



# **Social Impacts of Oil and Gas Development on Eastern Montana Communities**

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**Montana Board of Crime Control**

**FINAL REPORT**

**Final Report**

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# **Social Impacts of Oil and Gas Development on Eastern Montana Communities**

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**BBC**  
RESEARCH &  
CONSULTING

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# SECTION I.

## Introduction

In the fall of 2012, the Montana Board of Crime Control retained a consulting team led by BBC Research & Consulting (which also included Dr. Richard Krannich from Utah State University and Lloyd Levy Consulting, LLC) to examine the social impacts on eastern Montana communities from the current oil and gas boom in eastern Montana and western North Dakota.

This study was the second impact-related study MBCC had participated in during the past few years. In 2012, the Montana All Threats Intelligence Center and the North Dakota State and Local Intelligence Center collaborated on a study of the impacts of the boom on crime and law enforcement entitled *Impact of Population Growth on Law Enforcement in the Williston Basin Region*. Given the focus of the previous study, this study of social impacts did not examine the impacts of the boom on crime and law enforcement in detail, except as these issues were raised by members of the community during interviews and focus groups.

The two major components of this social impact study were:

- A detailed examination of prior research into the social impacts associated with rapid natural resource development in rural communities. That research is summarized in Section II of this report.
- Case studies based on interviews with key informants and focus groups in four communities in Montana. The methodology for these case studies is described in Section III of this report. The findings from the case studies are provided in Section IV.

The study team greatly appreciated the cooperation of numerous community members in the four case study areas, as well as the assistance of MBCC staff throughout this project.

## SECTION II.

# Previous Research

This literature review was intended to provide context for the study and to develop guidance for subsequent project tasks. These tasks included key person interviews and focus groups in the affected communities; the identification and evaluation of secondary data sources and metrics; and the identification of potential strategies to mitigate or respond to social impacts.

This review begins with a discussion of historical social impacts literature, including previous studies in Montana and other Rocky Mountain states dating back to the early 1970s. It then provides an overview of more recent, unconventional energy-related development in the U.S. and the social impact information that has been developed in the communities that have been affected by these developments. This section concludes with a discussion of potential guidance for this study based on the previous literature and recent information developed in Montana, North Dakota and other locations.

In general, this literature review does not focus on studies and other information primarily concerned with increases in crime in “boomtown” communities. Although crime is a very important concern related to “boomtown” development, effects on crime and law enforcement were the focus of a separate study, *Impact of Population Growth on Law Enforcement in the Williston Basin Region*, completed in August 2012 by the Montana All Threat Intelligence Center and the North Dakota State and Local Intelligence Center.

### **Historical Social Impacts Literature Regarding “Boomtowns” and Natural Resource Extraction**

The rapid development of natural gas, oil, coal, power plants and other energy resources and facilities in the western United States during the 1970s and 1980s spurred considerable research regarding the social impacts of this type of development in the affected rural western communities.

**Early ethnographic studies.** One of the key early works was a 1974 sociological paper by Eldean Kohrs, a clinical psychologist working in Gillette, Wyoming. Kohrs described an extensive list of social impacts and other concerns and coined the term the “Gillette Syndrome” as a descriptive moniker for the problems affecting western boomtowns (Jacquet 2009).

Kohrs’ work was one of the first of a number of boomtown social impact studies in the 1970s. Other examples of this type of early social impact research included a study of the impacts of coal mining and potential power plant development near Colstrip, in Rosebud County, Montana (Gold 1974) and a similar study in the Decker-Birney-Ashland area of the county (Community Service Program 1975). Many of the studies conducted in the 1970s employed ethnographic methods largely based on extensive and extended interviews with boomtown residents. Findings were primarily presented in a narrative format which essentially told a story about the

perceptions and concerns among various groups of residents regarding the changes affecting their communities and their lives.

One of the key contributions from this early literature was the identification of the potential differences in impacts and perceptions among various categories of people within the communities – such as landowners/ranchers, town residents/merchants and newcomers expecting to stay for an extended duration (e.g., coal miners) versus more transient newcomers (e.g., construction workers). Existing residents were also sometimes grouped into “pro-development” and “anti-development” categories (Gold 1974). The ethnographic interview approach also served to identify a wide range of potential concerns among the various groups. For example, the narrative in the 1974 study of social impacts in Rosebud County discusses perceived issues such as:

- Resource conflicts (particularly between ranchers and coal interests regarding land use and purpose);
- Feelings of persecution among ranchers;
- Uncertainty about the future;
- “Scapegoating” activity;
- View of newcomers as transients, reluctance to engage with them;
- Differences in values between newcomers and old timers;
- Lack of sense of community, feelings of isolation (among newcomers);
- Lack of awareness of impacts (among newcomers);
- Diminished pride in community institutions (e.g. the school);
- Increasing social stratification;
- People on fixed income suffering from economic boom (rising prices, rents, taxes);
- Major increase in demand for medical service organizations;
- Frustration and boredom (among newcomer families);
- Some newcomers adapting and fitting in with older residents (primarily those with long term jobs);
- Changing relationships among old timers;
- Reluctance to discuss the “coal issue”;
- Shift in power structure from ranchers to new industrialists;
- Feelings of alienation, diminished sense of community (among long time residents);
- Fear of crime; and
- Weakening of traditional rural ties, reciprocity, and feelings of moral accountability (Gold 1974).

A number of these perceived social issues were also identified in the 1983 study of *The Impact of Natural Resource Development on the Criminal Justice System in Montana*, which also included

Richland County, Montana as a case study (Fitzpatrick, 1983). The 1983 study also relied largely on qualitative, ethnographic research, but made more effort to incorporate at least some quantitative information from available data sources.

**More rigorous studies in the 1980s and early 1990s.** By the early 1980s, a transformation was occurring in the boomtown social impact literature. The early ethnographic studies had come under criticism in regard to their methods, their assertions and their theoretical foundations. One of the most influential and pointed critiques of the literature was published by Kenneth Wilkinson and several colleagues in 1982. The Wilkinson paper, itself controversial, stated up front (in the abstract): “The assumption that energy development causes social disruption in western communities is based on undocumented assertions, questionable interpretations of evidence and superficial analyses.” Wilkinson, et al, went on to state: “Theory used implicitly in research on western communities that are affected by energy development is inconsistent with the history of the region and with recent developments in community research.” (Wilkinson 1982).

Wilkinson and his co-authors were particularly critical of lack of systematic, empirical analysis to support the findings in many of the more ethnographic studies. They also disputed the theoretical foundation of the earlier research, which was largely based on the view that boomtown communities were being rapidly changed from a rural form of social organization to an urban one, contending that the relatively short and conflict-ridden history of the west was not consistent with classic, sociological assumptions regarding rural society (Wilkinson 1982).

Much of the boomtown social impacts literature that emerged during the rest of the 1980s and the early 1990s was characterized by more rigorous and quantitative approaches than the earlier ethnographic research. Typically, these studies relied on structured, random sample surveys of boomtown residents and residents in one or more comparison communities not affected by rapid energy development. The studies tended to focus on more narrowly defined social impact questions, such as:

- perceptions of “infrastructural”, “coping” and “normative” problems among boomtown residents compared to residents in non-boomtown communities (Greider and Krannich, 1985);
- effects of rapid, energy-related development on the “density of acquaintanceship” within the community, and corresponding effects on issues such as control of deviance, socialization of the young and willingness to help others (Freudenburg, 1986);
- the effects of rapid change on local identity, solidarity, and trust in other members of the community (Greider, Krannich and Berry 1991);
- whether boomtown youth were more likely to remain in the community than youth in other rural communities, and how the boomtown experience affected youth perceptions of their community and their lives (Seyfrit 1986 and Seyfrit and Sadler-Hammer 1988);
- whether boomtown residents were more likely to be victims of crimes, or suffer from fear of crime, than residents in other rural communities (Krannich, Greider and Little 1984);

- whether the incidence of severe child maltreatment (where court intervention was required to protect a child) was higher in communities experiencing rapid energy development (Camasso and Wilkinson 1990); and
- how social impacts and perceptions changed from the anticipatory period prior to the actual boom, during the boom and in the early years following the boom as population and employment declined (Brown, Geertsen and Krannich 1989).

**Key findings from the historical social impacts literature.** The social impacts literature of the 1980s and early 1990s challenged some of the sweeping assertions from the earlier ethnographic literature, and the later authors generally described their results and interpreted their findings more carefully and cautiously. In the spirit of those studies, it is important to recognize that some of their findings may be specific to the communities and situations they studied and may not necessarily apply to other boomtown situations. Keeping that caveat in mind, these studies suggest a number of considerations regarding social impacts in rural communities affected by rapid natural resource development:

- Rapid, energy-related growth appears to reduce the density of acquaintanceship (the proportion of the community that an individual knows personally), sense of identity and solidarity within rural communities
- These changes may be linked to other perceived social impact issues, such as less control of deviant behavior, reduced respect for law and order, less effective socialization of youth and increased drug and alcohol use and lower satisfaction with the community
- Community satisfaction appears to also be reduced by residents' perceptions of infrastructure problems, such as housing shortages, increased costs for goods and services, inadequate health care services, overcrowded schools and deteriorating streets and roads
- The increased employment opportunities do not appear to increase the ability of the community to retain its youth, and youth appear to be less happy than their counterparts in rural communities not experiencing boom conditions
- While the incidence of crime (on a per-capita basis) may not actually increase, fear of crime appears to rise in the boomtown setting
- Severe child maltreatment may increase in association with rapid, energy-related development
- Social impacts may begin even before large increases in population, and appear to be relatively slow to disperse following the boom period.

A relatively recent study, published in 2003, provided a retrospective assessment of the mitigation efforts that occurred in conjunction with the Intermountain Power Project development of a large, coal-fired generating station in Delta, Utah in the mid-1980s. That study described the Delta, Utah experience as a case study in successful social impact mitigation. That success was attributed to a number of factors, including the large amount of resources dedicated



to impact mitigation (the developer provided approximately \$100 million to the community to upgrade infrastructure and provide other community enhancements). Other factors contributing to the perceived success of this effort were that the funding began early (prior to most of the influx of new residents associated with the project) and that local governments were given considerable latitude in determining which needs were most important and where the money should be spent (Brown, et. al. 2003).

## **Studies and Other Information Related to Recent Unconventional Energy Development**

Prior to the emergence of domestic oil production from shale (“unconventional oil”) two regions of interest—Sublette County, Wyoming, and the Marcellus Shale Region of mainly Pennsylvania and New York—experienced recent unconventional natural gas booms in rural areas. The focus shifted to oil production when the price of oil relative to gas rose and began to diverge, prompting the industry to re-deploy capital and new technologies to the Williston Basin with spectacular success.

**Overview of recent unconventional energy development activity.** The following section provides a brief description of recent energy development activity in several of the most active regions across the U.S. Subsequent sections describe the social impact-related information that has been developed from the experiences of these regions.

**Sublette County, Wyoming.** The growth and recession cycle of natural gas drilling in Sublette County, Wyoming, which began in the mid-1990s, was among the first of the unconventional resource booms to attract the attention of other regions facing similar activity (Matthew Brown, Associated Press, “To South, Montana Sees Cautionary Tale on Energy: Montana rules aimed at limited pace, size of oil development.”) Measured in rig activity, Sublette County, Wyoming, drilling grew from a total of 22 rig months in 1995 to 436 rig months in 2005, a near 20-fold increase. In 2005, the rig-month total corresponded to an average of 44 active rigs in the field during the summer and 29 in the winter. (Jeffrey Jacquet, “Sublette County, Wyoming: A Brief History of Drilling 1995-2005 - The Socioeconomics of Gas.”) The rig count reached its high of 67 in October of 2008. Then as natural gas prices dropped, the rig count fell to 30 in May of 2009. Recent rig counts in Sublette County are comparable to those of a decade ago, with the number of active rigs ranging from 16 to 21 per month in 2011 and 12 to 15 per month in 2012. (Baker Hughes Incorporated, “Baker Hughes U.S. Rig Count Reports.”) Assisted by industry, government and non-governmental organizations, Sublette County undertook a program of impact monitoring and analysis that produced reports from 2005 through 2009 that associated changes in the county with activity in the gas field.

**The Marcellus Shale Region.** Drilling in the Marcellus Shale formation underlying Pennsylvania and New York began with the drilling of the first well in 2003. Commercial production dates to 2005. One hundred ninety-five Marcellus Shale wells were drilled in 2008, 768 were drilled in 2009, and 1,386 wells were completed in 2010 (Brasier et al., “Residents’ Perceptions of Community and Environmental Impacts from Development of Natural Gas in the Marcellus Shale”). Relevant socioeconomic studies of the Marcellus Shale gas region of Pennsylvania and New York emerged as the researchers from institutions with ties to the region applied insights from Wyoming and began research efforts of their own. In addition, local governments and non-

governmental organizations interested in impact management policy and programs backed efforts leading to a literature on socioeconomic impact policy and management in the region. The studies and related documents about the Marcellus Shale region are dated from 2009 through 2012, overlapping work in Wyoming.

**The Williston Basin.** A divergence in price structure that occurred mid-decade gave industry the impetus to use the new completion technologies to extract unconventional oil. Production of unconventional oil grew five-fold nation-wide from 2007 to 2011 (despite some slowing during the recessionary period of 2008-2009), from about 39 million barrels in 2007 to about 217 million barrels. (U.S. Government Accountability Office, Oil and Gas: Information on Shale Resources, Development, and Environmental and Public Health Risks). Domestic, oil producing shales are widespread geographically, but more than 65 percent of the new unconventional oil production from shale drew from the Bakken Shale formation of North Dakota and Montana, which is in the historical Williston Basin (U.S. Government Accountability Office, Oil and Gas: Information on Shale Resources, Development, and Environmental and Public Health Risks).<sup>1</sup>

Oil and gas production is hardly new to the Williston Basin of Montana and North Dakota. Prior to 1987, conventional drilling and production from the Bakken Shale of the Williston Basin occurred in Divide, Burke, Williams, Mountrail, McKenzie and Dunn counties in North Dakota. From 1987 to 1999, there was horizontal drilling of the upper Bakken in McKenzie, Golden Valley, Billings, Dunn and Stark counties, North Dakota, and a little in Richland County, Montana. (Julie A. LeFever, Richard D. LeFever, and Stephan H. Nordeng, "Extending the Bakken").

The current wave of drilling of the Bakken began in Montana in 2001 with development of the Elm Coulee Field in Richland County. The Elm Coulee Field remains active and drilling in Montana has grown. However, the Bakken Middle Member, primarily in Divide, Burke, Williams, Mountrail, McKenzie, Dunn, Golden Valley, Billings and Stark counties of North Dakota, and first horizontally drilled in 2004, is now by far the more active locus of drilling and production (Julie A. LeFever, Richard D. LeFever, and Stephan H. Nordeng, "Extending the Bakken"). At the end of 2012, 145 rigs were active in North Dakota's Williston Basin and 21 rigs were active in Montana's portion of the Basin (Baker Hughes Incorporated, "Baker Hughes U.S. Rig Count Reports").

Figure 1 summarizes the rig count by county from the Baker Hughes interactive site as of December 21, 2012. The oil bearing shales in North Dakota, which also include the Three Forks and the Pronghorn, are projected to continue to be preferred drilling targets. The Montana share of rigs in the Williston Basin is likely to remain the smaller share (Julie A. LeFever, Richard D. LeFever, and Stephan H. Nordeng, "Extending the Bakken").

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<sup>1</sup> Another Bakken play is the Southern Alberta Basin in north central Montana. However, drilling of this area remains exploratory (Beating the Index.com, "DeeThree Exploration: Are Investors Missing the Forest for a Tree?", Darryl L. Flowers, "Eco-Trade Details Oil Prospects; Updates Sun Times Report on Chinese Connection.", U.S. Attorney's Office and Michael W. Cotter, United States Attorney, "The Bakken.")

**Figure 1. Active Rig Count in the Williston Basin by County, December 2012.**

Williston Basin- State/County	Number of Active Rigs
<b>Montana</b>	<b>21</b>
Sheridan County	4
Roosevelt County	5
Daniels County	1
Richland County	11
<b>North Dakota</b>	<b>145</b>
Billings County	1
Bottineau County*	2
Burke County	3
Divide County	10
Dunn County	30
McKenzie County	57
Mountrail County	1
Renville County*	2
Stark County	6
Williams County	33

Note: Father east and separated by inactive counties.

Source: Baker Hughes Incorporated, "Baker Hughes U.S. Rig Count Reports."

Although the majority of the drilling is occurring in North Dakota, Montana is also being affected by Williston Basin development activity. With 21 rigs active in the Montana counties of Richland, Roosevelt, Sheridan, and Daniels and 100 rigs active in North Dakota counties (Divide, Williams and McKenzie) on the Montana border, and with east-west highways and several railroads transecting the Williston Basin, development is already affecting Montana because of both direct and spillover effects of the Williston Basin.

**Impact-related information from unconventional energy developments.** The recent development of unconventional gas and oil in Sublette County, Wyoming, in the Marcellus Shale Region, and the Williston Basin has been studied by a range of stakeholders and observers. The result has been numerous reports and articles about the boom in these areas. This "gray literature" has been examined for this literature review.

Most impact studies in these regions are in the category of technical reports, working papers, and white papers. Google searches and subsequent follow-up on bibliography entries identified a number of items. The searches also revealed some relevant conference or online presentations (the latter called "webinars"). Presentations generally summarize other reports or present as yet unpublished or anecdotal information.

newspaper and magazine articles, identified through keyword searches of Google News and the archives of the Sidney (Montana) Herald and the Williston (North Dakota) Herald newspapers, are also quite numerous. Journalistic items also include “blog posts”, which are the writings of individuals for local, national and trade media and published on the Internet. The search also revealed several radio and television reports that were archived on the Internet.

Only a few academic journal articles have emerged in response to unconventional development in these regions. Peer-reviewed journal publication favors quantitative studies based on original data. Such studies have a long time-lag before publication to allow for research, analysis, writing, review and revision, so more articles may appear about the Sublette County, Marcellus Shale, and Williston Basin booms in the future.

This review does not include environmental impacts statements (EIS’s), though many EIS’s do address large scale drilling, especially in Wyoming where abundant federal land and minerals are targets for development. Even though every EIS includes an assessment of “social impacts” the analysis in an EIS is prospective and anticipatory. The review here focuses on material arising from contemporaneous or retrospective experience, observation, study and reflection upon these developments.

The gray literature and journalism assembled from Sublette County, Wyoming, the Marcellus Shale Region, and the Williston Basin to date is directly relevant to social impact assessment in eastern Montana for obvious reasons. Efforts to identify, quantify and manage impacts in Montana are already being informed with little time lag and at relatively close range by the observations and analysis arising from these experiences. Though literature was collected from all of these areas, the emphasis in this review is on literature from the Williston Basin, which is already part and parcel of eastern Montana’s experience.

For local observers and those representing them as consultants or officials, the focus is on identifying and quantifying impacts as concerns to be managed and mitigated. This review shares that viewpoint. However, this review also considers literature that indicates how best to identify and assess social impacts using focus groups and key informant interviews – the methodology that will be employed later in this study.

**“Gray literature” from Sublette County, Wyoming.** The cluster of socioeconomic studies emerging from Sublette County, Wyoming, is principally the work of academic researchers engaged as consultants. The researchers come from Wyoming and from institutions with ties to Pennsylvania and New York’s Marcellus Shale regions. The key documents date from 2004 through the present. In various ways these reports identify impacts, assemble indicator data, and in some cases deliver recommendations for impact management. Examples include:

- “Social and economic impact assessment” of communities affected by the “energy boom” in progress, commissioned by an oil company, and using available data interpreted through information collected in “interviews of stakeholders” questioned from an “open-ended, semi-structured instrument”, with responses recorded on audio tape and in researchers on-site notes (University of Wyoming Department of Sociology, 2004);

- Analysis of ten years of index crimes, arrests and sheriff's department services and estimates the statistical relationship to population growth, gas-field activity, labor force data, and trends over time (Jeffrey Jacquet, 2005);
- Estimation of the gas field workforce by extrapolating from the number of drilling rigs in the county to correct speculative population estimates reported in the media (Jeffrey Jacquet, 2006a);
- Comparison of sales taxes to drilling data and concluded that collections throughout the local economy mirror fluctuations in gas field activity (Jeffrey Jacquet, 2006b);
- A compilation of data from many sources to describe ten years of gas field activity in the county in terms of the industrial process, product prices, drilling and completion stages, and the resulting product output, with estimates of seasonality and breakouts for constituent fields (Jeffrey Jacquet, 2006c);
- Assessment of available data and prior primary data collection to "document concerns over insufficient socioeconomic analyses" in environmental impact statements that led to "the lack of forewarning of significant socioeconomic impacts to the infrastructure of the county" (Ecosystem Research Group, 2008); and
- A second phase to Ecosystem Research Group, 2008, that quantified impacts to population, housing, employment, wages, unemployment, personal and household income, education, roads and transportation, crime and law enforcement, medical services, and water and sanitary waste; estimated "impact mitigation costs" and recommended monitoring and mitigation strategies, with notes on the local effect of the national recession begun in December of 2007 (Ecosystem Research Group, 2009).

**"Gray literature" from Pennsylvania's Marcellus Shale region.** Studies of the Marcellus Shale Region emerged as the researchers from institutions with ties to the region applied insights from Wyoming and began research efforts of their own. All are an outgrowth of primary missions of extension education, workforce development, and impact policy analysis. These efforts initially overlapped the Wyoming work and are ongoing. They include:

- Analysis of the linkage between impacts to local communities and natural gas industrial activity levels and workforce requirements (Jacquet, 2009a);
- Analysis of evidence from the case study of Sublette County, Wyoming, arguing that Marcellus Shale communities would sustain effects outlined in the boomtown model, provided the impacted community is "sufficiently small" (Jacquet, 2009b);
- A report on "baseline" conditions for a longitudinal study of Pennsylvania's Marcellus Shale Region using a mailed sample survey of residents and key informant interviews with about 60 elected and appointed leaders, representatives of human service and educational agencies, and civic organizations representing five Pennsylvania counties and five counties in two other shale rich states (The Institute for Public Policy & Economic Development, 2010);

- Report of baseline findings from the winter 2009-10 survey of residents in Pennsylvania’s Marcellus Shale Region about their knowledge and perceptions of the natural gas industry during the early stages of development (The Institute for Public Policy & Economic Development, 2011);
- An analysis of key occupations associated with unconventional natural gas development and the direct employment needed to bring a Marcellus well into production in Pennsylvania (Marcellus Shale Education & Training Center, 2011); and
- Description of ongoing program of studies and webinars “on the benefits and challenges of the Marcellus play” in the interests of “smart, sustainable growth and development in the region” (Penn State Extension, 2013).

**“Gray literature” from the Williston Basin of North Dakota and Montana.** Many initiatives aimed at characterizing and managing impacts have accompanied the oil boom in the Williston Basin. The rapid rise of drilling in North Dakota triggered most of these efforts, many of them funded by federal, state, and foundation grants. Impact studies in Montana are emerging as moderate drilling activity continues and border counties bear spillover effects from North Dakota.

*North Dakota.* North Dakota response to the unconventional oil boom has emphasized the creation of regional organizations to advocate for policy and mitigation. Principal examples of this approach are two overlapping, ad hoc institutions, one the Western North Dakota Energy Project (WNDEP) and the other Vision West ND. WNDEP, funded by the Bush Foundation and hosted at Dickinson State University, describes its mission as researching how other parts of the country and world are handling (or have handled) rapid natural resource development (Dickinson State University, and Strom Center for Entrepreneurship & Innovation, 2012). Vision West ND, funded by the federal Department of Housing and Urban Development and state energy impact grants, is a regional planning initiative addressing economic development and diversification, infrastructure needs, planning and zoning, urban revitalization, small business development (“entrepreneurship”), and regional strategic planning (Vision West ND, 2012).

The ad hoc regional initiatives are accompanied by and sometimes interact with studies backed by university extensions and state government agencies. In addition, directly affected local governments, such as Dickinson and Williston, have launched planning efforts that include indicator data collection and surveys that provide observations. In all, North Dakota studies arising from various initiatives cover considerable ground in pursuit of guidance on impact management and mitigation policy and strategy:

- Economic “contribution” analyses used primary data collected from operators, processors and leasing/brokerage firms and economic impact models to compare the growth of total employment attributable respectively to drilling and exploration, production, and processing from 2005 to 2007 and from 2007 to 2009 (Dean A. Bangsund, and F. Larry Leistritz, 2009 and 2011);
- The Western North Dakota Energy Project, which is researching the management of rapid natural resource development, presents “debriefings” (or webinars), maintains a

library of recordings and presentation materials on the Internet, and facilitates a consensus-building “dialogue group” in partnership with the Vision West ND Consortium (Dickinson State University, and Strom Center for Entrepreneurship & Innovation, 2012);

- A non-scientific Internet survey for the Dickinson, North Dakota, comprehensive plan asked for respondents’ reactions to traffic and driving behavior in Dickinson, community attractiveness and change in quality of life since coming to Dickinson to live (Kadrmaz, Lee and Jackson, Engineers, Surveyors, Planners, 2011);
- A webinar available on the Internet presented the methods and preliminary results of the employment estimation and forecasting model under development by the department (North Dakota Department of Mineral Resources, and Lynn Helms, Director, 2012);
- A housing needs survey of “key leaders and stakeholders” named two of six statewide priorities to be oil-impact related; in oil-impact counties, the responses emphasized extremely low vacancy, escalating housing costs forcing low-income families (including the elderly) to move, and a shortage of temporary housing, although crew camps and motels were judged to be satisfactory where available (North Dakota State University, and Center for Social Research, 2012a and 2012b);
- An official presentation on infrastructure studies and a mail survey of licensed drivers indicated that the level and character of traffic due to oil development contribute to both road maintenance needs and costs and to driving conditions perceived as unsafe by local residents of the “oil region” (North Dakota State University, and Upper Great Plains Transportation Institute, 2012a and 2012b);
- A literature review focused on three topics: the boom-bust-recovery cycles of resource development; economic, demographic, social, and cultural impacts to communities; and programs and policies implemented to stabilize and sustain natural-resource development economies (North Dakota State University et al., 2011b);
- Focus groups and personal interviews targeting extension and non-extension public services personnel. This work is notable for an appendix containing detailed paraphrasing of specific “concerns”; these are dominated by housing (shortage, inflation, camping and homelessness) but also include frequent mention of family stress (lack of child care, demand for child protection, domestic conflict, gambling addiction), community stress (transiency of public school students, labor shortages and wage competition in non-oil sectors, housing cost inflation-caused evictions, outmigration of long-time residents, and disparity in distribution of benefits of the boom) and cultural-behavioral dissonance (non-English speakers, harassment of women, “rough” public behavior, careless driving, and sexually-oriented commerce). Concerns were paired with participants’ recommendations for action (North Dakota State University et al., 2011a);
- Department of Health reports emphasized the “crisis” of declining volunteerism for out-of-hospital emergency medical services (EMS), a “subsidy” which has not been offset by

revenue in rural places of the oil region despite the demand caused by growth (SafeTech Solutions, LLP, and North Dakota Department of Health, 2011a and 2011b);

- A policy statement on behalf of a regional leadership consortium advocating for funding to mitigate boom impacts in the short term and for investment and a “legacy trust fund” to sustain “other core components of the region’s economy” so that they are in place “when energy development winds down” (The Rural Policy Research Institute (RUPRI), and Center for Rural Entrepreneurship, 2012);
- Pages from Internet site of a regional planning project funded by the U.S. Department of Housing and Urban Development summarized the economic and quality of life goals expressed by participants in local planning process sub-areas (Vision West ND, 2012a, Vision West ND, 2012b),
- Page from the Vision West ND Internet site describes a planning task force that emphasizes child care as a regional need (Vision West ND, 2012c).

*Montana.* The gray literature from Montana’s part of the Williston Basin is more limited, perhaps by less direct development and the delayed emergence of spillover effects. Items found and reviewed included the joint Montana and North Dakota study of impacts on crime and law enforcement (mentioned at the outset of this review), plus less formal presentations and organizational communications that convey information and reactions to local effects at or near Sidney, Montana, the epicenter of the Montana experience. The group of items includes:

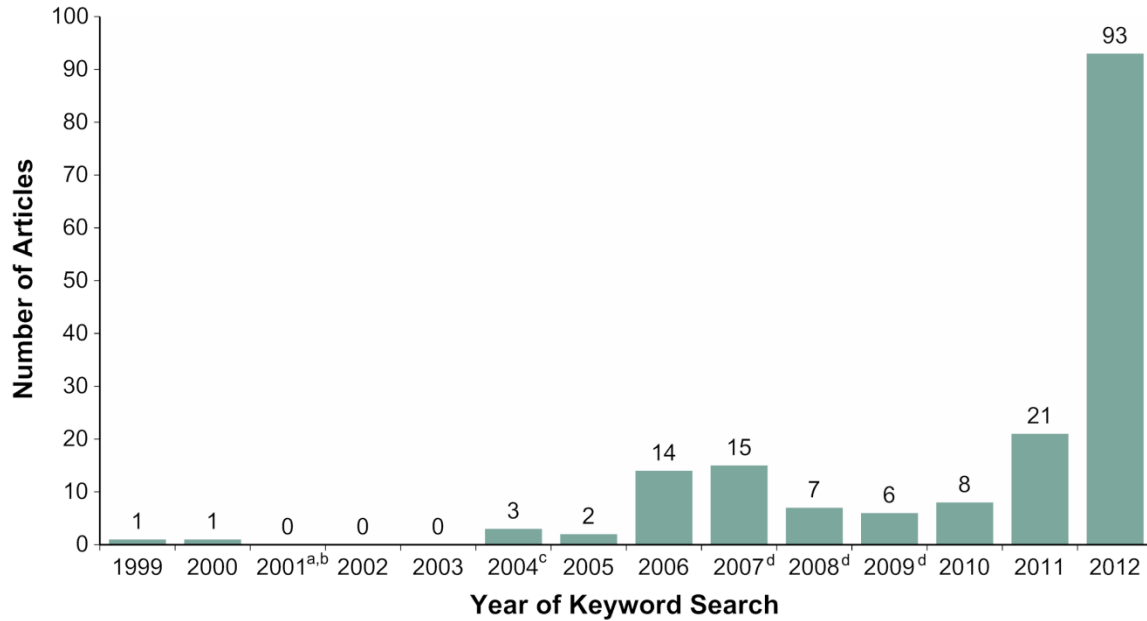
- The state’s outlook for Williston Basin development in Montana (Montana Board of Oil and Gas Conservation, and Tom Richmond, 2012);
- A joint impact study by the Montana and North Dakota crime agencies (Montana All Threat Intelligence Center (MATIC) and North Dakota State and Local Intelligence Center (NDSLIC), 2012);
- A news release announcing concerns of Montana and North Dakota agency concern about crimes against women (Montana Coalition Against Domestic & Sexual Violence and North Dakota Council on Abused Women’s Services / Coalition Against Sexual Assault, 2012);
- A local economic developer’s view of impact topics (Richland Economic Development, 2012);
- A newsletter announcing a new regional impact response coalition (Eastern Plains Economic Development Corporation, 2012); and
- A newsletter article on the relevance to central Montana based on the North Dakota experience (Rural Dynamics, Inc. and Northern Plains Initiative, 2012).

The emergence of energy-related impacts as an issue in eastern Montana is evident from the content of local newspaper coverage. The following table illustrates this by counting articles



returned by a search for the key word “impact” in the archives of the Sidney, Montana, newspaper.

**Figure 2. Frequency of Articles Discussing “Impact” in the Sidney Herald Daily Newspaper, 1999 through 2012**



Note: <sup>a</sup> First horizontal Bakken well drilled in Montana.  
<sup>b</sup> National recession from March 2001 to November 2001.  
<sup>c</sup> First horizontal Bakken well drilled in North Dakota.  
<sup>d</sup> National recession from December 2007 to June 2009.  
This search returned some articles not directly related to oil development impacts.

Source: Sidney Herald, Sidney, Montana. Wick Communications, publisher. <http://www.sidneyherald.com/search/>.

Local newspaper articles also may identify impact topics, types of social groups, officials, leaders, and individuals to consider recruiting for individual interviews and focus groups later in this study.

**Published journal articles regarding social impacts of unconventional resource development.** In addition to commissioned research studies, the material developed by local governing agencies, media reports and other forms of “gray literature”, recent unconventional energy development has also led to the publication of several journal articles regarding social impact-related topics.

Two of the more recent journal articles regarding social impacts of unconventional resource development focused on social impacts of gas development in the Barnett Shale. This area is unusual in the social impacts literature because energy development is occurring in the more urbanized, Dallas-Fort Worth metropolitan region. The first article described the perceptions of local leaders regarding the impacts of energy development in their area. Twenty four local leaders in two counties (Wise County and Johnson County) were interviewed regarding three basic topics:

- what local-level benefits have occurred because of increased energy development?
- what perceived negative impacts have accompanied increased development; and,
- whether the benefits of development have outweighed the costs.

Interviewees from both counties noted the economic benefits from energy development, including increases in household income, property values and local government revenues, as well as improvement in the job market and local unemployment rates. Some interviewees also noted improvements in schools and medical facilities.

The authors identified several common themes from the interviews regarding the negative consequences of energy development. They classified the negative impacts into three categories: public health and safety issues (primarily traffic-related, but also including groundwater contamination risks and well safety), environmental concerns (water-related issues and nuisance concerns such as rig lighting and noise), and quality of life issues (again primarily traffic related, but also including concerns about tensions between residents directly benefitting from gas development through leases and the broader community experiencing the adverse effects).

Perhaps most interestingly, the authors report that the interviewees from Johnson County, where the gas boom is just beginning, universally described the benefits of the “boom” as outweighing the costs. In Wise County, which has had more experience with gas development, the interviewees reached the opposite conclusion (Theodori 2009a). That finding, however, does not appear to be entirely consistent with the findings of a subsequent general population survey conducted by the same author (Theodori 2009b).

Unconventional resource activity in the Marcellus Shale (primarily in Pennsylvania and New York) has also spawned recent, published papers regarding social impact topics. A 2011 paper was based on the results of 71 semi-structured interviews conducted across four counties. Similar to the methodology used during some of the historical boom town studies (and in our current study), the interviews were conducted in both counties actively experiencing gas development and control counties in which there was little or no gas development underway.

The interviews were intended to understand perceptions of impacts; evaluate these impacts as positive or negative; understand perceived future impacts; assess trust in industry and regulatory agencies; and ascertain the respondents' position in the community relative to Marcellus Shale development. Impacts were generally coded into the following categories (developed based on the transcripts): impacts on the local economy, aesthetic quality, agriculture, the environment, social relations and conflict, physical infrastructure, population change or diversity, community survival, and social services.

The 2011 study found that the community's prior experience with extractive industry was important in understanding how local leaders perceive the impacts of the activity on their community. Communities with more prior experience seem to report fewer impacts than communities with less experience, perhaps due to the more experienced communities' knowledge of the industry and access to industry officials (Brasier et. al. 2011).

Another paper based on research in the Marcellus Shale area focused on the role of natural gas landowner coalitions as a possible mechanism for mitigating or reducing impacts. Large coalitions of landowners have emerged in south central New York State. This study was also based on key person interviews, in this case with the leaders of these coalitions.

The landowner coalitions, originally intended to help landowners negotiate more financially advantageous lease arrangements with gas companies, have also become a vehicle for negotiating other development conditions intended to protect property rights and local environmental conditions. To some extent, however, the success of these coalitions had yet to be determined because leasing and drilling activity had declined substantially due to the economic recession (Jacquet et. al. 2011).

**Application of information from recent, unconventional resource development to our study.** The recent "gray literature" concerning the impacts of unconventional resource development is relevant to our effort in three areas. This material helps to identify tangible observable effects or correlates of less tangible effects that have been quantified from available data. The material also documents the social impact themes arising from the experience of the three regions and their relationship to the categories in the academic literature on social impact. Finally, the identification of methods and instruments from previous studies provides potential guidance for our upcoming interviews with individuals and groups, including identifying categories of people to include among the participants and precedents for the design of an interview-based case study.

Some of the recent journal articles are of particular interest in our context because they describe studies using similar methods to those that will be employed in our work in Montana (key person interviews and/or focus groups) or because they provide further insights into relevant questions such as manner in which social impacts may vary during various phases of development (longitudinal assessment) and how the prior experience of communities with energy extraction may condition social effects. A few of these articles also provide insight into potential mitigation strategies.

## **Preliminary Guidance and Insights for Montana Study based on Previous Research**

Historical studies of “boomtown” social impacts, as well as more recent “gray literature” and academic journal articles regarding current, unconventional energy development across the United States, provide useful information for subsequent stages of the Montana study.

**Methodological insights.** Over the past forty years, a variety of methods have been employed to gain insight into the social effects of rapid energy development in rural areas. The methodology for social impact studies has evolved over time from an early emphasis on ethnographic studies with rather informal research design through the development of more rigorous, quantitative studies. However, “qualitative” methods continue to be used where resources and/or research aims do not support the use of formal survey research. More recent studies employing qualitative methods have commonly employed key informant interviews, sometimes in conjunction with focus groups in the affected communities.

The perceptions of the social impacts of energy development on rural communities have also evolved. Early studies painted a strongly negative picture of the consequences of energy development for rural communities and residents. Beginning with the more refined social effects analyses that emerged during the 1980s, more recent studies tend to paint a more balanced and nuanced picture of the benefits and costs associated with rapid growth and development. This more balanced view, and more cautious interpretation of effects, has also been informed by several longitudinal assessments of the ways in which social effects may change over time as communities anticipate, experience, and recover from rapid energy development.

Arguably, the most rigorous social impact studies have been based on random sample surveys of residents in the affected communities (sometimes coupled with residents of nearby comparison communities not experiencing energy development). This type of methodology may provide the most definitive and statistically robust information regarding social effects, but is also typically limited to evaluating very specific research questions.

A number of studies, however, have relied on interviews with key informants, sometimes coupled with focus groups – as will be undertaken in later phases of our current research in Montana. This type of approach is useful in identifying the types of social impacts that may be occurring in the area, which impacts are most prevalent or perceived to be most important, and how different groups are affected in different ways. Key informant interviews and focus groups will also be useful in assisting us to identify key metrics and data sources for future monitoring purposes and may also help to elicit ideas concerning potential ways to mitigate impacts.

**Key social impact dimensions and potential metrics for monitoring effects.** As the discussion in the preceding pages indicates, there are a wide variety of potential social impacts associated with rapid natural resource development in rural communities. To make this information a bit more manageable, it may be useful to divide these impacts into two categories.

**Subjective impacts.** The first category includes potential impacts on residents’ *perceptions* of their lives and their communities. These types of effects typically cannot be measured by available data — in the absence of conducting original survey research. While these effects are

frequently overlooked (outside of the academic literature) because of the difficulty in observing and measuring them, a number of researchers have noted that such effects are more accurately described as “social impacts” than most of the more quantifiable and observable effects such as changes in population, traffic, social service caseloads and other parameters (see Greider and Krannich 1985 for example).

For purposes of this study, we will follow the convention established by Greider and Krannich in their 1985 paper and term these perceptual effects “subjective effects.” Some important examples of these types of effects include:

- Changes in the density of acquaintanceship (see Freudenberg 1986 for example). This may sometimes be expressed in statements like “we used to know everyone, now there are a lot of strangers in our community.”
- Declines in local identity, solidarity and trust in other community members (see Greider, Krannich and Berry 1991).
- Fear of crime (see Krannich, Greider and Little 1984).
- Less control of deviant behavior, reduced respect for law and order, less effective socialization of youth (see Freudenberg 1986).
- Diminished community satisfaction and reduced attachment to the community (see Brown, Geertsen and Krannich 1989).

While these and other types of subjective social impacts cannot be directly measured and monitored based on standard, published data, they may be identified and explored during key person interviews and focus groups later in this study. To some degree, changes in more quantifiable objective measures, discussed below, may also be indicators of potential changes in these types of subjective impacts within Montana communities.

**Objective impacts and potential indicators.** There are a number of social, or socially-related, impacts that can be quantified, measured or at least represented in proxy by available data sources. Some examples of potential indicators of these types of impacts gathered from the recent studies concerning unconventional resource development include:

- Population growth (Ecosystem Research Group 2008);
- Mining employment share (Ecosystem Research Group 2008)
- In-migrant workforce and components (transiency, out of state, ethnicity, disparate gender and age from local population, single males aged 18 to 44) (Dickinson State University and Minot State University, 2012);
- Wage rise in private retail/services-sector, unfilled job orders, employee turnover (Ecosystem Research Group, 2008);

- Caseloads in public and social services-sector, employee overtime (Ecosystem Research Group, 2008);
- Cost-of-living (Ecosystem Research Group, 2008);
- House prices (Ecosystem Research Group, 2008);
- House rental costs (Ecosystem Research Group, 2008);
- School enrollment, turnover (student and faculty), student demographics, language, class size, pupil-teacher ratio, teacher salary, recruitment success, per-pupil cost (Ecosystem Research Group, 2008; Dickinson State University and Minot State University, 2012);
- Public revenue (growth responsive categories; dedicated to impact mitigation) (Ecosystem Research Group, 2008);
- Traffic level and composition, accident number and type, dust control activity and cost (North Dakota State University and Upper Great Plains Transportation Institute, *Oil County Traffic Safety Survey, 2012*).
- Medical trauma (emergency medical services runs, ER demand) (SafeTech Solutions, LLP and North Dakota Department of Health, *A Crisis and Crossroad in Rural North Dakota Emergency Medical Services*; SafeTech Solutions, LLP and North Dakota Department of Health, *The Impact of Oil and Energy Development on Out of Hospital Emergency Medical Services: Dunn, Williams, Mountrail, and McKenzie Counties*).
- Negative (e.g., unmet needs, dissatisfaction) or “conflict” expression and behavior (negative statements in the local newspaper; reports of direct newcomer-resident conflict behavior) (Dickinson State University and Minot State University, 2012);

The BBC study team will examine the feasibility of collecting these types of data, and other potential indicators, from Montana data sources later in this study.

**Potential interviewees and areas of inquiry.** Several studies conducted during the recent development period for unconventional energy resources have been based primarily on key informant interviews. The types of people that have been interviewed have included:

- County government officials (commissioners, planning and zoning directors);
- City officials (mayors, managers, council representatives, clerks and treasurers);
- Law enforcement officials;
- Criminal judges;
- School district officials (superintendants, secretaries, human resource directors)
- Congressional representatives;
- State representatives;

- Newspaper reporters/editors;
- Economic development officials (chambers of commerce, economic development associations);
- Business owners (banking, retail, food and drinking establishments, developers/builders);
- Hospital administrators;
- Social service officials;
- University professors;
- State and federal agency representatives (e.g. Bureau of Land Management, State Game and Fish Department); and
- Representatives of relevant, local interest groups.

The more recent studies also provide examples of general questions that could be used as starting points in the key person interviews, and perhaps incorporated into the discussion guides for the future focus groups. In generalized form, some of the broad areas of inquiry (and variations on similar types of questions) have included:

- How has energy development affected you personally (if at all)?
- What local-level benefits have occurred because of increased energy development?
- What perceived negative impacts have accompanied increased development?
- What concerns do the residents of your county face that are directly or indirectly related to energy development?
- What types of future negative impacts are of greatest concern?
- What is your organization doing to address these concerns?
- What do you think your organization could do in the future to address these concerns?
- How much trust do you have in the industry? In regulatory agencies (or local government)?
- Have the benefits of development have outweighed the costs, or vice versa?

## Summary

After more than 40 years of study in various locations, the potential social impacts arising from rapid natural resource development are widely recognized. Clearly the effects can vary based on both the nature of the resource activity, the stage or phase of activity, and the characteristics of the affected communities. The existing literature provides a useful background in terms of the types of effects to consider, as well as some guidance for the subsequent tasks of our study, including the key person interviews and focus groups as well as the identification of secondary data sources for impact monitoring and assessment.

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## SECTION III.

# Case Study Methodology

For this study, the assessment of the social impacts of the current Bakken energy boom on communities in northeastern Montana was primarily based on comparative case studies of four communities. In each of these communities, the study team interviewed key informants using a standardized personal interview guide and conducted focus groups with members of the community. This approach has been used in several other recent studies focused on the social impacts of oil and gas development (and referenced in Section II) including: Brasier, et.al. (2011); University of Wyoming (2004); Pennsylvania State University (2010); North Dakota State University (2011); and Anderson and Theodori (2009).

### Case Study Selection

The selection of the case study communities is a critical aspect in this type of study. Under ideal conditions, the research would compare conditions between one or more communities that are experiencing the energy boom and one or more communities that are not, but which are otherwise identical to the impacted communities. In reality, of course, no two communities are identical in all other aspects. Apart from the fact that each community is unique in terms of its specific location, communities may also differ in terms of size, economic structure, history, demographics, access to transportation, scenic characteristics and other important aspects. The more that the communities differ in aspects other than their experience with the current boom, the greater the possibility that these other differences could influence the comparative analysis.

While it is not possible to completely control for all of these community aspects, some of the more recent literature described in Section II has identified a few characteristics that seem to influence how communities are affected by rapid natural resource development. In particular, the size of the community, its prior experience with resource development, and the stage of development (if any) that is currently occurring all appear to make a difference.

With these considerations in mind, the study team reviewed potential case study communities in Montana based on the following considerations:

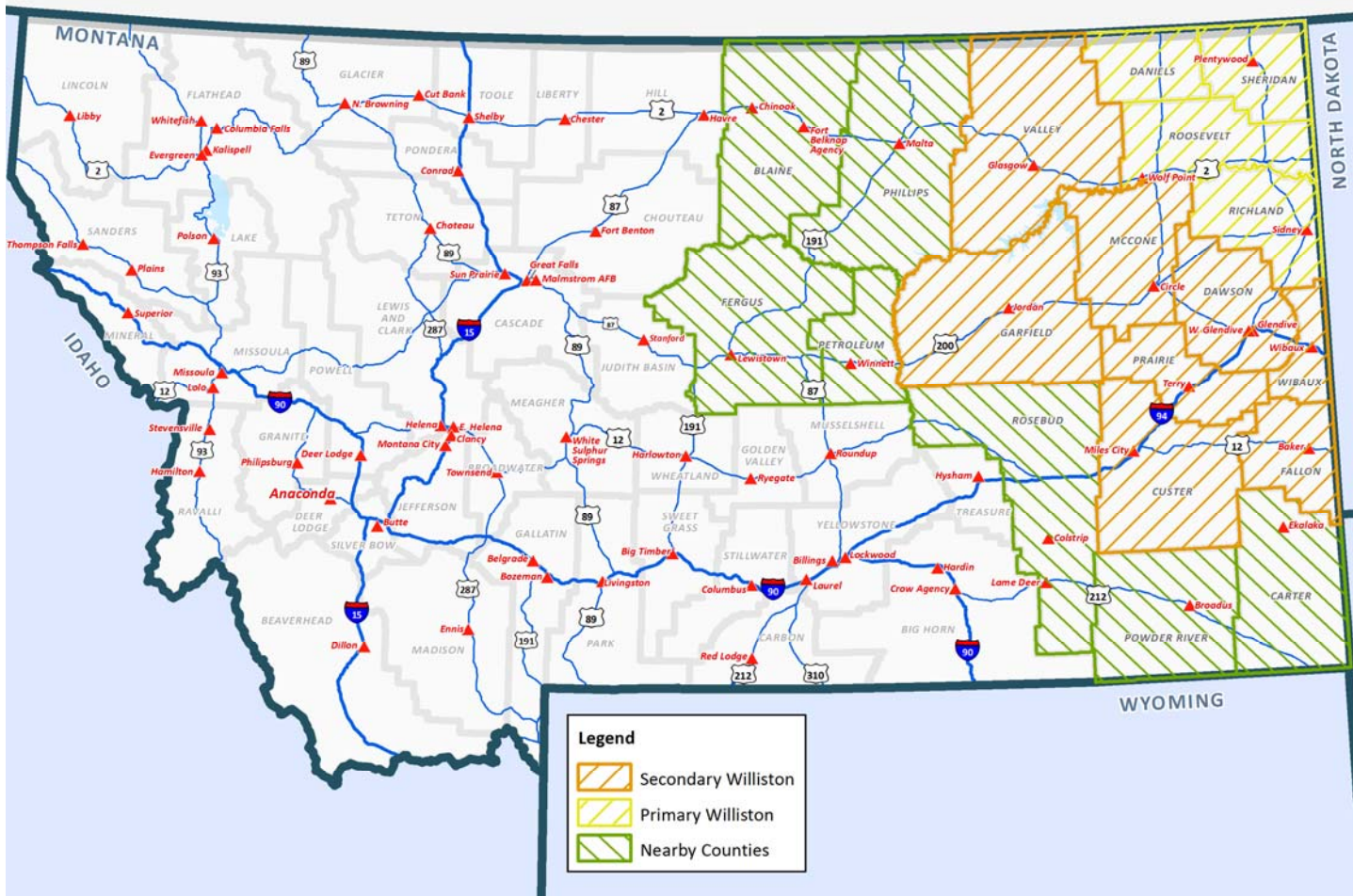
- Location;
- Population size;
- Current oil and gas activity (Bakken and other);
- Other natural resource activity (e.g. coal mining); and
- Indications of potential impact based on secondary data.

Figure III-1, on the following page, provides a map of Montana showing the counties with current Bakken well activity, other counties in the Williston Basin (as defined in MBCC's 2012 crime study) and nearby counties. Nineteen eastern Montana counties were grouped into three categories for consideration as potential case studies:

- Primary Williston Basin – this area includes the four counties that had active Bakken drilling rigs in operation in December 2012 and that are most proximate to the current epicenter of activity in Williams County, North Dakota: Daniels County (1 rig), Richland County (11 rigs), Roosevelt County (5 rigs) and Sheridan County (4 rigs).
- Secondary Williston Basin – this area includes the eight counties comprising the rest of the Montana portions of the Williston Basin as defined in the crime study that MBCC participated in with North Dakota. One of these counties (Fallon County) has a relatively mature oil and gas industry, though it is not part of the Bakken field.
- Nearby Counties – These seven counties are the most proximate areas in Montana to the Williston Basin areas. Some of these counties have active coal mining operations which might reduce their comparability for the purposes of serving as “control” communities for this study.

The study team then reviewed readily available, secondary data concerning the demographic and economic characteristics of these 19 counties. Based on this data – which is summarized in Attachment A at the end of this report, we recommended four counties to be the case studies. The four counties included one relatively large county (Richland County) and one relatively small county (Sheridan County) within the “primary Williston” area – which we expected would be representative of the communities that are being most affected by the current Bakken energy boom. For purposes of comparison, we also selected a relatively large county, Fergus County, which is similar in population size to Richland County and is from the “nearby counties” area, and a relatively small county, Fallon County, which is similar in size to Sheridan County and from the “secondary Williston” area.

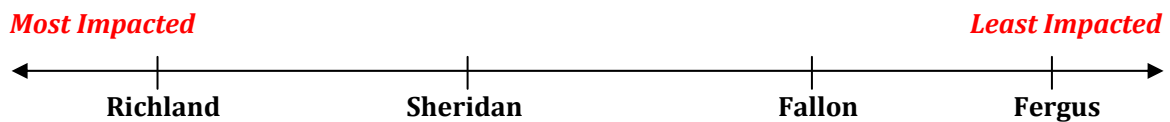
Figure III-1. Potential Case Study Counties in Montana





As suggested earlier in this section, the real world is not as “black and white” as might be ideal for the purposes of social science, and the review of the data for the potential case study counties shown in Attachment A suggested that the current Bakken energy boom may already be starting to affect economic and demographic conditions across much of eastern Montana. Consequently, rather than viewing the case studies as consisting of two or three “impacted” communities and one or two communities that have not been impacted, it may be more accurate to think in terms of a continuum of impacts. From that standpoint, our expectation prior to conducting the field research in the communities was that they might be arrayed from most impacted to least impacted as shown in Figure III-2.

**Figure III-2. Anticipated Range of Impacts among Case Study Counties**



## Interview and Focus Group Guides

The study team developed an interview guide and a focus group guide for the field research in the four case study areas. These guides were reviewed and approved by the MBCC.

One challenge in conducting the interviews and focus groups was that we had at least two overall objectives for this work.

- Gather comparative insights from the four case study communities, including some in which there was likely to be relatively little impact from oil and gas development at this time. This required general questions about community perceptions, satisfaction and issues.
- Gather more detailed insights regarding the effects from oil and gas development. This required more specific questions concerning oil and gas impacts that may not be applicable in at least one community.

As usual in this type of research, it was important that the structure of our inquiry and the questions that we asked did not unduly influence the results. In this case, that suggested that we start the interviews with the general questions about the community, before moving into the more specific questions regarding the effects of energy development. It also suggested that more open-ended questions were generally preferable to asking very specific questions.

The interview guide contained 20 questions grouped into four sections. These included questions about:

- Interviewee background;
- Overall community perspectives;
- Specific aspects of the community; and
- Additional energy boom inquiries.

A complete copy of the interview guide is provided in Attachment B to this report.

The focus group guide was generally similar in structure and content to the interview guide. However, to facilitate more active discussion, the “specific aspects of the community” discussion was conducted in the form of a card sorting exercise. The study team passed out a set of 19 cards to each focus group participant. The participants were then asked to sort the cards into three piles: aspects of the community that are improving, aspects that are getting worse and aspects that are staying the same. Each participant was then asked to review the pile of cards with aspects they felt were getting better and to place an asterisk or other mark on the most important improvement. Similarly, they were then asked to review the aspects they felt were getting worse and to mark the community aspect of greatest concern to them. The focus groups then discussed the results of the card sorting exercise.

A complete copy of the focus group guide is provided in Attachment C to this report.

## **Interviewees and Focus Group Participants**

The study team conducted 19 face-to-face interviews among the four case study communities during late May and early June 2013, and led four focus groups (one in each community).

For the key informant interviews, the study team sought to contact a mix of representatives in each community from the categories of local government; health care and human services; local schools; housing authorities; local economic and business representatives; and local media. Figure III-3 provides a breakdown of the interviewees from each community.

**Figure III-3. Summary of Key Informant Interviews by Community**

Affiliation	Case Study County				Totals
	Richland County	Sheridan County	Fallon County	Fergus County	
Local government	2	1	1		4
Health care/human services	1		1	1	3
Local schools	1		1		2
Housing authorities	1				1
Economic/business representatives	2	1	1	1	5
Local media		<u>1</u>	<u>1</u>	<u>2</u>	<u>4</u>
Totals	7	3	5	4	19

The focus groups were held in public meeting spaces in each community. Potential focus group participants were identified through telephone and e-mail contact with local civic, social and religious organizations, and then contacted directly by the study team. A small incentive payment of \$20 was offered initially. In an effort to increase turnout, the incentive payment was increased to \$75 for the last two focus groups.

Although the focus groups produced excellent discussions and considerable information for this study, turnout was lower than hoped for. Thirty-four participants were recruited for the four focus groups. Recruited participants were contacted several times, including the day prior to the event, but actual turnout was considerably lower than the number of “confirmed participants” and only 16 individuals actually attended the groups. Attendance ranged from two participants in Plentywood (Sheridan County) to five participants in Sidney (Richland County) and Baker (Fallon County). The lower than anticipated turnout may be due to a number of factors, including the relatively low incentive payment offered initially, the heightened level of work demands being experienced by residents in the communities affected by the boom (as discussed in Section IV), and perhaps a degree of “study fatigue.” Several other studies related to the boom have recently been conducted in eastern Montana, though none of them had the same focus on social impacts as this study. Despite the turnout, there was general consistency between the themes that emerged from the focus groups and the themes highlighted in the personal interviews.

## Analysis

Each interview and focus group was voice recorded and subsequently transcribed for subsequent analysis. Comments were coded based on the topics they covered and based on the portion of the interview or focus group where they occurred (e.g. unprompted introductory section, prompted specific topic section, conclusion section).

The following report sections present the information gathered from the interviews and focus groups, and the implications of that information in terms of the social impacts of the current Bakken boom in eastern Montana.

## SECTION IV.

# Findings and Assessment from Interviews and Focus Groups

This section describes the insights gained from interviews and focus groups in four Montana communities regarding the impacts of the current Bakken energy boom. The selection of the communities and the data gathering process were described in Section III.

### Community Settings

Members of the study team travelled to each of the four communities during late April and early May 2013. To place the responses of interviewees and focus group participants in further context, we begin by providing our general observations about each community from an outsider's standpoint.

**Sidney, Montana (Richland County).** Located on the Yellowstone River, near the North Dakota border, Sidney is a medium-sized community of at least 6,000 permanent residents — with many more temporary residents associated with the regional oil and gas boom. Located approximately 55 miles southwest of Williston, North Dakota, Sidney is the closest substantial community in Montana to most of the oil and gas development in the Bakken field. Due to this proximity, as well as to Bakken oil and gas development occurring closer to Sidney in Richland County, Sidney is the Montana epicenter for the current boom.

Sidney is a bustling community at this time. There is a substantial volume of traffic, particularly industry-related small and large trucks, on the main streets of the community. There are a number of recently constructed new commercial buildings and new homes, with other construction underway. There are very few shops or businesses that are closed, particularly by comparison with other rural communities.

Like Baker and Plentywood, Sidney has had previous experience with oil and gas development. Long-time residents seem to have mixed opinions about whether the current boom is substantially different from prior booms, though the scale seems to be larger this time around.

**Plentywood, Montana (Sheridan County).** Plentywood is a very isolated, small town with about 1,800 permanent residents. Compared with other communities of similar size, isolation and economic base, Plentywood is more attractive in terms of both its physical surroundings (rolling grasslands with low elevation outcrops) and the condition of the town itself. For a town of its size and isolation, Plentywood also appears relatively healthy and well maintained. Houses tend to be small, but well cared for, and there are a nine hole golf course and five parks in or near town. Plentywood also has substantial municipal and county buildings, a hospital and a couple of senior living facilities. The downtown business district stretches for about three blocks along Main Street and there is also considerable commercial development along Highway 16 (1<sup>st</sup>

Avenue). There are relatively few closed or abandoned businesses, but there is also little evidence of new construction.

The economy of Plentywood seems to be almost entirely based on two components, agriculture and oil and gas services. There is very little tourism or tourist infrastructure, with only two smaller hotels and four or five restaurants.

Most Plentywood residents seem to have lived in the community or nearby area for a long time. There seems to be considerable civic and community pride, as evidenced by various ventures that are being maintained on a partly subsidized basis (including a clothing store, a movie theater and a local transportation service).

**Baker, Montana (Fallon County).** Baker is similar in size to Plentywood, with a little over 1,700 residents according to the 2010 Census. The topography in and around Baker is flat to moderately rolling. A small lake in town provides visual contrast and is partly surrounded by a park with relatively new facilities and landscaping. Dry wheat farms still occupy much of the county where the land is not devoted to natural resources development.

Baker has had decades of experience with oil and gas development and is 125 miles (a two-hour drive) from Sidney in the Montana Bakken. Baker sees some residency and industrial development indirectly attributable to the Bakken. The effects seem to cascade from Sidney to Glendive and then from Glendive to Baker.

However, Baker's experience with the petroleum industry to date is by and large its own. The oil and gas fields of the Cedar Creek Anticline east of Baker are large, long term producers. Two large operators, Fidelity Exploration and Production and Denbury Resources, are active in the Cedar Creek Anticline east of Baker. Fidelity's Baker Field is adjacent to the city itself. There are also pipelines that run near Baker, and pipeline construction projects have occurred repeatedly in the past decade.

There are obvious vacancies in the Baker's business district. Residents attribute this to the population having declined and to the rising attraction of much larger cities like Billings despite their distance. More recently, the economic stimulus from natural resources development in eastern Montana has led to new construction in Baker, including a large motel in progress. Fergus County and the Baker Public Schools have used revenue from production taxes to keep up with infrastructure and facilities demand.

**Lewistown, Montana (Fergus County).** Lewistown is set on hilly ground near forested foothills and peaks associated with the Big Snowy Mountains to the south and the South Moccasin and Judith mountains to the northwest and northeast respectively. The community is similar in size to Sidney, with over 5,000 residents based on the most recent decennial census. The city boasts of the purity of its water supply drawn from Big Spring Creek, and a small business bottles and sells mineral water from a spring nearby. The community is very close to forest and stream recreation in the Lewis and Clark National Forest, which encompasses the peaks of the Big Snowy range, and ranch agriculture is important to the area as well.

Lewistown has had little direct experience with oil and gas development. The city is 295 miles (a five-hour drive) from Sidney, the main community of the Montana Bakken. However, Lewistown has had indirect exposure to development-related events in addition to having an awareness of the Bakken phenomenon from the media and by word of mouth.

A past exploratory drilling project near Lewistown created awareness of potential development, though none has occurred, and exploratory drilling appears to have stopped. More recently some workers in the Bakken have located families in Lewistown and chosen to commute periodically to their jobs. Interviewees also cited at least two companies linked as suppliers to the Bakken economy.

## **Interviewee Perspectives**

The following narrative follows the same general outline and sequence as the interview guide (see Attachment B). Interviewee observations are summarized by topic area. This subsection concludes with an overall comparison and assessment of the responses by community.

**Overall community perspective and trends.** Near the beginning of each interview, the key informants were asked what they considered to be the strengths of their community, what they thought were the drawbacks or shortcomings and whether the community is getting better or worse. The intent of these broad, opening questions was to capture the “top of mind” perspectives of the interviewees, prior to prompting them about more specific aspects of the community and the current energy boom.

**Community strengths.** A number of common themes emerged concerning the best aspects of living in the case study communities, along with some important distinctions. Interviewees in each community mentioned the benefits of living in a small community, including the lack of “hustle and bustle”, and having friendly and helpful neighbors. Respondents in all of the communities mentioned that their community was a good place to raise kids and had good “family values.” Access to recreational opportunities was also a commonly cited benefit of the communities.

In three of the four communities, respondents mentioned the feeling that “everyone knows everyone.” The exception was in Sidney, though one interviewee recalled that feeling as a former benefit of living in the community. Sidney was also the only community in which no respondents identified a relatively low crime rate as one of the community’s strengths.

Sidney interviewees also differed from the other key informants in emphasizing the economy as one of the primary strengths of the community. Sidney was described as being a good place to work and a “job seekers market.” Interviewees discussed the new public buildings that have been constructed and the ongoing investment occurring in their town. Sidney interviewees also mentioned the increasing diversity of their economy and the inflow of money from energy leases that has helped maintain and rejuvenate the ranches in the surrounding area.

**Community drawbacks.** Questions about the drawbacks to living in their community also generated some common themes and some key differences among the communities. Interviewees in each community mentioned the relative lack of retail shopping opportunities

and the limited (or distant) access to health care and other services. Limited transportation access was also a common theme.

The issue of housing was raised in Baker and, more frequently, in Sidney. In Baker, the primary issue noted was the lack of affordable housing, while in Sidney both affordability and availability were identified as important issues.

Economic conditions were frequently mentioned in this section of the interviews, albeit in differing contexts. In Lewistown (which is the most distant from the energy boom), several interviewees commented on issues such as low wages, poor overall economic conditions and lack of opportunity, and empty storefronts on Main Street. In both Sidney and Plentywood, which are in the primary Williston area, interviewees commented on the difficulty in finding and hiring employees and rapidly rising wage costs. Interviewees in Sidney went on to discuss other cost-related issues, including increases in the general costs of goods and services and increases in the costs of providing government services such as water and wastewater treatment. Several Sidney interviewees commented on the lack of available assistance to deal with growing infrastructure and public service costs.

One interviewee in Plentywood commented on the lack of new residents moving into the community. In contrast, interviewees in both Baker and Sidney mentioned transient newcomers as one of the drawbacks to living in their communities. In Sidney, in particular, interviewees mentioned the large number of strangers, and the growing fear of crime, as particular concerns. Partly in response to the inflationary cost issues mentioned previously, at least one interviewee in Sidney lamented the fact that many longtime residents and retirees are leaving the community.

Additional drawbacks specific to Sidney included the feeling that the community has been degraded and the dramatic increase in traffic associated with the boom. Several interviewees commented on the feeling that the community was operating in “constant crisis mode”, exacerbated by uncertainty regarding what might be coming next.

**Trends.** When asked whether their community was a better or worse place now than 5 or 10 years ago, and whether it will be better or worse in the future, the responses differed considerably across the four communities.

In Lewistown, many of these comments indicated concern about economic conditions, the ability to attract newcomers and investment, and the sustainability of the community. “You know, it’s a good place to come ... But, if you don’t bring people with money, we’re not going to be able to sustain it.”

In Baker, the interviewees tended to focus on anticipated impacts from the oil and gas boom (and particularly from planned pipeline construction in the area). Two Baker interviewees indicated concerns about crime, safety and drugs associated with newcomers. Another stated that they expect things to get worse (due to energy-related growth) before they get better. One interviewee talked about the ongoing increase in housing costs due to growing speculation.



In Plentywood, an interviewee stated that the economy was declining and residents were worried about sustaining the community, but the energy boom had changed all of that. Others, however, wondered about the longer term impacts of an aging, permanent population in their town.

The interviews in Sidney produced decidedly mixed perspectives on how the community is changing. As one interviewee suggested “We’re trying to make it a better place, but 50% will tell you one thing, 50% will tell you the other.”

Concerns included the ongoing impacts on the community. One interviewee stated “Our whole community, our infrastructure, our streets ... it’s all just getting worse. We’re getting trampled on here.” Another voiced concern that many long-time residents (some now well-funded thanks to oil and gas leases) will leave the community.

However, several Sidney interviewees took a more optimistic tone. These interviewees noted that residents were no longer worried about the kind of sustainability issues discussed in the Lewistown interviews. Others discussed the healthy and vibrant economy and the increasing opportunities available to workers.

These mixed views on how Sidney has changed and is changing were captured in the comment from one of the interviewees that “Growth is bringing additional opportunities, but we have to make adjustments in the meantime.”

**Specific community aspects.** Following the opening discussion of overall community conditions, interviewees were asked about specific aspects of their community.

**Economy.** In all of the communities, interviewees discussed the economic benefits that oil and gas development can provide.

In Lewistown, more than 200 miles away from the center of Bakken activity, interviewees spoke optimistically of the boost that energy development could provide for their economy, with comments such as “Energy development could really help us here” and “I think the more money that is spent in the economy in the town the better it is for the town.” Other Lewistown interviewees talked about the additional revenues that could be available from energy development for health and local services.

In Baker, which has had a fairly steady level of energy activity over a relatively long period, interviewees described their economy in terms such as “very solid” and noted that they had not experienced the ups and downs seen in other areas. Interviewees noted that agriculture has also been doing well in recent years. One Baker interviewee did note, however, that restaurants, grocery stores and gas stations struggle to compete with energy-related companies for employees.

In Plentywood, an interviewee noted that the economy seems to be entirely driven by oil activity and oil field services now. Interviewees also commented that despite the economic upturn in the past few years, it is still hard to get developers and other outsiders to invest in the community. “They do not want to gamble because they have gambled and lost at least twice already in the

history of this county.” Difficulty in getting and retaining employees was also discussed in the Plentywood interviews, though this was attributed to the weather and isolation of the community as well as competition with the energy sector.

Sidney interviewees consistently described overall economic conditions as “strong”, “good” or “really healthy.” However, several of these interviewees also noted a number of economic challenges, most often related to the difficulty of finding workers and competing with the energy sector. Interviewees also noted that not everyone has benefitted from the boom and that fixed income residents, in particular, cannot keep up with the rapid inflation in housing costs and other prices in the community.

**Housing.** Perceptions about housing and housing-related issues also vary among the communities, and are clearly correlated with the amount of energy-related activity occurring in each area. In Lewistown “there are quite a few houses for sale. They are on the market for a long time. So I don’t see new buildings being built, I see people leaving town.”

In Baker, several interviewees commented on recent increases in housing prices and rental costs associated with the energy boom. However, housing does not yet seem to have become a crisis in that community. One interviewee commented that they felt that Baker was ahead of the game and was getting prepared for increases in energy activity, while another stated that the oil companies were doing a better job of helping with the housing needs of their employees than during previous booms.

In Plentywood, lack of housing is clearly an issue, along with the condition of available housing and rising costs. One interviewee noted that “Some of the places they are living in are pretty ramshackle” while noting the reluctance of developers to gamble on building new homes. Another stated that “We can’t grow because we don’t have any new housing to put people in.” The effect of the limited and costly housing supply in Plentywood has been to drive workers to temporary housing in the less restrictive smaller communities in the area. “Smaller towns are getting overrun with RVs and trailer houses, temporary houses. Westby and Medicine Lake, particularly.”

Availability and cost of housing is probably the most significant boom-related issue in Sidney. One interviewee described the housing situation as simply “Stressed. Completely stressed.” Another stated “It’s the key issue for every organization in the community.”

Several interviewees noted that rental costs have approximately tripled over the past 5 years in Sidney. There is a long wait list with the local housing agency. Nearly one half of the 130 new students in Sidney’s school district are technically considered homeless because they are living in RVs or other temporary housing arrangements.

New housing is being built in Sidney, but not at a pace that matches the increase in demand. Interviewees had mixed views on whether the development approval process was too slow, or whether it was simply appropriate to make sure development is “being done right” for the longer term. Another interviewee noted that the new housing was only affordable for workers in the oil patch. New residents working in other occupations are unlikely to be able to afford these newer homes and are struggling to find anyplace affordable to live in Sidney.

**Traffic and infrastructure.** Each of the case study communities is facing infrastructure challenges. In Lewistown, those challenges primarily stem from the age of the community and its infrastructure. One interviewee commented, however, that the town has kept up with its infrastructure better than some of the surrounding communities. Another noted that the town would have to build up its infrastructure if it becomes affected by the energy boom, but “we can’t build infrastructure, or housing, for a population that isn’t here yet.”

In Baker, interviewees noted that the local roads in town are suffering wear and tear from the additional traffic associated with energy activity. The town does not have enough infrastructure capacity to develop new housing on a large scale. Baker (and Sidney) interviewees noted (in part because of the state’s energy revenue distribution mechanism) that the county has the funds to upgrade and maintain infrastructure, but the cities do not.

In Plentywood, local roads seem to be in better shape than in other towns in the boom area. However, an interviewee commented that the town needs more roads to deal with the increased traffic, in part because much of it funnels through residential areas. The primary infrastructure concern in Plentywood is the need for \$5 million to \$8 million in water and sewer upgrades, which may double the cost of service for local residents. It is not clear that these upgrades are fully attributable to growth from the energy boom, but “We didn’t figure there was any pressure. Then all of a sudden the pressure came from outside.”

Similar road, water and sewer issues are confronting Sidney, but on a larger and more pressing scale. Most Sidney interviewees commented on the truck traffic through town and the dust, potholes and potential dangers that accompany the traffic. One interviewee stated that the number of vehicles driving through Sidney is now greater than the traffic volume nearby on Interstate 94. Demands for many local services appear to have grown by as much as 60 percent over the past 3 to 4 years.

Sidney reportedly needs about \$25 million in water and sewer upgrades and interviewees are concerned that burden will fall mostly on existing residents. “We’re not getting any help from the Legislature, from the state. It really puts the burden on the taxpayers. And these guys that we’re doing this for will be gone in a few years.” Another interviewee noted, however, that “We have to plan, we have to develop policies – which people in this area are reluctant to do.”

**Public services and schools.** All of the case study communities rely on a mix of paid professional public services (primarily medical, K-12 education and law enforcement) and services staffed by volunteers (typically fire and ambulance/EMT). One Sidney interviewee noted that everyone in that community is working so hard now that people no longer have as much time or energy to volunteer. Given the relatively small size of all of the communities, specialized medical (and often social) services are typically a long ways away in places like Billings and Williston. There were few comments regarding public education during the interviews in Lewistown and Plentywood, but schools were discussed extensively by Baker and Sidney interviewees.

In Lewistown, interviewees seemed generally satisfied with their public services. As one interviewee noted “we’re well set up for our current size.” Another interviewee who noted the

adequacy of current public services also commented that the community was not prepared if there were to be a big influx of new residents and workers tied to energy development.

Interviewees in Baker praised the city's police, medical and fire services. They also stated that medical services had always been a priority in their community and they had an excellent hospital facility. Baker interviewees did express concerns about the city's EMT services, but did not link the problems with that service to energy-related growth. One interviewee noted, however, that Baker does not have mental health or domestic violence services, but is experiencing growing needs in those areas. Baker interviewees stated that there schools were doing well, though they had seen a small decline in enrollment because the city doesn't have housing capacity to attract new residents. A couple of Baker interviewees did comment on the challenges that schools can face during energy booms based on past experience, particularly the difficulty in paying wages that allow teachers to live in an energy-impacted community.

Plentywood interviewees noted that their citizens had taken it upon themselves to address public service deficiencies by volunteering or contributing funds to support them. In particular, citizens subsidize a local taxi service to provide mobility to residents that do not drive.

In Sidney, public service comments focused primarily on the increased demands for law enforcement and medical services. One interviewee noted that Sidney police have seen a 45% to 55% increase in calls in the past two or three years. Another noted that they are so busy responding to major issues that they do not have time to enforce local codes and regulations, such as those designed to keep truck traffic off of residential streets. Hospital and medical services were described as very stressed, partly by the nature of oil and gas work which can lead to many more accidents and injuries.

Sidney interviewees also commented that the fire and EMT services had seen large increases in demand, but were "holding together." Inability to obtain and retain staff has forced Sidney's long term care facility to reduce its occupancy to half of its capacity, which has reportedly forced some older residents to leave the community.

Schools were discussed in the most detail in the Sidney interviews. Interviewees discussed the issue of paying wages sufficient to compete with the energy sector and allow teachers to afford housing and other costs of living in the community. Just as significant a challenge, however, are the specific characteristics of the children that have accompanied the boom. Many of the children that have come into the community in the past couple of years are several years behind the home grown students of the same age. This is mostly attributable to the transient lifestyle of their families, though a high proportion also have special needs. Because many of the kids are technically homeless (as discussed earlier), their needs have to be prioritized under federal law. This takes resources away from the home grown children and presents special challenges. Moreover, these children create an extraordinarily dynamic educational environment. "You may have a kid for a day, five days, six weeks or nine months. Then they are gone."

**Social relations and fear of crime.** Interviewees were asked for their views on social relations, or how people get along with one another, in their communities. Responses differed between the two communities that have been less affected by the current Bakken boom (Lewistown and

Baker) and the two communities that are experiencing more boom-related activity (Plentywood and Sidney).

Each of the interviewees in Lewistown had positive things to say about social relations in the community. Interviewees stated that residents generally get along, and commented on their perception of the flat social structure in the community. “This is a pretty diverse group of people, but most of them are in the middle.” Or, as another interviewee put it “I think we’re mostly at the same level.” One interviewee who used to live in the oil patch indicated concern about potential increases in crime and fear of crime that might occur if the town experiences the boom.

Interviewees in Baker were also very positive about social relations in their community. Several interviewees commented on the friendliness and supportiveness of the community. Interviewees also described Baker as open and welcoming to newcomers. One interviewee noted that the energy companies sometimes donate manpower for community service projects. Baker interviewees, like Lewistown interviewees, also noted the lack of class structure in their community. “People all belong to the same organizations.”

In Plentywood, interviewees noted more tension and crime concerns as a result of the boom. “Before the boom, pretty much everybody knew everybody. Many times now there is a sense of us versus them.” Another interviewee noted that there had obviously been an increase in crime, particularly break-ins at seasonally vacant homes during the winter months.

The widely publicized abduction and murder of a Sidney teacher in 2012 had a profound effect on residents’ perceptions of personal and family safety across eastern Montana. This tragic event came up in virtually every interview in Sidney, and was also referenced in the interviews in Plentywood, Baker and even more distant Lewistown. Though Sidney was the most affected by this tragic event, the community appears to be gradually healing. As one interviewee stated “The abduction last year really sent a ripple through the community. People’s trust levels changed dramatically. I think it is gradually getting better though.”

As noted by one Sidney interviewee, the criminals in that case were not oil and gas workers and crimes like that can happen anywhere. Apart from that incident, the larger number of strangers is affecting longtime residents. “It is common now to not know the majority of people you meet. That’s a change for this community. I wouldn’t say people are afraid, but I would say they are more aware.”

Overall, Sidney interviewees seemed generally receptive to the newcomers in their community. As one interviewee put it “the ones that are not are packing up and leaving.” However, apart from more strangers in town, the increase in the pace of life is also affecting social relations. Another interviewee noted that “I’m not sure if people don’t get along (as well), or are just too busy to get along.”

**Aesthetics/environment.** While all of the interviewees expressed pride in their communities, there were a number of comments about the aesthetic aspects of the towns – some related to the current energy-related boom.

In Lewistown, most comments under this topic were prospective, wondering how energy-related development might change their community (if it spreads that far west). “I think if it did come here the environment would become a dirtier place to live. It would look more like eastern Montana. I think it would become more industrial and less environmental.”

Several interviewees in Baker offered critical comments about the appearance of their community, but did not attribute their concerns in that regard to the current energy boom. “The town’s physical appearance could be better, but it’s not a growth related issue.” “Baker is not very clean. People here don’t take pride in that.” “Baker is very industrial. We are working on changing some of that (with new codes and zoning).”

In Plentywood, one interviewee commented on the aesthetic impact of turnover in the workforce. “Pile season has started” said the interviewee, referring to the piles of furniture left behind by departing workers.

Most comments regarding aesthetics and the environment from the Sidney interviews focused on the dust and dirt brought into town by the trucks working in the oil patch, and on the increase in the amount of garbage along the streets and in the city parks. However, several interviewees commented that Sidney takes considerable pride in its appearance and is working on cleaning up the streets and public areas.

**Concluding interview section.** The final portion of each interview focused on how the energy-boom had personally affected the interviewee; what they thought were the most important benefits from the boom (and who in the community had benefited); what they felt were the most significant adverse effects (and who had been harmed); and whether they felt the benefits were greater than the costs for their community, or vice versa. Interviewees were also asked if they had any ideas or suggestions on how any adverse impacts might be reduced or mitigated. These ideas and suggestions, together with similar information gathered from the focus groups, are discussed later in this section.

**Personal experience.** In Lewistown, which has not been noticeably affected by the boom up to this point, interviewees offered their personal perspectives on what the boom might mean for them. Their comments ranged from hope that the boom might be good for their business or their jobs to concerns about safety, crime and potential impacts on retired residents on fixed incomes. One interviewee, with relatives in Williston, expressed concern about the potential impacts of industrial development on the community’s character and quality of life.

In the communities that do have energy-related activity, the personal observations tended to focus on the increased pace and stress. An interviewee in Plentywood stated “I used to work part-time, now I work full time and have an assistant.” In Sidney, an interviewee commented that “The last four years have probably put ten years on me.” A Baker interviewee said “we see a lot more people in need of medical and social services that we just don’t have here.”

Other comments from Sidney revealed an increase in concern over personal safety, traffic and other changes in the community. “The men outnumber the women considerably now, so I’m a lot more aware of my surroundings. The days of blissfully leaving my car unlocked are over.” “We used to joke that in Sidney you knew the kids working at McDonalds. Yesterday, McDonalds

wasn't even open – they couldn't find the help." "When we come to work in the morning now, we have to wait to get on the highway. That's something we notice here."

**Most important benefits.** In Lewistown, the discussion focused on the prospective benefits the interviewees anticipated could come to the community if it experiences more effects from the boom. Interviewees mentioned that landowners who signed leases would benefit financially, and that the flow of additional revenues could help the city upgrade its infrastructure and streets — "we need something around here." Interviewees also noted that working people might get higher wages and entrepreneurs might benefit from new opportunities. One interviewee noted that, to some extent, Lewistown is already experiencing some economic benefits from residents that commute to work in the oil producing region.

Interviewees in Baker primarily focused on the increased flow of revenues for businesses and local government that have accompanied the boom. One interviewee described it as "like shocking the heart of someone who has had a heart attack. It's good in the short-term. It's helped us build some new things and look outside the box." Another stated that "we're an old community, and we're seeing some new homes get built and new life in the community. The (oil) companies have provided the means to help upgrade our infrastructure." Another, noting the long history of oil development in the Baker area said "We wouldn't have most of the things we have if it hadn't been for oil."

In Plentywood, interviewees also focused on the revenues that oil development brings and their benefits to the community. "A lot of landowners got good leases and that's pumped money into the economy. The concrete company can't keep up with all the work." One interviewee stated simply "before this, we were dying."

The Sidney interviewees noted a number of benefits from the boom. As in Plentywood, they noted the benefits that landowners with leases have received, as well as oil-related businesses. Several Sidney interviewees also stated that the boom has helped create jobs and opportunities to keep the communities children in the community, or bring them back. Some Sidney interviewees commented on the new infrastructure the boom has helped to create. "People need to realize the positive things like the new community center, the new law enforcement center, the event center ...". Others noted new businesses that have been created, benefits to the workforce and benefits to homeowners that wanted to sell their homes. Several Sidney interviewees commented on the financial benefits that the State of Montana, and Richland County, have received from oil-related revenues (though often by contrast to the financial impacts on the City of Sidney, as discussed below).

**Most important adverse effects.** Lewistown interviewees again provided prospective comments about anticipated adverse consequences that might occur with the boom in their community. Some of these comments focused on a mix of concerns about potential effects on crime, security, and drug abuse. Other comments related to impacts on the cost and availability of housing and effects on residents living on fixed incomes. One interviewee, observing the challenges that places like Sidney and Williston have faced, commented "It seems so out of the hands of the community. There's a feeling of helplessness."

In Baker, this portion of the interviews included comments about crime “something we fear and are experiencing, though not as much as Sidney.” Most interviewees in Baker, however, commented on the additional demands for public services including hospitals, police, fire and EMT. One interviewee noted the impacts on the city’s infrastructure.

In Plentywood, one interviewee commented that renters that are not in the oil industry cannot keep up with the escalating rents. Another stated that the increase in the pace is burning out the people that work in public services. One interviewee also commented on the impacts of transient residents “There’s a sense that it’s all temporary. It leads to sloppiness. People think if God created the ditches, they were made for garbage.”

Interviewees in Sidney also commented on the loss of a sense of security, particularly for women in the community, and the impacts on public service workers. The impacts of inflated rents on low wage earners, and inflated wages on businesses not serving the oil and gas boom, were also discussed. One interviewee commenting on the housing issues in Sidney stated “It doesn’t matter how much money you are making. If you go home to a camper, it makes people very resentful.”

The most commonly raised concern in Sidney, however, was the impact of these inflationary pressures on fixed income and retired residents. “The little old lady on the corner has been hurt the most.”

Several Sidney interviewees also commented on the financial impacts of the boom on the City’s infrastructure and the fact that local residents are bearing most of that burden. Both the distribution of oil and gas revenues (municipalities receive a much smaller share than counties or school districts) and the timing of those revenues do not match up well with the city’s needs.

**Overall assessment.** After discussing the benefits and costs, interviewees were asked whether they thought the boom had benefitted their community overall, or vice versa.

Interviewees in Lewistown had mixed expectations. One interviewee commented that they thought the community would receive a net benefit from the boom, because it would not experience it on a large scale. Another anticipated that the social impacts – primarily concerns about safety and environmental effects – would outweigh the benefits.

In both Baker and Plentywood, interviewees generally perceived that the benefits of the boom had been greater than the adverse impacts. In part, some interviewees tied this to the level of activity those communities have experienced thus far. One of the Baker interviewees said “We don’t want to see as much oil activity as North Dakota is getting, but at a lower level the money helps this community.” A Plentywood interviewee noted that it partly depends on what perspective one takes, “It depends, some people have definitely made a lot of money. Renters, though, are having a really tough time.”

In Sidney, interviewees had mixed views on whether the community was better off or worse off as a result of the boom. Several interviewees felt strongly that the negative impacts had outweighed the benefits, and one interviewee commented that “the boom affects a few people positively, but it affects all of us negatively.” Several interviewees, however, voiced cautious optimism that Sidney may, in the long run, become a better community as a result of the boom.



One commented, “I’m hoping, if it’s done right, the additional diversity and growth will make Sidney a place to contend with ... I guess in five years we will know. Did we take advantage of this opportunity, or did we squander it?”

## Focus Group Perspectives

As mentioned earlier, the focus groups followed a similar overall structure to the interviews. To an extent, much of the information provided by focus group participants echoed the comments of the interviewees. To avoid undue repetitiveness, the following narrative focuses primarily on areas where the focus group participants provided new or different observations or additional insights.

One area where the focus group guide differed more substantially was in the discussion of specific community aspects. For the focus groups, the study team facilitated this discussion through a card sorting exercise, as described later in this subsection.

**Overall community perspective and trends.** As in the interviews, focus group participants were initially asked what they considered to be the strengths of their community, what they thought were the drawbacks or shortcomings and whether the community is getting better or worse in an effort to capture their “top of mind” perspectives.

**Community strengths.** In both Lewistown and Baker, some of the focus group participants spoke of the friendly, welcoming and giving natures of the people in their communities. Lewistown participants also brought up the peaceful and quiet nature of their community, and the excellent access to nearby recreation. Plentywood residents also described their community as a quiet place, and noted there are more things to do than you would think – including a community subsidized movie theater, bowling, golf and high school sports events. Baker residents also emphasized the quality of their schools and the town’s strong sense of community. The local economy was identified as an important strength in both Baker and Sidney. Sidney participants also commented on the quality of local youth programs and the opportunities available for young people in their community.

**Community drawbacks.** In contrast, focus group participants in Lewistown commented on the lack of opportunities for youth in their community. Limited retail access was a common theme in the focus groups, particularly in Lewistown and Baker. Both Baker and Sidney participants emphasized housing issues (availability and cost). Sidney focus group participants also commented on the lack of available daycare for working parents in their community.

**Trends.** The discussions of community trends echoed some of the themes that emerged in the interviews, as well as providing some additional insights. Participants in Lewistown talked about the impact of wealthier people buying some large tracts of land surrounding the community and concerns about potential impacts on recreational access and grazing leases. They also talked about businesses closing along their community’s Main Street and the dwindling of participation in 4H clubs and general decline in the agricultural culture of the area.

In Baker, the discussion of community trends touched on the impacts of rising housing and wage costs. One participant commented that it used to be a community where everyone knew each

other and you didn't have to lock your doors, but that is changing. Another stated that demands for law enforcement services are continuing to increase. Participants noted the infrastructure challenges, and potential costs, the city is facing, but expressed confidence in the local leadership's ability to anticipate and prepare for the demands of growth.

Comments from the Plentywood focus group participants followed some of the same themes as in Baker, noting the rapid increase in housing costs and the challenges brought by new residents in the community. One participant noted that they see "more of a big city attitude" from some of the newcomers. Another Plentywood focus group participant commented that whether the city gets better or worse in the future would depend on politics, and whether the community would get the resources it needs to deal with its challenges.

Sidney focus group participants also commented on the newcomers in the community. One participant noted some of the challenges this presents. "We are dealing with a lot more diverse population. Different cultures." Another, however, noted one of the benefits of the population influx. "We are seeing young people with kids coming to our church. It's wonderful."

**Specific community aspects.** Rather than probing sequentially on each specific community aspect as was done in the key informant interviews, the focus groups were each provided with a set of cards. Each card listed one of the following community characteristics:

- Community social relations
- Crime
- Drug and alcohol abuse
- Environmental quality
- General local government services
- Housing
- Local economy
- Local schools
- Medical and social services
- Physical infrastructure
- Place to live in retirement
- Place to raise children
- Police/fire/emergency services
- Shopping/services/restaurants/entertainment
- Traffic
- Volunteer/civic participation

Focus group participants were asked to review all of the cards, then to sort the cards into three piles: aspects of the community that were improving; aspects of the community that were

getting worse, and aspects of the community that were staying the same. After sorting the cards, the participants were asked to place an asterisk or other mark on the one card in the “improving” pile that they thought was the most important positive change in their community. They were then asked to place a similar mark on the one card in the “getting worse” pile that represented the aspect of the community they were most concerned about. The groups then discussed the results of the card sorting exercise.

Figure IV-1, on the following page, summarizes the results of the card sorting exercise. The figure summarizes the most widely held perceptions among the focus group participants by listing the attributes in order of how frequently they were included in each category. The numbers in parenthesis indicate the number of participants that placed a particular card in each pile. The figure also provides some information on the strength of the opinions of the focus group participants regarding each attribute. The number of asterisks (\*) following the attribute, if any, indicates how many participants listed that attribute as the most important one in the “improving” or “getting worse” piles.

The card sorting exercise revealed some similarities across all four case study communities. General local government services appeared frequently in the “improving” piles in all four locations. Community social relations were consistently rated as “staying the same” in each community. Drug and alcohol abuse were considered to be “getting worse”, and to be a critical issue by at least one participant, in each of the focus groups.

The exercise also revealed differences in how the communities are perceived by the focus group participants. In the three communities with at least some level of energy boom-related activity, the local economy was at or near the top in the improving category. In Lewistown, it was near the top of the “getting worse” category. Conversely, housing and crime appear at or near the top of the “getting worse” category for the participants from each of the energy impacted communities, but not for the participants from Lewistown. Traffic was also a frequently identified “getting worse” attribute in two of the three energy-impacted communities, though not in Plentywood.

Despite the burden that the boom is placing on some of the physical infrastructure in Sidney, the focus group participants from that community most often placed this attribute in the “improving” pile. The only community where physical infrastructure was frequently placed in the “getting worse” pile was in Lewistown.

**Figure IV-1. Results from Focus Group Card Sorting Exercises**

Community	Focus Group Participants' Assessment		
	Improving	Same	Worsening
<b>Lewistown</b> (4 participants)	General local government services (3)* Medical and social services (3) Place to live in retirement (3) Police/Fire/Emergency services (2)* Volunteer/civic participation (2)*	Place to raise children (3) Traffic (3) Community Social relations (2) Crime (2)	Drug and alcohol abuse (4)* Local economy (3)** Physical infrastructure (3)* Shopping/Services/Restaurants/ Entertainment (3)
<b>Baker</b> (5 participants)	Local economy (5) *** Police/Fire/Emergency services (5)* General local government services (5) Local schools (5) Place to raise children (3)* Medical and social services (3)	Environmental quality (5) Community Social relations (5) Shopping/Services/Restaurants/ Entertainment (3)	Housing (5)**** Traffic (5)* Crime (5) Drug and alcohol abuse (4)* Volunteer/civic participation (4)
<b>Plentywood</b> (2 participants)	Local economy (2)* General local government services (2) Local schools (1)*	Traffic (2) Environmental quality (2) Community Social relations (2)	Drug and alcohol abuse (2)* Housing (2) Crime (2) Police/Fire/Emergency services (2) Medical and social services (1)*
<b>Sidney</b> (5 participants)	Local economy (5)*** Physical infrastructure (2)** General local government services (2)	Community Social relations (4) Local schools (3)	Crime (5)** Drug and alcohol abuse (5)* Housing (5)* Environmental quality (5)* Medical and social services (5) Place to live in retirement (5) Place to raise children (5) Traffic (5)

Notes: Only the most frequently identified community aspects are shown in each column (improving, same, or worsening). The numbers following each aspect indicate the number of focus group participants placing that aspect in each category, while the asterisks (where applicable) indicate the number of participants identifying that aspect as a "most important" improving or worsening characteristic of their community.

**Concluding focus group section.** The final portion of the focus group focused on summing up the discussion of the positive and negative impacts of the energy boom, assessing whether or not the benefits had outweighed the costs and discussing possibilities for mitigating some of the impacts. The latter subject, together with similar input regarding ideas for mitigation from the case study interviews, is discussed later in this section.

The focus group discussions of the primary positive and negative aspects of the boom were essentially consistent with the results of the card sorting exercises described earlier, as well as the information obtained in the key informant interviews. The key question of whether or not the benefits of the boom had outweighed the costs provides more insight into the overall views of the focus group participants.

In Lewistown, where the energy boom is more of a potential consideration in the future, participants commented on the double-edged nature of boom impacts. One participant stated simply “it would be great economically, but be careful what you wish for ...” Another expressed optimism that “If it brought in enough funds, we could make it work. It’s all about the money availability.”

Focus group participants in Baker drew a distinction between the short-run and the long-run impacts of the boom, commenting that there are many challenges at present, but they anticipate the community will be better off in the future as a result of the boom. “We think there will be enough permanent new infrastructure and jobs left behind to make a difference.”

In Plentywood, this discussion focused on the scale of the impacts to the community. One commenter noted that “we’re just seeing glimpses of what the impacts can be, compared to other places.” Another commented “It’s nice to be on the periphery of the boom.”

Responses of the focus group participants in Sidney were similar in some ways to those in Baker, but with more detail and perhaps greater emotion concerning the impacts the community is experiencing now. Several participants commented that they felt the community was a better place a few years ago and that they have thought about leaving. The general consensus was that the negative impacts have outweighed the positive ones to this point. However, as in Baker, there was a prevailing optimism that, ultimately, the community will be improved by the boom. Several participants spoke about the “potential” that the community has to become a more diverse place and the hub for eastern Montana. One participant did comment, however, that some of the key people who could help make this happen are now leaving.

## **Overall Comparative Assessment**

The key informant interviews and community focus groups provided considerable insight into residents’ perceptions of their communities, the key issues facing each community and the impacts of the energy boom on some of the communities.

Each of the four communities has different strengths and limitations and each is facing an array of challenges. Some of the concerns are relatively consistent across all of the communities. As noted previously, drug and alcohol abuse was identified as a key issue in each of the four case study communities.

To some degree, energy development can represent at least a partial solution to some of the challenges facing a community like Lewistown, where economic stagnation, limited opportunities and lack of funding for infrastructure and new development are important concerns. However, energy development brings with it a number of new and different challenges, including housing scarcity; rapidly escalating rents, wages and other costs; greater infrastructure demands; and the stress associated with a faster pace of life and greater work requirements.

To varying degrees, the interview and focus group participants in the energy-impacted communities identified some of the same social issues that have been found in previous research in boomtown communities. In Sidney and Plentywood, and to a lesser extent in Baker, participants discussed the increasing prevalence of strangers in their community, described in the literature as a reduced “density of acquaintanceship.” These strangers can pose additional challenges for long-time residents because of their different cultural backgrounds and, in many cases, their short-term outlook on their temporary communities. Nonetheless, most participants also saw a positive side to having new residents and more diversity in their communities and felt that their communities were generally welcoming to the newcomers.

Crime was identified as one of the most important issues in each of the three communities currently impacted by energy development, and was identified by interviewees in Lewistown as a key concern if the energy boom spreads to that community. While participants in the impacted communities typically stopped short of saying they live in greater fear of crime, they did identify a reduced sense of security. Many were particularly concerned about the safety of women in their communities.

Another theme from the literature that clearly applies in eastern Montana is that the pace of development, and the stage of development, are important determinants of social impacts. It was generally easier for interviewees and focus group participants from Baker and Plentywood to identify and focus on the positive aspects of the boom, than for those from Sidney. In Baker, energy-activity has been a part of the community for a long period at a fairly moderate level. In Plentywood, the community is to some extent on the periphery of the boom and is generally experiencing most of the impacts (perhaps with the exception of housing issues) at a somewhat manageable level.

As expected, Sidney was clearly the most impacted of the four communities examined in this study. While it was easier for most of the interviewees and focus group participants to focus on the negative aspects of the boom, many of them also retained a sense of optimism that Sidney would successfully find its way through the challenges and ultimately emerge as a better community than it was before the boom started.

## **Potential Ideas for Monitoring and Mitigation**

Development of Bakken oil and gas resources appears likely to continue for a number of years. As well development spreads to the west, and as housing becomes increasingly scarce and expensive in places like Williston and Sidney, the workforce and many of the impacts have become increasingly dispersed into other eastern Montana communities.

**Monitoring data.** The primary community impact issues have been clearly identified. Under ideal circumstances, it would be possible to regularly review available data sources to monitor the spread of energy-related impacts to other communities, or to monitor the level of impact occurring in communities that have already been affected. However, as discussed below, there are a number of limitations regarding available, published information.

The following bullets recap some of the key impact issues and discuss the available secondary data sources related to each issue:

- **Rig count.** Although not a community impact in itself, the rig count is the most direct and current indicator of the intensity of oil and gas development activity in each county. The “Baker Hughes U.S. Rig Count Reports” from Baker Hughes International provide timely data at the county level. An important caveat regarding the use of rig counts alone as an indicator of community impacts is that much of the impact in eastern Montana is associated with housing part of the workforce involved in well activity across the border in North Dakota,
- **Housing availability.** As discussed throughout this report, housing is one of the most important issues facing the impacted communities. In particular, given the temporary nature of much of the oil and gas workforce, the availability of rental housing is a critical aspect. One important measure is the current vacancy rate. For smaller communities such as those included in this study, the only regularly published data source is from the Census Bureau’s American Community Survey, found at: <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>. Unfortunately, for smaller communities, these data are only published as part of the five year American Community Survey estimates. Consequently, any changes are muted because they are averaged over a five year period. For example, the most recent data currently available is the 2007-2011 five year estimates, which do not do a good job of capturing the changes that have happened in this study area over the past two or three years. Another indicator of the extent to which the community and developers are responding to housing pressure is the monthly or annual number of new building permits being issued. Recent building permit data are available for cities and counties from the U.S. Census Bureau at <http://censtats.census.gov/cgi-bin/bldgprmt/bldgssel.pl>.
- **Housing cost.** Similar to the issue of availability, the rapidly escalating costs of housing (and particularly rental housing) are a key issue in the impacted communities. For smaller communities, available data are again limited to the American Community Survey, with the same problems regarding the use of five year estimates and the lack of timely information on changes in this metric. To circumvent this problem, some local government agencies (including the Richland County Housing Authority) have contracted for local surveys to gauge current rental rates and vacancy rates.
- **Wage inflation.** The rapid inflation in wage levels is an important impact issue, particularly for the types of businesses and local government agencies that do not directly benefit from oil and gas activity. Unlike the housing metrics, up to date data on average weekly wages are readily available for each county from the Bureau of Labor Statistics Quarterly Census on Employment and Wages. These data are also published by the Montana Department of

Labor and Industry at:

<http://www.ourfactyourfuture.org/cgi/dataAnalysis/AreaSelection.asp?tableName=Industry&geogArea=3004000083>. These data indicate that the average weekly wage in Richland County (where Sidney is located) increased by 35% from 2008-2012. During that timeframe, the statewide average weekly wage increased by 11%.

- **Crime.** Increases in crime and fear of crime are a common issue in the impacted communities. The Montana Board of Crime Control tracks crime data by county and publishes the data online through the MTIBRS on-line reporting system at: <http://mbcc.mt.gov/Data/Data.asp>. Crime trends related to the boom were analyzed in the previous study by the Montana All Threats Intelligence Center and the North Dakota State and Local Intelligence Center in 2012. The experience of all of the case study communities in response to the abduction and murder of Sherry Arnold in 2012 suggests that data on violent crimes against persons may be a particularly important indicator of changes in fear of crime in impacted communities.
- **Drug and alcohol abuse and other risk factors.** As noted earlier in this section, drug and alcohol abuse was identified as a significant issue in all four of the case study communities, not just in the communities affected by the current energy boom. Annual data on county liquor sales are available from the annual reports produced by the Montana Department of Revenue. These data are in hardcopy form in various locations on the Department's website (such as [http://revenue.mt.gov/content/forbusinesses/alcohol\\_beverage\\_control/2011report.pdf](http://revenue.mt.gov/content/forbusinesses/alcohol_beverage_control/2011report.pdf).) and needed to be coded manually for analysis. The data indicate that Fallon County (Baker area) and Sheridan County (Plentywood area) had the highest liquor sales per capita in Montana in 2012. Richland County (Sidney area) had the fifth highest sales per capita among Montana's 48 counties. The Montana Department of Public Health & Human Services (Addiction and Mental Disorders Division, Chemical Dependency Bureau) also conducts an *Annual Prevention Needs Assessment Survey* and publishes reports assessing the risk factors affecting juveniles in each county. These reports examine substance abuse, antisocial behavior and other risk factors and provide comparative data for community assessment.
- **Infrastructure impacts.** Generally speaking, impacts on infrastructure are directly related to rapid increases in population. Population estimates are produced by the Census Bureau and updated on an annual basis at: <http://www.census.gov/popest/data/counties/totals/2011/CO-EST2011-01.html>. As more than one of the key informant interviewees in this study noted, however, Census estimates do not do a good job of capturing the actual population being provided services in communities with large numbers of temporary workers. The Richland Economic Development Corporation has developed an innovative approach of using postal service data, including the number of P.O. boxes that are currently active, to develop a rough estimate of the number of temporary residents. New utility connections, often available from service providers, can also provide a means of estimating changes in the population that are not fully captured in Census data. Data on changes in school enrollments, available from the Montana Office of Public Instruction are also an early indicator of changes in the



population served by the community and can be found at:

[http://www.opi.mt.gov/Reports&Data/Measurement/Index.html#p7TPMc3\\_3](http://www.opi.mt.gov/Reports&Data/Measurement/Index.html#p7TPMc3_3).

- **Traffic.** The Montana Department of Transportation maintains data on the annual average daily traffic counts along most of the major state and county roads in Montana. Data are provided for a three year period (currently 2009-2011) and accessible via an interactive map at: [http://www.mdt.mt.gov/publications/datastats/statewide\\_traffic.shtml](http://www.mdt.mt.gov/publications/datastats/statewide_traffic.shtml). For example, these data indicate that daily traffic along Highway 200 from Sidney to Williston, North Dakota, increased by approximately 55 percent from 2009 through 2011.

Beyond existing, published data sources, additional information could be collected for purposes of monitoring community concerns and impacts. For example, a periodic mail or internet based survey of community leaders and key informants involved in the most important issue areas, such as the individuals who provided input to this study, could be instigated to develop additional information and examine trends across eastern Montana and over time.

**Mitigation ideas.** Each interview and focus group concluded with questions to the participant(s) about what they felt should be done to help mitigate any adverse impacts from oil and gas development on their community, and who should be responsible for providing more assistance.

The majority of comments regarding potential mitigation focused on funding for the infrastructure improvements and additional public services necessitated by the boom. Some participants commented on the lag between the time when local communities need to invest in additional infrastructure and the time when they actually begin to receive oil and gas related revenues. However, the most frequent comments concerned the current allocation of oil and gas-related tax revenues. Under the formula used in Montana, the state keeps the majority (52%) of oil and gas related tax revenues, while counties and school districts receive most of the remainder. Municipalities, which typically bear the burden of housing most of the workforce and providing them services, receive less than one percent of these revenues. One interviewee commented that, in their view, “North Dakota understands the impacts better and is more committed to helping the local communities.” Another interviewee commented that the Census data used to allocate funds does not work well when communities are housing and servicing large populations of temporary workers that officially reside in other places.

While one interviewee commented that they felt the oil and gas industry was not paying their fair share, others felt that the problem was not with the amount of taxes industry was paying, but with how those revenues were distributed. One interviewee (in Plentywood) commented that the larger companies were assisting in housing their own workforce, but the myriad of smaller support firms were unable to provide such help.

Some of the unique challenges from an oil and gas boom arise because of the decentralized nature of the industry. Unlike a coal mine or the construction of a power plant, there is no single source of information about the industry’s future plans and how local communities may be affected. Several participants commented on the need for more forward looking information to help communities plan and prepare for the impacts.

Most participants felt that local governments were generally doing the best they could to cope with the impacts of the boom. Some participants did comment that they wished there was more local planning for the future, but noted that the communities were so busy reacting they did not have much ability to try to look forward. Others commented that the communities were not accustomed to having to do a lot of proactive planning.

The affected communities in eastern Montana might benefit from a review and assessment of current “best practices” in terms of energy impact mitigation. This could include compilation and evaluation of revenue-sharing mechanisms, infrastructure funding assistance, methods to promote information sharing and community planning and other potential mitigation tools and strategies.

## **Attachment A: Case Study Communities Selection Data**

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# Selection of Case Study Communities

Metrics	Williston Counties											
	Primary Williston				Secondary Williston							
	Richland	Roosevelt	Sheridan	Daniels	Dawson	McCone	Valley	Wibaux	Fallon	Garfield	Prairie	Custer
Population 2011	10,128	10,527	3,460	1,763	8,989	1,711	7,487	985	2,956	1,251	1,159	11,752
Population 2006	9,080	10,240	3,401	1,701	8,543	1,720	6,907	886	2,637	1,201	1,059	11,084
Population 2001	9,384	10,540	3,926	2,003	8,903	1,873	7,507	1,016	2,719	1,262	1,209	11,426
Population Change (2006-11)	1,048	287	59	62	446	-9	580	99	319	50	100	668
Pop. Percent Change (2006-11)	12%	3%	2%	4%	5%	-1%	8%	11%	12%	4%	9%	6%
Population Change (2001-06)	-304	-300	-525	-302	-360	-153	-600	-130	-82	-61	-150	-342
Pop. Percent Change (2001-06)	-3%	-3%	-13%	-15%	-4%	-8%	-8%	-13%	-3%	-5%	-12%	-3%
Mining Employment (Q2, 2012)	785	106	43	*	119	NA	*	*	452	NA	NA	*
Total Employment	6,333	3,855	1,487	585	3,672	572	2,860	354	1,657	294	298	5,674
Mining Employment Share	12.4%	2.7%	2.9%	*	3.2%	NA	*	*	27.3%	NA	*	*
Oil and Gas Employment (Q2, 2012)	124	*	*	NA	*	NA	NA	NA	*	NA	NA	NA
Oil and Gas Share of Total	2.0%	*	*	NA	*	NA	NA	NA	*	NA	NA	NA
Average Weekly Wage 2012	920	666	655	636	710	572	610	499	968	431	616	673
Average Weekly Wage 2008	684	580	532	541	597	515	516	501	756	395	553	538
Average Wage Increase	35%	15%	23%	18%	19%	11%	18%	0%	28%	9%	11%	25%
2012 Weekly Wage Versus State	131%	95%	94%	91%	101%	82%	87%	71%	138%	62%	88%	96%
Median Home Value 2007-2011*	112,100	60,600	81,500	78,600	110,900	84,300	87,900	71,900	89,200	69,100	64,000	97,700
Median Home Value 2005-2009*	92,400	59,700	62,600	72,400	89,800	72,000	77,300	53,200	88,000	69,600	69,800	75,600
Percentage Change (two years)	21.3%	1.5%	30.2%	8.6%	23.5%	17.1%	13.7%	35.2%	1.4%	-0.7%	-8.3%	29.2%
Median Home Rental Cost 2007-2011	553	392	502	372	434	392	488	356	472	450	479	474
Median Home Rental Cost 2005-2009	471	478	427	346	456	352	431	496	423	354	383	459
Percentage Change (two years)	17.4%	-18.0%	17.6%	7.5%	-4.8%	11.4%	13.2%	-28.2%	11.6%	27.1%	25.1%	3.3%
School Enrollment 2012	1,765	2,377	530	265	1,275	251	1,216	143	512	185	144	1,672
School Enrollment 2008	1,675	2,341	501	261	1,300	254	1,232	145	459	180	119	1,771
Percent Change	5.4%	1.5%	5.8%	1.5%	-1.9%	-1.2%	-1.3%	-1.4%	11.5%	2.8%	21.0%	-5.6%

# Selection of Case Study Communities

Metrics	Nearby Counties							Averages			Montana Totals
	Blaine	Carter	Fergus	Petroleum	Phillips	Powder R.	Rosebud	Primary Bakken	Secondary Bakken	Nearby Counties	
Population 2011	6,565	1,152	11,506	491	4,250	1,738	9,379	6,470	4,536	5,012	998,199
Population 2006	6,556	1,266	11,219	461	3,953	1,736	9,095	6,106	4,255	4,898	945,428
Population 2001	6,757	1,350	11,675	483	4,444	1,813	9,248	6,463	4,489	5,110	905,854
Population Change (2006-11)	9	-114	287	30	297	2	284	364	282	114	52,771
Pop. Percent Change (2006-11)	0%	-9%	3%	7%	8%	0%	3%	6%	7%	2%	6%
Population Change (2001-06)	-201	-84	-456	-22	-491	-77	-153	-358	-235	-212	39,574
Pop. Percent Change (2001-06)	-3%	-6%	-4%	-5%	-11%	-4%	-2%	-6%	-5%	-4%	4%
Mining Employment (Q2, 2012)	15	NA	2	*	*	*	551	NA	NA	NA	8,633
Total Employment	1,479	251	4,498	124	1,318	521	4,633	NA	NA	NA	434,526
Mining Employment Share	1.0%	NA	0.0%	*	*	*	11.9%	NA	NA	NA	2.0%
Oil and Gas Employment (Q2, 2012)	*	NA	NA	*	*	NA	NA	NA	NA	NA	773
Oil and Gas Share of Total	*	NA	NA	*	*	NA	NA	NA	NA	NA	0.2%
Average Weekly Wage 2012	624	503	608	555	604	486	886	719	635	609	700
Average Weekly Wage 2008	610	450	561	401	502	396	804	584	546	532	630
Average Wage Increase	2%	12%	8%	38%	20%	23%	10%	23%	16%	15%	11%
2012 Weekly Wage Versus State	89%	72%	87%	79%	86%	69%	127%	103%	91%	87%	100%
Median Home Value 2007-2011*	69,900	69,400	115,000	103,000	77,900	106,800	104,900	83,200	84,375	92,414	179,900
Median Home Value 2005-2009*	70,300	83,100	97,300	95,000	73,400	94,400	88,600	71,775	74,413	86,014	162,100
Percentage Change (two years)	-0.6%	-16.5%	18.2%	8.4%	6.1%	13.1%	18.4%	15.9%	13.4%	7.4%	11.0%
Median Home Rental Cost 2007-2011	342	438	566	758	429	500	534	455	443	510	649
Median Home Rental Cost 2005-2009	318	391	446	388	405	480	495	431	419	418	613
Percentage Change (two years)	7.5%	12.0%	26.9%	95.4%	5.9%	4.2%	7.9%	5.6%	5.7%	22.0%	5.9%
School Enrollment 2012	1,205	116	1,619	93	680	286	1,711	1,234	675	816	142,347
School Enrollment 2008	1,236	142	1,801	95	771	353	1,735	1,195	683	876	143,405
Percent Change	-2.5%	-18.3%	-10.1%	-2.1%	-11.8%	-19.0%	-1.4%	3.3%	-1.1%	-6.9%	-0.7%

# Selection of Case Study Communities

Metrics	Source
Population 2011	U.S. Census Population Estimate <a href="http://www.census.gov/popest/data/counties/totals/2011/CO-EST2011-01.html">http://www.census.gov/popest/data/counties/totals/2011/CO-EST2011-01.html</a>
Population 2006	U.S. Census Population Estimate <a href="http://www.census.gov/popest/data/historical/2000s/vintage_2008/index.html">http://www.census.gov/popest/data/historical/2000s/vintage_2008/index.html</a>
Population 2001	
Population Change (2006-11)	Calculated
Pop. Percent Change (2006-11)	Calculated
Population Change (2001-06)	
Pop. Percent Change (2001-06)	
Mining Employment (Q2, 2012)	Montana Dept. of Labor and Ind <a href="http://www.ourfactsyourfuture.org/cgi/dataAnalysis/AreaSelection.asp?tableName=Industry&amp;geogArea=3004000083">http://www.ourfactsyourfuture.org/cgi/dataAnalysis/AreaSelection.asp?tableName=Industry&amp;geogArea=3004000083</a>
Total Employment	Montana Dept. of Labor and Industry, ES202/QCEW
Mining Employment Share	Calculated
Oil and Gas Employment (Q2, 2012)	Montana Dept. of Labor and Ind <a href="http://www.ourfactsyourfuture.org/cgi/dataAnalysis/AreaSelection.asp?tableName=Industry&amp;geogArea=3004000083">http://www.ourfactsyourfuture.org/cgi/dataAnalysis/AreaSelection.asp?tableName=Industry&amp;geogArea=3004000083</a>
Oil and Gas Share of Total	Calculated
Average Weekly Wage 2012	Montana Dept. of Labor and Ind <a href="http://www.ourfactsyourfuture.org/cgi/dataAnalysis/AreaSelection.asp?tableName=Industry&amp;geogArea=3004000083">http://www.ourfactsyourfuture.org/cgi/dataAnalysis/AreaSelection.asp?tableName=Industry&amp;geogArea=3004000083</a>
Average Weekly Wage 2008	Montana Dept. of Labor and Ind <a href="http://www.ourfactsyourfuture.org/cgi/dataAnalysis/AreaSelection.asp?tableName=Industry&amp;geogArea=3004000083">http://www.ourfactsyourfuture.org/cgi/dataAnalysis/AreaSelection.asp?tableName=Industry&amp;geogArea=3004000083</a>
Average Wage Increase	Calculated
2012 Weekly Wage Versus State	Calculated
Median Home Value 2007-2011*	American Community Survey <a href="http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t">http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t</a>
Median Home Value 2005-2009*	American Community Survey <a href="http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t">http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t</a>
Percentage Change (two years)	Calculated
Median Home Rental Cost 2007-2011	American Community Survey <a href="http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t">http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t</a>
Median Home Rental Cost 2005-2009	American Community Survey <a href="http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t">http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t</a>
Percentage Change (two years)	Calculated
School Enrollment 2012	Montana Office of Public Instruct <a href="http://www.opi.mt.gov/Reports&amp;Data/Measurement/Index.html#p7TPMc3_3">http://www.opi.mt.gov/Reports&amp;Data/Measurement/Index.html#p7TPMc3_3</a>
School Enrollment 2008	Montana Office of Public Instruct <a href="http://www.opi.mt.gov/Reports&amp;Data/Measurement/Index.html#p7TPMc3_4">http://www.opi.mt.gov/Reports&amp;Data/Measurement/Index.html#p7TPMc3_4</a>
Percent Change	Calculated

## **Attachment B: Interview Guide**

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## **Interviewee Background**

1. What is your current position?
2. Do you live in \_\_\_\_\_? How long have you lived here?

## **Overall Community Perspectives**

3. What do you consider to be the best aspects of living and working in \_\_\_? What are the strengths of the community?
4. What do you consider to be the major challenges or drawbacks to living and working in \_\_\_?
5. Do you think that \_\_\_ is a better place or worse place to live and work than it was 5 to 10 years ago? Why?
6. Do you think that \_\_\_ will be a better or worse place to live and work 5 or 10 years in the future than it is today? Why?
7. Do you ever consider leaving \_\_\_ to live and work someplace else? Why or why not?

## **Specific Aspects of the Community**

Next I'd like to ask you some more specific questions regarding various aspects of the community and get your assessment of how things are going in the community in terms of each of these aspects.

8. How would you describe local conditions and trends regarding the community's economy?

How has recent energy development affected the economy? In what aspects and what ways?

9. How about local trends and conditions regarding the community's physical infrastructure?

How has recent energy development affected the physical infrastructure? In what aspects and what ways?

10. How about trends and conditions regarding the services provided in the community (for example, local government services, police, fire protection, housing, medical services, social services, schools)?



How has recent energy development affected the physical infrastructure? Which services have been most affected and in what ways?

11. How about trends and conditions in terms of community social relations (or “how people get along with one another”) within the community?

How has recent energy development affected community social relations? In what aspects and what ways?

12. Finally, let’s talk about trends and conditions concerning the environment and aesthetic aspects of the community.

How has recent energy development affected the environment and aesthetic aspects of the community?

### **Additional Energy Boom Inquiries**

13. In what ways, if any, has the current energy boom affected you personally or professionally?

14. What local benefits have occurred because of the recent energy boom?

15. Which groups of people have benefitted the most? In what ways?

16. What perceived negative impacts have accompanied the increase in energy development?

17. Which groups of people have been negatively affected and in what ways?

18. Overall, do you think that the benefits to the community from the recent energy boom have outweighed the negative impacts, or vice versa? Why?

19. Do you think that local institutions, the energy industry or the state government should be doing more to address any negative effects from the energy boom? Who should do more and what do you think they should be doing?

20. Are there other aspects of how life in \_\_\_ has been affected by the recent energy boom that we haven’t talked about today, but that you would like to mention?

## **Attachment C: Focus Group Guide**

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## MEMORANDUM

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**To:** Tyson McLean, MBCC  
**From:** Doug Jeavons  
**Re:** Guide for focus groups  
**Date:** April 16, 2013

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### Introduction

Hello. As you're getting settled, let me first thank you for coming and giving us your time. I'm \_\_\_\_\_. Tonight we're going to talk about your experiences and opinions about living in \_\_\_\_\_. I'd like to hear from all of you. Please feel free to come into the conversation at any time. If somebody says something, I always like to know how other people around the table feel. You don't have to wait for me to ask you a question.

Sometimes people agree and other times people have different views. It's OK to disagree, though we need to treat each other in a respectful and non-judgmental way.

If we need to move along in the interest of time, I'll let you know. The group should last about an hour and a half.

I have a list of questions I need to get through, so I may refer to my notes every once in a while.

Just so you know, we audiotape the group so we can go back and review what was said. It will help me quite a bit if you talk one at a time so I can hear everything when I listen to the tapes.

Let's go around the table and introduce ourselves by first name. Tell us about your household and what part of the area you live in. How long have you lived in \_\_\_\_\_?

### Overall Community Perspectives

If you were to describe what it's like to live in \_\_\_\_\_ to someone who was thinking about moving here, what would you say?

What do you consider to be the best aspects of living and working in \_\_\_\_\_? What are the strengths of the community?

What do you consider to be the major challenges or drawbacks to living and working in \_\_\_\_?

How has the community changed in the last five to 10 years? (Probe: Do you think that \_\_\_\_ is a better place or worse place to live and work than it was 5 to 10 years ago? Why or why not?)

Looking out to the next five or ten years, how do you see the community changing? (Probe: Do you think that \_\_ will be a better or worse place to live and work 5 or 10 years in the future than it is today? Why?)

Do you ever consider leaving \_\_ to live and work someplace else? Why or why not? Do you think about leaving more or less than you used to? Why?

### **Specific Aspects of the Community**

Next I'd like to ask you some more specific questions regarding various aspects of the community and get your assessment of how things are going in the community in terms of each of these aspects.

**[Pass out card packets]** In each of these envelopes, we have cards that name certain aspects of the community. I'd like you to read each card and place it into one of three piles: getting worse in recent years, staying the same, and getting better in recent years. If any of you are new residents in the community, you can sort your piles into aspects of the community you are concerned about, aspects of the community you are pleased about, and aspects of the community you are neutral about. **[Give participants time to sort the cards]**

Now, look at the cards you've put in the getting worse pile, please take your pen and put a star on the aspect of the community that concerns you the most. Do the same thing in the pile that is getting better; mark the most important improvement in the community with a star.

### **Cards**

- Community social relations
- Crime
- Drug and alcohol abuse
- Environmental quality
- General local government services
- Housing
- Local economy
- Local schools
- Medical and social services

- Physical infrastructure
- Place to live in retirement
- Place to raise children
- Police/fire/emergency services
- Shopping/services/restaurants/entertainment
- Traffic
- Volunteer/civic participation

**[Discuss cards]**

What aspects of the community did you put into the getting better pile? Why do you think these aspects of the community have been improving? Which of these did you choose to highlight, and why?

Which aspects of the community did you put into the getting worse pile? Why do you think these aspects of the community have been getting worse? Which of these did you choose to highlight and why?

How has recent energy development affected aspects of the community we've been discussing?

Do you think the community is receptive to newcomers that have arrived because of the energy boom? Do you think the newcomers are fitting in well with the existing community?

**[Collect cards]**

**[Have the participants pass each group of cards in turn, and put the cards into the appropriately labeled envelope—getting worse, staying the same, getting better]**

**Additional Energy Boom Inquiries**

In what ways, if any, has the current energy boom affected you personally, professionally or socially?

What local benefits have occurred because of the recent energy boom?

Which groups of people have benefitted the most? In what ways?

What perceived negative impacts have accompanied the increase in energy development?

Which groups of people have been negatively affected and in what ways?

Overall, do you think that the benefits to the community from the recent energy boom have outweighed the negative impacts, or vice versa? Why?

Do you think that local institutions, the energy industry or the state government should be doing more to address any negative effects from the energy boom? Who should do more and what do you think they should be doing?

Are there other aspects of how life in \_\_\_ has been affected by the recent energy boom that we haven't talked about today, but that you would like to mention?

### **Thanks and Wrap Up**

Thank you so much for taking the time to participate in this discussion. Do any of you have any final thoughts you'd like to share?