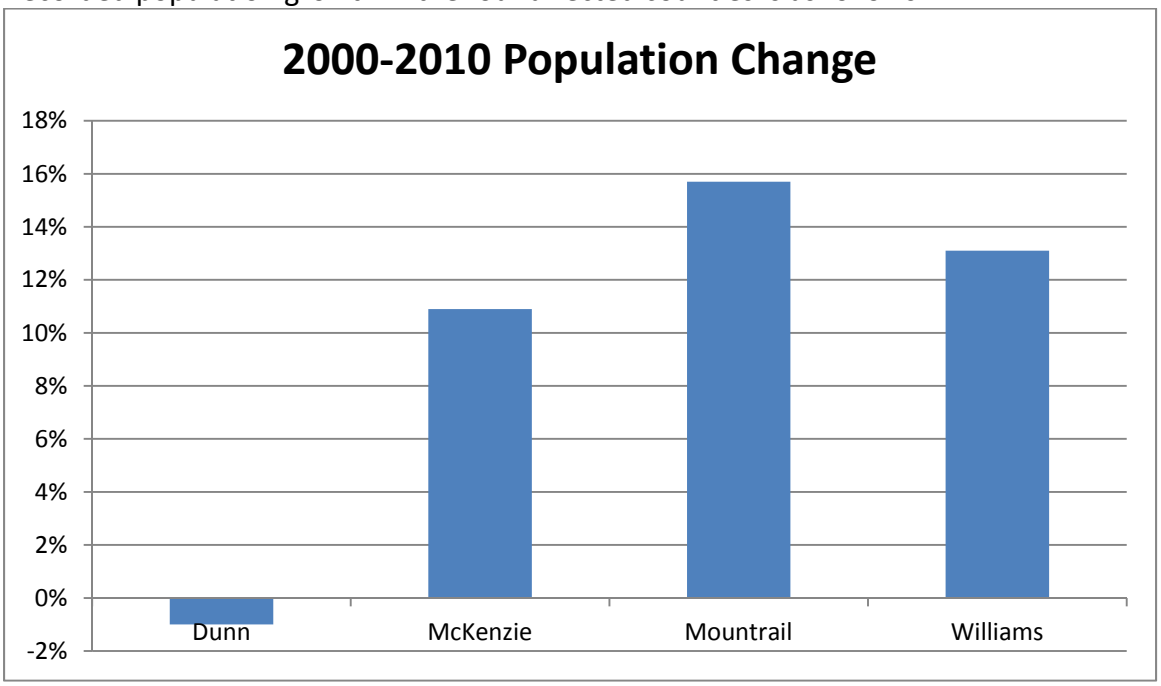
- Unprecedented traffic and road conditions;
- Growing real and perceived safety issues;
- Increasing funding issues;
- Shortage of leadership and preparation for the future; and
- Lack of preparation for the future.

Keeping up with Demand

Although no consensus exists on the exact number of people who have moved to the energy development region or how many additional people may move to Dunn, McKenzie, Mountrail and Williams counties in the near future, one thing that everyone agrees on is that energy development has and will continue to increase the population in western North Dakota.

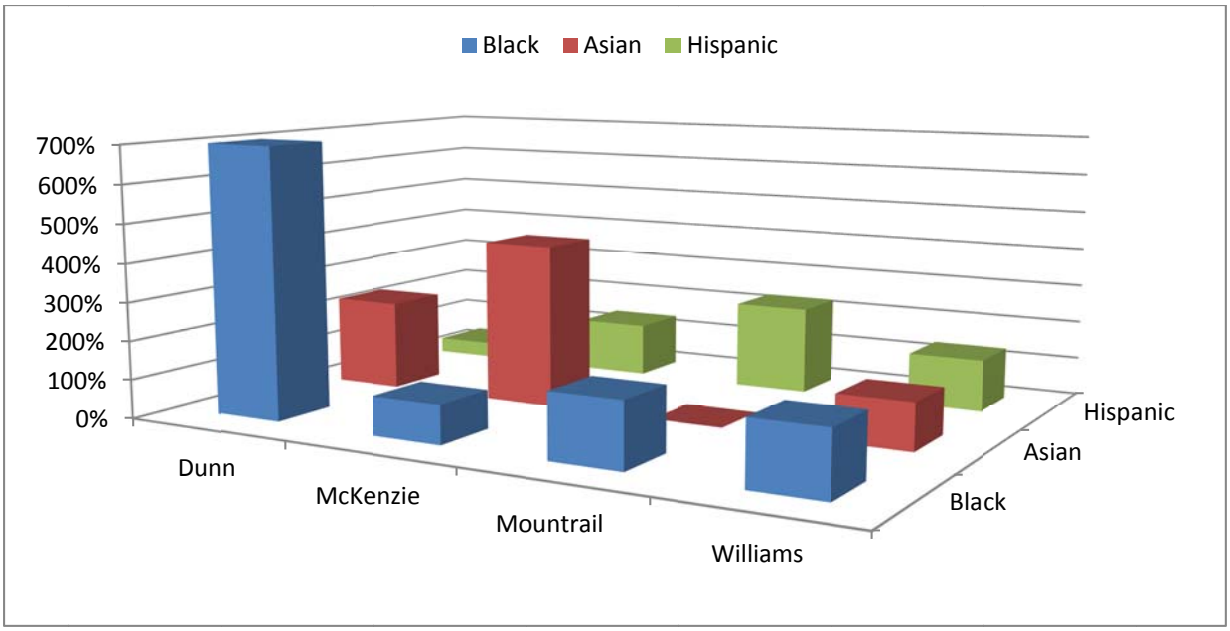
Population increases have already been recorded in three of the four counties most impacted by the oil boom. According to the U.S. Census Bureau's 2010 redistricting data, Mountrail County was the county with the third largest population growth in the state between 2000 and 2010, with a population increase of 16 percent.[26]

Recorded population growth in the four affected counties is as follows:



More than simply seeing a population increase, the affected counties also have experienced a change in racial and ethnic diversity among their local residents since the oil boom began. Although minorities still represent a very small number of residents in these areas, the change is notable.[27]

[26] "Population Bulletin," North Dakota State Data Center, April 2011
[27] "Population Bulletin," North Dakota State Data Center, May 2011



It is important to note that census data accounts only for permanent residents. Many of the workers currently living and working in the oil fields do not show up in the count because they are not permanent residents. Many also are recent transplants to North Dakota, having arrived after 2010 census data was collected.

With census data telling only part of the story, some officials estimate that the oil industry will need 12,000 new and replacement workers over the next four years. Translating 12,000 new positions into 12,000 new families equates to the potential for nearly 36,000 new residents in western North Dakota, which is a population growth equivalent to the city of Minot.[28]

The North Dakota Housing Finance Agency anticipates an even larger influx in population. It asserted in a January 2011 report: "Since 2000, about 23,000 more people have made the Bakken-Three Forks footprint their home…. In the next 20 years, an additional 19,000 will likely be living in the area." This forecast is based on an additional 21,000 pattern wells being drilled in the footprint between now and 2030. The housing agency based its estimation on the primary, secondary and induced workforce and their families as a result of this drilling activity.[29]

That same report asserts that the permanent population of the Bakken-Three Forks region will be between 92,500 and 128,500 people – nearly twice the current population

[28] Oil in North Dakota Brings Big Opportunity, Big Challenges by Cory Chorne, project manager, AE2S, *North Dakota Water*, December 2008

[29] *North Dakota Communities Acutely Impacted by Oil and Gas Development: New Town, Parshall, Stanley, Tioga Watford City and Williston Housing Demand Analyses,* by James Ondracek, Ph.D., December 20, 2010

of Grand Forks – by 2030. The following communities are estimated to see an increase in permanent residents as follows:[30]

Community	Current Population	Estimated Permanent Population (2018-2030)
New Town	2,111	2,600
Parshall	1,242	1,600
Stanley	1,532	2,000
Tioga	1,426	1,800
Watford City	1,823	2,300
Williston	16,223	20,900
TOTAL	**24,357**	**31,200**

In addition to an increase in permanent residents, the oil boom is causing an increase in temporary residents who are moving into the oil patch to staff the drilling of new wells. Rig-related transients (including, direct, secondary, and induced workers) will add approximately 6,250 people to the overall Bakken-Three Forks footprint before leaving with the end of pattern drilling.[31]

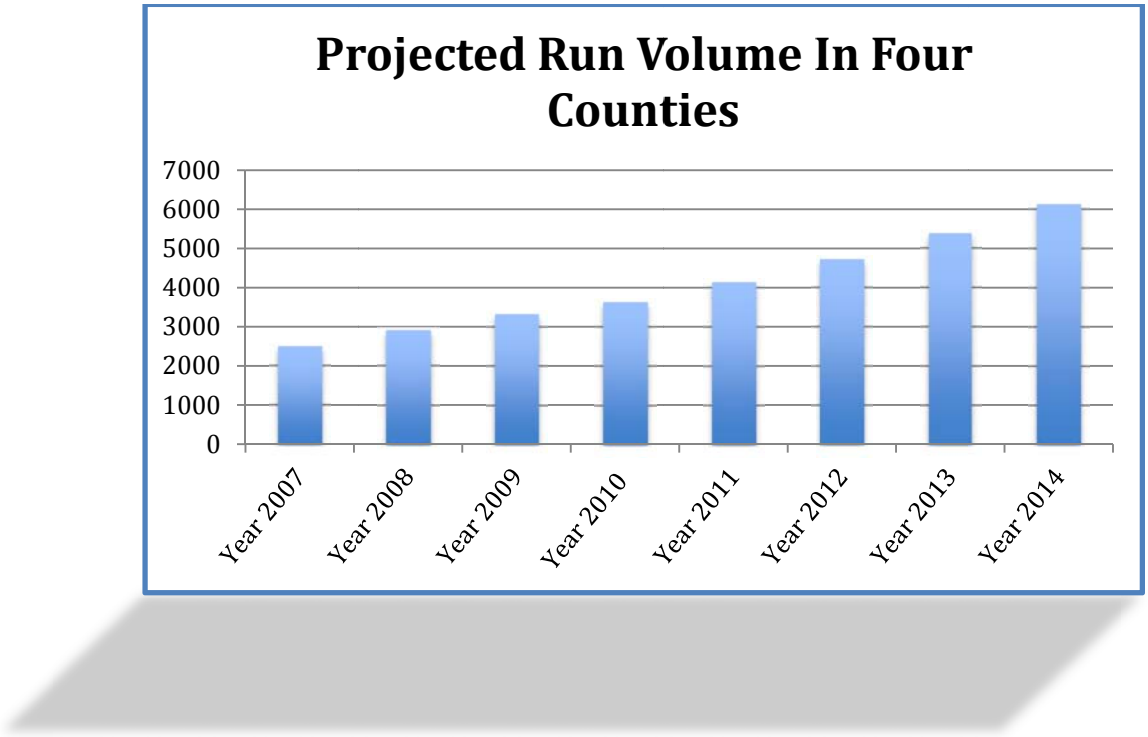
More people and more development activity means more EMS activity. Emergency medical responders and ambulance services leaders are reporting significant increases in the demand for EMS. EMS workers described the situation as follows:

- "We're starting to understand big-city EMS."
- "Some days it's nonstop."
- "We've never been so busy."
- "We used to know our patients, now we don't know anyone." [32]

In the last four years, ambulance services in the four counties have experienced at least a 46% increase in call volume (the actual number may be much higher as not all activity is reported to the state's EMS reporting system). New Town Ambulance has seen an 86% increase and Killdeer Ambulance service a 55% increase.[33] In the last year alone, McKenzie County Ambulance Service has seen a 100% increase in call volume (from 228 to 457 calls).[34] Other services are projecting that 2011 will bring the largest increases to date with several services on track to more than double 2010 call volumes.[35]

[30] Ibid.
[31] Ibid.
[32] NDREMSIP interviews
[33] DEMST data
[34] McKenzie County Ambulance Service
[35] Interviews with ambulance service leaders

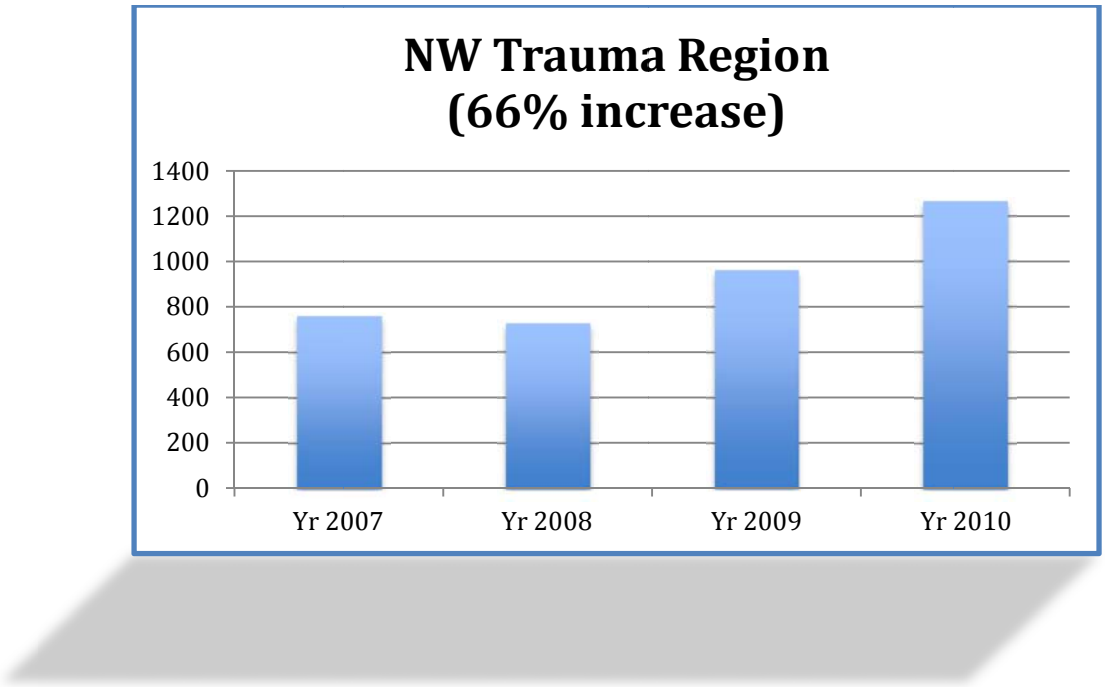
If EMS call volumes continue to increase at the same rate as the last four years, ambulance services will be responding to more than 6,000 calls in the four-county area by 2014. [36]



Ambulance services are also reporting an increase in the severity of calls, including more trauma, cardiac patients and overdoses. They also report having to transport more patients to higher level care facilities outside their areas, which removes them from their service areas for longer periods of time.[37]

Over the last four years, the North Dakota Trauma Registry's Northwest Region (which includes the four-county area) reported a 66% increase in trauma cases reported to the Registry, and Trinity Hospital in Minot (the Region's Level II trauma center) reported a 44% increase in trauma patients.[38] It is not known what percentages of these increases are related to energy activity.

[36] Based on DEMST collected data
[37] Ambulance service interviews
[38] DEMST data



The impact of increasing demand on EMS is difficult to assess as no uniform tracking and reporting of EMS response reliability and response time by the area PSAPs exists. Anecdotally, ambulance services and public safety officers report that services are doing their best to keep up with demand, but at times patients have reportedly waited up to an hour for an ambulance. Ambulance services reported having difficulty getting mutual aid or other services to help with inter-facility transfers because other services are busy. Two ambulance services reported operating at maximum capacity for current staff and vehicles. [39]

Difficulty Recruiting and Retaining Staff

As the demand for EMS increases, ambulance services are experiencing difficulty in attracting and keeping staff. This issue mirrors the decline in EMS volunteerism throughout the state, but it appears to be exacerbated by energy activity.

Each rig in the oil patch supports about 120 full-time jobs.[40] With 178 rigs currently on-line, that means that the oil industry presently employs about 21,360 people.

These figures are in line with projections from existing oil and gas companies last year that anticipated a 7.75 percent increase in expected employment levels in oil-related occupations for the year 2011 (an increase in payrolls from 19,070 workers in 2010 to 20,548 in 2011). Employment is expected to level off between 2011 and 2015, hovering at an average of 20,425 expected workers.[41]

[39] NDREMSIP interviews
[40] *Bismarck Tribune*, Feb. 25, 2011
[41] *North Dakota Oil and Natural Gas Workforce Needs and Skills Study* (Executive Summary), Dec. 2010

Employers polled in 2010 also expressed a significant need for replacement workers, or those workers needed each year to maintain the employer-projected employment levels. Replacement numbers were expected to jump by 34 percent between 2010 and 2011, from 3,592 to 4,811. Replacement workers should level off between 2011 and 2015 to an average of 4,340.[42] [43]

While the boom in energy activity has attracted many out-of-state workers to the impacted areas, it also has offered an enticing option for North Dakota residents, some of whom have left jobs in other industries for more lucrative work in the oil patch. Anecdotal evidence suggests that job-shifting has resulted in challenges for non-energy employers who are unable to match energy-industry salaries and benefits. Three ambulance services reported losing EMS workers to jobs in the oil fields.[44] An article in the *Bismarck Tribune* suggests that, "Problems finding and keeping staff at two nursing homes in the oil patch contributed to the owner's decision to close one and put the other up for sale." [45]

An economic analysis of the Bakken oil boom by University of Minnesota's Laura Seifert identified similar labor shortages in other industries in western North Dakota. Seifert wrote: "During interviews with the economic development office in McKenzie County and residents, local government officials, and business owners in Stanley, ND (Mountrail County), it was clear that the region is experiencing a labor shortage, a housing shortage, and damage to the existing infrastructure. It was cited in several interviews that specialty labor including electricians and welders were in extremely high demand. However, due to the increases in wages paid in the mining industry other service industries were having a difficult time staying fully staffed."[46]

Ambulance service leaders reported an acute shortage of paid and volunteer staff. "We were having trouble finding and keeping people before all this, and now no one has time to volunteer. Everyone is just too busy," reported one service leader. Another observed, "Who wants to volunteer to take care of people who are making thousands and don't care if you have to get up at midnight?" [47]

Ten of the eleven services reported significant staffing challenges. Paid services are having difficulty finding people who will work for EMS wages when energy industry

[42] Ibid.
[43] Note: estimates include primary and secondary occupations, or those involved in extraction and related supports. Data do not reflect induced jobs, or those jobs created to support the influx of business, people and income into an area.
[44] NDREMSIP interviews
[45] *Bismarck Tribune*, Feb. 10, 2011
[46] *A Basic Analysis of the Bakken Oil Boom: Precautions and Planning* by Laura Seifert, University of Minnesota
[47] NDREMSIP interviews

wages are so much higher. Volunteer services report that nearly everyone is the region is busier because of energy activity, and time for volunteering is extremely limited. In addition, as services become busier and find themselves primarily responding to people related to the energy industry (as opposed to local residents), the incentive for volunteering declines.

Two services reported needing some immediate relief – meaning their staff was stretched thin and not getting enough days free from being on call. Long-distance transport times are becoming an issue for some EMS workers as it takes them away from home and their communities for up to eight hours.

Currently, it is unclear how many EMS workers are needed in the four-county area. There has been no comprehensive workforce planning (comparing supply with demand). However, consistently ambulance services reported that staffing is one of their primary concerns as it relates to the continued growth in energy activity.

A Growing Housing Shortage

The shortage of house is exacerbating the shortage of EMS workers. "If we had money to hire people, where would we put them?" an ambulance service manager commented at a recent meeting.

According to official reports as well as newspaper articles, the influx of oil workers into Dunn, McKenzie, Mountrail and Williams counties has resulted in a severe shortage of adequate and affordable housing. " It all boils down to housing," said Williston's Economic Development Director Tom Rolfstad. "We can get people a job almost any day they show up, but where are they going to stay?" [48]

The challenge with housing the new oil workers in western North Dakota is a multi-faceted one. First, there is a lack of housing for temporary workers – some 6,200 of them needed to drill new wells, according to the North Dakota Housing Finance Agency.[49]

Second is the need for more permanent housing for oil workers and their families, as well as others who relocate to the oil patch to support the growing population. According to the North Dakota Housing Finance Agency, the permanent population of the Bakken-Three Forks footprint will be between 92,500 and 128,500 people – nearly

[48] *Bismarck Tribune*, Dec. 26, 2010

[49] *North Dakota Communities Acutely Impacted by Oil and Gas Development: New Town, Parshall, Stanley, Tioga Watford City and Williston Housing Demand Analyses,* by James Ondracek, Ph.D., December 20, 2010

twice the current population of Grand Forks – by 2030.[50] As a point of comparison, the current population of Dunn, McKenzie, Mountrail and Williams counties is 39,967.[51]

Finally, there is the issue of housing affordability, since only about half of the region's households can afford new market rate housing. [52]

Recent efforts to solve the shortage of temporary housing in the energy development region have included man camps (also called troop camps, since some women live there) and mobile homes, as well as new multi-unit buildings and single-family homes. Dozens of camps are operating and more are being planned. Informants reported that a newly opened camp near Watford City will eventually house more than 2,000 people.[53]

"Housing up here means a variety of forms," said Brad Bekkedahl, a city commissioner in Williston, where the housing shortage has been especially severe. He said approximately 1,200 units were to be added there in 2010 and another 2,000 are expected to be built this year.[54]

In an effort to alleviate the shortage of temporary housing, Halliburton, a Houston-based oilfield services company, brought in a huge portable housing complex used at the 2010 Winter Olympics to lodge some of its workers in North Dakota's oil patch. [55]

But Williston Mayor Ward Koeser told reporters that Halliburton's plan does little to curb the city's housing crunch. The prefab housing facility will provide less than a tenth of the more than 1,000 housing units needed in the city, he said. "Halliburton needs to hire more employees, and this will help," Koeser said. "But this is essentially a stopgap measure."[56]

Halliburton said in a statement issued last year that the 158-bedroom camp would include kitchen, dining, recreation and office areas. "The camp was used at this year's Winter Olympics in Vancouver, Canada, and will be demobilized and transported to Williston," the company's statement said.[57]

Since 2000, about 23,000 more people have made the Bakken-Three Forks footprint their home. In the next 20 years, an additional 19,000 will likely be living in the area.

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[50] Ibid.
[51] "Population Bulletin," North Dakota State Data Center, April 2011
[52] *North Dakota Communities Acutely Impacted by Oil and Gas Development: New Town, Parshall, Stanley, Tioga Watford City and Williston Housing Demand Analyses,* by James Ondracek, Ph.D., December 20, 2010
[53] NDREMSIP interviews
[54] *Bismarck Tribune*, Feb. 25, 2011
[55] *Bismarck Tribune*, Apr. 14, 2010
[56] Ibid.
[57] Ibid.

Considering household size, this will mean approximately 9,700 additional housing units will be needed across the eight-county Bakken-Three Forks footprint by 2030. This forecast is based on an additional 21,000 pattern wells being drilled in the footprint between now and 2030. The studies are estimating the primary, secondary and induced workforce and their families as a result of this drilling activity.[58]

The North Dakota Housing Finance Agency conducted a study that estimated the need for permanent housing in six communities in the oil patch. Its estimates are as follows:

Community	Estimated Permanent Population (2018-2030)	Housing Units Needed to Accommodate Permanent Population
New Town	2,600	1,100
Parshall	1,600	660
Stanley	2,000	1,000
Tioga	1,800	900
Watford City	2,300	1,150
Williston	20,900	9,700

According to the *Bismarck Tribune*, private builders and state programs are working to meet the growing need for housing in the oil patch, but they are slowed by the lack of infrastructure to support new development. "We're working hard to meet that demand," said Doreen Riedman, executive officer of the North Dakota Association of Builders. "One of the biggest challenges is having the lots to build on and the infrastructure."[59]

According to the North Dakota Housing Finance Agency, given 2010 construction costs, market rate rents for new two-bedroom apartments easily top $1,200. Since little construction has occurred in prior decades and the large demand associated with Phase Two pattern drilling and construction projects, apartment rents will remain high. Affordability is an issue across the region since only about half of the region's households can afford new market rate housing.[60]

[58] *North Dakota Communities Acutely Impacted by Oil and Gas Development: New Town, Parshall, Stanley, Tioga Watford City and Williston Housing Demand Analyses,* by James Ondracek, Ph.D., December 20, 2010

[59] *Bismarck Tribune*, Feb. 25, 2011

[60] *North Dakota Communities Acutely Impacted by Oil and Gas Development: New Town, Parshall, Stanley, Tioga Watford City and Williston Housing Demand Analyses,* by James Ondracek, Ph.D., December 20, 2010

Unprecedented Traffic and Road Conditions

One of the most talked about concerns of EMS workers in Dunn, Williams, Mountrail, and McKenzie counties is the impact energy development has had on traffic and roads.[61] Traffic and road conditions were cited in a public opinion poll as one of the top concerns related to energy development among North Dakota residents. [62]

Both the extraction and the removal of oil from the Bakken-Three Forks are processes that require numerous overweight trucks carrying water to and from oil rigs, and oil from the rigs to pipelines elsewhere in the state.

Oil traffic consists largely of five types of movements: (1) inbound movements of sand, water, cement, scoria/gravel, drilling mud, and fuel; (2) inbound movements of chemicals; (3) outbound movements of oil and byproducts; (4) outbound movements of saltwater; and (5) movements of specialized vehicles such as workover rigs, fracturing rigs, cranes, and utility vehicles (i.e., rig-related movements).[63]

A report by the Upper Great Plains Transportation Institute on behalf of the North Dakota Association of Oil & Gas Producing Counties estimates that it takes 2,024 total truckloads to get each well up and running.[64]

Truckloads of Oil Rig- Related Materials

Item	Number of Trucks	Inbound or Outbound
Sand	80	Inbound
Water (Fresh)	400	Inbound
Water (Waste)	200	Outbound
Frac Tanks	100	Both
Rig Equipment	50	Both
Drilling Mud	50	Inbound
Chemical	4	Inbound
Cement	15	Inbound
Pipe	10	Inbound
Scoria/Gravel	80	Inbound
Fuel trucks	7	Inbound
Frac/cement pumper trucks	15	Both
Workover rigs	1	Both
Total - One Direction	1,012	
Total Trucks	2,024	

Source: Upper Great Plains Transportation Institute

[61] NDREMSIP interviews
[62] *North Dakota Petroleum Council General Perception and Public Awareness Survey*, Fall 2010
[63] *Additional Road Investments Needed to Support Oil & Gas Production and Distribution in North Dakota*, Upper Great Plains Transportation Institute, North Dakota State University, Jan 2011
[64] Ibid.

The same study assessed the impact of oil traffic on local roads and found that oil-related traffic causes excessive road degradation. Among paved roads, the study found 68 miles in poor or very poor condition that were experiencing heavy oil-related traffic cannot be cost-effectively resurfaced and must be reconstructed. It also found 334 miles in fair condition; however, these roadways were expected to deteriorate rapidly under heavy truck traffic. [65]

Also of concern was roadway width. More than 50 percent of graded county roads are equal to or less than 28 feet wide. Narrower roads affect roadway capacity (e.g., vehicles per hour) as well as safety. According to the report, the predicted crash rate for a two-lane road with 11-ft. lanes and 2-ft. shoulders is 1.38 times the crash rate on roads with 12-ft. lanes and 6-ft. shoulders.[66]

In addition to noting concerns about degradation and width of paved roads, the report notes: "Approximately 12,718 miles of impacted unpaved roads have been identified. The projected cost of oil-related traffic on these roads is $567 million over the next 20 years (from 2011 through 2030). When the unpaved and paved road costs are added together, the projected investment need for all roads amounts to $907 million, which is equal to an average annual need of $45.35 million over the 2011-2030 period."[67]

Miles of Roads Impacted

County	Gravel*	Graded & Drained
Billings	560	28
Bottineau	924	113
Bowman	230	42
Burke	912	106
Divide	1,076	63
Dunn	968	105
Golden Valley	413	40
McHenry	335	24
McKenzie	1,046	69
McLean	451	34
Mercer	36	1
Mountrail	1,294	71
Renville	677	21
Slope	97	5
Stark	737	48
Ward	633	48
Williams	1,444	65
Total	11,834	884

Source: Upper Great Plains Transportation Institute

[65] Ibid.
[66] Ibid.
[67] Ibid.

Commissioners in Mountrail County have recognized the excessive wear-and-tear on local roads and voted to prohibit overweight trucks effective in the spring of 2012. In a 2010 news article published in the *Grand Forks Herald,* Mark Nesheim, a township assessor in Mountrail County, said that roads in some places have sunk 18 inches under the weight of oil trucks. The township let six miles of paved road go back to gravel because it could not keep up with the giant potholes created by the excessive traffic. [68] Steve Kelly, owner-manager of Trustland Oilfield Service, said, "The county roads are so decimated with potholes, they shake the trucks to where welds and air lines break." he said.[69]

Energy development activity is impacting roadways in other ways as well. For example, chipped and cracked windshields are a common nuisance on the roads where rocks spew from the tire treads of fleets of trucks hauling water for frack jobs to new wells and oil from producing ones.[70]

EMS workers and ambulance service leaders describe the traffic and highway situation as delaying response, decreasing the life of vehicles and increasing maintenance costs, and creating excess stress on EMS workers. They report emergency response times are becoming longer because of congestion, road construction and convoys of semi-trailer trucks. "Just getting to the station can be a problem," said one volunteer who described being forced to wait sometime for five minutes at a rural intersection for truck traffic to clear while driving to the ambulance station for a call.[71]

EMS workers told of being delayed by semi-trailer trucks that will not, or cannot, pull over. Many roads in the area have only two lanes, and heavily loaded trucks are reluctant to pull onto roadway shoulders that may be soft or non-existent. "There's no need to turn on lights and sirens, no one pulls over," an EMS worker reported. [72]

EMS workers also reported being delayed by roadway degradation, construction and the creation of new roadways. "They're making new roads and wrecking new roads faster than we can keep up," an EMS worker reported. [73]

Roadway degradation is also having an impact upon response vehicles. Potholes, disintegrated pavement, deep tire ruts and poorly developed roads all cause extra wear and tear on vehicles. One ambulance service manager estimated that vehicle life is being cut in half by the increased stress on suspension systems, tires and brakes.[74]

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[68] *Grand Forks Herald*, Aug. 10, 2010
[69] Ibid.
[70] *Bismarck Tribune*, May 4, 2010
[71] NDREMSIP interviews
[72] Ibid.
[73] Ibid.
[74] Ibid.

Such conditions are creating added stress for EMS workers who are busier and responding and transporting to more distant locations. "You've got both hands gripping the wheel wherever you go – it's exhausting," said an EMS worker.[75]

Growing Real and Perceived Safety Issues

EMS is a dangerous occupation. Occupational injury rates for EMS workers have been shown to be significantly higher than other industries,[76] and energy development is adding to concerns about EMS worker safety. While this assessment did not identify specific injuries related to energy development, key informants reported increasing concerns about their safety and the safety of those they are called to help. The concerns focus on traffic and roadside safety, violence and assault and industrial hazards.

One indicator of the safety concerns is the dramatic workload increase for public safety agencies in the region. "Everybody's shorthanded, and everybody's busy," said Williston Police Chief Jim Lokken. His officers responded to 4,657 calls in the first six months of 2010, more than 50 percent more than the same period in 2009, which was itself busier than the year before.[77] The increased calls are to bar fights, traffic stops, domestic violence, traffic accidents and "altercations borne of sharing a tent or camper for extended stretches." [78] On occasion, crime has turned deadly. In March 2011, an oil worker was charged with killing a co-worker, prompting KFYR-TV to report that, "Many towns in western North Dakota have seen a rise in crimes that involve alcohol and assaults." [79]

EMS workers reported concerns about responding to troop camps without appropriate law enforcement backup. "There are not enough officers out here," an EMT reported. "We get called to these places and never know what we're going to encounter, and law enforcement is too far away or too busy to respond, so we just have to go in on our own. It's scary." The manager of one ambulance service is seeking funding to obtain body armor for his staff.[80]

Mountrail County Sheriff Ken Halvorson said that his department was not prepared for the increased number of 911 calls that the oil boom has brought to this once-quiet part of the state. "We weren't prepared, and I don't know how you would be prepared, for the numerous people, and traffic... With traffic come accidents. Most of the accidents now involve a semi, and with a semi, you usually are dealing with a fatality."[81]

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[75] Ibid.
[76] Maguire, B. J., Smith, G. S., Hunting, K. L., & Guidotti, T. L. (2005). Occupational injuries among emergency medical services personnel. *Prehospital Emergency Care, 9*(4), 405– 411
[77] Running with Oil series in the *Grand Forks Herald*, 2010
[78] Ibid.
[79] KFYR-TV, March 15, 2011
[80] NDREMSIP interviews
[81] KXMC-TV, May 25, 2010

An EMS worker reported that traffic accidents have become a major safety concern for workers. “Trucks pass accident scenes without slowing or stopping because they’re getting paid by the load. I’m scared one of us is going to get killed,” she said. Another EMS traffic accident concern is the potential for encountering dangerous or hazardous cargo at the scene of an accident involving a truck.[82]

Mountrail County tried to reduce its traffic accidents by reducing speed limits from 65 to 55 on two primary highways in 2010. [83] Halvorson said the reduced speeds should be only a start by the Department of Transportation in improving highway safety in the oil patch. “There've been a lot more accidents and a lot more serious accidents,” he said.[84]

The *Bismarck Tribune* also reported:

> Accidents on those highways contributed to the 2009 fatality count of 140, the highest since 1982. Halvorson said the highways are too narrow and need wider shoulders and pullouts. He said when emergency personnel have to go out on certain stretches of the highway, “we may as well turn our lights off. People have no place to pull over for us.”
>
> Halvorson said drivers are noticing and driving the new limit. “Most people are trying to be as law-abiding as they can,” he said.
>
> The sheriff said heavy oil truck traffic is one reason why the highway is increasingly unsafe. “But it's all the additional traffic. It's the additional bodies and vehicles in our county,” he said.[85]

“The increase in traffic is certainly something all motorists traveling through that area need to be aware of,” said Lt. Jody Skogen, based at the North Dakota Highway Patrol’s headquarters in Bismarck. “Those trucks are working around the clock. But the common trend in the crashes we’re seeing is that the contributing factor often is motorists in the passenger vehicles,” he said. “It’s a learning curve, like when that first winter storm comes through. People need to be reminded how to safely operate in that kind of traffic. You may feel you have plenty of time to pass a long oil truck, but then you’re halfway past him and you see there’s another oil truck in front.” [86]

Another indicator of EMS safety concerns is industrial injuries. Though the Occupational Safety and Health Administration does not require employers to report injuries unless three or more workers are injured or a fatality occurs, Tom Deutscher, OSHA area director, said oil field-related accidents and fatalities have steadily increased since 2004.

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[82] NDREMSIP interviews
[83] *Bismarck Tribune*, Jan. 29, 2010
[84] Ibid.
[85] *Bismarck Tribune*, May 19, 2011
[86] Running with Oil series in the *Grand Forks Herald*, 2010

The number of oil and gas development and drilling injury claims filed with North Dakota Workforce Safety & Insurance in 2008 was 164, compared to 38 in 2004, before the current boom began to ramp up. Increased oil-related road activity in the area and across the state also is reflected in the claims statistics. In 2004, 11 oil trucking-related injury claims were filed. In 2008, that number increased to 94.[87]

A major concern for EMS workers is the potential for accidents and/or public health emergencies related to poisonous hydrogen sulfide (H2S), a colorless gas that smells like rotten eggs and that can be found in Bakken oil. During meetings and interviews, EMS workers expressed concerns about not having training and equipment to manage calls involving H2S. While representatives from the energy industry expressed that the danger of H2S is small, they did express a willingness to work with emergency services to obtain appropriate training and preparation for H2S emergencies.[88]

In commenting on EMS response to oil drilling sites, most EMS workers reported that oil workers and oil company safety crews often appear to be well-trained, extremely safety conscious and willing to assist in care and movement of patients. An EMS worker said, "I'm not afraid of the drilling rigs. They do a good job of monitoring safety there. It's everything else that scares me."[89]

What appears to concern EMS workers in the region most is the unknown. "We never know what we're going to encounter next because everything is changing so fast," said one EMS worker. Many EMS workers expressed a desire to have more training and resources for backup if help is needed. At times, EMS in the region is called to emergency scenes where radio or cell phone coverage is spotty and they have no communication with PSAPs for extended periods of time.[90]

Increasing Financial Concerns

The above challenges are leading to significant financial issues for EMS organizations in Dunn, Williams, Mountrail, and McKenzie counties. Ambulance service leaders made the following funding-related statements:

- We can't afford to hire anyone. We don't have the money."
- "We need a place for crews to sleep and shower, but where are we going to get the money?"
- "We're getting further behind. I know there are grants, but I don't have time to fill out all the paperwork."
- "Everyone is getting rich out here. We're just getting busier."[91]

[87] Ibid.
[88] NDREMSIP interviews and three oil impact meetings held between Dec.2010 and Jun. 2011
[89] NDREMSIP interviews
[90] Ibid.
[91] Ibid.

As EMS becomes busier, its costs for readiness, personnel, staffing, crew quarters and facilities, vehicles, equipment, supplies and training increase. While this study did not conduct a financial assessment of ambulance services, many ambulance services reported financial concerns – especially as it relates to meeting future demands. Concerns centered on the following:

- EMS is often *not* considered a vital part of infrastructure and does not receive the same attention and funding as roads, utilities and public safety.
- EMS services have historically operated efficiently using volunteers, donations and small amounts of tax revenues, and typically have not had to contend politically for resources and may not have experience or skill in this area.
- With declining volunteerism and increasing demand, some ambulance services in the region will likely need to transition from volunteer to more paid staff members, dramatically increasing budgets.
- While these rural ambulance services are seeing increasing call volumes, only two have enough volume to pay for fulltime staff.
- It is not clear who is responsible for the provision and funding of EMS in the region. By default, the existing ambulance services are responsible for providing services in their coverage area, but there is no clarity about which entity is responsible for funding increasing costs.
- Ambulance services depend on transport revenues for an important part of their income. The increase in transient workers has increased the number of "no-pays" ambulance services absorb. Three ambulance services reported losing significant revenues by transporting patients related to energy development activity who have not paid their bills. Two oil company representatives stated that while all their employees have health insurance that would cover ambulance transportation, they could not assure the same for the many subcontractors who support exploration, drilling and extraction.

The total financial need for EMS In the region is not known. Because each service operates independently without regional planning, the magnitude of current and future financial need remains unknown.

Lack of Regional Leadership, Planning Coordination and Storytelling

Finally, meeting the above challenges is impeded by a lack of regional EMS leadership, coordination and planning.

The EMS agencies in Dunn, Williams, Mountrail, and McKenzie counties developed locally and independently, and they operate independently. Historically, this served the unique local needs of each community. However, the challenges brought on by energy development are demanding a more regional approach in terms of:

- Coordinating the efficient and effective deployment and response of resources;
- Telling a unified story to both government and industry;
- Budgeting and obtaining funds to support EMS;

- Creating broad mutual aid plans;
- Ensuring the region has enough EMS workers to meet current future and future needs and provide relief for local crews when needed;
- Obtaining outside resources; and
- Planning for future demand.

Currently, no regional EMS leadership, planning, coordination or storytelling exists in the four counties. Each service represents their needs and concerns independently. No single story is being told about EMS in the region. Some ambulance services have independently approached government and industry to request resources, which has created a confusing message about need. Representatives from both government and the energy industry reported being confused by multiple requests and do not have a clear picture of regional EMS needs. [92]

During the project period, the NDREMSIP hosted three meetings for EMS services in the region. Consistently, ambulance services leaders and EMS workers reported needing outside help in meeting needs.

Comments

EMS is a vital and necessary part of both community and economic infrastructure. Residents, visitors and workers (whether local or transient) expect and deserve prompt, profession and reliable emergency medical help when needed. EMS resources in Dunn, Williams, Mountrail, and McKenzie counties have been significantly impacted by energy development in the region.

Through a long history of independence and self-sufficiency, EMS in the region has absorbed the dramatic increases in demand for services. Some ambulance services are becoming overwhelmed and hanging on simply through the tenacity of dedicated volunteer workers who are becoming increasingly tired and stressed. For many of these workers, the future promises only more increases as the pace and amount of development continues to grow. Some services describe themselves as nearing a breaking point – meaning, in the future they may not be able to respond to requests for service.

While most of the ambulance services in Dunn, Williams, Mountrail, and McKenzie counties are meeting current needs, the emerging situation in North Dakota has many of the characteristics of a slow disaster. The demand for EMS is growing faster than local EMS resource development. There is a need for leadership, coordination, planning, storytelling, funding, resource development, and workforce development that extends beyond what local services can provide.

[92] NDREMSIP interviews

The major needs for EMS in the entire oil impact region (beyond the four counties of this study) are for:

- Regional operational coordination and ongoing needs assessment
- Unified messaging to government and industry about needs
- Regional planning for current needs and future growth
- Development of funding for:
    - workforce resources (permanent and temporary duty or TDY)
    - nonpaying EMS patients
    - training
    - facilities, crew housing, equipment and vehicles

Recommendations

Based on the finding that current demand for EMS is stressing local resources to a point that challenges EMS reliability in the region, and based the assumption that energy development activity will continue to grow, we recommend:

- Local EMS agencies endeavor to organize themselves to collectively represent their needs to government and industry and collaboration on solutions; and
- The North Dakota Department of Health and DEMST take immediate action to provide coordination and support for EMS in the region as if this were a disaster.

Specifically, we recommend the EMS agencies in the entire impacted region seek to:

1. Form an entity or organization to represent their needs and concerns. The North Dakota Association of Gas and Oil Producing Counties (NDAGOPC) is an example of the need for collaborative representation. The services in the area could create their own entity or seek to join with another already existing organization such as NDAGOPC or the North Dakota EMS Association;
2. Select leadership to represent their needs that has the time and experience to be effective;
3. Begin collecting information and data about EMS in the region;
4. Begin telling a uniform story about challenges and needs to government and industry;
5. Create plans for mutual support and action;
6. Create a mechanism for collecting and distributing monies; and
7. Approach assistance and funding sources collectively.

The major barriers to the above recommendation are time and funding. Most of the EMS agencies in the energy development areas currently have neither time nor financial resources to spare. Therefore, we recommend the North Dakota Department of Health and DEMST:

1. Recognize the current situation in the energy development areas has all the characteristics of a slow disaster and outside help is urgently needed to manage and mitigate this evolving crisis.

2. Seek dedicated funds to pay for leadership, planning, logistics and operations support, and workforce in the oil/energy impact region.
3. Create a full-time oil/energy EMS regional coordinator position overseen by DEMST to facilitate a regional approach to challenges. The coordinator should work *with* local services, carry their needs forward and coordinate the distribution of resources.
4. Immediately begin to provide logistical and operational support to address:
    a. Temporary staffing relief (TDY crews from other services)
    b. Supplemental staffing grants
    c. Equipment, vehicle, facility grants
    d. Training for oil rig response and safety
    e. Housing for EMS workers
    f. Supplemental long-distance transfer resources
    g. Reimbursement for no-pays
    h. Management support and training that fits time constraints
    i. Informing politicians about what is going on
5. Conduct long-range EMS regional planning (including workforce planning) in cooperation with local services to ensure that EMS in region meets current and future needs.

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