



JAMES KENT ASSOCIATES
Global Cultural Analysts

Report Number One:
Citizen Issues and Opportunities
Related to Bureau of Land Management Activities in the
Farmington District Office

Supporting Documentation for an Environmental Impact Statement for a
Revised Resource Management Plan (RMP)

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Creating Productive Harmony between Human and Natural Environments

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**Section One:
Introduction**

Background

The Bureau of Land Management (BLM), Farmington District Office, is revising its land use plan, called the Resource Management Plan (RMP). As part of that effort, James Kent Associates (JKA) has been asked to identify the citizen issues and opportunities that are related to BLM activities.

Under Assistance Agreement Number 1422P850A80015 between James Kent Associates (JKA) and the Bureau of Land Management (BLM), JKA began work in December, 2000 under Task Order #GDW019000 to assist the Farmington Field Office conducting community fieldwork.

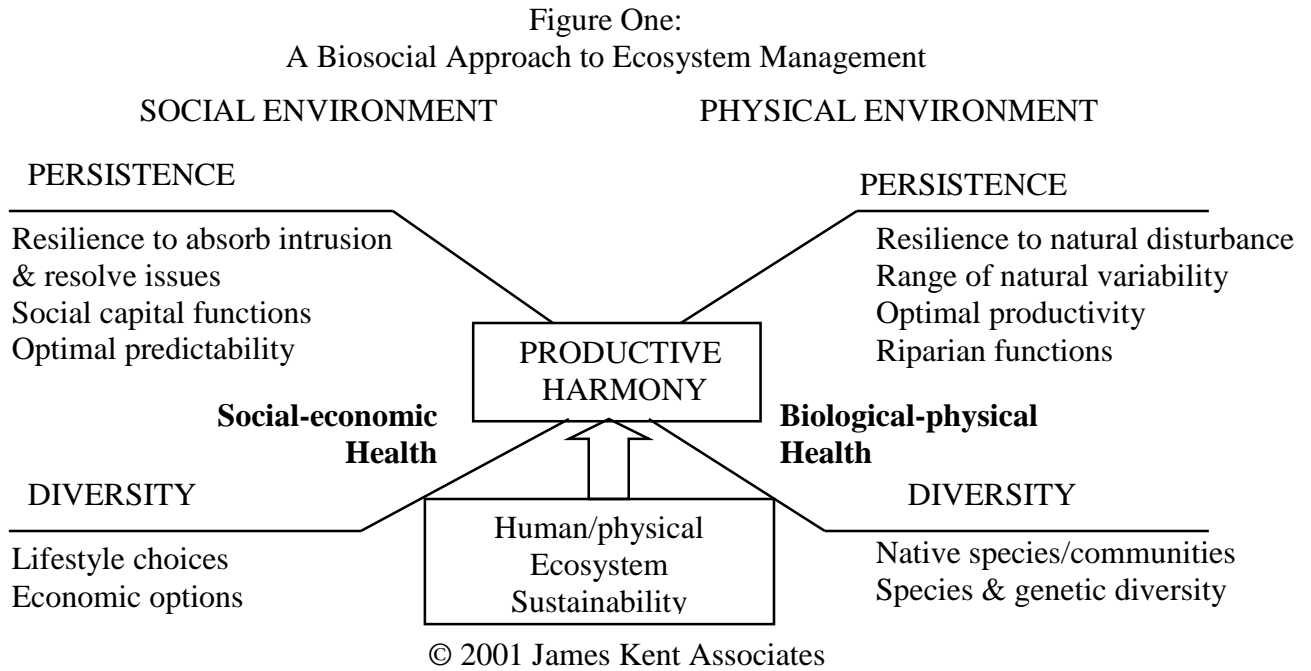
The documentation provided in this report will be used in the development of the Environmental Impact Statement (EIS) that is required in order to revise an RMP. The information will complement traditional agency approaches for scoping issues of concern that directs the EIS. It will also form the basis of the social and economic portions of the EIS that deal with the affected environment, alternatives, effects analysis, and mitigations. Most importantly, it will be used to maintain ongoing dialogue with people who are affected by BLM decisions so that they are participants and partners in the outcomes.

The JKA team was composed of Jim Kent, Kevin Preister, Luís Ibañez, and Su Rolle. Gail Tunberg (USFS), and Joan Resnick (BLM), of Southwest Strategy, participated in early fieldwork. A total of 74 professional days was spent conducting community fieldwork.

The JKA Approach

The JKA philosophy is based on the National Environmental Policy Act (NEPA) that calls for “productive harmony” between people and nature by considering not only biological and physical components of the environment, but the social and economic components as well (Preister and Kent 2001). Figure One below displays the notion of productive harmony. The goal of natural resource decisionmaking is to contribute to productive harmony in an area, and not detract from it. For this reason, efforts to

understand both the social and physical environments are important (Preister and Kent 1997).



Our approach for learning about communities is called The Discovery Process.TM It involves “entering the routines” of the community in order to see the world as residents do. We look for descriptions from residents about: settlement patterns, publics, informal networks, work routines, recreation activities, support services and geographic features. The reader is referred to Kent and Preister (1999) for a fuller discussion of the methodology, and Appendix B contains the seven cultural descriptors used in the community assessment.

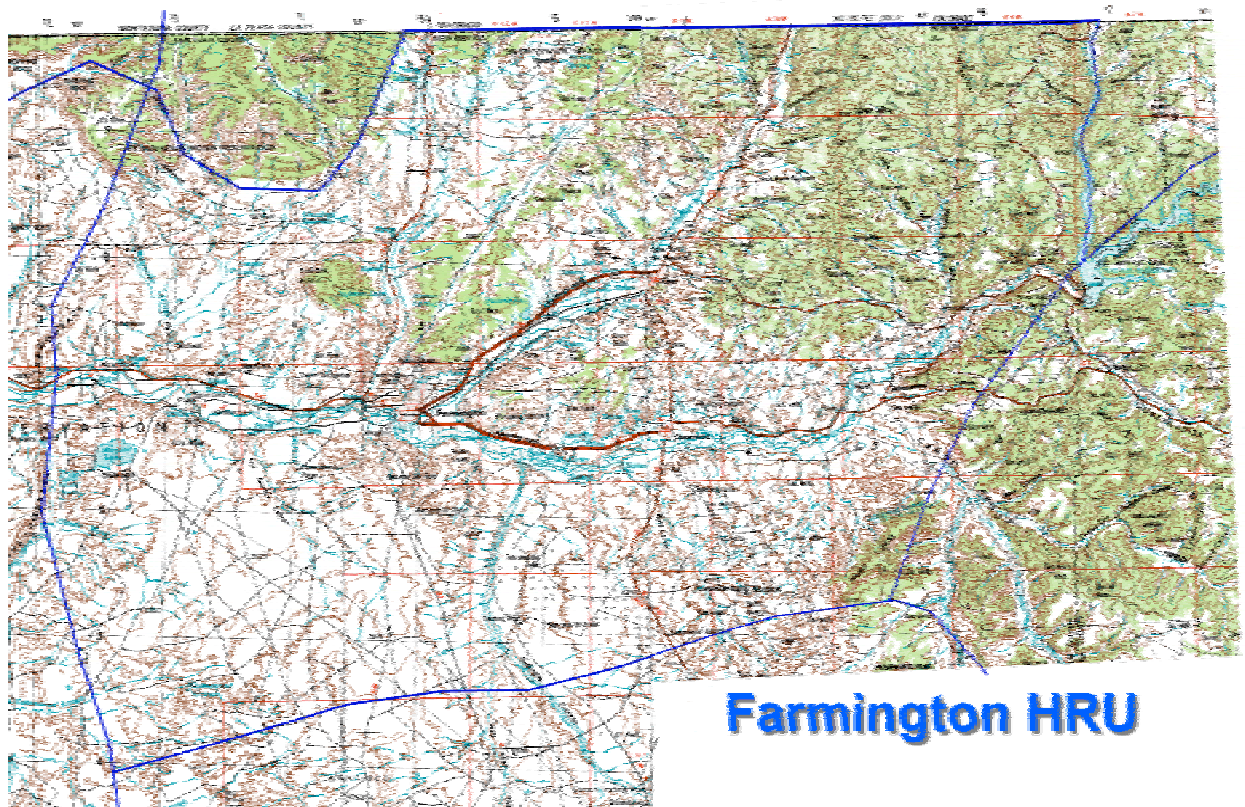
In practice, we contacted and listened to as many people as we could, to hear their stories of the land, their family history, changes they are seeing on the land and in their community, their use of BLM lands and ideas for improving management. We learned how BLM activities affect different kinds of people and what they think could be done to minimize the negative effects and enhance the positive ones. We always asked people whom else we could talk with, and those people whose names came up several times we made a special point of contacting. In addition, we frequented the gathering places in the area—the restaurants, the laundromats, churches, and stores, engaging residents in conversation.

We made a point of talking with a wide variety of people—long time residents and newcomers, young and old, farmers, oil and gas workers, and townspeople, and commuters and storeowners. We talked to several kinds of recreationists—hunters,

fishers, off-highway vehicle enthusiasts, campers, and hikers. We talked to Anglos, Latinos, and Native Americans. Our contacts included officials from the many local, state, and federal agencies engaged in natural resource issues, staff from many social agencies, county commissioners, and city councilmembers.

One of the products of the Discovery Process is a human geographic map that shows how people in communities relate to their landscape. Figure Two presents the human geographic map for the Farmington Human Resource Unit (HRU)TM. This is the social and economic unit identified by area residents and is considered the primary impact zone for purposes of the Environmental Impact Statement to follow.

Figure Two:
The Farmington Human Resource Unit (HRU)TM



In this report, we wanted to let people speak for themselves so we relied on the frequent use of quotes. Citizen and official comments can be traced back to the speaker so that contact can be maintained with the people that expressed particular interests.

This report is organized around major topics that the BLM will address in revising its Resource Management Plan—oil and gas development, recreation activities on BLM lands, and land use options for the agency lands held near areas of growing human

settlement. Each section reports the community themes, public issues, and management opportunities identified during the Discovery Process. *Community themes* are attitudes, perceptions, or values of people that are widely shared in a community setting. They are ways of looking at the world that come up repeatedly in local conversations. In and of themselves, themes cannot be acted upon because they are too general. By contrast, *public issues* are statements people make that can be acted upon. By linking the public issues discovered in fieldwork with the management concerns of BLM and others with professional responsibility in public land stewardship, a way is created to mobilize citizens in support of land use planning and decisions. Moreover, the National Environmental Policy Act (NEPA) requires that public issues be identified and considered in the decision making process. Management opportunities are ideas people have for improving ecosystem management and for collaborative partnerships in which they could participate. Upon analysis, opportunities may become mitigations, or requirements to reduce the level of negative effects or enhance positive effects, which NEPA also requires to be identified and considered.

Appendix A contains photographs showing citizen concerns related to land use activities, primarily oil and gas development. These photos are referred to throughout the text. In addition to sections dealing with oil and gas, recreation, and land use options, the report includes sections on the environmental voices in the San Juan Basin, the unique interests of the Navajos in relation to BLM activities, and the perceptions and issues of residents toward the BLM.

The information contained in this report will contribute to a community-based collaborative EIS in the following ways:

1. The report represents the many relationships begun with area residents to gain their perspectives on public land management. Ongoing contact with these and other individuals to work out the ideas discussed in this report will spread the ownership of this process and of the final document in the community.
2. This information is used to supplement agency understanding of public interests obtained from more traditional “scoping” meetings.
3. This information will directly shape the alternatives to be considered in the EIS process.
4. The effects analysis for the alternatives will be gauged against the preferences and issues people expressed. In other words, while science is neutral and objective, the “good” and the “bad” of the data are determined by what local people value and want in their ecosystem.
5. Local residents will participate in developing mitigation measures that are practical, affordable, and responsive.

Section Two: Citizen Issues Related to Oil and Gas Production

Introduction

One person referred to the San Juan Basin as an “industrial complex,” and it certainly appears true today. From early development in the 1950s, to the boom and bust cycles that have characterized the industry worldwide and locally, to the present time of expansion and increased production, oil and gas production has dominated the economy and the landscape of the area. People from West Texas began oil and gas development and stimulated settlement into Farmington from their region. Today, it still appears that ties to Houston are stronger than Denver ties for the industry. In the late 1970s, coal seam drilling began, associated with lower BTUs than the earlier, “easier” methane, water extraction during production that has caused environmental concerns, and compressors that have caused conflicts around noise.

Community Themes Related to Oil and Gas Production

The perceptions of local residents around oil and gas production revealed patterns that are reflected in the following statements, called *themes*.

1. “The oil and gas industry has been the savior of this community.”

“I don’t want to see them shut down.” [very common]

“BLM should encourage oil and gas. Environmental concerns like noise can be addressed.”

“Oil and gas are here to stay. What is needed is to find a way that everyone can co-exist.”

2. “Oil and gas used to work, but the system is broken.”

“In the old days, you called El Paso or Southern Union and it got fixed. Today, you never know who to call. There are so many companies and subcontractors, you have no clue.”

“Today, people tell you, ‘It’s not my problem.’”

“Marketing and sales have changed in the last 20 years. It used to be ‘cost to service’ arrangements and any cleanup activities were passed to the consumer. Companies would have their own road maintenance crews, for example. Today, it

is ‘free market;’ you don’t do that because your competitor isn’t doing it, so you can’t either.” [industry person]

“Since things got divided up, no one knows who to call anymore.” [industry representative]

“Old families have a lot of friction because the old ways don’t work anymore. We used to have 900 employees and our own road maintenance group. We had camps in all geographic areas with road maintenance full time in each area. Now our staff is 200.” [El Paso staff]

“It was common—they’d do earth moving work for you on their way by if they knew you needed it. As the people in charge lost touch with rural people, that system disappeared.”

3. “It’s not safe to voice concerns.”

“Individuals feel hammered.”

“A lot of people said that they couldn’t help our coalition, even though they agreed with it, because of their dependence on oil and gas.”

“_____ was not hired back because he spoke out about the noise.”

“People can’t be open and really say publicly what’s on their minds for fear of alienating friends and co-workers.”

“People will never organize because there are too many jobs at stake. Neighbors work for oil and gas. Most ranchers work for oil and gas.”

“After a year’s fight, I began to doubt my own judgment.”

4. “Other oil and gas places don’t look so bad.”

“No other area I’ve worked in, Canada, Israel, West Texas, would tolerate what they do here. They put out those plastic sheets under the equipment but they get washed in the rain. Landowner rights here are nil. In Texas, if you spill, you are in trouble.”

“Gillette, Wyoming banned oil and gas in residential areas. In South Dakota, you pay a year to year rent.”

Public Issues Related to Oil and Gas Production

It was easy to get people to talk about oil and gas. It is a common topic of casual conversations and most people have keen observations about the effects of oil and gas activity on their lives, on the community, and on the economy. Nearly everyone prefaced their comments with statements like, “We don’t want oil and gas to go away,” and then often would voice a complaint. It is fair to say that there is widespread frustration at the lack of responsiveness to legitimate concerns about oil and gas activities. Most people were quite clear that they wanted a reasonable balance between development and other values. It should also be pointed out that some comments may not be based in fact. These are people’s *perceptions* that are being described. If the facts are incorrect, it points to the need for mutual dialogue.

“The key challenge is going with mineral development, yet try to preserve that land for other uses, whether it be recreational, homestead, grazing, horse breeding of whatever. Trying to get it to balance, that’s a real challenge.”

1. “We don’t know who to call.”

“So much is turned over. ‘Turnkey’ is when the company contracts with another. That happens a lot.”

“I asked ____ ____ at BLM to give me a list of companies with rights onto our permit land and he couldn’t do it; he just didn’t know them all.” [rancher]

“They [oil companies] are not opposed to doing the right thing. They get into problems when they contract to have roads put in, trenches dug, and well pads developed. Those companies would just as soon tear up a strip 100 feet wide as 10 feet wide.” [college instructor]

“My cows died from contaminated water. I have been on the phone repeatedly with all the companies, including ____, ____, ____, ____, and _____. The problem, aside from the hassle of trying to get compensated for something they did, is that they have a big turnover and trying to find out who took the place of the other is very hard.”

2. “They never call back.”

“The cattlemen and farmers offered to help BLM monitor re-seeding and with overall compliance, but so far we haven’t heard anything back.”

“We have no protection without BLM and they are not there for us. They should be the policeman.”

“BLM is supposed to work with me and protect me from oil and gas companies. They need to follow their guidelines.”

3. “They have robbed our silence.”

Noise was the single most common issue that people complained about. In the urban areas, city government has been placed in the role of mediator between citizen concerns and industry. The City of Farmington, for example, has a noise policy that specifies a dBA limit ranging from 55 to 75, depending on the time of day and the land zoning category of the site (Chapter 12, Article 5 of the City Code 1969). The City of Aztec is currently re-writing its oil and gas permitting policy.

“No place is quiet.”

“They have robbed our silence. We used to hear the elk bugle and the coyotes call.”

“We keep the TV on for white noise so we can sleep at night. I like to ride horses, but I almost don’t do that now.”

“The company never responded to our noise complaints until we started to form an organization. Then they came out and muffled the sound.”

“They came out and helped us with the sound. You can still hear it at 2 a.m. when the wind changes.”

“People tell me that they can’t even sit on their front porches anymore because the noise from the compressors is so bad.”

“It really bothers me that those compressors are so noisy. You should hear what the _____’s have to put up with.”

“Oil and gas wells have made it really difficult to enjoy the outdoors. I understand that we need the gas wells, but we also need some kind of balance. There ought to be more restrictions for compressors near neighborhoods.”

“The noise issue came to a head in the _____ area. _____ is a key troublemaker.” [BLM staff]

“It was disingenuous for the companies to say all those compressors wouldn’t be noisy. They knew they would be noisy.”

“The compressor near me has a two stroke engine, so it’s very noisy.”

“An isolated few are causing problems on the noise issue.” [industry person]

“A couple of months ago, a couple hunters were on TV saying the noise was affecting wildlife, but there is no good data on this question.” [industry person]

“The noise issues is a wedge people use in the political process when the bottom line is, they don’t want the wells.” [oil industry person]

“The ‘A’ scale is not adequate because it discounts highs and lows. My insides were jiggling.”

“The policy adopted the FERC standard which is 48 dba (timed weighted average) but the distance varies according to horsepower, terrain and wind. The BLM policy is 300 feet but that is not flexible. Sometimes, there is no reason to have a total radius.” [industry person]

“We had them down to 3 db at 500’ until ____ settled his lawsuit. Then the numbers inched up again. I think it’s up to 46. I saw one document that referred to people as ‘receptors’.” [laughing]

4. “Well sites are not maintained.”

The theme that BLM is developing for the Resource Management Plan revision is, “Reduce the footprint.” As an agency, they are committed to working with oil and gas companies and individuals to lessen the surface impacts of oil and gas operations. What follows is a list of major areas of complaint from surface owners with oil and gas wells that affect them.

Roads, gates, traffic, access, and trespass

“We know the road density is too high. How do we allow more production without adding to the road issue?” [BLM staff]

“We have 25,000 miles of legal and illegal roads. Some roads should be shut off as wells are played out and plugged. Where is the balance from the community standpoint?” BLM staff]

“The more roads there are, the more they are used.” [industry person]

“Once the roads are cut open, there is a proliferation of damage. It would be better if roads to wells and pipelines could be better blocked off. Also, people don’t know where they are driving or when they need permission. Lands need to be posted.”

“There is a huge amount of off road driving, cutting in new roads, driving off into the sage, driving over and killing junipers.” [Photos A-6-8, Appendix A]

“We have taken some of the companies to court over road damage. They like to pay one time for surface damage, but they cause damage year after year. It’s frustrating because the attorneys are the only ones who benefit from this.”

“There are lots of recreation people here, including oil and gas workers. It’s why people come and stay. Hunters, sportsmen, snowmobiling. Roads open up areas. When I see these roads, there are as many recreation people as oil and gas.”
[industry person]

“Roads are a problem because they interfere with drainage. You can see that standing water throughout this site. That was never that way. After I completed my dam, I found I didn’t need it because the water didn’t flow that way anymore.”

“Increased access means that firewood people and hunters go into newly replanted pipeline rights of way, leading to a loss of forage.”

“It’s not just oil and gas people on these roads, but woodcutters and hunters.”

“Another big problem is gates. Oil guys always leave them open. If my cows get out, I am the one who spends a lot of my time trying to get those cows back. They never compensate me for my time. It’s irritating and just plain abusive. It’s like they have no respect whatsoever of any of us.”

“The Carson Forest does these road closures for wildlife when the gas wells are right there. Workers are allowed to come and go, but recreationists are not.”

“La Jara Canyon got closed off, new locks and gates, for up to ten miles before you even get to the National Forest. That whole area has lots of wells and roads leading to them. The oil guys have keys, you can see them during hunting season dressed in camouflage driving their company trucks. As it is, the oil companies have their own private hunting grounds. It sucks.”

“When roads are closed to all but oil and gas, there is resentment.” [common]

“I didn’t want to go all the way around, so I cut through. The landowner saw me and I took off quick” [oil worker, laughing]

“The roads committee doesn’t show much give and take anymore. In the old days, it worked through the good old boy system—if you treated them OK, they would take care of you.”

Weeds and re-seeding

“Oil rigs spread Russian knapweed and thistle through mud on trucks.”

“I mow these fields and they come in and I have to start over.”

“The companies don’t always do reclamation on pipelines. When they do re-seed, it is often at the wrong time and with the wrong seed mixture. BLM, for instance, does not allow seeding in the fall; they like the companies to reseed in the summer, when it’s very hot and the seeds have little or no chance of making it. They also use a combination of sage and other bushes that do not mix well with what is out there.” [Photo A-5, Appendix A]

“We went to ____ at BLM asking that they not only re-seed with sage, but with grasses as well. He double talked us, put us in this very noisy garage for that meeting. The cattlemen and farmers offered to help BLM monitor re-seeding and with overall compliance, but so far we haven’t heard anything back.”

Artifact disturbance

“My place is filled with archeological relics that I want to protect. BLM marks them with blue flags, and then any yahoo can wreck them. I don’t think it is legal for BLM to catalog them because I own the surface rights.”

Contamination

“The industry has legal exemptions from toxic waste. No other industry has anything close. They must have effective lobbies because the state government has been extremely supportive.”

“Mercury contamination is the hidden issue here. There are lots of old meters discarded on sites. Can we get this tested? OCD is supposed to monitor spills. I’ve had them out and they have seen acid spills rolling across a parking area, and they have done nothing.”

“Mercury poisoning was only cleaned up on paper. It is still used in instrumentation that is housed in separate shed. The doors are kept open because it disperses the mercury laden condensation that would otherwise develop.”

“Oil leaks are everywhere, on the roads, on the well pads.” [Photo A-2, Appendix A]

“Black plastic mats that are laid out under machinery to catch spills, but it is all washed off in the rain. They are not effective.”

“The drip tanks located in the valley floors can pollute the waterways. Many are unlined and they are not regulated. Some state studies have shown deformities in fish as a result of hydrocarbon toxicity.”

“There are a lot of places where you see chemicals on the ground. It’s obvious here that a truck backed up and dumped large volumes of liquid. Other waste products include ‘frac’ sand (pumped at pressured volume into fissure to open it up), cement, tons of trash, especially by gates. ” [Photo A-11, Appendix A]

“Hydraulic oil leaks off the rigs. Many times you can see leaks from the equipment out on the ground.” [Photo A-10, Appendix A]

“Out houses are on site but not used because they’re smelly. I go out in the sage and find human waste.”

“There are large areas of scooped out mud filled with whatever taken off site and spread around.”

Discarded equipment

“A gate was bent somehow and replaced with a new one, but the old gate was just been discarded on the roadside.”

“Concrete bunkers that go under the cattle guards were left along the road when new ones were put in.” [Photo A-9, Appendix A]

“Old re-hydrators [linked to CO₂ extraction from the gas], and a variety of other equipment were discarded but not removed.” [Photos A-3, A-4, Appendix A]

Unreclaimed sites

“Old settling ponds are no long used, sunken in, but not reclaimed. Sometimes they are fenced but the fences can be down.” [Photos A-13-14, Appendix A]

“Rather than reclaim old spots they just discard them and create new ones.”

“BLM staff will tell you that they can’t keep pace with all the ‘P and A’ [plug and abandon] work. There are 1800 well pads that have not been reclaimed.”

Pad size and density

“On the Carson, they use the same rig and drilling equipment and their pads are 1/3 smaller. No one is trying.”

“People would be far more agreeable to the sites if they weren’t 3-4 times bigger than they need to be.”

“We are very concerned that higher well densities will just multiply the problems.” [common]

Abandoned wells

“Abandoned wells are a big problem. All the equipment is still there. Some of these wells have signs of poisonous gases—they emit this very strong smell like rotten eggs. We tell the BLM to have them fixed and the equipment removed but nothing is done.”

5. Water.

“The Fruitland Aquifer runs from southern Colorado to northern New Mexico. At least in the upper part of the basin, the water is relatively clean, with few TDS [total dissolved solids] but it is contaminated as it is taken out first before the methane is removed. It’s contaminated by all kinds of solvents. Then the water is injected back into the aquifer. There is some evidence that the aquifer is not contained. It could easily be leaking contaminated water into other areas.”
[Director, Oil and Gas Accountability Project, Durango]

“The coal seam methane wells first pull the water off, then the methane is released. The water is contaminated through the extraction process.”

“My husband and I used to live lower down by the river. A methane gas well just upriver from us blew up. It ruined our water well. The company came out and put a filter on the well, but the water was filthy and the filter wouldn’t stay fixed. We were always hassling with the company. That was the late ‘80s.”

“We stopped the land farm. This was an idea to hold contaminated water from wells until all the water evaporates, and then plow it up. When folks from Cedar Hill contacted the property owner and told her what was going on, she withdrew the property. They put a land farm up in Crouch Mesa. Those folk didn’t know better and didn’t object, but now they sure wish they had.”

6. Mitigation, leases and compensation.

One time surface damage is not adequate for many people. Adequate compensation or a yearly rent will be increasingly “on the table.”

“What do leases generate? There’s more than enough money for mitigation, but it’s just not done.”

“Damages for me is not a one time shot but an everyday occurrence.” [common]

“Their offer for the damage payment was the current, undeveloped value of the property but that is unacceptable.”

“The landowner should have a right to a new lease when conditions change. When these leases were signed in the 1940s, there was no such thing as compressors.”

“When I moved here, I made sure I had my own mineral rights, as do most of my neighbors. I granted a lease, but I control the stipulations.”

“We want a year to year lease and directional drilling.”

“Union Pacific has an oil and gas division for their rights of way. By corporate policy they pay 1.5% royalties to landowners.”

“The group several years ago tried to raise the cost of easement for pipeline from \$5/rod (16 ½ foot easement) to \$18/rod. Once they negotiated the price up to \$18, the other landowners dropped out. My family was recently able to negotiate a \$1000/rod easement, but others didn’t have the cash to go to court. Many sold out for \$20/rod. In Texas and southern New Mexico, there is a trend toward leasing and receiving an annual rent rather than a one lump sum payment for easement.”

“Rio Arriba County gets nothing. All the spending and tax receipts go to San Juan County.”

7. Agricultural operations.

Many of the issues described above affect agricultural operations. The loss of forage, the revamping of water flows, weed invasions, chemical spills, discarded machinery, and other issues influence the productivity of both grazing on public lands as well as private lands on which oil and gas facilities reside. The costs associated with these issues will be calculated for the Environmental Impact Statement (EIS).

“Grazing should be monitored more carefully. It’s our job to be stewards.” [BLM staff]

“We lose cows on a regular basis from drinking contaminated water at well sites. The reserve pits are not fenced and cows get in and drink from them and die. Sometimes, it is easy to prove because the bodies are right there, but other times they die some distance from the site, and it’s hard to prove. But when even the buzzards don’t want a carcass, you know it was contaminated.” [Photo A-12, Appendix A]

“I lost 6 cows three years ago. They drank from a contaminated pond near a well site. I called _____ and they said he’d have to prove that the cows died as the direct

result of something the company did. Because it's so far out to my place, the vet charged me \$800, but he easily made the case. It still took a year to get payment after calling them many, many times."

"The grazing permittees in Largo Canyon say the dust bath gets in the cattle's teeth. Gives them some kind of disease."

"We lose forage three ways from oil and gas, the loss of acreage, the increased access from all the roads that lets people tear up the grass, and the loss of natural fires—sage is a climax species."

8. Residential issues.

In addition to the noise issues described above, people involved in housing development were concerned about the economic loss resulting from nearby oil and gas operations. They shared concerns about the lack of consultation and agreement prior to drilling operations as well.

"For a nice master planned community, improved lots could go for \$30,000. We figure that there is a loss of about \$200-300,000 per well pad."

"I had to move my road away from the pipeline, so I lost 5 lots on that corner. They were worth \$20,000 apiece because they had road and utilities."

"During one of the downturns several years ago, I had two friends that traded their apartment building for 12 lots. ____ drilled in the middle of it and forestalled development. My friends drove from West Texas and _____ would not even talk to them. They sent them a check for \$800."

"There is a firm of retired oil and gas people that do public awareness meetings a couple times a year. They could help people get informed about real estate transactions on oil and gas lands." [oil and gas representative]

9. Safety.

This issue comes up more in cities and with pipelines. There seems to be a "live and let live" attitude with many people, unless the facility is nearby.

"It's a worry to drive over pipelines because they could explode. I don't get the feeling that enough is being done to protect people."

10. Workers.

"The oil and gas industry claims that they can't get workers. Many don't want to work at minimum wage with safety risks that go along with those jobs. Most

companies don't do drug tests; they'd never get enough workers if they did."

The Politics of Oil and Gas Issues

When residents described their efforts to get their oil and gas issues addressed, it has appeared that the "squeaky wheel" system is in place. Those that complain the most and have the most resources to bring their grievances to court if necessary seem to do the best. An earlier section showed how complaints in the past were more routinely and effectively handled than today. In addition, a number of residents described success stories in resolving their issues.

"Don't get me wrong. Sometimes there is positive response from BLM and industry—a cross section of fence might get put in, or the reservoir could be redone."

"There was noise near my place. I called the company and they put housing over the well."

"We had a noise issue once that was worked out after we complained. I wonder what it would have been like had the company not known my husband is with BLM!"

"This one BLM guy worked with the company to design panels to decrease the noise and impacts to wildlife. This was a dedicated young man who knew what he was doing. It's working very well."

"I have land adjacent to BLM. When the pipeline went through I had many problems with people using the road, not closing the livestock gate, shooting, using ORVs across the land. The shooting around children was especially bad. I discovered the few that were doing it and one by one I contacted them and it's much improved. Sometimes when the wind comes up the canyon, you can hear the compressors, but we can live with it. I don't know how it will be if a well goes in closer."

"We are working with Mesa Airlines about their training program and noise impacts on the neighborhoods. It has been a two year effort and we are starting to make progress. We're working on a schedule for training, a hotline for complaints, different take off paths, etc."

"___ listened. They cleaned up the well. It took a few calls."

These successes appear to be the exception rather than the rule. Given the widespread frustration expressed by residents related to oil and gas issues, it seems fair to say that such issues will continue to be handled politically and legally, rather than as routine company and agency policy, at least for the short term.

“We call a meeting and we can only get 2-3 people. New Mexico is funny that way.”

“The Coalition and OUR Land is sympathetic to industry. It’s time to be considerate of landowner rights.” [Clean Water Coalition, OUR Land]

“They drilled on our land without an agreement from us.”

“I started fighting the compressor station and I lost business. Workers were told not to come in.”

“I tried talking with them but it rapidly escalated to letters and attorneys.”
[landowner]

“Maybe the way to go is like Fidel Candelaria. Maybe his approach is the future and fighting the fight is all there is. This is my last year to try working things out together.”

“If there is a rub, industry goes to ‘contract rights’ and BLM goes to regulations.”

“You don’t have any control.”

“We couldn’t afford the legal fees. We just got worn out and we finally moved our house uphill [after their well was contaminated].”

“Then if you win, you have to sign this secrecy clause so you don’t talk to your friends. We’re all isolated.”

“Conflicts are going to increase. Little private land and more people.”

“OCD does nothing.” [common]

“BLM doesn’t do enforcement.” [common]

“EPA should do an air quality study. Don’t let the state do it because you can’t trust them.”

Management Concerns of Industry

1. “There is always one more.”

From the perspective of oil and gas developers, attention to citizen concerns is an ongoing challenge. No matter how well local concerns are worked out, somebody has a neighbor, or someone from over the hill will get alarmed and the process will begin

again. No matter what is done, it seems that it is never enough. A number of observers in the oil and gas industry have stressed the importance of including both BLM and OCD in discussions about collaboration and community responsiveness. They felt unless all key players were involved that individual efforts would founder.

“The problem is, ‘No’ never stops.”

“After we get an agreement, people come back and want something more. If there is a complaint and we blacktop a road, they will be back asking for curb and gutter.”

“Landowners get no royalties so it’s all a nuisance to them. First time damage payments are going up.”

2. Disclosure

“Many times it is new residents moving into an oil and gas area. You’d have to be dumb not to know what you’re getting into. But realtors tell these people not to worry, this well hasn’t been active for years. We need to educate the Realtor Associations.” [industry person]

“It would take legislative action, but maybe a general statement could be required of realtors: ‘You are buying in the San Juan Basin. Oil and gas development could affect you.’”

3. Loss of control

“Companies lose control of wells and reclamation. Many orphaned wells are sold. We left ____ Field in the 1960s, for example. When it started leaking some years ago, we went back in and reclaimed it.”

4. Management concerns with BLM

Approval is too slow.

“When BLM goes slow, it doesn’t hurt the resource—it’s staying right there, but it ripples through the economy when service companies are slowed down. We often have rigs ready to go, but BLM is not ready.”

“It takes 90 days to get a permit. It used to be 30.”

Standards

“There are no real BLM road regulations. I’ve read what’s there. You can look at their ‘Gold Book’ and it has no specs on how roads should be maintained. As an industry, we look for standards to guide us.”

“BLM has no standards and no staff to develop them. They developed their noise standards, for example, but in the meantime, the elk herd has grown. The science often is just not there.”

“The noise guidelines are not based on good science.”

Oil and gas production

“If BLM wants to ‘reduce the footprint’, it should offer incentives through the taxes or royalties generated by the wells.”

“BLM used to do their own studies. Now with T&E [threatened and endangered species], they now tell us to do it. They say it will be faster if we do it ourselves.”

“Individual companies acquire leases but then the rules change. We’re under legal pressure to develop the resource prudently, but then we get these delays.”

“Woodcutters and recreationists are tearing up those roads too.”

“The RMP [BLM’s Resource Management Plan] was adequate. There was no reason to start this process.” [common]

“Maybe a third party enforcer could work, funded by BLM, OCD and industry. They could do inspections, give them authority.”

Management Concerns of BLM

The management concerns of BLM will be identified by the NEPA contractor so that legal and professional issues are given consideration in the Environmental Impact Statement. In the course of our contact with BLM staff, the following concerns were identified:

- BLM is oriented to new production. Because of the pressure to approve Applications for Permits to Drill (APDs), much of staff time and resources goes to approve new wells. There is a concern that increased production may jeopardize other resource values like wildlife

“There are two or three jewels that I want to protect.”

- BLM staff have expressed the concern that there is not enough staff to respond to citizen concerns and to protect resource values.
- Staff believe that they do not get support for enforcement.

“We get slapped down if we do enforcement. The state calls up and says what are you guys doing out there. Or we get a congressional call.” [22]

- There is no current mechanism to pay for enforcement. Royalties go to the treasury, so local BLM offices rely on the national budget process for funding to accomplish their mandate.
- There is currently not enough scientific knowledge on resource issues. Research on well-bore contamination, for example, is not done by BLM. Understanding of air quality and wildlife issues is hampered by lack of research.
- Staff have interest in collaboration.

“It’s not enough to use a stick approach. We have to use collaborative approaches to get the job done.”

“We have to use industry. There are environmentally sound practices and innovators out there.”

Management Opportunities

BLM wishes to create community-based collaborative answers to addressing oil and gas impacts. Rather than relying just on a regulatory approach, it is interested in fostering a cooperative, mutual effort. There is a need to begin immediately to change the atmosphere around oil and gas issues from defensiveness and hopelessness to empowerment and optimism. The major objective is to build public support for more cooperative approaches to issue resolution so that BLM’s RMP can go public with a modicum of support. These steps can help in that regard:

1. If the road agreement gets signed, do not rely strictly on media coverage, but arrange tours with informal networks of influential individuals who could be counted on to communicate details about the timing and extent of renewed efforts of road restoration. The committee, and each of the geographic units, should be committed to community outreach to ensure that the high priority areas are identified.
2. Support the new sub-committee looking at rancher/industry problems. In addition to its goal to work on standards for well pads on agricultural lands, assist it in choosing 2 or 3 sites that could be improved this year. JKA and BLM could assist in selecting candidate

sites. The notion is to develop moderate solutions of people solving their own concerns to forestall greater legal choices in the future.

“You know, maybe the college could help pick a site. Pick a site that we can get looking better, maybe a small guy that tends to get bowled over.”

3. BLM staff should also strategically review the public issues contained in this report and select 2 or 3 that could be successfully resolved in the next few months.

4. Adapt the noise policy to address residential concerns to generate goodwill and support.

“You know you can have well compressors anywhere, even off the well pad. There are two wells on the San Juan College campus so someone made a big stink and they are maybe ¼ mile away.”

5. Include directional drilling in the alternatives formation and conduct collaborative cost/benefit ratios for this option. Win, lose, or draw, if the RMP does not address this option, it will not have the credibility it needs. The interest was too widespread and the feasibility so much debated that the topic cannot be avoided. If the feasibility of directional drilling is borne out, perhaps incentives for its use could be explored.

6. Encourage the one existing organization and the one emerging organization devoted to balanced oil and gas development and surface owner rights to adopt a moderate, helpful stance. The evidence suggesting this course of action is the large number of comments received from people that they value the industry and do not want it to leave, and also the widespread frustration that more is not done to discipline the industry to live better with its neighbors. A moderate public stance would have the following features:

- an information clearinghouse, perhaps through a web site;
- a facilitative function to listen to issues and to foster their mutual resolution;
- a holder of scientific knowledge related to oil and gas production and perhaps even a promoter of new scientific research in the area;
- a group that could assist in monitoring functions, in collaboration with citizen and science partners.

7. Take steps to “fix” what used to be a functioning oil and gas system. It may be that the old style of informal relationships that solved issues as they emerged is no longer feasible. However, the positive feelings in the community related to this history are still in place and can be built upon for a new process. Three ideas could be explored in the EIS process:

- a. Develop fast track permitting for requests (perhaps 30 days) that have the support of neighbors. If this or similar incentives could be provided that would encourage direct communication and agreement between developers and residents, BLM could play a facilitative role and not a policeman role. For

example, JKA assisted in gravel extraction operations in Oregon. We developed community-based policy that allowed neighbors and developers to negotiate the type and scale of noise mitigation in each situation, rather than rely on a blanket policy for all cases. In exchange for modest royalties and other benefits, for example, residents negotiated themselves out of having noise sensitive designations.

b. The Farmington Indian Minerals Office (FIMO) has good standing in the Navajo community. Its staff conducts regular outreach into the community and is well-accepted. FIMO has a reputation of resolving oil and gas issues of nearby residents and of using regulation effectively if needed. BLM should examine their management practices for applicability to general BLM management.

c. Another idea is to consolidate company responsibility so that accountability is more obvious. In the eastern part of the basin, one company official said that “large federal units” were created, some the size of a township or larger, that are then leased to a single company. For this or similar kind of arrangement, residents would then know “who to call.”

8. Develop workable solutions to the enforcement problem. Development should pay for the cost of its regulation.

“If BLM wants to use a carrot approach, what they will do is cut taxes to get companies to do things they are supposed to do anyway.”

“If BLM wants to ‘reduce the footprint’ it should offer incentives through the taxes or royalties generated by the wells.”

9. Develop sufficient capacity in scientific monitoring to assure industry and the public that management actions are based on good information. Answers about well contamination are expected and appropriate, but BLM currently does not do its own research. Evaluate cumulative effects of additional wells and associated pipelines. A clean air study would reassure people through better information. BLM should develop its own capacity or perhaps foster such capacity in a nonprofit organization.

Section Three: Recreation Interests on Public Lands

Background and Trends

Recreation visitation has been increasing at a modest rate for the last several years, according to local observers. Although numbers are scarce, agency personnel, local businesses, and various recreational enthusiasts point out that more and more people are using public lands for recreation purposes. These levels of use mean that a recreation economy is coming of age and is also increasing the impacts on public lands. The increasing use of public land is also generating conflicts whose resolution is becoming an ongoing challenge of management.

Recreation demand is a function of increasing visitors but also a growing and active population. A number of people stated that they came to northwest New Mexico because of the recreation amenities it has to offer.

This area is on the ‘cusp’ as far as recreation goes. We are teetering toward critical mass.”

“Recreation activities are bringing people here. BLM should create more recreation opportunities.”

San Juan County draws in many recreation interests from Colorado. Reflecting the regional affiliation that residents share with southern Colorado, these activities include getting away from snow country in the winter as well as taking advantage of the unique public lands available in the area.

“People look at Durango and say it’s too extreme. They like the amenities but worry at the scale.”

“Cortez and Durango folks come down to northwest New Mexico for sunnier sports...bicycles, golf, some horseback riding, motorized ORV. Of course, shopping in Farmington is big also.”

“We drove down from Colorado this morning.” [four guys drinking beer in the Glade one January morning, all in full motocross gear]

“We always come down for the four wheel event. It’s great!” [Colorado couple]

“Folks from Mesa Verde and Durango come here in the winter because they cannot do anything up there because of snow.”

Community Themes Related to Recreation

The common attitudes and perceptions, shared widely in the community and reported often, can be summarized in four themes.

1. “Public lands should be for everyone.”

“There needs to be some place for everyone. I hope we don’t see what happened in Santa Fe that banned all motorized and bicycles in favor of hikers and horses.”

“We want to keep those guys on our side. No one should be left out.”

“Balance is the goal. One person’s ‘attractive nuisance’ can be good for others.”

“It’s possible to have a balance of all the users, especially through education.”

“Multiple use can be done successfully if everyone cooperates.”

2. “There tends to be two camps—motorized and non-motorized.”

“If we don’t find some solutions, it will get more restrictive.”

“I tell recreationists if they can’t come to agreement, I’ll make my own recommendations to my boss.” [BLM staff]

“We used to get along, but ever since ___ came up with this, we don’t see eye to eye.”

“Some areas should be non-motorized for wildlife reasons.”

3. “Sensible controls are more necessary now.”

I’d hate to see a blanket rule that no motorized vehicles are allowed in some areas, but there needs to be some kind of protection.” [very common]

4. “We have a history of working together.”

“I’m out there at ____, and people slow down to check me out. I feel like people are watching out for each other.”

“We have worked with them before. They are reasonable and see the big picture.” [common]

Recreation Interests

Types of Activities

Specific recreation activities are highly valued by residents and visitors. Primary among them are: OHV, shooting, horseback riding, mountain biking, hiking and running.

OHV Use

OHV refers to off highway vehicles that are used on public lands. Many times the purpose is recreational, but OHVs are also used for woodcutting and hunting. They sometimes tear up the soils, cause erosion, and destroy vegetation. In recent years, OHV complaints from property owners near public lands have risen tremendously.

“___ have gotten their gates and fences busted repeatedly. They finally had to acquire property near them to control access.”

“My uncle’s land is only ½ mile from BLM. They OHV users should be controlled more. They ought to stick to the roads. Sure they need a place to go, but they shouldn’t go anywhere that they want.”

“The desert environment is slow to heal. When some uses begin to degrade the environment, some controls need to be in place. OHV users and oil and gas roads are the worst. There has to be a limit to access.”

“OHV is banned. We have no manpower to manage the activity otherwise.”
[Navajo Lake State Park administrator]

“BLM did a great thing by designating the land south of town for OHV exclusive use.”

“There is lots of ORV use near my neighborhood [Choke Cherry]. It drives me crazy.”

Equestrian Uses

The North American Trail Riders Conference (NATRC) has a local chapter in Farmington that promotes equestrian access to public lands and various equestrian events. The local chapter organizes an endurance ride competition that attracts riders from throughout the region. They appreciate the Navajo Lake trail as the only one in the region that is well marked. They are still trying to get an easement through state lands for this trail. A tremendous amount of equestrian use is individual and network based, and not sponsored through horseback groups.

“We intentionally tried to keep the horse trails from motorcycles by putting logs across them and other obstacles. There is a lot of damage done to public lands mainly due to people’s ignorance.”

“A multi-use approach can work if everyone is willing to compromise.”

“There is a history of goodwill between horse people and the bicycle folks.”

“I can’t get tack around here and Santa Fe caters to English style riding. I have to go to Denver for tack.”

Mountain Biking

Friends of the Library in Aztec, along with town residents, created a motocross bicycle course on BLM patented land outside of town. They also helped create the Alien UFO mountain bike event up Hart Canyon that is now bringing in numerous visitors. A recent proposal has been to create a trail to link these two areas, providing people with both short and long term courses. The local bike store in Aztec reports visitors from Germany, Canada and California that participate in the race.

“We’d like to update our proposal to BLM to include a bicycle trail link from Aztec to the Alien Run to keep bikes off the roads.” [Friends of the Library]

“On Alien Run, lots of work was done by local folks—resource inventory, layout. Archeological students surveyed the trail for sites. A Boy Scout is surveying the area for flora/fauna. We’d like to have a kiosk with bathrooms and a shelter at some point.” [Friends of the Library]

Dirt bikes are popular, as is the BMX track at Riverside Park in Farmington.

“Bike trails are a diamond in the rough. This area could be a Moab if biking was controlled and monitored. There is lots of demand out of Colorado.”

“Bicycles ride on trails that are there. The four wheelers begin to widen an existing trail that has been used by bikes and motorcycles and they begin to do significant damage. They take off in other directions, create erosion, and then it’s an endless cycle that others start going down those trails and opening up more and more land. A good example is that McKenzie trail between here and Flora Vista where four wheelers are trying to go up narrow trails and doing lots of damage. The Road Apple is a narrow single track trail but the four wheelers are starting to widen that, tear it up.”

“We want to start thinking about a bicycle trail from Aztec to Durango. ___ and ___ are especially interested in that. They say they get lots of folks from Durango down riding.”

“Bicycles and OHV users share the same trails. There are problems, they can’t seem to work things out. There are lots of available trails. Maybe bicyclists feel they need more so OHV can go elsewhere. OHV riders try to be polite when passing them.”

“I think there is an effort currently to create a circuit race for Motocross north of Farmington. The second effort is east of Navajo Dam.”

“Horses make the trails for mountain bikers hard to ride.”

“Dirtbikers think everything out here is public land and they can go everywhere they want.”

Shooting

“When we are out and see problems, we don’t often feel safe confronting people who are shooting.”

“I’d like to see a shooting range built. I hate to pay at the private range.”

“Even though the Glade area is posted, we have heard or seen kids shooting there. It’s a big problem.”

“There are shooting problems. Sometimes the trails are not safe.”

“There is a need to have a place for people to shoot. Find a canyon with a good backdrop (dirt, not sandstone).”

Geographic Areas of Importance for Recreation

Several geographic areas have developed for public land recreation over the last several years, specifically, the Glade, the Dunes, and Piñon Mesa. Other areas are nominated for development below.

The Glade is a very popular area just north of Farmington. It is truly a multiple use area. On any day, evidence will be observed of horseback riding, mountain biking, motorcycles, four wheel drives, rock climbing and beer drinking. Many users commented with pride that the different interests accommodate each other so well. Most people felt that increased management of the Glade is called for and some designation of uses is necessary for the good of all.

“I like to jeep in the Glade. It’s nice to have that.” [government administrator]

“The other thing I really like about this area is the Glade. BLM is involved in that.”

“The ‘loop’ at the Glade needs better signs. If traffic flowed in one direction it would be better.”

There is enough acreage in the Glade for everyone, but people resist designation. They think, ‘If it’s public land, I should be able to do whatever I want.’”

“I’d like to see OHV use restricted in the Glade. They have done lots of damage there already.” [common]

The Dunes is an area south of Farmington devoted by BLM to exclusive OHV use.

“We fenced it because of nearby Navajo landowners, but the fences were cut.” [BLM staff]

“There needs to be more places like the Dunes.” [common]

“It would be good if BLM would blade the road at the dunes. The one going down from the top to the lower part where the best driving is.”

“Dune buggies are a pain there. They usually show up on a Sunday after church. Sometimes there are families in the washes playing when they suddenly appear.”

Piñon Mesa is a major area for public land recreation. Horseback riding, OHV use, mountain biking, and hiking are popular activities. The recreation community polarized some time back when a proposal was made by the chair of an equestrian group that Piñon Mesa be designated exclusively for horseback use. Users who had worked together for years were suddenly experiencing conflict because of this perceived win/lose proposition. Almost no one but the equestrian leadership supported this notion. Most people stated that there was enough public land that such exclusive use was not necessary.

“I do not think that Piñon Mesa should be exclusive use.”

“OHV people are just discovering Piñon Mesa. In a few years, it will look like the Glade or worse.”

Recreation Issues

Many users had the perception of undue damage being created by four wheel drive vehicles. The common pattern in the story is that four wheel drivers go up trails, widening them and causing erosion. Although praise was profuse for the four wheel drive clubs and their responsibility, many people also felt that the “rebel” or “renegade” influence was greater among four wheel drive people—that more four wheelers are not part of clubs and are therefore unrestricted, they go wherever they want on the land, and they cause more damage than other users.

“The rule of thumb about trespassing is...Anyone who goes to the trouble to ask won't cause much trouble or damage.”

“The whole area has lots of wells and roads leading to them. The oil guys have keys to these new locks and gates, you can see them during hunting season dressed in camouflage, driving their company trucks.”

Wildlife

“In the Glade, I never see animals. New areas should be done for hikers and animals. You see more wildlife when you have non-motorized uses.”

Roads, Closures, and access

“Some want less roads, some want more.”

“I have hunted and fished in La Jara Canyon since I can remember and now those lands east of the Navajo Reservoir are closed. Even if the forest is roadless, there is sometimes 10 miles of access that is also closed down. Why did the BLM agree to this?”

“There are lots of recreation people here, including oil and gas people. That's why people stay. Hunters, sportsmen, snowmobiling. If you close roads, it affects both oil and gas and recreation.”

“There are too many gates. We are getting closed out of public lands. It wouldn't be so bad if oil and gas people and others still get access so there is just as much traffic.”

“You will bump heads with fish and Game if you try to get rid of gates. They are always doing their 'habitat studies.'”

The cattle guards that were put in on bike trails in Piñon Mesa do not work. The cattle get their feet stuck in them.” [Photo A-1, Appendix A]

“I'm still young, and I don't mind closures and walking a little. It's good for wildlife and good for hunting. But my uncle has messed up knees and can't get around as well. We should leave some places open for older people. Maybe we should develop a master plan so I wouldn't have to listen to everybody argue about this when we get together!”

Staffing and enforcement

“BLM has no people to make this work. Some areas get too sandy and need reclaiming. The city and county should do a maintenance agreement.”

“BLM does enforcement in the Glade from 9-3. That’s not when the vandalism occurs. They are out at the wrong hours.”

“You can’t take your rig and trailer with motorcycles in these OHV areas, without having somebody busting the windows and vandalizing them.”

“Enforcement has got to get beefed up. We need people on bicycles patrolling, and we need Polaroid cameras out. We need to make it hurt to litter or dump.”
[city council person]

“BLM has one ranger covering a zillion acres. It’s not cutting it.”

Trash

“We don’t like the trash that ‘locals’ leave behind. We collect it and take it back to Colorado.”

“In the past you’d see beer bottles and cans, and you still do, but it was really bad before. People would drop their dump trash. Since the Glade has started being managed, it’s better. I think what has happened is the BLM has organized separate user groups and those user groups have done a really good job.”

Four Wheel Drives

“The only problem is between four wheelers and two wheelers. They don’t hear us coming and sometimes it can be a mess. Four wheelers widen the trail and it’s not nearly as good as when it’s only two wheels.”

“Four wheel drives create a big impact by trying to climb up cliffs, driving over trees. They’ve done a good job of identifying specific sites to go and they clean it up. They take out a lot of trash. The biggest impacts are the yearly competitions. Thousands of them all take their own vehicles, drive all over wherever they want, and they have a large impact on the land.”

“All users have a right to the land, but when you compare four wheelers to mountain bikers, bikes have a lot less impact.”

Segregated uses

“_____ is trying to get Piñon Mesa designated just for horses. We won’t allow it.” [OHV user]

“We don’t want to mix uses. Mountain bikers don’t feel safe when motorized is mixed with non-motorized uses.”

“I don’t see a need for segregated uses. There is so much land here that you seldom run into anyone.”

“_____ was designated exclusive for OHV use, but when BLM found some Indian settlers there they decided to give the land back to them.”

Shooting

“I go hiking a lot. One of my dogs looks like a coyote and as soon as I hear shots, which is a lot, I get right back in my truck and head for home. This happens most in the Glade.”

“We can’t afford to have someone shot at. We’ve got to let people know where the closest shooting range is.”

Trespass

“We have a big problem with people that come up the Glade onto our land. They sometimes shoot our cattle, cut fences, leave gates open, and leave their garbage. We closed their access through our land and they cut the fence and went around the mound we had placed. It’s frustrating. The bicyclists came up one day with the blessings of the BLM to install several cattle guards. They were poorly designed. Several of our cows tried to go through them and they got stuck [see Photo A-1]. We had to go out there to a very remote area where you can only get to by horseback to rescue them.” [rancher]

Management Opportunities

1. Create More Opportunity

“In the future, we will probably develop more sites. Piñon Mesa, Alien Run Mountain Bike event, and Rock Garden near Navajo Lake are likely candidates.” [BLM staff]

“BLM should create more recreation opportunities. Recreation is attracting people and adding to our economy.”

“We should identify special events and areas. Instill pride in public lands. Make it a four wheel drive mecca. Big signs to announce events and the community partners that made it happen. We haven’t done enough to instill pride.”

“Explore what other areas have done. As a runner, the best area I’ve seen is the TeeSali Recreation Area in North Carolina run by the Forest Service. It is well maintained set of two trails for non-motorized uses. Horses and bikes alternate days so that people can experience both sets of trails.”

2. Develop Some Segregated Uses

“I’d like to see segregated use for mountain bicycles so that I feel safer.”

“Get a close-in shooting range for some things, and a range farther out for ‘anything goes.’”

Move to “limited category” with OHV, meaning that some restrictions will be applied to OHV use on BLM lands.

3. Develop Collaborative Enforcement

“We need a hotline with an approximate location, description of the problem. And even if we can’t afford to have someone at the other end, someone could show up on Monday, log each call and follow through.”

“It would be nice to have a system that when someone is seen doing something inappropriate, they could be warned—not heavy on the stick but more like education.”

“There’s no place to call if I see someone. I always take a cell phone with me now when I’m biking, and I try reaching police if I see or hear shooting, or littering.”

“You know, citizen patrols are working with archeological sites. Why don’t we apply this to recreation?”

Explore with the prospects of a maintenance agreement with the city and county.

“BLM and the City of Farmington could develop a real marriage, not only in marketing the good things we’ve got going, but also in enforcement. We need to share that with BLM.” [city official]

“Develop a parking facility, like they one they have at Navajo Lake, with some security. People would be more than willing to pay to park their vehicle there, just so they’d know it is safe.”

4. Foster Education

Improve signage, informing people of where to go and what's allowed. A community-based effort with various recreation groups is especially appropriate in this regard.

"I'd like to see maps, showing the trails or signs at the trailheads with directions and designations."

"BLM needs to publicize the Dunes as a place for OHV to lessen their impact on other places."

"Educate on site through signs explaining things like cryptogamic soil, that seals on the surface, but when disturbed and cracked can easily erode. It's very slow to reclaim. Signs should encourage people to stay on the trails, where to take trash, and so on."

"The International Mountain Bike Association encourages good ethics on the land while riding. We are using those standards locally, and we are coordinating cleanup and trail maintenance. We give out the IMBA rules of ethics when we give out trail maps and brochures."

"BLM could take a more active role in public education. The rules need to be better publicized."

"Directional riding is becoming more important for safety. There's got to be better signs for people to know what's allowed and where to go."

Section Four: Public Interests Related to Land Disposal

Background

The BLM owns a substantial amount of land in the Farmington Human Resource Unit. Many parcels are located within the boundaries of the three cities or are close to the urban zones. At the least, these lands provide the first access areas for recreation; at the best, these lands could be used to foster reasonable and valued community development. Many parcels are isolated and difficult to manage. BLM has expressed interest in disposing of these lands if doing so would make a contribution to local communities. It has asked that the present study identify opportunities for creating a community-based alternative related to this question.

BLM has a variety of methods at its discretion for disposing of lands. Although people complain about how slow the process is, land exchanges have been used extensively. A second way is to offer property for sale on the open market at fair market value. Third, the Recreation and Public Purposes (R&PP) Act permits long term leases to government entities or nonprofit organizations as long as the transfer serves the common good. Benefit to a select group, or profit to a private party is not permitted. R&PP leases have been used often in the local area by BLM, including,

- The San Juan College;
- Section 25 north of the high school with the amphitheatre and bike trails;
- The sports complex by the BLM office;
- Many schools and parks;
- The City of Aztec acquired 520 acres east of the city where the motocross track is currently located.

In addition to land disposal, use rights are also granted. Rights of way are granted for particular purposes such as roads or pipelines, and trails have been designated for particular uses.

The history of land disposition has not always been positive. There was a proposal years ago for a land exchange north of Farmington in exchange with state land. Although it was determined to be a critical habitat issue, it failed to go forward when it attracted attention at national political levels. There is a current proposal for high end residential development with a golf course between Aztec and Bloomfield. Although BLM has contiguous land and could contribute to the quality of the project, the process for offering up the key BLM parcels for sale is too slow to be useful to the planning and implementation of the project. Other comments include:

“We wrote them a proposal in October but we haven’t heard back.”

“We asked to buy that little sliver of BLM land in our back pasture. We were told no, but we don’t know why.”

“There is a tone of hostility with BLM today. I get a good response from ____ _____. It’s internal somewhere. I don’t understand it. In the past, we could get a right of way in 6 months. Today it takes 18.”

On the other hand, a number of jurisdictions reported positive stories of land transfer.

“The BLM has been very responsive to the land needs of our district. In only one instance did they deny our application and then alternative sites were worked out. Our experience has been one of positive cooperation.” [school administrator]

“The city has a long track record of working collaboratively with BLM. Much of what is now the city used to be BLM land.” [city administrator]

Community Themes

The land use options under consideration by BLM are especially timely from a local point of view. The population growth of the last few years, sparked by increasing oil and gas production, a developing recreation and retirement economy, and a thriving retail trade, has increased the development pressure in the valley to levels never before seen. Two themes were repeatedly heard by our fieldteam related to land disposal.

1. “We only have 6%!”

In numerous conversations, people talked about “The 6%.” What people meant is that only 6% of county land is private—the rest is composed of BLM land, Indian lands or reservation, state lands, and some modest National Park Service properties [confirm]. People identified many issues related to this theme which are highlighted below.

2. “The ‘Z’ word is on everybody’s mind!”

A number of people made reference to the lack of zoning in the area. With increasing population pressures, many residents believe that some form of zoning is in the future. This discussion is sensitive politically because the strong rural traditions in the area correspond to attitudes of “Live and let live,” and “Don’t tell me what to do.” As a result, this topic was often referred to as “the z word.” Again, there are numerous issues related to this theme that are described below.

“Although we can’t mention the ‘z’ word, we hope that BLM will not just get rid of land willy nilly but as part of a larger context—it must contribute to the local picture.”

“High growth and lax rules are a formula for trouble. Officials are now talking zoning but they are doing it carefully.”

Community Interests and Issues

Development Pressures

“We have a lack of options plus a lot of pressure, which equals development along the Animas Valley toward state land. We are being forced into sensitive areas.”

“The river corridors are getting lots of pressure. BLM could help preserve open space along the rivers.”

“There is no private land and we need to grow.” [common]

“We are locked between the river and the reservation. We need room to grow.”

“With such a small amount of the county in private ownership, it is critical that BLM give land to cities and counties where we can reach agreement.”

“Our water users association needs a parcel for a future tank site. It is the 5900 ridge of Section 11.” [Flora Vista Water Users Association]

“The City of Farmington wants a 10 acre parcel near Crouch Mesa. There are a couple places we’d like access to public lands, in Section 25 and also on La Plata side by the river. We would maintain it.” [city official]

“There ought to be more places the public can get to the river and maybe the BLM could help out with that.” [Cedar Hill resident]

The Process is Too Slow

“The City is very interested in BLM land for a fire station and municipal staging area. BLM is taking 18 months to get through the process. It’s a little long for us. If the land trade could be done within two months, we’d save about \$45,000 just this year alone in state fire funds and ‘second headquartered’ funds.” [Bloomfield city administrator; a number of residents voiced support for this proposal as well]

“Land swaps are good but too slow.”

“We put in a proposal to BLM but we have never heard back. Are they overworked?” [community group]

Community Criteria for Land Disposal

In short, residents as well as local officials were clear in their agreement with BLM that certain lands could provide great value to local communities given present circumstances. In addition to a wish to expedite the process, residents and officials showed a clear preference for the criteria BLM should consider in addressing community interests. The suggestions that people voiced showed such a consistency that it may be that a draft consensus position has been offered that can be fine tuned with public meetings.

“I’d hope that BLM would take great care in identifying land not needed by them but valuable to cities. Working with the cities and other entities, the BLM could develop a plan that would benefit everyone.”

The criteria most consistently offered by residents and officials are as follows:

1. Retain agricultural lands and foster their preservation when possible;
2. Identify unique and special spots for preservation for future generations;
3. Preserve open spaces along river corridors, especially in areas of intense development. Some residents expressed a vision for recreational and open space corridors along the rivers between the cities, to which BLM could contribute; [common]
4. Schools receive first priority of public jurisdictions;
5. Other government jurisdictions, nonprofit organizations, and recreation groups could indicate their preferences based on a “higher public purpose;” [common]
6. Work with local neighbors to promote appropriate residential development in the triangle areas, especially focused around affordable housing;
7. Land offered on the open market is most appropriate for commercial and industrial uses along the Aztec/Bloomfield corridor;
8. Use the process to foster greater coordination and planning between the tri-cities and the county, especially appropriate given the “extra territorial” agreements between jurisdictions that are now in place.

For many people, further residential and industrial development in the “triangle areas” (formed by the highways between the three cities) is appropriate. Natural resource values are not high in the area and much recent development has already occurred. Not surprisingly, people within the triangle expressed reservations about further development near them, valuing the open space and relative quiet of these areas. Nevertheless, we believe these interests can be met within the citizen guidelines suggested here.

Some residents expressed worry that the “government is selling our land”, especially to private development interests. These people tended to be reassured when it was explained that only marginal and isolated BLM lands were being considered for land disposal options. Nevertheless, the rapid, emotional response of so many people on this point indicates that BLM should maintain ongoing dialogue with informal networks to prevent rumors developing about the intent of BLM’s effort.

With regard to land trades, many people felt that if BLM was trading lands, it should trade for lands with high value for recreation, historic/archeological properties, and so on.

Management Opportunities

1. Expedite current requests for R&PP leases, especially the City of Bloomfield for its fire station.
2. Have BLM staff present to the Tri-Cities/County Meeting of elected officials, held on an *ad hoc* basis every few months. This group has become more issue focused recently and is a great opening opportunity to begin the process.
3. The Regional Planning Forum meets about quarterly as well and involves the planning staffs and sometimes chief administrator for the three cities and the county. This is the group most likely to be responsible for getting agreements on paper. They should be informed and their participation solicited.
4. Engage in up to three public meetings in each of the three cities and the county. JKA can engage the informal networks in the community, while BLM staff can work with local government staff to listen to and respond to community concerns. The notion would be to get Xs on a map showing preferred land uses and to ensure that the best ideas have the support of neighbors.

Section Five:
Special Interests of the Navajo,
Environmental Voices in the San Juan Basin, and the
Challenge of BLM Management in a Community-Based Context

Navajo Interests Related to BLM Activities

Navajo people living in the checkerboard area belong to Eastern Navajo Agency chapters. They live in a dispersed settlement pattern in mobile homes, very small adobe type homes, and mud hogans. There is no electricity or running water in most of the checkerboard area. People heat their homes with piñon wood that they gather. Some of the homes are in disrepair, indicating hardship during winter months. The names of areas within the checkerboard area are not on local maps, but rather are part of the oral tradition of the people. Caretaking of the people through the clan structure is predominant. Local health officials report an increase in diabetes and asthma in recent years.

Navajo people are reportedly using land less than in years past. While they continue to live on their land, they are increasingly working at paid jobs in the area. Although animals remain important to them culturally, Navajos are reportedly shifting away from livestock and more to horses. As land gets divided up over time, more and more animals are on the land, creating intensified land use and damage.

A number of residents in the Farmington HRU expressed the belief that race relations are better than the last generation. The Anglo community has a perception that Indians and Hispanics are treated better and are better off economically than before.

“These towns would not be what they are if it wasn’t for Navajos. They make the largest consumer group in the region.” [church leader]

BLM Related Issues

Some the elders use BLM land to gather medicinal and ceremonial plants. They often find those sites destroyed because of oil and gas activities or because someone built a trail. The number one issue reported by Navajos related to federal lands is “drainage.” Drainage is when an oil company will drill on federal lands and drain oil or gas from under Indian owned land. This is considered common practice in the checkerboard area.

“We need to bring in engineers to determine the extent of the drainage and force those companies to pay a percentage of the royalties to those Indians who own the mineral rights.”

The second most reported issue is the lack of probates. Death is a taboo subject within Navajo culture. Oftentimes people die without wills and deaths are not officially recorded. Consequently, whenever there is a need to conduct legal business regarding the land or minerals, there is no record of who is still alive or who inherited the property or mineral rights. Alternately, marriage and divorce affects who is part of an allotment. Apparently, there is only one probate judge presently, located in Albuquerque, who is experiencing a heavy backlog of cases.

“This is a major problem that keeps people in poverty.”

“The allotment structure prevents affordable housing from being developed because if one of the owners wants to build, everyone in the allotment must agree.”

Other issues include:

“Wood cutting permits are a pain and they cost too much. No one is allowed to get wood during the months when our people need it the most.”

“I do not understand why BLM won’t allow us to get wood out of the mesas near Counselor. We need to be able to get wood during the winter months. The price for firewood permits is unrealistic for Navajos living in poverty. Perhaps the BLM could create a special program so that these permits can be given free to those who cannot pay.”

“The hunting we do on those lands should not be viewed as a sport but as a necessity. We hunt to eat, not for trophies.”

“If you don’t read or write, the government requires fingerprints and signatures of two unrelated persons. This is very disrespectful, especially to the elders of this community, since everyone here is related.”

“Water wells on BLM land need repair. Most of the windmills are broken.”

Oil and gas leasing on Indian lands is made problematic by the description of probate issues above. Approval for wells and the distribution of their benefits is difficult to obtain. The Farmington Indian Minerals Office (FIMO) reported good success in its outreach program to address these challenges. Oil and gas officials have reported trouble getting authority from the tribe for oil and gas development.

Environmental Concerns in the San Juan Basin

Organized Groups

Like other rural areas of the west, people in the Farmington area express strong values for taking care of the land, and there very few private organizations devoted to the purpose. In addition to government entities such as Natural Resource Conservation Service the following private organizations were contacted regarding concerns for BLM's land use planning process:

- The Four Corners Action Coalition and the Clean Water Coalition are the most local of environmental organizations. Organized to fight the Animas-La Plata Project, they brought together residents from throughout the region to advocate for water quality and quantity, wildlife and habitat values in the face of increasing water development. Their members are still active around oil and gas concerns and other environmental challenges of the area.
- The Oil and Gas Accountability Project in Durango, is associated with the San Juan Citizen Alliance that serves the entire San Juan Basin. It monitors oil and gas concerns, collects scientific information, and advocates for landowner rights and other changes in oil and gas policy.
- The Sierra Club does not have a local chapter but several residents are Sierra Club members.
- The Forest Guardians, based in Sante Fe, is a well known group in the region known for legal challenges to federal land use decisions. They have no local members or a field presence in northwest New Mexico, although its board is considering future staffing in the area because of oil and gas concerns.
- Riverside Nature Center conducts classes on natural history and guides tours of habitat areas. Funded modestly through the City of Farmington's Parks and Recreation Department, it is an educational voice on the environment.
- The San Juan College has a number of instructors with expertise in natural resources. They are consulted on a regular basis regarding their area of specialty and some have consulting businesses as well.

Members of environmental organizations feel outnumbered in a society they feel is overwhelmingly oriented to growth and production to the detriment of environmental values. They generally expressed the feeling that it is an uphill battle to create a balanced approach to resource protection or to voice too strongly their opinions.

“The Sierra Club was presenting information on the effects of uncontrolled growth. The mayor would not let them meet at city hall and they ended up meeting in the parking lot of the grocery store.” [local official]

Environmental Issues

Citizen issues related to oil and gas production and recreation are described in their respective sections.

Water

Like much of the West throughout its history, water remains an area of contention in the region. The Animas-La Plata Project was recently approved, after many years of debate and delay, to pump and pipe Animas water into the La Plata River. It was vigorously opposed by a number of citizen groups who are concerned about water quality and quantity with the project’s approval.

“The Animas-La Plata Project calls for pulling about 125 cfs but with adjudicated rights, the river will hardly be a dribble by the time it reaches Farmington” [member of Four Corners Action Coalition]

“The supporters of the Animas project ran these huge adds in the paper. It was a real blitz and politically we were left in the dust.”

“We like the new dam being built in Colorado. You have to understand that water is a rare commodity here. This dam will guarantee a supply of water for us during those months when water is hard to come by. Right now, that water is going to waste.”

My neighbors and I are concerned about the loss of water rights when farms are subdivided.” [common]

“Groundwater contamination is big in the valleys.” [public official]

“The county has no floodplain regulations. What happens as more gas wells are located on the valley floors?”

“The water is contaminated near La Plata and Hesperus. No one drinks the water, not even the cows.”

“Mercury contamination has people worried about not eating fish, especially bottom feeders. Sometimes trout is OK depending on where it is. There’s been a number of newspaper articles by Fish and Game.”

“I’m not worried about mercury, despite the signs. I read where you would still have to eat fish in great amounts to have a bad effect.”

“Last year, some neighbor came up and threatened to kill me because he thought I was using more water than I was supposed to. There are plenty of houses around here with bullet holes that tell the story.”

Air quality

“People have respiratory problems, allergies. They say the power plants put out lots of coal emissions.”

Roads

“Roads are identified as a major source of erosion.” [public official]

“I’m concerned about the road from Aztec to Navajo Dam. There is lots of erosion. It looks like a moonscape.”

“People get these permits to cut wood, but many people leave a real mess around, creating trash and fire danger. I think they are supposed to only cut dead wood, but I see fresh trees cut.”

“More roads means more access to archeological sites. BLM started an excellent program for volunteer patrol.”

Noxious weeds are of widespread concern in the Farmington HRU. Agriculturalists, Natural Resource Conservation Service, ditch companies, environmentalists, oil and gas industry representatives, and recreationists expressed the most concern. About seven species, four of which have no use to local birds and insects, are of critical concern. BLM has worked with industry and community groups to address this problem. For example, San Juan College and BLM recently collaborated on a fieldbook, identifying exotic species, *Four Corners Invasive and Poisonous Plant Field Guide*. However, no concerted effort in the community has yet emerged. A program for “weed warriors” among voluntary community members was developed but never funded. Solutions are not easy and require cooperation from diverse elements of the community to succeed.

Wildlife

“Wildlife has improved since I was a boy, I think largely because of Fish and Game management.”

“Our bald eagles are no longer there since the well went in.”

“There used to be a lot more wildlife. I don’t see as many deer and antelope. I hear a lot of shooting.”

Litter is of increasing concern to area residents.

“BLM lands are like most open land and are increasingly littered. It’s such a shame that people treat land as a dump.” [store owner]

“I try to pick up as much garbage as I can carry. There is no dumping fees at the landfill, so I don’t know why people choose to come here and dump their garbage.” [hiker]

The Challenge of BLM Management

Citizen Comments About the RMP Process

“We will have appeals and maybe lawsuits. Usually we get it on compliance—have the procedures been followed.” [BLM staff]

“We are going through the steps for the EIS [environmental impact statement], but no change will happen” [BLM staff person]

“We need communication! There has to be commitment to keep talking.”

“They can’t avoid hearing from citizens. Rather than minimize it, they should want as much [communication] as they can.”

“There is a leadership development group in the county—250 people have been trained. This [RMP] could be a good project for them—to host some forums, for example.”

“EAs [environmental assessments] are not objective. They are paid for by industry.”

“BLM might consider having a lay person write the document so that it’s readable. If not that, at least have a couple people that are not in government read it over and make suggestions for readability.”

“Hopefully, the RMP will demonstrate a need for natural gas. I hope it also taps the creative juices of BLM staff. Some of those folks are great, but I’m not sure they feel safe to speak up.” [citizen activist]

“Are the oil and gas working groups in violation of FACA [Federal Advisory Committee Act]? If BLM staff matched hour for hour contact with other kinds of people, it would be interesting to see what culture would develop.”

“I have heard that BLM is grossly underfunded to complete this play. I was told they may have \$1 to 1.5 million when in reality it would cost closer to \$5 million.”

“There needs to be some kind of newsletter, some feedback loop that BLM can let folks know that they are in progress with plan, updates.”

Positive and Negative Attitudes Related to BLM Management

“It’s a plus that BLM is going out into the community.” [common]

“It’s good that you are actually talking to people on the land.”

“Does BLM have ulterior motives [in sending you out here]?”

“It’s a positive shock to see that BLM is doing this [talking in the community].”

“BLM has been a plus here. They’ve really helped our group out.” [recreation interests]

“There have been a lot of problems with BLM personnel move and there’s no carry over to the next watch. Sometimes agreements don’t go beyond the individuals and that’s not right.”

“It’s so apparent that BLM needs money and staff. They are spread way too thin. It’s just expecting too much for them to manage all these acres in a sustainable way.”

“They are doing everything they can do, but they don’t have nearly enough people on staff to do the work.”

“Employment should be upgraded. They have people doing jobs for which they are not trained.”

“BLM got shot down by Dominici and others when they presented their fiber optic assessment, so they had to offer it for far less. As a result, the local private landowners were also not able to get a fair price. The cable company is effectively being subsidized for hundreds of thousands of dollars by the federal government.”

Citizen Issues with BLM

Lack of communication closure.

“Every time there is an EA [environmental assessment], BLM sends people around to get information, but it never goes anywhere.”

“We cattlemen and farmers offered to help monitor re-seeding and with overall compliance, but so far, we haven’t heard anything. We are still trying.”

“I never know who to talk to. I get an answering machine.”

“BLM was talking noise standards, but we don’t know where that went.”

“This office does not ask. They hold a meeting to tell you what they are going to do.”

“We propose to them but we never hear back.”

Lack of internal coordination.

“The BLM is warring itself. The right hand doesn’t know what the left is doing.”

“I have oil and gas issues but my real knock is with BLM. Their programs are too separate. They need internal change. I’ll be working with the range person and we notice some oil and gas related concern, he will refer me to those people. Then, it’s another set of calls and lots of time to get any response, if I get one at all. Staff should look at all of it. They don’t work together.”

“BLM can set range goals—they are going to treat a sage area, for example. They have me lay off cattle for two years, it’s looking good, ready to bring cattle back, and whoops, they drill a well. Or, you build a reservoir, improve the drainage, and then they make ‘head cuts’ up above and the drainage is all changed.”

Lack of balance.

“More attention should be given to other values besides oil and gas. The environmental changes are so significant—the loss of archeological sites. Reclamation is a big challenge. Seeding or planting trees in old disturbed roads or sites would be a great improvement. Overall, there needs to be greater sensitivity.”

[common]

Opportunities for Enhancing Community Responsiveness.

“BLM should get the present messes cleaned up before starting new ones.”
[common, referring to oil and gas production]

“BLM could help us market this area as having a great quality of life—lots of open space, the cost of living is reasonable, property taxes are cheap. BLM lands offer open space, clear skies, skiing, mountain biking. Farmington has happened in spite of ourselves.”

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Appendix A: Photographs of Land Use Issues of Residents



Photo A-1: A Hereford Trapped in a Bicycle Trail Cattle Guard.



Photo A-2: "Dog leg" on a water well that blew and kept leaking. Note the oil soaked sagebrush.



Photo A-3: Old, unremoved machinery.



Photo A-4: Old, unremoved machinery.



Photo A-5: Old pipeline corridor not re-seeded and experiencing erosion.



Photo A-6: Most roads are ungraveled, muddy and impassable sometimes, creating "make your own road" conditions.



Photo A-7: Another “make your own road” situation.



Photo A-8: Unauthorized road creation, stemming from gas site road, probably created by gas field workers, hunters, or other recreationists.



Photo A-9: Unremoved concrete blocks, discarded after use.



Photo A-10: Leaks from equipment at a well site.



Photo A-11: Unidentified chemical residue from unauthorized dump site.



Photo A-12: Cattle in chemically infested sage near a well site.



Photo A-13: An active 'open pit' for the storage of liquid waste, along with leaks on the ground.



Photo A-14: An unreclaimed open pit used for storing liquid. The fences around them are often disturbed and open to intrusion.

Appendix B:

Seven Cultural Descriptors Used in Community Assessment

Publics: Segments of the population or a group of people having common characteristics, interests, or some recognized demographic feature. Sample publics include agriculturalists, governmental bodies, homemakers, industries, landowners, loggers, miners, minorities, newcomers, preservationists, recreationalists, senior citizens, small businesses and youth.

Networks: A structured arrangement of individuals who support each other in predictable ways because of their commitment to a common purpose, their shared activities, or similar attitudes. There are two types of networks, those that are informal arrangements of individuals who join together as a way to express their interests, and those that are formal arrangements of individuals who belong to an organization to represent their interests. Networks functioning locally as well as those influencing management from regional or national levels are included in this descriptor. Examples of citizen networks include ranchers who assist each other in times of need, grassroots environmentalists with a common cause, or families who recreate together. Examples of formal organizations include a cattlemen's association, or a recreational club.

Settlement Patterns: The distribution of a population in a geographic area, including the historical cycles of settlement. This descriptor identifies where a population resides and the type of settlement categorized by its centralized/dispersed, permanent/temporary, and year-round/seasonal characteristics. It also describes the major historical growth/non-growth cycles and the reasons for each successive wave of settlement.

Work Routines: The way in which people earn a living, including where and how. The types of employment, the skills needed, the wage levels, and the natural resources required in the process are used to generate a profile of a population's work routines. The opportunities for advancement, the business ownership pattern and the stability of employment activities are also elements of this descriptor.

Supporting Services: Any arrangement people use for taking care of each other, including the institutions serving a community and the caretaking activities of individuals. This descriptor emphasizes how supporting services and activities are provided. Commercial businesses, religious institutions, social welfare agencies, governmental organizations, and educational, medical and municipal facilities are all examples of support services. Caretaking activities include the ways people manage on a day-to-day basis using family, neighborhood, friendship or any other support system.

Recreational Activities: The way in which people use their leisure time. The recreational opportunities available, seasonality of activities, technologies involved, and money and time required are aspects of this descriptor. The frequency of local/non-local uses of recreational resources, the preferences of local/non-local users, and the location of the activities are also included.

Geographic Boundaries: Any unique physical feature that defines the extent of a population's routine activities. Physical features generally separate the cultural identity and daily activity of a population from those living in other geographic areas. Geographic boundaries include geologic, biologic, and climatic features, distances, or any other characteristic that distinguishes one area from another. Examples of geographic boundaries include topographic features that isolate mountain valleys, distances that separate rural towns, or river basins that shape an agricultural way of life. Geographic boundaries may be relatively permanent or short-lived; over time, boundaries may dissolve as new settlement patterns develop and physical access to an area changes.

Source: Kent and Preister (1999). This methodology has been utilized for over 25 years by James Kent Associates, Aspen, Colorado, and its organizational predecessor, The Foundation for Urban and Neighborhood Development, Denver, Colorado.