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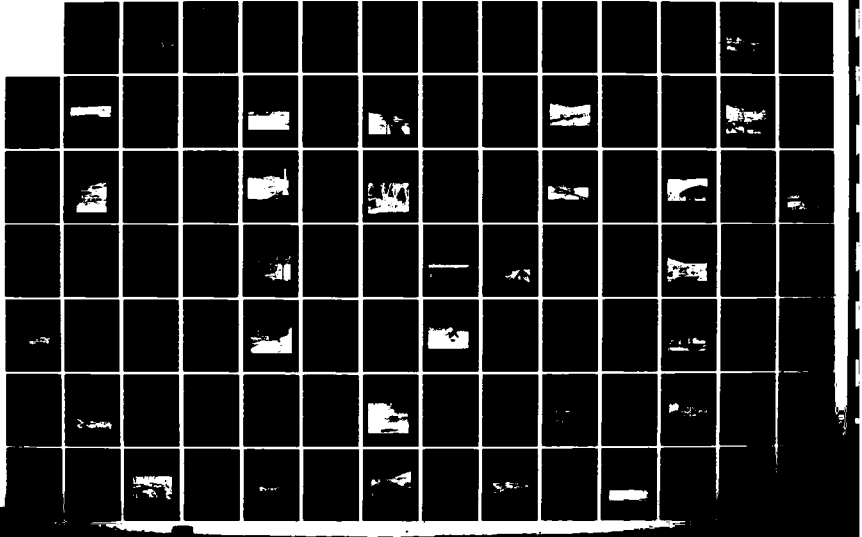

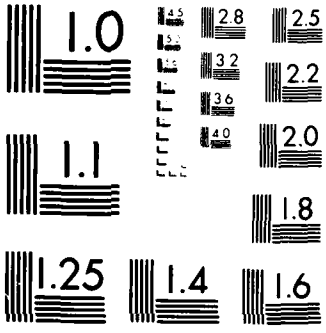

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M-X/MPS

ENVIRONMENTAL

TECHNICAL REPORT

PRELIMINARY FEIS

REVIEW COPY 2 OCTOBER 1981

ETR 35

QUALITY OF LIFE

DEPLOYMENT AREA SELECTION AND LAND WITHDRAWAL/ ACQUISITION

DEPARTMENT OF THE AIR FORCE

A149 924

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M-X ENVIRONMENTAL TECHNICAL REPORT QUALITY OF LIFE

Prepared for

United States Air Force
Ballistic Missile Office
Norton Air Force Base, California

By

Henningson, Durham & Richardson, Inc.
Santa Barbara, California

REVIEW COPY OF WORK IN PROGRESS

2 October 1981

DEPARTMENT OF THE AIR FORCE
WASHINGTON 20330

OFFICE OF THE ASSISTANT SECRETARY

Federal, State and Local Agencies

On October 2, 1981, the President announced his decision to complete production of the M-X missile, but cancelled the M-X Multiple Protective Shelter (MPS) basing system. The Air Force was, at the time of these decisions, working to prepare a Final Environmental Impact Statement (FEIS) for the MPS site selection process. These efforts have been terminated and the Air Force no longer intends to file a FEIS for the MPS system. However, the attached preliminary FEIS captures the environmental data and analysis in the document that was nearing completion when the President decided to deploy the M-X system in a different manner.

The preliminary FEIS and associated technical reports represent an intensive effort at resource planning and development that may be of significant value to state and local agencies involved in future planning efforts in the study area. Therefore, in response to requests for environmental technical data from the Congress, federal agencies and the states involved, we have published limited copies of the document for their use. Other interested parties may obtain copies by contacting:

National Technical Information Service
United States Department of Commerce
5285 Port Royal Road
Springfield, Virginia 22161
Telephone: (703) 487-4650

Sincerely,

JAMES F. BOATRIGHT
Deputy Assistant Secretary
of the Air Force (Installations)

1 Attachment
Preliminary FEIS

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1.0 INTRODUCTION

In recent years QUALITY OF LIFE has been used as an umbrella concept to describe personal satisfactions and concerns with the total setting in which we live (Liu, 1975). The aspects considered are far reaching, encompassing physical elements such as air and water quality; ecological factors such as habitat for mammals, birds, and fish; economics, including opportunities for employment; politics expressed by access to political influence and decision making; and social elements dealing with family life, health services, and opportunities for leisure and friendships. All elements in this total setting are continually changing as a result of natural processes and human actions. As Heraclitus stated, "There is nothing permanent except change."

Under ordinary circumstances we may not be conscious of the changes affecting our quality of life until they reach threshold levels, in which case they become readily noticed. We may not be aware that the community is growing until new stores open and dwellings are built on the outskirts of town. We may not perceive that the water quality of streams is changing until we hear fishermen talk about the lack of fishing success. Aware of these changes, our sense of the quality of our lives changes. In the examples above, as consumers we may consider the addition of more stores as an improvement, but fishermen will undoubtedly view the reduced catch with dissatisfaction. Yet the element that led to more stores--population growth--probably also caused changes in water quality of fishing streams. Thus changes can generate trade-offs between elements affecting quality of life.

Occasionally an action is proposed which has the potential for generating large, rapid and dramatic changes in the elements that influence quality of life. This prospect is presented by the proposal to construct the M-X missile system. The purpose of this appendix to the M-X Environmental Impact Statement (EIS) is to identify how the M-X project could affect people's sense of their quality of life.

This Environmental Technical Report (ETR) opens with a discussion of change processes so as to provide a framework for understanding the effects that construction and operation of the M-X is likely to induce in quality of life. In the first section, the interrelationships among changes, and their effects on quality of life are described conceptually, with the aid of a diagram. Since the effects on quality of life are likely to vary from social grouping to social grouping, Section 2 presents a brief overview of the major social groupings to be affected directly by M-X. Most of these people, regardless of social grouping membership, live in rural areas. Therefore, in Section 3 there is a discussion of quality of life in rural areas. The rapid population buildup that the M-X program would generate, especially in rural areas, constitutes a special case of rural social change and development which has become known as the "boomtown" phenomenon or "boom-bust" cycle. This is discussed in Section 4. Selected data are presented to describe the social conditions that presently exist in the areas which might be chosen for the M-X program. The effects of the M-X program on social change processes and quality of life in these various areas are examined in Sections 6 and 7. The broad institutional mechanisms for developing effects management programs to mitigate adverse impacts of M-X and heighten beneficial impacts are considered in Section 8.

1.1 CHANGE PROCESSES, EFFECTS, AND QUALITY OF LIFE

Numerous effects and changes will undoubtedly occur as a result of the introduction of a new action or phenomenon--in this case, the M-X--into the social, ecological, and physical elements of which a system is comprised. The changes spread through the various elements in the system like a chain reaction. In the case of M-X, effects would be initiated by construction, operations and maintenance activities, changes in land ownership and management, new employment opportunities and resulting population growth.

A variety of quantitative indicators in both natural and social sciences have been developed to measure changes or effects. For example, ecological indicators include counts of wildlife populations per land unit while physical indicators measure chemicals in water. For further discussion of ecological and physical indicators, see the Comparative Analysis of Environmental Consequences, Chapter 4 of the FEIS and other FEIS ETRs. Commonly used social indicators include median years of schooling, infant mortality rates, median household income, number of doctors and dentists per 1,000 residents, median age, the ratio of men to women, crime rates, suicide rates, and the ratio of students to teachers.

Social indicators are practical for measuring social change and effects because they are based on data that are routinely collected and made available by the U.S. Bureau of Census and other government agencies. Of greater importance, the collection of social indicator data is based on accepted and comparable methodologies. This means that social indicator data from different parts of the country and different points in time can be used for comparing the effects of different influences.

Social indicators must be used cautiously because they have limitations. They do not readily capture systemic aspects of social change. For example, a school district with 500 students can have the same student-teacher ratio as one with 10,000 students. However, a smaller school district usually has fewer administrative staff, and less diversity in curriculum and extracurricular activities than would a larger school district. The use of the student-teacher ratio to measure social change in a school district resulting from increased enrollment does not reflect expansion of the administrative staff or possible program changes.

The systemic aspects of change not reflected in indicators can be illustrated by an example which shows how the potential for a physical change can lead to a social change. An area that experiences population growth and related increases in activities that can affect air quality may not experience significant changes in air quality IF its government chooses to offset the increased air pollution through regulation of pollution. Neither social indicators measuring phenomena like traffic levels nor physical indicators measuring aspects of air quality would verify the possible adoption of new programs for maintaining a certain level of air quality. Yet the adoption of such programs and regulations constitute a social change. New positions would have to be created to implement programs and enforce the regulations, and local citizens would have to adapt to them, either by complying with them or by developing means to evade them.

To compensate for the fact that indicators do not show underlying system changes, a diagram will be presented that displays very general change processes,

PUBLIC COMMENT ON THE DRAFT EIS:

"The human and social impact on the environment here is going to be in the nature of a tremendous boom-bust that will severely overtax the services of this region, not only the large cities here like Amarillo and Lubbock, but also in particular the smaller cities and smaller towns around the countryside. We also believe that the natural environment here is going to be practically devastated." (B0683-1-004)

focusing mainly on social changes (for ecological and physical changes, see the appropriate appendices). It is intended to create an awareness of broader systemic social changes that are likely to be induced by M-X, and which underlie possible population changes, the details of which are discussed in Section 6.

Another aspect of social indicators is that they cannot be used to evaluate change. Changes or effects generated by major actions such as construction of the M-X system are neither "good" nor "bad" in and of themselves. There are no absolute or universal standards for evaluating social change as mirrored in social indicators. Evaluation depends upon the values, perspectives, and purposes of the evaluator.

Although there may be a very high degree of consensus that lowering infant mortaility rates is "good", not everyone is likely to agree that increases in median years of schooling is "good". Further, one cannot conclude that a population with more schooling is necessarily more satisfied, content, or "better off" than a population with less schooling.

One way of evaluating effects is to use the "Quality of Life" concept which can describes people's perceptions and feelings about social, ecological, and physical changes. This requires identifying the meanings that changing conditions have for the various population segments in an impact area.

Evaluations of quality of life may be as varied as the social groups living in an impact area. Social groups are usually described by their ways of life, elements of which include occupations; levels of income; religion; ethnicity; kin, community and friendship interaction patterns; leisure and consumer patterns; and values.

The quality of life concept presented here is similar to the definitions used by various scholars (e.g., Hornback and Shaw, 1973). One of the most widely publicized definitions states ". . . what constitutes one's quality of life in both a physical and psychological sense must be related to the extent of meaning and satisfaction produced by one's existence in an organized human society" (Liu, 1980). Essentially, the quality of life concept transforms changing conditions into evaluative statements by various social groupings. To state the matter on a more personal level, the question underlying quality of life is, "How would all the changes generated by M-X affect my way of life, level of satisfaction, and other things that are important to me?"

1.2 QUALITY OF LIFE IMPACTS DIAGRAM

Figure 1.2-1 graphically displays how construction and operation of the M-X missile system would generate changes in community elements. The prospective changes would be evaluated by various social groups in terms of their ways of life, aspirations, goals, etc; and how they might change if the M-X is constructed in their area.

The quality of life impacts diagram is composed of two major components: baseline conditions and project conditions. Both of these are vital to the analysis of impacts.

Baseline conditions reflect what the potential project areas would be like if M-X is not built, and considers social, physical, and ecological settings, all of which

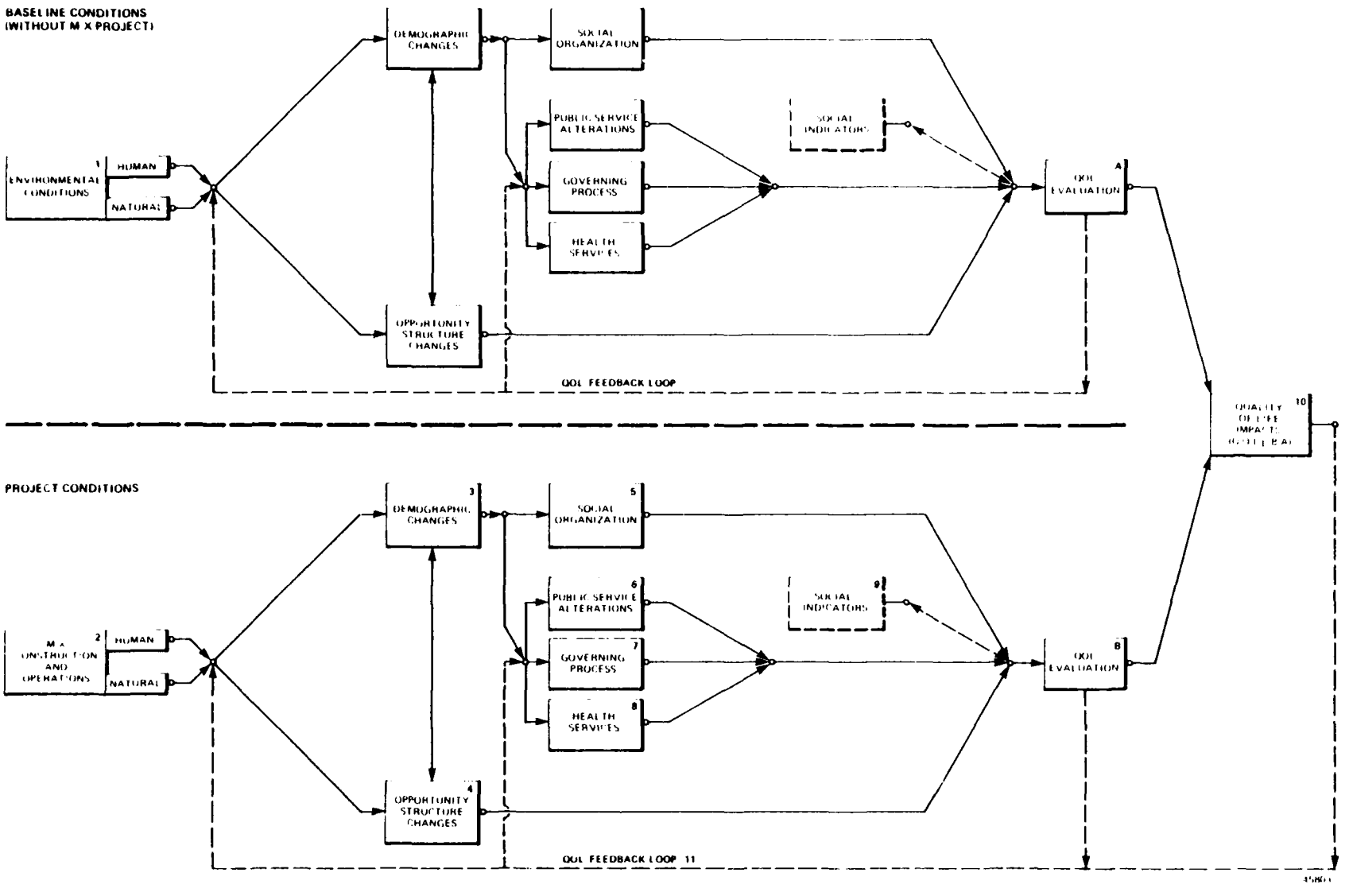


Figure 1.2-1. Quality of life impacts diagram.

PUBLIC COMMENT ON THE DRAFT EIS:

"To those of us who live there (Nevada), it is a land of spectacular beauty, vast skies, towering mountains, the magnificent vistas. It provides opportunities to be with nature, which is a prime value for many of our residents." (A0975-2-054)

are subject to quality of life evaluations by the people living there. To the extent that people choose to act on their own evaluations, a feedback loop occurs (from right to left) which affects baseline conditions. The actions can occur on an individual household level when, for instance, families choose to engage in more outdoor recreation; which has implications for ecological and physical elements, as well as sales and service activities, outdoor recreation managers and other outdoor recreationists. The actions can occur at a group level as people organize to influence local government to do something about an issue or problem.

Baseline conditions do not necessarily remain static over time. Population, land use, water usage, and many other elements are always likely to change in a given area. Baseline conditions are meant to reflect these changes and to show the most probable conditions at future points in time and to provide reference points to measure and evaluate changes that will ordinarily occur.

The lower half of the figure presents the elements of interrelated change that would be effected by M-X construction and operation, and affect quality of life evaluations accordingly. Deployment of M-X would lead to short-term construction-related activities, and long-term operations and maintenance activities. Construction activities would lead to land use changes, and provide employment opportunities which in turn would attract many workers to the area. The influx of workers would increase population within the towns and counties in construction impact areas. In turn, population increase would change the existing social structure and social groupings, and place more demands on public services, health services, and the governing process. Some of the social changes resulting from increased population and increased demand for services can be measured by social indicators.

Occurring simultaneously with changes in population are changes in "opportunity structure". This means opportunities available for land use, and use of the physical environment for activities like recreation, water usage, etc. Changes in opportunity structure also occur in ecological settings which lead to other changes, which will be discussed in greater detail later. At this point it is well to reiterate that opportunities may be positive or negative. The changes likely to be induced by M-X throughout the system constitute effects which can be evaluated by various social groups in the area from a quality of life perspective.

The last component of the project conditions portion of the figure is a feedback loop from quality of life evaluations to other elements in the model. If M-X construction is initiated, it is likely that much of the feedback loop will consist of actions directed at enhancing potential desirable effects of M-X and dampening or mitigating potential undesirable effects. As noted, the judgments of which potential effects are desirable and which are undesirable come from the unique quality of life evaluations made by the social groups in the immediate area.

1.3 ELEMENTS OF QUALITY OF LIFE IMPACTS DIAGRAM

In this section, the various elements in the "project conditions" portion of Figure 1.2-1 are discussed in greater detail. To facilitate the discussion, each element in the text has been assigned a number corresponding with the numbers in the diagram.

Item 3: Demographic Changes refers to the changes in the number of people living in an area, and changes in the redistribution of a population's social characteristics. These characteristics cover a wide range of variables such as age, sex, birth and death rates, occupation, income and education.

Changes in size of population reflect changes in birth and death rates, and numbers of people migrating into or out of an area. Construction of M-X would generate significant demographic changes. There will be population shifts within the construction period as segments of the project are completed and others started. As construction activities build up over several years, newcomers would migrate to impact area towns and counties to seek new jobs. As construction activities wind down, and the M-X system moves into an operations phase, two types of demographic trends would occur. In areas containing the newly constructed Air Force M-X operating bases (OB areas), population would decrease as construction workers leave. However, the remaining population would be greater than it was before M-X construction, because of increases in employment stimulated by M-X operations and maintenance. In areas which contain only the missile shelters (DDA areas), population would greatly decrease to near pre-M-X construction levels with the exception of those areas serving support centers, unless other activities, unrelated to M-X occur to stimulate population growth.

The significant population growth to be induced by M-X would affect other elements, such as water supply and air quality, public services and social organization (see Item 5 for definition). The character of these effects depend both on numbers of newcomers and their social characteristics. For example, the marital and family status of newcomers would influence increases in demands for different types of housing and schooling.

To the extent that social characteristics of newcomers differ significantly from those of the resident population, an impact area would experience changes in its social organization. For example, an area with a high proportion of employed husbands and wives is quite different from an area where mainly husbands are in the labor force. An area in which the dominant occupations are related to agriculture is quite different from an area where the dominant occupations are related to wholesale and retail trade and other industries. These differences would ripple throughout the system. For example, in the governing sphere, it is possible that newcomers may bring different political orientations which could change the character of local politics.

Item 4: Opportunity Structure Changes (OSC) are associated with a change (increase or decrease) in population that produces a new mix of opportunities for all the people in an area. Changes in opportunity structure are affected by changes in the number of people as well as changes in demographic characteristics like age, marital status, income, etc. For example, if newcomers consist mainly of single people, they would create a demand for a different mix of opportunities than the mixture demanded by married people with children. For purposes of analysis, the OSC are separated into basic components: economics, recreation, aesthetics, religion, land-use, ecological and physical elements. Each of these will be discussed briefly.

Economic opportunity changes would occur when M-X construction creates a demand for labor through creation of new jobs and occupations. Since local labor

PUBLIC COMMENT ON THE DRAFT EIS:

"How will poor people, the elderly and others on fixed incomes be able to compete in the frenetic market place created by the boom of construction. In one of the greatest petroleum producing parts of our nation we are well aware of the problem of booms. Boomtowns are not peaceful stable places in which to rear families or carry on life. The way of life in this region centers predominately on agriculture, but your study reveals a very limited understanding about the basic day to day and year to year operations of the average wheat, corn, milo or cotton farmer. Farmers in these days and times are strapped. Many are mortgaged to the hilt." (B0626-0-008)

can only fill a small proportion of the demand, a net in-migration of workers from other parts of the country would be required to satisfy the imbalance between local labor supply and aggregate labor demand. Labor migration has numerous implications for local and regional economies such as opportunity for diversifying retail trade.

The new jobs induced by M-X present new employment opportunities for an individual or a group but may result in hardship for the community. Public comments on the Draft Environmental Impact Statement have accurately identified the problem of public service workers, and other types of workers in the local area, seeking economic opportunities by taking higher paying construction-related jobs. This would leave the community with the problem of finding replacements for existing jobs in a context of scarce labor supply.

Opportunity structure changes may occur in the ways in which people can enjoy the recreational resources of their environment. For example, a population increase may induce development of parks, bowling alleys, swimming pools, community centers and other recreational facilities. But it is possible that some facilities would become overcrowded or degraded in quality because of increased use by more people.

Aesthetic changes may occur in the opportunities people have to enjoy nature, the arts, and architecturally pleasing buildings. The scenic beauty of an area may change, be enhanced, or adversely impacted through land-use changes such as new housing construction in undeveloped natural areas. Positive changes may occur through increased opportunity to attend theater, musical events, and museums. But there is also the likelihood of the introduction of entertainment establishments that are not in keeping with an area's standards of taste and beauty.

The opportunity for different religions to have congregations in an area would change as a result of population growth. This would be especially the case if newcomers were much more diverse in religious preferences than the resident population.

Land-use Opportunity Structure Change would arise initially from withdrawal of public lands and some purchase of private lands for project use. Conversion of grazing and agricultural lands into an operating base and deployment area for the M-X program would change land use patterns in the countryside. The influx of labor would stimulate demand for more residential, commercial, and recreational uses of land in and near existing communities. These demands would also change existing land use patterns and opportunities.

These new land uses would serve to intensify existing concerns for more effective land use planning and management procedures. Some of these land use procedures would be associated with the proposed project mitigation plans. Others would be developed by local, county, and state land planning agencies to meet various needs.

The effects on land-use opportunity structure would be varied. Local planning and zoning regulations, when properly organized and implemented, could benefit community residents. People's attitudes toward local land use regulation differ, ranging from bitter opposition to ready acceptance. These attitudes would influence how they experience changes in land use opportunities.

PUBLIC COMMENT ON THE DRAFT EIS:

"I am opposed to locating the M-X missile in this area because of the adverse effect it would have on our way of life and the financial security that we now enjoy. I have not found anything concrete in the impact statement that assures me our taxpayers will not be saddled with long-term indebtedness to pay for the facilities needed during the boom phase created during the construction period. Our city owes its existence to the agriculture interests of this area. As mayor, it therefore becomes my duty to resist any action that is not in the best interest of agriculture. Until recent days I have not been opposed to split basing, but I now believe that either alternative, seven or eight, would create economic conditions that many of our farmers could not survive. Inflation and the high cost of energy have already put our farmers in a very precarious situation and to make them compete for high priced labor and supplies would be more than our farmers could withstand. It is evident to me, after studying the impact statement, that the welfare of our farmers has not been given a very high priority. We are as patriotic and as concerned with the security of our country as anyone else, but as in the case of the Russian grain embargo, we don't believe the farmers of this area should be asked to contribute more than their share." (B0470-3-001)

Opportunity structure changes may occur within the ecological setting. Project construction would create changes in plant and animal communities and their interrelationship with human communities. Detailed explanations of these changes appear in the appropriate ETRs. These interrelationship changes would stimulate or trigger opportunity structure changes in baseline conditions. Behavioral patterns would be affected.

Increases in user group demands on game populations would occur. State and federal wildlife and vegetation management programs may become more restrictive in order to protect animal and plant communities. Hunting seasons may be shortened, and the number of hunting permits may be reduced.

Opportunity structure changes may occur in the physical environment under project conditions. For example, construction activities may increase the incidence and density of particulates and gaseous emissions. The implication for the human environment is that people may have less opportunity to enjoy the air quality of a desert environment.

Item 5: Social Organization refers to the pattern of human relationships among individuals, family members and social groupings in an area. These relationships are based upon roles of parent, friend, hunter, community leader, elected official, banker, good neighbor, and so forth. Social organization is also based on norms and shared meanings and understandings which give a degree of regularity and predictability to social interaction.

An area's social organization can be described by its major social groups. A social group consists of persons and families with similar ways of life based on their beliefs and values; racial, religious and ethnic backgrounds; occupations and income; leisure patterns and similar interests. Typically, an area's social groups are known by a few charcteristics of their dominant members. Thus there is "the Old Guard", made up of families who have lived there for many generations and may still be highly respected and influential. Another group typically consists of "the merchants who run this town". They tend to be reasonably well off, and are active in service clubs and other organizations. Other typical groups derive their names from racial, religious or ethnic characteristics, or from their occupations like "the miners", or "the ranchers". Some groups derive their names from social class position, like "the working class". Also, typically in any area, these groups are ranked by the local population according to their level of economic, political, and social influence. This ranking constitutes the core of social organization.

The many newcomers in-migrating to various M-X impact areas have the potential of changing local social organizations because they may bring different ways of life and be unfamiliar with local norms. New social groups may be created, like "the construction workers", "new business people" and so forth. If the new groupings choose to become active in local social and political affairs, they are likely to affect the course of these affairs. Some newcomers might seek acceptance by an existing grouping. Even though acceptance is usually based on conformity to a group's norms and values, the potential exists for a newcomer to introduce new ideas. Whether newcomers are absorbed into existing social groupings or create groupings of their own, the process would change an area's social organization. These changes would affect other system elements.

The effects of M-X construction on social organization are likely to differ for the designated deployment areas (DDA) and operating base areas. In the DDA, the greatest changes in social organization would occur during the construction period. In the postconstruction period, after construction workers leave, social organization may return to what it was in the preconstruction period, provided there is no other activity to stimulate population growth (Murdock and Leistritz, 1979). In the OB and support center areas, however, M-X-related changes in social organization would still continue after construction workers leave because of newcomers who take jobs stimulated by M-X operations. These in-migrants, representing other social groupings, probably would be committed to a longer term of residence in the locality. Their presence would generate changes in the social organization which could be different from that experienced in the construction phases.

Item 6: Public Service Alterations: An increase in the numbers of people living in an area would place new demands upon the public sector. To the extent that state and local governments are responsive to these demands, new services would be provided, and older services would be augmented. Existing school buildings may be renovated and new ones built. In some small towns both high school and junior high are combined in the same building. If the population increase is sufficient to justify a separation of the two levels of education, new school buildings may have to be built.

An expansion of public services would create a need for more administration and greater diversity of services. Consequently, libraries, hospitals, social services and other types of public services may add more departments. This would increase bureaucratic hierarchy and the number of people employed by government.

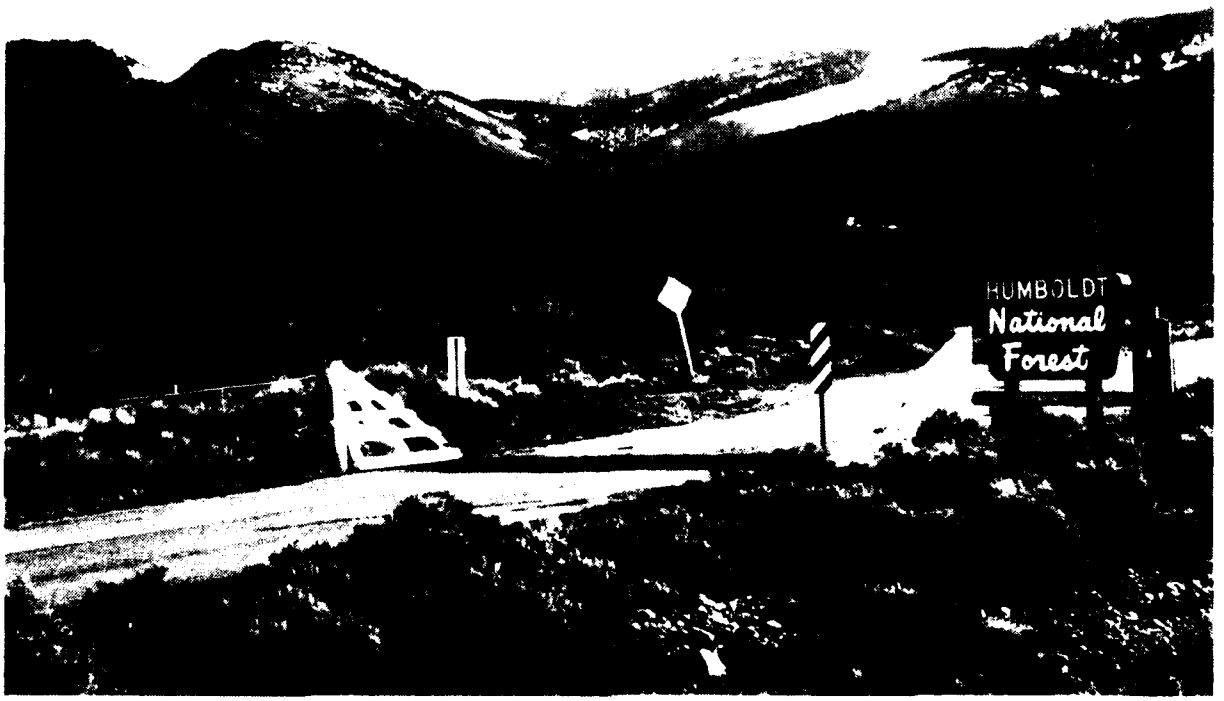
The expansion and adjustment of public service activities that the M-X program stimulates would be undertaken by appropriate local govermental agencies. These agencies would receive technical assistance through the Office of Economic Adjustment (OEA) in the US Department of Defense. OEA is responsible for helping to mitigate the socioeconomic effects associated with Department of Defense activities. This institution is discussed in more detail in Section 8.

Item 7: Governing Process: Many changes may occur in the patterns and processes of government as a result of population growth. New regulations, laws, ordinances, etc., may be instituted to maintain stability and order. These in turn would require implementation and enforcement. The government may change from volunteer elected officials and part time staff to paid elected officials and a full time staff of professional planners and administrators. Such expansions and changes would also occur in judicial systems and law enforcement agencies. In each case the extent and type of change would be undertaken at the appropriate local, regional, or state level of government.

Item 8: Health Services: Increased population would place greater demands on local government and private resources to alter the level of health services. To the extent that health facilities are publicly owned, the public health services and facilities probably would be expanded under appropriate programs to accommodate the increased population. In some cases private hospitals, clinics, and health facilities may be built and operated through private ownership. Some of these changes may lead to augmentation of existing health services, like the addition of more medical specialties and diversified equipment.

PUBLIC COMMENT ON THE DRAFT EIS:

"So like I say, I'm here today. I love all of you people. I love this planet earth. I love all the animals and the trees. I was out at three in the morning because I was thinking about this thing. I went up by the old museum we got and looked around at this nice area, this land we got here. It's really beautiful. I hate to see it get destroyed." (B0389-5-008)



Item 9: Social Indicators are selected statistical data describing the demographic, economic and social characteristics of an area. Both public agencies and private businesses can use the data to help plan the expansion of services, housing and business. A Chamber of Commerce could use the indicators to publicize development--like increases in employment, investment capital and so forth. News media could use the data to highlight the more dramatic changes like increases in crime rates and short-term imbalances between demands and resources, as well as other aspects of community activity to help people understand the change processes.

During construction of the Alaska Pipeline, Fairbanks' citizens developed an innovative approach to the collection and use of social indicators. A Pipeline Impact Information Center was established which functioned as as clearing house for the collection of social indicator data. The center collected data from other agencies regarding matters such as school enrollment and use of health services. Its own staff monitored information on matters such as retail and housing prices. This information was published in monthly newsletters and sent to anyone who wished to receive it. Through these activities the Fairbanks information office was able to provide a fairly accurate balanced overview of some of the changes that the city was experiencing. The information helped control rumors, gave people a framework for thinking about effects, and provided an information base to help people plan their activities (Dixon, 1978; Fison and Quisenberry, 1977).

State and local governments in the M-X impact areas would probably adapt their usual policies for collecting social indicator data to monitor the ongoing social effects of M-X construction and operation activities. These data would provide an information base for adjusting mitigation activities to the level of effects being experienced.

Item 10: Quality of life is an umbrella concept for describing a person's satisfactions and concerns with his or her way of life and the context in which he or she is living. The occurrence of social, physical, and ecological changes has the potential of changing quality of life evaluations among the various social groupings living in an impact area.

The process by which social groups make quality of life evaluations are not sufficiently well known to make general statements about how quality of life evaluations might be affected by change processes. For example, a social group may obtain better paying jobs as a result of a project, but their children may report dissatisfaction with their school situation. In this case, does the social group's evaluation of their quality of life increase, decrease, or stay the same in comparison to baseline conditions? We don't know what trade-offs people might decide to make. Furthermore, we don't know how the trade-offs might vary from one group to the next. To provide insight into these matters, some key findings from recent sociological studies on quality of life effects will be summarized. These findings provide a framework for thinking about how the changes induced by the M-X project could affect quality of life evaluations.

A study by William Freudenburg (1980) shows that an increase in social problems, as measured by certain social indicators, does not influence overall quality of life evaluations. Freudenburg conducted social surveys using scientific random sampling methods in four small towns in Colorado. One town was Craig, Colorado where population had doubled from 5,000 to 10,000 in a few years because

of construction of a coal fired generating plant. The other three towns, similar to Craig before the power plant development, functioned as control communities in the study. During the first three years of construction Craig experienced significant increases in indicators of social stress, including rates of family disturbances, drug related complaints, and crime. Increases in the rates of these phenomena were large, even allowing for changes in record keeping practices.

Increases in indicators of social stress, however, were not reflected in the overall evaluations that Craig residents made of their quality of life. Freudenburg used several questions in his survey to measure general quality of life. Some questions focused on the extent to which respondents felt isolated or alienated from the community. Other questions asked respondents to indicate how happy and how satisfied they felt with their lives as a whole. Responses from Craig were very similar to the responses of residents in the three control towns. In both Craig and the control towns, about 2/3 of the respondents were "pretty happy with things these days". Both sets of respondents had similar alienation scores. Finally, about the same percentage, seven percent in the control towns and eight percent in Craig, were dissatisfied with their lives as a whole.

These findings indicate that the intensity of social stress an impact area may be experiencing, as measured by some community level social indicators, does not affect the overall quality of life evaluations that individuals make. This paradox can possibly be explained in the following way. Although the incidence of family disturbance, crime and other indicators of stress may increase in an impact area, the large majority of families do not experience disturbances and do not experience crime directly. Thus, even though law enforcement agencies and family counseling clinics may be very busy in an impact area, and have to expand their resources to meet new demands, most people are not affected significantly by these matters. Or, another explanation could be that people do not respond honestly to questions when their answers could reflect badly on themselves or their community.

Freudenburg's study does show that Craig residents have noted a change in public safety in their community. About 72 percent of Craig respondents reported locking their doors even when leaving home for periods of less than two hours. In contrast, about 35 percent of respondents living in control communities found it necessary to lock doors. About 30 percent of Craig respondents feared for their safety when walking alone at night, in comparison to about ten percent of control respondents. Finally, about 23 percent of Craig respondents reported having been a victim of crime, in comparison to about seven percent of control respondents. Yet apparently, these types of experiences do not enter into the overall quality of life evaluations of Craig residents. These findings suggest three possible lines of thought:

1. Changes in levels of social stress, as measured by rates of crime, family disturbance, etc., did not reach threshhold levels in Craig and therefore did not affect quality of life evaluations.

2. Craig residents were not generally aware of changes in social stress levels.

3. Even if they were aware, changes in stress levels were not regarded as relevant to their overall QOL evaluations.

PUBLIC COMMENT ON THE DRAFT EIS:

"The DEIS fails to come to grips with the basic issues of growth impacts resulting from M-X construction and operation and how local governments can cope with this growth. M-X, if it is deployed in Nevada, will induce rapid growth in many rural communities which have not significantly changed for many decades. Certainly, coping with growth is not unknown to the fastest growing state in the nation, but M-X will add a new set of unique growth management problems to state and local governments. A whole set of inter-related problems are likely which will cause institutional responses by state and local governments. The DEIS fails to recognize this, or secondly, to propose reasonable mitigation measures to cope with the institutional change required. Simply applying for federal grants (e.g., HUD 701, EDA) are not sufficient mitigation measures." (A1165-9-028)

Another study, which compares two impact counties with two nonimpact counties, has findings similar to Freudenburg's. Again, there is no automatic correspondence between community level indicators of change and people's concerns and evaluations. James Thompson (Old West Regional Commission, 1979) and his co-workers found that in the two impact-area counties studied, the Sheriffs' Department normal operating expenses increased 97 percent in two years in the first county, and 130 percent in the second county. In the two nonimpact counties studied, the increases were 29 percent and five percent, respectively. These increases in normal operating expenses reflect increases in law enforcement activities due to increases in actions that violate laws (increses in traffic violations as well as crime). Despite significant increases in normal operating expenses of county sheriffs' departments in the impact areas, no differences were found in people's perceptions of crime as a problem. In both impact and nonimpact counties, about the same proportion of respondents said that crime was a problem in their county.

A study of the effects of the Alaska pipeline construction on Fairbanks and Valdez residents suggests that quality of life evaluations may possibly depend more on personal economic benefit than on social change. Fairbanks and Valdez residents whose employment and/or income improved during pipeline construction were more likely to feel they were "benefitting from development" than those who did not improve their economic lot. The latter felt they were "bearing the costs" of pipeline development (Kruse, 1979).

This finding, although not surprising, may have implications for quality of life in M-X impact areas. In general, many of the economic benefits of a major construction project go to in-migrants to the impact area who take the bulk of the project-related jobs. Although some residents also benefit from the new economic opportunities, many lack the skills, educational background, or willingness to change employment, and so do not participate in the new opportunities. Hence, as the study of the Alaska pipeline shows, residents are much more likely to feel that they are bearing the costs of a project than are newcomers. But the Alaska pipeline study does not address the crucial question of how "bearing the costs" of development relates to overall evaluations of quality of life.

How people evaluate something depends partly on their expectations about it. How social groupings in an impact area evaluate quality of life may depend on the effects and changes they expect to experience. Studies done of preimpact or predevelopment areas indicate that in general, a large percentage of people expect effects to be positive in nature. The upper portion of Table 1.3-1 summarizes the data from various localities. With the exception of one locality where there were a high percentage of "neutral" or "no answers" to the survey, about 75 percent or more of the respondents expected positive effects from development.

Moving from preimpact areas to areas undergoing impacts from major construction projects, the pattern of responses changes somewhat. The majority of people in various localities still see effects as favorable but the proportion regarding effects as positive drops from about 75 percent to about 60 percent. Furthermore, the percentage of people in impact areas who give either no response or a neutral response to evaluation of effects questions is relatively high, with almost 33 percent giving such responses. Thus the actual experience of effects is not as positive as the expectation, but neither is it overwhelmingly negative.

Table 1.3-1. Perceptions of expected and actual effects of energy developments in predevelopment and currently developing areas (percent).

	Perception			
	Positive	Negative	Neutral or No response	Number
Predevelopment areas:				
Utah	74.5	20.1	5.4	1,157
Western North Dakota	43.8	24.9	31.3	1,190
Kimball County, Nebraska*	71.0	9.0	20.0	280
Wheatland County, Montana*	71.0	11.0	18.0	206
Texas	88.7	8.2	3.1	256
Mountain West survey of predevelopment communities	54.1	30.6	15.3	157
Currently developing areas:				
Mclean, Mercer, and Oliver counties	51.0	20.0	29.0	100
Platte County, Wyoming	58.0	13.0	30.0	321
McLean County, North Dakota	66.0	7.0	26.0	262
Mountain West survey of impacted communities	65.5	34.5	0	304

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*These percentages were derived from the levels of agreement with the economic index utilized in the study.

Source: Murdock and Leistritz, 1979:237.

PUBLIC COMMENT ON THE DRAFT EIS:

"I doubt if any of you have ever lived in our beautiful county or you would never designate it as a desert. As recently as 1971 a panel of experts from the Environmental Protection Agency designated our county, White Pine, as the nation's healthiest place to live after agreeing that sections of the U.S. with the cleanest air and water are located in the Pacific Northwest and Central Southwest. Their findings noted White Pine County, Nevada offers some of America's most beautiful scenery. It ranks first in general air quality and its rugged mountains and clear flowing streams make it a nature lover's paradise. The area's only industry of any note is copper mining. Now, since it behooves your purpose, you call this same place a desert. We know better and why must you destroy the Number One county in the U.S. This is our heritage and we pray we will keep it. Thank you." (B0317-6-004)

Table 1.3-2 compares evaluation of effects among people living in current impact areas and those living in post impact areas where construction of major projects has been completed. The upper half of the table shows that in current impact areas, a higher proportion of people are likely to perceive the effects as worse than expected, in comparison to post impact areas. But again the evaluation of effects is not overwhelmingly negative. In both the current and post impact situations, about half of the evaluations of effects are about as expected.

The lower part of the table shows evaluations of different types of effects categories by expectation. In both current and post impact areas, a higher proportion of people believe economic effects were better than they expected. However social effects like increases in crime and mental illness were worse than expected. Also, imbalances between provision of public and social services and housing, and demands placed on these were regarded as worse than expected.

To the extent that negative evaluations of effects can be equated with lowering of quality of life, one can say that in an impact situation some people are likely to sense some losses in quality of life elements. But the loss does not occur uniformly across all elements. Furthermore, it would perhaps appear that the people who experience such losses constitute a smaller rather than larger proportion of the population.

Item 11: Quality of Life Feedback Loop takes into account that individuals, families, governments, and organizations act on quality of life evaluations. These actions, in turn, have their own beneficial or adverse effects on the community.

Some local residents may change to better paying jobs generated by M-X, thereby creating vacancies which may be difficult to fill. In Fairbanks, during the Alaska pipeline construction, teenagers filled many lower paying jobs that were vacated in this manner. Teenagers had more time for work because of the double shifting that occurred at Fairbanks schools to accommodate increased enrollment, until new buildings were completed. However, employed teenagers tended to drop out of school because their working status gave them a sense of adulthood, and made them resent school regimentation (Dixon, 1978). Thus the filling of job vacancies by teenagers had mixed effects on system elements and quality of life evaluations.

The severity of the housing shortage that is anticipated with M-X may depend on individual actions of home owners. Some local residents may rent space in their homes to newcomers which would help fill demand for housing, as was done in Fairbanks (Dixon, 1979).

Major feedback loop actions would consist of official mitigation programs that federal agencies, and state and local governments would implement to reduce M-X-related demands. Mitigation programs might also be undertaken by churches and other voluntary organizations to help newcomers settle in and adapt to the area. For further discussion of possibilities for mitigation, see Section 8 of this ETR, appropriate FEIS sections and the Mitigation ETR.

1.4 QUALITY OF LIFE AND ADAPTATION

In general, both human beings and human institutions are adaptable and resilient. The M-X would lead to greater complexity in the institutions of

Table 1.3.2. Comparsions of actual and expected effects of development in currently developing and postdevelopment areas.[1]

Effects	Currently Developing Areas		Postdevelopment Areas	
Perception of development:				
About as expected	51.1		51.3	
Better than expected	14.6		23.5	
Worse than expected	34.4		25.2	
Number of respondents	323		115	
	Better	Worse	Better	Worse
Type of impact:[2]				
Economic	62.8	12.4	42.9	36.7
Social	16.3	41.6	19.1	13.3
Services	14.0	38.1	38.0	30.0
Environmental	0.0	2.7	.0	3.3
Other	7.0	5.3	.0	16.7
Number of respondents	43	113	21	30

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[1]Data in table taken from Mountain West Research survey of nine western communities--see Source (below).

[2]Obtained from Mountain West Research survey by grouping open-ended responses on questions concerning ways development was better or worse than expected.

Source: Mountain West Research, Construction Worker Profile (Washington, D.C.; Old West Regional Commission, 1975).

PUBLIC COMMENT ON THE DRAFT EIS:

"New employees and shifting populations can change the culture and politics of many small communities and a number of larger ones." (30850-6-007)

government, commerce, religion, health services, and education, and so forth, in M-X impact areas. Most people, with support of families and friends would adapt to these changes, and be willing to accept trade-offs in the sense of their quality of life. Less resilient people or those who lack supportive family and friends may experience stress, and cope through unacceptable forms of behavior like alcoholism, illness, violent actions, and so forth. For this reason, a variety of social and mental health services would have to be expanded along with institutional expansion in M-X impact areas. The less resilient persons who become stressed by social change constitute a small proportion of any population. Yet it is their actions which are often highlighted in reports on areas experiencing rapid and dramatic social change.

The foregoing overview of the relationships between change and quality of life should provide a larger framework in which to consider the full range of changes, both those that enhance one's sense of quality of life and those that would detract.

The preceding discussion outlined some of the change processes affecting quality of life which can be expected to occur during construction and operation of the M-X. From a slightly different viewpoint, people living in the proposed M-X areas have expressed several concerns on a very personal level. These concerns include fears of loss of stability in the family. Parents worry about possible crowding in schools, undesirable influences upon their children, and increased school drop out rates. In some cases, wives might be entering the workforce possibly causing stress within the marriage. An offshoot of this concern is the potential problems surrounding a two-salary marriage when one person ceases to work, and the family must readjust to one salary. Many of the people living in the small towns and rural areas proposed for M-X remain there because they like the particular lifestyle there. With a large influx of population, there is a concern that this lifestyle would change: the pace would become more frantic, the number of strangers in town would change the feeling of community closeness, and the local residents would not be able to "hear the grass grow." While many of these impacts are negative, the local people would also have opportunities that would probably not be available without M-X project: a chance to learn new skills; be exposed to new ideas; and experience more variety in their way of life. It remains for the local inhabitants to accept these trade-offs in evaluating the changes in their quality of life.

PUBLIC COMMENT ON THE DRAFT EIS:

"I am a businessman in Milford. I am speaking for myself and for the defense of my country. I do not know how accurate the figures are in the environmental statement, but I am certain of one thing. If they all turn out to be accurate, the people that put this statement together have divine guidance from somewhere because it is simply impossible to project a project of this magnitude and come up with a hundred per cent projection years in advance. Now the figures on the influx of people in the southwestern Utah for the second operating base at Milford are staggering. Everyday I hear, have people tell me, that there is just no possible way we can cope with this, but let me point out one fact that I have not mentioned before. The base at Coyote Spring is to be built first. The Milford base will not come along until about four years later. Well, this gives us four years time to plan and prepare but more importantly it gives us the chance to watch the progress of the first base and to correct any mistakes before construction at the Milford base even begins. There is no doubt in my mind with a joint effort on the part of the Air Force or the federal, state and local officials and most importantly the citizens of the affected areas, we will end up with the finest Air Base in the U.S. Air Force. I truly believe that we can make this happen and when we do southern Utah will be a much better and safer place for our children and our grandchildren. Thank you." (B0060-2-001)

2.0 QUALITY OF LIFE AND M-X-RELATED SOCIAL GROUPINGS

An individual's perception of quality of life is heavily dependent on how he or she evaluates sources of interpersonal and economic satisfaction. Thus, if a person is satisfied with his relations with family and friends, and standard of living, he is very likely to give a high evaluation to his or her overall quality of life (Campbell, 1976; Miller and Crader, 1979). Other elements of community or neighborhood conditions have less significance in overall quality of life evaluations. In this section, there is a discussion of sources of interpersonal and economic satisfaction of the major social groups that would come together in the impact areas if the M-X system were built.

2.1 M-X-RELATED SOCIAL GROUPINGS

There are four major or social groups that would interrelate in the impact areas if M-X were built. They are:

1. Local Residents: the people currently living and working in potential impact areas. This group includes people who have lived in the area for many generations and people who have moved there in recent years.

2. Newcomer M-X Workers: those who would build missile facilities and assemble the missile system constitute the second set. Most of these workers would come from locations other than the states in which M-X would be built. This group includes construction workers who would build the roads, shelters and operating bases. It also includes electronics technicians and engineers who would assemble the missile components at the various operating bases.

3. Other Newcomers: those in-migrants attracted to jobs in all employment sectors, including commerce, health services, government, residential and commercial construction, education, and so forth, that would support M-X activities and workers.

4. Air Force: the group which would be responsible for operating the M-X system. Their numbers would increase as components of the system are completed. The bulk of Air Force personnel would be concentrated at operating bases and area support centers, but some would be dispersed throughout the designated deployment area.

Clearly there is overlap among these four groups. Some local residents would be directly employed on the M-X project. Others would be hired for jobs that M-X activities would generate indirectly; and still other persons presently living in the impact areas would be hired by the Department of Defense in M-X operations and maintenance positions. However, for purposes of considering the relationship of each group to M-X it is useful to ignore these overlaps. Residents who may obtain M-X-related employment will be considered as belonging to the existing resident group. The other three groups, for purposes of discussion, are made up of newcomers to the area.

Each of the four sets of people would have different relationships to the M-X system, and to people in the other sets, which, in turn, would influence quality of life evaluations. A brief overview of each set is discussed below.

EXISTING LOCAL RESIDENTS (2.1.1)

With the exception of the Las Vegas and Salt Lake City urban areas, most of the population in the various potential M-X impact areas live in small cities (less than 10,000 population) or rural areas. Most residents follow ways of life associated with ranching, farming, mining, and occupations found in small towns.

From a national perspective, since the Great Depression of the 1930s, rural areas have offered less material well-being, with incomes, quality of housing and public services being lower than in urban areas (Tweenten and Brinkman, 1976). Yet, in general, rural residents give higher evaluations than do urban area residents to overall community satisfaction and to specific quality of life items such as the desirability of their localities for raising children, friendliness of people, and safety from crime (Dillman and Tremblay, 1977).

Similar findings emerge from a study conducted in five Utah counties, including Beaver County, a potential M-X impact county (Miller and Crader, 1979). The Utah rural residents were more satisfied than their urban counterparts with the interpersonal aspects of life, finding their areas to be good places for raising families, having friendly people and a high quality of religious life. In contrast, the Utah urban residents rated economic sources of satisfaction higher, such as job opportunities for young people and opportunities for a livable income.

These rural-urban differences in quality of life evaluations point to a major issue that has emerged from national policies on rural development, and the movement of private industry to selected rural areas (Tweeten and Brinkman, 1976; Rogers, 1978). The philosophy underlying rural development is that policies and actions which would increase employment and income would lead to improvements in quality of life. But such development has been coupled with population growth, and so produced mixed results. While rural development in an area has led to overall improvement in economic well-being (Rogers, 1978; Eberts, 1979), it is not clear that long-term residents improved their personal economic status. Several studies indicate that it is newcomers to a developing rural area who reap the greatest economic gains (Rogers, 1978; Summers, 1976). Even so, to the extent that local services are upgraded and augmented and young people are able to find employment in the area, local residents do gain some indirect material benefits from rural development (Eberts, 1979).

Population increases resulting from rural development change the social fabric and the bases on which local residents know and interact with each other. This point is illustrated by quotations from a study prepared for the Bureau of Land Management by Ruth Houghton, a Reno anthropologist. The subject of the study were northern Nevada residents.

> "In Nevada, there is a clear distinction in culture or "lifeway" between the rural areas (called cow counties by urban observers) and the urbanized areas of Washoe, Carson, and Clark counties. Winnemucca district residents are politically and economically allied with counties like Elko and White Pine. A surprising influence in the state continues to be exerted by the small population in these nonurban areas. Part of the influence is historical since early settlement was in mining and ranching communities. There is also greater population stability, homogeneity, and continuity in these areas. The

PUBLIC COMMENT ON THE DRAFT EIS:

"It's my belief that it's not the missile, but the method of deployment which causes the greatest amount of disconcert among the rural communities. It is their concern over the large influx of people and its implications, such as housing, roads, sewers, water, inflation, depletion of the labor pool, etc. These are very, very high on their list of concerns. It's also a concern of the water rights of the farmers and ranchers and the grazing depletions." (B0843-1-002)

urban residents do not realize that they have little in common with the non-urban people, but the latter do see the separation. It is important to recognize that Nevada has these two major foci.

"Sociocultural groups. There were three main categories used in describing groups in the district, as seen by local people. A person is placed in a grouping because of length of time he has been a resident, because of ethnic ties, or because of geographic location of residence or birth. The most important category is temporal: how long has an individual, his family, or other relatives lived in the area. This overrides most other kinds of categories or values used in relating to people, and accounts for much of the influence ranchers have in the district. Except for the town of Winnemucca, the major leadership, in recent years, seems to come from long-term residents. Some ranchers or farmers in the district or the Lovelock area with several generations of occupancy are looked to for direction.

"An unknown person or newcomer is evaluated in this same reference. Many Orovada farmers have been there for 20 years and now some are becoming influential. But all had to first prove their good intentions by 'staying on'. A person who is difficult to deal with personally or in business can be forgiven if he has long residence because other information is available to validate his good intentions and character. Long residence signifies one has a stake, a real commitment to living there; one cares about the local land and people by remaining in the area. Family names and places in the district are readily used to identify a person. Probably a dramatic or humorous event will be attached to further identify the person as an individual, such as the man who lit a match while under his car so he could better see the problem. He was all right after they picked the gravel out of him." (Bureau Land Management, 1976)

Houghton's other two categories for describing people in the area, besides length of residence on, include ethnicity and specific geographic location where a person lives such as a certain valley or hillside. Information on these three categories allows a person to be known in a very personal and specific way. Again, quoting from the study:

"When a person is identified there are standard ways of describing him. After one names a person, their family and length of residence, a local resident can cite ethnic origins, place of residence, and birth by town or ranch name. The last, minor aspect of the usual description includes one's economic activity or job, or husband's job in the case of a married woman. This is a marked contrast to Reno, for example, where one deals with a person because of their occupation as a mechanic, clerk, teacher, or official, and there is nothing said about personal qualities and history." (Bureau of Land Management, 1976)

Thus local expectations regarding social interactions, and the assignment of status, prestige, and esteem are based mainly on detailed knowledge of an individual's life history, and to a much lesser degree on his occupations, such as business owner, rancher, mayor, government worker, and so forth. As population increases and social life, outside of the more private immediate family and friendship circles become more complex, people interact with each other much less on the basis of personal knowledge and much more on the basis of the business reasons for the

PUBLIC COMMENT ON THE DRAFT EIS:

"You will criss-cross our farms and our ranches with highways and yet more roads; you will uproot families, hundreds and hundreds of them; you will drain our already rapidly decreasing water supply; you will bring in a boomtown atmosphere, then leave us with ghost towns; you will bring us to provide services for the work crews, then tell us you do not need us any longer." (B0655-9-002)

interaction. This change is apparent in findings that Freudenburg reports of his comparative study of a boomtown (Craig, Colorado), and three nonboomtowns. The boomtown residents were less likely to know the grocer, plumber, mayor, law enforcement officer and school-board member by name, and less likely to talk to them on a conversational basis than were residents of the three nonboomtowns (Freudenburg, 1980).

Generally, population increases lead to much sharper distinctions between the private and public spheres of social life (Fischer, 1981). Private social life is still highly personal, based on intimate knowledge of family and close friends. But public life, consisting of interactions with businesses, government offices, health services, educational institutions and similar organizations becomes less personal. This reflects the fact that in areas of larger population, it is not possible or practical for one individual to know the personal history of everyone else. Thus, although the residents of Craig were less likely to know the grocer, the school principal and the doctor, they had about the same number of close friends as did residents of the three nonboomtowns (Freudenburg, 1980). Simply stated, in areas of larger population, an individual is less likely to encounter someone "he knows" on the street, in a store, than in areas of smaller population where such encounters give the feeling of "everyone knows everyone else" (Fischer, 1981).

The population increases that generally accompany rural development thus reorder some of the bases for social interaction. The detailed knowledge of people's backgrounds, personal traits and accomplishments which helped order allocation of prestige, status and esteem to the individual is no longer shared by everyone. As shared knowledge on these matters erode, there may be confusion about what is appropriate interpersonal behavior outside personal networks of family and friends. Some local residents may no longer receive the deference and status they have come to expect while others no longer accord it. New bases for status converge, deriving from occupation, patterns of consumption and specific accomplishments. Until people adjust to the changed circumstances, to the seeming lack of order and predictability in the more public aspects of social life, they may experience feelings of confusion, despair and isolation. Freudenburg found in comparisons of boomtown residents with nonboomtown residents that the longtime male residents of the boomtown were much more likely to have such feelings than were longtime female residents, or newcomers to both the boomtown and the three nonboomtowns. More specifically, the longtime male boomtown residents were more likely to believe that "most people don't really care what happens to the next fellow"; were less likely to believe that "most people will go out of their way to help someone"; and more inclined to agree with statements such as "I often feel that many things our parents stood for are going to ruin before our eyes" and "I often feel awkward and out of place" (Freudenburg, 1981). In short, the long-term male residents of an area are most likely to be troubled by massive and rapid social change there.

In general, then, rural development appears to be a very mixed blessing for residents already in the area. Although the material well-being of the area may improve, usually only a small proportion of local residents improve their sources of economic satisfaction (Murdock and Leistritz, 1979). At the same time, population growth accompanying rural development leads to greater social complexity and heterogeneity which tend to detract from some sources of interpersonal satisfaction. With the proliferation of information in the news media about the effects of rural development, rural residents have evolved more realistic expectations and

PUBLIC COMMENT ON THE DRAFT EIS:

"My family has lived in this state for nearly a hundred years, and I would like to think that I speak for the real Nevadans; not the people who just moved here from New York or New Jersey a year or two ago, and are only concerned about how much more their house is going to be worth, or how many more jobs are going to be available if the M-X comes in here. I speak for the people who care about what happens to the rest of this state outside this little valley here. How many people here or how many of the people in this valley have ever been to Hamilton, Nevada? Been to Hamilton? I'm amazed that that many people have been there. Hamilton, Nevada is a ghost town now. There used to be 20,000 people living there; back in the gold rush days. I see the M-X as a modern-day gold rush. There will be a cycle of prosperity here, thousands of workers will come in, find jobs, build schools, everything will be great for the next five or ten years. Then what happens when the Russians find a way to defeat the M-X? Well, the Air Force will find another little scheme and they will move on and then they will leave a whole lot of roads and empty silos out in the middle of the desert and the damage will already have been done. And I know they are going to do it whether we like it or not. I just have one request: if you do go ahead and do it, since there has been so much talk about the flag here tonight, just draw a little bullseye around one of those stars so that the rest of the country can see which is Nevada." (B0237-6-001)

more cautious support of development proposals. Studies indicate that rural residents would prefer a modest amount of growth and development, so that the community as a whole can experience the net economic benefit and adjust to change gradually, without adversely affecting other aspects of quality of life (Wisniewski and Freudenberg, 1980). They perceive the development of new job opportunities for young people in the area as a net community benefit.

The unprecedented vast scale of the M-X would generate rural development. Local residents would find themselves in the midst of many strangers as newcomers arrive to take jobs induced by M-X. The public aspects of social life would become more complex, not only because of significant population increases but also because local residents would develop new organizational structures, especially in government, to manage the effects of population growth on housing, schools, public services, and so forth. The M-X project would alter the availability of land and water resources which would directly affect farmers and ranchers. Competition for labor would increase, making it difficult to retain farm and ranch workers. This would accelerate the tendency of individual ranchers to sell their operations to corporations. The increased commercial activity would lead some businessmen to sell their businesses to newcomers rather than adapt to a more intense and complex manner of conducting commerce. These activities could reorder traditional social groupings, and the bases for prestige, status, and esteem, as well as material well-being. Although other elements considered in quality of life evaluations would also change, the economic and interpersonal sources which contribute significantly to quality of life evaluations would change the most (Miller and Crader, 1979).

Here, a note of caution needs to be introduced. Available studies do not provide data comparing overall quality of life evaluations among longtime residents of boomtowns and nonboomtowns. Thus it is on the basis of theory rather than empirical observation that changes in quality of life evaluations are anticipated. Furthermore, the interpersonal component of quality of life takes into account three items - family relations, friendship relations, and relations with people in general. It is "relations with people in general" that would be most subject to change through development of M-X. Estimates of whether changes in this item would be large enough to affect significantly the interpersonal relations component of quality of life would be highly speculative.

Existing residents of potential M-X impact areas appear to be knowledgeable of some effects that M-X would generate and thereby affect their quality of life evaluations. In spring, 1980, a political scientist, Dan Jones, conducted a survey of residents in the Nevada-Utah areas which could be impacted. Using appropriate stratified, random sampling techniques, Jones and his staff conducted telephone interviews with 200 Nevada and 200 Utah residents to ascertain their views on M-X (Albrecht, 1981). The findings indicate that although almost 75 percent of these residents favor increased government spending on national defense, about the same percentage do not support deployment of M-X in the Nevada-Utah area (Albrecht, 1981). An explanation of why people who generally display a strong national defense posture would oppose the M-X becomes apparent when one looks at their perceptions of the positive and negative impacts to be expected from M-X (Tables 2.1.1-1 and 2.1.1-2). Population growth, and use of water and land for deploying the missile system were identified as constituting the most serious negative aspects of M-X. Southern Utah residents were especially concerned about population growth, while Nevada residents emphasized the use of land and water, with population growth being the second most important aspect of negative impact.

Table 2.1.1-1. Percentage of respondents who perceived positive impacts of M-X - M-X area (Page 1 of 2).

	Number of Respondents	Economy	Jobs	Population Growth	Security and Defense	Good Area and Space	No Advantages	Other	Don't Know
Total	400	14.2	14.0	3.8	14.0	5.2	40.7	0.3	7.7
Sex Male	194	18.0	10.8	1.5	18.0	8.2	38.7	0.5	4.1
Female	206	10.7	17.0	5.8	10.2	2.4	42.7	0.0	11.2
Age									
18-34	127	23.6	11.8	8.7	12.6	3.9	37.0	0.0	2.4
35-49	106	9.4	7.9	1.9	15.1	8.5	35.8	0.9	10.4
50+	167	10.2	13.2	1.2	14.4	4.2	46.7	0.0	10.2
Political Party									
Republican	131	22.1	13.0	3.8	13.7	6.9	31.3	0.8	8.4
Democrat	168	8.3	13.7	4.2	12.5	6.5	47.0	0.0	7.7
Independent	93	14.0	17.2	2.2	15.1	1.1	43.0	0.0	7.5
Other	4	0.0	0.0	0.0	50.0	0.0	50.0	0.0	0.0
Education									
Less Than High School	57	7.0	14.0	3.5	12.3	1.8	40.4	0.0	21.1
High School	150	8.0	18.0	3.3	12.7	4.0	46.0	0.0	8.0
Some College/ Business School	134	24.6	10.4	4.5	12.7	4.0	46.0	0.0	8.0
College Graduate	58	13.8	12.1	3.4	22.4	8.6	34.5	1.7	3.4

T5673/10-2-81

Table 2.1.1-1. Percentage of respondents who perceived positive impacts of M-X - M-X area (Page 2 of 2).

	Number of Respondents	Economy	Jobs	Population Growth	Security and Defense	Good Area and Space	No Advantages	Other	Don't Know
Religion									
Catholic	44	18.2	9.1	6.8	9.1	0.0	54.5	0.0	2.3
Protestant	69	18.8	14.3	2.9	10.1	4.3	50.7	0.0	8.7
LDS	229	11.8	18.8	3.1	15.7	7.0	34.5	0.4	8.7
Other	27	3.7	14.8	3.7	18.5	.0	48.1	0.0	11.1
None	29	27.6	6.9	6.9	13.8	6.9	34.5	.0	3.4
Area									
Southern Utah	200	13.0	17.0	3.0	19.5	7.0	32.0	0.5	8.0
Nevada	200	15.5	11.0	4.5	8.5	3.5	49.5	0.0	7.5

T5673/10-2-81

Sources: Dan Jones and Associates Poll conducted for the Desert News, March 1980; Albrecht, 1981, p. 48.

Table 2.1.1-2. Percentage of respondents who perceived negative impacts of M-X - M-X area..

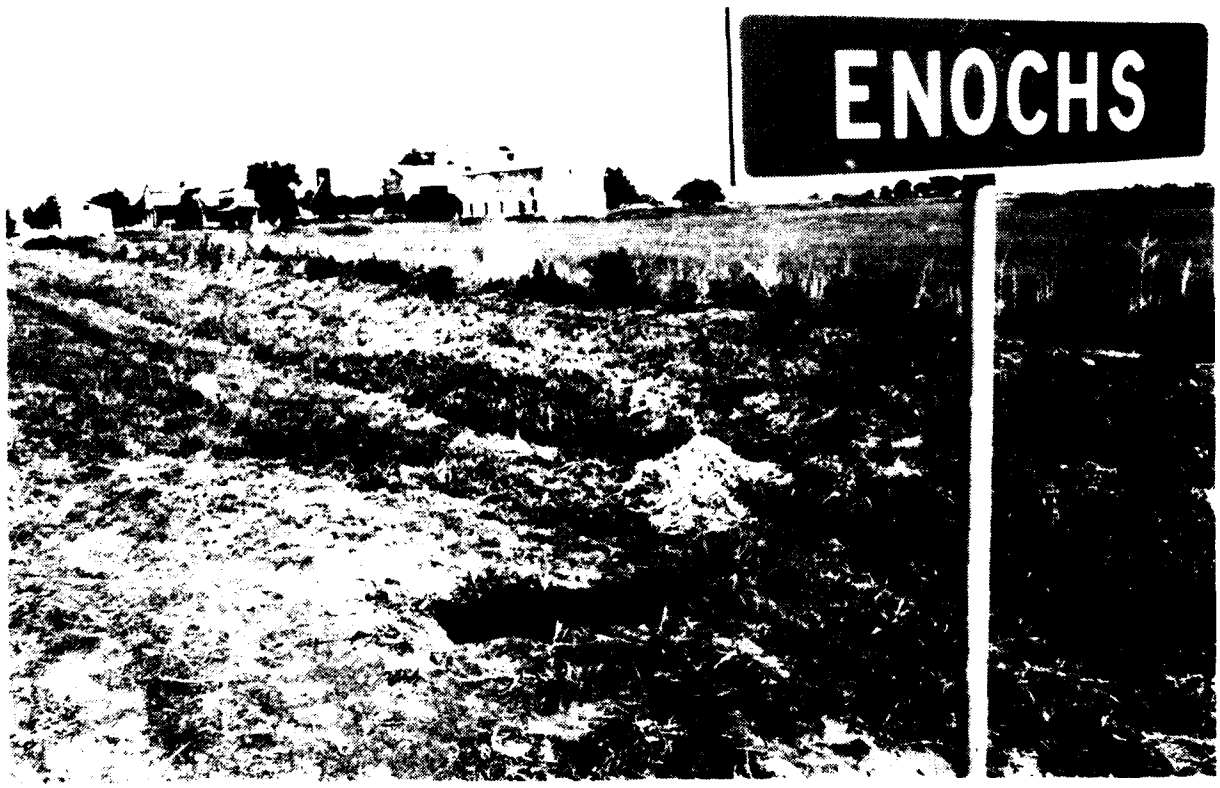
	Number of Respondents	Military Target	Influx of People	Harm Environment	Danger to People	Expensive	Use up Water/ Land	Government Involvement	Poor System	Other	None/ Don't Know
Total	400	9.5	31.0	11.2	4.0	2.0	19.5	1.3	6.7	0.8	14.0
Sex											
Male	194	9.3	33.0	9.8	2.1	3.1	19.6	1.5	10.3	0.5	10.8
Female	206	9.7	29.1	12.6	5.8	1.0	19.4	1.0	3.4	1.0	17.0
Age											
18-34	127	13.4	27.6	11.0	7.1	0.0	24.4	2.4	3.1	1.6	9.4
35-49	106	9.4	36.8	11.3	0.9	1.9	12.3	0.9	10.4	0.9	15.1
50+	167	6.6	29.9	11.4	3.6	3.6	20.4	0.6	7.2	0.0	16.8
Political Party											
Republican	131	8.4	38.9	12.2	3.1	1.5	13.0	2.8	6.1	1.5	13.0
Democrat	168	8.3	25.6	7.7	4.8	2.4	27.4	1.2	7.1	0.6	14.9
Independent	93	11.8	31.2	16.1	3.2	2.2	14.0	0.0	6.5	0.0	15.1
Other	4	50.0	25.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0
Education											
Less Than High School	57	8.8	17.5	10.5	1.8	1.8	22.8	1.8	7.0	1.8	26.3
High School	150	9.3	26.7	7.3	4.7	2.7	22.0	0.0	7.3	0.7	19.3
Some College/ Business School	134	9.7	33.6	13.4	6.0	0.7	18.7	2.2	6.0	0.7	9.0
College Graduate	58	10.3	50.0	17.2	0.0	3.4	12.1	1.7	5.2	0.0	0.0
Religion											
Catholic	44	11.4	25.0	4.5	2.3	2.3	36.4	0.0	9.1	0.0	9.1
Protestant	69	5.8	24.6	14.5	2.9	0.0	34.8	0.0	7.2	0.0	10.1
LDS	229	11.4	35.8	12.2	4.4	2.6	10.5	1.3	5.2	1.3	15.3
Other	27	3.7	25.9	3.7	3.7	3.7	18.5	3.7	11.1	0.0	25.9
None	29	6.9	24.1	13.8	3.4	0.0	31.0	3.4	6.9	0.0	10.3
Area											
Southern Utah	200	12.5	36.0	12.5	6.5	2.5	8.0	1.5	4.5	1.0	15.0
Nevada	200	6.5	26.0	10.0	1.5	1.5	31.0	1.0	9.0	0.5	13.0

T5674/10-2-81

Sources: Dan Jones and Associates Poll conducted for the Desert News, March 1980; Albrecht, 1981, p. 51.

PUBLIC COMMENT ON THE DRAFT EIS:

"Underlying this, I think, is the whole matter of whether or not the Environmental Impact Statement is really saying that the people here are worth or have value and I think it is kind of an attack on people, that what you are saying in effect is people in other parts of the country are worth more; and I think you need to address these issues because people here I think have more value than people in other parts of the country. I have lived in the East where people there have much different kinds of life styles and values and I think by looking at what people have here it is really part of the salvation of this country, their value system and their life style and that is something that I think this whole business if it is built will destroy it." (B0075-0-003)



In regard to positive impacts of M-X, about 60 percent of respondents did view M-X as bringing advantages to the area. A greater percentage of Utah residents saw advantages to M-X than did Nevada residents. People mentioned improvements to the economy and the creation of jobs more frequently as an M-X factor than any other impact category. Only a very small percentage of people mentioned population growth as a positive effect. Young people (between the ages of 18 and 34) and Republicans, were especially likely to mention the economic advantages of M-X.

People living in potential M-X impact areas thus appear to be less optimistic about the effects of M-X on their lives and communities than people living in predevelopment areas in the mid-1970s (Murdock and Leistritz, 1979). As reported in the previous section, a majority of people living in predevelopment areas expected effects of projects scheduled for their areas to be positive. Two factors may account for the lesser optimism in potential M-X areas. First, since the advent of energy projects in the western United States, knowledge of boomtown conditions that large development projects generate along with their potential for busts, has become fairly wide spread through television and newspaper coverage. Such coverage has emphasized negative impacts. Second, construction requirements for the M-X system are much larger than those associated with construction of electric power plants and coal mines. For example, the peak size of the work force which built the Jim Bridger 1,500 megawatt plant in Wyoming was 3,200 in comparison to the 18,600 workers that would be needed to build M-X facilities under the Proposed Action during peak construction (Thompson, 1979; ETR-27, Table 2.3-2).

NEWCOMER DIRECT M-X WORKERS (2.1.2)

This group is made up of persons directly employed on the M-X project and their families who come from outside of the impact areas. The occupations represented include construction trades, associated with building of roads and structures, and electronics and engineering occupations needed for assembling the missiles. The newcomer M-X workers constitute a very diversified group, ranging from laborers, craftsmen, and professionals in construction to high technology craftsmen and professionals in missile assembly. But their direct employment ties to the M-X project and their newcomer status gives them some commonalities. First, their median incomes are likely to be higher than those of local residents. Second, their length of residency in or near the potential M-X impact areas will be dependent on the M-X construction and missile assembly schedule. Third, the sequencing of M-X construction and assembly work from one part of the impact area to the next would require these workers to change their job sites from time to time. Fourth, the workers would be affected by any policies that M-X employers adopt in regard to transporting workers from residence to place of work, provision of housing, and other policies. No definite policy decisions have emerged on these matters. Therefore, for purposes of discussion it is assumed that workers would be housed in living quarters to be provided by M-X employers, but families who accompany them would have to seek housing in nearby communities. This constitutes the "worst case" assumption for M-X-related impacts, which would be much greater if newcomer M-X worker families have to seek their own housing in or near the impact areas than if housing were supplied for them in "company" type settlements built for the purpose.

While existing residents face the problem of how to absorb a large number of newcomers into their social organization, newcomer workers face the problem of settling in and establishing a satisfactory way of life for the duration of their employment. In this respect, newcomers' experiences would be somewhat comparable to those of the many newcomers who moved to new suburban developments after World War II.

Although the occupations associated with M-X construction and missile assembly require their incumbents to make periodic geographic moves, persons in such occupations are not totally nomadic, and prefer, when possible, to live in single family homes (Mountain West Research, 1975). Furthermore, these workers are not continually on the move. One study of newcomers at an energy development site in Wyoming indicates that about two thirds of newcomers had lived at least three or more years in their previous locality (Massey and Lewis, 1979).

The establishment of a satisfactory quality of life is not only important to newcomer project workers but also to the employers engaged in the development. Evidence is being amassed which indicates that inadequate housing and long commutes to work increase company costs in the form of higher rates of turnover and absenteeism, and declining levels of productivity (Metz, 1977). In recent years, some energy development companies have found it to their advantage to provide housing and leisure time amenities for their out-of-area employees (Metz, 1977). Housing facilities include villages for unaccompanied workers, mobile home parks, and new single family dwellings (Metz, 1980).

A major contributing factor to maintaining quality of life for newcomer project workers is to have them accompanied by their families. Workers employed on major construction projects in the western part of the United States are much more likely to bring their families than workers employed elsewhere. This reflects the great distances in the west. A Corps of Engineers study indicates that about 67 percent of construction workers employed on western projects bring their families (Dunning, 1981). It is likely that a high percentage of newcomer M-X workers would bring their families and seek suitable housing in or near the M-X impact areas.

Where these workers would choose to settle depends upon a complex interplay of availability of housing, commuting distances and the "attractiveness" of commuting. For some energy development projects in the west, one-way commutes of as much as 100 mi or more do occur with sufficient frequency to be noteworthy. The "attractiveness" of commuting seems to be a pivotal variable (Massey and Lewis, 1978). Commuting becomes more attractive if:

- fellow workers organize car or van pools which will permit sociability or sleeping during the commute and decrease expenses;

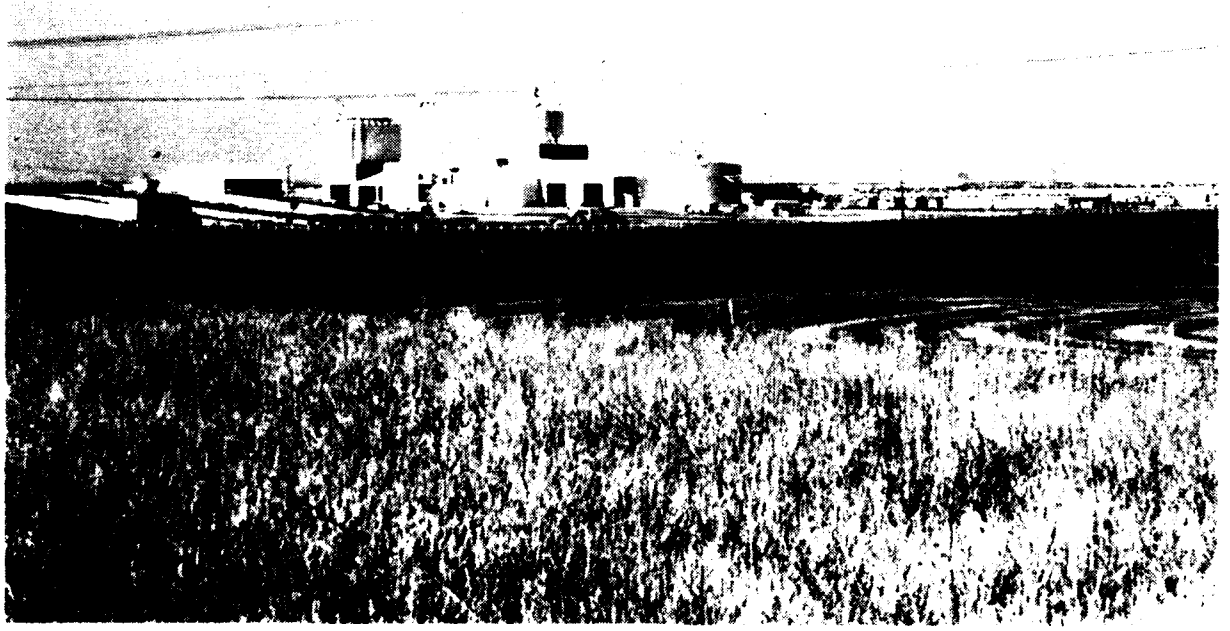
- company policy allows commuting workers to pocket "subsistence" or "hardship" payments that are given to out-of-area workers.

The decision about whether to commute or relocate closer to the project seems to be unaffected by marital status or the presence of children in the family.

Once newcomer M-X workers have found housing and have made their decisions about whether to commute, how would they evaluate their quality of life?

PUBLIC COMMENT ON THE DRAFT EIS:

"All counties in the deployment region are ill-equipped due to low tax bases and/or property tax limitations to raise the necessary monies for these levels of infrastructure development...Where will these monies come from? How will the loss of revenue from the disrupted agricultural economy affect the ability of communities to pay for expanded services? Temporary degradation of service levels could result if mitigative strategies and/or outside aid are not available...What are some of these mitigative strategies and outside aids? What are the chances that they will be available?" (B0187-3-048)



PUBLIC COMMENT ON THE DRAFT EIS:

"Thank you. This is a letter that was never published in the local newspapers. The valleys in our large state are fairly free to be what they are. The symbol of openness and expanse which categorized the very posture of freedom itself. There is so much space about the mountains, hills, and floors, that one is tempted to read flight of the soul when passing over long stretches of highways and merely being afoot between cactus and brush. But here there is an area of deep concern reflecting the mood of the nation, or for that matter, the mood of the world. I dare say that a child malnourished and oppressed from the onslaught in Asia would have ever heard or ever will hear the arguments concerning the M-X missile. Yet the issue remains a decisive point in history. In particular because of its immediate effects, this issue should weigh heavy on the minds of Nevadans. In Clark County it is the economic thrust spelled out in jobs and money that keeps the M-X ball bouncing." (B0240-0-001)

Past studies of newcomer project workers suggest that M-X workers would be satisfied with their economic aspects of quality of life. These studies indicate that the majority of project workers are attracted by employment opportunities and the high pay attached to them (Old West Regional Commission, 1975). Also, newcomer project workers, especially those who bring their families, are likely to be reasonably satisfied with the interpersonal aspects of their lives. Sources of friendship include co-workers on the job who belong to the same union and who may have known each other from previous jobs (Massey, 1978). Both the union hall hiring structure and the fact that information about new employment opportunities flows through friendship contacts increase the likelihood that friendships carry over from project to project. Another source of friendship is the neighborhood, be it a mobile home park or a newly constructed subdivision. Here, newcomers being in the same situation of not knowing anyone, turn to each other for mutual support and sociability (Massey and Lewis, 1979).

The one source of interpersonal dissatisfaction among newcomer project workers is the discovery that the friendliness of the host community may be only superficial. While they may make a few friends among the longtime residents, the latter rarely introduce them to their friends, thus denying a genuine sense of acceptance (Massey, 1977; Massey and Lewis, 1979). This situation does not necessarily mean that longtime residents prefer not to associate with newcomer project workers, but rather that they have a full round of long established friendships and activities which allows little time or energy for newcomer project workers (Massey, 1977).

The problem of assimilating newcomers into the social fabric of a community tends to be accentuated in communities that are highly homogeneous, especially when based on a dominant religion. One study showed that newcomer project workers who did not belong to the Church of Jesus Christ of the Latter Day Saints found that there were few leisure opportunities for them in small Mormon communities where social and recreational events revolved around the Church (Flory, et. al., 1979).

Newcomer project workers also tended to be more dissatisfied with community services, especially opportunities for recreation, than were longtime residents (Old West Regional Commission, 1975). Lack of recreation facilities is especially problematic for project workers who come without their families, and accounts for their use of bars (see Section 2.6.4 for more details). Further, not all unaccompanied workers frequent bars. The librarian of the impacted community reported heavy use of library facilities, especially evenings and Saturdays because they offered a quiet, free place for leisure and relaxation (Old West Regional Commission, Rock Springs Report, 1975). Impacted communities which were able to build new recreation centers offering a variety of activities to both adults and teenagers were well regarded (Massey, 1977).

A variety of evidence suggests then that newcomer M-X workers may be more dissatisfied with some aspects of their quality of life than local residents. The less satisfying would be relations with people in general and the level of community services. However, whether these sources of dissatisfaction would be enough to significantly affect overall evaluations of quality of life is not clear.

NEWCOMER INDIRECT M-X WORKERS (2.1.3)

This social grouping consists of persons who would come to M-X impact areas to take jobs not directly related to M-X but generated by M-X activities and related population growth. These jobs would occur in a variety of sectors such as retail services, government, law enforcement, health services, and education. Thus the other newcomers would be even more diversified occupationally than the newcomer M-X workers.

Other newcomers would differ from direct M-X workers in several important ways. First, since they come for nonproject jobs, they are more likely to entertain hopes of remaining in the M-X impact area after construction of the missile system is completed. This means that they may be more interested in becoming integrated in the local community. Second, they are likely to have a different structure of preexisting contacts in the host community, such as a friend or relative among the longtime residents, and are less likely to know other newcomers because of membership in the same union or past employment on the same project (Herzog, et al., 1980). Third, some of them may be filling newly created positions in the impact area such as mental health worker, assistant school superintendent, assistant police chief, and other roles which would be opened in response to M-X-related population growth. These new roles may not be understood or accepted by local residents. How all these factors come together to affect other their sense of quality of life has not been studied in adequate detail. One of the few things known about other newcomers is that they tend to be more dissatisfied with community services than either longtime residents or newcomer project workers (Old West Regional Commission, 1975).

These newcomers, however, would contribute to the social changes occurring in impact areas, especially in the area of local politics. Their large number means that they can influence election outcomes; their occupational training and higher levels of education, in comparison with longtime residents, eventually gives them a competitive edge when vying for leadership positions; their lack of knowledge about local interest groups and alignments on controversial issues tends to lead to a more structured form of politics that more closely follows political party lines than has actually been the case in small rural communities; and their differing values and backgrounds tend to lead to the introduction of new community goals and objectives (Finsterbursch, 1980; National Academy of Sciences, 1979). The conclusion to be drawn from the impacts that newcomers have had on rural communities in other times and places is that in the long run, other newcomers to M-X impact area would likely try to effect changes that are consistent with their sense of quality of life.

AIR FORCE (2.1.4)

Of the four social groupings that construction and operation of M-X would bring together in the impact areas, the Air Force is the one most unlike the others. It is the one social grouping which is under direct influence of a single agency. This has implications both for the quality of life of Air Force personnel and, indirectly, the other three social groupings. The potential exists for many aspects of quality of life of newcomer M-X construction workers to come under the influence of the Corps of Engineers and its contractors who would construct the roads and support facilities for the M-X. But, as noted earlier, present policy stipulates that housing assembly workers in worker villages would be only for construction and assembly workers but not their dependents.

PUBLIC COMMENT ON THE DRAFT EIS:

"But anyway, I have lived in big cities but I think this community is just delightful. You have a sense of your own identity and so far we haven't had to be fearful of our neighbors or of someone coming in and tripping us in the dark. We haven't had to worry about our daughters being raped, and we haven't had to worry about our old folks being mugged or robbed, but with an element such as M-X or any other situation, as you know how it is in Wyoming, it is a terrible situation.

"If M-X comes, it will certainly destroy our way of life and I hate to see old folks, and I'm in the old folks age although I don't like anyone to know it, but I hate to see some of these old folks have their minds and their hearts filled with fear." (B0307-7-002)

Air Force as a Social Grouping (2.1.4.1)

Although Air Force officers and enlisted personnel come from diverse social, economic, and geographic backgrounds, they constitute a social grouping because of their special job requirements. A "sense of belonging" that is shared when one is in the service arises from the "onbase" environment of an Air Force installation, the uniform, and common references such as "blue suiters." The necessities of life such as food, housing, health services, shopping and recreation facilities are generally available at Air Force bases. The base functions as a "total community", with its own norms and military regulations of conduct, and legal mechanisms, such as nonjudicial punishment and court martials, for handling violations.

Both geographic and occupational mobility is high among Air Force personnel who are reassigned about every four years to another locality, and frequently to a different job than the one previously held. Air Force officers, in particular, are cross-trained among various skills and disciplines so they can perform a variety of jobs in the service. While a specialty is the basis for a career as an Air Force officer, the training emphasis is on management skills.

Because of the large and varied exposure Air Force people have in several jobs in all parts of the world, they and their families tend to be more cosmopolitan than many residents in the area where they live. Out of necessity, Air Force personnel and their families have learned to adapt to a new environment quickly, and to integrate into the local social organization. Air Force policy strongly encourages personnel to engage in offbase community service activities.

What, probably more than anything, makes the military--not just the Air Force--different from other "types" of people is the duality of overall purpose. The uniformed people must be ready to deploy to a war-time environment, which is totally different from the peace-time pursuits at a typical airbase, meaning job, family, leisure activities. All of this social fabric can be very quickly changed. The ability of people to accept this role of "waiting in the wings", while living a typical suburban life style, but having a real potential purpose elsewhere in a much more stressful environment at some unknown time in the future, is definitely a unique aspect of this group. Obviously, people in similar occupations, in similar suburban patterns who have no such dual purpose to their lives, will not face that disruptive possibility in the future. The positive side of this is that it is the very nature of the military purpose that helps to build a sense of group identity among its members; an identity that is very difficult to replicate in a completely civilian environment. Much of this spills over to their families. There is no single "type" of person in the Air Force; their needs, sensitivities, and interests vary probably as much as in a "typical" American community. However, what holds them together, the "social glue", is a sense of common purpose, and this is reinforced by a number of consciously created programs and a more difficult-to-describe innate sense of belonging to this group--the Air Force. Particularly among senior officers and NCO's (noncommissioned officers), it is "in their blood": it is "not just a career, but a way of life" to use the Air Force motto.

Air Force Quality of Life Policy (2.1.4.2)

The Air Force has a vested interest in maintaining and enhancing the "Quality of Life" of all Air Force employees, in concert with communities near the base.

This is based on the fact that employees are more productive and retention rates are higher when the individual is satisfied with his or her way of life. A major Air Force component of a comprehensive quality of life program is the Base Comprehensive Plan (BCP).

Base Comprehensive Plan (2.1.4.3)

The Base Comprehensive Plan is an expansion of the Air Force Master Plan concept which traditionally focused on the physical layout and development of onbase facilities and services. In contrast, the BCP approach incorporates in-depth analyses of the interrelationship between:

a. Natural and human environments;
b. The social characteristics and needs of people;
c. The interrelationships between air bases and surrounding communities.

A. Natural and Human Environments

The Base Comprehensive Plan requires a detailed analysis of the natural environment within the base area and consideration of significant natural phenomena in surrounding areas. With these studies in hand, the planning of the physical facilities is undertaken with the objective of minimizing the environmental impact of the proposed activity under consideration. The design and layout of facilities strives for an overall relationship of buildings which is aesthetically pleasing, convenient and in keeping with human needs. Each Comprehensive Plan has an environmental component which addresses air and water quality, sanitation, solid waste disposal, energy conservation, and wildlife management on the base. Other aspects of the plan address human services on the base and impacts on the surrounding communities.

B. Social Characteristics and Needs of People

Social characteristics and needs of people considers that although Air Force employees come from a variety of social backgrounds, they are likely to agree on some aspects of the quality of life. Factors considered in the Base Comprehensive Plan include:

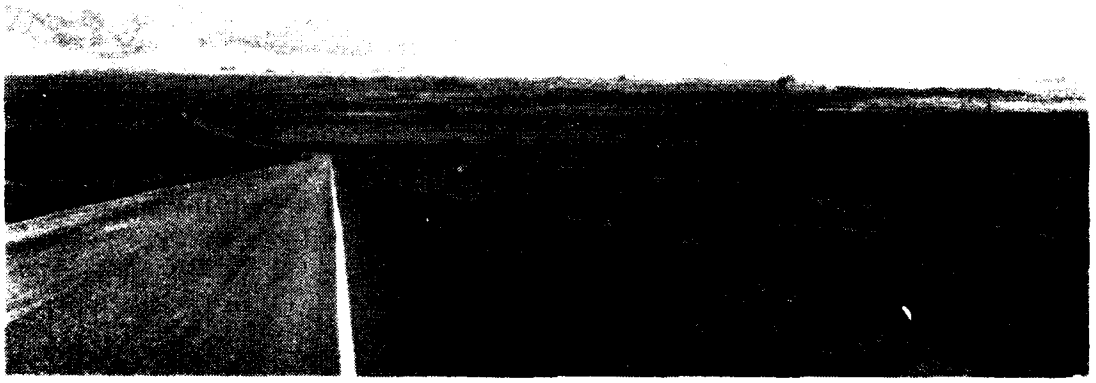
1) More leisure time for more people,
2) Longer life expectancy,
3) Rising expectations, and
4) Changing Values.

C. Interrelationships Between Air Bases to Surrounding Communities

Interrelationships between air bases and surrounding communities consider Air Force objectives and local community goals, and strive to achieve a balance between them. For example, a community near an Air Base may have a policy of limited growth, while the Air Force objective may be to increase manpower levels for the base, an obvious conflict in goals. A BCP solution to the conflict might be to increase onbase housing to accommodate Air Force personnel and their families. However, if a community desires growth or has surplus housing capacity, the BCP might recommend that no additional housing be built on base, deferring to the local

PUBLIC COMMENT ON THE DRAFT EIS:

Eastern Nevada is the one area of the state where the old Nevada can still be found, where neighbors are friends, where one can grab a rifle, climb into an old pickup, and proceed off into the miles of open valleys and sage-covered desert hills to hunt, prospect, explore, or just climb a hill and sit, admiring God's creation. There are tall rugged mountains and rolling desert hills to stir one's soul under a clear blue sky or a star-studded summer night." (B0324-2-002)



market for housing Air Force personnel and their families. This flexibility in planning also applies to more personal areas of human life such as recreation preferences. If a local community does not afford recreational facilities that satisfy the preference of Air Force personnel, the BCP may recommend that such facilities be built on base for Air Force use during nonwork hours. Thus the BCP can contribute directly to quality of life expectations of Air Force personnel while directly or indirectly helping to maintain local community quality of life goals. The BCP concept allows for resolution of potential points of conflict between Air Force and neighboring communities, in matters that infringe on quality of life, of both Air Force and local residents.

2.2 A COMPARATIVE PROFILE OF LOCAL RESIDENTS, NEWCOMER PROJECT WORKERS AND OTHER NEWCOMERS

The three sets of civilian social groupings to come together in the M-X impact areas are likely to be neither totally different nor totally similar to each other. Some of the likely differences and similarities can be placed in perspective by presenting data from a study conducted by Mountain West of Billings, Montana, for the Old West Regional Commission. The study focused on social groups similar to those to be anticipated for the M-X which were affected by energy development projects during the early 1970s in the intermountain west (Old West Regional Commission, 1975).

The study is based on household surveys of residents of Rock Springs and Green River, Wyoming; Forsyth and Colstrip, Montana; and Center, North Dakota. All five towns were experiencing effects of large construction projects at the time of the survey. Households included in the survey were chosen through a quota sampling procedure to ensure a sufficient number of households in each of three categories: local residents, newcomer construction workers, and other newcomers. Local residents included both longtime residents and persons who moved to the area prior to construction and without intention to take a construction job. Newcomer construction workers referred to people who migrated specifically to the study areas to seek project construction work. Other newcomers designated persons who came to the area to take jobs that developed as a result of construction activities. The latter group included professionals, business persons, sales clerks, plumbers, and so forth.

The findings indicate that the three groups of people differ on various social characteristics, which in turn would affect social change processes. The major findings are summarized below by social characteristics.

AGE

On the average, local residents were the oldest of the three groups and other newcomers the youngest. The median age for the three groups was found to be:

local residents--23.7 years
newcomer construction workers--22.5 years
other newcomers--21.9 years

Longtime residents include some people 55 and older, while the other two groups had few people of that age. This is typical when migration occurs for job-related reasons.

MARITAL STATUS AND PRESENCE OF FAMILIES

Table 2.2-1 shows that over 75 percent of all three groups were currently married, and that there was little difference in the percentage of married among them. The newcomer groups, however, contained a higher proportion of never married people than did the longtime residents.

Not only were newcomer construction workers as likely to be married as those in the other social groupings, but about 65 percent of them brought their families to project vicinities (Old West Regional Commission, 1975). Furthermore, both newcomer construction workers and other newcomers had almost as many children as did longtime residents. The average family size for each grouping was: local residents--3.8 persons; newcomer construction workers--3.6 persons; other newcomers--3.5 persons.

INCOME, EDUCATION, AND WORKING SPOUSES

Greater differences emerge among the three social groupings when other social characteristics are examined. Of the three groups, newcomer construction worker households had the highest median incomes while residents had the lowest (Table 2.2-2).

While a higher percentage of local residents did not complete high school, in comparison to the other two groupings, Table 2.2-3 shows that newcomer construction workers were somewhat similar to local residents on other facets of education. In both groups the same proportion of persons had graduated from high school or college.

The three groupings also differed significantly in regard to the employment status of spouses and other household members. The highest percentage of working spouses occurred among local residents and the lowest occurred among newcomer construction workers (Table 2.2-4). Two factors underlie this pattern. First, local residents were probably more dependent on additional family wage earners than were the other groupings to make ends meet, because primary workers among local residents tended to be employed in lower paying jobs. Second, newcomer construction worker spouses were less inclined to seek employment because they knew they would be leaving the area after project construction was completed.

SOURCES OF SOCIAL CONTACT

A problem facing any newcomer to a new place is integrating himself or herself into the community, making friends, and finding companions with whom to share the pleasures and worries of life. The Mountain West survey asked each respondent to indicate his or her three most important sources of social contacts. The findings in Table 2.2-5 indicate that both newcomer groups relied primarily on their places of work and their neighborhoods for social contacts. This pattern is typical among newcomers anywhere. Although work and neighborhood are important sources of social contacts among residents, their sources of important social contacts are much broader, including church, school and community activities, reflecting the fact that they have had ample time to become integrated into the larger community.

Table 2.2-1. Marital status of household heads, currently affected communities (percent).

Marital Status	Residents	Newcomer Construction Workers	Other Newcomers
Now Married	81.5	76.7	80.2
Widowed or Divorced	14.0	7.2	4.5
Never Married	4.5	16.0	15.3
Total[1]	100.0	100.0	100.0

T5675/10-2-81

[1]Totals may not add to 100.0 percent because of rounding.

Source: Old West Regional Commission, 1975:36.

PUBLIC COMMENT ON THE DRAFT EIS:

"While the construction of temporary structures to meet the high demand in the early years of M-X construction lessens long-term impacts, there are special problems associated with that type of building that should be identified. Some of these include the visual appearance of urban settlements both during and after construction. (One only needs to look as far as Wyoming energy projects to see examples of potential problems.) Temporary dwellings may minimize long term impacts but at the same time create ugly short-term (five to ten year) impacts that may be difficult to accept." (B0864-7-091)

Table 2.2-2. Median household income, currently affected communities and the United States (dollars).

Group	Median Income[1]
Currently Affected Communities: 1975	
Long Time Residents	13,913
Newcomer Construction Workers	17,689
Other Newcomers	15,300
United States: 1973	10,512[2]

T5676/10-2-81

Source: Mountain West Research, 1975:49.

Table 2.2-3. Educational attainments of household heads, currently affected communities and the United States.

Highest Educational Level Completed	Percentage of Household Heads			
	Currently Affected Communities			United States[2]
	Residents	Newcomer Construction Workers	Other Newcomers	
Less than High School Graduation	28.4	13.5	11.0	39.1
High School Graduate	42.7	43.8	29.5	32.7
Some College	12.9	23.0	26.9	13.1
College Graduate and Higher	13.5	10.4	29.5	15.1
Vocational and technical school	2.5	9.2	2.9	--
Total[1]	100.0	100.0	100.0	100.0

T5677/10-2-81

[1]Totals may not add to 100.0 percent because of rounding.

[2]Source: U.S. Bureau of the Census, Consumer Income: Household Money Income in 1973 and Selected Social and Economic Characteristics of Households (Washington, D.C.: U.S. Government Printing Office, 1974), p. 7.

Source: Old West Regional Commission, 1978:42.

PUBLIC COMMENT ON THE DRAFT EIS:

"One, to protect the life of the people of the land. That's something that's very important to people and in New Mexico whether you live in the country or whether you live in the city. But there is a respect for people who make their living on the land and a system like this will disrupt that way of life." (B0400-0-003)

Table 2.2-4. Employment of other household members.

	Percentage of Other Household Members		
	Resident	Newcomer Construction Worker	Other Newcomer
Working Spouse	32.8	12.0	25.3
Other Household Member Holding Jobs	12.6	9.5	4.9

T5678/10-2-81

Source: Old West Regional Commission, 1975:45.

Table 2.2-5. Sources of social contact, currently affected communities.[1]

Source	Residents		Newcomer Construction Workers		Other Newcomers	
	(percent)	(rank)	(percent)	(rank)	(percent)	(rank)
Work	61.4	1	81.0	1	74.5	1
Church	36.3	3	16.9	6	24.5	3
Bars	10.5	9	19.0	5	12.7	7
Clubs and community activities	27.5	4/5	14.9	7	16.0	5
Recreation	17.5	7	21.8	4	13.4	6
Relatives	12.0	8	8.7	8	9.5	8
Neighborhood	50.3	2	52.6	2	45.1	2
School	27.5	4/5	3.3	9	6.9	9
Other	19.6	6	24.9	3	20.6	4

T5679:10-2-81

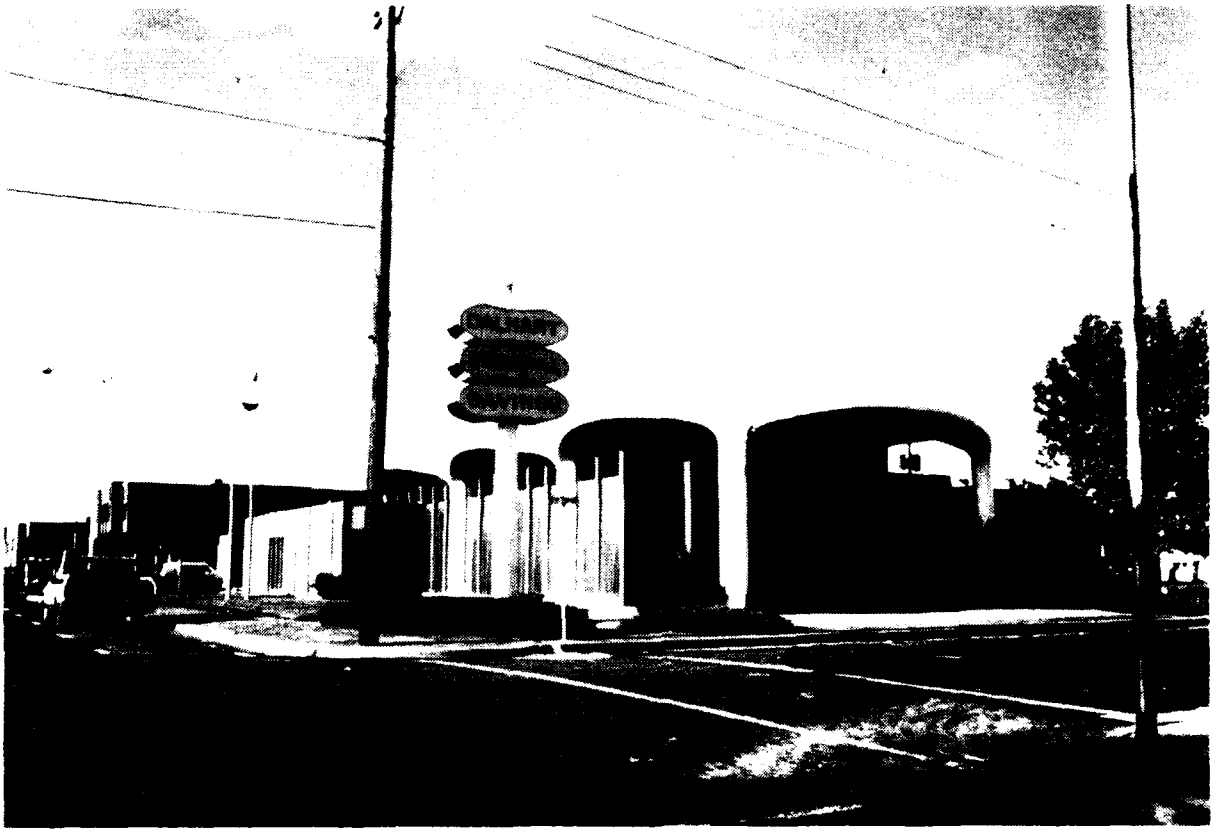
[1] This table combines responses about the three most important sources of social contact, so percentages add to more than 100.0 percent.

Source: Old West Regional Commission, 1975:56.

Two aspects of Table 2.2-5 are particularly noteworthy. The first is that newcomer construction workers do not rely heavily on bars for social contact, contrary to popular belief. Bars ranked fifth in importance among newcomer construction workers, although of all three groups they made the greatest use of bars. Second, some newcomer construction workers participated in a variety of community activities, including church and recreation activities. To the extent that both newcomer groups enter into community activities, their energy becomes a resource to further local projects, especially those dependent on volunteer efforts.

PUBLIC COMMENT ON THE DRAFT EIS:

"Granted, quality of life is not a simple concept to define, much less to measure. It is multidimensional, containing objective components (such as number of jobs or cost of public services) as well as subjective elements (such as 'friendliness of people' and 'happiness'). Any assessment of quality of life in an area, however, must make every effort to overcome definitional and measurement problems in order to obtain the needed profile of the area and its population. That profile is crucial because it represents the starting point from which one is able to investigate the social organization, social structure, and sociocultural change such as that associated with the M-X project." (A1052-9-259)



3.0 QUALITY OF LIFE IN RURAL AREAS: COMMUNITY SATISFACTION

It seems that most of the literature on the quality of life that explicitly looks at rural, or nonmetropolitan, areas concentrates on differences in assessments of community attributes given by residents of communities of different sizes (HUD, 1978; Campbell, 1976). However, there are three studies that concentrate on identifying objective indicators of the quality of life in rural areas, or attempt to provide more efficient predictors of the variance in community satisfaction studies in rural areas.

Dillman and Tremblay argue that the objective indicators best able to illustrate quality of life in rural areas include economic well-being, education, health care, housing, crime, environmental quality, and recreational activity. They conclude that when analyzed, these objective conditions point to several areas of deprivation among rural people, especially economic well-being and access to institutional services such as health care. Indeed, Dillman and Tremblay note rural people's subjective assessments are consistent with the objective conditions of their environment. They explain the apparent anomaly of rural people believing they have a higher quality of life, by the greater weight rural residents attach to the relatively intangible aspects of their environment (Dillman and Tremblay, 1977). Such intangibles include desirability of a place in which to raise children, access to the outdoors, open spaces, friendliness of people, air quality, and safety from crime. Thus, they argue that substantial support exists for the notion that the inadequacy of certain services is offset by the presence of other qualities in rural areas (Dillman and Tremblay, 1977). This view is partly supported by Goudy (1977), who challenges the common assertion that service evaluations are thought to be important factors contributing to the quality of life in rural towns. He maintains that perceptions of social dimensions (such as the distribution of power, citizen participation, and commitment to the community) are more efficient and better predictors of any one individual's satisfaction with his or her community (Goudy, 1977). He presents data showing that residents find most satisfying those communities in which they think they have strong primary group relationships, where local people participate and take pride in civic affairs, where decision making is shared, where residents are heterogeneous, and where people are committed to the community and its upkeep (Goudy, 1977). This does not mean that perceptions of various community services do not relate to community satisfaction, but rather that they appear to be less important than perceptions of social factors. The clear implication is that attempts to increase levels of community satisfaction may not be successful if only services are changed (Goudy, 1977).

Similarly, Ladewig and McCann (1980) stress two findings in their study of community satisfaction. First, the more satisfied the person is with accessibility to selected opportunities and facilities, the more satisfied that person is with the community. Second, the most salient subjective experiences are those that reflect the individual's perceptions of the degree of control he has over outcomes he experiences in the community or expects to experience. It seems, then, that residents' satisfaction with their communities may be more greatly affected by forces or processes that disrupt the various social dimensions outlined above, than by anything that overtaxes or reduces local resident's access to community services.

PUBLIC COMMENT ON THE DRAFT EIS:

"As our members have discussed the proposed M-X system and its drastic impacts on the Great Basin land we love, the question always comes up of whether the USAF and its contractors are able to comprehend the destruction this basing mode will cause or whether you care. Not much quantitative understanding of the Great Basin is reflected in the DEIS and no qualitative understanding is expressed at all. We realize that qualitative values are difficult both to convey and to be understood, especially by people who see the Great Basin as an alien wasteland. With the following poems which are an integral part of the Sierra Club's M-X slide show, we will attempt, once more, to convey to you how we feel about our desert lands. This poetic expression is as fundamental and vital to our statement as the technical comments." (A0855-6-015)

Selections of Poetry from Mildred Breedlove
THIS BARRENNESS WILL ALSO PASS. . . . . and SOLILOQUY
I sing of desert beauty while I stand
Upon a fallen tree, now petrified -
And know that once its leafy branches fanned
The misty air,
When everywhere
The dank, sweet smell of sodden earth denied
Foreverness of burning sand.
I hear a chieftain's prayer,
Who may have stood where I am standing now,
And mused. . .
I see a brave and hear him call
Above a storm or waterfall,
Where now are sun and sand and silence . . . fused
With time.
And as I climb
The multi-colored hills,
I do not mourn the passing bough:
The desert has a song to sing.

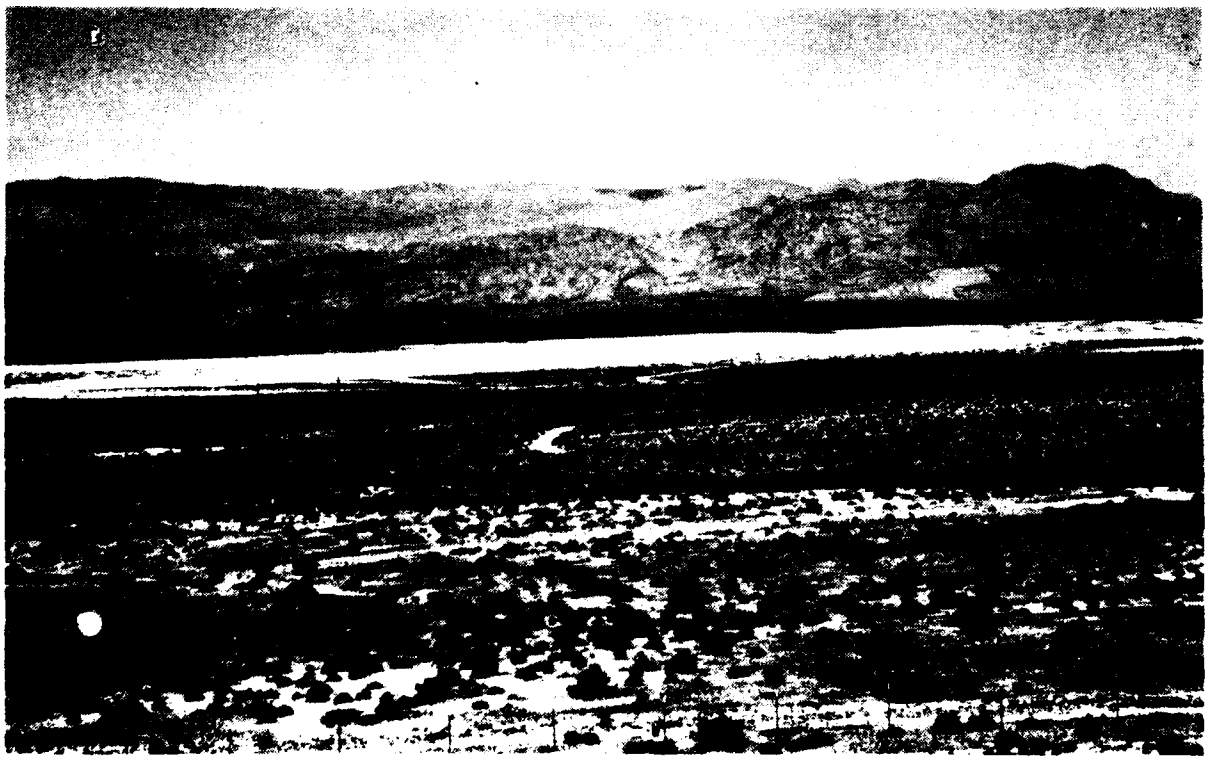
Let sparrows, larks and whippoorwills
Go north or east, and fling
Their hearts from living trees -
The songs the desert sings are these:
The utter stillness of the night . . .
The hills in colorful array
Of changing patterns day on day . . .

The peace and solitude,
Unbroken, save by wind,
Or the unhurried flight
Of vultures seeking prey.

And then one day, a dawn will come
When oak and ash and blue delphinium
Will anchor here.

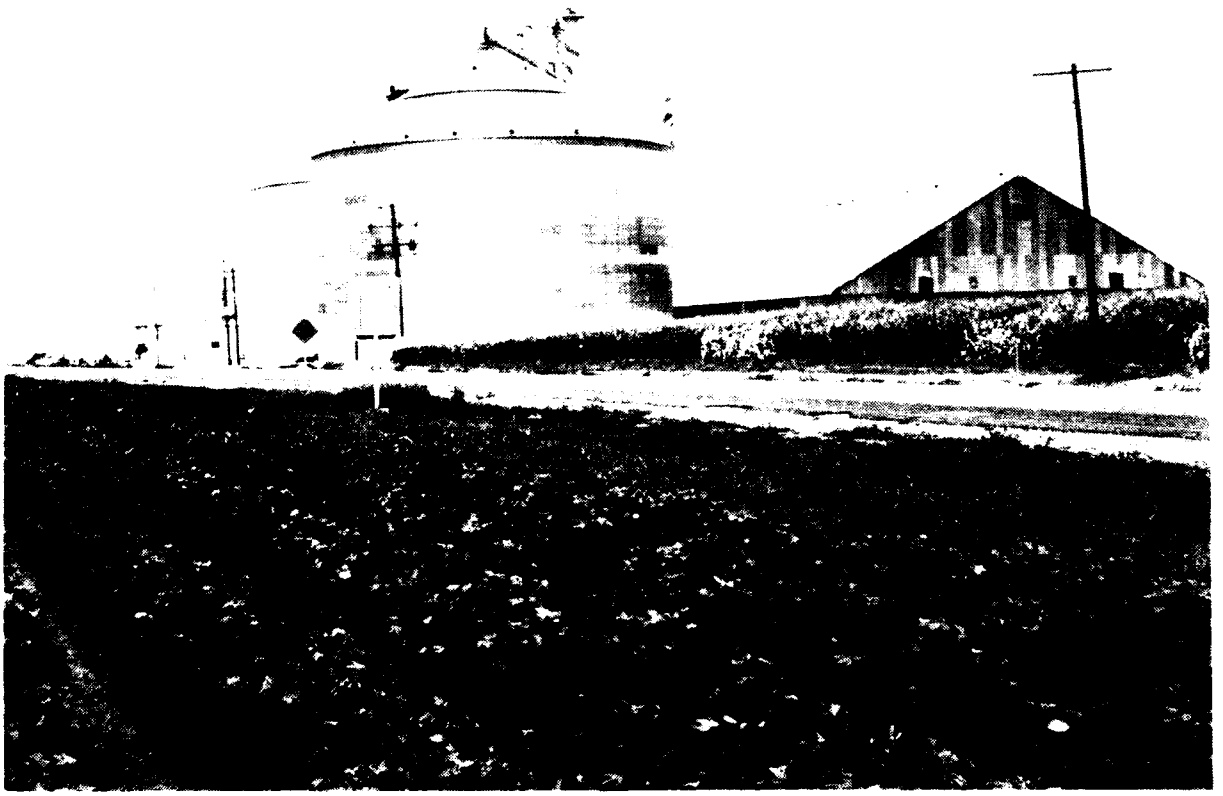
A bird-call, sweet and clear,
Will drift across the indigo
Of snow-fed lakes, as smooth as glass
That mirror haws and sassafras.
The chieftain and the brave and I
Will meet beneath a weeping sky -
How blind is he
Who cannot see
Magnificence in desert hills,
Nor find expressed
In placed west,
The peace each desert scene instills.
How deaf is he
Whose symphony
Is alien to a desert night,
Where silence has
The cadences
Of lute and lyre and larks in flight.

How blest is he
Who fits the key
Of life into this wide expanse -
Who looks upon
A desert dawn,
And knows it, not a happenstance. (A0855-6-015)



PUBLIC COMMENT ON THE DRAFT EIS:

"I think probably the thing that concerns me the most is the life style which is changes. If you have a community such as ours, kind of quiet, peaceful, mannan-type of environment, and you come in with inflationary wages, a new higher standard of living, and then the system is withdrawn, we are a little bit concerned that those people are going to have to make a frustrating decision. Are they going to follow the construction crew and move out of the community and join those ranchers who went broke and moved out of the community, or are they going to stay there and return to the lower level of life that they had in the past and be frustrated?" (B0458-8-008)



4.0 THE BOOMTOWN LITERATURE

Some of the impacts on a small community located near a large energy, military, or industrial construction project are predictable. The large influx of construction workers and their dependents usually required because the labor pool in the surrounding communities is typically inadequate is reasonably easily predicted on the basis of construction schedules and construction workers demographic characteristics (Old West Regional Commission, 1975). Also quite predictable, given certain reasonable assumptions about per capita or per household requirements and consumption behavior, are the shortages of housing and services that will be experienced, at least in the short run, given the demands and existing supplies.

What is not apparent and therefore not easily predicted are the effects a large influx of outsiders can have on social structure and ways of life of the host communities and surrounding region. Yet this is an area of much concern, especially to residents of the two deployment regions, because of news accounts and other writings on social disruption and malaise that have accompanied some boomtown developments in the west, leading to the term "Gillette Syndrome" (Kohrs, 1974).

4.1 CONTROVERSIAL ISSUES

There is a growing body of literature on boomtowns in which the experiences of both the indigenous population and newcomers are dealt with at some length. However, some of the literature on the social impact of boomtowns is notable for its inconsistency of approach and lack of explicit theoretical base (Cortese and Jones, 1980). Conclusions about boomtown effects are based on unsystematic research (Lewis and Albrecht, 1977). There is a lack of time series and cross-sectional data *from which to test hypotheses*, thus making verification of some assertions difficult. The data on which many of the assertions are based usually are for only one year, generally are not comprehensive, and frequently do not include other counties or towns as controls. Consequently, as Thompson states, a mystique has grown up about boomtowns which is difficult to refute: a mystique that the social problems alluded to in Kohr's characterization, the "Gillette Syndrome," occur whenever and wherever rapid development takes place (Thompson, 1979).

The following statements are typical:

> "Rapid increasing crime rates have often been noted. For example, in Rock Springs, Wyoming, the number of calls to the local police department increased from 8,000 to 36,000 while the population was doubling." (Albrecht, 1978) (emphasis added).

> "To afford some perspective of the characteristic of boomtowns, the following describes conditions found in Sweetwater County, Wyoming during the 1970-74 period ... population ... increased from 18,931 to 36,900 with little expansion in police facilities, crime rates increased by 60 percent between 1972 and 1973" (Cummings and Mehr, 1977) (emphasis added).

Clearly, the number of calls to a local police department cannot be a sound predictor of actual crimes, and it would have been nice to know what the population increase was between 1972 and 1973 in the other example. When control

communities are included, the results are ambivalent. Thompson does, in fact, substantiate Kohr's assertion that criminal activity increases with population growth, but only some 30 percent faster. Indeed, Thompson's data seem to indicate that although there appears to be an increase in crime with population growth, and that in all of his five counties crime was increasing at a faster rate than population, there is no statistically significant relationship between the two (Thompson, 1979). However, Brookshire and D'Arge maintain that in their comparative study of Rock Springs, Wyoming and 36 other similar cities with growth rates only one-fourth that of Rock Springs, there is no statistically significant difference in crime rates (Brookshire and D'Arge, 1980).

Data recently collected by the Colorado Division of Criminal Justice provide a good illustration of the problem in trying to pin down the relationship between population changes and changes in the crime rate. Table 4.1-1 shows the crime rates per 100,000 population in eleven western slope counties in Colorado for 1970 and 1979, and the change in the crime rate over that period. Also shown are the population figures for 1970 and 1980 and change in crime rate from 1970 through 1979 (no crime data were available for 1980 and population figures for 1979 were similarly unavailable). For two counties, Delta and Montrose that grew about 30 percent over the decade and had similar populations, the increase in crime rates was markedly different: 215 percent for Delta County and 55 percent for Montrose County (Table 4.1-1). The relationship between the rate of population change and crime rate change is also shown in Figure 4.1-1. Clearly, no simple, straightforward relationship exists. For two counties that grew in population by about 50 percent, the crime rates changed by 26 and 140 percent, respectively. Likewise, two counties that grew in population by 100 percent, experienced crime rate increases of 214 and 870 percent each (Figure 4.1-1). Judging the data presented in Figure 4.1-1 then, it appears safe to conclude that as population increases so does the crime rate. The degree or range of increase, is wide and is a function of variables that are unknown. When the number of crimes per additional 100 people were calculated, the range extended from four additional crimes to 36 additional crimes (Colorado Division of Criminal Justice, 1981).

Another weakness in the literature is that in some studies there is no attempt to control for intervening variables. Thus, the increase in crime that is often reported in boomtowns may be explained, in part, by a shift in the population age structure. When construction workers and their dependents come into an area, the proportion in the population of 26 years and under may increase substantially. Since a particularly high percentage of crimes are committed by individuals in their late teens and early twenties, the increase of crimes may be as much a reflection of the increased number of young people as any increase in lawlessness (U.S. Dept. of Commerce, 1973). Similarly, an increase in the crime rate may be due to a change in reporting habits of local law enforcement officials (Cortese, 1980). As a town grows, police departments tend to become more professional and generally bureaucraticized and thus more likely to respond to crime reporting requests. Nor is it clear who the crime victims are. Do the "oldtimers" of the indigenous population suffer from the increase in lawlessness, or are the crimes confined to groups of the newcomers? Could it be that construction workers themselves are a particularly "crime prone" group who "work hard and play hard," and that many types of crime, such as drunken disorderliness, and brawling, are confined to this group, leaving the local population relatively unaffected?

Table 4.1-1. Crime rate change and population change, Western Colorado.

County	Crime Rates/100,000 Population			Population		
	1970	1979	Percentage Change 1970-1979	1970	1980	Percentage Change 1970-1980
Delta	876.5	2,758.9	214.8	15,286	20,274	32.6
Eagle	6,748.0	10,762.2	59.5	7,498	13,334	77.8
Garfield	2,064.6	4,975.5	140.9	14,821	22,483	51.7
Gunnison	3,589.3	8,967.7	149.8	7,578	10,655	40.6
Jackson	1,601.3	2,555.6	59.6	1,811	1,865	2.9
Mesa	3,679.8	4,624.1	25.7	54,374	81,495	49.9
Moffat	2,344.7	7,360.6	213.9	6,525	13,129	101.2
Montrose	2,901.6	4,508.3	55.4	18,366	24,249	32.0
Pitkin	9,700.8	20,942.1	115.9	6,185	10,411	68.3
Rio Blanco	1,301.1	4,280.7	229.0	4,842	6,294	30.0
Routt	712.9	6,929.6	872.0	6,592	13,374	102.9
State	5,371.2	7,155.4	33.2	2,209,596	2,878,407	30.3

T4959/1 -2-81

Sources: Colorado Division of Criminal Justice (1981), Colorado's Energy Boom: Impact on Criminal and Criminal Justice (Denver, Co.: Department of Local Affair):24, Table II-2. Bureau of the Census (1981), 1980 Census of Population and Housing, Preliminary Reports, Colorado (Washington, D.C.: U.S. Department of Commerce), U.S. Bureau of the Census.

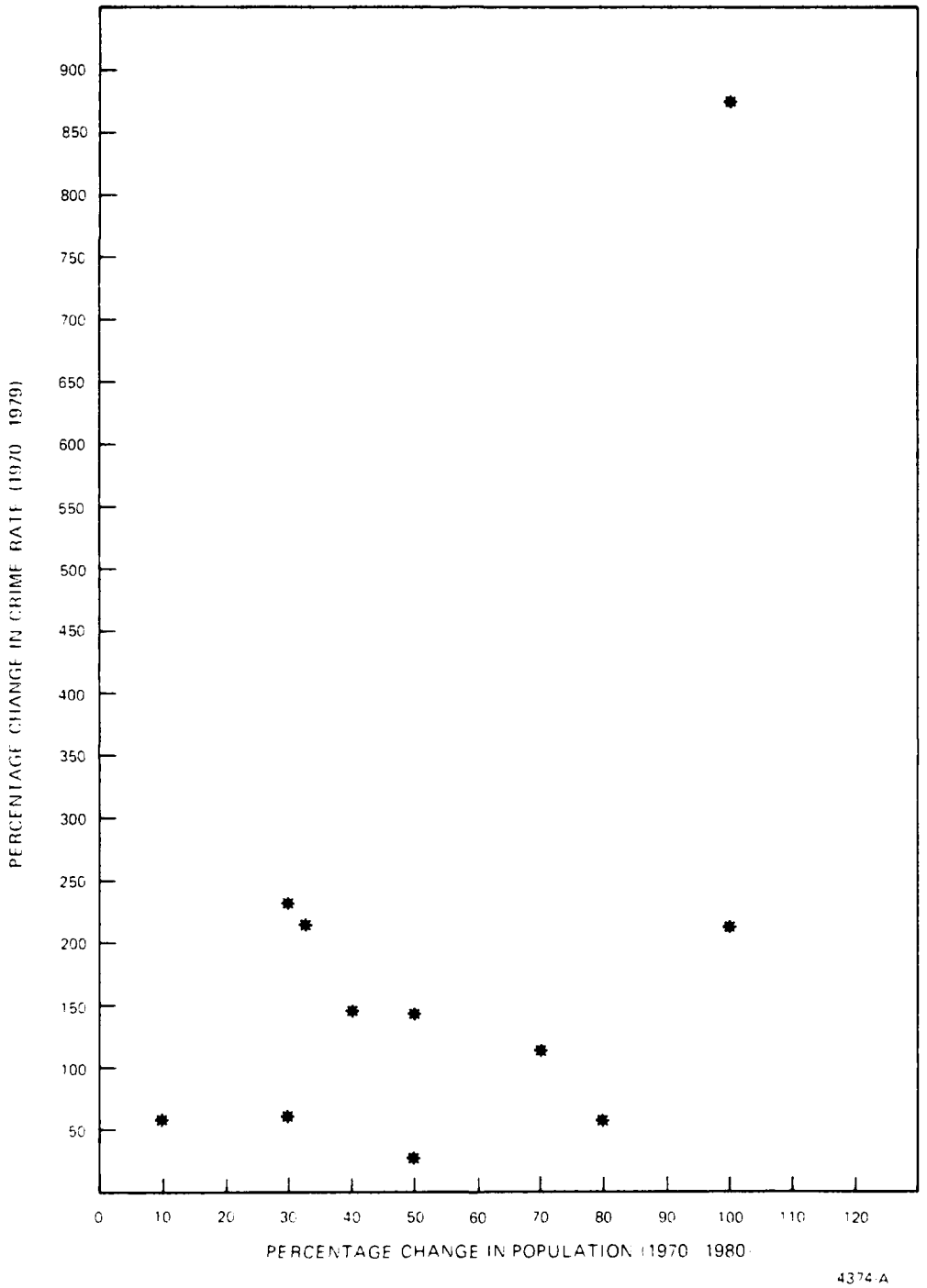
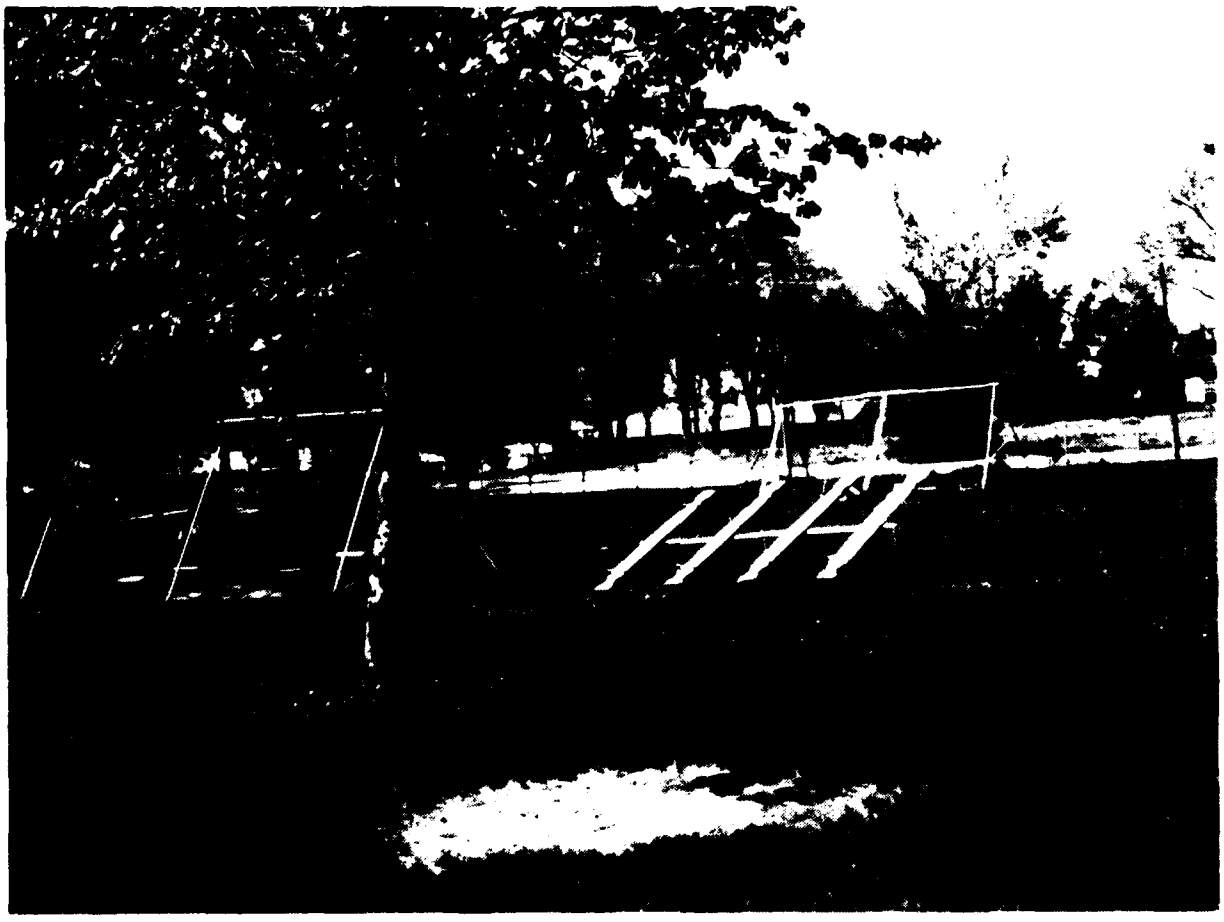


Figure 4.1-1. Relationship between rate of population change and crime rate change in eleven western slope, Colorado, counties. (Source: Table 4.1-1.)

PUBLIC COMMENT ON THE DRAFT EIS:

"Quality of Life. Little analysis is presented of the human impact of 30,000 highly mobile, young (many single), construction workers who have moved from job to job in the area. There should be greater discussion of the impact of crowding, crime, drugs, alcohol, prostitution --all the anti-social ills and behavior often noted in energy boomtowns such as Rock Springs and Gillette, Wyoming, and the Alaska pipeline project.

"There should be more attention to the impact that recreational needs of 30,000 workers may have on the resources and management capabilities of all federal, state, and locally managed lands. There should also be more discussion on what happens to these remote areas when the M-X system is declared obsolete in 15-20 years time." (80855-5-028)



This points to another deficiency of the boomtown studies, namely the lack of detail as to which crimes are supposedly increasing. Typically, the assertion is that crimes are increasing, or that the number of arrests have increased (Kohrs, 1974). Whereas, Thompson does concede an overall increase in the crime rate of Gillette, Wyoming, he does point out that the greatest increase occurred in crimes against property, such as burglary, larceny, theft, and motor vehicle theft; while cases of crime against persons such as robbery, forcible rape, and homicide did not increase significantly (Thompson, 1979). This is supported by Brookshire and D'Arge, who report that their results of a comparative study of crime in Rock Springs, Wyoming with other communities in the west, indicate that the mix of crime is likely to change under boomtown circumstances. For example, auto theft, petty and grand larceny, burglary, and murder significantly increased, but negligent manslaughter, rape, robbery, and assault did not significantly increase. They argue that this change in the mix of crimes may be better or worse, depending on community perceptions. In the absence of a relative ranking of community aversion to different types of crime, they maintain that it is impossible to assert that energy impacted communities necessarily are worse off. Thus, with respect to crime, they argue "that the 'classical' description of boomtowns is not statistically verifiable" (Brookshire and D'Arge, 1980).

One also has to bear in mind that the crime rate appears to be generally increasing in society as a whole. For example, between 1970 and 1977 the crime rate per 100,000 persons increased from 3,985 to 5,055, an increase of 26.85 percent. Over the same period, the population increased by 6.17 percent (U.S. Bureau of the Census, 1979). There is also evidence to suggest that the crime rate for violent crime (robbery, aggravated assault, forcible rape and murder) increased faster in small towns and rural areas than in the nation as a whole (U.S. Bureau of the Census, 1979). Thus, this overall societal increase in criminality should be taken into account when examining reported boomtown crime increases.

Unfortunately, many, if not most, of the assertions and claims regarding social pathologies such as suicide rates, juvenile delinquency, school drop-out rates, alcoholism, etc., are marred by similar methodological weaknesses and disagreements in the literature. In the case of suicides, for example, there are frequent claims that the suicide rate increases markedly due to the loss of identity, recognition and stature, or the shifts in friendship patterns, or the inability to cope with the rapid change. However, due to the large difference in suicide rates between males and females (24.9 vs 8.6 suicides per 100,000 population 15 years old and over, for the United States as a whole, respectively, U.S. Bureau of the Census, Statistical Abstract, 1979); an increase in the suicide rate should be expected in a boomtown situation where there is the sudden influx of large numbers of single male, or unaccompanied married male, construction workers. The increase in suicide rates, then, can at least be partially explained by the shift in the sex composition of the population, rather than any sudden increase in the suicidal tendencies of the population as a whole. Indeed, the assertions do not explicitly identify which particular subgroup of the population is experiencing the increase in suicides; something that would be useful to know.

Similar statements can be found in the literature concerning divorce rates in rapidly growing communities. For example:

"The Gillette, Wyoming divorce rate is now twice that found in the surrounding county." (O'Hare and Sanderson, 1977)

"The divorce rate for Campbell (County) was 33 and 85 percent higher than the two neighboring counties." (Rock, 1976)

In one of the few studies that attempts to verify these assertions, Thompson maintains that the average divorce rate (numbers of divorces per thousand persons) for the 1970 to 1977 period in Campbell County was not statistically different from other counties in the state. In fact, he shows that it was lower than the state average (Thompson, 1979). These data covered seven years and five counties and the state total, whereas Kohr's claims were based on data for one year and for three counties (Kohr, 1974). Cortese correctly points out, though, that Thompson's analysis of average divorce rate in Campbell County over a seven year period masks a doubling of divorce between 1974 and 1975 (Cortese, 1980). When the greatest population increase occurred between 1975 and 1976, however, the number of divorces dropped significantly, although they did increase in the next year, when population growth slowed down somewhat, a 21.95 percent rate versus a 56.9 percent rate between 1975 and 1976 (Thompson, 1979). There appears to be, then, no close correlation between rates of population growth and divorce rates. Indeed, in another study, Wilkinson et al. (1980) suggest that any association between the rate of population growth and divorce may be spurious. Their data, for some 292 counties in Montana, Nebraska, North Dakota, South Dakota, and Wyoming, show that a positive relationship exists between divorce rate and growth rate only when the effect of other variables is not controlled. When other variables are entered into their analysis, the relationship between growth and divorce is greatly weakened. State of occurrence, permissiveness of state divorce laws, and proportion of the local labor force employed in agriculture are all better predictors of the divorce rate than is the rate of population growth (Wilkinson et al., 1980).

Although one might expect a lag in the hypothesized relationship, this has not been tested. Indeed, what is also needed to adequately test the hypothesis of a casual relationship between population growth and an increase in divorce rates are data on age group specific divorces per 1,000 eligible married couples. There is also a need to control for specific subgroups of the population. It could be, for example, that certain subgroups of the in-migrating population have particularly high divorce rates, or that particular age groups have higher divorce rates and that these are more heavily represented among the in-migrants than in the host community. Without these kinds of control there is simply no real way to either substantiate or refute Kohr's hypothesis.

In the area of worker production and turnover in boomtowns, Gilmore and Duff (1975) describe a "problem triangle" or vicious cycle in which, after a large influx of workers, local institutions and markets respond slowly to the increased demands, thereby degrading the quality of life which leads to lower productivity and more absenteeisms in the work force, which in turn inhibits the responsiveness of local institutions to the large scale population in-migration. The problem of worker productivity and turnover has been discussed by others (Nordlund, 1978). However, it is not clear that the quality of life has actually declined for newcomers. Salaries are typically higher in boomtowns and many choose to move to a boom town area to take advantage of this. High turnover in the construction and mining industries can

PUBLIC COMMENT ON THE DRAFT EIS:

"We truly care about our quality of life and feel that it will be greatly changed with the influx of so many people coming in to build the MX system. The way of life here is quiet and simple -- we would not want to see it changed by the complex missile system." (B0559-3-002)

be attributed to a number of factors, including workers with the same skill levels shifting freely in response to wage differentials between firms in the same area or to the same industry in a different area; workers' dissatisfaction with their foremen; intimidation by the harsher climate of western boomtowns; and a deliberate decision on the part of workers to come to the boomtown for only a short time to amass personal savings (Susskind and O'Hare, 1977). Thus, the alleged deterioration in the general quality of life may not be either wholly or even partially responsible for labor problems in boomtowns.

Typically data from unspecified sources are cited to support assertions about a wide variety of problems in boomtowns. Gilmore (1976), for example, says without citation or the presentation of evidence, that "in most boomtowns a 15 percent growth rate leads to institutional breakdown in the labor market, the housing market, and the system for financing local public facilities". Similarly, Gilmore and Duff (1975) also claim that "Five percent is generally about as much growth as a small community can comfortably absorb", again, without citing, presenting or giving the source of their data. Unfortunately, these undocumented assertions are frequently cited in subsequent studies as documentation.

It seems that some boomtown problems have been greatly exaggerated for journalistic effect. Thus, the mayor of Rock Springs, Wyoming, is quoted as saying, "I've heard stories (about Rock Springs) that I don't even recognize" (Corrigan, 1976). Few studies on boomtown effects have included individual-level data on "social pathologies" from the general populations of affected communities. In fact, Freundenburg (1980b), in a study of four communities in western Colorado, found an apparent paradox. Namely, that while the available statistics from a community-wide level are consistent with the predictions of social pathologies, his survey data on alienation and personally perceived quality of life, by contrast, do not support the hypothesis that rapid community growth leads to extensive personal disruption and malaise.

One must conclude that some assertions found in the boomtown literature are not statistically verifiable, and thus should be treated with caution and skepticism. The matter is complicated because the evaluation of any social impact is affected by the evaluator's social values. Social impacts may be beneficial as well as detrimental, and often both at the same time. But as Wolf notes, there is no rational or legal basis for deciding whose values and interests are served (Wolf, 1974). Since the available evidence on the consequences of rapid population growth is weak, each interest group is able to find some form of nominally "scientific" corroboration for its position. Data on projects is so sparse and incomplete that a variety of interpretations can be placed on them (Meidinger and Schlaiberg, 1980).

Lewis and Albrecht (1977) challenged the conventional wisdom that the average resident of boomtowns experiences a net decrease in welfare. They set out to ascertain the true source of public concern about rapid development in rural areas and conclude that all too often the concerns voiced, and criticisms offered, originated from government agencies and environmental groups who are far removed spatially from the problem. This, of course, does not stop these groups from feeling an obligation to protect local residents and their environment by requiring or lobbying for environmental impact statements (Lewis and Albrecht, 1977). A study of local resident attitudes in Beaver County, Utah, and Caribou County, Idaho, showed people to favor proposals that would mean rapid economic development and

PUBLIC COMMENT ON THE DRAFT EIS:

"One of the values which is considered most important by rural Nevadans is the emphasis on the family, and the rural community as a healthy place to raise children..." (A0975-2-054)

population growth (Lewis and Albrecht, 1977). In another study of ABM Development in North Dakota, 82 percent of the residents interviewed felt that the development of the ABM site had been good for the area, even though the population of the community in question, Langdon, had nearly doubled in four years (Coon et al., 1975). Despite the paradox of community support for a disruptive process, this support appears genuine, although qualified. "If local residents are forced to choose between massive growth and no growth at all, they will generally vote in favor of growth; when given the choice; however, respondents indicate a clear preference for lower levels of growth" (Wisniewski and Freudenburg, 1980). According to the mayor of Rock Springs, Wyoming, the rapid growth was "a traumatic experience," but "once you get past the initial bouncing around that you take, and level off, then you are better off" than with no boom at all (Corrigan, 1976). This seems to be the case even though there is considerable incongruence between the expectations of local residents in actually filling the jobs that come with development and the reality that most of the jobs and income benefits accrue to skilled in-migrants (Little and Lovejoy, 1979).

One other salient point that applies to newcomers and others who actively participate in the boom is that any boomtown offers an opportunity for individuals or families to trade a short period of discomfort for large financial rewards (O'Hare and Sanderson, 1977; Griffith, 1975). Wage differentials between boomtowns and other communities can be considered a premium to compensate workers for the boomtown's poor quality of life (Cummings and Mehr, 1977). It is not clear whether boomtown workers would appreciate having this wage differential eroded by increased taxes to improve boomtown conditions. Another perspective is that "we should at least entertain the possibility that boomtowns where life is onerous, but pay is high, serve a social purpose analogous to the function of the frontier in Turner's interpretation, and that this purpose might not only mitigate the societal cost of boomtown pathologies but even justify them!" (O'Hare and Sanderson, 1977). This argument, of course, while applying to the in-migrants, will not satisfy and does not apply to the existing, indigenous population that is impacted by a project.

4.2 QUALITY OF LIFE AND THE "BUST" PHASE

The bust phase of the "boom-bust" cycle would occur when the construction work force would begin to decrease as M-X construction nears completion. Population would start declining as construction workers and their families move out of the project area. Jobs created to support the construction workforce in retail and service sectors, schools and other sectors would no longer be needed. Unemployment would increase as persons in such secondary jobs were laid off (Kruse, 1979). Women who entered the labor force during the boom period would exit from it, and the professional child care services that emerged to serve working mothers would fold (Baxter and Cortese, 1981). Young people who were able to remain in the area because of boom employment opportunities would likely leave for employment elsewhere. Processes such as these require the resident population to adjust once again to changing conditions and opportunity structures. The impacts of these processes on quality of life would be mixed, just as the impacts of the boom were mixed. Thus some people may regret the loss of employment opportunities and the sense of excitement that comes with increased population, activity and diversity, while others would be pleased to have quiet once again.

The exact nature of the readjustment during the bust period would depend partly on an area's capacity for coping with the boom and the adjustments that local governments and residents would make to boom conditions.

PUBLIC COMMENT ON THE DRAFT EIS:

"FLPMA also requires an analysis of impacts resulting from federal land action. The M-X DEIS only mentions these impacts. Those who have climbed the mountains in eastern Nevada and have seen up to a thousand square miles of untouched valleys, save minor roads or scattered buildings, will surely be dismayed at the loss of this recreational and psychological resource. The DEIS does not address this issue with any substance. From a recreational and social view, this is a dramatic impact and must be considered as such in the DEIS." (B0873-8-021)

The historical record is highly variable. In the 1950s, some communities expanded their retail sectors and public services including education, to accommodate the boom, on the mistaken assumption that industrial development would follow completion of a large hydro-power project (Harnisch, 1980). Left with over-expanded facilities from previous booms, these communities approached subsequent major construction projects with much caution and wariness. With assistance from the Corps of Engineers, mitigation plans were developed for coping with construction-related population growth that would not leave communities with excess capacity once construction was completed (Harnisch, 1980). In this way, some adverse aspects of the boom-bust cycle were avoided.

For another hydroelectric project, the nearby communities welcomed construction workers because they provided additional manpower for volunteer community service projects, they and their families enlivened social activities, and their children permitted greater efficiency in schools where resident enrollment had declined to well below capacity (U.S. Corps of Engineers, 1979). Out-migration of construction workers and their families left these communities with less people to participate in community affairs and social activities.

In Langdon, North Dakota, following the sudden decommissioning of the Safeguard project, population declined almost to preboom levels but not all aspects of social life returned to the preboom period (Baxter, 1981). The city government and school administration staffs which had enlarged during construction of the Safeguard did not shrink to predevelopment levels. Governing processes which had become more formal during the boom period continued in that style. During the preconstruction era older citizens were able to have the city snowplow their driveways. This informal, more personal practice was discontinued during construction and has not been resumed. Langdon residents, especially those between the ages of 20 and 55, discovered that they missed certain newcomers who had become active citizens, doing things like coaching Little League. During the boom period, business owners incresed their division of labor, hiring persons to specialize in particular tasks like bookkeeping, cashiering, and selling, leaving them to function as managers. During the bust period, owners had to lay people off and resume some of this work themselves. They had regrets about reducing their managerial roles. But the bust period left Langdon with some improvements as an updated and expanded water and sewer system, and new streets, hospitals, and schools.

The variety of boom-bust experiences suggest that social conditions do not necessarily return to what they were prior to project construction. The variety of experiences also suggest that the postconstruction period need not be a total "bust", especially in regard to overextension of facilities, if local communities engage in careful planning both for the boom and the bust phases associated with large construction projects. The quality of such planning is dependent on several factors: the availability of technical and financial assistance to communities that lack such resources; accurate and continually updated information to be provided by impacting agencies, on the size of the construction workforce and population growth to be anticipated; the community's consideration of its own goals--that is, what it can realistically expect to gain from the boom-bust cycle.

Counties which are part of the designated deployment area would be more vulnerable to the boom-bust cycle than counties in which operating bases would be located. The former, especially, need to consider carefully what community goals they might be able to realize by taking advantage of the boom-bust situation.

5.0 BASELINE QUALITY OF LIFE

The body and details of the baseline Quality of Life can be found in Section 3.2.1 in Chapter 3 of the FEIS.

PUBLIC COMMENT ON THE DRAFT EIS:

"Changes in availability of water could seriously affect life in this region. Farms and ranch headquarters, as well as the small communities, exist because water is available to meet the needs. Relocation of homes, ranch headquarters and communities, even a few hundred yards, could destroy their water supply and greatly increase the cost. If this is not carefully studied, the depletion of available water will result in severe fracturing of rural family life." (B0604-7-003)

6.0 QUALITY OF LIFE IMPACTS

The body and details of the Quality of Life impacts, by the Proposed Actions and Alternatives can be found in Section 4.3.1 of Chapter 4 of the FEIS.

PUBLIC COMMENT ON THE DRAFT EIS:

The quality of life resource category, as defined for this discussion, is the composite of social organization, community service, and economic health which alter the perceived or actual degree of merit of the human experience. The quality of an individual's life also depends on his or her degree of social participation in community, religious, recreational, family and other institutions, the quality of the physical environment, feelings of security, social worth and gratification in work, leisure and other settings and numerous other factors which are not addressed." (B0125-3-128)

7.0 OB IMPACTS

The details of Operating Base County impacts can be found in Section 4.3.1.10 in Chapter 4 of the FEIS.

PUBLIC COMMENT ON THE DRAFT EIS:

"I too am a patriotic citizen. Nothing would make me happier than to see this valley grow and I want it to grow and I expect to make it grow and I think we could be a great asset to each other." (B0062-8-008)

8.0 POTENTIAL MITIGATION STRATEGIES

This chapter reviews the literature on mitigation strategies. All of these have either been advocated, suggested or even actually implemented in attempts to ameliorate the impacts of other projects, typically large-scale energy projects in the West. It is believed that they might have some applicability for mitigating the adverse impacts of the M-X project and are presented for the consideration of county, local and municipal leaders. This review, and the accompanying listing of strategies, however, implies no commitment on the part of the Air Force or the Department of Defense. Detailed M-X program mitigations are shown in ETR-38, Mitigations.

The following sections discuss some of the problems in attempting to mitigate adverse project impacts, present a list of the actual strategies that have been advocated or tried, and outline some of the forms of assistance which the Federal Government provides to states and localities.

8.1 MITIGATION PROBLEMS

If the potentially impacted community's infrastructure and facilities were adequate to provide the quantity and quality of goods and services required during the expansion, many of the boomtown problems would be reduced in severity if not eliminated. Problems arise, however, because almost invariably, small, isolated communities do not have the requisite infrastructure and facilities and, moreover, the community's needs are out of phase with its ability to pay (Nordlund, 1978). The need arises before and during the population expansion while the taxes or revenues come late in the development or entirely afterward. Indeed, as Nordlund notes, many of the community's needs occur several years before the influx of people occurs. Building and expanding medical health facilities, schools, roads, sewer, water and other utility systems, or new parks require the commitment of capital and time two or three years before project development actually begins (Nordlund, 1978).

The problem with this so-called "front-end-financing" is that there is a substantial degree of risk for a community about to experience a major project development (Corrigan, 1976). If the development is delayed or abandoned, that time and those resources may be wasted. Communities need some type of insurance or guarantee that they will not be crippled by heavy indebtedness if a planned development does not materialize or is quickly abandoned as was the case, for example, in Nekoma, North Dakota (Moody, 1981).

Lopreato, Monts, and Bareiss (1980) attempted to evaluate alternative strategies for financing municipal facilities through simulations based on a system dynamics model of public service facilities. They conclude that no locally generated revenue strategy solves the public service financing problem. For example, dramatic increases in user fees lower revenue shortages but increase local tax rates to unacceptable levels as does the removal of property tax ceilings. Only direct extralocal grants both eliminate public services and keep the property tax rate down. They caution that their results support the contention that there is no simple "one-shot" solution to the management of community fiscal problems that arise because of a temporary population influx, and that the solution of the boomtown

PUBLIC COMMENT ON THE DRAFT EIS:

"The desert landscape once severed and decimated is no longer integral and integrity once was a human value. Water is our lifeblood; the ice cold snow melt and the deep creeks, priceless nameless creeks running full and muddy, the aquifers rises is the basis of hundreds of families and native peoples out there in the desert of the gentle rolling earth cannot be lost to a manmade project." (B0033-9-004)

financing problem will likely involve some combination of prepayments, loan guarantees, grants, locally generated revenue aimed at existing residents, and locally generated revenue aimed at newcomers (Lopreato, Monts, and Bareiss, 1980).

Much of the boomtown literature places a great deal of emphasis on mechanisms for planning and coordination in the management of rapid development (Jirovec et al., 1980; Bleiker, 1980), but Newitt (1977) warns that our reach greatly exceeds our grasp; something that should be recognized and incorporated into the planning process itself. That is, the negative consequences of rapid development are, partially at least, inherent in the process and development plans would not necessarily prevent crowding in housing and schools, rising crime rates, inflated prices, and high labor turnover. Despite this admonition and "a concensus that to date there is no example of a local community or county which has successfully mastered the situation" (Myhra, 1976), what can and should be done to alleviate or mitigate the adverse boomtown impacts? Perhaps most important is the necessity for as accurate a prediction of future population in-migration as possible (HUD, 1976), since the ability of a community to mitigate or ameliorate problems is only as effective as the information it receives from the sources of growth. Clearly, a community cannot hope to cope with a situation which it has had no time to prepare. Moreover, projections of future employment and in-migration and the associated demands for public services should be presented in ranges to allow for the inevitable changes in project size and timing (HUD, 1976). Indeed, uncertainty has to be allowed for, and it is imperative to have an adaptive impact management system since there are typically large variations between original forecasts and actual work forces. Strikes, power failures, cash-flow problems, weather, regulatory problems, prime or subcontractor dilemmas, and retrofitting hassles can all inflate the numbers of construction workers (Raine, 1981). In order to avoid surprises, local people should be involved in the establishment of a monitoring system to keep them acquainted with all developments (Raine, 1981).

In addition, accurate estimates of the likely geographical distribution of the construction and operation workers and their dependents coming into the impact area are essential if communities are to adequately prepare for anticipated growth. However, it should be realized that these estimates, typically based on some variant of the gravity allocation model, are likely to be subject to errors and should only be used with caution (Chalmers, 1977). Indeed, it has been shown that the gravity model is least effective in the least densely populated areas of the country (Murdock et al., 1978).

Gilmore et al. (1977) have pointed out that the effectiveness of the mitigation efforts varies with their timing and with the stage of project development during which they are applied. They identify three stages of project development and three corresponding stages for impact mitigation purposes: (a) Avoid; where impacts are avoided before development occurs; (b) Alleviate I; where impacts are modified as development starts; and (c) Alleviate II; where impacts are ameliorated during the boom crisis.

Essentially the options for mitigation decline over time so that by the time the "boom crisis" period is reached, it is too late for effective mitigation (Talagan and Rapp, 1975). Clearly, wherever possible mitigation measures should be mitigated in the "Avoid Stage", that is before development occurs, or, at the least, during the "Alleviate I Stage". When mitigation measures are introduced before project

PUBLIC COMMENT ON THE DRAFT EIS:

"The stated increase in local land values obviously refers to lands around the OBs for commercial and residential use. Include a discussion of the decreased land values associated with M-X deployment. There is also reference to temporary shortage of some goods, services, and skilled construction labor. Based on the construction timetable, the 'temporary' shortages could last six to seven years. During that period, competition for scarce labor, materials, equipment and capital resources may vastly increase the costs of developing energy resources. This discussion needs to be expanded in the FEIS." (B0122-0-079)

development, they are likely to be cheaper and more effective and will probably avoid the necessity for poor improvisations at later stages of project development. Indeed, it has been maintained that investments in infrastructure that begin only after the construction phase has begun can potentially exacerbate the boom (Cummings and Schulze, 1978). However, as Gilmore et al. (1977) note, early mitigation measures also carry the greatest risk because they involve the commitment of resources before the project development, and if the development is delayed or abandoned, those resources may be wasted (Moody, 1981). Because of this risk, early mitigation measures require the most outside support, particularly in those communities that have had a long boom and bust tradition since the local residents are likely to be very skeptical of "Avoid mechanisms" (Gilmore et al., 1977).

What, then, are some of the mitigation measures or strategies that have been suggested? The following sections list examples of mitigation strategies, used in a variety of projects, organized by the following categories: community cohesion, institutions, public services, local economy, and housing.

8.2 MITIGATION STRATEGIES FOR PRESERVING COMMUNITY COHESION

The county might consider funding a community relations commission; citizen advisory committees would examine new approaches to improving life in the county, for example: telephone referral service for information on available social and governmental services; orientation sessions, and education, cultural and social activities; and coordinated membership drive of all volunteer organizations in the county (HUD, 1976; Gilmore and Duff, 1975).

Welcome wagons, "hospitality hostess" programs are good buffering mechanisms, easing the entry of new households into a community (HUD, 1976; Green and Curry, 1977).

Efforts to integrate newcomers and longtimers must attempt to provide an awareness of "who is who" among longtimers and their organizations while realizing that many of the former distinctions will be lost. Efforts also must be made to preserve community identity and community pride without ignoring or denying the very real problems that exist or finding scapegoats for problems that are not anybody's fault (Cortese, 1980).

If possible, schedule construction so as to even out workforce high and low periods of activity (Gilmore, et al., 1977).

Local government and groups use radio, TV, news media to inform citizens and to encourage citizen participation and activate community resources (Gilmore and Duff, 1975).

Establish locally sponsored adult education and career opportunities center (Gilmore and Duff, 1975).

Establish a community relations commission (Gilmore and Duff, 1975).

Establish local branches of state agencies to facilitate state services and technical assistance to communities (Greene and Curry, 1977).

State university, or local colleges, could provide community development technical or research assistance to localities through appropriate department, particularly in identifying social values and social problems (Greene and Curry, 1977; Uhlmann, 1979).

State university could set up program training for students to work in communities in human service areas. For example, the Wyoming Human Services Program at the University of Wyoming (Williams, 1976; Uhlmann, 1979).

Utilize Federal funding sources for various social services. For example, National Institute of Mental Health and other programs funded by appropriate health and human services agencies, family planning, child development, head start, child abuse, and alcohol and drug abuse programs (Rapp, 1976).

8.3 MITIGATION STRATEGIES FOR INSTITUTIONS

SCHOOLS (8.3.1)

Set up joint taxing districts (Greene and Curry, 1977).

Finance formulas should be altered to accommodate sudden influxes of students so as not to penalize individual districts for long periods of time (Talagan and Rapp, 1975).

Encourage the use of temporary facilities--modular and mobile homes, churches, community buildings, libraries, or going to split sessions or double-shifting, closed-circuit television or some kind of year-round schools rather than hasty construction of new buildings (Newitt, 1977; Lopreato et al., 1980; Greene and Curry, 1977).

States could provide financial aid from various state taxes and programs and [illegible] set up an impact office to administer impact funds or grants to schools (Greene and Curry, 1977).

Set up a Community Development Authority with bonding service for school construction (Rapp, 1976).

Set up a state [illegible] mechanism to lower bond interest rates ([illegible] et al., 1976).

Appropriate health [illegible] service agencies can provide technical assistance. [illegible] libraries, grants to higher education [illegible] programs (Rapp, 1976).

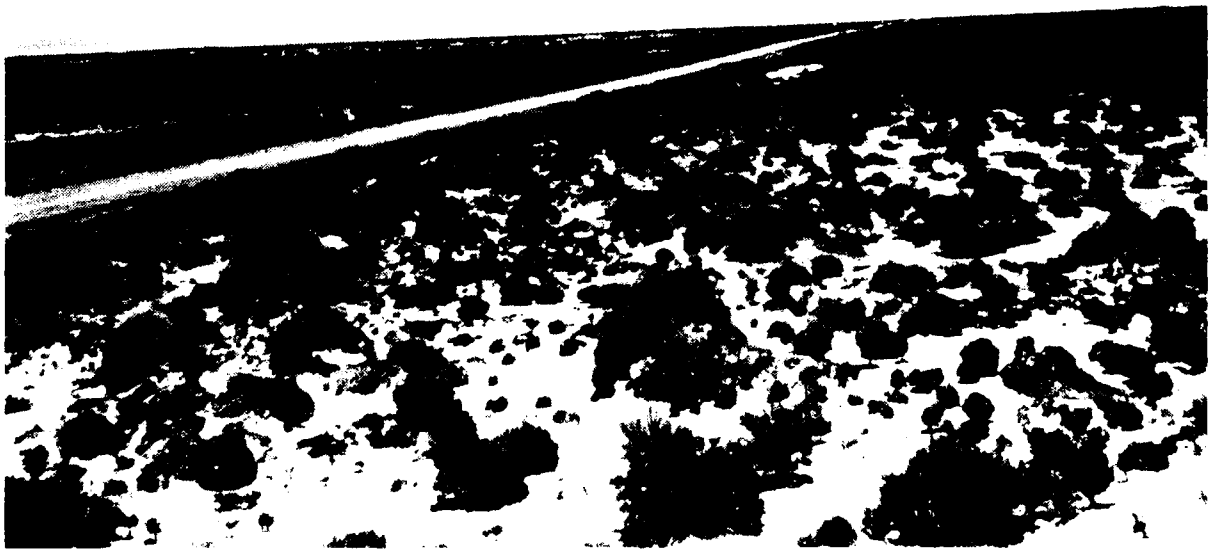
GOVERNMENT LOCAL FINANCE (8.3.2)

Develop [illegible] estimates and citizen participation in early stages and throughout planning process (Greene and Curry, 1977).

Use zoning, subdivision controls, flexible land use controls to guide growth (Greene and Curry, 1977).

PUBLIC COMMENT ON THE DRAFT EIS:

"I'm concerned with the impressing beauty one finds in the west desert of Utah and how it will be affected by the M-X project. I've spent many hours sitting in the mountain range in the west desert looking out at the magnificent scenes one finds there and I just shudder at the thought of looking out over these spaces I love so much and seeing these projects going up; the dust storms being created from those holes being dug for M-X and what not. I'm just interested in the preservation of this beauty. (B0006-5-001)



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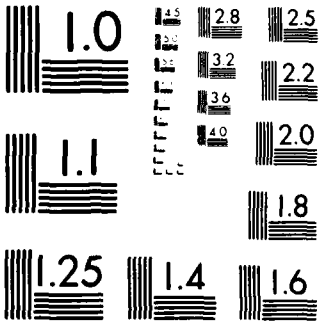


Set up state assistance programs to identify federal sources of funds (Greene and Curry, 1977).

Set up state and university sponsored training programs in growth management for local government officials (Rapp, 1976).

Establish multicounty planning districts (Federal Energy Administration, 1975).

State could permit debt ceiling to be raised to a higher percentage of existing taxable valuation or by converting local assessment policies to reflect higher assessed to full-value rate (Baldwin et al., 1976).

State can create a revolving loan fund, create state bonding authority, state finance agency (Federation of Rocky Mountain States, 1975).

Take advantage of federal financial sources for aid to impacted communities (Lopreato et al., 1980).

State and county governments should develop the capability to provide counsel to aid local government in establishing a viable and responsive local government unit (Talagan and Rapp, 1975).

Take advantage of state financial sources for aid to impacted communities, for example: tax prepayments; local bond purchases; impact payments; loan guarantees; bond or tax payment guarantees (Lopreato et al., 1980).

8.4 MITIGATION STRATEGIES FOR PUBLIC SERVICES

HEALTH SERVICES (8.4.1)

The strategy for improving health care in small communities seems to be one that includes the organization and operation of an effective ambulance service, providing emergency medical training and self-care training, utilizing the services of nurses, practitioners, and technicians, establishing a network of close working relationships with physicians and hospitals in nearby large cities, and only occasionally developing a comprehensive health center within a community (Kennedy, 1981).

States might consider establishment of mobile units to provide some type of services such as health facilities. In areas where several communities will be experiencing noncoincident construction peaks, these units could be rotated (Lopreato et al., 1980).

Can develop satellite medical centers/group programs (Greene and Curry, 1977).

Develop incentive programs to recruit physicians (Williams, 1976).

Establish Health Maintenance Organizations, which could be set up by local physicians, with federal assistance to offer prepaid health care (Real Estate Research Corporation, 1975).

Set up interstate helicopter and airplane ambulance network permitting rapid transport of accident victims to regional hospitals (Bureau of Reclamation and Institute of Applied Research, 1975).

Should be planning to coordinate public health resources operating within the state. Coordination of activities should focus on federal, state and other funds (Greene and Curry, 1977; Talagan and Rapp, 1975).

Use physicians in public health services to staff rural communities' clinic (Greene and Curry, 1977).

Utilize various federal programs to provide financial assistance for hospitals and health facilities--EDA, FMHA, Regional Commissions, HHS, and General Services Administration (Rapp, 1976).

Placement of physicians, dentists and other health care practitioners by the National Health Service Corps (NHSC), an arm of the U.S. Department of Health and Human Services. This agency signs up young professionals and places them in medically under-served areas for a two-year commitment period. The community has the responsibility to provide a place for them to practice, as well as anticipate their needs for housing, a job for the spouse if desired, and other similar requirements. These assignees work just like their counterparts in private practice, except that they are salaried and paid directly by the NHSC. The ultimate goal is to retain these individuals in the community on a permanent basis in private practice after their two-year commitment has been fulfilled (Jacobson, 1976).

Hold seminars for benefit of local health professionals to acquaint them with industrial-related diseases, accidents (Edwards et al., 1976).

Maintain ambulance first-aid station. Done in Colstrip (Johnson and White, 1975).

Provide temporary facilities such as mobile or modular units which can be used as construction activities move from one area to another or construct a building to serve as a hospital during the construction period and then become a nursing or retirement home thereafter (Bureau of Reclamation and Institute of Applied Research, 1975).

POLICE AND FIRE SERVICES (8.4.2)

State can set up a community development authority, as in Wyoming, to loan money to finance public services (Williams, 1976).

Establish mutual aid agreements among municipalities and federal facilities.

SOCIAL SERVICES (8.4.3)

Set up social service programs, such as family planning, alcohol, and drug-abuse centers (Greene and Curry, 1977).

Take advantage of federal assistance for social and health services, primarily from HHS programs such as Family Health Centers, Emergency Medical Services,

PUBLIC COMMENT ON THE DRAFT EIS:

"To those who stand to make the big bucks, which is obviously not the farmer and rancher, and support the M-X development in west Texas and eastern New Mexico I extend my sympathy to you. I think none of us are capable of even beginning to realize the far reaching negative effect this program will produce. I simply ask those who stand in support of the M-X development, 'Is money profited at the expense of others your main goal in life?' If so, your god is a different God from mine..." (80555-1-001)

Public Health Services Programs, Mental Health, Drug Abuse, Alcohol and Child Development Programs (Rapp, 1976).

For human services project, such as that set up by the University of Wyoming, provide students with training in social services in impacted communities (Williams, 1976).

Community and counseling facilities to deal with the elderly's problems (Greene and Curry, 1977).

Provision of nursing home and retirement facilities as older residents retire or become displaced by the social and technological change around them (Greene and Curry, 1977).

UTILITIES (8.4.4)

Temporary facilities and services should be utilized for the construction phase whenever possible. Package sewer treatment plants, contracts with state agencies for temporary staff, and other short-term solutions should be considered (HUD, 1976; Greene and Curry, 1977).

County can set up a special improvement district to finance a new sewer system. Done in Colstrip, Montana (Johnson and White, 1975; Myhra, 1976).

Since considerable lead time is required for utilities, updated preplanning must project the needs and timetable for initial construction. Public and private utility companies should be encouraged and required to develop an implementation schedule which make these amenities available as needed (Talagan and Rapp, 1975).

State can provide assistance for water pollution control, construction and sanitary projects, water supply construction (Rapp, 1976).

State can set up a Community Development Authority to loan money for water and sewer systems, roads, storm sewers and lighting and other public services, for example: Wyoming Community Development Authority (Williams, 1976).

TRANSPORTATION (8.4.5)

The community can provide minibuses to community facilities (Greene and Curry, 1977).

The community can develop a local transit system, as done in Sheridan, Wyoming (Greene and Curry, 1977).

Community can encourage or sponsor taxi service for intercommunity travel (Greene and Curry, 1977).

State provides highway funding for state highways and urban arterials (Greene and Curry, 1977).

The community can set up an area transportation coordinating committee early with the municipal, developer, and state planning personnel (Edwards et al., 1976).

Utilize federal aid programs to develop public transportation and to construct transportation facilities, administered by the Department of Transportation, Department of Housing and Urban Development, the Federal Aviation Administration, Economic Development Administration and Farmers Home Administration (Rapp, 1976; Williams, 1976).

Stagger shift hours to reduce congestion on roads from project to the community (Williams, 1976).

A systematic and timely program of manpower training could make better use of indigenous populations, thereby requiring lesser movement into the area, and it could also help some of the more economically disadvantaged people in the area (Kneese, 1975).

8.5 MITIGATION STRATEGIES FOR THE HOUSING SECTOR

Need flexible design since the construction of houses, streets and other facilities has to keep pace with the population influx and has to adjust to any unforeseen alterations in the growth rate. Therefore, the concept of the plan should provide for future growth to develop in separate pockets surrounded by open space. (Myhra, 1976).

To allow flexibility in location and responsiveness to housing demand provide as many types of housing in as many different areas of the community as possible, as was done in Colstrip, Montana (Myhra, 1976).

Need to eliminate the uncertainty as to urban development will occur and how long will it last. This uncertainty, when high, deters developers and creditors, so that speculative housing does not occur and mortgage loans may be either unavoidable or only available at unfavorable terms.

Many of the housing problems in boomtowns can be reduced by the intelligent use of mobile homes during the construction phase. They can be moved from site to site (Newitt, 1977).

Creation of a Housing Finance Authority by the state to subsidize mortgage rates. Done in Colorado (Gilmore et al., 1977).

Local growth management by utility expansion policies (Gilmore et al., 1977).

States can encourage factory-built homes by adopting building and zoning codes which specify industrial performance standards in their building codes rather than minimum property standards (Bronder et al., 1977).

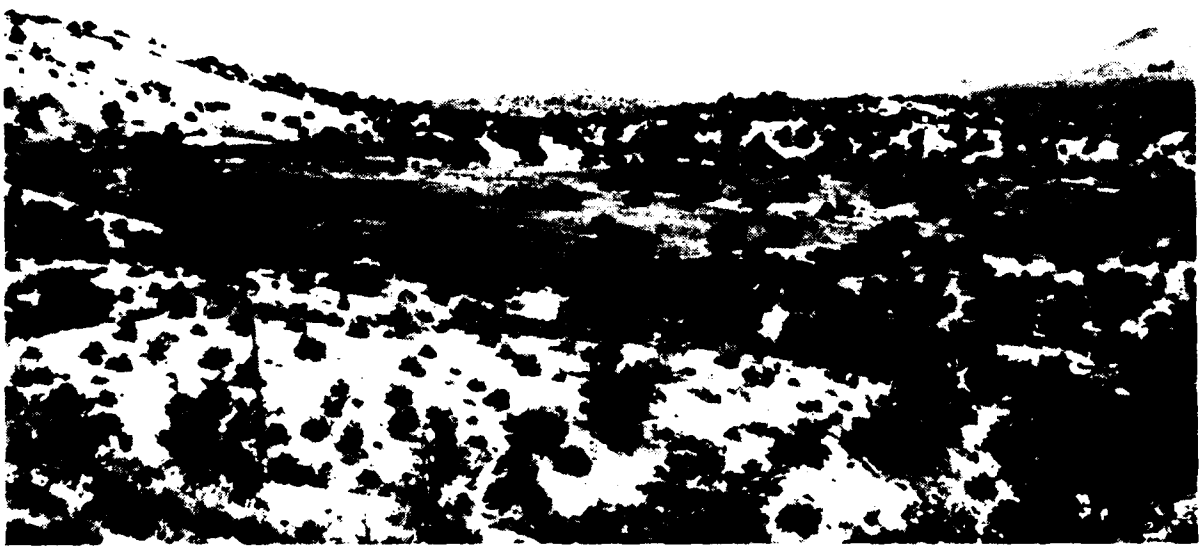
Codes and regulations are frequently not standardized throughout the state. This can cause builders added expense and time delays who must modify their housing plans from community to community (Bronder et al., 1977).

8.6 EFFECTS MANAGEMENT FOR BOOMTOWNS

In recent years, some communities in the Western United States have experienced stresses and strains resulting from rapid uncontrolled growth, similar to

PUBLIC COMMENT ON THE DRAFT EIS:

"I think that we have a very unique thing here. There aren't very many places that you can go in the world where you have the kind of opportunity for freedom, solitude, appreciation of the land in practically a wilderness status." (B0439-8-000)



the events which occurred during the gold and silver mining eras in the late 19th and early 20th centuries. Experiences with boomtowns in regions of high energy development during the early 1970s have been the cause of many "Chicken Little" stories circulating in other towns targeted for rapid development (Blundell, 1981).

Other communities anticipating expansive growth have taken note of the problems experienced by boomtowns and are putting "lessons learned" to good use. A boomtown episode does not have to be a totally negative experience. By planning for increased social and land use demands, and formulating mitigation plans, communities can offset many negative impacts and capitalize on benefits. By monitoring results of planning decisions, local citizens can evaluate and make necessary adjustments to earlier decisions and thus create continuous feedback loops.

As a result of the M-X deployment proposal, various federal, state, and local organizations have been activated or established to develop the extraordinary amount of information required for project decisions and identify impacts and alternatives. Federal agencies involved at this time include several branches of the Air Force (especially the Civil Engineer (AFRCE) and the Ballistic Missile Office (BMO; Bureau of Land Management; U.S. Fish and Wildlife Service; Council on Historic Preservation; Bureau of Indian Affairs; the Army Corps of Engineers (design and construction agent); and the Office of Economic Adjustment (OEA). Other federal agencies have been involved indirectly. The Western Federal Regional Council and the Rocky Mountains/Plains Regional Council (both composed of representatives from each of the non-Department of Defense agencies) have organized M-X Task Force(s). These Task Forces meet occasionally to consider project status reports, and if the program proceeds, will probably become more active with the states and local communities. The impacted states and local entities have established organizations to further their planning efforts. In general, these organizations provide information and planning assistance to members to help them in identifying impacts, alternatives and possible consequences of their decisions. Towns within Nevada and Utah have been impacted, in the past by gold and silver mining and have experienced the "boom-bust" cycle. The citizens of potential M-X impacted areas have no desire to be subjected to another cycle of this type of economic confusion and are taking steps to ensure that they recognize the alternatives open to them in dealing with the phenomenon and the consequences of these alternatives. The states and local communities recognize that they could be subject to both negative and positive impacts, but wish to choose measures which will reduce adverse impacts, thereby controlling their future.

OFFICE OF ECONOMIC ADJUSTMENT (8.6.1)

The Department of Defense Office of Economic Adjustment (OEA) is primarily concerned with defense realignment programs undertaken by the Department of Defense which create social and economic impacts within communities, states, and regions.

For the M-X program, OEA has identified two major objectives: (1) minimize the adverse socioeconomic effects of large-scale rapid growth and (2) maximize the economic benefits of M-X system construction and operation for the affected areas. OEA's major goal is to coordinate and expedite the delivery of appropriate and approved federal assistance to meet community needs. OEA's approach to this

PUBLIC COMMENT ON THE DRAFT EIS:

"Looking at one more area of concern: quality of life. I can only see trouble. A construction job of this magnitude, tens of thousands of floating workers, billions of dollars, the local inflation rate that has to occur; it all spells the doom of our way of life. No longer will we enjoy the solitude, the clean air and the peacefulness of these wondrous plains. God has trusted us with this land; to care for it and pass it on to the next generation as beautiful and as productive as when He allowed us to become stewards of it." (B0550-2-005)

program recognizes that the community to be impacted has the lead role in defining the impacts and the manner in which self-generated mitigative actions can reduce those impacts. OEA is highly committed to local initiative in effects management, thus enabling local governments to have direction over their future. As a member of the Nevada and Utah Intergovernmental Working Groups, OEA acts as an advisor and catalyst to the cooperative planning process.

OEA's responsibilities include working with the many M-X program participants in economic adjustment planning. During 1980-81, Military Construction funds were used by OEA for developing some community baseline data sources, forming growth management policies; developing an appropriate economic model for assessing anticipated fiscal impacts; and other activities to assist the potentially impacted areas to gather data for future planning decisions. OEA distributed these reports widely within the states and local planning organizations and other federal agencies.

Recognizing that private sector activity will provide and benefit from the bulk of the long-term economic effects, OEA's efforts will also include providing assistance to business in creating the proper environment for balanced economic growth.

As a result of its experience with the West Coast Trident military basing programs, and funding assistance, OEA is aware of many of the problems that could face M-X impacted communities. Therefore, there is a general agreement that in some special circumstances the legislation used for Trident will not meet the needs of communities to be affected by M-X.

New legislation, based in part, on cooperative local, state and federal participation provisions in the Section 803 Impact Assistance Study. (The study was requested by Congress to examine various means of delivering community impact funds. The study group was composed of federal, states and local representatives.) This legislation is designed to overcome the perceived needs of the M-X program. Once a decision is made on M-X deployment, OEA will be called upon by the specific communities which would be impacted.

STATE(S) AND LOCAL PLANNING RESPONSES (8.6.2)

Nevada Department of M-X Coordination (8.6.2.1)

When the Air Force proposed the M-X deployment program, it was evident that special planning mechanisms would be needed in Nevada to cope with the project. The governor requested federal funding assistance to develop staff capability at the state and local levels to interface with federal agencies, assess M-X impacts, and prepare contingency impact mitigation plans.

In Nevada, two M-X agencies were established. At the state level, the Governor and the state legislature created the Department of M-X Coordination. At the local level, counties identified as probably having M-X facilities located in them created the Local Oversight Committee.

The Nevada Department of M-X Coordination serves three functions: (1) a focal point for collection and dissemination of M-X-related information to and from

federal agencies. state agencies, local governments, the Local Oversight Committee, the academic community, and the general public, (2) management for state programs, and (3) impact analysis and mitigation planning at the state level.

In the area of program management, the Department has established M-X working groups composed of representatives from state agencies, academic community, both domestic and defense-related agencies, local government and private citizens.

State agencies and M-X working groups have been working closely with federal M-X planners to identify impacts and develop programs to address those impacts. In order to meet increased service demands when construction begins, it is imperative that essential community facilities and services be in place and adequate to meet these demands. For example, the Nevada Department of Transportation has identified state transportation network improvements that need to be made by fiscal year 1983 to accommodate the increase in traffic that is projected as a result of M-X construction activity.

The Nevada State Department M-X staff is composed of professionals from diverse technical backgrounds (e.g., land use planning, economic and fiscal impact analysis, engineering, natural resource planning, and human services planning). This team integrates the analyses, planning efforts and programs of the various state agencies. These state agencies (and the working groups) address such issues as revegetation, employment and training, wildlife, water quality and quantity, historic preservation mining, ranching and air quality. A cooperative program between the Department of Human Resources, the Office of Community Services, and the Local Oversight Committee is surveying human services currently available in the potential impact counties, and establishing human services planning efforts. State and local agencies have also combined their planning efforts on education, law enforcement, and employment and training.

The Nevada Department of M-X Coordination is formulating programs to assist the state's citizens in dealing with M-X-related impacts through an integrated planning approach including federal, state and local M-X participants.

M-X Local Oversight Committee (Nevada) (8.6.2.2)

The Local Oversight Committee was created by the counties identified as probably receiving M-X facilities. The Committee fulfills several functions: (1) information clearinghouse for M-X-related matters, (2) reviews and comments upon the reports by the Department of Defense contractors, state agencies and the Committee's own contractors. The professional staff has expertise in rapid growth planning, economic and fiscal planning, grantmanship, and intergovernmental relations. The Committee's main thrust is to ensure that the federal government is aware of and recognizes local issues and problems. The Committee has employed a number of consultants to assist in data collecting and impact analysis tasks. Presently, a major effort is underway to incorporate all of the previous studies into a six-county Fiscal Impact Study. This study (which includes Lincoln, White Pine, Eureka, Lander, Nye and Esmeralda) will be a profile of population and economic trends, local government organization and public services, employment and land use trends affecting service requirements and trends in revenues to support public and quasi-public services. Future employment, population, household growth and

PUBLIC COMMENT ON THE DRAFT EIS:

"I should now like to address myself to the economic effect on the state. The state of Utah has the dubious honor of being ranked 45th in earnings per capita of all the states. I, for one, am ashamed of this status, or as most Utahns refer to as our way of life. To summarize our way of life we have more college and universities attendance per capita than any other state and we export a majority of graduates to other states where they work and pay taxes. Those who remain compromise their earnings for their talents.

"An opportunity has been offered us. A challenge has been set before us. We have the ability, the industry, the fortitude, and integrity to meet the challenge. We look forward to the excitement, involvement, and growth of this state in the next ten years. There will be changes to the life style, a disruption of the present way of life. What a wonderful prospect. As each dollar generates more dollars the state treasury will increase, and the legislators will have a new problem of determining how they will spend the additional revenues. I wonder how Senator Francis Farley will cope with this prospect.

"It is time for Utahns to expend their energies on preparation so they will be ready. Thanks for the opportunity." (A0488-6-012)

housing requirements are to be projected by counties and communities. Forecasts will be made on conditions and changes, were the counties to continue with the existing economic and social base, and then what would happen if the M-X system were deployed in the area.

On request, the staff will assist local governments in preparing plans on the topics mentioned previously. The staff will review and make recommendations concerning various county and/or community proposals, but does not advocate any one proposal over another. The Committee votes on recommendations, which are then adopted as a Local Oversight Committee position of record.

Through the various studies and interaction with federal, state and local planners, the representatives of the counties who compose the committee are obtaining a better understanding of the problems they face, and the alternative actions open to them.

Utah M-X Coordination Office (8.6.2.3)

This office is an extraordinary office within Utah's history. The governor requested federal funding to initiate a coordination and cooperative effort to interact with federal, state, and local planning agencies. As an offshoot of the Governor's office, it has broad and unique powers. Because the governor assigned a high priority to M-X studies, the work of the office has the highest priority within the state. Subject only to the Governor's oversight, the Coordination Office assigns priorities on M-X-related matters to all other state agencies. In this way, the office exercises management prerogatives in directing the work of other state agencies.

The primary goals of the Coordination Office are to provide staff support to the Governor on M-X studies and perform planning functions for other state agencies. The staff coordinates technical information meetings and reviews documents and studies published by the Air Force, the Corps of Engineers, and the Office of Economic Adjustment and other concerned federal and state agencies. The staff also develops demographic, employment and fiscal impact study outlines to be used by other state agencies. The studies are conducted by Utah state agencies and their contractors, and the University of Utah and distributed to appropriate agencies. The studies serve as planning aids for county and local jurisdictions. The Utah Coordination Office staff documents both qualitative and quantitative impacts, providing technical support for decisionmakers in the jurisdictions. Thereafter each jurisdiction will make decisions and implement the changes it judges are necessary for M-X impact management and the betterment of the community. For example, the town of Milford, once a thriving railroad community, has experienced an economic decline. After consideration of many factors, Milford officials formulated a town plan, and expressed a desire to have an operating base located adjacent to their community. The townspeople appear to be willing to accept the anticipated stresses and strains of a large increase in population in order to reap the benefits of a stable economy.

When a decision is reached on M-X deployment, it is probable that the Coordination Office will be restructured. It would become a division within an existing department. At that time the extraordinary powers assigned the office will be revised to meet the conditions prevailing at the time.

M-X Missile Policy Board (Utah) (8.6.2.4)

Approximately at the same time the State M-X Coordination Office was being formed, the citizens in the potentially impacted Utah counties and communities formed their Policy Board. Based on their knowledge of the Trident experience in Kitsap County, Wash. and the scope of the M-X proposal, they made use of an existing state law which permitted them to organize a group composed of representatives from the various counties and communities. The Board is multipurpose: (1) it makes available to the affected counties and communities all documents and information relating to M-X; (2) it coordinates with the State of Utah Task Force on M-X (Intergovernmental Working Group); and (3) it ensures that local concerns are expressed in any and all decisions related to M-X planning. The Policy Board undertakes and directs studies to provide information to facilitate decision making in communities and counties.

The following studies have or are being undertaken: Baseline Services Analysis, a Fiscal Management Plan Operational Impact Studies for the Milford and Longridge (Delta) sites and Fiscal Impact Analysis for the M-X Deployment Area, Master Plans for the counties and their municipalities in Iron, Beaver, Milliard, and Julliard.

These studies will be used by the Policy Board staff and counties and local communities for analyzing planning alternatives and their meaning and impacts.

New Mexico and Texas (8.6.2.5)

Although these two states are being considered under the split-basing mode, neither state has established a special office or committee for M-X planning. The Governor of New Mexico has appointed a person within his office to receive and distribute M-X information. The New Mexico legislature has passed some legislation to establish a coordination office similar to those in Utah and Nevada but has requested that the Governor not sign this legislation until a decision has been made to place M-X in New Mexico. The Air Force has reserved one million dollars for planning purposes in the two states, when appropriate offices are established.

Summary (8.6.2.6)

Through various mechanisms state and local governments in Nevada and Utah are making decisions regarding their futures with the M-X program. They have demonstrated effectiveness in gathering and using information to formulate alternatives for dealing with a large and complex federal project. Through combining planning efforts, not only on an intrastate level but also on an interstate level, they have formulated plans for the project on a regional level. Although a deployment decision has not yet been reached, the contingency plans already formulated and the identification of resultant impacts have greatly assisted federal planners in their ability to respond to these decisions, by including regional, state, and local decisions in planning efforts.

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