3.20 Cumulative Impacts

3.20.1 Introduction

Cumulative impacts are defined in 40 CFR 1508.7 as "…the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can results from individually minor but collectively significant actions taking place over a period of time."

The Region of Influence (ROI), or study area, for cumulative impacts analysis includes the area surrounding Fort Irwin, Barstow and Baker, parts of the West Mojave Planning Area (encompassing the proposed Superior-Cronese Desert Wildlife Management Area (DWMA), the proposed Fremont-Kramer DWMA, and the proposed Ord-Rodman DWMA as well as other areas discussed in the West Mojave Plan (WMP)), and in certain circumstances, a wider area, as deemed necessary, to adequately assess impacts on the resource.

To clarify the cumulative impacts of this project, past, present and reasonably foreseeable actions and plans are discussed in Section 3.20.2. The cumulative impacts section is a brief review of resources and actions that could prompt cumulative effects. Some of the areas discussed in this section are soils, biological resources, air quality, airspace, land use, wilderness, cultural resources, utilities, recreation, mining, socioeconomics, and environmental justice.

3.20.2 Past, Present, and Reasonably Foreseeable Actions

The western Mojave Desert is a major corridor for utilities, recreation and general land use pressures. These activities have the potential to cause cumulative impacts to one or more of the resources discussed throughout this EIS. Whether these actions are mentioned in the affected environment or the environmental consequences section, there is the possibility of their having significant effects.

3.20.2.1 Airspace

Airspace boundaries are normally straight lines defined by latitude/longitude geographical points. To keep the new proposed airspace boundary lines straight, the new proposed airspace boundary along Utility Corridor D may encompass areas outside the study area (see Figures 4.16-1 thru 4.16-5). If the Army determines that the small areas outside the study area need to be included in the Record of Decision, then it will prepare a supplement to study only the potential impacts associated with these relatively small parcels of land. The supplement would be distributed for review and comment in the same manner as this SDEIS. A supplement to the Record of Decision would be prepared and signed.

3.20.2.2 California Wild Heritage Wilderness Act of 2002

The California Wild Heritage Wilderness Act of 2002 is an act to designate certain public lands as wilderness and certain rivers as wild and scenic rivers. The Act, released as a discussion draft in April 26, 2002, covers the entire State of California. The areas of concern for the analysis of this section are the wilderness study areas in the Mojave Desert that are proposed to become wilderness: Avawatz Mountains, Cady Mountains, Kingston Range, and Denning Springs.

3.20.2.3 Center for Biological Diversity Lawsuit

The Center for Biological Diversity, Sierra Club, and the Public Employees for Environmental Responsibility brought suit against the BLM in the United States District Court, San Francisco Division in March 2000. BLM agreed to five settlements:

- Initiate ESA Section 7 consultation on the 1980 CDCA;
- Restrict vehicles in the Imperial Sand Dunes Recreation Area;
- Restrict sheep and cattle grazing in critical and additional desert tortoise habitat;
- Restrict hiking trails in San Jacinto, Santa Rosa Mountains, and mining activities to protect bighorn sheep; and
- Impose interim restrictions on a wide range of activities affecting T&E species in the CDCA.

3.20.2.4 Fiber Optic Cable

The U.S. Army proposes to install a fiber optic cable from the NTC and Fort Irwin to the China Lake NAWCWD, to provide increased connectivity between the two installations. The proposed action involves underground installation of a 192-strand fiber optic cable starting at Fort Irwin Building 29, Digital Central Office (DCO) and terminating at China Lake Naval Weapons Center, Building 70143. The exact route of the cable from Fort Irwin to China Lake is currently under consideration. The entire length of this proposed initiative is approximately 32 miles. Construction was planned to begin in winter of 2003 and will begin as soon as pending issues are resolved, including finalized route designation. This project will increase bandwidth, and fulfill a number of other communication needs the NTC currently has. Range communication requirements will be met, and future expansion capabilities will be allowed for by providing strategically placed drop point locations for communications connectivity growth. This link will also make possible the flexibility to provide high bandwidth circuits (video, voice, and data). A communications link is now necessary to provide the data information required to train and prepare for the National defense. This initiative will make possible the sharing and transmission of that data.

An EA has been completed for this project. The Fort Irwin-China Lake Fiber Optics Cable Installation Environmental Assessment is in draft phase.

3.20.2.5 George Air Force Base Closure and Creation of Southern California Logistics Airport

George Air Force Base consisted of 5,340 acres in the Victorville vicinity. The base was closed in 1988 and placed on the National Priorities List in February of 1990.

3.20.2.6 Mojave National Preserve

The Mojave National Preserve encompasses 1.6 million acres and is under the jurisdiction of the National Parks Service (NPS). The California Desert Protection Act of 1994 established the Preserve. Wilderness makes up approximately 700,000 acres of the Preserve, and desert tortoise habitat makes up another half. The Preserve must be managed under the National Park Service Organic Act of 1916 (16 USC 1 et seq.):

"…to conserve the scenery and the natural and historic objects and the wildlife therein, and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations."

3.20.2.7 NASA Goldstone Deep Space Communications Complex

The Goldstone Deep Space Communication Complex (GDSCC) is a part of NASA's worldwide network of spacecraft tracking stations. The Goldstone complex tracks domestic and international spacecraft operating in deep space and near-earth orbits. It is the largest of the tracking stations within the NASA Deep Space Network (DSN). This national resource has nine antennae, ranging in size from 11 - 70 meters in diameter. It is unique as the only complex within the US that has the capability to send and receive communications and telemetry from distant spacecraft exploring the solar system. The federal government has invested hundreds of millions of dollars over the last 40 years to acquire this unmatched capability. In addition to tracking spacecraft, the complex performs planetary radar and asteroid detection, providing valuable scientific and engineering information.

3.20.2.7.1 Future Demands on the Deep Space Network

Recent analysis of the anticipated future deep space missions indicates that demands on DSN facilities are, and will be, increasing for the foreseeable future. The number of science spacecraft tracked has risen from 6 in 1987 to close to 30 by 2003, and NASA projects that this higher level will continue into the future. Further, new instruments being flown on future missions will have dramatically increased ability to generate large quantities of data. NASA projections indicate that desired data transfer rates will be from 10 to 100 times higher than can be provided with the present DSN.

Critical mission operations also levy strong requirements on the DSN. Many of these operations are necessarily planned as part of the mission design, such as orbital insertion, aerocapture, entry-descent-landing, trajectory correction maneuvers and occultation experiments. Given the large number of missions to be supported, these operations can be expected to occur often. Further, many such activities are of extended duration, such as aerobraking, Mars surface operations or Europa orbital operations in the high-radiation Jovian environment. Critical events, such as spacecraft emergencies, may also be unplanned or anomalous. When these events occur, NASA must respond immediately and with high performance capability.

The DSN response to increasing requirements is twofold: move to higher frequencies, and add more aperture. In the radio frequency (RF) domain, a migration from X-band (8 GHz) to Ka-Band (32 GHz) is already underway. Though this migration will provide a notable increase (4x) in data throughput, the higher frequency will yet be insufficient to meet fully anticipated needs. Consequently, NASA anticipates that additional antennas will be needed. NASA is aware that these additional antennas could be in the medium to large diameter class (34m to 70m or even larger), whether used as stand-alone or array elements. However, NASA acknowledges that the level of improvement in data transfer rate that can be achieved by this approach will be limited to around 10x.

3.20.2.7.2 Large Array of Small Antennas

NASA anticipates that to achieve improvement factors of approximately 100x will require a shift to a new paradigm. NASA anticipates that at radio frequencies, the new paradigm will likely take the form of a "large array of small antennas." This option, currently being given serious consideration within NASA, involves construction and arraying of many small antennas, typically

in the 10m class. NASA believes this array option is a cost effective alternative to large monolithic antennas. NASA anticipates that the large array approach could ultimately result in hundreds, if not thousands, of small antennas being installed at DSN complexes. In addition to its benefits for data throughput, an array of widely dispersed antennas will be very useful for spacecraft navigation using interferometric data types.

Precedent exists for using the large array-small antennae type of arrayed aperture. The National Radio Astronomy Observatory (NRAO) currently operates the Very Large Array (VLA), comprising 26 antennas, each 25m in diameter, located in Socorro, New Mexico. The SETI Institute and the University of California-Berkeley Radio Astronomy Laboratory are currently constructing the Allen Telescope Array (ATA), comprising 350 antennas, each 6.1m in diameter, located in Hat Creek, California. An international consortium comprising public and private institutions within the US, as well as organizations from Europe, Canada, Australia, China & India, is currently involved in preliminary design of the Square Kilometer Array (SKA). Likely candidate locations for the SKA include Australia or the western United States. The operational date for the SKA is expected to be 2015.

NASA has also begun to develop the requirements and preliminary designs for a “large array of small antennas” within the DSN. An early product of this initiative, currently included in DSN program planning, is an array prototyping activity at GDSCC. NASA anticipates that the prototype array will be constructed in the 2003-2008 time frame. Goldstone is the preferred DSN complex for prototyping due to its relative proximity to JPL. The purpose of the prototype would be to establish that large arrays are cost effective to build and operate for the DSN. As a performance goal, the prototype would be equivalent to two of the current 70m antennas at X-band - to provide a realistic experience of operations and maintenance of large arrays.

Any “large array of small antennas” will have significant real estate requirements. First, an array antenna factory building, 80 ft x 160 ft, on a 200 ft x 300 ft plot of land, will be needed in 2004 for construction of array antennas. This should be in an area convenient for flatbed truck transport of antennas of 12m diameter to the array site. NASA foresees that the ideal location would be at the edge of the array site, on Goldstone/Fort Irwin property or adjacent to it. Next, NASA anticipates requiring a site for construction of a 100 x 12m prototype array in the 2005-2007 period. This site should be of the order of 1.0 km square. To obtain minimal blockage down to elevation angles of 10 degrees, 100m spacing of 12m antennas is planned. NASA, in a recent design study, identified a GSDCC site of this order of size.

Following lessons learned from the prototype array, NASA projects that it will need to construct operational arrays at, and near, current DSN complexes. NASA anticipates that a first operational array can be on-line, with an equivalent aperture of 2 x 70m, in the 2011-2013 time frame, depending upon technical and budgetary factors. While preliminary design work continues by NASA and its contractors, NASA reasonably believes a much larger array (in the order of 1000’s of antennas) may be constructed in the 2007-2015-time period. However, deployment decisions have not yet been made. These antennas would be placed in clusters of perhaps 100 spaced 10 km or more apart. NASA would configure the clusters on the basis of navigational needs and weather diversity. For the Goldstone longitude, these additional sites may or may not be in the Fort Irwin area. A possible deployment plan might emplace approximately 900 antennas at each of Goldstone and Owens Valley in California, and at Socorro and White Sands in New Mexico. The 900 antennas at GDSCC might be deployed in 9 groups of 100 antennas. Each of these groups could require 1.0 km square of real estate. However, the 9 groups may possibly be deployed at widely varying locations within the GDSCC boundaries. NASA is planning a detailed study of deployment options.

3.20.2.7.3 NASA Goldstone Optical Communications

In the effort to enhance data throughput, the move toward higher frequencies can be extended well beyond radio frequencies, into the optical spectrum. NASA is considering an optical communications architecture for the DSN that would rely on telescopes and lasers, rather than antennas and radios for primary communications. NASA will also conduct an environmental review of DSN optical communications. Decisions on deployment of an operational optical communications network may be made around 2010, or possibly much sooner.

NASA currently foresees a "baseline" optical network consisting of 7 to 10 10m telescopes spaced evenly around the Earth in a longitudinal sense. Such a configuration would provide appropriate levels of coverage and weather diversity. However, NASA is also considering other options, including up to 3 10m telescopes in each longitude region, spaced perhaps a few hundred km apart. Due to similarities with optical astronomy, NASA has found that similar site types are highly desirable, i.e., high and dry mountaintops. Such locations, however, are rare, and in many instances are of cultural significance to local communities, making it difficult for NASA to obtain construction approval. Also, for cost reasons, NASA has found that there is great advantage in placing facilities where NASA has existing support infrastructure. Thus, at this time, it cannot be definitively stated whether a DSN 10m telescope will be located at GDSCC. However, the option must not be precluded for the future. Should a 10m telescope be located at Goldstone, for optical communications purposes, increased levels of dust are an issue. Increased dust in the atmosphere and dust on the optics will contribute to an increase in stray light, a decrease in contrast and a general degradation of telecommunications performance. Further, additional dust falling on the optics will result in increased maintenance costs. Additional analyses will be required to determine whether an increased pace of activity at Fort Irwin will hamper future optical communications efforts.

NASA anticipates that real estate requirements for 10m telescopes will be fairly modest. This is in contrast to the land requirements that pertain to the large array of small antennas. However, at this time, candidate sites within GDSCC have not been thoroughly examined. Consequently, NASA considers that any site within the Goldstone borders may eventually be selected for installation of a 10m telescope. For this reason, the Fort Irwin expansion activities should not preclude use of any site within GDSCC for purposes of optical communications.

3.20.2.8 NASA Goldstone Spectrum

The full extent of current radio frequency use in the study area is unknown at this time. However, certain frequencies can be accounted for by isolating frequencies assigned to NASA at the Goldstone Deep Space Communication Complex (GDSCC), located on the western boundary of the current National Training Center.

The frequency bands, as outlined below, must be protected from outside interference. The National Telecommunications and Information Administration (NTIA) assigned these frequencies to NASA for Space Research Service (SRS). These bands are:

Table 3.20-1: Frequency Bands

1.61-1.67 GHz (L-band)	8.4-8.5GHz (X-band)
2.2-2.3 GHz (S-band)	12.75-13.25 GHz (Ku-band)
14.8-15.35 GHz (Ku-band)	31.8-32.3 GHz (Ka-band), and
37.0-38.0 GHz (Ka-band)	

Of these frequencies, the following are Deep Space receive frequency bands actively being used for receiving signals from deep-space missions:

Table 3.20-2: Frequency Bands in Use by Goldstone

2.290-2.300 GHz (S-band)	8.400-8.450 GHz (X-band)
31.8-32.3 GHz (Ka-band)	

The Goldstone complex is most sensitive to interference in the deep space receive bands. The Goldstone complex is equipped with very high gain antennas and super-sensitive receivers in order to receive the weakest signals from NASA deep space missions. The gain of the Goldstone antennas is as large as 74 dBi at X-band; the receiving system noise temperature is as low as 16 Kelvin; and the resolution bandwidth is less than 1 Hz. Every 0.1 dB of link performance is important and accounted for in deep space communications. To gain another 0.1 dB of G/T (antenna gain over system noise temperature) requires a great effort in R&D. As a result, DSN has disallowed any change at the station that would cause an increase in system temperature by more than 0.1 dB.

The receiver thermal noise spectral density is different for different frequency bands. Hence the maximum allowable interference, or interference limit, is also different for different frequency bands. The following table gives the allowable degradation, the allowable interference-power-spectral-density-to-noise-spectral-density ratio (Io/No), and the maximum allowable received interference.

Table 3.20-3: Interference Limits

Frequency Bands, GHz	Maximum Increase of Noise Floor, dB	Maximum Io/No, dB	Interference Limit, dBm/Hz
1.61-1.67	1	-6	-191
2.20-2.29	1	-6	-186
2.29-2.30	0.1	-16	-203
8.40-8.45	0.1	-16	-202
8.45-8.50	1	-6	-186
12.75-13.25	1	-6	-190
14.8-15.35	1	-6	-186
31.8-32.3	0.1	-16	-200
37.0-38.0	1	-6	-187

Concerns and mitigation measures are laid out in section 3.20.3.

3.20.2.9 Naval Air Weapons Station (NAWS) China Lake

Navy test and training operations occur in the Superior Valley and the Randsburg Wash Electronic Combat Range. Due to the proximity of proposed training in the western part of the study area, Alternative I and IV may have potential impacts could occur between Army and Navy training especially in the Superior Valley Tactical Bombing Range (SVTBR). The Navy has operational concerns related to flight safety (jets and helicopters in same area at the same

time), radio frequency interference, safety of ground troops under test and training flight routes or inadvertently accessing the SVTBR.

A land use compatibility analysis addressing the potential impacts of Alternatives I and IV on: military flight safety, radio frequency compatibility of NTC systems with existing military tactical communications systems, and safety considerations of NTC ground forces in close proximity (with in 10 nautical miles) of the Superior Valley TTR with an emphasis on the potential for inadvertent trespass onto an active Navy test and training bombing range (particularly during night hours) should be conducted prior to use of the western expansion.

3.20.2.10 Nellis AFB Use of R-2508

There are currently four primary users of the Nevada Test and Training Range (NTTR) airspace near Nellis AFB, Nevada. These primary users are (listed in scheduling priority):

3.20.2.10.1 422nd Test and Evaluation Squadron (TES)

The 422 TES is composed of aircrew and support personnel supporting five different fighter and helicopter aircraft: A-10, F-15C, F-15E, F-16C, and HH-60G. The 422 TES conducts operational tests for Air Combat Command on new hardware and software upgrades to each of the five aircraft in a simulated combat environment. The 422 TES also develops and publishes new combat tactics for these aircraft. The results of these tests directly benefit USAF aircrews by providing them with operation-proven hardware and software systems.

3.20.2.10.2 414th Combat Training Squadron (CTS) (Red/Green Flag)

The 414 CTS conducts Red Flag and Green Flag special, high-priority, multi-force training exercises that realistically simulate large-scale multiple aircraft combat engagements. Flag exercises increase the combat capability of U.S. and allied armed forces by enhancing their abilities to integrate their forces to meet the dynamic challenges of future conflicts. Each Flag exercise is a multi-week, complex, full-scale, simulated war game, complete with aggressor aircraft (simulating potential adversary tactics), enemy integrated air defense threats (early warning and target acquisition radars; and Surface-to-Air Missile (SAM) and Anti-Aircraft Artillery (AAA) threat radar emitters), and realistic target arrays. These exercises are designed to teach air and ground units how to deploy and operate together in an integrated manner. Air units from all military branches and many allied foreign air forces participate. In a typical year, five Flag exercises are planned at NTTR.

3.20.2.10.3 United States Air Force Weapons School

The USAF Weapons School teaches graduate-level instructor courses, which provide the world's most advanced training in weapons and tactics employment to aircrew members of the combat air forces. The mission of the Weapons School is to improve the overall effectiveness of our combat air forces through advanced student training, and providing technical and tactical expertise to field units. Students are selected from the A-10, B-1, B-52, EC-130, RC-135, F-15C, F-15E, F-16, HH-60, command and control operations, space operations, and intelligence disciplines. The climax of the course is a two-week staged battle, Mission Employment exercise flown on the NTTR.

Because of range workforce contracts, the NTTR airspace is currently scheduled virtually at 100 percent. In 2003, the F-22 will be delivered to Nellis and the 422 TES for operational test and evaluation (OT&E). Because the 422 TES has the second highest scheduling priority of NTTR airspace, there will not be enough scheduled time remaining to conduct all the USAF Weapons

School (lowest scheduling priority) course syllabus flying training. The USAF Weapons School schedulers are looking for other special use airspace options to conduct their flying training. One of the options they are exploring is using R-2508 airspace, primarily in the Saline, Panamint, and Shoshone MOAs.

The USAF Weapons School requirement is for a 90-minute block, 3 days per week, 5-6 months per year. Their flying activities are conducted in two, 3-month blocks per year: during September, October, and November; and during April, May, and June. Their heavy flying months are October and November, and May and June. Each training mission includes 8-10 aircraft. Note: The Weapons School semiannual Mission Employment exercise missions will continue to receive high priority for NTTR airspace, and as such, will continue to be flown on the NTTR. This reasonably foreseeable action should have no impacts on the Fort Irwin airspace.

3.20.2.11 New Las Vegas Airport

Clark County, Nevada is in the proof-of-concept phase for developing and building a new major airport south of Las Vegas along Interstate 15 between the Jean and Primm areas of Nevada. This new airport will be called the Ivenpah Valley Airport. When opened, it will handle international, long haul domestic and charter air traffic serving the Las Vegas Valley. The majority of the domestic short-haul and commuter air traffic will remain at McCarran International Airport.

Assuming their proof-of-concept is successful, Clark County may get approval to purchase the land from the Department of the Interior for the Ivenpah Valley Airport sometime in 2002. Depending on the demand for air travel and the economy, the Ivenpah Valley Airport is expected to begin construction in 2008 and be in operation sometime during calendar year 2011. These dates are estimates at best, and are subject to change.

Airspace planners are currently planning to integrate the air traffic to/from the Ivenpah Valley Airport with the new "four corner post" airspace plan that is currently used by McCarran air traffic control. Given that it will be a minimum of 10 years before the Ivenpah Valley Airport is in operation, it must be expected that the Four Corner Post Plan may be changed, and Ivenpah Valley traffic will also change to merge with McCarran International traffic. It is therefore, too early to accurately assess the potential impact of either McCarran or Ivanpah traffic on he R-2508 Complex airspace. The Clark County Department of Aviation is committed to coordinate with all concerned throughout their planning process.

3.20.2.12 Northern and Eastern Colorado Desert Coordinated Management Plan (NECO)

NECO encompasses 5 million acres and about 60 sensitive plants and animals. To maintain these resources more effectively, a

> "…landscape-scale, multi-agency planning effort that seeks to protect and conserve natural resources while simultaneously balancing human uses of the California portion of the Sonoran Desert Ecosystem"

(http://www.ca.blm.gov/news/pdfs/neco2002/Table%20of%20Contents.pdf).

These plans are completed and ROD's were issued. They are now being sued by the Center for BioDiversity.

3.20.2.13 Northern and Eastern Mojave Proposed Plan (NEMO)

NEMO encompasses 3.3 million acres, of which 2.7 million acres are public lands. These lands are found in southeastern California Mojave Desert. The plan sets out two alternatives: Alternative I – No Action, and Alternative II – Proposed Plan. Alternative I would use the "fallback standards," meaning the standards currently being used to manage the lands. Alternative II would establish a new set of standards for the NEMO Area.

3.20.2.14 Pre-Positioned Fleet

The Pre-Positioned fleet (Pre-Po fleet) is military vehicles that are used in rotational training and remain at Fort Irwin. Currently, rotational units that come to the NTC for training use a combination of pre-positioned equipment and equipment that they bring with them. The proposed project would discontinue the Pre-Po fleet and require rotational units to transport all their vehicles from their home station to train at the NTC. Rotational units will continue to transport their vehicles to and from the railhead at Yermo Marine Corps Logistics Base in the community of Yermo and from there to and from the NTC via the Manix Trail and Fort Irwin Road. The additional vehicles from the home stations would replace the Pre-Po fleet on Fort Irwin for rotational exercises.

The heavy/heavy rotational units use up to 260 vehicles including 70 tanks. The heavy/light rotational units use up to 267 vehicles including 55 tanks. The Army currently uses the Manix Trail for transporting wheeled vehicles and equipment to and from the NTC. Commercial Heavy Equipment Transports (HETs) transport tanks and other equipment via Fort Irwin road. Military HETs weigh 45 tons, have 46 wheels and carry one tank (60 tons) at a time, moving 15 mph while doing so. A typical rotation can have up to 1,200 round trips for a heavy/heavy rotation and 1,140 round trips for a heavy/light rotation.

3.20.2.15 Proposed Military Operations Increase – Naval Air Weapons Station, China Lake, California

The Navy proposes to accommodate an increase in the tempo of military test and evaluation, and operation training activities conducted at the Naval Air Warfare Station (NAWS), China Lake. Increases in range operations could result in minor changes in the use of lands managed by the NAWS. In compliance with NEPA, the Navy has prepared and released a Draft Environmental Impact Statement for Proposed Military Operational Increase and Implementation of Associated Comprehensive Land Use and Integrated Natural Resource Management Plans, dated November 2002. Dependant upon the alternative selected, military operations at the NAWS could increase up to 25% over the next 5 years.

3.20.2.16 Residential Communities Initiative

Fort Irwin would like to increase family housing available on base. To achieve this goal, the Army would like to transfer responsibility for housing and support facilities to a yet to be determined Development Partner, at the same time obtaining private sector funding for constructing, operating and maintaining the housing and support facilities. Five alternatives have been identified in a draft environmental assessment (DEA) and are as follows: Army RCI Program Alternative, Partial Privatization Alternative, Private Sector Reliance Alternative, Leasing Alternative, and the No Action Alternative. The Army RCI Program Alternative has been identified as the preferred alternative.

The study area of the RCI EA is the cantonment area of Fort Irwin. The new construction is planned for the area southwest of current housing and covers approximately 230 acres of Fort

Irwin property. The RCI EA covers the proposed construction of 570 new units. Environmental concerns integrated into construction of new housing units on base include:

- ❖ Housing areas would be designed to respect natural systems of topography, vegetation, and drainage;
- ❖ Developed areas would be designed to minimize grounds work, underground utilities, and drainage;
- ❖ Landscaping would be preserved in all feasible situations, and new landscaping would be largely native plants;
- ❖ Neighborhoods and social amenities would be sited to reduce the dependency on the car;
- ❖ Open-space networks would be used to link larger spaces, corridors, and fragments with a system of pedestrian/bike trails; and
- ❖ The sense of community would be heightened with improved and linked open spaces, strategic tree locations, trail systems, activity areas, and street layouts to enhance the quality outdoor life (Draft Environmental Assessment of the Residential Communities Initiative at Fort Irwin, California June 2002).

3.20.2.17 Route Designation

BLM released a proposed route network for 22 areas under the West Mojave Plan. The BLM will establish interim route designations in areas where there are serious conflicts between the OHVs and critical habitat. The five most serious are listed below:

- ❖ Fremont
- ❖ Kramer
- ❖ Red Mountain
- ❖ Newberry/Rodman
- ❖ Superior.

3.20.2.18 Rail Spur

The U.S. Army proposes to provide a more responsive, environmentally friendly, and cost efficient mode of transporting Army mission equipment to and from Fort Irwin, California and the Union Pacific rail line (parallel to Interstate 15 south of Fort Irwin) and/or the Yermo Marine Corp Logistical Base during the deployment and reconstitution phases of exercise training. The purpose of the proposed action is to provide improved throughput of Army mission equipment shipped to and from Fort Irwin for expanded brigade level rotational training at the NTC, and strategic support during times of war. This action proposes to improve combat readiness, reduce environmental impacts, and reduce the costs associated with equipment transportation.

This proposed project will be located in unincorporated San Bernardino County, between the unincorporated community of Yermo and Fort Irwin, approximately 25 miles northeast of the City

of Barstow and 25 miles southwest of the City of Baker. The project is located in the Baker Sub-Regional Planning Area, a sparsely settled area in the Mojave Desert portion of San Bernardino County. In compliance with NEPA and the California Environmental Quality Act, the Army is preparing an Environmental Impact Statement/Environmental Impact Report for this project.

3.20.2.19 Kern River Gas Pipeline

The Kern River Gas Transmission (KRGT) Company proposes to construct and operate facilities to expand the existing KRGT interstate pipeline system from southwestern Wyoming to southern California. The expansion will involve the construction and operation of new pipeline and three compressor stations, modifications to five existing meter stations and other facilities, and will have the capacity to provide an additional 885,626 dekatherms per day (Dth/d) of natural gas to customers in Utah, Nevada, and California.

The proposed pipeline will be generally installed at the edge of KRGT's existing permanent right-of-way using a standard 25-foot offset from the existing KRGT pipeline. However, at certain locations the proposed route deviates from the standard offset due to terrain, environmental features, development, or at the request of the land management agency. The pipeline route will parallel and cross the LADWP (Los Angeles Dept. of Water and Power) power lines at several locations. KRGT currently holds a 50 ft wide permanent right-of-way for its existing pipeline and will retain an additional 25 ft wide right-of-way for the new pipeline.

3.20.2.20 Mojave River Pipeline

This project is made up of five pipeline segments for Reach 3 of the Mojave River Pipeline Project, which runs from Phelan to Newberry Springs approximately 80 miles. The entire project is scheduled to be completed by the end of 2002. A negative declaration with 90 mitigation measures and an environmental assessment were done on the project and are available for review.

3.20.2.21 West Mojave Plan

The West Mojave Plan is a planning group with the goal "…to conserve and protect the desert tortoise and nearly 100 other sensitive plants and animals, as well as the ecosystems on which they depend. At the same time, we want to provide developers of public and private projects with a streamlined program for compliance with the California and federal endangered species acts that regulates consistently, reduces delays and expenses, and eliminates uncertainty and applies the costs of compensation and mitigation equitably to all agencies and parties". To obtain the goal stated above, a "supergroup" was established with parties from the stakeholders, such as towns and cities, counties, state agencies, military installations, federal agencies and non-profit groups and businesses to work on management issues for the planning area.

The West Mojave Plan Area includes approximately 9.4 million acres that encompasses most of California's West Mojave Desert. It extends from Olancha in Inyo County in the north to the San Gabriel and San Bernardino mountains in the south, and from the Antelope Valley in the west to the Mojave National Preserve in the east. About one third of the planning area is private land, another third is within military bases, and the final third consists of public lands managed by the federal BLM.

The West Mojave Plan is a habitat conservation plan and federal land use plan amendment that presents a comprehensive strategy to conserve and protect the desert tortoise, the Mohave

ground squirrel and nearly 100 other sensitive plants and animals and the natural communities of which they are a part, and provides a streamlined program for complying with the requirements of the California and federal Endangered Species Acts. The proposed action presents a multi-species conservation strategy applicable to public and private lands throughout the planning area. It would serve as an amendment of the BLM's CDCA Plan for public lands and a "habitat conservation plan" for private lands. The proposed habitat conservation plan establishes a network of Habitat Conservation Areas (HCA), establishes a compensation framework, establishes covered activities and terms of incidental take permits, outlines species conservation measures, includes a Public Land Livestock Grazing Program and Motorized Vehicle Access Network, designs an education program, establishes monitoring protocol for all species addressed in the plan, and outlines an adaptive management program.