

AD-A095 778

HENNINGSON DURHAM AND RICHARDSON SANTA BARBARA CA

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M-X ENVIRONMENTAL TECHNICAL REPORT, ALTERNATIVE POTENTIAL OPERA--ETC(1

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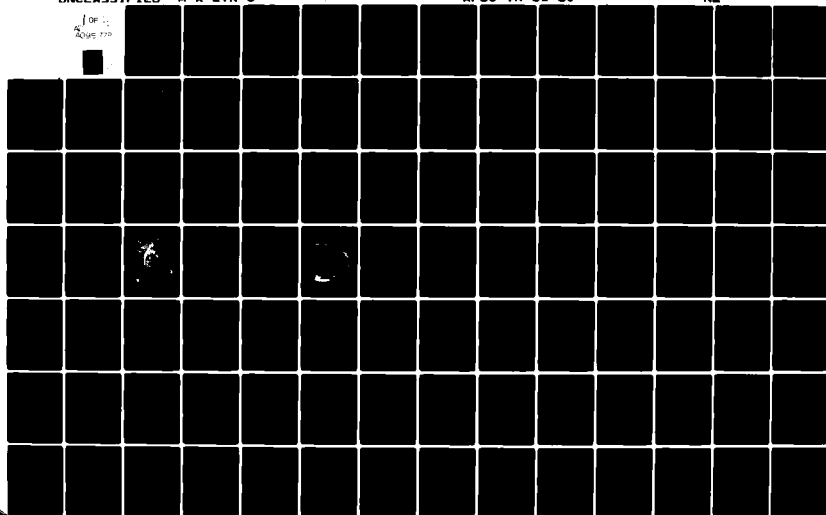
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19 REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER AFSC-TR-81-20	2. GOVT ACCESSION NO. AD-A095	3. RECIPIENT'S CATALOG NUMBER 778
4. TITLE (and Subtitle) M-X Environmental Technical Report-Alternative Potential Base Locations, Coyote Spring Valley, Operating		5. TYPE OF REPORT & PERIOD COVERED Final Report
7. AUTHOR(s) M-X-ETR-		6. PERFORMING ORG. REPORT NUMBER MX ETR 5
9. PERFORMING ORGANIZATION NAME AND ADDRESS Henningson, Durham and Richardson Santa Barbara CA 93010		8. CONTRACT OR GRANT NUMBER(s) F04704-78-C-0029
11. CONTROLLING OFFICE NAME AND ADDRESS Ballistic Missile Office Norton AFB CA		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 64312F
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE 22 December 1980
		13. NUMBER OF PAGES 139
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Unclassified/Unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) MX Siting Analysis Environmental Report Coyote Spring, Nevada Nevada		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The area of analysis (AO) for the Coyote Spring Valley operating base option includes both Clark and Lincoln counties, and is located in the southern portion of the designated region of influence. Las Vegas and the surrounding suburbs are the major settlements and are likely to receive most of the impacts, although the communities of Caliente, Panaca, and Pioche, in Lincoln County, could also receive project impacts and are included in the AOA.		

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**ALTERNATIVE POTENTIAL
OPERATING BASE LOCATIONS:
COYOTE SPRING VALLEY**

Prepared for

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

By

**Henningson, Durham & Richardson
Santa Barbara, California**

22 December 1980

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1.0 COYOTE SPRING VALLEY AND VICINITY COMMUNITY ENVIRONMENT

The area of analysis (AOA) for the Coyote Spring Valley operating base option includes both Clark and Lincoln counties, and is located in the southern portion of the designated region of influence (Figure 1.0-1). Las Vegas and the surrounding suburbs are the major settlements and are likely to receive most of the impacts, although the communities of Caliente, Panaca, and Pioche, in Lincoln County, could also receive project impacts and are included in the AOA.

1.1 HUMAN ENVIRONMENT

ECONOMIC ACTIVITY (1.1.1)

Clark County

Early in the 19th century the groundwater of the meadows of Las Vegas attracted caravans of traders and Mormon colonists. In 1855, Mormons established a settlement on the Las Vegas meadows, occupied and farmed the land, and organized a mission to Christianize the Indians. At the time of the Mormon arrival, Indians were growing wheat. Mormon farmers improved the area's grain crops, processed wild hay and organized cattle ranching. The Mormon settlement proved to be shortlived, 1885-1887, due to internal dissention stemming largely from the possibility of working the lead-silver ore of the area, especially the Potosi lead mine, southwest of Las Vegas. Las Vegas continued to be a way point on the Santa Fe trail and later as way station on the Union Pacific Railroad. However, it remained a small town until after World War II.

Employment is concentrated in the Las Vegas area of Clark County where over 99 percent of the county's population is employed. The major employment sectors, in descending order of importance are: tourist-related services, including the gaming industry; trade; construction; and public utilities.

Lincoln County

In the early 1860s, rich ore deposits began to attract miners to the county. As a result, several towns developed, such as Hiko, Pioche, and El Dorado. Panaca was established by the Mormons as a way station for travelers moving between southern California and Salt Lake City. The county itself was created by the State Legislature in 1867 as the result of the personal efforts of Governor Blasdel. The County was cut from Nye county.

Since the early 1900s, mining and construction have had a profound impact on the Lincoln county economy. In 1957, Pioche, heavily dependent on mining, entered a recession when low priced imported metals placed local ore extraction at a comparative disadvantage.

Lincoln County's present economy is led by government, followed by mining and agriculture. Government activity reflects the presence of the Air Force at Nellis Air Force Range and other federal agencies.

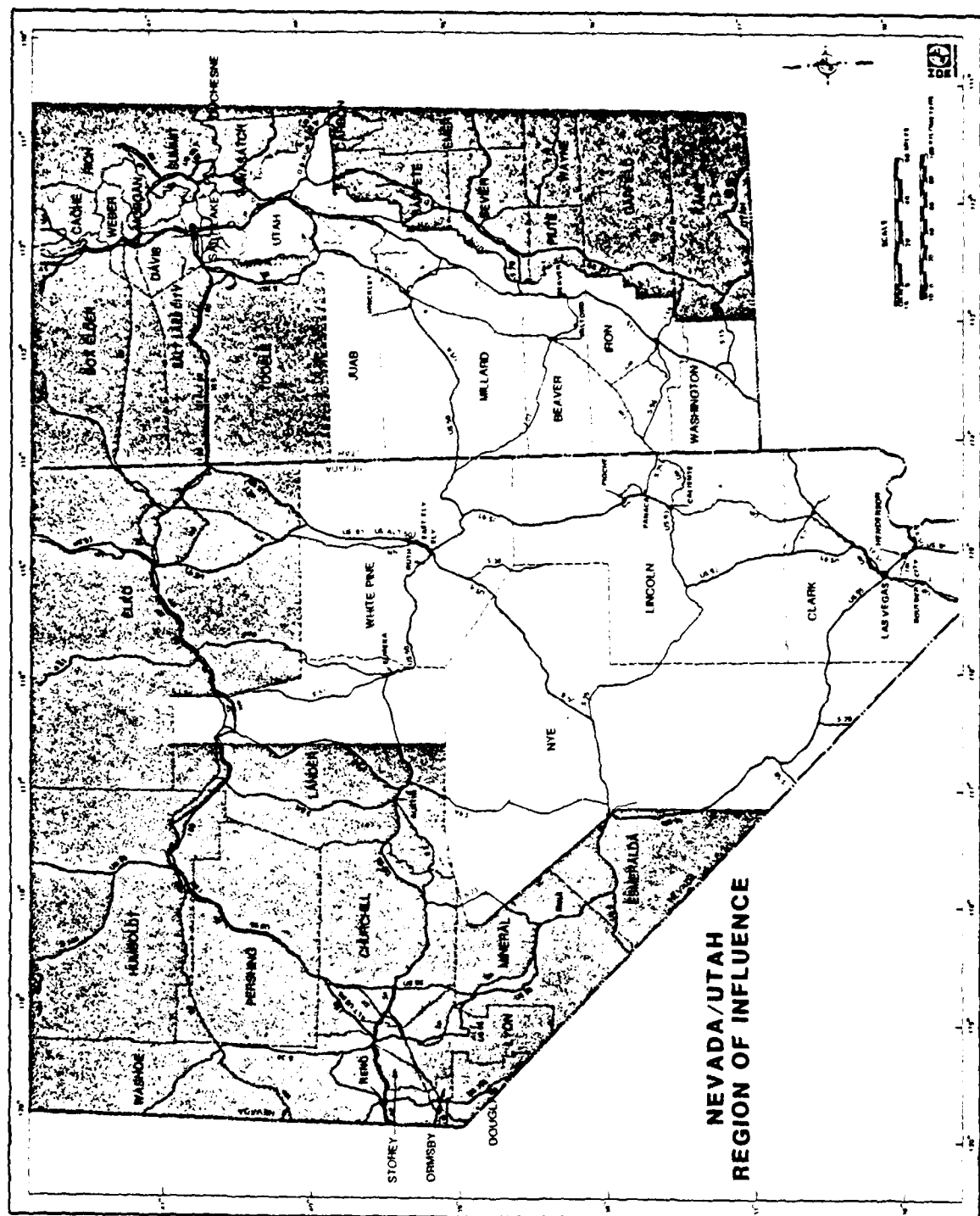


Figure 1.0-1. Location of Coyote Spring OB in the Nevada/Utah region of influence (ROI).

Employment - Clark County

Table 1.1.1-1 highlights employment by major sector for Clark and Lincoln counties for the year 1977. The predominance of the gaming industry in Clark County's economy is very noticeable, given its 41.1 percent share of total employment in Clark County, well over twice that for the U.S. as a whole. Manufacturing, on the other hand, traditionally one of the most important sectors in large-sized metropolitan economies, is the source of only 3 percent of the county's 185,198 jobs in 1977.

Historic employment growth by industry is highlighted for Clark and Lincoln counties in Table 1.1.1-2. The table indicates that Clark County has been the key growth area for the entire state, with its 6.6 percent average annual growth over the 1967-1977 period. By comparison, this figure was over 3 times annual employment growth for the U.S. as a whole. Key growth industries were led by construction, 10.1 percent per annum over 1967-1977, services, and government. By any standard, these industries in Clark County have grown dramatically, furthering the dominance of a tourist-based economy.

Employment - Lincoln County

Table 1.1.1-1 highlights employment by major sectors for Lincoln County, and indicates how minor a share the county had of total state employment. Disclosure rules prevent a complete analysis, however, the data indicate heavy specialization in agriculture, which comprise almost 14 percent of total county employment. Manufacturing, trade, or services, industries which typically form the basis of well-developed, balanced economy, have not likely been important contributors of county employment. Most employment has occurred in the government sector, which comprised over 36 percent of total county employment in 1977.

Employment growth over the 1967 - 1977 period is highlighted for Lincoln County in Table 1.1.1-2. Despite the fact that the county is rural, its annual growth rate of 3.5 percent over this period, was well above the majority of other counties in the state. Available data indicate that employment growth was centered in the county's government sector. However, employment growth in mining was also impressive.

Income and Earnings - Clark County

Total earnings have exhibited very rapid growth over the 1967-1977 period. Table 1.1.1-3 highlights Clark County earnings by major sectors in comparison to other Nevada counties. The county's 1977 earnings equalled \$2.3 billion, well over one-half the total earnings for the state as a whole. Earnings growth equalled 6.3 percent per year over 1967-1977, well above virtually every other county and over twice the national average over the same period. Disaggregating by industry, key growth sectors have been construction, services, and the government sector, while sizable earnings losses have been incurred in mining, and negligible growth has taken place in agriculture.

Table 1.1.1-4 highlights per capita income and earnings shares by major industry for Clark County in 1977. The county's 1977 per capita income was \$7,735, above most every other county in the state and greater than for the United States as a whole. This results from the heavy emphasis on a service-based economy, and the higher wage structures in that industry relative to more rural areas with agricultural-base industries.

Table 1.1.1-1. Total employment and percent share by major economic sectors for counties in Nevada, 1977.

COUNTY	TOTAL EMPLOYMENT	PERCENT OF TOTAL STATE EMPLOYMENT	AGRICULTURE SHARE (%)	MINING SHARE (%)	CONSTRUCTION SHARE (%)	MANUFACTURE SHARE (%)	SERVICES SHARE (%)	GOVERNMENT SHARE (%)
Carson City	14,313	4.1	0.2	0.2	6.7	6.6	17.3	43.3
Churchill	5,131	1.5	13.7	(D)	7.7	2.9	12.4	41.8
Clark	185,199	53.1	1.7	(D)	5.6	3.0	41.4	17.5
Douglas	13,365	3.8	2.1	(D)	4.1	5.5	68.4	5.5
Elko	9,300	3.4	9.9	2.9	4.0	8.7	27.1	21.1
Emeralda	368	0.1	16.0	(D)	(D)	N.L.	N.L.	36.1
Eureka	620	0.2	70.2	93.7	(D)	(D)	(D)	21.8
Humboldt	3,905	1.1	14.2	(D)	3.3	4.7	18.3	18.9
Lander	1,521	0.4	10.0	39.8	(D)	(D)	3.7	19.5
Lincoln	1,213	0.3	13.7	12.4	(D)	(D)	(D)	36.1
Lyon	3,327	1.0	16.2	16.0	2.6	8.6	7.9	21.8
Mineral	2,555	0.7	1.5	0.6	2.3	(L)	16.5	60.2
Nye	5,661	1.6	3.1	10.4	1.2	0.8	59.5	13.1
Pershing	1,303	0.4	21.9	(D)	0.8	1.1	(D)	22.9
Storey	509	0.1	N.L.	(D)	(D)	2.4	7.5	17.7
Washoe	97,254	27.9	0.3	5.7	7.3	7.0	33.7	15.2
White Pine	3,952	1.1	5.1	17.2	(D)	7.5	12.4	24.0
Total State	348,495	100.0	1.4	1.2	5.7	4.3	37.1	18.4
United States	97,848,874		4.2	0.8	4.0	20.1	17.4	18.2

059-2

N.L. = Not listed

Source: Dept. of Commerce, April 1979.

Table 1.1.1-2. Nevada employment growth by sector, study area counties, 1967-1977.

COUNTY	TOTAL		AGRICULTURE		MINING		CONSTRUCTION		MANUFACTURING		SERVICES		GOVERNMENT	
	1967	1977	Δ ¹	1967	1977	Δ	1967	1977	Δ	1967	1977	Δ	1967	1977
Churchill	3,930	5,131	2.7	642	704	0.9	(D) ²	(D)	(D)	132	141	0.7	66	151
Clark	97,951	185,198	6.6	289	312	0.8	260	(D)	(D)	3,910	10,280	10.1	3,661	5,593
Elko	6,027	8,300	3.3	755	824	0.9	93	240	9.9	200	335	5.3	62	72
Esmeralda	318	368	1.5	45	59	2.7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Eureka	538	620	1.4	120	125	0.4	195	271	3.3	(D)	(L) ³	(D)	0	0
Humboldt	3,048	3,905	2.5	400	554	3.3	254	(D)	(D)	81	127	4.6	(D)	184
Lander	1,086	1,521	3.4	123	152	2.1	(D)	605	(D)	(D)	(D)	(D)	0	(D)
Lincoln	862	1,213	3.5	146	166	1.3	94	151	4.8	(D)	(D)	(D)	(D)	(D)
Mineral	2,965	2,555	-1.5	36	39	0.8	63	16	-12.8	14	59	15.5	(D)	(L)
Nye	8,919	5,661	-4.4	233	175	-2.8	370	586	4.7	(D)	69	(D)	23	43
Pershing	1,154	1,303	1.2	274	286	0.4	98	(D)	(D)	18	11	-4.8	(D)	40 ⁴
White Pine	3,514	3,952	1.2	183	302	5.1	(D)	679	(D)	63	(D)	(D)	(D)	295
Region Total	112,870	198,165	5.8	1,094	1,212	1.1	865	2,292	2.2	3,973	10,349	10.0	3,684	5,931
State Total	200,226	348,495	5.7	4,318	4,748	1.0	3,500	4,331	2.2	8,164	19,817	9.0 ⁴	6,719	15,136
U.S. Total (\$ in millions)	82.5	97.8	1.7	4.6	4.2	-1.2	.6	.8	3.0	3.3	3.9	1.6	19.5	19.7

¹Δ = Average annual growth rate.

²(D) not shown to avoid disclosure of confidential information.

³(L) less than 10 wage and salary jobs.

⁴Rate in doubt because of large number of data points withheld by disclosure rules.

Source: BEA, April, 1979.

Table 1.1.1-3. Earnings by economic sector, Nevada counties, 1967 - 1977 (in millions of 1977 dollars).

COUNTY	TOTAL EARNINGS			AGRICULTURE			MINING			CONSTRUCTION		
	1967	1977	GROWTH RATE	1967	1977	GROWTH RATE	1967	1977	GROWTH RATE	1967	1977	GROWTH RATE
Carson City	66.15	159.16	8.9	.076	.069	-1.0	.886	.351	-8.6	3.015	15.862	16.1
Churchill	34.3	49.9	3.5	3.5	4.83	3.3	.16	.09	-2.5	2.5	2.9	1.5
Clark	1230.1	2262.5	6.3	3.37	3.71	1.0	4.69	.9	-15.2	76.26	196.57	9.9
Douglas	80.09	133.47	5.2	1.52	2.12	3.4	(D)	-.627	(D)	3.53	11.4	12.4
Elko	65.22	83.13	2.5	10.9	3.23	-11.5	1.3	3.0	8.7	3.53	6.0	5.4
Esmeralda	2.77	3.62	2.7	-1.0	.388	3.3	(D)	(D)	(D)	(D)	(D)	(D)
Eureka	7.44	7.33	-0.2	1.91	.70	-9.6	3.27	4.58	3.4	(D)	.065	(D)
Humboldt	31.21	37.38	1.8	3.77	4.63	2.1	3.55	.2	-25.0	1.23	2.012	5.0
Lander	12.86	16.38	3.6	1.37	.89	-4.2	(D)	10.118	(D)	(D)	(D)	(D)
Lincoln	6.9	12.35	6.0	.18	.81	16.2	1.35	2.29	5.4	(D)	(D)	(D)
Lyon	30.74	34.65	1.2	3.52	4.65	2.8	(D)	8.49	(D)	3.66	1.67	-7.6
Mineral	32.19	26.93	-1.9	.002	.212	59.4	.99	-.306	-49.6	.212	1.35	20.3
Nye	168.8	92.67	-5.8	.917	.714	-2.5	5.34	9.83	6.3	(D)	1.23	(D)
Pershing	11.29	13.99	2.2	2.32	4.08	5.8	1.47	(D)	(D)	.36	.325	-1.0
Storey	3.02	5.24	5.7	.067	0	-20.0	(D)	(D)	(D)	(D)	(D)	(D)
Washoe	646.76	1162.9	5.9	-.423	1.975	37.4	3.38	8.13	9.2	57.57	144.21	9.6
White Pine	37.13	44.95	1.9	1.27	.663	-6.3	(D)	13.65	(D)	.696	.7	0.0
State	2469.0	4146.6	5.3	34.14	33.67	-0.1	54.64	65.398	1.8	159.1	386.27	9.3
U.S.	921,344	1,164,755	2.4	31,950.7	26,163	-2.0	9,715.6	18,115	6.4	54,730.6	69,617	2.4
COUNTY	MANUFACTURING			SERVICES			GOVERNMENT					
	1967	1977	GROWTH RATE	1967	1977	GROWTH RATE	1967	1977	GROWTH RATE			
Carson City	.937	11.44	28.4	10.08	27.776	10.7	38.56	73.12	6.6			
Churchill	.83	2.1	9.7	2.69	6.69	9.5	16.45	22.02	3.0			
Clark	59.18	87.16	3.9	542.28	970.14	6.0	227.93	369.8	5.0			
Douglas	1.8	10.06	18.6	61.09	87.32	3.6	3.5	6.95	7.1			
Elko	.76	.9	1.7	14.95	23.1	4.4	12.84	18.66	3.8			
Esmeralda	(D)	(D)	(D)	(D)	0	(D)	.31	.803	10.0			
Eureka	(D)	(D)	(D)	(D)	(D)	(D)	.88	1.302	4.0			
Humboldt	(D)	1.85	(D)	5.09	6.514	2.5	6.46	7.788	1.9			
Lander	(D)	(D)	(D)	.67	.64	-0.5	2.33	3.37	3.6			
Lincoln	(D)	(D)	(D)	.25	.6	9.1	2.7	4.44	5.1			
Lyon	2.28	4.17	6.2	(D)	2.69	(D)	4.26	6.26	3.9			
Mineral	.11	.129	1.6	3.3	3.3	0.0	23.79	18.15	-2.7			
Nye	.48	.423	-1.3	145.3	66.4	-7.5	8.99	7.78	-1.4			
Pershing	(D)	.4	(D)	.91	(D)	(D)	2.1	2.65	2.4			
Storey	(D)	.11	(D)	.36	.458	2.4	.45	.956	7.6			
Washoe	31.33	92.13	11.4	224.09	356.36	4.7	48.82	177.77	6.0			
White Pine	(D)	5.67	(D)	3.44	4.05	1.6	6.53	9.43	3.7			
State	102.45	216.73	7.8	1016.8	1557.6	4.4	456.43	731.26	4.8			
U.S.	269,026	305,747	1.3	135,753	193,746	3.6	151,707	199,470	2.8			

Source: Bureau of Economic Analysis, 1979.

Table 1.1.1-4. Per capita income and earnings shares by economic sector, Nevada counties, 1977.

	1977 PER CAPITA INCOME	TOTAL 1977 EARNINGS (000s of \$)	COUNTY % OF TOTAL	AGRICUL- TURE SHARE (%)	MINING SHARE (%)	CONSTRUC- TION SHARE (%)	MANUFAC- TURING SHARE (%)	SERVICES SHARE (%)	GOVERNMENT SHARE (%)
Carson City	7,234	159,163	3.8	0.1	0.2	10.0	7.2	17.5	45.9
Churchill	6,066	49,916	1.2	9.7	0.2*	5.9	4.1	13.4	44.1
Clark	7,735	2,262,502	54.5	0.2	0.1*	8.7	3.9	42.9	16.3
Douglas	9,030	133,472	3.2	1.6	0.5	8.5	7.5	65.4	5.2
Elko	7,464	83,132	2.0	3.9	3.6	7.2	1.1	27.8	22.4
Esmeralda	5,543	3,623	0.1	10.7	(D)	(D)	(NL)	0	22.2
Eureka	6,149	7,334	0.2	9.5	62.4	0.1	(D)	(D)	17.6
Humboldt	6,168	37,379	0.9	12.4	0.5*	5.4	4.9	17.4	20.6
Lander	6,059	18,378	0.4	4.9	55.1	(D)	0	3.5	18.4
Lincoln	5,843	12,348	0.3	6.6	18.5	(D)	1.3*	4.9*	35.9
Lyon	6,017	34,651	0.8	13.4	24.5	4.6	12.0	7.8	16.1
Mineral	6,568	26,929	0.6	0.8	1.1	5.0	0.5	12.3	67.4
Nye	5,801	93,673	2.2	0.8	10.6	1.3	0.5	71.7	6.4
Pershing	6,437	13,985	0.3	29.2	(D)	2.3	2.9	(D)	19.0
Storey	5,585	5,240	0.1	0.0	(D)	1.0*	2.1	8.7	16.2
Washoe	9,368	1,162,907	28.1	0.2	0.7	12.4	7.9	30.6	15.3
White Pine	6,608	44,954	1.1	1.5	30.4	1.8*	12.6	9.0	21.0
State Total	7,980	4,148,586	100.0	0.8	1.6	9.3	5.2	37.5	17.6
U.S.	7,026	1,164,755,000		2.2	1.6	6.0	26.2	16.6	17.1

55E

*Estimated.

(D) = Data not provided because of disclosure rules.

(NL) = No Listing.

Source: BEA, April 1979.

Income and Earnings - Lincoln County

Tables 1.1.1-3 and 1.1.1-4 also highlight Lincoln county earnings by major industrial sector and per capita income, respectively. Disclosure rules prevent complete analysis, however, Table 1.1.1-3 indicates the relatively rapid growth in total county earnings, 6.0 percent per annum over the 1967 - 1977 period, and the dominance of agriculture as the leading growth sector. Table 1.1.1-4 points out the county's relatively low per capita income of \$5,843; it was less than three-fourths that for the state as a whole, and well below the national average. Finally, both tables point to the fact that major industries in Lincoln county, mining and government, have exhibited relatively slow earnings growth; this runs counter to their dominance of employment growth statistics.

PUBLIC FINANCE (1.1.2)

Affected public finance units in the Coyote Spring Valley area include Clark and Lincoln counties, the cities of North Las Vegas, Las Vegas, and Caliente, and Clark and Lincoln county school districts. With over 50 percent of the state's population residing in Clark County, the tax base is also quite high, ranging from \$138.1 million in North Las Vegas to \$2.5 billion for Clark County (Table 1.1.2-1). Lincoln County's tax base ranges from \$1.4 million in Caliente to \$25.3 million in the county.

The revenue structure of the potentially affected government units in Clark County reflect a well-balanced system with property tax revenues accounting for percent shares of general fund revenues ranging from 12.8 percent in North Las Vegas, 19.9 percent in Las Vegas, to 26.2 percent in Clark County (Tables 1.1.2-2 through 1.1.2-4). The principal difference between the two cities' and the county's fiscal structure is the dependence of the cities on intergovernmental revenues. These revenues account for 45 percent and 54 percent for North Las Vegas and Las Vegas, respectively, whereas Clark County registers only 14.0 percent. The revenue structures of Lincoln County and the city of Caliente reflect a dependence on intergovernmental transfers. This resource accounts for 57 percent and 67 percent for the county and city, respectively (Tables 1.1.2-5 and 1.1.2-6).

Public safety expenditures account for the largest single expenditure category in both counties and the cities, ranging from 27.8 percent for the county to 52.5 percent for the city of Las Vegas. General administration outlays account for the second largest expenditure category, ranging from 16.3 percent to 18.0 percent in Las Vegas and Clark County, respectively. Lincoln County governmental outlays range from 15 percent in Caliente to 26 percent in Lincoln County.

School district revenues and expenditures follow similar patterns as found within all school districts in the state of Nevada (Tables 1.1.2-7 through 1.1.2-9). Instruction expenses account for the largest single outlay, approximately 60-65 percent of school expenditures, excluding capital outlay and debt service. Fixed charges (insurance, pension payments) and operation and maintenance of the physical plant account for another 26.2 percent. Revenue sources for the school districts are principally from state and local contributions. In the Clark County School District, state and local payments comprise 45.4 percent and 50.7 percent, respectively. Revenue sources in the Lincoln County School District are weighted toward state contributions, 59 percent, with local payments being 25 percent of total revenues.

Table 1.1.2-1. Assessed valueations, indebtedness limitations, reserve bonding capacities, 1978-79.

AREA	ASSESSED VALUE	INDEBT. LIMITATION	OUTSTANDING G.O.	RESERVE BONDING CAPACITY
Clark County	\$2,463,414,900	\$246,341,500	\$ 4,871,000	\$241,470,500
Clark County School District	2,463,414,900	369,512,200	175,539,200	193,973,000
North Las Vegas	138,149,135	41,494,700	6,695,000	34,749,700
Las Vegas	682,282,534	204,684,800	5,955,000	198,729,800
Lincoln County	25,320,100	2,532,000	52,000	2,480,000
Lincoln County School District	25,320,100	3,798,000	0	21,522,100
City of Caliente	1,422,600	427,000	0	995,600

3393

Source: Local Government Green Book, Department of Taxes, State of Nevada, 1978.

Table 1.1.2-2. General fund revenue and expenditures, Clark County, select years.

FUND	1976-77	1977-78	1978-79
Revenues			
Property Taxes	\$ 12,936,579	\$14,952,357	\$17,811,256
License & Permit	11,828,831	13,539,923	15,429,662
Fines and Fees	5,241,259	6,606,155	8,353,750
Intergovernmental Revenues	7,004,552	10,861,530	9,482,202
Other	11,896,447	11,557,700	17,193,084
Subtotal	48,901,668	57,517,665	68,269,954
Opening Balance	1,063,566	4,345,406	7,698,918
Transfers-In	279,544	2,118	1,148,912
TOTAL REVENUES	\$ 50,244,778	61,865,189	77,117,784
Expenditures			
Administration	\$ 7,003,420	\$ 9,237,460	\$11,244,096
Judicial	7,109,703	9,039,660	9,882,583
Public Safety	12,439,585	14,380,986	17,370,741
Parks and Recreation	1,663,474	2,672,344	3,243,663
Institutional Youth Service	5,163,124	6,535,002	7,755,694
Public Works	5,276,977	6,746,492	7,071,969
Other General Expense	7,243,089	5,554,327	5,964,020
Subtotal	45,899,372	54,166,271	62,532,766
Transfer-Out	0	0	5,967,000
TOTAL EXPENDITURES	\$ 45,899,372	\$54,166,271	\$68,499,766
ENDING BALANCE	\$ 4,345,406	\$ 7,698,918	\$ 8,618,018

3394

Source: Clark County, County General Fund Statement of Revenues and Expenditures, Fiscal Years 1976-77 to 1978-79.

Table 1.1.2-3. Summary of general fund revenues and expenditures, City of North Las Vegas, 1978-1979.

REVENUE/EXPENDITURE	FIGURE
<u>Resources</u>	
Property Tax	\$ 1,258,629
Licenses and Permits	549,133
Fines and Fees	921,085
Intergovernmental Transfers	5,272,842
Other	337,424
Transfers - IN	1,466,836
TOTAL GENERAL FUNDS	\$ 9,805,949
<u>Expenditures</u>	
Administration	\$ 1,731,409
Public Safety	4,753,685
Public Works	1,698,288
Parks and Recreation	950,769
Other-Land Acquisition ¹	1,000,000
TOTAL EXPENDITURES	\$10,134,151

3395-1

Source: City of North Las Vegas, statement of General Fund Revenues and Expenditures, FY 1978-1979.

Table 1.1.2-4. Summary of general fund revenues and expenditures, City of Las Vegas, 1977-78.

REVENUES	FIGURE
<u>Revenues</u>	
Property Taxes	\$ 7,645,715
Franchise Fees	3,530,951
Licenses and Permits	5,015,835
Fines and Fees	2,742,283
Intergovernmental Transfers	17,272,855
Other	712,598
Subtotal	36,920,237
Transfers In	1,480,940
TOTAL REVENUES	38,401,177
<u>EXPENDITURES</u>	
<u>Expenditures</u>	
Administration	\$ 6,111,897
Public Safety	19,730,925
Public Works	4,843,996
Parks and Recreation	4,323,070
Other	2,572,227
Transfers Out	0
TOTAL EXPENDITURES	\$37,582,115

3396-1

Source: City of Las Vegas,
statement of General Fund
Revenues and Expenditures,
FY 1977-78

Table 1.1.2-5. General fund revenues and expenditures, Lincoln County, 1977-78.

SOURCE	FIGURE
<u>Revenues</u>	
Property Taxes	\$ 174,302
Licenses and Permits	8,141
Fines and Fees	46,562
Intergovernmental Transfers	402,303
Other Revenues	74,186
TOTAL REVENUES	705,494
<u>Expenditures</u>	
Administration	163,663
Public Safety	186,409
Judicial	87,687
Health and Welfare	1
Parks and Recreation	1
Other	82,231
Subtotal	519,990
Capital Outlay	27,888
Transfers Out	81,161
TOTAL EXPENDITURES	629,039

3397-1

Source: County of Lincoln, statement of General Fund Revenues and Expenditures, FY 1977-78.

Table 1.1.2-6. City of Caliente,
summary of general
fund receipts and
expenditures, FY
1978-79.

REVENUE/EXPENDITURE	FIGURE
<u>Resources</u>	
Property Tax	\$ 20,070
Licenses and Permits	7,720
Fines and Fees	6,893
Intergovernmental Transfers	113,245
Other	12,812
Transfers-In	6,034
TOTAL GENERAL FUND	\$ 166,774
<u>Expenditures</u>	
Administration	\$ 23,722
Public Safety	73,736
Public Works	40,338
Parks and Recreation	21,229
Health	985
Other	0
Judicial	0
Contingency	0
TOTAL EXPENDITURES	\$ 160,010

3398-1

Source: City of Caliente, statement
of General Fund.

Table 1.1.2-7. Summary of receipts¹, Clark County School District, school year 1977-78.

FUND	FIGURE
General Fund	
State	\$ 51,826,742
Distributive School Fund	51,816,507
Other	60,235
County	57,853,765
Property Taxes	30,099,825
Other	27,753,940
School District	1,391,176
Federal	2,583,017
Transfers	138,874
TOTAL GENERAL FUND	114,113,574
Other Funds	
State	454,684 ¹
County	30,620,006
Property Taxes	14,061,758
Sale of Bonds	15,000,000
Other	1,558,248
School District	1,105,590
Federal	8,249,533
TOTAL OTHER FUNDS	40,429,813
TOTAL ALL FUNDS	\$154,543,387

3399

¹Except Special Insurance Fund receipts.
Includes interfund receipts.

Source: Nevada Superintendent of Public Instruction,
undated. Biennial Report of Selected Data,
July 1, 1976 to June 10, 1978.

Table 1.1.2-8. Summary of expenditures by function, Clark County School District, school year 1977-78.

EXPENDITURE	FIGURE
Administration	\$ 2,213,604
Instruction	78,223,161
Auxiliary Services	2,048,110
Transportation	4,353,864
Operation of Plant	10,611,806
Maintenance of Plant	4,091,415
Fixed Charges	17,127,028
Other	2,957,376
Subtotal	121,626,364
Capital Outlay	7,767,497
Debt Service	15,228,302
TOTAL EXPENDITURES	\$144,622,163

3400

Source: Nevada Superintendent of Public Instruction, undated. *Biennial Report of Selected Data.*

Table 1.1.2-9. Summary of receipts
and expenditures by
source, Lincoln
County School
District, school
year 1977-1978.

FUND	AMOUNT
General Fund Revenues	
State	\$ 1,101,528
Distributive School Fund	1,083,358
Other	18,170
County	476,833
Property Taxes	334,926
Other	141,907
School District	13,746
Federal	185,351
Transfers	96,495
Total General Fund Revenues	1,873,953
Other Funds	
State	\$ 0
County	44,246
Property Taxes	38,383
Sale of Bonds	0
Other	5,863
School District	37,167
Federal	84,324
Total Other Funds Revenues	165,737
Total All Funds Revenues	2,039,330
Expenditures	
Administration	\$ 79,803
Instruction	1,076,026
Auxiliary Services	75,594
Transportation	73,087
Operation of Plant	137,255
Maintenance of Plant	79,004
Fixed Charges	259,092
Other	27,884
Subtotal	1,087,745
Capital Outlay	171,568
Debt Service	46,468
Total Expenditures	2,025,781

3401

POPULATION (1.1.3)

Clark County, Nevada, along with adjacent Lincoln county is one of the fastest growing metropolitan areas in the United States, with an annual compound rate of growth of 5.39 percent during the decade from 1970 to 1980. According to preliminary 1980 census data, the county, which includes the city of Las Vegas, had a population of 462,012 persons, an increase of 69 percent over the population of 273,288 in 1970. The population of the county, which has a density of about 42 persons per sq mi, is concentrated in the Las Vegas urbanized areas while the remaining rural areas are sparsely settled. Slightly over one-half of the County's population reside within the boundaries of the four municipalities -- Las Vegas, North Las Vegas, Henderson, and Boulder City. Preliminary 1980 census data indicate Lincoln County had a population of 3,697, an increase of 44.6 percent over the population of 2,557 in 1970. The county is very sparsely settled, with a density of only 0.35 persons per sq mi. The county's population, which grew at an annual rate of 1.7 percent during the 1970s, is concentrated in the communities of Caliente, Panaca and Pioche.

Data for 1970 on the spatial distribution and age composition of Clark and Lincoln Counties populations, presented in Table 1.1.3-1, indicate that Clark's population is virtually all urban while Lincolns is entirely rural, though non-farm. Both counties have populations with a slightly younger age structure than the state as a whole, with 26.4 percent and 32.4 percent of the population of Clark and Lincoln counties, respectively, of school age in 1970.

Components of population change including net migration and natural increase, or excess of births over deaths, are shown in Table 1.1.3-2 for the periods 1960 to 1970 and 1970 to 1976. For the past two decades, Clark County has experienced substantial population increase due to both natural increases and high rates of net in-migration according to Bureau of the census data, the county experienced net in-migration during the 1960s equal to 85.4 percent of its 1960 population, while it is estimated that net in-migration between 1970 and 1976 totaled 17.9 percent of the county's 1970 population. Adjacent Lincoln County also experienced net in-migration during both time periods, but at substantially lesser rates than in Clark County and Nevada as a whole.

Projections of future population in Clark and Lincoln counties, as shown in Table 1.1.3-3 and Figures 1.1.3-1 and 1.1.3-2, indicate a continued pattern of substantial population growth through 1994, although at lesser rates than occurred in the 1970s. Clark County's population is projected to each over 685,000 by 1994 while Lincoln County's is projected to be about 4,700 in the same year. Projected growth rates in both counties, as presented in Table 1.1.3-4, are higher in the short-term, with gradual reductions through the period 1990 to 1994. Annual growth rates projected in Clark County range from about 3.7 percent from 1980 to 1985 to about 2.4 percent from 1990 to 1994. The comparable data for Lincoln County are 2.0 percent and 1.6 percent, respectively, for the two periods.

LAND USE (1.1.4)

Community Land Use

The OB study area is situated 34 mi from Nellis Air Force Base to the northeast of Las Vegas, Nevada. Clark County Regional Planning Council provides guidance to the localities in their planning endeavors. The County General Plan was

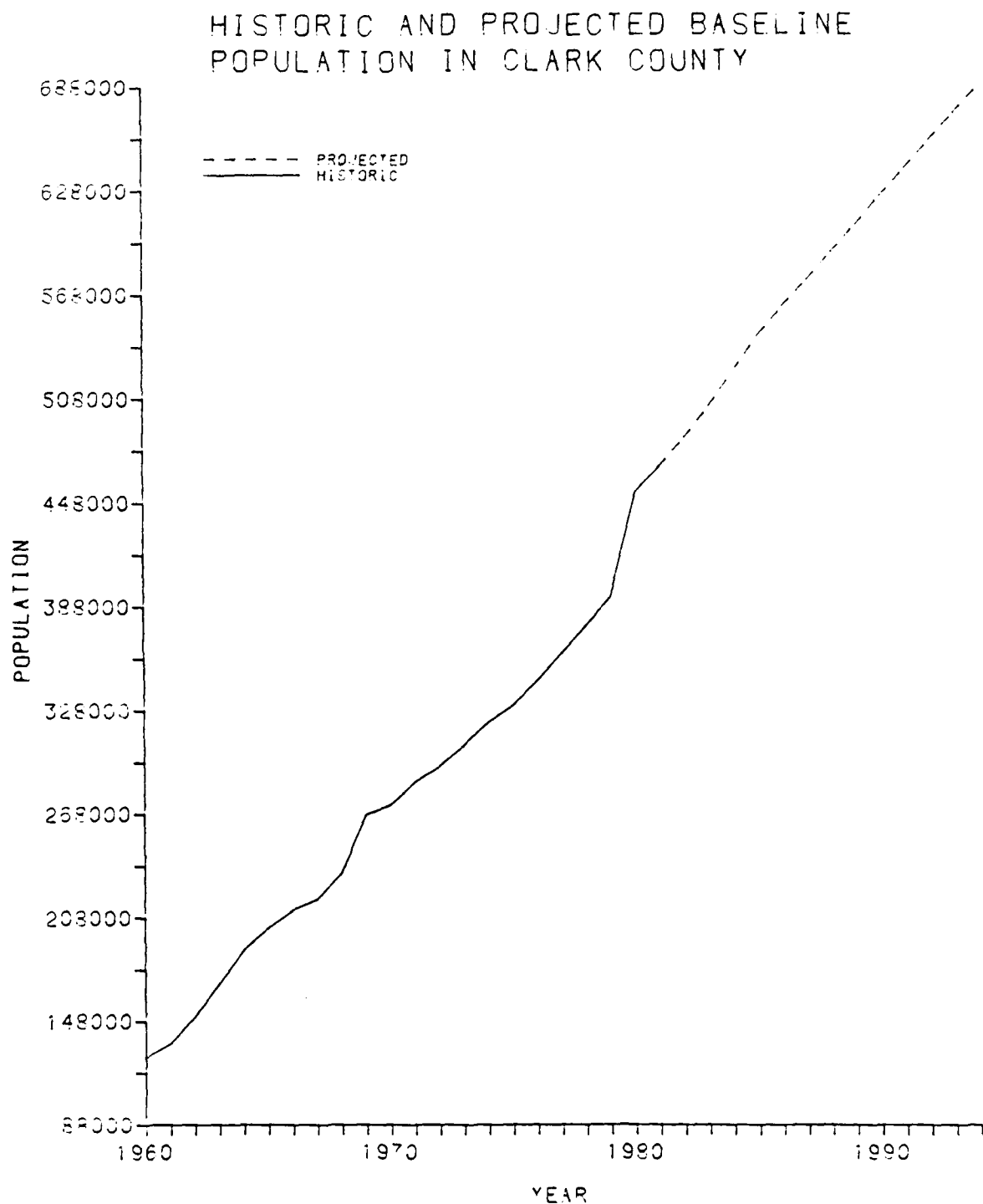


Figure 1.1.3-1. Historic and projected baseline population in Clark County. CA-0042-A

HISTORIC AND PROJECTED BASELINE POPULATION IN LINCOLN COUNTY

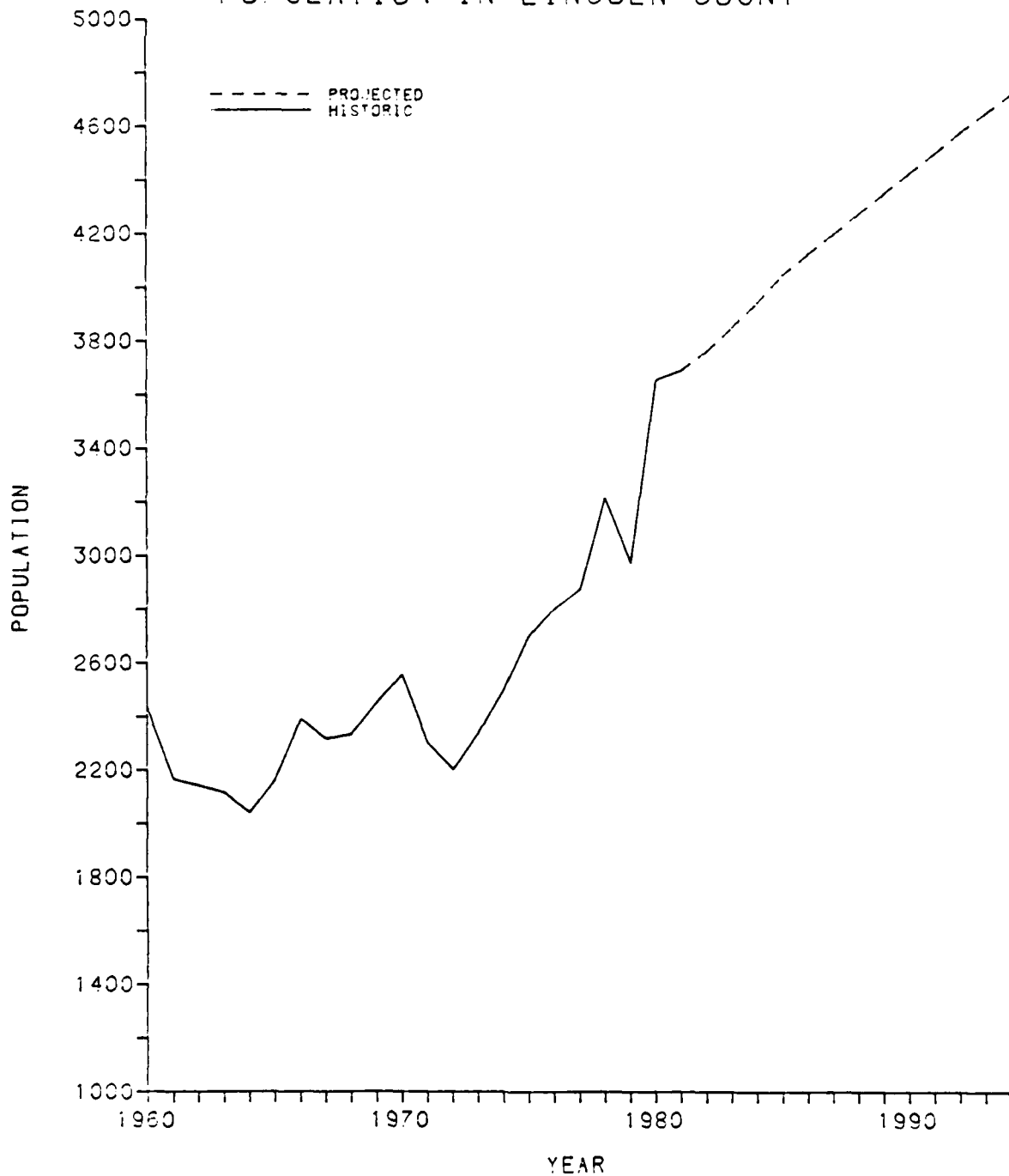


Figure 1.1.3-2. Historic and projected baseline population in Lincoln County.

CA-0044-A

Table 1.1.3-1. Selected population characteristics
in the Nevada/Utah impact region.
(Page 1 of 2)

STATE/ COUNTY	POPULATION				POPULATION DENSITY (1975) PERSONS/MI ²
	1960	1970	1975	1977	
Nevada					
Clark	127,016	273,288	330,714	361,095	42
Eureka	767	948	1,072	1,119	<1
Lincoln	2,431	2,557	2,647	2,857	<1
Nye	4,374	5,598	5,591	6,113	<1
White Pine	9,808	10,150	10,221	8,776	1
Utah					
Beaver	4,331	3,800	4,086	4,079	2
Iron	10,795	12,177	14,609	15,444	4
Juab	4,597	4,574	4,947	5,156	1
Millard	7,866	6,988	7,878	8,297	1
Salt Lake	383,035	458,607	512,130	540,533	670
Utah	106,991	137,776	165,745	177,106	82
Washing- ton	10,271	13,669	18,127	19,809	7
Nevada	285,278	488,738	590,268	636,962	5
Utah	890,627	1,059,273	1,202,672	1,270,005	15

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Table 1.1.3-1. Selected population characteristics in the Nevada/Utah impact region. (Page 2 of 2)

STATE/ COUNTY	RURAL - URBAN DISTRIBUTION (1970)			AGE DISTRIBUTION (1970)				MEDIAN AGE (1970) IN YEARS
	PERCENT RURAL FARM	PERCENT RURAL NON-FARM	PERCENT URBAN	PERCENT UNDER 5	PERCENT 5-17	PERCENT 18-64	PERCENT 65+	
Nevada								
Clark	0.4	5.1	94.5	9.5	26.4	59.0	5.1	27.0
Eureka	30.1	69.9	0	11.4	22.9	60.1	5.6	30.5
Lincoln	12.7	87.3	0	9.7	32.4	47.7	10.2	27.5
Nye	5.0	95.0	0	8.3	24.2	60.4	7.1	30.1
White Pine	2.2	56.7	41.1	10.0	28.2	53.9	7.9	26.3
Utah								
Beaver	8.4	91.6	0	8.4	28.7	51.3	11.6	29.7
Iron	3.9	21.5	74.7	10.5	25.9	56.0	7.6	22.4
Juab	2.6	27.9	66.4	10.2	28.3	49.3	12.2	27.5
Millard	15.0	85.0	0	9.3	31.4	46.8	12.5	27.0
Salt Lake	0.6	4.2	95.1	10.6	29.1	52.7	7.6	23.9
Utah	2.6	9.9	87.6	10.9	26.8	56.3	6.0	21.7
Washing- ton	2.9	45.4	51.8	10.2	29.3	48.2	12.3	22.4
Nevada	2.1	17.0	80.9	8.9	26.0	58.8	6.3	27.9
Utah	3.1	16.3	80.6	10.6	29.6	52.5	7.3	23.0

4028

Sources: U.S. Bureau of the Census, 1975 County and City Data Book, 1977 Population Estimates for Counties and Incorporated Places (Nos. 841 and 857), and 1970 Census of Population.

Table 1.1.3-2. Population change and components of change, 1960 to 1970 and estimated 1970 to 1976, by county, in the Nevada/Utah impact region. (Page 1 of 2)

STATE / COUNTY	ACTUAL POPULATION 1970	POPULATION CHANGE 1960-1970					
		COMPONENTS OF CHANGE				TOTAL CHANGE	
		NATURAL INCREASE		NET MIGRATION			
		NO.	PERCENT	NO.	PERCENT	NO.	PERCENT
Nevada							
Clark	273,288		29.8		85.4		115.2
Eureka	948		-2.5		26.1		23.6
Lincoln	2,557		4.6		0.6		5.2
Nye	5,599		8.1		19.9		26.0
White Pine	10,150		11.6		-8.1		3.5
Utah							
Beaver	3,800		9.3		-21.6		-12.3
Iron	12,177		16.4		-3.6		12.8
Juab	4,574		7.7		-8.2		-0.5
Millard	6,988		9.4		-20.6		-11.2
Salt Lake	458,607		18.8		0.9		19.7
Utah	137,776		23.1		5.7		28.8
Washington	13,669		16.8		16.3		33.1
Nevada	488,738		20.9		50.4		71.3
Utah	1,059,273		20.1		-1.2		18.9

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Table 1.1.3-2. Population change and components of change, 1960 to 1970 and estimated 1970 to 1976, by county in the Nevada/Utah impact region.
(Page 2 of 2)

STATE/ COUNTY	ESTIMATED POPULATION 1976	POPULATION CHANGE 1970-1976					
		COMPONENTS OF CHANGE				TOTAL CHANGE	
		NATURAL INCREASE		NET MIGRATION		NO.	PERCENT
		NO.	PERCENT	NO.	PERCENT		
Nevada							
Clark	343,400	21,200	7.7	48,900	17.9	70,100	25.6
Eureka	1,200	(2)	1.3	300	26.9	300	28.2
Lincoln	2,800	100	2.6	100	5.5	200	8.1
Nye	5,900	100	1.4	200	4.3	300	5.7
White Pine	10,000	700	6.6	-800	-7.9	-100	-1.3
Utah							
Beaver	4,100	400	8.7	(2)	-1.2	300	7.5
Iron	14,700	1,700	14.0	800	7.0	2,600	21.0
Juab	4,900	400	8.5	-100	-1.2	300	7.3
Millard	8,200	700	9.4	500	7.5	1,200	16.9
Salt Lake	524,700	53,100	11.6	13,000	2.8	66,100	14.4
Utah	170,300	27,200	19.7	5,300	3.9	32,600	23.6
Washington	18,700	1,900	13.9	3,200	23.2	5,100	37.1
Nevada	610,000	31,000	6.3	90,000	18.5	121,000	24.8
Utah	1,228,000	134,000	12.6	35,000	3.3	169,000	15.9

4029

Source: U.S. Bureau of the Census.

Table 1.1.3-3. Projected population by county, assuming trend growth and assuming growth related to energy and mineral development projects in some counties, Nevada/Utah impact region, 1980-1994. (Page 1 of 2)

STATE/ COUNTY	ESTIMATED POPULATION 1977 ¹	PROJECTED POPULATION ²			
		1980		1985	
		TREND GROWTH	HIGH GROWTH	TREND GROWTH	HIGH GROWTH
Nevada					
Clark	361,095	453,881	453,952	543,857	544,830
Eureka	1,119	1,089	1,089	1,169	1,169
Lincoln	2,857	3,657	3,658	4,043	4,049
Nye	6,113	8,267	8,268	10,799	10,804
White Pine	8,776	8,246	8,247	8,630	12,975
5-County Total	379,960	475,140	475,214	568,498	573,827
Utah					
Beaver	4,079	4,455	4,776	5,051	10,993
Iron	15,444	17,449	17,460	20,348	20,500
Juab	5,156	5,544	5,613	6,888	9,274
Millard	8,297	8,915	10,459	10,940	18,746
Salt Lake/ Utah	717,639	822,238	822,793	980,701	987,123
Washington	19,809	22,150	22,150	27,200	27,200
7-County Total	770,424	880,751	882,951	1,051,128	1,073,836
Deployment Region Total	1,150,384	1,355,891	1,358,165	1,619,626	1,647,663

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Table 1.1.3-3. Projected population by county, assuming trend growth and assuming growth related to energy and mineral development projects in some counties, Nevada/Utah impact region, 1980-1994. (Page 2 of 2)

STATE / COUNTY	PROJECTED POPULATION ²			
	1990		1994	
	TREND GROWTH	HIGH GROWTH	TREND GROWTH	HIGH GROWTH
Nevada				
Clark	623,794	624,539	686,699	687,585
Eureka	1,278	1,278	1,368	1,368
Lincoln	4,424	4,429	4,715	4,720
Nye	11,971	11,974	12,901	12,906
White Pine	9,545	13,902	10,238	15,050
5-County Total	651,012	656,122	715,921	721,629
Utah				
Beaver	5,297	9,965	5,516	10,566
Iron	22,895	23,006	24,556	24,677
Juab	7,650	8,364	8,077	8,849
Millard	12,179	14,920	12,528	15,504
Salt Lake/ Utah	1,079,131	1,083,344	1,144,685	1,149,699
Washington	31,150	31,150	33,802	33,802
7-County Total	1,158,302	1,170,749	1,229,164	1,243,097
Deployment Region Total	1,809,314	1,826,871	1,945,085	1,964,726

¹U.S. Bureau of the Census, 1977 Population Estimates for Counties and Incorporated Places. Series P-25, No. 841 (Nevada) and No. 857 (Utah), November 1979.

²Bureau of Economic and Business Research, University of Utah, 1980.

Table 1.1.3-4. Projected annual compound growth rates by county, assuming trend growth and high growth associated with energy and mineral development projects, Nevada/Utah impact region.

STATE/COUNTY	PROJECTED ANNUAL COMPOUND RATES OF POPULATION CHANGE							
	1977-1980		1980-1985		1985-1990		1990-1994	
	TREND GROWTH	HIGH GROWTH	TREND GROWTH	HIGH GROWTH	TREND GROWTH	HIGH GROWTH	TREND GROWTH	HIGH GROWTH
Nevada								
Clark	7.92	7.93	3.68	3.72	2.78	2.77	2.43	2.43
Eureka	-0.90	-0.90	1.43	1.43	1.80	1.80	1.72	1.72
Lincoln	8.58	8.58	2.02	2.02	1.79	1.79	1.61	1.61
Nye	10.59	10.59	5.49	5.49	2.08	2.08	1.89	1.89
White Pine	-2.06	-2.06	0.91	9.49	2.04	1.39	1.77	2.00
5-County Total	7.74	7.74	3.65	3.84	2.75	2.72	2.40	2.41
Utah								
Beaver	2.98	5.40	2.54	18.14	0.96	-1.94	1.02	1.47
Iron	4.15	4.17	3.12	3.26	2.39	2.33	1.77	1.77
Juab	2.45	2.87	4.44	10.56	2.12	-2.04	1.37	1.42
Millard	2.42	8.02	4.18	12.38	2.17	-4.46	0.71	0.96
Salt Lake/Utah	4.64	4.66	3.59	3.71	1.93	1.88	1.49	1.50
Washington	3.79	3.79	4.19	4.19	2.75	2.75	2.06	2.06
7-County Total	4.56	4.65	3.60	3.99	1.96	1.74	1.50	1.51
Deployment Region Total	5.63	5.69	3.62	3.94	2.24	2.09	1.83	1.84

4031

Source: HDR Sciences, based on projections by the Bureau of Economic and Business Research, University of Utah, 1980.

approved in 1966 and presently it has been going through an updating process. Also, the regional planning council has embarked upon the preparation of a Land Use Element within the framework of a Regional Comprehensive Plan. The following discussion utilizes material in the "Clark County 208 Water Quality Management Plan" (Clark County, 1977).

Existing Land Use

Within Clark County 85 percent of the land area is in public ownership, held by the federal government. The remaining 15 percent in private ownership is concentrated in the Las Vegas Valley around the city of Las Vegas. Much of the land held by the federal government is resource preserve, with large areas set aside for recreational use. The following federal agencies manage public lands:

- o Forest Service
- o National Park Service
- o Bureau of Reclamation
- o Bureau of Land Management
- o Bureau of Sport Fisheries and Wildlife
- o Bureau of Indian Affairs
- o Department of the Air Force

Three governmental entities exist within the single urbanized area in Las Vegas Valley. The City of Las Vegas, the City of North Las Vegas, and Clark County all share responsibility for services and administration of the urban area. To the southeast, the City of Henderson is on Boulder Highway, and further southeast Boulder City, the fourth incorporated city in the county, is near Lake Mead. Unincorporated county townships include Paradise, East Las Vegas, Sunrise Manor and Winchester. Other small unincorporated towns in the outlying rural areas are under the jurisdiction of Clark County.

The land use pattern throughout the Las Vegas Valley is characterized by a high incidence of vacant land interspersed throughout the developed areas. Approximately 60 percent of the land within the urbanized area is open space, and 40 percent is developed. The center of the urbanized area is the intersection of Boulder Highway, Interstate 15 and the railroad. From this center, around which is located downtown Las Vegas, the urban area spreads in irregular circular rings, the result of gradually expanding residential development out from the central core along the highways and railroad.

The majority of public land within the Las Vegas Valley is held by the Bureau of Land Management, and is released under the Recreation and Public Purposes Act of 1926 to local agencies and jurisdictions for public purposes. BLM also has a policy of scheduled release of lands within the urbanized area to private ownership; the general aim is to release land close to the urban center before land on the fringes or outlying areas; however, no specific programs or plans exist for this procedure.

All cities and the county have large undeveloped areas within their boundaries. Residential land uses consume by far the largest area of developed land, except in the Henderson area where land use is dominated by the Basic Management, Inc. industrial plant. Within the Las Vegas Valley, only 1,200 acres of land are in

agricultural use, although in the outlying county rural areas, intensive agriculture occurs in limited areas with water supply. Developed recreational uses account for 1,100 acres in the Las Vegas Valley and an additional 126 in Boulder City. Recreational areas in federal ownership surround the Valley.

Commercial uses account for a larger share of the developed land supply than is usual, due to the importance of tourism in Las Vegas. Nellis Air Force Base is the only military land use in the area, with 12,430 acres in the air force base complex, 2,260 acres at Indian Springs Auxiliary Air Field, and the 4,500 acre Sheep Mountain Gunnery Range. Table 1.1.4-1 summarizes existing land use within Clark County.

Land Use Planning and Zoning

Clark County Regional Planning Council adopted the Coordinated General Plan for the Las Vegas Valley in 1968, a revision of the General Plan prepared for Clark County in 1966 (see Figure 1.1.4-1).

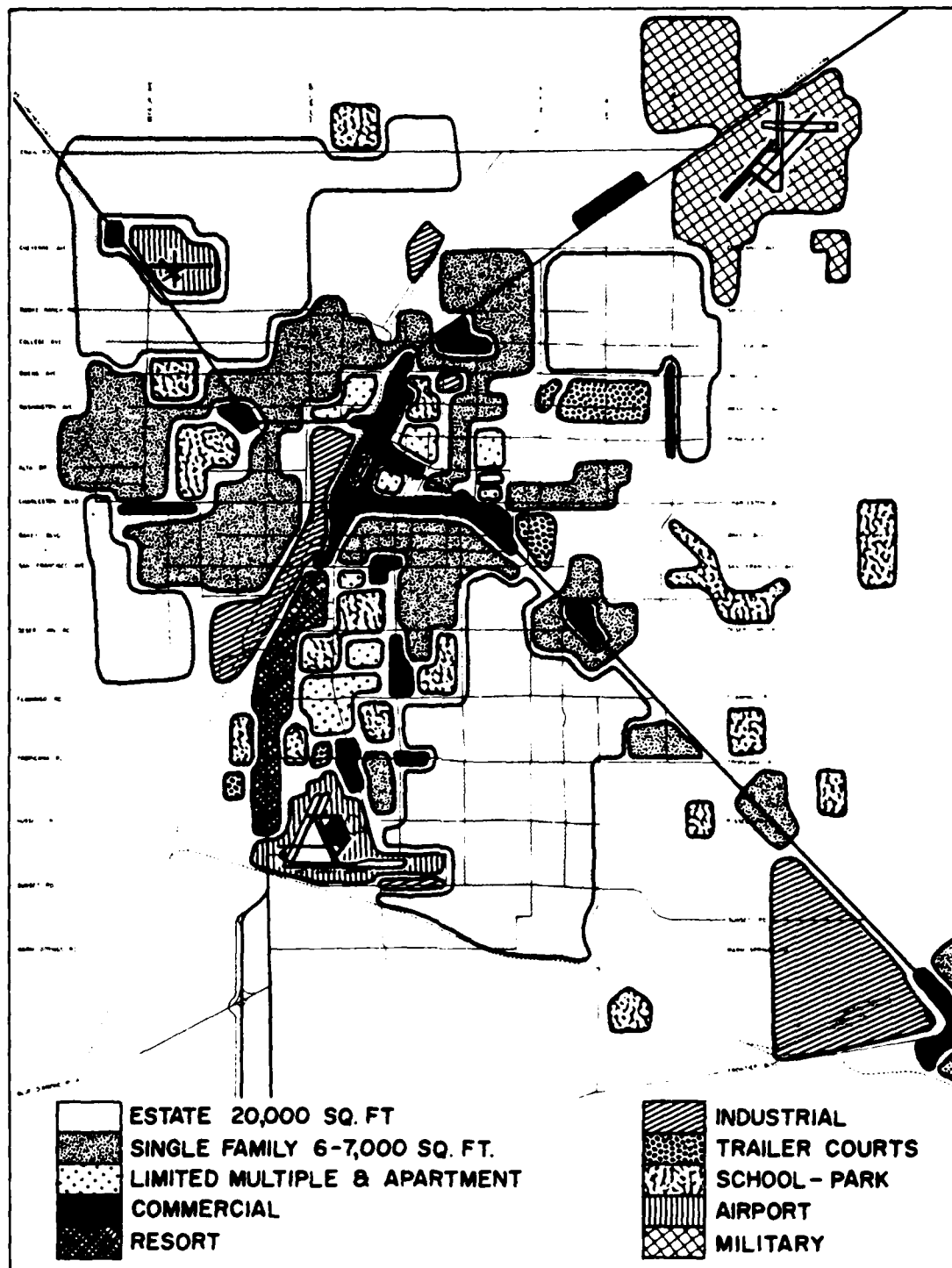
Clark County also adopted in 1974 a General Plan and Land Use Inventory for unincorporated portions of the Las Vegas Valley. This revision of the General Plan of 1966 was necessary due to widespread development of the unincorporated areas. One of the more recent updates relating to population and residential land use was completed early 1980. A complete update of the plan is expected in 1981.

The county also has developed General Plans for unincorporated towns of the county. Revised General Plans for Moapa Valley and Searchlight were adopted in 1976. Revisions of General Plans for Indian Springs Mt. Charleston, Sandy Valley, Mesquite, and Laughlin South Point were underway in 1977.

In 1977 North Las Vegas was preparing land use, circulation, housing, recreation and open space, public services and conservation elements for a major revision of the 1966 Master Plan, per state requirements, funded by HUD's 701 program.

The city of Henderson was engaged in HUD 701 funded planning studies, which included the following elements: Local Environmental Assessment, Designation of Neighborhoods, Master Street and Highway Plan, and Future Land Use Study. Most of these elements were completed, and a revision of the city zoning ordinance was underway. Boulder City's 1966 Master Plan was updated by a citizens' committee. The new plan was scheduled to include a revised land use plan map.

In the rural communities outside the Las Vegas Valley, some expansion is possible, though not on a scale like that of the valley area. The small towns of Mesquite, Bunkerville, Logandale, Overton, and Glendale are basically farming communities and homes are near farming areas. Any significant development in any area would tend to take farm land out of production inasmuch as most of the non-arable land around any community is public land and not available for development. Specific figures relative to current amounts of undeveloped land in each of these communities are not available. Being unincorporated, these communities are dependent upon Clark County for all planning assistance.



2078-A

Figure 1.1.4-1. Generalized land use in the Las Vegas Valley.

Table 1.1.4-1. Existing land use, Clark County (areas)¹.

LAND USE	CITY OF LAS VEGAS	CITY OF NORTH LAS VEGAS	CITY OF HENDERSON	BOULDER CITY	UNINCORPORATED AREA	APPROXIMATE TOTAL
Residential	8,108	1,700	750	542	12,084	23,184
Commercial	1,286	500	191	100	2,357	4,434
Industrial	368	140	851	30	3,850	5,239
Civic/Recreational	1,800	645	210	86	5,837	8,578
Other	3,820	15	2,129	390	0	2,900
Vacant	21,967	17,500	36,492	19,972	216,109 ²	312,040
Total Area (approx.)	33,900	22,400	42,200	21,100	403,200	523,800

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¹Figures are approximate, based on data available as of 1977.

²Figures include only unincorporated areas within Las Vegas Valley.

Source: Clark County, 1977, "208 Water Quality Management Plan, Environmental Report No. 2 Land Development Suitability Analysis.

Lincoln County

In Lincoln County, the communities of Alamo, Ash Springs, and Hiko are located between 50 and 60 mi from the OB location. Urban land in Alamo comprises 168 acres while there are 37 acres of urban land in Ash Springs. Alamo's dominant land uses are 67 percent undeveloped, 21 percent streets, and 5 percent residential, while Ash Springs has 52 percent undeveloped, 15 percent streets, and 7 percent residential (Lincoln County, 1975). Comparable information for Hiko is not available.

Zoning

All of Clark County is presently covered by the Clark County ordinance. The county administers the zoning requirements for all of the unincorporated land in the county and each incorporated city administers ordinances for their political jurisdiction. It is anticipated that the implementing ordinance in Clark County, i.e., the Zoning and Subdivision Ordinances along with the General Plan, will be updated during this coming year.

Rural Land Use

Major land uses and land ownership patterns of the Coyote Spring area are shown in Figure 1.1.4-2. The prime economic activity of the area is livestock grazing on lands administered by the BLM. The proposed OB area is adjacent to the Desert National Wildlife Range, established by the federal government, and administered by the U.S. Fish and Wildlife Service.

Agriculture

There are no croplands located in the vicinity of the OB site at Coyote Spring, Nevada. The proposed OB facilities are located in the BLM Virgin Valley and Caliente planning units (PU) (90 percent in Virgin Valley and 10 percent in Caliente). The BLM permits no grazing in the former PU and 40.1 acres per AUM in the latter. A total of 73,235 AUMs is allowed in the two PUs.

Recreation

No fishing or developed recreation sites are located near the potential OB site. Since the region is entirely in public domain, it is subject to dispersed recreational use. In particular, the Coyote Spring/Meadow Valley Wash is used by off-road vehicles.

Mining

There are no known mines in the immediate area, and the potential for future mining activities is expected to be low. There is no known oil or gas exploration.

LAND OWNERSHIP (1.1.5)

The proposed OB/DAA and related facilities, such as the OBTS and DTN in the Coyote Spring area, are located entirely on federal land presently administered by the Bureau of Land Management. However, the Desert National Wildlife Range's

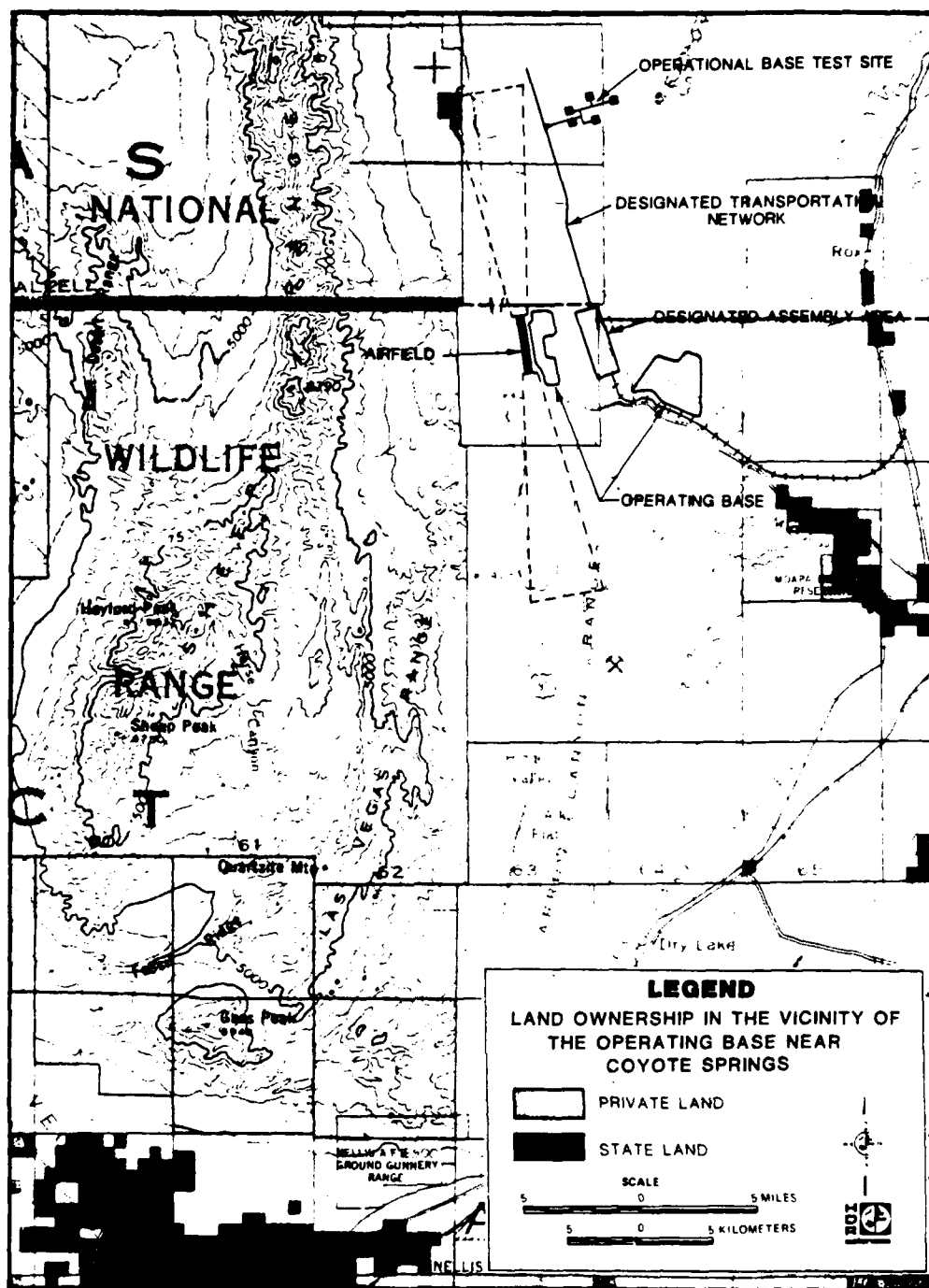


Figure 1.1.4-2. Land use and ownership, Coyote Spring Valley.

boundary lies about 3 mi west of the proposed airfield location. There are also about 4,320 acres of private land, located along Highway 1 in the Moapa Valley, between 5 and 12 mi southeast of the OB; and five parcels of private land strung along the Union Pacific railroad tracks in Meadow Valley 8 mi to the east, comprising approximately 1,920 acres.

HOUSING (1.1.6)

Clark County has experienced a housing boom in the last two decades, having had one of the highest growth rates in Nevada. The county, which contains the Las Vegas metropolitan area, has shown very large absolute gains, more than doubling its total over 1960-1970, from 43,000 to nearly 93,000 units (U.S. Bureau of the Census, Census of Housing, 1970). This represented an average annual growth rate of 8 percent. In the succeeding six years, the county's housing grew at an average annual rate of 9.5 percent, almost doubling again to 160,057 housing units. By 1976, Clark County alone comprised 60 percent of Nevada's total supply of housing.

The proportion of the county's housing stock in single-family units increased somewhat from 47.8 percent in 1970 to 48.9 percent in 1976. Multi-family units share declined to 39.3 percent from 42.9 percent, and mobile homes share increased from 9.3 to 11.8 percent. It is estimated from annual construction permits authorizing residential construction that an average of 8,815 conventional housing units were added each year from 1970 to 1979, with a maximum of over 14,000 in 1978 (U.S. Bureau of the Census, Construction Reports). From 1970 to 1976, there were an estimated 1,465 mobile home deliveries per year. In 1970, about 58 percent of the housing units were owner-occupied. In the same year, 93 percent of housing was located in the greater Las Vegas-Boulder City axis.

Lincoln County has a mixed experience in housing growth over the last two decades. From 1960 to 1970, the number of housing units declined from 1,167 to 1,043 units (U.S. Bureau of the Census, Census of Housing, 1970). But from 1970 to 1979, housing recovered slightly growing at an annual rate of 0.15 percent to reach an estimated 1,057 units by 1979 (U.S. Bureau of the Census, Construction Reports). In 1970, 78.6 percent of the housing stock was in the form of single family units; 6.5 percent in multi-family; and 14.9 percent in mobile homes.

It is estimated from annual permits authorizing residential construction that over the 1970 to 1979 period, an average of 1.4 conventionally-built housing units were added to the housing stock each year, with a maximum yearly authorization of 5 units in 1976. In 1970, the owner-occupancy rate was 70.3 percent.

COMMUNITY INFRASTRUCTURE (1.1.7)

Organization

The Coyote Spring operating base site is located in the northern portion of the Moapa Valley. No urban development exists in proximity to the base site. The nearest towns are Glendale, Logandale, and Overton which lie 24 mi southeast of the site. Other rural communities in eastern Clark County include Mesquite and Bunkerville in the Virgin Valley. All of the above areas are unincorporated and come under the jurisdiction of the Clark County Commission. Police protection and other community services in the area are functions of the county Government. All schools in Clark County are under the direction of the Clark County School District.

The largest population center in Clark County is located in the Las Vegas Valley and is a combination of governmental jurisdictions. Las Vegas and North Las Vegas are incorporated cities having a council/mayor form of government. Much of the Las Vegas Valley is unincorporated, however, and is served by Clark County. Clark County functions much like an urban city and provides urban services, such as police and fire protection, to the unincorporated areas.

Lincoln County is composed of small rural communities organized under a county commission form of government. The county is a part of the Bureau of Land Management's Las Vegas District.

Education

In 1979 there was a total enrollment of 87,440 pupils in the Clark County School District. Within the district there are 72 elementary schools; 16 junior high schools; five junior-senior high schools; 118 senior high schools; 67 schools for the kindergarten level; and five special schools, for a total of 109 public schools. As shown in Table 1.1.7-1, in 1979 3,730 teachers operated within the public school district, representing a pupil/teacher ratio of 23.4.

In 1978, the enrollment of Lincoln County totaled 911 pupils, which represents a 1.7 percent average annual growth rate over 1970 enrollment levels. There is an elementary school in Pioche, Panaca, Caliente, and Alamo as well as a high school in Alamo and Panaca. Presently, there is excess capacity for 170 students (Table 1.1.7-1).

Health Care

In 1978, there were 1,778 acute care beds serving the Las Vegas Community, divided among eight hospitals. In addition, there were 919 extended care beds available. Approximately 508 physicians serve this area, and are supported by 1,412 RNs, 594 LPNs and 140 dentists as presented in Table 1.1.7-2.

In Lincoln County there is only one county hospital, located in Caliente, which holds 19 beds, 10 of which are classified as "acute" care, nine being part of the Skilled Nursing Facility (i.e., convalescent beds). The hospital is staffed by two doctors, six registered nurses and eight nurses aides. The hospital is equipped with a cardiac monitor unit and can handle minor emergencies. Obstetric services and minor surgery are available. Also, a dentist practices at the Nevada Girls Training Center (Table 1.1.7-2).

Police Protection

The Las Vegas Metropolitan Police Department (LVMPD) currently has 738 officers serving a 7,800 square mile (12,550 ha) area, as shown in Table 1.1.7-3. The LVMPD serves as both a county and city agency. Three other law enforcement agencies serve the outlying areas of Henderson, North Las Vegas, and Boulder. State highways in the area fall within the jurisdiction of the Nevada State Highway Patrol.

There are three separate law enforcement agencies serving Lincoln County. The Lincoln County Sheriff's Office, located in Pioche employs four full-time

Table 1.1.7-1. Summary of educational statistics for study area locations.

COUNTY	ENROLLMENTS	EXCESS CAPACITY	TEACHERS	PUPIL/TEACHER RATIO	FUTURE PLANS
White Pine ¹	1,662	1,060	91	18.3	Not available
Clark ¹	86,479 ('79)	Very little	3,730	23.1	Development occurring
Iron ²	4,052	40	191	21.2	School bond passed to build new elementary school
Beaver ³	1,026	650	53	19.4	Not available
Millard ⁴	2,176	134	88	24.7	Remodeling occurring
Dallam ⁵	1,600	100	102	15.7	Available land for future expansion
Curry ⁶	7,850	1,875	417	18.8	Expansion of classrooms in all levels is planned
Lincoln ⁷	911	170	54	16.9	Not available

1347-2

¹Nevada Department of Education, 1979-80. Enrollment and Certified Personnel Information. Vol. 22. Research Bulletin, Nevada Department of Education.

²Iron County School District, 20 May 1980. C. Morris, School Superintendent, Telephone Communication.

³Beaver County School District, 20 May 1980. L. Haslam, School Superintendent, Telephone Communication.

⁴Millard County School District, 20 May 1980. Ken Topham, School Superintendent, Telephone Communication.

⁵Dalhart Independent School District, 22 May 1980. D. Williams, School Superintendent, Telephone Communication.

⁶Cannon Air Force Base Environmental Coordinator, 1975. Tab A-1. Environmental Narrative, Clovis, New Mexico.

⁷U.S. Department of the Interior (BLM), Social-Economic Profile, Lincoln County, July 1976.

Table 1.1.7-2. Health services and facilities in study area locations.

COUNTY COMMUNITY	HOSPITAL FACILITIES	PHYSICIANS	RN, LVN, LPN	DENTISTS	MENTAL HEALTH WORKERS	COMMENTS
White Pine County ¹ Fly	44 Acute	4	19 RN 10 LPN 46 Aids	3	6	Nursing Home under construction 99 bed capacity
Clark County ² Povote Springs Area	1667 Acute 919 Long Term	508 (78 ¹)	1412 RN 594 LPN	N/A	N/A	
Iron County ³ Beryl and Vicinity	71 Acute	15	35 Nurses	10	2	Community has excess capacity in hospital. Present utilization rate is less than 50 percent.
Reaver County ⁴ Milford and Vicinity	12 Acute 20 Long Term	1	6 RN 2 LPN	1 Part-time	0	
Willard County ⁵ Delta and Vicinity	18 Acute 18 Long Term	5	7 RN 6 LPN	4	2	
Dallam and Hartley Counties ⁶ Dalhart and Vicinity	67 Acute 80 Long Term	5	10 RN 20 LVN	4	N/A	
Jerry County ⁷ Clovis and Vicinity	106 Acute 100 beds at Cannon AFB	22	110 Nurses	18	12	
Lincoln County ⁸ Panaca, Pioche, Caliente and vicinity	10 Acute 9 Skilled Nursing	2	6 RN 8 AIDS	1	N/A	Hospital utilized at 65 percent.

¹Nevada Bureau of Business and Economic Research. July 1977. Socioeconomic Analysis of the White Pine Power Project. Reno, Nevada.

1348-1

²Clark County Health District. 6 June 1980. A Deque, Health Planner. Telephone conversation.

³Bureau of Economic and Business Research 1979. Community Economic Facts - Cedar City.

⁴Milford Valley Memorial Hospital. 6 June 1980. J. Williams, Director of Nursing. Telephone conversation.

⁵Architects/Planners Alliance, Inc. 1979. Socioeconomic Analysis - Lynndyl Alternative Site, Salt Lake City.

⁶Dalhart Hospital. 6 June 1980. A. Peterson, Director of Nursing. Telephone conversation.

⁷Clovis High Plains Hospital. 6 June 1980. S. Grisqby, Director of Nursing. Telephone conversation.

⁸U.S. Department of Interior (BLM). Social-Economic Profile, Lincoln County, July 1976.

Table 1.1.7-3. Police protection characteristics in study area locations.

COUNTY/COMMUNITY	POLICE OFFICERS	SHERIFF	HIGHWAY PATROL
White Pine County ¹ Ely and vicinity	14	15	3
Clark County ² Coyote Springs area	738	Serves Area	Serves Area
Iron County ³ Beryl and vicinity	15	Serves Area	Serves Area
Beaver County ⁴ Milford and vicinity	2	Serves Area	Serves Area
Millard County ⁵ Delta and vicinity	3	4	6
Dallam/Hartley Counties ⁶ Dalhart and Vicinity	7 (Dallam) 0 (Hartley)	14 (Dallam) 2 (Hartley)	4 (Dallam) 0 (Hartley)
Curry County ⁷ Clovis and Vicinity	72	Serves Area	Serves Area
Lincoln County ⁸ Panaca, Pioche, Caliente	6	7	1

1349-1

¹White Pine County Sheriff's Department, 5 June, 1980. M. Burns, Deputy, telephone conversation.

²Las Vegas Police Department, 5 June 1980. Officer Bottomly, Personnel Officer, telephone conversation.

³Bureau of Economic and Business Research, 1979, Community Economic Facts—Cedar City.

⁴Five County Association of Governments, 1976, *Planning for Growth in Beaver County*, Beaver County Planning and Development Agency.

⁵Architects/Planners Alliance Inc. 1979. Socioeconomic Analysis—Lynndyl Alternative Site, Salt Lake City.

⁶Panhandle Regional Planning Commission, 22 May 1980. M. Kenderdine, Planner, telephone conversation.

⁷Clovis Police Department, 5 June 1980, Y. Garcia, Secretary I, telephone conversation.

⁸U.S. Department of Interior(BLM), Social-Economic Profile, Lincoln County, July 1976.

deputies and two reserve deputies, in addition to the sheriff. The department operates seven fully equipped patrol vehicles, one pick-up, and one jeep. The Caliente, Lincoln County, municipal police force is manned by four full-time and two part-time patrolmen who have use of five fully equipped patrol units. The Nevada Highway Patrol stations one officer and on patrol unit in the county (Table 1.1.7-3).

Fire Protection

The City of Las Vegas maintains a fire protection staff of 254 firefighters and support personnel. There are nine fire stations, and one fire truck operates from each station. Las Vegas earns a fire insurance rating of "3" and expects to move up to a "2" rating very soon (Table 1.1.7-4). There are plans to build a new station, which will help increase their excellent fire insurance rating.

In Lincoln County, protection services are provided by the Pioche, Caliente, and Panaca fire departments. Approximately 20 men compose the volunteer staff of each department. The fire insurance rating in both Pioche and Caliente is 7, while the rating in Panaca is 8 (Table 1.1.7-4).

Water Supply and Distribution

The Las Vegas Water District supplies water from groundwater and surface water sources. Additional surface supplies are being obtained that exceed requirements. Treatment capacity is 200 mgd and the plant is run at 160 mgd on average during summer months. However, a 200 mgd addition is being constructed, giving a total capacity of 400 mgd, and should be on line in 1981.

The water supply system of Caliente is adequate for current needs. Historically, the sources of water for Caliente have been a number of wells, many of which have been abandoned due to either deteriorating water quality or insufficient production capacity. Three wells comprise the current system. The primary water source is well No. 8, which has a 900 gpm capacity. The other two wells, which when initially constructed yielded high flows, have begun pumping sand, significantly reducing their yields. The Union Pacific Railroad also has additional wells not being used, which could be leased by the city.

The existing water supply for Caliente meets existing demands, although some improvements to the system are necessary. Caliente has sufficient water rights to support a population several times its existing size, and it has been estimated that, with improvements to the system, a population of 7,300 persons could be served.

The city's distribution system consists of some 9.5 mi of pipeline from 2 in. to 10 in. diameter cast iron pipe. Two reservoirs with total capacity of 805,000 gallons receive flow when pumping capacity exceeds demand.

The Panaca water system is owned and operated by the Panaca Farmstead Association, which is made up of subscribers to the system. The water system currently serves 725 people. The sources of water are two wells with a combined capacity of over 1,000 gpm. Although there are sufficient water supplies to serve more than twice the existing population, the storage and distribution system is inadequate.

Table 1.1.7-4. Fire protection characteristics in study area locations.

COUNTY/COMMUNITY	FULLTIME FIRE DEPARTMENT	VOLUNTEER FIRE DEPARTMENT	FIRE INSURANCE RATING	COMMENTS (EQUIPMENT, ETC.)
White Pine County, Ely ¹	5 Paid Staff	45 Volunteers	5	Rescue mini pumper, 250 gallon capacity 1300 gallon/minute pumper, 1000 gallon capacity 1350 gallon/minute 1 GMC tank/pumper combination 650 gallon/minute La France, 240 gallon capacity 350 gallon/minute La France, 240 gallon capacity 750 gallon/minute pumper, 500 gallon capacity 1500 gallon/minute Walter Foam Truck
Clark County, Las Vegas ²	254 Fire Fighters	-	3 (will move into "2" rating soon)	9 Fire trucks and 2 snorkler trucks.
Iron County, Cedar City ³	3 paid staff	32 Volunteers	5	4 pumper trucks (1,250 and 750 gallon) 2 brush trucks 1 crash truck at airport 1 snorkle truck Several ambulances
Beaver County, Milford ⁴	-	High School Students act as Volunteer Fireman	7	Several pumper trucks
Millard County, Delta ⁵	-	25 Volunteer	7	3 pumper trucks (500, 750, and 1,000 gallon)
Fillmore	-	30 Volunteers	7	3 pumper trucks (500, 750, and 250 gallon)
Dallam and Hartlev Dalhart ⁶	1 paid staff	30 Volunteers	24¢ Key Rating Rating Range from 1¢ (excellent) to \$1.00 (poor)	Two 1,500-gallon pumper trucks One 250-gallon mini-pumper One back-up pumper (old) Five 4-wheel drive vehicles
Curry County, Clovis ⁷	75 Fireman (EMP trained)	-	6 (will move into a "4" soon)	Eight 1,500-gallon pumpers Two snorkle units One crash truck and several ambulances
Lincoln County ⁸ Panaca, Pioche, Caliente	-	55-60 Volunteers	7 Pioche, Caliente 8 Panaca	One 250-gallon pumper Four 500-gallon pumpers One 450-gallon pumper Two 125-gallon slip on units

1350-1

¹Ely Fire Department, 5 June 1980. F. Richie, Dispatcher, telephone conversation.

²Las Vegas Fire Department, 5 June 1980. R. Horrocks, Chief Secretary, telephone conversation.

³Cedar City Fire Department, 6 June 1980. C. Neilson, Fire Marshall, telephone conversation.

⁴Five County Association of Governments, 1976, Planning for Growth in Beaver County, Beaver County Planning and Development Council.

⁵Architects/Planners Alliance Inc., 1979, Socioeconomic Analysis-Lynndyl Alternative Site, Salt Lake City.

⁶Dalhart Fire Department, 10 June 1980. M. Stipe, Fire Chief, telephone conversation.

⁷Clovis Fire Department, 10 June 1980. J. Carter, Fire Chief, telephone conversation.

⁸U.S. Department of Interior (BLM), Social-Economic Profile, Lincoln County, July 1976.

Pioche's water system is owned and operated by the Pioche Public Utilities, and served approximately 700 people including those in the Caselton area. The water supply is from three wells which have a combined capacity of 625 gpm. The water receives no treatment and meets state drinking water standards. The existing water supply has essentially no excess capacity. A program to upgrade this system is scheduled to begin in 1980. This upgrading will be directed primarily at providing a more reliable system, however. No measures are planned for an increase in supply.

Wastewater Collection and Treatment

The Las Vegas area has two major treatment plants. The city of Las Vegas operates a high-rate trickling filter plant with a present capacity of 30 mgd, with an expansion underway to 37.5 mgd. Present flow into the plant is approximately 27.5 mgd. Another treatment facility is operated by Clark County. Present capacity of that plant is 40 mgd, of which approximately 35 mgd is being utilized. Combined capacity of the Caliente, Panaca, and Pioche wastewater treatment systems is about 5,400 people. Current combined contributing population is above 2,365, with Panaca exceeding design population by 25. The available capacity for 3,060 additional people in the Caliente and Pioche systems depends upon elimination of stormwater from the Caliente collection system which overloads the plant during rainfall.

Caliente's treatment facility, constructed in 1972, was designed to serve 3,200 people, or 0.4 mgd. Current average flow is 0.25 mgd, with peaks as high as 0.7 mgd following storms. The plant operates below its hydraulic capacity but does not meet discharge standards.

Solid Waste

Sanitary landfill facilities for the Las Vegas metropolitan area are operated by a private company--Silver State Disposal. There are approximately 800 acres available for solid waste disposal, and 80 acres are currently being used. This indicates a current excess capacity of 720 acres or 90 percent.

At present there are scattered refuse disposal sites throughout Lincoln county. The Lincoln County Master Plan recommends two centralized sanitary landfill disposal sites be established. One would serve the Pahrnagat Valley (Alamo, Ash Springs, Hiko) and the other would serve Eagle Valley, Panaca, Pioche, and Caliente.

Parks and Recreation

The City of Las Vegas maintains 33 park sites, 32 lighted ball fields, 28 lighted tennis courts, 11 community centers, and 7 swimming pools. Currently, city park facilities are at full capacity and use of those facilities continues to increase. Land acquisition for new parks or expansion of existing facilities is not planned in the near future due to fiscal restraints.

Urban recreational sites in Lincoln County include four public parks, two swimming pools, four playgrounds, five campgrounds, and one theater. There are also many dispersed recreational facilities in Lincoln County.

QUALITY OF LIFE (1.1.8)

In order to accurately assess the implications of future growth and activity from M-X deployment for Clark County and its residents, a baseline description of the present quality of life (QOL) is necessary. To develop this QOL description, the social and economic situation as it now exists must be evaluated. Two indicators will be utilized: physical quality of life indicators and survey responses to a questionnaire by the Governor's Commission on the Future of Nevada.

The physical quality of life indicators describe different statistical variables in such areas as education, population, health, economics, housing, public safety, etc. (Table 1.1.8-1). These indicators, when correlated to survey response opinions of local residents, provide a means to indicate the overall attitudes, perceptions, and conditions, i.e., QOL, currently existing within Clark County.

The majority of people in Nevada are situated within the Las Vegas SMSA. In 1975, Clark County had a population of 374,015, which was roughly 63 percent of the total Nevada state population. From 1970-1977, the average annual growth rate in Clark County was 4 percent, well above both the Nevada mean and other counties' average annual growth rates. Clark County's population density of 45.7/mi² as compared to the Nevada mean of 5.8 illustrates how atypical Clark County is in regard to population distribution and density. Housing indicators list the lowest percentage of owner-occupied dwelling units in Clark County, and the highest median home values. This smaller percentage of owner-occupied units indicates the transient nature of the current population. Being a major gaming and service center for a large area, Las Vegas provides employment opportunities for a large number of younger, highly mobile persons, who are migrating into the area.

Crowded living conditions are uncommon in the majority of urban communities, with the exception of major population centers such as Las Vegas. Due to the popularity of Las Vegas as a recreation resort with a moderately good climate, many visitors frequent the city, and many remain to obtain employment.

Nevada citizens as a whole define their lifestyle values as centering on open space, climate, and relaxed lifestyles. These values are endorsed as "what people like best about living in Nevada." Residents of Las Vegas are no different, except in emphasis. Respondents from Las Vegas, with its sunbelt location and lower elevation, raise climate to the highest-ranked value with open space of secondary importance. When questioned about acceptable changes that could occur in their lifestyle, Clark County residents stated they would be willing to utilize more public transit (80 percent), 55 percent would accept increased population growth, while 45 percent would not. Deterioration in air quality, water availability, reduced public services, increased traffic congestion, increased federal regulation, and reduced access to out-of-doors were deemed not acceptable by the majority of those surveyed.

Respondents surveyed indicated the three most important problems in their area: 21 percent mentioned transportation (facility and circulation) problems, 15 percent said crime and police were major problems, and 12 percent felt concerned about environmental issues. It was most interesting to note that no one felt the M-X missile project would be a high priority problem to the area. This was somewhat true for all counties surveyed, with the exception of White Pine and Lincoln counties.

Table 1.1.8-1. Objective measures of the quality of life.

	WHITE PINE CO. (ELY)	CLARK CO. (KANE SPRINGS)	IRON CO. (BERYL)	BEAVER CO. (MILFORD)	MILLARD CO. (DELTA)	CURRY CO. (CLOVIS)	DALLAM CO. (DALHART)	HARTLEY CO. (DALHART)
Population								
Annual Rate of Growth (1970-1977) ^{1,5,11}	-1.2	4.0	2.9	1.6	2.5	2.0	1.7	1.6
Population Density (1977) ^{5,9,11}	.9	45.7	4.4	1.7	1.2	31.0	4.4	2.0
Housing								
Percent of Dwelling Units Owner Occupied (1970) ¹¹	72.8	58.0	70.5	82.5	85.5	59.4	65.6	69.2
Percent of Housing Units with More than 1.014 per Room (1970) ¹¹	12.6	8.9	9.5	8.1	10.3	10.5	8.6	11.5
Mobile Homes or Trailers as Percent of Housing Units (1970)	12.1	11.0	8.4	4.1	2.8	NA	NA	NA
Median Home Value (1970) ¹¹	10,497	23,142	16,487	12,081	10,519	13,025	7,358	16,919
Economics								
Civilian Labor Force Growth Rate (1970-1977) ⁹	-1.4	6.3	5.8	4.1	3.3	1.1	5.3	13.9
Unemployment Rate (1977) ⁹	7.8	8.1	6.2	7.0	4.7	4.3	4.5	2.1
Per Capita Income (1977) ⁹	9,368	7,735	4,693	5,114	3,978	3,687	3,866	4,611
Proportion of Population on Public Assistance (1976) ¹¹	15.6	15.5	13.3	18.1	20.7	17.6	20.4	7.4
Health								
Physicians/1,000 Population (1976)	0.3	1.2	0.7	1.0	0.5	0.7	0.6	0.0
Dentists/1,000 Population (1976)	0.3	0.4	1.0	0.9	0.3	0.5	.3	.3
Registered Nurses/1,000 Population (1976)	3.1	3.2	3.8	5.3	2.5	4.2	5.4	5.4
Hospital Beds/1,000 Population (1976)	4.4	4.7	3.6	5.6	4.5	3.0	6.9	0.0
Public Safety								
Police Officers/1,000 Population (1976) ¹	2.8	3.4	1.8	1.0	1.1	2.0	NA	NA
Fireman/1,000 Population	NA	NA	NA	NA	NA	NA	NA	NA
Violent Crimes/1,000 Population (1976) ¹	4.8	8.6	1.5	1.5	1.5	2.3	1.4	1.4
Crimes Against Property/1,000 Population (1976) ¹	34.5	84.9	21.1	21.1	21.1	15.4	14.8	14.8
Social Disorganization								
Divorce Rates/1,000 Population (1975) ¹¹	11.2	18.6	3.5	3.7	1.7	6.3	6.9	4.7
Suicide Rate/1,000 Population (1976) ¹	60.0	23.3	3.0	9.4	9.4	18.3	11.9	11.9
Alcoholism Rate/1,000 Population (1976) ¹	38.3	46.0	22.8	22.8	19.3	18.1	19.2	19.2
Education								
Median School Year Completed (1976) ¹	12.1	12.4	12.8	12.3	12.4	12.2	11.3	12.4
Pupil/Teacher Ratio	21.2	25.0	24.8	21.2	23.4	22.3	15.7	15.7

¹U.S. Dept. of Commerce, Statistical Abstract of the United States, 1978.

845B-1

²Nevada Dept. of Education, 1979, Research Bulletin, Vol. 21, No. 1³Utah Superintendent of Public Instruction, 1978, Annual Report of the State Superintendent.⁴Nevada Office of Planning Coordination, 1978, Nevada Statistical Abstract.⁵Utah Bureau of Economic and Business Research, Statistical Abstract of Utah, 1979.⁶Chiaase, J. and L. Koppelman, 1975, Urban Planning and Design Criteria, New York, Litton Educational Publishing, Inc.⁷Architects/Planners Alliance, Inc., 1979, "Socioeconomic Analysis-Lynndyl Alternative Site," Intermountain Power Project.⁸Four Corners Regional Commission, 1979, Six County Development Plan.⁹U.S. Dept. of Commerce, 1979, Bureau of Economic Analysis Computer Printouts.¹⁰Golden, J. et al., 1979, Environmental Impact Data Book.¹¹U.S. Bureau of the Census, 1977, City and County Data Book, 1976.¹²Nevada Office of Health Planning and Resources, 1977, Nevada State Plan for Health.¹³United States Dept. of Justice, 1977, Uniform Crime Rates for the United States--1977, U.S. GPO, 1978.¹⁴U.S. Bureau of the Census, 1972, County and City Data Book, 1971.

QOL indicators for public safety in Clark County help substantiate why citizens feel there is a crime and police enforcement problem. Clark County has a ratio of 3.4 officers/1,000 population, a level that is below the state mean of 3.8, but well above the national mean of 2.8. Moreover, the crime rate of Las Vegas is over twice the rate observed in the nation. Public safety is also affected by the level of social disorganization in a community. This can be illustrated somewhat by an examination of the divorce rate, suicide rate, and alcoholism rate per 1,000 population. In Clark County, the divorce rate/1,000 was 18.6, slightly above the Nevada mean of 17.9 and well above the national mean of 5.5. The suicide rate/100,000 population was 23.3, a rate nearly twice the national rate, but still below the state mean of 26.7/100,000. The alcoholism rate/1,000 population was 46.0; a level slightly above other study areas but below the state mean of 67.7.

Taken together, these variables define a high level of social disorganization in the community that require higher levels of public safety enforcement. These indicators generally reflect the younger, more transient population characteristic of the area.

Economic indicators such as the unemployment rate and the civilian labor force growth rate of 1977 are both higher than the national and other study area means, but consistent with the state mean rate. In Clark County, the labor force has grown 6.3 percent per year from 1970-1977. The unemployment rate is also high because of continuous in-migration of people looking for work. The per capita income level in 1977 was also much higher than many rural areas but lower than the state mean of \$7,980.

Several questions were asked in the Governor's Commission Survey concerning desires for future economic growth. Three-fourths of the persons returning surveys from Clark County felt it was of major importance to develop employment areas other than gaming. However, over 50 percent of the respondents did not feel growth (more people) would be beneficial to the community. Nearly 50 percent of the persons said they were not pleased with the growth that had occurred in the last four years. When asked what three areas they would prefer to see expanded in the next few years, people indicated recreation, agriculture, and light manufacturing were most important and should be expanded. Gaming ranked fourth on a list of ten in terms of preference. Presently, the major employment areas are retail trade, services, construction, transportation, and public utilities.

Regarding politics, residents felt their interests and ideas were not being represented by government officials. They wanted to see more state regulation in the next 20 years concerning conservation of agricultural lands, energy conservation, environmental protection, public utility regulations, and wildlife management.

When questioned about public services and the amount of public taxes that should be spent on these various services, people felt greater money should go to police protection, transportation, land use planning, health services, services to senior citizens, parks and recreation, and colleges and universities. Sixty percent of those surveyed felt the present health services were adequate. The quality of life indicators for public health services indicate there are 1.2 physicians/1,000 population, 4 dentists/1,000 population, 3.2 registered nurses/1,000 population, and 4.7 hospital beds/1,000 population. These levels, although above other study area figures, are slightly below the state mean levels of 1.3 physicians, 5 dentists, 3.8 nurses, and 5.0 hospital beds, respectively.

In response to questions dealing with the perceived adequacy of the educational institutions in Clark County, fully half the persons felt that the school districts in their area were not preparing students adequately for the future. There was a higher level of satisfaction expressed regarding the college and university programs. The median number of school years completed in Clark County was 12.4 years, slightly below the Nevada mean of 12.6 years. The pupil/teacher ratio was 25.0, somewhat higher than other study area ratios.

In summary, the urban center of Las Vegas makes Clark County unique among most rural-type Nevada counties. Clark County, with its large population and active economy, faces problems that are not present in small town communities, and therefore presents a very different set of conditions to be evaluated in a study of potential M-X operating bases.

ENERGY SUPPLY (1.1.9)

Coyote Spring is located approximately 55 mi NNE of Las Vegas in a sparsely populated area without natural gas service. The closest natural gas service is about 10 mi north of Las Vegas, and natural gas could be extended to the Coyote Spring area by the Southwest Gas Corporation; although there are presently no plans to do so. The closest petroleum product pipeline in the area is the CAL-NEV pipeline which terminates at Las Vegas.

There are no electrical lead on power system facilities in Coyote Spring. This area is on the southern boundary of the Lincoln County Power District which has a system peak demand of approximately 16 MW. There are no suitable transmission lines in the immediate area. A 69 KV transmission line from the Moapa generating plant passes through the area, but utilized to supply a base at Coyote Spring. There is a proposal to run the Inter-Mountain Power Project transmission line through the Coyote Spring area.

TRAFFIC AND TRANSPORTATION (1.1.10)

The proposed base site is 46 mi north of Las Vegas along U.S. Highway 93, which runs north and south through this area. This route will provide the primary access to the proposed site. State Highway 7 runs southeast from the site until it connects with Interstate 15 about 25 mi away, near the community of Moapa. Moapa is one of several small communities near the northern tip of Lake Mead. Figure 1.1.10-1 is a schematic map of the area showing principle roads and 1979 traffic volumes.

U.S. 93 in this vicinity is a low volume road with an ADT of only 600 in 1979. About 10 mi north of Las Vegas it joins with Interstate 15, which has an ADT in this vicinity of 6700. State Highway 7 has an ADT of less than 100 immediately southeast of its intersection with U.S. 93. Since the volumes of traffic on U.S. 93 and SR 7 are so low, it is very unlikely that a significant increase in traffic will occur without the M-X project or some other major project in the immediate vicinity.

For more information, refer to the technical report on traffic.

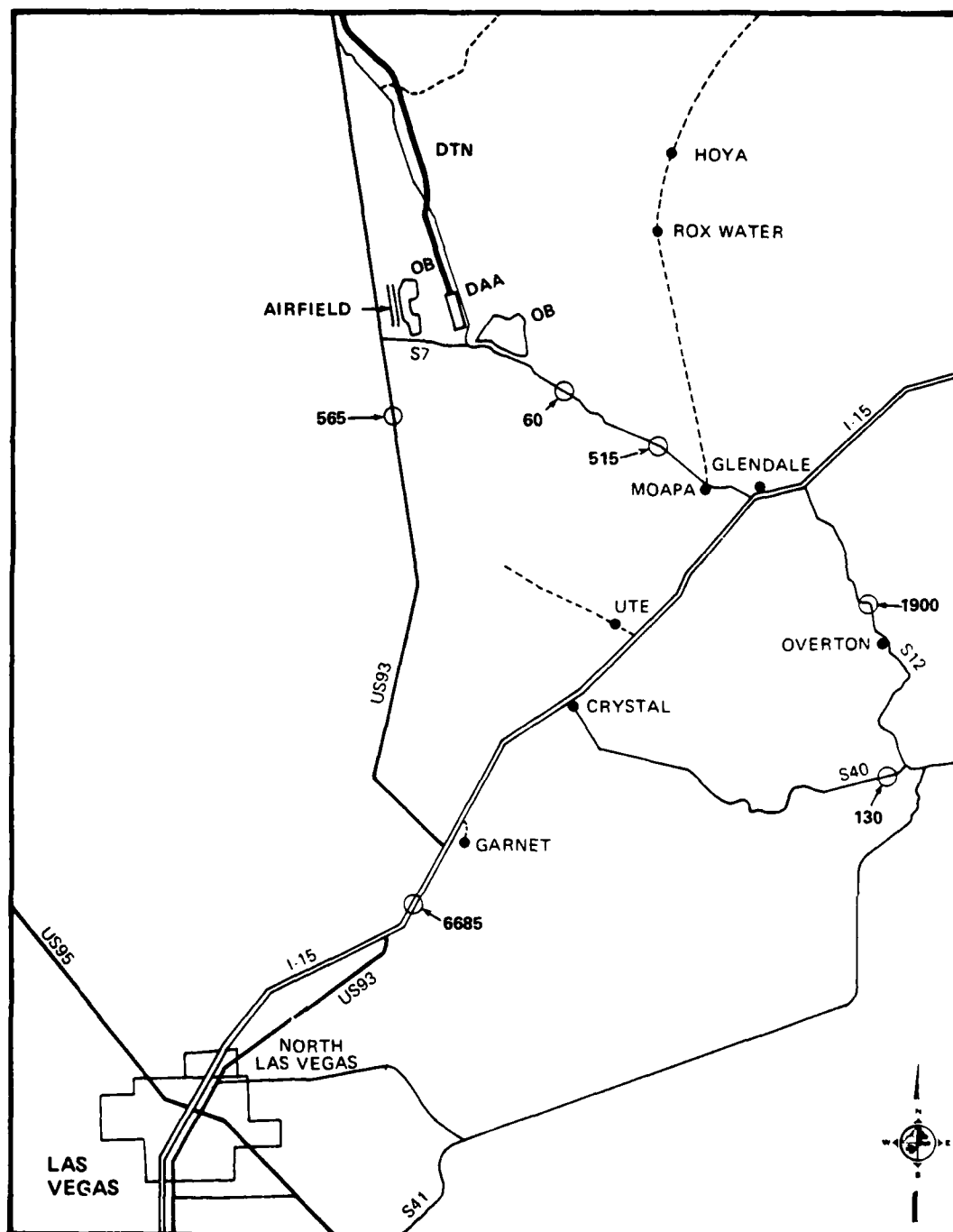


Figure 1.1.10-1. Existing traffic volumes in the vicinity of Coyote Spring.

NATIVE AMERICANS (I.I.II)

Community Environment Native Americans

The entire southeastern Nevada region was a major Southern Paiute population center in late prehistoric and early historic times, and is therefore associated with dense habitation site concentrations and a wide variety of features which are culturally sensitive to local Indians. The Kane Springs Wash, Pahrnagat Wash, and the entire course of the Muddy River to the confluences of Meadow Valley Wash and the Virgin River, are known to contain dense concentrations of ancestral campsites and farming settlements. Immediately west of the proposed OB site is the Sheep Mountain National Register District. This district is so designated due to the high density and unusual integrity of aboriginal habitation sites.

Coyote Spring and Vicinity: The Moapa Indian reservation is located in the Coyote/Kane Springs vicinity. The reservation consists of 1,186 acres of tribally owned land and has an enrolled population of 165 Paiute Indians. The Moapa band of Indians proposes to withdraw an additional 70,000 acres of land which lie predominantly to the south and west of the reservation.

The Moapa reservation is located in the Muddy Rivers Springs basin (219) and the proposed withdrawal acreage lies in the Garnet, California Wash, Muddy River Springs, and Meadow Wash basins, 216, 218, 219, and 205, respectively. The principal sources of water for the reservation are: (a) the Muddy River, fed by the geothermal Muddy River Springs, which provides water for irrigation and other farming and ranching activities, and (b) 21 springs located in the north end of the Moapa Valley which provide the water for domestic use.

There are several important sources of groundwater recharge for the Muddy River Springs and other springs. Springs and creeks from several mountain ranges to the northwest and northeast provide the water which ultimately recharges this groundwater system. To the northwest, runoff from the Sheep Range in Coyote Spring hydrological unit (210) is the principal recharge source for the Muddy River Springs; the White River channel, originating in the White River hydrological unit (207) is another groundwater source, and "valleys tributary to the White River channel and adjacent valleys, such as Garden, Coal, White River, Cave, Dry Lake, and Delamar probably contribute recharge in some degree to the system ultimately supplying Muddy River Springs" (Eakin, 1964:20). To the northeast, groundwater is derived from the Meadow Valley Wash drainage area (205).

Farming and ranching are the reservation's principal economic activities. Seven hundred fifty acres of irrigated land are farmed; alfalfa and grains are the primary crops. About 250 head of cattle are run on reservation grazing lands. The 70,000 acres that have been proposed for withdrawal are intended to provide badly needed grazing lands as well as additional arable land for farming. Greenhouse horticulture, construction, and leatherworks are other economic tribal enterprises.

The Moapa labor force consists of 75 men and women over the age of sixteen of whom thirty, 40 percent, are unemployed. Of the forty working, twenty-nine, 72.5 percent, earn less than \$5,000/year and the average yearly incomes for the reservation Indians are \$600/capita and \$5,000/family.

General community conditions are fair. There are 34 housing units; 10 are under construction; and 49 more have been approved by HUD. Many of the housing units have water and sewer facilities but other utilities are lacking. There are no school or health facilities on the reservation.

Detailed, reservation-specific data on land use, water resources and use, demographic characteristics, employment, income and tribal enterprises, community and social structure, and other socioeconomic variables are being collected by a field research team are currently being analyzed.

Operating Base and Vicinity Native Americans

Native American cultural resources in the area of potential direct disturbances are poorly documented. The Muddy River area, however, is known to contain dense concentrations of historic and prehistoric village sites, as well as important rock area sites which are culturally sensitive to local Southern Paiutes. The foothill and mountain regions surrounding the OB site are expected to contain important pine-nut groves and spiritual areas. The Arrow Canyon Range adjacent to the siting location is regarded as sacred by Moapa Southern Paiutes. In addition, lowland regions of the OB siting area support native flora, such as the desert tortoise, which have significance in traditional cosmologies, and native fauna, which continue to be exploited by local Indians for foods, medicines, and craft materials. Site-specific cultural resource data are currently being gathered in field studies at the Moapa Reservation.

The Moapa Indian reservation lands are in the environs of the potential siting area. The 1,186 tribally owned acres are in the Muddy River Springs hydrological basin southeast of the Coyote Springs Basin. The Moapa band of Paiute Indians has proposed an additional 70,000 acres for withdrawal.

Farming and ranching provide much of the reservation employment, although there are also construction jobs, work in a leather shop, and work in greenhouses. Nevertheless, 40 percent of the Moapa labor force of 75 is unemployed and the average yearly incomes are only \$600/capita and \$5,000/family. General community conditions are fair. There are 34 housing units; 10 are under construction and 49 more have been approved by HUD. Many of the housing units have water and sewer facilities but other utilities are lacking. There are no schools or health facilities on the reservation.

ARCHAEOLOGICAL AND HISTORICAL RESOURCES (1.1.12)

Very little archaeological research has been conducted in the vicinity of the proposed Coyote Springs OB alternative, and the few recorded sites should not be considered representative of the potential distribution and density of cultural resources in this valley. There are two recorded sites in the immediate vicinity of the OB. These are both lithic scatters whose precise functions are not yet determined. In addition, the Sheep Mountain Range National Register District is immediately west of the study area.

The potential is high for the occurrence of archaeological and historic sites eligible for the National Register of Historic Places. Potentially sensitive areas include upper tributaries to the Muddy River, and the upper bajada zone of the

Sheep Range. Approximately 40 percent of the area within a 20-mi radius of the Coyote OB is of moderate or high sensitivity. Information on known archaeological resources for Kane Springs Valley is summarized in Table 1.1.12-1.

Palentologic Resources

The OB is located near the channel of the ancestral White River. When the White River was flowing during Pleistocene time it cut through deposits of older lake bed sediments in the bottom of Coyote Spring Valley. While fossils are not known from these sediments, they are potentially fossil bearing. Just south of Coyote Spring Valley the river bed cuts through the Muddy Creek formation that near Moapa contains a vertebrate fauna. Paleozoic rocks containing fossils outcrop in the mountains east and west of Coyote Spring Valley.

OTHER PROJECTS (1.1.13)

Economic Activity

Clark County

Employment growth projections indicate a moderation of growth but continued emphasis on a service-based economy. Table 1.1.13-1 presents employment projections by major industry over the period 1980-1994 for Clark County. These forecasts have been separated into Baseline 1 and 2, and project employment by place of residence and not place of work as in Tables 1.1.1-1 and 1.1.1-2. In the case of Clark County, many persons working in the county live elsewhere, thereby reducing employment figures. In comparison to the 1977 employment figure of 185,198 presented in Tables 1.1.1-1 and 1.1.1-2, employment by place of residence for this same year equals 161,500 jobs (Nevada Employment Security Department, 1980). Employment by place of residence for 1978 equalled 169,500 and for 1979, this figure increased to 188,700. Forecasts for both Baselines project a further increase in employment by place of residence to 219,514 jobs in 1994; a level much too high to be supported by historic data. The first set of projections are essentially an extrapolation of 1976-1978 growth trends in the county. Baseline 2 includes Baseline 1 plus other projects considered likely by the University of Utah's Bureau of Business and Economic Research. In the case of Clark County, these 2 scenarios are virtually the same, differing only by about 500 jobs by the year 1994. Baseline employment growth is forecast period, yielding a net increase of about 110,000 jobs. Continuing historical precedent, services are forecast to lead growth, increasing to about 43 percent of total county employment by 1994.

Lincoln County

Employment growth projections indicate a substantial reduction of employment growth over the 1980-1994 forecast period. The largest employment sector will become mining which in 1993, is forecast to comprise 23 percent of the total Lincoln County employment. Table 1.1.13-2 presents employment projections by major industry, prepared by the University of Utah's Bureau of Business and Economic Research (BBER). Although the BBER separated forecasts into Baseline 1 and Baseline 2, only the first set are presented here. The 2 projections differ for some counties due to the inclusion of employment growth in addition to continuation of 1976-1978 growth trends. In Lincoln County, however, Baseline 1 growth has

Table 1.1.12-1. The locations of known site types by topographic zone in Coyote Spring Valley.

SITE TYPE	TOPOGRAPHIC SETTING				
	INDETERMINATE	MOUNTAINS FOOTHILLS	UPPER BAJADA	LOWER BAJADA	VALLEY FLOOR
Indeterminate	0	2	0	0	0
Multiple Activity (e.g., habitation)	0	0	0	3	0
Special Purpose (e.g., rock art)	0	0	0	0	0
Limited Activity (e.g., campsites)	0	2	0	3	0
Isolated Finds	0	0	0	0	0
Total	0	4	0	6	0

3390

Table 1.1.13-1. Projected employment by major industrial sector, Clark County, 1980-1994.

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASLINE 1															
Agriculture	1,028	1,016	1,014	1,053	1,064	1,074	1,081	1,087	1,094	1,100	1,107	1,113	1,120	1,126	1,132
Mining	252	254	259	266	274	282	288	294	301	308	315	322	330	337	346
Contract Construction	15,168	15,580	16,216	16,900	17,632	18,408	19,210	19,432	19,970	20,522	21,081	21,658	22,240	22,832	23,430
Manufacturing	6,627	6,806	7,085	7,336	7,605	7,888	8,038	8,263	8,457	8,652	8,856	9,051	9,250	9,461	9,666
Transport, Comm., Util.	13,104	13,622	14,163	14,746	15,369	16,025	16,455	16,878	17,320	17,767	18,224	18,684	19,153	19,625	20,103
Wholesale & Retail Trade	43,717	45,359	47,048	48,874	50,834	52,893	54,252	55,590	56,991	58,402	59,844	61,283	62,765	64,231	65,705
Finance, Ins., Real Estate	8,478	8,857	9,256	9,687	10,155	10,645	10,948	11,240	11,548	11,859	12,170	12,496	12,825	13,154	13,480
Services	90,834	94,240	97,818	101,607	105,628	109,833	112,914	116,022	119,222	122,504	125,876	129,257	132,638	136,014	139,389
Government	28,174	28,932	29,732	30,584	31,485	32,422	32,994	33,523	34,071	34,598	35,103	35,564	36,014	36,463	36,900
Non-Farm Proprietors	12,132	12,603	13,104	13,646	14,233	14,850	15,244	15,621	16,023	16,424	16,813	17,219	17,653	18,062	18,473
TOTAL	219,514	227,291	235,725	244,698	254,278	264,306	271,173	277,950	284,999	292,134	299,419	306,669	316,530	321,557	329,084
BASLINE 2															
Agriculture	1,028	1,036	1,044	1,054	1,064	1,076	1,083	1,088	1,095	1,101	1,108	1,115	1,121	1,128	1,134
Mining	252	254	259	266	274	282	288	294	301	308	315	322	330	338	346
Contract Construction	15,168	15,581	16,219	16,905	17,640	18,408	19,210	19,450	19,987	20,535	21,094	21,670	22,253	22,846	23,444
Manufacturing	6,630	6,809	7,093	7,350	7,625	7,925	8,121	8,305	8,497	8,684	8,885	9,082	9,288	9,493	9,697
Transport, Comm., Util.	13,108	13,628	14,179	14,776	15,412	16,093	16,532	16,950	17,387	17,824	18,273	18,736	19,205	19,679	20,157
Wholesale & Retail Trade	43,735	45,368	47,072	48,915	50,895	53,017	54,400	55,740	57,132	58,518	59,941	61,387	62,867	64,337	65,815
Finance, Ins., Real Estate	8,481	8,860	9,263	9,700	10,175	10,684	10,991	11,285	11,589	11,894	12,208	12,525	12,855	13,186	13,514
Services	90,844	94,253	97,849	101,658	105,710	109,925	113,077	116,185	119,372	122,626	125,982	129,465	132,847	136,380	139,988
Government	28,180	28,939	29,750	30,613	31,520	32,505	33,080	33,618	34,160	34,672	35,167	35,628	36,080	36,529	36,948
Non-Farm Proprietors	12,135	12,607	13,113	13,661	14,255	14,880	15,291	15,667	16,066	16,460	16,864	17,271	17,686	18,096	18,507
TOTAL	219,551	227,339	235,840	244,896	254,503	264,854	271,808	281,020	285,591	292,620	299,836	307,102	314,536	322,013	329,552

Source: Bureau of Business and Economic Research, University of Utah, October 1980.

Table 1.1.13-2. Employment projections by major industrial section, Lincoln County, 1980-1994.

BASELINE 1	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
	Agriculture 293 20 12 56 219 15 152 113 65	149 289 20 12 57 225 16 157 317 67	149 296 21 13 60 233 16 162 324 67	149 303 21 14 61 238 17 168 329 70	150 311 23 14 64 246 18 175 335 73	150 320 24 15 66 255 18 181 343 75	152 327 25 15 69 260 19 186 346 77	152 334 25 15 70 263 19 190 350 78	152 342 25 16 71 269 19 195 354 79	152 349 26 16 72 275 20 200 357 81	154 357 26 16 75 281 20 206 361 83	154 367 28 17 76 286 21 211 364 83	154 376 28 17 78 293 21 216 367 85	154 386 28 17 80 298 21 222 370 87	154 395 29 18 82 304 22 226 373 88
TOTAL	1,292	1,310	1,340	1,374	1,409	1,447	1,472	1,498	1,525	1,550	1,578	1,606	1,633	1,662	1,692

3603

Source: Bureau of Business and Economic Research, University of Utah, October 1980.

been assumed to equal that for Baseline 2. Over the forecast period, employment is forecast to increase at an average annual rate of 1.8 percent, increasing to 1,692 persons by 1994. Emphasis will continue to remain in mining and government. However, combined employment in services and trade is projected to reach 530 persons, or 31 percent of the county's total employment by 1994. Other sectors, traditionally important in well-balanced economies, such as manufacturing and finance, insurance, and real estate, are forecast to remain very unimportant to Lincoln County employment.

Clark County

Figure 1.1.13-1 shows two population projections for the 1980-1994 period for Clark County that were developed by the University of Utah's Bureau of Business and Economic Research. The first projection labeled Baseline 1, consists of an extrapolation of past growth trends in the County, and the second projection, Baseline 2, includes Baseline 1 growth plus the population growth attributable to the other projects that are considered likely by the University of Utah's Bureau of Business and Economic Research.

In the case of Clark County, the two population projections are virtually the same, differing only by 886 people or 0.13 percent by 1994. Population growth, for both baselines, is estimated at a 3.0 percent annual compound rate between 1980 and 1994. Such a moderate steady rate of growth is not likely to effect housing conditions or the quality of life in Clark County, nor burden community infrastructure or services.

Lincoln County

Figure 1.1.13-2 shows two population projections for the 1980-1994 period for Lincoln County that were developed by the University of Utah's Bureau of Business and Economic Research. An extrapolation of past trends in Lincoln County gives the first projection labeled Baseline 1, and Baseline 2, the second projection, includes Baseline 1 growth plus the population growth attributable to other projects that are considered likely by the University of Utah's Bureau of Business and Economic Research.

For Lincoln County, the two population projections are virtually the same, differing by only 5 persons, or 0.11 percent by 1994. Population for both baselines is estimated to grow at a 1.8 percent annual compound rate between 1980 and 1994, and as such is unlikely to produce any significant stress on community services, housing, or quality of life in Lincoln County.

1.2 NATURAL ENVIRONMENT

BIOLOGICAL RESOURCES (1.2.1)

Vegetation Types

Figure 1.2.1-1 shows the candidate OB location with respect to major vegetation types in the surrounding region that occupy areas large enough to be mapped at the given scale. Because of possible indirect effects, the vegetation types known to occur in Kane Springs Valley are discussed along with those known to occur in Coyote Spring Valley.

POPULATION PROJECTIONS, CLARK COUNTY, NEVADA, 1980-1994

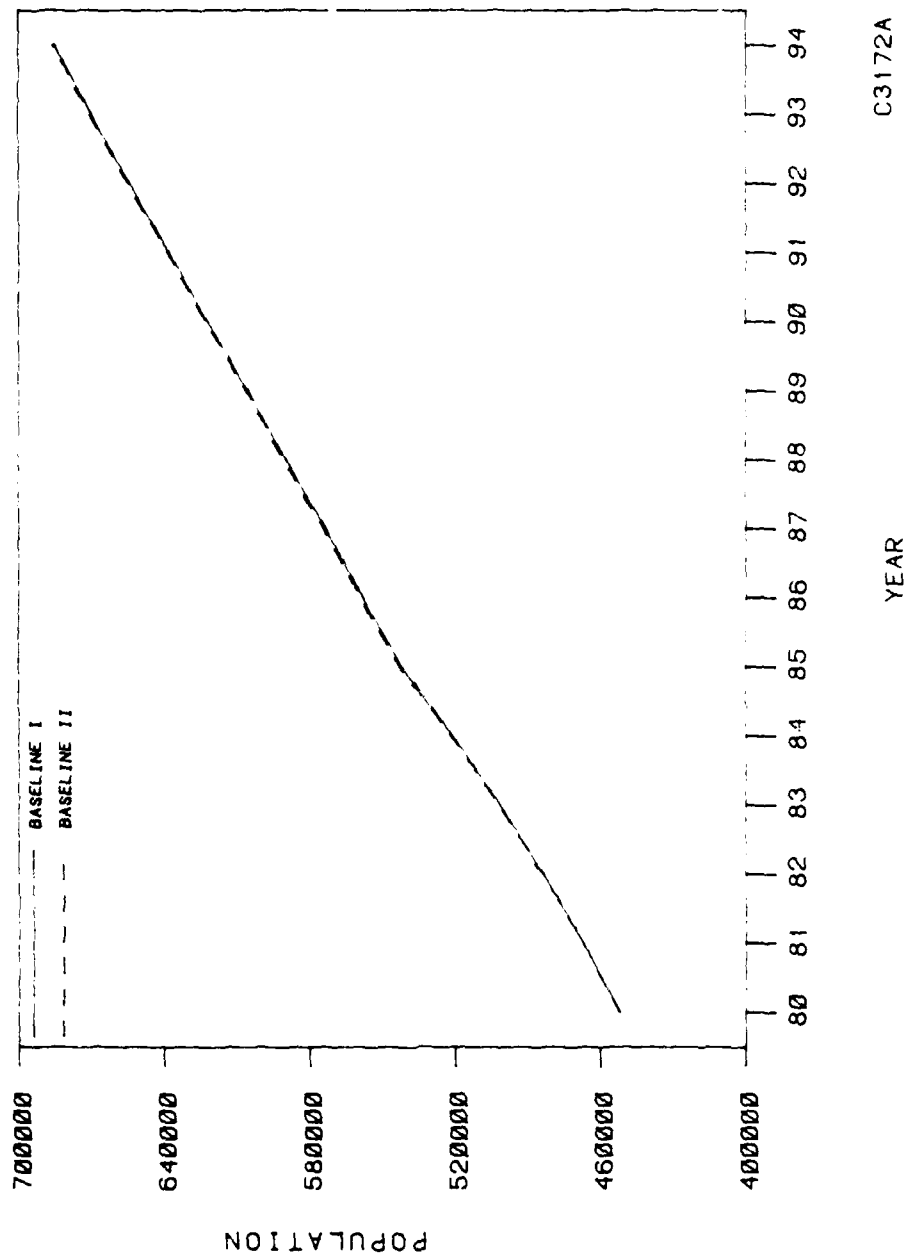
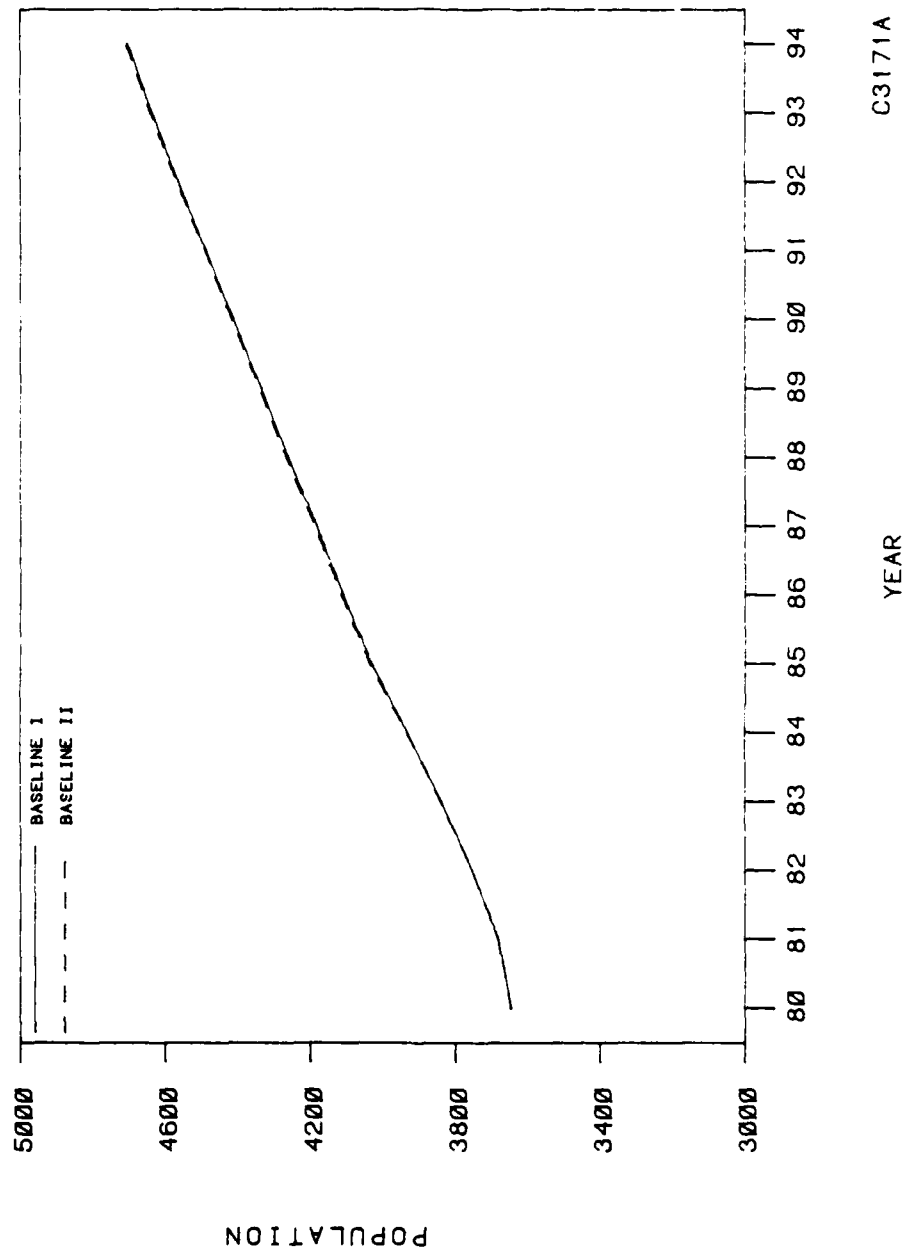


Figure 1.1.13-1. Population projections, Clark County, Nevada, 1980-1994.

POPULATION PROJECTIONS, LINCOLN COUNTY, 1980-1994



Source: Bureau of Economic and Business Research, University of Utah, September, 1988

Figure 1.1.13-2. Population projections, Lincoln County, Nevada, 1980-1994.

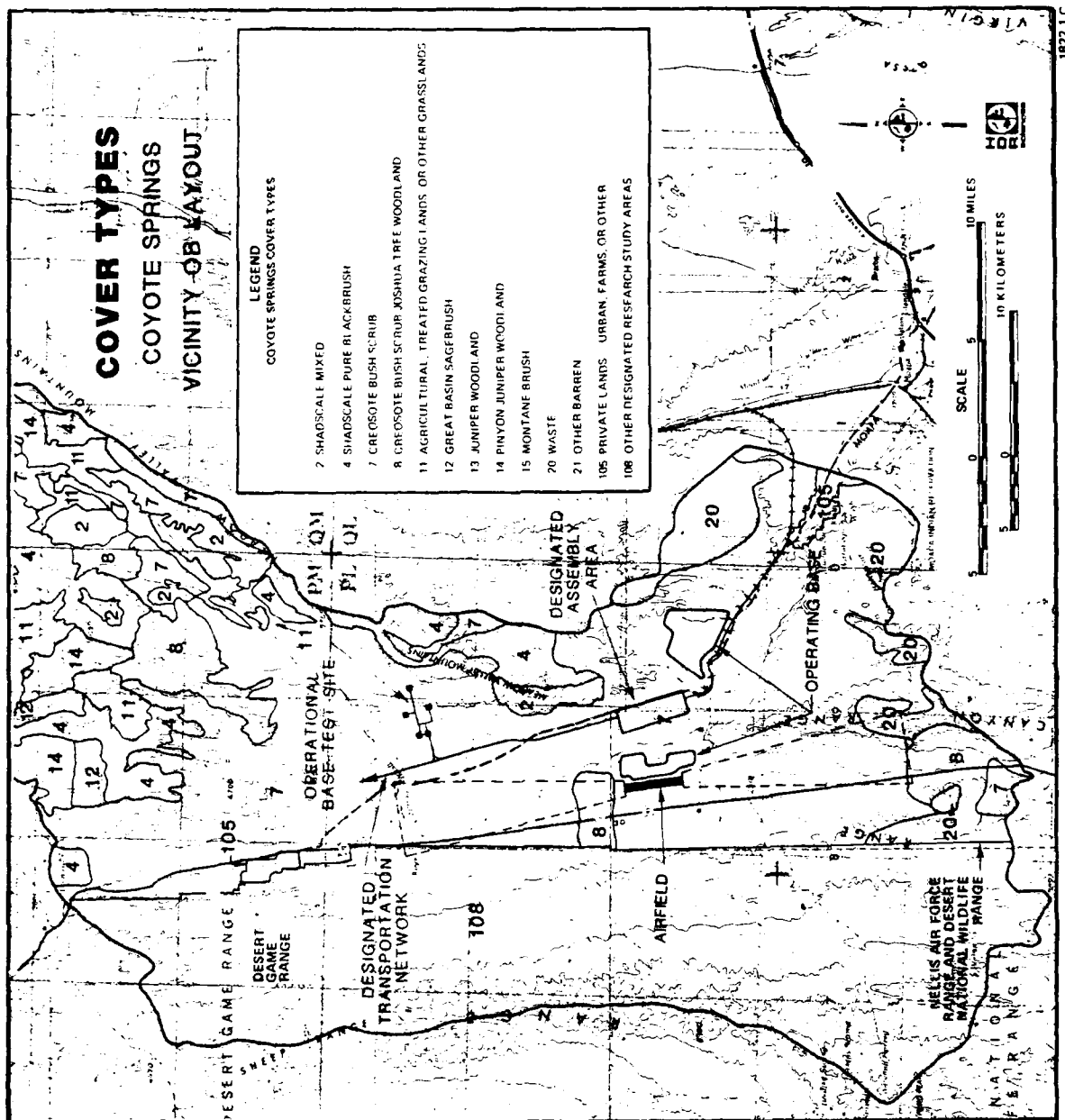


Figure 1.2.1-1. Vegetation cover types in the vicinity of Coyote Spring.

The vegetation types which occur in Coyote Spring Valley, in the potential site for the main operating base, are creosote bush scrub, desert marsh and spring vegetation, wash and arroyo vegetation, and, above 6,000 ft, pinyon-juniper woodland.

The valley is dominated by typical creosote bush scrub (Mojave desert scrub) vegetation, consisting of shrubs two to ten feet tall, widely spaced. The dominant species are bursage (Ambrosia dumosa), creosote bush (Larrea divaricata), Nevada ephedra, (Ephedra nevadensis), Mojave yucca (Yucca schidigera) and spiny menodora (Menodora spinescens). Creosote bush scrub covers the entire valley floor, and extends up to 4,000 ft elevation. Pure stands of creosote bush dominate the valley bottom in the northern portion of the valley, and areas dominated primarily by creosote bush and bursage occur in the southern portion. Another plant association in the area is dominated by creosote bush, bursage and Mojave yucca. This association generally occurs on the mid-to-high bajadas in the south. West of Highway 93, at approximately 3,800 ft elevation in the north end of the valley, there is an area dominated by creosote bush and saltbush (Atriplex polycarpa). Areas with Joshua trees (Yucca brevifolia) with an understory of creosote bush scrub are scattered along the east slope of the Sheep Range, on the west side of the valley.

Just west of the point where Kane Springs Wash joins the main north-south drainage in Coyote Spring Valley, there is an area of pale-colored lakebottom sedimentary deposits. The vegetation nearby is characteristic of periodically moist alkaline soils. The following species predominate: lensscale (Atriplex lentiformis), shadscale (Atriplex confertifolia), mesquite, (Prosopis glandulosa), and salt cedar, or tamarisk (Tamarix sp.) Understory plants include saltgrass (Distichlis spicata), sand dropseed (Sporobolus cryptandrus), and seep-weed (Suaeda torreyana).

Coyote Spring Valley also contains wash and arroyo vegetation. Most washes and arroyos are shallow, from several meters to about 100 m wide and vary in depth from 3.2-6.7 ft to 16.4-19.7 ft. They contain desert willow (Chilopsis linearis), punctate rabbitbrush (Chrysothamnus paniculatus), desert encelia (Encelia virginensis), and bursage (Ambrosia dumosa). Two plant associations were observed: one in the larger washes, dominated by desert willow and punctate rabbitbrush, and one in the smaller drainages, characterized by desert willow and encelia. The main north/south drainage in the valley, which crosses the proposed operating base site, contains these vegetation types.

Kane Springs Valley is transitional between the Mojave Desert (Hot Desert) and Great Basin (Cold Desert) floristic provinces, with greater affinity to the Mojave Desert in vegetation characteristics. The watershed is dry and lacks significant wetland habitats. The topography is dominated by branches of Kane Springs Wash, flowing north and south through the valley, and eventually entering Coyote Spring Valley. The following vegetation types occur in the valley: Mojave desert scrub, desert wash and arroyo vegetation, shadscale scrub, and Great Basin sagebrush. Above the 4,500 ft level, there are mountain shrub types and pinyon-juniper woodland. This vegetation information is based on data acquired from the Bureau of Land Management (BLM) and from detailed field studies conducted for this report.

Creosote bush scrub occurs on the valley bottom and in some places extends up to about 4,000 ft. It consists of widely spaced shrubs, some small (1-3 ft) and some larger (3-12 ft), and is dominated by creosote bush (Larrea divaricata), cheeseweed,

(Hymenoclea salsola), big galleta grass (Hilaria rigida), bladder-sage (Salazaria mexicana), and in the central southern bajada area, Mojave yucca (Yucca schidigera).

Scattered grassland areas, typified by big galleta grass (Hilaria rigida), Indian mountain-rice (Oryzopsis hymenoides), and squirreltail (Sitanion hystrix) occur within the creosote bush scrub type. In some places, these grassy areas appear to have resulted from fire or vegetation management practices (spraying with defoliants) which may have occurred in the past.

Another major vegetation type of this valley is the desert wash and arroyo type. It occurs along Kane Springs Wash, in which the desert willow (Chilopsis linearis) is often found. Other smaller washes, of which there are many, contain the following dominant species:

<u>Scientific Name</u>	<u>Common Name</u>
<u>Ambrosia eriocentra</u>	Wooly-fruited burbush
<u>Gutierrezia microcephala</u>	Matchweed
<u>Prunus fasciculata</u>	Desert almond
<u>Quercus turbinella</u>	Desert scrub oak
<u>Salvia dorrii</u>	Desert sage
<u>Chrysothamnus nauseosus</u>	Rubber rabbitbrush
<u>Encelia virginensis</u>	Desert encelia

Another vegetation type occurring in this valley is shadscale scrub, a low shrub community. Species found in this vegetation type include matchweed (Gutierrezia microcephala), Nevada ephedra (Ephedra nevadensis), and blackbrush (Coleogyne ramosissima). One association found within this vegetation type is pure stands of blackbrush, observed on a south-facing slope in the northern part of the valley at approximately 4,000 ft. Another association occurs on rocky upper slopes and is characterized by matchweed and blackbrush.

Some of these plant communities are combined by the BLM into one type, called desert shrub. This desert shrub type also occurs at a higher elevation (5,000 ft) than creosote bush scrub and constitutes a major portion of the vegetation in this valley, according to BLM data. Other desert shrub species, according to BLM, are hopsage (Grayia spinosa) and spiny horsebrush (Tetradymia spinescens).

To the north, between 4,000 ft and 5,000 ft, there are areas where Great Basin sagebrush is found. This vegetation consists of low, silvery-gray shrubs, two to seven feet tall. It is characterized in this valley by the following dominant species:

<u>Scientific Name</u>	<u>Common Name</u>
<u>Artemisia tridentata</u>	Big sagebrush
<u>Chrysothamnus nauseosus</u>	Rubber rabbitbrush
<u>Coleogyne ramosissima</u>	Blackbrush
<u>Purshia glandulosa</u>	Antelope brush

Associations of Great Basin sagebrush include a relatively pure stand of big sagebrush observed on a south-facing slope in the northern section of the watershed, and another stand dominated by big sagebrush and antelope brush, in a more level area.

Pinyon-juniper woodland, a type characterized by trees 10-30 ft high, occurs above 6,000 ft in the Delamar Mountains. According to BLM data, mountain shrub typified by chemise and oakbrush, a transition type, also occurs here.

Wildlife

Bighorn sheep occur in all the mountains surrounding this OB site. Migration routes are known to occur along highway 93 to the north and south of the OB site and one between the Arrow Canyon Mountains and the Meadow Valley Mountains directly where the OB is located. Mule deer occur in the Delamar Mountains, the Sheep Range, and the northern part of the Meadow Valley Mountains. Gambel's quail occur throughout this area in the lowlands and waterfowl occur in large numbers in Pahrnagat Valley to the north. The chuckwalla (Sauromalus obesus), a large lizard which lives on rocks, may reach its northernmost range limit in the Coyote Spring Wash/Kane Springs Wash area.

Game Fish

Recreational fishing is available in the upper Pahrnagat Reservoir located 50-60 mi north of the Kane Springs/Coyote Spring potential OB location. In these reservoirs is a warm water fishery, containing primarily largemouth black bass. To the south of the area only a few miles are the highly important Lake Mead recreational fishing facilities. In the Overton area of the lake the following fish are readily caught: Channel catfish, black mullhead, bluegill, black crappie, largemouth black bass, striped bass, green sunfish, silver salmon, and rainbow trout. Some trout (cutthroat and rainbow) are also caught 75 mi north in mountain streams bordering to the west of Meadow Valley Wash (20 mi south of Pioche). No other important sort of fishing areas occur nearer than about 100 mi.

Protected Species

The state-protected desert tortoise occurs throughout this area, mostly on the slopes and washes, but can also be found in any lowland habitat type. The location of the OB is directly within one of the most dense tortoise areas in Coyote Spring Wash. There is a possibility that the state-protected gila monster may also occur in this valley. Bald eagles (federally protected) winter a short distance north in the Pahrnagat Valley at the Pahrnagat National Wildlife Refuge and Key Pittman Wildlife Management Area.

Of all the potential OB sites, the Coyote Spring siting area lies nearest to critically sensitive aquatic habitats. Within 20 mi downslope from this potential OB, exists the Moapa Fish sanctuary. One fish, occurring in this spring complex, the Moapa Dace, is federally protected as endangered, and another, the Moapa White River Springfish, is state-protected as threatened. In addition, the Moapa speckled dace and three invertebrates (the Moapa Valley turban, Moapa tryonia, and Moapa creeping water bug), that are recommended for protection also inhabit the sanctuary. The Pahrnagat Valley which is habitat for several protected aquatic species including the Pahrnagat roundtail chub (federally protected as endangered), lies to the north of this candidate OB.

The only known location of the Steno sandwort (Arenaria stenomerus) (designated as a critically endangered plant species on the Nevada State List (NRS

527.270) occurs within 1 mi of the designated assembly area. This species has been found on limestone cliffs in a canyon at the south end of the Meadow Valley Mountains, just northeast of the proposed OB.

Wilderness And Significant Natural Areas

Potential wilderness study areas and significant natural areas within a 50-mi radius of the potential Coyote Springs OB site are listed in Table 1.2.1-1.

SURFACE WATER (1.2.2)

Source

The major source of surface runoff is precipitation which is irregularly distributed within the valleys but generally is least in the valley floors and greatest in the mountains. In Kane Springs Valley, several springs occur on the flanks of the Delamar Range and area partly supplied by perched groundwater in volcanic rocks. Snow commonly occurs during the winter in the higher parts of the Sheep and Delamar ranges and only rarely elsewhere. Localized storms, principally in July and August, provide most of the summer precipitation. No long-term records of precipitation are available for this area. Precipitation at stations in adjacent areas range from 4 in. to 9 in.

Low humidity and high temperature and wind movement result in high evaporate rates. The average annual lake evaporation rate is on the order of 75 in.

Streams

The White River channel includes Coyote Spring Valley and provides the main drainage line to this area. Kane Springs Wash is the major local tributary. Numerous other tributary channels or washes are relatively minor and drain relatively small segments or basins with Coyote Spring and Kane Springs valleys. The numerous tributary washes dissect the alluvial slopes that rise with increasing gradients to the mountain blocks.

Lakes and Reservoirs

None.

Springs

The combined yield of the 16 springs in Coyote Spring Valley is small.

Drainage

Coyote Spring Valley is a segment of a trough that includes from north to south White River Valley, Pahroc Valley, Pahrnagat Valley, Coyote Spring Valley, and Moapa Valley. The White River channel, at the center of this trough, has an average gradient of 5.3 m/km. Streamflow in most of the White River and tributary channels only occurs for short intervals after high intensity storms. In Coyote Spring Valley, the floor of the channel slopes southward at 5.5 m/km; then the channel swings eastward through a gap between the Meadow Valley Mountains and the Arrow Canyon Range.

Table 1.2.1-1. Potential wilderness and significant natural areas within a 50 mi radius of the Coyote Spring site.

POTENTIAL WILDERNESS AREAS	
AREA	MI FROM OB SITE
1. Arrow Canyon Range	5
2. Fish and Wildlife #1	3
3. Fish and Wildlife #2	6
4. Fish and Wildlife #3	14
5. Desert National Wildlife Range	5
6. Delamar Mountains	12
7. Meadow Valley Range	2
8. Mormon Mountains	14
9. Grapevine Spring	38
10. South Pahrocs/Hiko	41
11. Madsger Pass	28
12. East Pahrnagat	31
13. Lake Mead National Recreation Area	40
14. Lower Pahrnagat Lake	28
15. NV-050-0412	44
16. NV-050-0411	36
17. NV-050-0415 A,B,C	35
18. NV-050-0229	32
19. NV-050-0231	44
20. NV-050-0235	50
SIGNIFICANT NATURAL AREAS	
AREA	MI FROM OB SITE
1. Moapa Valley Fish Sanctuaries	8
2. Desert National Wildlife Range	5
3. Moapa Valley National Wildlife Refuge	14
4. Pahrnagat National Wildlife Refuge	28
5. Pahrnagat Lakes	26
6. Pahrnagat Bonytail	37
7. Pahrnagat Valley Fish Sanctuary	43

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Valley Outflow

None.

Current Use

The combined yield of springs in Coyote Spring Valley is small and is used mostly for watering stock.

Coyote Spring Valley is used (as of 1964) principally for livestock range. There is only one ranch in Coyote Spring Valley. Local residents are engaged principally in dairying and other farming activities.

Additional water resource analysis is presented in ETR-12.

GROUNDWATER (1.2.3)

Coyote Spring Valley straddles the borders of Lincoln and Clark counties in southeastern Nevada. It is bounded by the Sheep Range in the west; the Delamar Range, on the northwest side of Kane Spring Valley, is to the northeast; the Arrow Canyon Range bounds Coyote Spring Valley in the southeast and an alluvial divide closes it off at the south end. This valley is a segment of a "topographic trough that includes from north to south White River Valley, Pahroc Valley, Pahrnagat Valley, Coyote Spring Valley.

Location of Groundwater

The main body of groundwater occurring in the valleyfill is probably at depths of 270 ft or more. However, around Coyote Spring, some groundwater exists at shallower depths; it is inferred to be semi-perched. Beneath the valleyfill groundwater is absorbed and transmitted in carbonate rocks.

Source

The principal source of groundwater recharge in Coyote Spring is underflow from the White River system which flows on a southeast gradient through the trough. Groundwater flows from valleys adjacent to the channel, such as Garden, Coal, White River, Cave, Dry Lake, and Delamar.

Groundwater recharge is from precipitation falling in the mountains. the Sheep Range probably provides nearly 80 percent of the estimated average recharge and the Delamar Range most of the remainder.

Recharge from precipitation within the combination of Coyote and Kane valleys is 2,600 acre-ft.

Movement

The gradient of the main body of groundwater along the axis of Coyote Spring Valley indicates that the general direction of movement is southward. However, the shallow localized groundwater in the vicinity of Coyote Spring moves from the mountains through older valleyfill, into younger more permeable deposits beneath

the White River channel. Beneath the valleyfill, carbonate rocks also transmit groundwater.

Natural Discharge

Groundwater from the main body in Coyote Spring Valley discharges naturally via springs; some within the valley, but dominantly from the Muddy River Springs Valley. Spring flow within Coyote Spring Valley is eventually lost through evapotranspiration whereas spring flow from Muddy River Springs flows into the Muddy River.

The average annual groundwater discharge cannot be estimated directly because most of it apparently is lost as underflow to other lower valleys.

Current Use

Coyote Spring had been developed to supply irrigation water for several acres of orchard. discharge was initially 550 ft³/sec, but some variations have undoubtedly occurred.

Perennial yield is estimated at 2,600 acre-ft/yr, approximating that derived from annual regional precipitation.

Quality

The groundwater in the valleyfill apparently has a somewhat higher chemical concentration than that of the springs and may not be entirely suitable for all uses without treatment.

Additional detail is presented in ETR-12.

SOILS/SLOPE (1.2.4)

The soils of the potential OB site in Coyote Springs Valley formed primarily on terraces and alluvial fans. The predominant great groups of soils present include Durorthids and Paleorthids (U.S. Department of Interior, BLM, September 1979). Durorthids are Aridisols that have a hardpan cemented with silica, while Paleorthids are Aridisols that have a hardpan cemented with carbonates. Such hardpans occur at about 12 to 36 in. below the surface. In general, the soils of this area are shallow to moderately deep and on slopes of 2 to 15 percent.

In the valley bottom and floodplains of Coyote Springs Valley are moderately deep to very deep soils of the Torriorthent-Torrifluent great group association. These soils are loamy or clayey Entisols and lack developed soil horizons. Slopes range from 0 to 8 percent.

Seismicity

A Quaternary fault runs along the southeastern side of Kane Springs Valley. The length of the fault is of the order of 32 miles and is located northeast of the intended facility. A strike-slip movement characterizes this fault rather than the usual Great Basin horst and graben dip-slip fault. It may or may not be indicative of

ground rupture since Holocene time. It requires field corroboration along its elongated NE-SW trend. The Las Vegas shear zone could conceivably transect it to the south. In event of a moderate shock, ground-shaking and lurching could occur. The Las Vegas shear zone has not been historically active with any sense of strong motion. Were its periodicity to be extrapolated as a seismic gap, there might be expectation of renewed vigor in the unpredictable future.

AIR QUALITY (1.2.5)

Coyote Spring is within hydrographic subbasin No. 210, which is in the southeastern portion of the state and is split by the line that divides the Clark and Lincoln counties. Total particulate emissions for this basin are 115,587 tons/yr. (104,837 tonnes/yr.). Of this total, 99+ percent are emissions from natural windblown sources. Particulate density is 175.9 tons/yr/mi² (61.6 tonnes/yr/km²) for this 657 mi² (1,701 km²) area.

Gaseous pollutant emission levels are given as a range in Table 1.2.5-1. The low and high end of the range represents levels from both AQCR No. 13 and 147 because the Coyote Spring subbasin is part of both. AQCR No. 147 covers a very large area and AQCR No. 13 contains the Las Vegas metropolitan area, therefore, neither value in the range can be considered as absolutely representative of the 210 subbasin area, but for now these are the best numbers available.

From Table 1.2.5-2 it is evident that Coyote Spring receives the least annual precipitation (4.55 in.) of the potential OBs. This is most likely to occur in spring or summer thunderstorms, but these do not occur frequently enough to have any impact on limiting natural dust emissions. The relatively low wind speeds and soil texture at Coyote Spring are more important limiting factors.

Table 1.2.5-1. Total emissions and emission density levels of alternative potential OB locations.

EMISSION EMISSION DENSITY LEVEL	POTENTIAL OPERATING BASE LOCATION						CLIMATE MM DISTANCE
	UTAH, MOUNTAIN	COYOTE CREEK, NEVADA	REVEL, UTAH	MILFORD, UTAH	DELTA, UTAH	DALHART, TEXAS	
Total Particulate Emissions Tons/yr	22,044	115,387	1,800	2,008	4,541	51,923	29,625
Particulate Density Tons/yr/mi ²	17.4	175.9	1	<1	<1	0.1-10	1-10
Total SO _x Emissions Tons/yr	274,436	33,363-274,426	974	158	274	74,036	138,003
SO _x Density Tons/yr/mi ²	30-100	0.1-10	<1	<1	<1	0.1-10	<1
Total NO _x Emissions Tons/yr	12,641	12,641-36,378	1,836	943	1,588	140,323	29,202
NO _x Density Tons/yr/mi ²	<1	0.1-10	<1	<1	<1	0.1-30	<1
Total Hydrocarbon Emissions Tons/yr	15,673	15,673-23,071	2,223	1,186	2,114	152,036	38,471
Hydrocarbon Density Tons/yr/mi ²	<1	0.1-10	<1	<1	<1	0.3-10	<1
Total CO Emissions Tons/yr	79,896	79,896-131,010	11,760	6,119	11,049	1,109,143	112,916
CO Density Tons/yr/mi ²	<10	0.1-10	<10	<10	<10	0.1-100	10-30

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^aParticulate data are latest data available from State of Nevada (year unspecified). Particulate data are reported on hydrocarbon sub-basin basis. Particulate data include windblown fugitive dust sources. Gaseous emission data are from RITE (1975) and EPA Emissions Trends Report (1977).

^bCoyle Springs sub-basin is part of both Agency no. 13 and no. 147. Gaseous emission levels are shown as range using data from both Agencies.

^cParticulate and gaseous emission levels reported by county from State of Utah (1976 data). Particulate data do not include contribution from windblown fugitive dust sources. Density values from EPA Emissions Trends Report (1977).

^dParticulate and gaseous emission levels reported for Agency no. 211 from RITE (1975). Density values from EPA Emissions Trends Report (1977).

^eParticulate and gaseous emission levels reported for Agency no. 155 from RITE (1975). Density values from EPA Emissions Trends Report (1977).

Table 1.2.5-2. Climatological data for the potential operating base site.

COMMUNITY/ POTENTIAL OB LOCATION	MEAN ANNUAL PRECIPI- TATION (in.)	MEAN ANNUAL VISIBILITY	VISIBLE DUST FRE- QUENCY ¹	AVERAGE ANNUAL MIXING HEIGHT (meters)		AVERAGE ANNUAL WIND SPEED (m/sec) ³	
				MORNING ²	AFTERNOON ²	MORNING ²	AFTERNOON ²
Ely, Nevada	8.33	>70 mi	0.054%	300	2,400	4.0	6.0
Coyote Spring, Nevada	4.55	70 mi	0.200%	300	2,500	4.0	6.0
Beryl, Utah	11.03	70 mi	0.50%	300	2,600	4.0	6.0
Milford, Utah	8.00	70 mi	0.200%	300	2,600	4.0	6.0
Delta, Utah	7.16	70 mi	0.250%	300	2,500	4.0	6.0
Dalhart, Texas	16.33	45-70 mi	1.200%	350	2,100	6.5	8.0
Clovis, New Mexico	17.47	45-70 mi	2.100%	400	2,300	6.2	7.5

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¹Percent of hourly observations per year with visible dust; values at Coyote Springs, Beryl, Delta, and Dalhart have been estimated from nearby weather stations.

²Estimated from values at nearby weather stations.

³Wind speed is averaged through the mixing layer.

2.0 ENVIRONMENTAL CONSEQUENCES FOR THE OPERATING BASE VICINITY

2.1 HUMAN ENVIRONMENT

EFFECTS ON EMPLOYMENT AND LABOR FORCE (2.1.1)

Coyote Spring Valley is an operating base location in 6 out of 9 project configurations, as indentified in Table 2.1.1-1. However, in all project alternatives, Clark County lies south of the designated deployment areas (DDA's).

Direct, Indirect, and Total M-X-Related Employment

Tables 2.1.1-1 through 2.1.1-6 present direct labor requirements for those project options which would site a base in Clark County. The Coyote Spring Valley location would be a first operating base under the Proposed Action and Alternatives 1, 2, and 8, hence, the timing and magnitude of direct labor requirements in the county would be identical. Construction of the base would begin in 1982 and last 5 years, peaking at 2,300 workers in 1983.

Compared to baseline employment forecasts by industry developed by the Bureau of Economic and Business Research of the University of Utah, the demand figure would represent almost 14 percent of Clark County's construction industry employment in 1983. (University of Utah, BEBR, October 1980). Growth of this magnitude would require short-term adjustments in the county's construction trades. Shortages of skilled workers, some wage inflation, and in-migration of workers from outside the county would be likely. Operations personnel would be required by 1984, with full base staffing of 7,500 persons reached by 1989. Direct employment under Alternatives 4 and 6 would be less than for the Proposed Action, since Coyote Spring Valley would be the second, smaller operating base. These smaller impacts are detailed in Tables 2.1.1-4 and 2.1.1-5.

Large numbers of jobs indirectly related to M-X also would be created in Clark County. The principal source would be county-level expansion induced by the respending of project payrolls earned by direct employees. There also would be local procurement of goods and services from area suppliers, who, in turn, would expand employment to meet the increased demand. Project-related investments by governments and private business would also induce growth of secondary employment. Indirect employment in Clark County under the Proposed Action would begin in 1982 and peak at 15,100 jobs in 1986 (see Table 2.1.1-1). It would decline thereafter, and stabilize at about 3,200 jobs by 1992.

Tables 2.1.1-1 through 2.1.1-5 also detail changes in total employment. In Table 2.1.1-1, the Proposed Action would result in peak total employment of 22,900 jobs in Clark County in 1986 as a result of M-X deployment. This figure would increase to 24,600 jobs after adjustment for cross county commuting and would represent almost 10 percent of projected county baseline employment, and 14 percent of 1978 county employment (labor force concept) of 169,500 persons. This table also shows that in the long run, M-X would generate 10,700 jobs (including military) in Clark County, about 4 percent of project baseline employment (see Table 2.1.1-6). The direct M-X jobs and some of the indirect jobs would be created at the base site itself, while many additional indirect jobs would be created in Las Vegas. Alternatives 1, 2, and 8 would create similar growth in total employment, while Alternatives 4 and 6 would be significantly less.

M-X RELATED SYSTEM EMPLOYMENT BY PLACE OF EMPLOYMENT, IN CLARK
 PROPOSED ACTION FULL DEPLOYMENT - NEVADA/UTAH
 BASE I AT COYOTE SPRINGS, NV (CLARK CO.)
 BASE II AT HILFOND, UT (BEAVER CO.)

Table 2.1.1-1.

TYPE OF EMPLOYMENT	NUMBER OF JOBS													
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	
TECHNICAL FACILITIES														
CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0	
ASSEMBLY + CONSTRUC	0	0	0	0	0	0	0	0	0	0	0	0	0	
BASE	1150	1900	2300	2000	1200	0	0	0	0	0	0	0	0	
CONSTRUCTION	0	350	900	1800	2850	2850	2800	2650	50	0	0	0	0	
ASSEMBLY AND CHECKOUT														
OPERATIONS														
OFFICERS	0	0	100	200	300	400	500	600	600	600	600	600	600	
ENLISTED PERSONNEL	0	0	950	1925	2900	3050	4800	5750	5750	5750	5750	5750	5750	
CIVILIANS	0	0	200	375	550	750	950	1150	1150	1150	1150	1150	1150	
TOTAL DIRECT	1150	2250	4450	6300	7800	7850	9050	10150	7550	7500	7500	7500	7500	
INDIRECT	1723	4099	7272	11678	15118	13752	12069	8299	4169	3234	3214	3214	3214	
TOTAL	2873	6349	11722	17978	22918	21602	21119	18449	11719	10734	10714	10714	10714	
SOURCE HDR SCIENCES. 31-OCT-90														

SOURCE HDR SCIENCES, 31-OCT-90

M-X RELATED SYSTEM EMPLOYMENT BY PLACE OF EMPLOYMENT, IN CLARK
 ALTERNATIVE 1 FULL DEPLOYMENT - NEVADA/UTAH
 BASE I AT COYOTE SPRINGS, NV (CLARK CO.)
 BASE II AT BERYL, UT (IRON CO.)

Table 2.1.1-2.

TYPE OF EMPLOYMENT	NUMBER OF JOBS													
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	
TECHNICAL FACILITIES														
CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0	
ASSEMBLY + CONSTRUCT	0	0	0	0	0	0	0	0	0	0	0	0	0	
BASE														
CONSTRUCTION	1150	1900	2300	2000	1200	0	0	0	0	0	0	0	0	
ASSEMBLY AND CHECKOUT	0	350	700	1800	2850	2850	2800	2650	50	0	0	0	0	
OPERATIONS														
OFFICERS	0	0	100	200	300	400	500	600	600	600	600	600	600	
ENLISTED PERSONNEL	0	0	750	1925	2900	3850	4800	5750	5750	5750	5750	5750	5750	
CIVILIANS	0	0	200	375	550	750	950	1150	1150	1150	1150	1150	1150	
TOTAL DIRECT	1150	2250	4450	6300	7800	7850	9050	10150	7550	7500	7500	7500	7500	
INDIRECT	1723	4099	7272	11678	15123	13765	12089	8327	4198	3263	3244	3244	3244	
TOTAL	2873	6349	11722	17978	22923	21615	21139	18477	11748	10763	10744	10744	10744	
SOURCE: HDR SCIENCES, 31-OCT-90														

SOURCE HDR SCIENCES, 31-OCT-90

Table 2.1.1-3.

M-X RELATED SYSTEM EMPLOYMENT BY PLACE OF EMPLOYMENT, IN CLARK

 ALTERNATIVE 2 FULL DEPLOYMENT - NEVADA/UTAH
 BASE I AT COYOTE SPRINGS, NV (CLARK CO)
 BASE II AT DELTA, UT (HILLARD CO)

TYPE OF EMPLOYMENT	NUMBER OF JOBS												
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
TECHNICAL FACILITIES													
CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
ASSEMBLY + CONSTRUCT	0	0	0	0	0	0	0	0	0	0	0	0	0
BASE													
CONSTRUCTION	1150	1900	2300	2000	1200	0	0	0	0	0	0	0	0
ASSEMBLY AND CHECKOUT	0	350	900	1800	2850	2850	2800	2650	50	0	0	0	0
OPERATIONS													
OFFICERS	0	0	100	200	300	400	500	600	600	600	600	600	600
ENLISTED PERSONNEL	0	0	950	1925	2900	3850	4800	5750	5750	5750	5750	5750	5750
CIVILIANS	0	0	200	375	550	750	950	1150	1150	1150	1150	1150	1150
TOTAL DIRECT	1150	2250	4450	6300	7800	7850	9050	10150	7550	7500	7500	7500	7500
INDIRECT	1723	4099	7272	11657	14906	13350	11617	7849	3798	2886	2866	2866	2866
TOTAL	2873	6349	11722	17957	22706	21200	20667	17999	1348	10386	10366	10366	10366
SOURCE: MDR SCIENCES, 31-OCT-80													

Table 2.1.1-4.

M-X RELATED SYSTEM EMPLOYMENT BY PLACE OF EMPLOYMENT, IN CLARK

 ALTERNATIVE 4 FULL DEPLOYMENT - NEVADA/UTAH
 BASE I AT BERYL, UT (IRON CO)
 BASE II AT COYOTE SPRINGS, NV (CLARK CO)

TYPE OF EMPLOYMENT	NUMBER OF JOBS												
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
TECHNICAL FACILITIES													
CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
ASSEMBLY + CONSTRUCT	0	0	0	0	0	0	0	0	0	0	0	0	0
BASE													
CONSTRUCTION	0	0	0	200	1350	2050	1450	250	0	0	0	0	0
ASSEMBLY AND CHECKOUT	0	0	0	0	0	0	0	0	0	0	0	0	0
OPERATIONS													
OFFICERS	0	0	0	0	100	200	350	450	450	450	450	450	450
ENLISTED PERSONNEL	0	0	0	0	1100	2200	3250	4400	4400	4400	4400	4400	4400
CIVILIANS	0	0	0	0	700	400	650	850	850	850	850	850	850
TOTAL DIRECT	0	0	0	200	2750	4050	5750	6450	5700	5700	5700	5700	5700
INDIRECT	119	290	1730	5247	10709	12774	12110	9199	5271	3041	2668	2668	2668
TOTAL	119	290	1730	5447	13459	17824	17860	15649	10971	8741	8371	8368	8368
SOURCE: MDR SCIENCES, 31-OCT-80													

Table 2.1.1-5.

M-X RELATED SYSTEM EMPLOYMENT BY PLACE OF EMPLOYMENT, IN CLARK

 ALTERNATIVE A: FULL DEPLOYMENT - NEVADA/UTAH
 BASE I AT MILFORD, UT (BEAVER CO.)
 BASE II AT COYOTE SPRINGS, NV (CLARK CO.)

TYPE OF EMPLOYMENT	NUMBER OF JOBS												
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
TECHNICAL FACILITIES													
CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
ASSEMBLY + CONSTRUCT	0	0	0	0	0	0	0	0	0	0	0	0	0
BASE													
CONSTRUCTION	0	0	0	200	1350	2050	1450	750	0	0	0	0	0
ASSEMBLY AND CHECKOUT	0	0	0	0	0	0	0	0	0	0	0	0	0
OPERATIONS													
OFFICERS	0	0	0	0	100	200	350	450	450	450	450	450	450
ENLISTED PERSONNEL	0	0	0	0	1100	2300	3250	4400	4400	4400	4400	4400	4400
CIVILIANS	0	0	0	0	200	400	650	850	850	850	850	850	850
TOTAL DIRECT	0	0	0	200	2750	4850	5700	6450	5700	5700	5700	5700	5700
INDIRECT	119	258	1725	5236	10691	12750	12087	9162	5182	3002	2632	2629	2629
TOTAL	119	258	1725	5436	13441	17600	17787	15612	10882	8702	8332	8329	8329
SOURCE: HDR SCIENCES, 31-OCT-80													

Table 2.1.1-6.

M-X RELATED SYSTEM EMPLOYMENT BY PLACE OF EMPLOYMENT, IN CLARK

 ALTERNATIVE BA: SPLIT DEPLOYMENT (70/30) - NEVADA/UTAH
 BASE I AT COYOTE SPRINGS, NV (CLARK CO.)

TYPE OF EMPLOYMENT	NUMBER OF JOBS												
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
TECHNICAL FACILITIES													
CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
ASSEMBLY + CONSTRUCT	0	0	0	0	0	0	0	0	0	0	0	0	0
BASE													
CONSTRUCTION	1100	1850	2400	2050	1250	0	0	0	0	0	0	0	0
ASSEMBLY AND CHECKOUT	0	250	700	1350	2150	2150	2100	2000	50	0	0	0	0
OPERATIONS													
OFFICERS	0	0	100	200	300	400	500	600	600	600	600	600	600
ENLISTED PERSONNEL	0	0	950	1700	2850	3800	4000	5700	5700	5700	5700	5700	5700
CIVILIANS	0	0	200	350	550	750	950	1100	1100	1100	1100	1100	1100
TOTAL DIRECT	1100	2100	4350	5850	7100	7100	8350	9400	7450	7400	7400	7400	7400
INDIRECT	1614	3995	7274	11176	12105	10683	9471	6332	3455	2836	2821	2821	2821
TOTAL	2714	6095	11624	17026	19205	17783	17821	15732	10905	10236	10221	10221	10221
SOURCE: HDR SCIENCES, 31-OCT-80													

Construction and operation of a base at Coyote Spring also would create employment opportunities for residents of Lincoln County, Nevada. The towns of Caliente, Pioche, and Panaca in Lincoln County are close enough to the Clark County border to be influenced by activity at Coyote Spring. These effects could amount to about 200 long-term jobs created in Lincoln County--a significant change compared to baseline conditions, but a small impact relative to DDA construction employment in the county.

Labor Force Impacts

Markets for skilled construction labor would be very tight during peak construction activity, leading to short-run, significant escalation of wages for these construction crafts. These labor shortages would extend to other occupations as more mobile workers seek the relatively higher wages paid on M-X jobs. Even in a large, well-developed metropolitan area like Clark County, in-migration of additional workers would result.

Tables 2.1.1-7 through 2.1.1-12 present labor in-migration estimates for Clark County for those deployment options which site a base in Coyote Springs Valley. For the Proposed Action (Table 2.1.1-7), total civilian M-X related employment is presented in the first line, and represents civilian direct and indirect labor demand presented in Table 2.1.1-1 plus an adjustment for cross-county commuting. This figure peaks at 21,400 persons in 1986. In the same year, the county's available resident labor force is projected to equal about 13,000 persons. This includes the projected unemployed labor force less an estimate of those persons who are expected to remain unemployed even under extremely tight labor market conditions.

The third line in Table 2.1.1-7, "net civilian labor force impact," is a comparison of the expected available labor pool in Clark County with M-X demand for labor. It represents cumulative labor in-migration into Clark County, which in 1986, is projected to equal 11,500 persons. Thereafter, Table 2.1.1-1 indicates a decline in the "net civilian labor force impact" figure, indicating worker outmigration as job opportunities in the county diminish. The figure stabilizes at about 1,400 persons; this indicates cumulative civilian inmigration into Clark County over the period 1982-1994 under the Proposed Action.

Alternatives 1, 2 and 8 generate identical levels of civilian inmigration, while Alternatives 4 and 6 produce smaller impacts (see Tables 2.1.1-8 through 2.1.1-12). Subsequent to peak in-migration, labor market stress would decline; unemployment rates would tend to rise, labor force participation rates would fall, and the induced rise in some relative wages would begin to diminish.

Long-term employment impacts in Lincoln County resulting from operation of an M-X base at Coyote Spring would trigger labor force in-migration into adjacent Lincoln of 150-200 persons. This represents an expansion of the county's labor force by 8-10 percent in the long-run. These effects are very small, however, compared to the boom-bust cycle projected for Lincoln County as a result of DDA construction.

EFFECTS ON INCOME AND EARNINGS (2.1.2)

Earnings impacts in Clark County are closely related to employment effects discussed in Section 2.1.1. Tables 2.1.2-1 through 2.1.2-6 present M-X-related earnings by place of work for the Proposed Action and Alternatives 1, 2, 4, 6, and 8,

Table 2.1.1-7.

TOTAL CIVILIAN M-X RELATED EMPLOYMENT, AVAILABLE RESIDENT LABOR FORCE,
AND NET CIVILIAN LABOR FORCE IMPACT BY PLACE OF RESIDENCE
FOR CLARK

PROPOSED ACTION FULL DEPLOYMENT - NEVADA/UTAH (L) BASE I AT COYOTE SPRINGS, NV (CLARK CO) BASE II AT MILFORD, UT (BEAVER CO)														
		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
TOTAL CIVILIAN M-X-RELATED EMPLOYMENT	2816	6284	10922	16837	21423	18867	17021	12526	5311	4327	4307	4307	4307	4307
AVAILABLE RESIDENT LABOR FORCE	11231	11647	12103	12583	12955	13310	13684	14054	14432	14800	15176	15536	15887	15887
NET CIVILIAN LABOR FORCE IMPACT	0	350	2135	7216	11534	10003	8099	4093	1493	1443	1443	1443	1443	1443
SOURCE HDR SCIENCES, 31-OCT-80														

Table 2.1.1-8.

TOTAL CIVILIAN M-X RELATED EMPLOYMENT, AVAILABLE RESIDENT LABOR FORCE,
AND NET CIVILIAN LABOR FORCE IMPACT BY PLACE OF RESIDENCE
FOR CLARK

ALTERNATIVE 1 FULL DEPLOYMENT - NEVADA/UTAH (L) BASE I AT COYOTE SPRINGS, NV (CLARK CO) BASE II AT BERYL, UT (IRON CO)														
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	
TOTAL CIVILIAN M-X-RELATED EMPLOYMENT	2816	6284	10922	16847	21496	18983	17114	12592	5341	4356	4336	4336	4336	
AVAILABLE RESIDENT LABOR FORCE	11231	11647	12103	12583	12955	13310	13684	14054	14432	14800	15176	15536	15887	
NET CIVILIAN LABOR FORCE IMPACT	0	350	2135	7216	11539	10018	8119	4093	1493	1443	1443	1443	1443	
SOURCE HDR SCIENCES, 31-OCT-80														

Table 2.1.1-9.

TOTAL CIVILIAN M-X RELATED EMPLOYMENT, AVAILABLE RESIDENT LABOR FORCE,
AND NET CIVILIAN LABOR FORCE IMPACT BY PLACE OF RESIDENCE
FOR CLARK

ALTERNATIVE 2 FULL DEPLOYMENT - NEVADA/UTAH (L) BASE I AT COYOTE SPRINGS, NV (CLARK CO) BASE II AT DELTA, UT (MILLARD CO)														
		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
TOTAL CIVILIAN M-X-RELATED EMPLOYMENT	2816	6284	10922	16806	21143	18262	16497	12039	4941	3978	3959	3959	3959	3959
AVAILABLE RESIDENT LABOR FORCE	11231	11647	12103	12503	12955	13310	13684	14054	14432	14800	15176	15536	15887	15887
NET CIVILIAN LABOR FORCE IMPACT	0	350	2135	7195	11327	9603	7603	4093	1493	1443	1443	1443	1443	1443
SOURCE HDR SCIENCES, 31-OCT-80														

Table 2.1.1-10.

TOTAL CIVILIAN M-X RELATED EMPLOYMENT, AVAILABLE RESIDENT LABOR FORCE,
AND NET CIVILIAN LABOR FORCE IMPACT BY PLACE OF RESIDENCE
FOR CLARK

ALTERNATIVE 4: FULL DEPLOYMENT - NEVADA/UTAH (L)
BASE I AT BERYL, UT (IRON CO.)
BASE II AT COYOTE SPRINGS, NV (CLARK CO.)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
TOTAL CIVILIAN M-X-RELATED EMPLOYMENT	292	573	2450	6820	14019	16449	15218	11129	6028	3048	3478	3476	3476
AVAILABLE RESIDENT LABOR FORCE	11231	11647	12103	12503	12955	13310	13684	14054	14432	14800	15176	15536	15887
NET CIVILIAN LABOR FORCE IMPACT	0	0	0	0	0	4247	6152	5326	2239	1102	1102	1102	1102
SOURCE	HDR SCIENCES, 31-OCT-80												

Table 2.1.1-11.

TOTAL CIVILIAN M-X RELATED EMPLOYMENT, AVAILABLE RESIDENT LABOR FORCE,
AND NET CIVILIAN LABOR FORCE IMPACT BY PLACE OF RESIDENCE
FOR CLARK

ALTERNATIVE 6: FULL DEPLOYMENT - NEVADA/UTAH (L)
BASE I AT MILFORD, UT (BEAVER CO.)
BASE II AT COYOTE SPRINGS, NV (CLARK CO.)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
TOTAL CIVILIAN M-X-RELATED EMPLOYMENT	234	478	2330	6708	13941	16425	15187	11092	5990	3809	3440	3437	3437
AVAILABLE RESIDENT LABOR FORCE	11231	11647	12103	12983	12955	13310	13684	14054	14432	14800	15176	15536	15887
NET CIVILIAN LABOR FORCE IMPACT	0	0	0	0	4230	6128	5295	2201	1102	1102	1102	1102	1102
SOURCE	HDR SCIENCES, 31-OCT-80												

Table 2.1.1-12.

TOTAL CIVILIAN M-X RELATED EMPLOYMENT, AVAILABLE RESIDENT LABOR FORCE,
AND NET CIVILIAN LABOR FORCE IMPACT BY PLACE OF RESIDENCE
FOR CLARK

ALTERNATIVE 8A: SPLIT DEPLOYMENT (70/30) - NEVADA/UTAH (L)
BASE I AT COYOTE SPRINGS, NV (CLARK CO.)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
TOTAL CIVILIAN M-X-RELATED EMPLOYMENT	2729	6032	10844	15709	16678	14385	13414	9667	4550	3881	3866	3866	3866
AVAILABLE RESIDENT LABOR FORCE	11231	11647	12103	12983	12955	13310	13684	14054	14432	14800	15176	15536	15887
NET CIVILIAN LABOR FORCE IMPACT	0	250	1927	6264	7821	6705	4802	3431	1481	1431	1431	1431	1431
SOURCE	HDR SCIENCES, 31-OCT-80												

Table 2.1.2-1.

M-X RELATED EARNINGS, IN MILLIONS OF FY 1980 DOLLARS, IN CLARK
 PROPOSED ACTION: FULL DEPLOYMENT - NEVADA/UTAH
 BASE I AT COYOTE SPRINGS, NV (CLARK CO.)
 BASE II AT MILFORD, UT (BEAVER CO.)

SOURCE OF EARNINGS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
CLUSTER FACILITIES CONSTRUCTION, ASSEMBLY, AND CHECKOUT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BASE CONSTRUCTION, ASSEMBLY, AND CHECKOUT	38.6	72.6	99.8	112.2	111.6	71.3	70.0	66.3	1.3	0.0	0.0	0.0	0.0
OPERATIONS	0.0	0.0	17.4	34.5	51.6	69.0	86.3	103.7	103.7	103.7	103.7	103.7	103.7
INDIRECT	22.4	53.3	94.5	151.8	196.5	178.8	156.9	107.9	54.2	42.0	41.8	41.8	41.8
TOTAL	61.0	125.9	211.7	298.5	359.7	319.0	313.2	277.8	159.1	145.7	145.5	145.5	145.5

SOURCE: MOR SCIENCES, 31-OCT-80

Table 2.1.2-2.

N-X RELATED EARNINGS, IN MILLIONS OF FY 1980 DOLLARS, IN CLARK
 ALTERNATIVE 1: FULL DEPLOYMENT - NEVADA/UTAH
 BASE I AT COYOTE SPRINGS, NV (CLARK CO.)
 BASE II AT BERYL, UT (IRON CO.)

SOURCE OF EARNINGS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
CLUSTER FACILITIES CONSTRUCTION, ASSEMBLY, AND CHECKOUT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BASE CONSTRUCTION, ASSEMBLY, AND CHECKOUT	38.6	72.6	99.8	112.2	111.6	71.3	70.0	66.3	1.3	0.0	0.0	0.0	0.0
OPERATIONS	0.0	0.0	17.4	34.5	51.6	69.0	86.3	103.7	103.7	103.7	103.7	103.7	103.7
INDIRECT	22.4	53.3	94.5	151.8	196.6	178.9	157.2	108.2	54.6	42.4	42.2	42.2	42.2
TOTAL	61.0	125.9	211.7	298.5	359.8	319.2	313.5	278.2	159.5	146.1	145.9	145.9	145.9

SOURCE: MOR SCIENCES, 31-OCT-80

Table 2.1.2-3.

M-X RELATED EARNINGS, IN MILLIONS OF FY 1980 DOLLARS, IN CLARK
 ALTERNATIVE 2: FULL DEPLOYMENT - NEVADA/UTAH
 BASE I AT COYOTE SPRINGS, NV (CLARK CO.)
 BASE II AT DELTA, UT (MILLARD CO.)

SOURCE OF EARNINGS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
CLUSTER FACILITIES CONSTRUCTION, ASSEMBLY, AND CHECKOUT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BASE CONSTRUCTION, ASSEMBLY, AND CHECKOUT	38.6	72.4	99.8	112.2	111.6	71.3	70.0	66.3	1.3	0.0	0.0	0.0	0.0
OPERATIONS	0.0	0.0	17.4	34.5	51.6	69.0	86.3	103.7	103.7	103.7	103.7	103.7	103.7
INDIRECT	22.4	53.3	94.5	131.5	193.8	173.5	151.0	102.0	49.4	37.5	37.3	37.3	37.3
TOTAL	61.0	125.9	211.7	298.2	357.0	313.8	307.4	272.0	154.3	141.2	140.9	140.9	140.9
SOURCE: HDR SCIENCES, 31-OCT-80													

Table 2.1.2-4.

M-X RELATED EARNINGS, IN MILLIONS OF FY 1980 DOLLARS, IN CLARK

ALTERNATIVE 4: FULL DEPLOYMENT - NEVADA/UTAH

BASE I AT BERYL, UT (IRON CO.)

BASE II AT COVOTE SPRINGS, NV (CLARK CO.)

SOURCE OF EARNINGS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
CLUSTER FACILITIES CONSTRUCTION, ASSEMBLY, AND CHECKOUT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BASE CONSTRUCTION, ASSEMBLY, AND CHECKOUT	0.0	0.0	0.0	6.7	45.4	48.9	48.7	25.2	0.0	0.0	0.0	0.0	0.0
OPERATIONS	0.0	0.0	0.0	0.0	19.1	38.1	58.9	78.5	78.5	78.5	78.5	78.5	78.5
INDIRECT	1.5	3.4	22.5	68.2	139.2	166.1	157.5	119.6	67.9	39.5	34.7	34.7	34.7
TOTAL	1.5	3.4	22.5	74.9	203.6	273.1	265.1	223.3	146.4	118.0	113.2	113.2	113.2

SOURCE: HDR SCIENCES, 31-OCT-80

Table 2.1.2-5.

M-X RELATED EARNINGS, IN MILLIONS OF FY 1980 DOLLARS, IN CLARK

ALTERNATIVE 6: FULL DEPLOYMENT - NEVADA/UTAH

BASE I AT MILFORD, UT (BEAVER CO.)

BASE II AT COVOTE SPRINGS, NV (CLARK CO.)

SOURCE OF EARNINGS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
CLUSTER FACILITIES CONSTRUCTION, ASSEMBLY, AND CHECKOUT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BASE CONSTRUCTION, ASSEMBLY, AND CHECKOUT	0.0	0.0	0.0	6.7	45.4	68.9	48.7	25.2	0.0	0.0	0.0	0.0	0.0
OPERATIONS	0.0	0.0	0.0	0.0	19.1	38.1	58.9	78.5	78.5	78.5	78.5	78.5	78.5
INDIRECT	1.5	3.4	22.4	68.1	139.0	165.7	157.1	119.1	67.4	39.0	34.2	34.2	34.2
TOTAL	1.5	3.4	22.4	74.8	203.4	272.7	264.7	222.8	145.9	117.5	112.7	112.7	112.7

SOURCE: HDR SCIENCES, 31-OCT-80

Table 2.1.2-6.

M-1 RELATED EARNINGS, IN MILLIONS OF FY 1980 DOLLARS, IN CLARK
 ALTERNATIVE 8A: SPLIT DEPLOYMENT (70/30) - NEVADA/UTAH
 BASE 1 AT COYOTE SPRINGS, NV (CLARK CO.)

SOURCE OF EARNINGS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
CLUSTER FACILITIES CONSTRUCTION, ASSEMBLY, AND CHECKOUT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BASE CONSTRUCTION, ASSEMBLY, AND CHECKOUT	37.0	68.4	98.1	102.6	95.8	53.8	52.5	50.0	1.3	0.0	0.0	0.0	0.0
OPERATIONS	0.0	0.0	17.4	33.7	51.1	68.4	86.3	102.1	102.1	102.1	102.1	102.1	102.1
INDIRECT	21.9	31.9	94.6	145.3	157.4	138.9	123.1	82.3	44.9	36.9	36.7	36.7	36.7
TOTAL	58.8	120.3	210.1	281.6	304.2	261.0	262.0	234.4	148.3	139.0	138.8	138.8	138.8

SOURCE: HDR SCIENCES, 31-OCT-80

as defined in Table 2.1.1-1. Differences between effects under the Proposed Action and Alternatives 1 and 3 are slight, given all 3 project Coyote Spring Valley as the location of a first operating base. However, indirect effects among the three do differ, with those for Alternative 1 slightly higher. This is principally the result of location of the second operating base. The Alternative 1 location, Beryl, is relatively closer to Clark County, inducing larger spillover effects than other base alternatives at Milford or Delta.

As the location of a first operating base, Table 2.1.2-2 indicates that Clark County M-X-related earnings would peak at \$360 million in 1986, roughly 11 percent of 1978 total county earnings (1980 dollars). Over the long run, annual earnings growth would equal about \$146 million, which is about 4 percent of 1978 total earnings. Other project alternatives which site a first operating base in the county would generate earnings comparable in magnitude, while those options which comprise a second operating base in the county would be significantly less, particularly in the short run. Other project alternatives with base locations located outside Clark County would induce relatively small spillover impacts, particularly over the long run, into the county.

Clark County has been characterized by very rapid growth in earnings, 6.2 percent in real dollars over the 1967-1977 period, but most growth has centered in the services industry. Adjustment to earnings growth of the magnitude projected under M-X where bases would be located in the county would be significantly less than the magnitude expected in other ROI counties, but stress would generate some wage and price inflation, particularly in the short run and in key occupations. Although the county has a per capita income of \$8,990 in 1978, the highest in either of the two states, relatively high construction wage rates would increase if further.

Lincoln County would experience some earnings growth from location an operating base in Clark County. Base construction employees and perhaps some operations personnel would likely reside in Lincoln County. In addition, some indirect employment would be created in the county. Earning impact calculations, however, have been made by place of work, hence all base-related employment would create earnings by place of work in Clark County. Indirect earnings estimates for Lincoln County are relatively small. Under the Proposed Action, and Alternatives 1, 2, 4, 6, and 8, indirect earnings peak at 6 million in 1986. This results from the close proximity of both bases, the first operating base at Beryl Junction, and the second at Coyote Spring Valley. This figure is still almost 30 percent of 1978 earnings in Lincoln County of \$21.3 million (1980 dollars). In addition, all full deployment options in Nevada/Utah would site cluster facilities in Lincoln County. Their effect would create a "boom-bust" cycle; peak DDA construction earnings are forecast to equal \$76 million, over 350 percent of 1978 total earnings, but earnings growth would last only six years. This peak figure would be more than halved under split deployment. In any of the options, Lincoln County's economy would be significantly impacted over the short run. Large, rapid escalation of wages to price levels would result.

EFFECTS ON PUBLIC FINANCE (2.1.3)

This section presents the aggregate expenditures, revenues, and net impacts estimated for all local governments in the Clark County area under the Proposed Action and each alternative. Peak year and long-term capital expenditure require

ments also are presented. The effects discussed reflect aggregate levels of impacts and cannot be interpreted as estimates associated with a specific jurisdiction. However, effects specific to the local school district constitute a major portion of the aggregate effects and are presented separately.

The net fiscal impacts in the Clark County area are greatest under the Proposed Action and Alternatives 1 and 2 where the Operating Base I is proposed for the Coyote Spring area. Peak year deficits (1985) amount to approximately \$3.8 million under each of the alternatives (Table 2.1.3-1). Under Alternatives 4 and 6 where a smaller second operating base is proposed for the area peak year (1986) deficits are slightly less (\$1.7 million). Under the split deployment alternative, peak year deficits also are anticipated, amounting to approximately \$3.3 million in 1985. Significant adverse effects in the form of lowered service levels would result under each of these alternatives if mitigative strategies and/or substantial outside aid are not available. Under the remaining alternatives no significant adverse effects in the peak years are anticipated. No significant adverse effects are anticipated in the long-term under any of the alternative scenerios proposed for the Clark County area.

Effects on the education system in the area follow similar patterns. Largest effects occur under the Proposed Action and Alternatives 1, 2, 4, 6, and 8 where operating bases are proposed for the area. However, while deficits in the peak years are anticipated as early as the 1985-1986 period, total M-X-induced operations related expenditure levels peak approximately two years later. Under the Proposed Action and Alternatives 1 and 2 peak year (1986) operations related deficits of approximately \$2.0 million are anticipated. Under Alternatives 4 and 6 these deficits are slightly higher, \$2.1 million by 1986. Under Alternative 8 the peak year deficits (1985) are approximately \$1.7 million. The deficits estimated in the early years of the project under each alternative indicate that service levels may seriously deteriorate if mitigative strategies and/or substantial outside aid are not made available. No significant adverse effects are anticipated in the long-term under each of the alternatives (Table 2.1.3-2).

Capital expenditure requirements for the Proposed Action, Alternative 1 through 6, and Alternative 8a are presented for the Clark County area in Table 2.1.3-3.

Total long-term capital expenditures under the Proposed Action amount to \$27.1 million. Alternatives 1, 2, and 8 have similiar requirements. Alternatives 4 and 6, the location of the smaller OB II, has total requirements of \$20.7 approximately 24 percent less than the Proposed Action. Under all of the base location alternatives, school expenditures account for 78 percent of total capital outlays in the long-term. Under Alternatives 3 and 5, no long-term capital expenditures are anticipated.

The level of capital expenditure requirements when compared to the reserved bonding capacity indicates the ability of the local jurisdictions in the area to finance the projects necessary to support long-term infrastructure growth. In the Clark County area, the amount of capital expenditures required are well within the reserved bonding capacity. The relatively high tax base in the Clark County area will allow financing of large scale infrastructure facilities.

Table 2.1.3-1. (Page 1 of 2)

LOCAL GOVERNMENT REVENUES, EXPENDITURES, AND NET IMPACTS (THOUSANDS FY 1980 \$) (1) BASELINE LOW														
CITY CLARK		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
PROPOSED ACTION														
REVENUES														
WITHOUT MX	592277	614212	638264	663560	683191	701876	721620	741322	761091	780486	800308	819316	837842	
WITH MX	592277	614212	638264	663560	683191	701876	721620	741322	761091	780486	800308	819316	837842	
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	
PCT DIFF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
EXPENDITURES														
WITHOUT MX	594850	616880	641036	666442	686159	704944	724754	744391	764397	783876	803784	822875	841481	
WITH MX	594850	616880	641036	666442	686159	704944	724754	744391	764397	783876	803784	822875	841481	
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	
PCT DIFF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
MX INDUCED	0	0	0	0	0	0	0	0	0	0	0	0	0	
NET IMPACT	0	0	0	0	0	0	0	0	0	0	0	0	0	
ALTERNATIVE 1														
REVENUES														
WITHOUT MX	592277	614212	638264	663560	683191	701876	721620	741322	761091	780486	800308	819316	837842	
WITH MX	592277	614212	638264	663560	683191	701876	721620	741322	761091	780486	800308	819316	837842	
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	
PCT DIFF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
EXPENDITURES														
WITHOUT MX	594850	616880	641036	666442	686159	704944	724754	744391	764397	783876	803784	822875	841481	
WITH MX	594850	616880	641036	666442	686159	704944	724754	744391	764397	783876	803784	822875	841481	
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	
PCT DIFF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
MX INDUCED	0	0	0	0	0	0	0	0	0	0	0	0	0	
NET IMPACT	0	0	0	0	0	0	0	0	0	0	0	0	0	
ALTERNATIVE 2														
REVENUES														
WITHOUT MX	592277	614212	638264	663560	683191	701876	721620	741322	761091	780486	800308	819316	837842	
WITH MX	592277	614212	638264	663560	683191	701876	721620	741322	761091	780486	800308	819316	837842	
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	
PCT DIFF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
EXPENDITURES														
WITHOUT MX	594850	616880	641036	666442	686159	704944	724754	744391	764397	783876	803784	822875	841481	
WITH MX	594850	616880	641036	666442	686159	704944	724754	744391	764397	783876	803784	822875	841481	
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	
PCT DIFF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
MX INDUCED	0	0	0	0	0	0	0	0	0	0	0	0	0	
NET IMPACT	0	0	0	0	0	0	0	0	0	0	0	0	0	
ALTERNATIVE 3														
REVENUES														
WITHOUT MX	592277	614212	638264	663560	683191	701876	721620	741322	761091	780486	800308	819316	837842	
WITH MX	592277	614212	638264	663560	683191	701876	721620	741322	761091	780486	800308	819316	837842	
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	
PCT DIFF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
EXPENDITURES														
WITHOUT MX	594850	616880	641036	666442	686159	704944	724754	744391	764397	783876	803784	822875	841481	
WITH MX	594850	616880	641036	666442	686159	704944	724754	744391	764397	783876	803784	822875	841481	
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	
PCT DIFF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
MX INDUCED	0	0	0	0	0	0	0	0	0	0	0	0	0	
NET IMPACT	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table 2.1.3-1. (Page 2 of 2)

ALTERNATIVE 4														
REVENUES														
WITHOUT MX	614212	638264	663560	683191	701876	721620	741132	761091	780486	800308	817316	837842	857842	877842
WITH MX	614212	638264	663560	683191	701876	721620	741132	761091	780486	800308	817316	837842	857842	877842
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PCT. DIFF.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPENDITURES														
WITHOUT MX	594850	616880	641036	666442	691597	704944	724754	744351	764397	783876	803784	823075	841481	859181
WITH MX	594850	616880	641036	666442	691597	704944	724754	744351	764397	783876	803784	823075	841481	859181
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PCT. DIFF.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MX INDUCED	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET IMPACT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ALTERNATIVE 5														
REVENUES														
WITHOUT MX	614212	638264	663560	683191	701876	721620	741132	761091	780486	800308	817316	837842	857842	877842
WITH MX	614212	638264	663560	683191	701876	721620	741132	761091	780486	800308	817316	837842	857842	877842
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PCT. DIFF.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPENDITURES														
WITHOUT MX	594850	616880	641036	666442	691597	704944	724754	744351	764397	783876	803784	823075	841481	859181
WITH MX	594850	616880	641036	666442	691597	704944	724754	744351	764397	783876	803784	823075	841481	859181
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PCT. DIFF.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MX INDUCED	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET IMPACT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ALTERNATIVE 6														
REVENUES														
WITHOUT MX	614212	638264	663560	683191	701876	721620	741132	761091	780486	800308	817316	837842	857842	877842
WITH MX	614212	638264	663560	683191	701876	721620	741132	761091	780486	800308	817316	837842	857842	877842
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PCT. DIFF.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPENDITURES														
WITHOUT MX	594850	616880	641036	666442	691597	704944	724754	744351	764397	783876	803784	823075	841481	859181
WITH MX	594850	616880	641036	666442	691597	704944	724754	744351	764397	783876	803784	823075	841481	859181
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PCT. DIFF.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MX INDUCED	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET IMPACT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ALTERNATIVE 8A														
REVENUES														
WITHOUT MX	614212	638264	663560	683191	701876	721620	741132	761091	780486	800308	817316	837842	857842	877842
WITH MX	614212	638264	663560	683191	701876	721620	741132	761091	780486	800308	817316	837842	857842	877842
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PCT. DIFF.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPENDITURES														
WITHOUT MX	594850	616880	641036	666442	691597	704944	724754	744351	764397	783876	803784	823075	841481	859181
WITH MX	594850	616880	641036	666442	691597	704944	724754	744351	764397	783876	803784	823075	841481	859181
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PCT. DIFF.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MX INDUCED	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET IMPACT	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SOURCE: UPR SCIENCE.
 (1) ESTIMATES REFLECT AGGREGATE REVENUES AND EXPENDITURES FOR ALL LOCAL GOVERNMENTAL UNITS (COUNTIES, CITIES, TOWNS, VILLAGES, SPECIAL DISTRICTS) WITHIN THE COUNTY.

Table 2.1.3-2. (Page 1 of 2)

SCHOOL DISTRICT REVENUES, EXPENDITURES, AND NET IMPACTS (THOUSANDS FY 1980 \$) (1) BASELINE LOW
CINITY CLARK

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
PROPOSED ACTION													
REVENUES													
WITHOUT MK	274820	284978	296130	307876	317003	325684	334836	343890	353151	362150	371348	380148	388744
WITH MK	274820	284978	296130	307876	317003	325684	334836	343890	353151	362150	371348	380148	388744
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0
PCT DIFF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXPENDITURES													
WITHOUT MK	282475	292937	304408	316472	325835	334756	344163	353468	362988	372238	381691	390757	399592
WITH MK	282475	292937	304408	316472	325835	334756	344163	353468	362988	372238	381691	390757	399592
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0
PCT DIFF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NET IMPACT	0	0	-578	-1932	-1150	-1543	-1613	-2500	-229	-279	-299	-299	-299
ALTERNATIVE 1													
REVENUES													
WITHOUT MK	274820	284978	296130	307876	317003	325684	334836	343890	353151	362150	371348	380148	388744
WITH MK	274820	284978	296130	307876	317003	325684	334836	343890	353151	362150	371348	380148	388744
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0
PCT DIFF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXPENDITURES													
WITHOUT MK	282475	292937	304408	316472	325835	334756	344163	353468	362988	372238	381691	390757	399592
WITH MK	282475	292937	304408	316472	325835	334756	344163	353468	362988	372238	381691	390757	399592
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0
PCT DIFF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NET IMPACT	0	0	-578	-1932	-1150	-1543	-1609	-2513	-229	-279	-299	-299	-299
ALTERNATIVE 2													
REVENUES													
WITHOUT MK	274820	284978	296130	307876	317003	325684	334836	343890	353151	362150	371348	380148	388744
WITH MK	274820	284978	296130	307876	317003	325684	334836	343890	353151	362150	371348	380148	388744
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0
PCT DIFF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXPENDITURES													
WITHOUT MK	282475	292937	304408	316472	325835	334756	344163	353468	362988	372238	381691	390757	399592
WITH MK	282475	292937	304408	316472	325835	334756	344163	353468	362988	372238	381691	390757	399592
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0
PCT DIFF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NET IMPACT	0	0	-578	-1932	-1150	-1543	-1609	-2513	-229	-279	-299	-299	-299
ALTERNATIVE 3													
REVENUES													
WITHOUT MK	274820	284978	296130	307876	317003	325684	334836	343890	353151	362150	371348	380148	388744
WITH MK	274820	284978	296130	307876	317003	325684	334836	343890	353151	362150	371348	380148	388744
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0
PCT DIFF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXPENDITURES													
WITHOUT MK	282475	292937	304408	316472	325835	334756	344163	353468	362988	372238	381691	390757	399592
WITH MK	282475	292937	304408	316472	325835	334756	344163	353468	362988	372238	381691	390757	399592
DIFFERENCE	0	0	0	0	0	0	0	0	0	0	0	0	0
PCT DIFF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NET IMPACT	0	0	-578	-1932	-1150	-1543	-1609	-2513	-229	-279	-299	-299	-299

Table 2.1.3-2. (Page 2 of 2)

ALTERNATIVE 4													
REVENUES													
274820	284978	296138	317005	334684	334684	334684	334684	334684	334684	334684	334684	334684	334684
274820	284978	296138	317005	334684	334684	334684	334684	334684	334684	334684	334684	334684	334684
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXPENDITURES													
282475	292937	304408	316472	325835	334756	344163	353468	362788	372038	381691	390757	399592	407842
282475	292937	304408	316472	325835	334756	344163	353468	362788	372038	381691	390757	399592	407842
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NET IMPACT													
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ALTERNATIVE 5													
REVENUES													
274820	284978	296138	317005	334684	334684	334684	334684	334684	334684	334684	334684	334684	334684
274820	284978	296138	317005	334684	334684	334684	334684	334684	334684	334684	334684	334684	334684
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXPENDITURES													
282475	292937	304408	316472	325835	334756	344163	353468	362788	372038	381691	390757	399592	407842
282475	292937	304408	316472	325835	334756	344163	353468	362788	372038	381691	390757	399592	407842
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NET IMPACT													
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ALTERNATIVE 6													
REVENUES													
274820	284978	296138	317005	334684	334684	334684	334684	334684	334684	334684	334684	334684	334684
274820	284978	296138	317005	334684	334684	334684	334684	334684	334684	334684	334684	334684	334684
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXPENDITURES													
282475	292937	304408	316472	325835	334756	344163	353468	362788	372038	381691	390757	399592	407842
282475	292937	304408	316472	325835	334756	344163	353468	362788	372038	381691	390757	399592	407842
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NET IMPACT													
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ALTERNATIVE 7A													
REVENUES													
274820	284978	296138	317005	334684	334684	334684	334684	334684	334684	334684	334684	334684	334684
274820	284978	296138	317005	334684	334684	334684	334684	334684	334684	334684	334684	334684	334684
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXPENDITURES													
282475	292937	304408	316472	325835	334756	344163	353468	362788	372038	381691	390757	399592	407842
282475	292937	304408	316472	325835	334756	344163	353468	362788	372038	381691	390757	399592	407842
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NET IMPACT													
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

SOURCE: MDP SCIENCES
 (1) ESTIMATES REFLECT AGGREGATE REVENUES AND EXPENDITURES BY ALL COUNCIL DISTRICTS WITHIN THE COUNTY

4. NEW DN

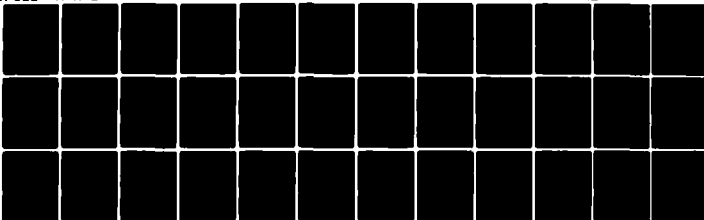
AD-A095 778

HENNINGSON DURHAM AND RICHARDSON SANTA BARBARA CA F/O 16/1
M-X ENVIRONMENTAL TECHNICAL REPORT, ALTERNATIVE POTENTIAL OPERA--ETC(I)
DEC 80 F04704-78-C-0029
M-X-ETR-5 NL

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Table 2.1.3-3.

NEW MEXICO CAPITAL REQUIREMENT REQUIREMENTS (THOUSANDS BY 1990 BY BASELINE) (1)			
CREDIT CLASS		ANNUAL INVESTMENT REQUIRED (1)	
SERVICE		LONG TERM (1994)	PEAR YEAR
PROPOSED ACTION			
GENERAL OBLIGATION BOND ITEMS (2)		3358.0	3358.0
REVENUE BOND ITEMS (3)		2480.6	2480.6
SCHEDULE		21282.7	10541.3
TOTAL		21212.2	16379.9
ALTERNATIVE 1			
GENERAL OBLIGATION BOND ITEMS (2)		3358.0	3358.0
REVENUE BOND ITEMS (3)		2480.6	2480.6
SCHEDULE		21282.7	10541.3
TOTAL		21212.2	16379.9
ALTERNATIVE 2			
GENERAL OBLIGATION BOND ITEMS (2)		3358.0	3358.0
REVENUE BOND ITEMS (3)		2480.6	2480.6
SCHEDULE		21282.7	10541.3
TOTAL		21212.2	16379.9
ALTERNATIVE 3			
GENERAL OBLIGATION BOND ITEMS (2)		0.0	0.0
REVENUE BOND ITEMS (3)		0.0	0.0
SCHEDULE		0.0	0.0
TOTAL		0.0	0.0
ALTERNATIVE 4			
GENERAL OBLIGATION BOND ITEMS (2)		3585.0	3585.0
REVENUE BOND ITEMS (3)		1894.8	1894.8
SCHEDULE		16255.1	16255.1
TOTAL		20734.9	20734.9
ALTERNATIVE 5			
GENERAL OBLIGATION BOND ITEMS (2)		0.0	0.0
REVENUE BOND ITEMS (3)		0.0	0.0
SCHEDULE		0.0	0.0
TOTAL		0.0	0.0
ALTERNATIVE 6			
GENERAL OBLIGATION BOND ITEMS (2)		2565.0	2565.0
REVENUE BOND ITEMS (3)		1894.8	1894.8
SCHEDULE		16255.1	16255.1
TOTAL		20714.9	20714.9
ALTERNATIVE 7			
GENERAL OBLIGATION BOND ITEMS (2)		1111.7	1111.7
REVENUE BOND ITEMS (3)		2480.6	2480.6
SCHEDULE		21115.1	21115.1
TOTAL		24607.4	24607.4

(1) CREDIT CLASS INVESTMENT REQUIRED.
 (2) GENERAL OBLIGATION BOND ITEMS, INCLUDING POLICE, FIRE, CORRECTIONS, HEALTH SERVICES, ETC.
 (3) REVENUE BOND INVESTMENT.
 (4) SCHEDULE INVESTMENT.
 (5) TOTAL INVESTMENT REQUIRED AND CREDIT CLASS INVESTMENT.

However, property tax limitations (SB 204) effectively limit the taxing authority of the respective jurisdictions. With Clark County currently taxing close to the statutory limit of \$3.64 per \$100, substantial outside aid would be necessary to maintain current service levels. While peak year expenditures are higher under each alternative, temporary facilities and mitigative measures can reduce these additional costs substantially. Under the remaining alternatives, local financing will be possible, as the peak year capital expenditures amount to only \$1.6 and \$1.5 million for Alternatives 3 and 5 respectively.

EFFECTS ON POPULATION (2.1.4)

The population effects of an operating base near Coyote Spring Valley, Nevada, which would be the greatest for the Proposed Action and Alternatives 1, 2, and 8 where the first operating base is proposed, are projected to occur principally within Clark County, although some spillover effects would occur in nearby Lincoln County. The M-X-related in-migrant population generated by the Proposed Action is projected to reach a maximum during the construction "boom" of about 27,800 persons in 1986. Since Clark County includes the large population in the Las Vegas metropolitan area, the M-X-related population would increase the county's population by only five percent over the baseline that year, as shown in Table 2.1.4-1. In the long term, out-migration of construction-related population would reduce the total to a permanent level of about 16,000 persons by 1994, 2.3 percent above the projected baseline population. The effects induced by Alternative 4, where the second operations base is proposed, would be about one-third less than for the Proposed Action and Alternatives 1 and 2.

The construction-related population projected in the county would total only about 2,850 persons, or 10 percent of all in-migrants in 1986, since a large supply of construction labor would already be available within the Las Vegas metropolitan area. Military and indirect populations would comprise the major shares of the in-migrants in the peak year with 29 percent and 61 percent respectively, as is evident in Table 2.1.4-2. All of the construction-related population are projected to be assembly and checkout personnel, who are assumed to be present without families. The military population, a large share of which would be single persons, would have a younger age structure and lower average income (at least for enlisted personnel) than the general population. The indirect population generated by project-related expansion of local economic activity would likely approximate the characteristics of the population of the western United States. The assembly and checkout and indirect populations would be temporarily present in Clark County during the construction phase, and all permanent in-migrants are projected to be military personnel and their dependents. About 41 percent of the in-migrants present in the peak year (11,500 persons) are projected to be civilian labor force participants and another 21 percent (5,800) would be school-age population. In the long term about nine percent of the 16,000 permanent in-migrants would be civilian labor force participants and another 30 percent are projected to be school-age population.

The projected M-X-related in-migrant population at the county level has been disaggregated to two spatial categories of residence, the operating base and communities, with the transient construction and assembly and checkout populations housed in temporary facilities on the base. In 1986, the peak year, about one-third of the in-migrant population (9,300 persons) would be housed on the base, with the remaining two-thirds (18,500) projected to require accommodation in local

Table 2.1.4-1.

PROPOSED BASELINE POPULATION AND CUMULATIVE M-Z RELATED EMIGRATION BY ALTERNATIVE, IN CLARK
ASSUMING TOWN BASELINE

ALTERNATIVE / POPULATION	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASELINE POPULATION	485433	501611	523129	543857	559887	575277	591643	607815	623794	639599	655316	671515	686699
PROPOSED ACTION													
M-Z EMIGRATION	0	350	5661	17630	27826	26702	24840	18617	16017	15967	15967	15967	15967
TOTAL POPULATION	485433	501761	523795	545687	562713	577979	601483	626302	649811	655667	671583	687582	702666
PERCENT DIFFERENCE FROM BASELINE	0.0	0.1	1.1	3.2	5.0	4.6	4.2	3.1	2.6	2.5	2.6	2.6	2.3
ALTERNATIVE 1													
M-Z EMIGRATION	0	350	5661	17630	27826	26730	24903	18617	16017	15967	15967	15967	15967
TOTAL POPULATION	485433	501761	523795	545687	562713	577979	601483	626302	649811	655667	671583	687582	702666
PERCENT DIFFERENCE FROM BASELINE	0.0	0.1	1.1	3.2	5.0	4.6	4.2	3.1	2.6	2.5	2.6	2.6	2.3
ALTERNATIVE 2													
M-Z EMIGRATION	0	350	5661	17505	27376	25850	21879	18617	16017	15967	15967	15967	15967
TOTAL POPULATION	485433	501761	523795	544592	562087	577227	601127	625952	649811	655667	671583	687582	702666
PERCENT DIFFERENCE FROM BASELINE	0.0	0.1	1.1	3.2	4.9	4.5	3.6	3.1	2.6	2.5	2.6	2.6	2.3
ALTERNATIVE 4													
M-Z EMIGRATION	0	0	0	0	11475	17966	18543	14614	12195	12195	12195	12195	12195
TOTAL POPULATION	485433	501611	523129	543857	571422	591741	610366	627080	643789	651085	668131	685710	698804
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	2.0	3.1	3.2	2.4	2.0	1.9	1.9	1.9	1.2
ALTERNATIVE 6													
M-Z EMIGRATION	0	0	0	0	11436	17912	18577	14535	12195	12195	12195	12195	12195
TOTAL POPULATION	485433	501611	523129	543857	571391	591725	610320	627070	643789	651085	668131	685710	698804
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	2.0	3.1	3.1	2.4	2.0	1.9	1.9	1.9	1.8
ALTERNATIVE 5A													
M-Z EMIGRATION	0	250	5464	16070	26444	19173	18411	17041	15891	15841	15841	15841	15841
TOTAL POPULATION	485433	501661	523688	545937	564581	579754	603565	628276	653065	658806	674547	690288	705929
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	1.0	1.0	1.7	1.4	1.1	2.0	2.5	2.5	2.6	2.6	2.1

SOURCE: TOWN RECORDS, 1980-1990

Table 2.1.4-2.

PROJECTED CUMULATIVE POPULATION IN MIGRATION BY PROJECT-RELATED EMPLOYMENT CATEGORY, * BY ALTERNATIVE, IN CLARK
ASSUMING TREND BASELINE

ALTERNATIVE /CATEGORIES	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
PROPOSED ACTION													
BASE CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
CLUSTER CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
ASSEMBLY & CHECKOUT	0	350	900	1800	2850	2850	2800	2650	50	0	0	0	0
MILITARY OPERATIONS	0	0	2640	5343	8046	10687	13327	15967	15967	15967	15967	15967	15967
CIVILIAN OPERATIONS	0	0	0	0	0	0	0	0	0	0	0	0	0
INDIRECT	0	0	2120	10496	16929	13170	8713	0	0	0	0	0	0
TOTAL	0	350	5661	17639	27826	26707	24840	18617	16017	15967	15967	15967	15967
ALTERNATIVE 1													
BASE CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
CLUSTER CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
ASSEMBLY & CHECKOUT	0	350	900	1800	2850	2850	2800	2650	50	0	0	0	0
MILITARY OPERATIONS	0	0	2640	5343	8046	10687	13327	15967	15967	15967	15967	15967	15967
CIVILIAN OPERATIONS	0	0	0	0	0	0	0	0	0	0	0	0	0
INDIRECT	0	0	2120	10496	16941	13197	8756	0	0	0	0	0	0
TOTAL	0	350	5661	17639	27838	26734	24883	18617	16017	15967	15967	15967	15967
ALTERNATIVE 2													
BASE CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
CLUSTER CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
ASSEMBLY & CHECKOUT	0	350	900	1800	2850	2850	2800	2650	50	0	0	0	0
MILITARY OPERATIONS	0	0	2640	5343	8046	10687	13327	15967	15967	15967	15967	15967	15967
CIVILIAN OPERATIONS	0	0	0	0	0	0	0	0	0	0	0	0	0
INDIRECT	0	0	2120	10432	16479	12313	7752	0	0	0	0	0	0
TOTAL	0	350	5661	17593	27376	25850	23879	18617	16017	15967	15967	15967	15967
ALTERNATIVE 4													
BASE CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
CLUSTER CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
ASSEMBLY & CHECKOUT	0	0	0	0	0	0	0	0	0	0	0	0	0
MILITARY OPERATIONS	0	0	0	0	3017	6035	9052	12195	12195	12195	12195	12195	12195
CIVILIAN OPERATIONS	0	0	0	0	0	0	0	0	0	0	0	0	0
INDIRECT	0	0	0	0	8437	11929	9591	2419	0	0	0	0	0
TOTAL	0	0	0	0	11475	17964	10643	14614	12195	12195	12195	12195	12195
ALTERNATIVE 6													
BASE CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
CLUSTER CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
ASSEMBLY & CHECKOUT	0	0	0	0	0	0	0	0	0	0	0	0	0
MILITARY OPERATIONS	0	0	0	0	3017	6035	9052	12195	12195	12195	12195	12195	12195
CIVILIAN OPERATIONS	0	0	0	0	0	0	0	0	0	0	0	0	0
INDIRECT	0	0	0	0	8419	11877	9525	2340	0	0	0	0	0
TOTAL	0	0	0	0	11436	17912	10577	14535	12195	12195	12195	12195	12195
ALTERNATIVE 8A													
BASE CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
CLUSTER CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
ASSEMBLY & CHECKOUT	0	250	700	1350	2150	2150	2100	2000	50	0	0	0	0
MILITARY OPERATIONS	0	0	2640	5200	7921	10341	13327	15841	15841	15841	15841	15841	15841
CIVILIAN OPERATIONS	0	0	0	0	0	0	0	0	0	0	0	0	0
INDIRECT	0	0	2124	9439	10543	6662	3187	0	0	0	0	0	0
TOTAL	0	250	3464	16070	20614	17373	18613	17841	15891	15841	15841	15841	15841

*EMPLOYMENT CATEGORY IS FOR PRIMARY WORKER IN HOUSEHOLD SOURCE: HDR SCIENCES, 1-NOV-80

communities. In the long term about 3,200 persons, approximately one-fifth of the project-related in-migrant population, are projected to reside in Clark County's communities (Table 2.1.4-3). In addition, there could be some internal shift of population already present in the county to areas near the base. The population growth generated within Clark County by the proposed base in Coyote Spring Valley is most likely to be accommodated in the northern and eastern fringe of the Las Vegas area in the short term and in the Moapa Valley communities along the Interstate 15 corridor.

Population effects from a base in the Coyote Spring Valley would also be experienced in nearby Lincoln County, most likely in the vicinity of the Alamo community. A project-related population of over 300 persons is projected to be present in Lincoln County in the long term.

EFFECTS ON LAND USE (2.1.5)

Community Land Use

The community land area requirements in Clark County, Nevada are heavily dependent upon which of the alternatives is selected. The choice between the alternatives is more between levels of intensity in the requirements than duration of the requirements since six of the eight options result in permanent impacts. Table 2.1.5-1 provides information on the community land area requirements by land use for the Proposed Action and relevant alternatives.

Proposed Action and Alternatives 1 and 2

The Proposed Action and Alternative 1 have comparable land area requirements in the peak year, 2,816 acres, while Alternative 2 is slightly lower in the peak year with 2,744 acres. Community land requirements begin in 1982 with 30 acres and increase rapidly to the peak requirements noted above in 1986. The construction period requirements have a duration of four years. Beginning in 1989 a leveling off is reached and the requirements stabilized around 530 acres. Housing throughout the analysis period uses half of the community land area. In the construction period three quarters of the housing land is devoted to mobile homes but in the operations period mobile homes use only one sixth of the land.

Impact on Availability of Land

The community land requirements of the project, effects on vacant land, and percentage growth for the developed acreage is shown in Table 2.1.5-2. On a countywide basis the peak period requirements can be easily handled by the vacant land currently available in the four incorporated cities. The amount of land available after the accommodation of the peak period requirements is approximately 93,000 acres. This figure does not include the additional 216,000 acres of vacant land available in the unincorporated portions of the Las Vegas Valley. Hence the peak period land requirements would not be significant on a countywide basis.

In the Las Vegas Valley the cities of Las Vegas and North Las Vegas would receive the largest amount of the peak period growth since they are closest to the OB site at Coyote Spring. The combined vacant acreage in the above two cities in 1977 was almost 40,000 acres. Hence, these cities could sustain the entire land

Table 2.1.4-3.

PROJECTED CUMULATIVE POPULATION IN MIGRATION BY PLACE OF RESIDENCE, BY ALTERNATIVE, IN CLAIM
ASSUMING TREND BASELINE

ALTERNATIVE / PLACE OF RESIDENCE	1983	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
PROPOSED ACTION													
CONSTRUCTION CAMPS	0	0	0	0	0	0	0	0	0	0	0	0	0
OPERATIONS BASE	0	350	3012	6075	9287	11399	13461	13424	12824	12774	12774	12774	12774
LOCAL COMMUNITIES	0	0	2548	11544	18338	15308	11378	3193	3193	3193	3193	3193	3193
TOTAL	0	350	5561	17639	27626	26707	24840	18617	16017	15967	15967	15967	15967
ALTERNATIVE 1													
CONSTRUCTION CAMPS	0	0	0	0	0	0	0	0	0	0	0	0	0
OPERATIONS BASE	0	350	3012	6075	9287	11399	13461	13424	12824	12774	12774	12774	12774
LOCAL COMMUNITIES	0	0	2548	11544	18338	15308	11378	3193	3193	3193	3193	3193	3193
TOTAL	0	350	5561	17639	27626	26707	24840	18617	16017	15967	15967	15967	15967
ALTERNATIVE 2													
CONSTRUCTION CAMPS	0	0	0	0	0	0	0	0	0	0	0	0	0
OPERATIONS BASE	0	350	3012	6075	9287	11399	13461	13424	12824	12774	12774	12774	12774
LOCAL COMMUNITIES	0	0	2548	11544	18338	15308	11378	3193	3193	3193	3193	3193	3193
TOTAL	0	350	5561	17639	27626	26707	24840	18617	16017	15967	15967	15967	15967
ALTERNATIVE 4													
CONSTRUCTION CAMPS	0	0	0	0	0	0	0	0	0	0	0	0	0
OPERATIONS BASE	0	350	3012	6075	9287	11399	13461	13424	12824	12774	12774	12774	12774
LOCAL COMMUNITIES	0	0	2548	11544	18338	15308	11378	3193	3193	3193	3193	3193	3193
TOTAL	0	350	5561	17639	27626	26707	24840	18617	16017	15967	15967	15967	15967
ALTERNATIVE 6													
CONSTRUCTION CAMPS	0	0	0	0	0	0	0	0	0	0	0	0	0
OPERATIONS BASE	0	0	0	0	2414	4828	7242	9756	9756	9756	9756	9756	9756
LOCAL COMMUNITIES	0	0	0	0	9023	13004	11336	4779	2439	2439	2439	2439	2439
TOTAL	0	0	0	0	11436	17912	18577	14533	12195	12195	12195	12195	12195
ALTERNATIVE 8A													
CONSTRUCTION CAMPS	0	0	0	0	0	0	0	0	0	0	0	0	0
OPERATIONS BASE	0	250	2012	5574	8407	10599	12761	14673	12723	12673	12673	12673	12673
LOCAL COMMUNITIES	0	0	2652	10496	12127	8774	3832	3168	3168	3168	3168	3168	3168
TOTAL	0	250	5464	16070	20614	21373	16613	17841	15891	15841	15841	15841	15841

SOURCE: FOR SCIENCES, 1-NOV-80

Table 2.1.5-1.

CUMULATIVE MAX RELATED LAND REQUIREMENTS (ACRES) BY USE CATEGORY, BY ALTERNATIVE IN CLARK
ASSURING TREND BAGLINE

ALTERNATIVE / LAND USE CATEGORY	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
PROPOSED ACTION													
PERMANENT HOMES	0	0	45	197	315	360	293	134	172	206	223	223	223
MOBILE HOMES	0	0	152	677	1087	829	583	102	71	51	41	41	41
SUBTOTAL	0	0	152	874	1402	1189	876	236	243	257	264	264	264
RETAIL/COMM /INNS	30	63	107	158	195	168	155	118	64	57	57	57	57
STR AND HAYS	0	0	132	586	941	701	572	145	147	150	150	150	150
PUBLIC/INSTITUTIONAL	0	0	40	171	274	230	175	59	59	59	59	59	59
TOTAL	30	63	476	1789	2812	2368	1779	557	514	523	530	530	530
ALTERNATIVE 1													
PERMANENT HOMES	0	0	45	197	315	360	293	134	172	206	223	223	223
MOBILE HOMES	0	0	152	677	1088	831	586	102	71	51	41	41	41
SUBTOTAL	0	0	197	874	1403	1191	881	236	243	257	264	264	264
RETAIL/COMM /INNS	30	63	107	158	196	170	157	119	64	57	57	57	57
STR AND HAYS	0	0	132	586	942	783	573	145	147	150	150	150	150
PUBLIC/INSTITUTIONAL	0	0	40	171	275	230	176	59	59	59	59	59	59
TOTAL	30	63	476	1789	2816	2374	1786	558	514	523	530	530	530
ALTERNATIVE 2													
PERMANENT HOMES	0	0	45	196	307	341	272	134	172	206	223	223	223
MOBILE HOMES	0	0	152	675	1060	781	529	102	71	51	41	41	41
SUBTOTAL	0	0	197	871	1367	1122	801	236	243	257	264	264	264
RETAIL/COMM /INNS	30	63	107	158	192	163	151	114	61	54	54	54	54
STR AND HAYS	0	0	132	585	917	735	523	145	147	150	150	150	150
PUBLIC/INSTITUTIONAL	0	0	40	171	260	218	162	59	59	59	59	59	59
TOTAL	30	63	476	1785	2744	2238	1637	553	511	520	527	527	527
ALTERNATIVE 3													
PERMANENT HOMES	0	0	0	0	151	305	282	191	172	150	171	171	171
MOBILE HOMES	0	0	0	0	534	721	603	186	54	39	31	31	31
SUBTOTAL	0	0	0	0	685	1026	885	377	186	197	202	202	202
RETAIL/COMM /INNS	4	7	23	64	131	162	131	114	64	47	43	43	43
STR AND HAYS	0	0	0	0	460	675	500	239	112	116	116	116	116
PUBLIC/INSTITUTIONAL	0	0	0	0	131	195	177	79	44	44	44	44	44
TOTAL	4	7	23	64	1417	2037	1780	810	406	404	407	407	407
ALTERNATIVE 4													
PERMANENT HOMES	0	0	0	0	151	303	280	189	132	158	171	171	171
MOBILE HOMES	0	0	0	0	533	718	599	183	54	39	31	31	31
SUBTOTAL	0	0	0	0	684	1021	879	372	186	197	202	202	202
RETAIL/COMM /INNS	1	2	23	64	137	162	151	113	64	46	44	44	44
STR AND HAYS	0	0	0	0	450	671	571	233	112	116	116	116	116
PUBLIC/INSTITUTIONAL	0	0	0	0	131	194	170	78	44	44	44	44	44
TOTAL	1	2	23	64	1412	2048	1778	793	406	403	406	406	406
ALTERNATIVE 5A													
PERMANENT HOMES	0	0	45	179	310	313	170	133	171	205	222	222	222
MOBILE HOMES	0	0	153	613	703	462	273	101	71	50	40	40	40
SUBTOTAL	0	0	198	792	1013	775	443	234	242	255	262	262	262
RETAIL/COMM /INNS	30	60	109	149	151	126	126	96	58	54	52	52	52
STR AND HAYS	0	0	132	532	612	441	286	144	146	147	150	150	150
PUBLIC/INSTITUTIONAL	0	0	40	156	189	135	75	50	58	50	50	50	50
TOTAL	30	60	478	1630	1858	1379	947	532	504	516	522	522	522

SOURCE: HDR SCIENCES, 1-NOV-80

Table 2.1.5-2. M-X urban land requirements and impacts - Clark County.

ALTERNATIVE* (TYPE OF FACILITY)	CURRENT URBAN LAND**			PEAK YEAR				LONG TERM			
				LAND REQUIREMENT		PROJECTED VACANT LAND		LAND REQUIREMENT		PROJECTED VACANT LAND	
	VACANT (ACRES)	DEVELOPED (ACRES)	TOTAL (ACRES)	ACRES	% OF DEVELOPED LAND	ACRES	% OF TOTAL URBAN LAND	ACRES	% OF DEVELOPED LAND	ACRES	% OF TOTAL URBAN LAND
Proposed Action 1 (OB I)	96,000	44,335	140,335	2,816	6.4%	93,184	66.4%	530	1.2%	95,470	68.0%
4 (OB II)	96,000	44,335	140,335	2,058	4.6%	93,42	66.9%	407	0.9%	95,593	68.1%
3 (Construc- tion Camp)	96,000	44,335	140,335	165	0.4%	95,835	68.3%	5	0.0%	95,995	68.4%

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*Only representative alternatives are listed.

**Vacant category only includes land in four incorporated communities, developed category includes land within existing incorporated and unincorporated communities.

Source Clark County, 1977

requirement of 2,800 acres without adverse effects on their baseline growth. Communities in the Moapa and Virgin Valleys will also be subject to community land requirements from the OB but the impact upon the availability of land is undetermined at the present time.

The development of urban land will also extend into the Pahrnagat Valley (Alamo, Ash Spring, and Hiko) in Lincoln County. Peak year requirements in Lincoln County will be approximately 430 acres. In 1975 vacant land in Alamo totalled approximately 100 acres, however, since that time the town has grown due to the opening of a nearby tungsten mine. In order to accommodate the peak community land requirements, extension of the 1975 town boundaries would be necessary. Expansion into the hillside lands would avoid the agricultural land to the north and south plus potential development problems associated with high water table in the valley areas. An amendment to the Lincoln County Master Plan might be necessary for such an expansion.

The land term requirements of the Proposed Action and Alternative 1 and 2 in Clark County are approximately one-fifth of the peak period requirements. Due to the low impact levels of the peak period requirements in Clark County, the lower long-term effects are insignificant. This conclusion also holds true for the cities of Las Vegas and North Las Vegas. Long-term impacts on the Moapa and Virgin Valley communities remain undetermined but will be at levels substantially lower than the peak period impacts. The requirements in Alamo will be approximately 30 acres which should be sustainable without negative impacts.

Other Impacts

The boomtown aspects of the construction period will be spread out over the large metropolitan area of Las Vegas. Any existing excess capacities of housing, retail business, and streets and highways should serve to blunt much of the impact of rapidly increasing demand for housing, retail trade, and road capacities during the initial construction period. The capabilities of the governmental planning institutions to handle a surge of growth is also present at the municipal and regional levels. Hence, effects such as scattered developments in the countryside and conflicting land uses should be minimal. Property values will show a rise above baseline levels during the construction period but such effects will be relatively diluted over the large metropolitan area. Air quality problems in the Las Vegas Valley will be aggravated by the increased growth from the project.

In contrast to the Las Vegas Valley, growth in Lincoln County will be very apparent due to the rural nature of the area. The character of the towns of Alamo, Ash Springs, and Hiko may change dramatically with the addition of new homes and businesses. This is exemplified by the large proportion (95 percent) of housing that will be mobile homes during the construction years in Lincoln County. The ability to direct these new urban land uses into the existing town will rest at the county level. Abandonment of temporary structures following the end of the construction period may also be problematic.

Alternatives 4, 6, and 8

Alternative 4 and 6, which are identical, plus 8 have lower peak-year land requirements by 27 percent and 34 percent respectively. In the long-term only

Alternative 4 and 6 with an OB II differ to any large degree from the OB I's discussed above. The effect of these lower community land requirements means a decline in the impacts projected for Clark and Lincoln counties. Since the impacts discussed above are for the most part not significant they will not be repeated here.

Alternatives 3 and 5

Alternative 3 and 5 have peak year land requirements of about 165 acres and negligible long term demands. The impacts of these alternatives on Clark County is insignificant.

Conclusions

Impacts on the availability of land at the countywide and municipal levels of Las Vegas and North Las Vegas is not significant. In addition, Clark County has the ability to handle the surge of growth due to the existing size of the metropolitan area, however, in the rural communities of Lincoln County the additional growth will mean large increase in the number of urban acres and changes in the character of the towns.

Rural Land Use

This section will discuss two types of rural land uses that could be affected by a potential operating base at Coyote Spring Valley, Nevada. They are: agriculture and recreation.

Effects on Agriculture

Although no croplands exist at the potential operating base site nor within the suitability zone, there is irrigated cropland in Moapa Valley about 10 miles southeast of the proposed site. Because of their proximity to the potential operating base, they could be subject to pressure for private urban development unless laws protecting such farmland are adopted and enforced by the county.

Effects on Recreation

No fishing or concentrated recreation sites are located on land designated for the potential OB site or in the suitability envelope. Since the region is entirely in the public domain, it is subject to dispersed recreational use. In particular, the Coyote Spring/Meadow Valley Wash area is used by off-road vehicles.

Those recreational sites in the vicinity of the proposed OB site projected to receive a significant proportion of the increased use due to the population immigration include the following: Lake Mead National Recreation Area, Valley of Fire State Park and the ORV areas north of Las Vegas. The greatest demand increase is expected in the peak year, 1986, when the population increase related to M-X will represent a 5 percent increase over baseline projections for Clark County. This short term impact is expected to decrease to a stable M-X population level by 1991, when the increase is expected to be 25 percent over baseline. This long term impact will persist through the life of the project. This projected immigration will create a minor increase in recreational demand when compared to the demand associated with normal baseline growth (15 percent by 1986 and 32 percent by 1991).

The Nevada SCORP (Statewide Comprehensive Outdoor Recreation Plan) predicts a shortage of picnicking, tent/trailer camping sites and vehicle camping sites by 1985 with the present population growth rate in Clark County. The M-X induced in-migration will add to this deficiency. Non-resident use of tent/trailer camp sites is greater than resident use in this area. The lack of developed campsites puts added pressure on the aesthetic and environmental qualities of an area as campers seek undeveloped sites. This problem is especially acute along the shores of Lake Mead and Lake Mojave.

Based upon Nevada SCORP projections (1977), there will be a surplus of lake fishing acres even with the increased demand of M-X. Although Clark County has 114,100 surface acres of lake, the various water-oriented activities--waterskiing, boating, sailing, and fishing--combined are projected to create deficiencies in one or more of these activities by 1990. As a result of increased demands from M-X related in-migration, this deficiency may occur in 1985-87.

There is presently a shortage of snow-related activity facilities in Clark County. The Alpine ski facilities at Mt. Charleston were at capacity in 1977 and the potential for further development is limited. Many skiers from this area visit Brianhead, Utah, where more facilities are available. The Mt. Charleston area cannot meet the demands for snowplay or snowmobiling at present. As a result, the M-X induced in-migration will be an additive factor to this problem but will not create it.

Suitable developed off-road riding and competition areas are scarce in Nevada, especially around urban centers where the demand is the greatest (Nevada State Parks, 1977). The Las Vegas area has some of the largest and most numerous ORV sites in the state, however. M-X induced increased demand is expected to affect past ORV sites such as Meadow Valley and Kane Springs Valley and may even increase use in such remote areas as Delamar Valley. Future land management decisions will dictate the degree ORV demand levels will be met. However, at present ORV sites are in abundance around the Las Vegas area.

EFFECTS ON LAND OWNERSHIP (2.1.6)

Figure 1.1.4-2 shows the potential operating base at Coyote Spring Valley, Nevada, and the land ownerships in the area. Table 2.1.6-1 shows the number of acres of land of each ownership type that would be occupied by the potential operating base and facilities, and the number of acres of each type of ownership within the suitability zone around the potential base.

It can be seen that 100 percent of the area of the operating base facilities would be located on BLM land. Likewise, the suitability zone is entirely BLM land.

The 8,340 acres of BLM land that would be required for the operating base at Coyote Spring is equal to 0.2 percent of the BLM land in Clark County, and is not considered to be a significant impact.

EFFECTS ON HOUSING (2.1.7)

The cumulative total housing unit requirements in local communities, by type of structure, and by alternative, for Clark County, Nevada are given in Table 2.1.7-1.

Table 2.1.6-1. Land ownership at potential operating base facilities at Coyote Spring Valley, Nevada.

OWNERSHIP TYPE	OPERATING BASE FACILITIES		SUITABILITY ZONE	
	ACRES	PERCENT OF OB	ACRES	PERCENT OF ZONE
Private	0	0	0	0
State	0	0	0	0
BLM	8,340	100	126,720	100
Total	8,340	100	126,720	100

3855

Source: University of Nevada, 1972.

Table 2.1.7-1.

CUMULATIVE M X RELATED HOUSING UNIT REQUIREMENTS IN LOCAL COMMUNITIES BY HOUSING TYPE, BY ALTERNATIVE, IN CLARK
ASSUMING TREND BASELINE

ALTERNATIVE / HOUSING TYPE	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASELINE REQUIREMENTS	182037	188779	196171	203946	209980	215738	221771	227788	233722	239803	245976	251818	257512
PHASED ACTION													
SINGLE FAMILY UNITS	0	0	0	105	462	737	911	744	457	559	610	610	610
MULTI FAMILY UNITS	0	0	0	96	428	686	563	456	152	203	203	203	203
MOBILE HOMES	0	0	0	762	3387	5437	4146	3917	308	306	254	203	203
TOTAL M X RELATED	0	0	0	963	4276	6860	5619	4115	1016	1016	1016	1016	1016
M X PLUS BASELINE	182037	188779	197134	208222	216840	221347	225906	228804	234938	240897	246992	252834	258528
ALTERNATIVE 1													
SINGLE FAMILY UNITS	0	0	0	105	462	730	912	747	457	559	610	610	610
MULTI FAMILY UNITS	0	0	0	96	428	686	563	456	152	203	203	203	203
MOBILE HOMES	0	0	0	762	3387	5441	4154	3929	308	306	254	203	203
TOTAL M X RELATED	0	0	0	963	4276	6860	5629	4131	1016	1016	1016	1016	1016
M X PLUS BASELINE	182037	188779	197134	208222	216840	221357	225922	228804	234938	240897	246992	252834	258528
ALTERNATIVE 2													
SINGLE FAMILY UNITS	0	0	0	105	460	720	863	690	457	559	610	610	610
MULTI FAMILY UNITS	0	0	0	96	426	669	530	418	152	203	203	203	203
MOBILE HOMES	0	0	0	762	3374	5302	3905	3647	308	306	254	203	203
TOTAL M X RELATED	0	0	0	963	4260	6692	5297	3755	1016	1016	1016	1016	1016
M X PLUS BASELINE	182037	188779	197134	208206	216672	221025	225546	228804	234938	240897	246992	252834	258528
ALTERNATIVE 3													
SINGLE FAMILY UNITS	0	0	0	0	356	767	712	498	349	427	466	466	466
MULTI FAMILY UNITS	0	0	0	0	316	406	446	252	153	155	155	155	155
MOBILE HOMES	0	0	0	0	7671	3605	3014	932	227	194	155	155	155
TOTAL M X RELATED	0	0	0	0	8493	4887	4171	1681	776	776	776	776	776
M X PLUS BASELINE	182037	188779	196171	203946	213343	220583	229944	239471	246698	246697	246792	252594	258288
ALTERNATIVE 4													
SINGLE FAMILY UNITS	0	0	0	0	0	0	0	0	0	0	0	0	0
MULTI FAMILY UNITS	0	0	0	0	0	0	0	0	0	0	0	0	0
MOBILE HOMES	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL M X RELATED	0	0	0	0	0	0	0	0	0	0	0	0	0
M X PLUS BASELINE	182037	188779	196171	203946	213343	220583	229944	239471	246698	246697	246792	252594	258288
ALTERNATIVE 5A													
SINGLE FAMILY UNITS	0	0	0	105	421	496	511	414	454	554	605	605	605
MULTI FAMILY UNITS	0	0	0	96	408	666	517	417	151	202	202	202	202
MOBILE HOMES	0	0	0	762	3067	5116	4110	3913	303	303	252	202	202
TOTAL M X RELATED	0	0	0	963	4094	6279	5142	4121	1008	1008	1008	1008	1008
M X PLUS BASELINE	182037	188779	197134	207940	214433	218898	223034	228994	234938	240897	246992	252834	258528

SOURCE: HDR SCHEMATIC, 1 NOV 80

Under the Proposed Action, for instance, the need for M-X related housing units begins in 1984 and accelerates rapidly, reaching a peak in 1986 when some 6,860 housing unit (737 single-family, 686 multi-family, and 5,437 mobile homes) will be needed. After the peak-year, housing requirements drop off, most noticeably in 1989; there will be a steady-state, long-term need for 1,016 units by 1992. This total is comprised of 610 single-family units, 203 multi-family units, and 203 mobile homes. The large decline in housing requirements after the construction period is over will mean fairly large housing unit surpluses in Clark County. However, these surpluses will be principally in the form of mobile homes, and even the surpluses of single-family homes that are anticipated in 1988 and 1989 will be partially counteracted by a call for additional units in the following three years. Moreover, it is likely that the normal baseline growth's housing requirements, averaging just over 5,900 units between 1987 and 1994, will be able to absorb some of these surpluses, especially the moveable mobile homes.

Alternatives 1 and 2 affect Clark County in virtually the same way as under the Proposed Action, since Operating Base I is still located near Coyote Spring. Under Alternatives 4 and 6, Coyote Spring now becomes the site of Operating Base II, and, consequently, the level of housing requirements are reduced to about 70 percent of those under the Proposed Action in the peak-year. For example, under these two alternatives, housing will have to be provided very rapidly, starting in 1986 and peaking the following year at 4,857 units (767 single-family, 486 multi-family, and 3,605 mobile homes). Housing requirements then fall-off almost as rapidly in the next three years to reach a long term level of 776 units in 1990 and comprised of 466 single-family units, 155 multi-family units and 155 mobile homes in 1994.

Clark County also has large housing unit needs under Alternative 8, the split-deployment Alternative, some 65 percent of those under the Proposed Action in the peak-year, but essentially the same in the long term. Alternatives 3 and 5 will affect Clark County the least, when 222 and 207 mobile homes will be needed in one year alone, 1986, to meet indirect worker housing demands.

Whenever an operating base is located in Clark County, Lincoln County can expect to experience spillover effects that will be permanent in nature. This is true for the Proposed Action and Alternatives 1, 2, 6, and 8. The housing unit requirements range from a high of 184 (110 single-family, 37 multi-family, and 37 mobile homes) under Alternative 1, to a low of 70 units (42 single-family, 14 multi-family, and 14 mobile homes) under the split-deployment alternative.

EFFECTS ON COMMUNITY INFRASTRUCTURE (2.1.8)

M-X deployment Proposed Action and Alternatives 1, 2, 4, 6 and 8 identify a potential operating base location in the vicinity of Coyote Spring north of Las Vegas in Clark County, Nevada. Construction of such a facility would result in the immigration of construction workers and their families in the short term, as well as long term base personnel. This population immigration will place additional demands on community infrastructure necessitating the recruitment of more teachers, health care personnel, law enforcement and fire personnel. There will also be impacts on parks and recreation and on basic utilities such as water and solid waste disposal, creating the need for expanded or new facilities. The accommodation of M-X-related needs for community services will be fulfilled primarily by

Clark County. Neighboring county of Lincoln for the most part, will experience lesser demands of a temporary nature. For that reason the following discussion will concentrate upon the effects likely to be experienced in Clark County under the Proposed Action and Alternatives 1, 2, 4, 6 and 8.

Education

Table 2.1.8-1 presents the number of school-aged children expected to enter the Clark and Lincoln County School Districts respectively, by grade group for each M-X alternative between the years 1982 and 1994 on an annual basis. As indicated, initial enrollment additions to the Clark County School District would occur in 1984 under Alternatives 1, 2, 8 and the Proposed Action, and in 1986 under Alternative 4. In all cases except Alternative 4, the number of enrollments expected (1220-1230) would account for less than 1.0 percent of the projected 136,012 resident school-aged children who will already be receiving educational services at that time. Alternative 4, with initial enrollments of approximately 2,600 would contribute approximately 2.0 percent over the 145,586 enrollments expected under normal growth conditions. In Lincoln County, initial enrollments attributable to M-X may occur as early as 1982 due to regional labor force dynamics as described in Effects on Employment (Jobs) and Labor Force. Between 25 and 30 additional enrollments could be expected to require educational services in Lincoln County under Alternatives 1, 2, 3, 4, 8 and the Proposed Action during this year, an increase of 2.5 to 3.0 percent over the 978 school-aged children which are anticipated to already reside in the County.

Peak levels of enrollments generated by M-X into Clark County vary in time with deployment alternative. For Alternatives 1, 2, 4, 6, 8 and the Proposed Action, peak levels of enrollments attributable to the project would occur in 1987, 1986, 1988, 1989 and 1987 respectively. Depending on which of these alternatives is ultimately selected, M-X-attributable enrollments may increase the number of enrollments in Clark County by up to between 3.0 and 4.0 percent over normal projected growth conditions which indicate that between 1986 and 1989, the number of baseline enrollments will increase from nearly 145,600 to 157,900. In Lincoln County, peak level enrollment increases under Alternatives 1, 2, 4, 6 and the Proposed Action may all occur in 1986. Alternative 8 however, is expected to peak somewhat later, in 1988. Under all of these alternatives except Alternative 8, the peak level of M-X-related enrollment would result in increases ranging between 105.0 and 115.0 percent over the 1,070 projected baseline enrollments, thus requiring the Lincoln County School District to be able to accommodate, roughly, a doubling in enrollment demand at peak year. Alternative 8 would result in an increase of approximately 75.0 percent over baseline in 1988 which is estimated to be just over 1,100. While the enrollment increases during peak years in Clark County are not expected to result in serious deterioration in the capability of local facilities to accommodate the demands, it is evident that peak year demands in Lincoln County will exceed the ability for the existing facilities to adequately handle such a large scale demand increase.

Subsequent to peak year enrollment demands resulting from M-X, enrollment levels can be expected to stabilize, the level of which may be useful for long-range educational planning purposes. Table 2.1.8-1 indicates that under Alternatives 1, 2, 4, 6, 8 and the Proposed Action, the Clark County School District would require adequate facilities to accommodate between 182,250 and 183,370 pupils of which

Table 2.1.8-1.

PROJECTED BASELINE AND M-8 INDICES SCHOOL ENROLLMENTS BY GRADE LEVEL, BY ALTERNATIVE, IN CLAIM
ADJUSTING TREND BASELINE

ALTERNATIVE / MEMBER	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
PUPILS BY GRADE LEVEL													
BASELINE ENROLLMENTS	184818	130886	134012	141402	148326	149872	153778	157933	162186	166319	170843	174593	178541
PROPOSED ACTION													
N-4	0	0	0	618	1848	2917	2936	2807	2413	2413	2413	2413	2413
7-9	0	0	0	306	931	1460	1448	1307	1207	1207	1207	1207	1207
10-12	0	0	0	306	931	1460	1448	1307	1207	1207	1207	1207	1207
TOTAL M-8 RELATED	0	0	0	1224	3779	5837	5832	5421	4826	4826	4826	4826	4826
M-8 PLUS BASELINE	184818	130886	134012	148126	152105	155709	159610	163354	167012	171145	175669	179419	183367
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.9	2.4	4.0	3.9	3.1	2.8	2.9	2.8	2.6	2.7
ALTERNATIVE 1													
N-4	0	0	0	618	1848	2917	2936	2807	2413	2413	2413	2413	2413
7-9	0	0	0	306	931	1460	1448	1307	1207	1207	1207	1207	1207
10-12	0	0	0	306	931	1460	1448	1307	1207	1207	1207	1207	1207
TOTAL M-8 RELATED	0	0	0	1224	3779	5837	5832	5421	4826	4826	4826	4826	4826
M-8 PLUS BASELINE	184818	130886	134012	148126	152105	155709	159610	163354	167012	171145	175669	179419	183367
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.9	2.4	4.0	3.9	3.1	2.8	2.9	2.8	2.6	2.7
ALTERNATIVE 2													
N-4	0	0	0	618	1848	2917	2936	2807	2413	2413	2413	2413	2413
7-9	0	0	0	306	931	1460	1448	1307	1207	1207	1207	1207	1207
10-12	0	0	0	306	931	1460	1448	1307	1207	1207	1207	1207	1207
TOTAL M-8 RELATED	0	0	0	1224	3779	5837	5832	5421	4826	4826	4826	4826	4826
M-8 PLUS BASELINE	184818	130886	134012	148126	152105	155709	159610	163354	167012	171145	175669	179419	183367
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.9	2.4	4.0	3.9	3.1	2.8	2.9	2.8	2.6	2.7
ALTERNATIVE 3													
N-4	0	0	0	618	1848	2917	2936	2807	2413	2413	2413	2413	2413
7-9	0	0	0	306	931	1460	1448	1307	1207	1207	1207	1207	1207
10-12	0	0	0	306	931	1460	1448	1307	1207	1207	1207	1207	1207
TOTAL M-8 RELATED	0	0	0	1224	3779	5837	5832	5421	4826	4826	4826	4826	4826
M-8 PLUS BASELINE	184818	130886	134012	148126	152105	155709	159610	163354	167012	171145	175669	179419	183367
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.9	2.4	4.0	3.9	3.1	2.8	2.9	2.8	2.6	2.7
ALTERNATIVE 4													
N-4	0	0	0	618	1848	2917	2936	2807	2413	2413	2413	2413	2413
7-9	0	0	0	306	931	1460	1448	1307	1207	1207	1207	1207	1207
10-12	0	0	0	306	931	1460	1448	1307	1207	1207	1207	1207	1207
TOTAL M-8 RELATED	0	0	0	1224	3779	5837	5832	5421	4826	4826	4826	4826	4826
M-8 PLUS BASELINE	184818	130886	134012	148126	152105	155709	159610	163354	167012	171145	175669	179419	183367
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.9	2.4	4.0	3.9	3.1	2.8	2.9	2.8	2.6	2.7
ALTERNATIVE 5													
N-4	0	0	0	618	1848	2917	2936	2807	2413	2413	2413	2413	2413
7-9	0	0	0	306	931	1460	1448	1307	1207	1207	1207	1207	1207
10-12	0	0	0	306	931	1460	1448	1307	1207	1207	1207	1207	1207
TOTAL M-8 RELATED	0	0	0	1224	3779	5837	5832	5421	4826	4826	4826	4826	4826
M-8 PLUS BASELINE	184818	130886	134012	148126	152105	155709	159610	163354	167012	171145	175669	179419	183367
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.9	2.4	4.0	3.9	3.1	2.8	2.9	2.8	2.6	2.7
ALTERNATIVE 6													
N-4	0	0	0	618	1848	2917	2936	2807	2413	2413	2413	2413	2413
7-9	0	0	0	306	931	1460	1448	1307	1207	1207	1207	1207	1207
10-12	0	0	0	306	931	1460	1448	1307	1207	1207	1207	1207	1207
TOTAL M-8 RELATED	0	0	0	1224	3779	5837	5832	5421	4826	4826	4826	4826	4826
M-8 PLUS BASELINE	184818	130886	134012	148126	152105	155709	159610	163354	167012	171145	175669	179419	183367
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.9	2.4	4.0	3.9	3.1	2.8	2.9	2.8	2.6	2.7
ALTERNATIVE 7A													
N-4	0	0	0	618	1848	2917	2936	2807	2413	2413	2413	2413	2413
7-9	0	0	0	306	931	1460	1448	1307	1207	1207	1207	1207	1207
10-12	0	0	0	306	931	1460	1448	1307	1207	1207	1207	1207	1207
TOTAL M-8 RELATED	0	0	0	1224	3779	5837	5832	5421	4826	4826	4826	4826	4826
M-8 PLUS BASELINE	184818	130886	134012	148126	152105	155709	159610	163354	167012	171145	175669	179419	183367
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.9	2.4	4.0	3.9	3.1	2.8	2.9	2.8	2.6	2.7
ALTERNATIVE 7B													
N-4	0	0	0	618	1848	2917	2936	2807	2413	2413	2413	2413	2413
7-9	0	0	0	306	931	1460	1448	1307	1207	1207	1207	1207	1207
10-12	0	0	0	306	931	1460	1448	1307	1207	1207	1207	1207	1207
TOTAL M-8 RELATED	0	0	0	1224	3779	5837	5832	5421	4826	4826	4826	4826	4826
M-8 PLUS BASELINE	184818	130886	134012	148126	152105	155709	159610	163354	167012	171145	175669	179419	183367
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.9	2.4	4.0	3.9	3.1	2.8	2.9	2.8	2.6	2.7

SOURCE: IOWA SCIENCE, I-MEV-80

between approximately 2.0 and 3.0 percent would be attributable to M-X. No long-term enrollment increases are anticipated under M-X deployment Alternatives 3 and 5 in Clark County. Long-term enrollment increases to the Lincoln County School District are expected to range between 3.0 and 9.0 percent over projected baseline growth regardless of which deployment alternative is selected. It is likely that Lincoln County School District would be able to much more efficiently accommodate the long-term demands of baseline and M-X-related enrollments than the short-term peak years demands, at which time the need for additional educational facilities and personnel would be substantial.

The number of teachers required to accommodate M-X-related enrollment demands in Clark County for Alternatives 1, 2, 8 and the Proposed Action in the long-term approximate 200, an increase of only 2.5 percent over the 8,115 already expected to be there, while for Alternatives 4 and 6, approximately three-quarters of this number would be required. As is the case with enrollments, no additional teachers would be required after 1986 under Alternatives 3 and 4. In Lincoln County, 2-4 teachers would be required to accommodate long-term M-X-induced enrollment increases regardless of alternative selected. In neither Clark nor Lincoln Counties should the requirement for additional teachers to accommodate long-term demands present a problem. The annual projected baseline and M-X-related teacher requirements between 1982 and 1994 for each grade group are expressed in Table 2.1.8-2 for Clark and Lincoln County School Districts, respectively.

In Clark County, the proportion of total enrollments and teachers required, attributable to other projects in the area when compared to those attributable to M-X plus baseline, is relatively small. For example, for Alternatives 1, 2, 8 and the Proposed Action, under which a large operating base may be located near Coyote Spring, of the total number of additional enrollments which the Clark County School District might expect as a result of M-X and other projects, between 4.0 and 6.0 percent of the total cumulative effects are attributable to other projects. Almost no additional enrollments attributable to other projects are expected in Lincoln County between 1982 and 1994.

Health Care

M-X project related requirements for health care personnel and facilities are shown in Table 2.1.8-3 for Clark County. Under the Proposed Action and Alternatives 1, 2 and 8, with the first base located in the Coyote Spring area, the need for health care personnel peaks in 1986, when 25 physicians, 76 nurses, 9 dentists, 4 mental health personnel and 67 additional hospital beds would be required. These requirements would be reduced by about 30 percent under Alternative 4. M-X-related peak demand increases the normal baseline growth requirements by about 3.0 percent only. In the long run, no additional health care personnel is required due to Clark County's large existing as well as projected health care facilities.

Location of a base in the Coyote Spring area would have some spillover population in Lincoln County, Nevada. The peak year demand in this county would be 9 additional health care personnel and 6 hospital beds. Even this demand is relatively large, about 30 to 50 percent of the normal baseline requirements of the county.

PROJECTED BASELINE AND M-3 INDUCED ISACIER REQUIREMENTS BY GRADE LEVEL, BY ALTERNATIVE, IN CLASH
 ADOPTING TREND BASELINE

ALTERNATIVE / NUMBER	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
ALTERNATIVE 1														
BASELINE REQUIREMENTS	8736	8949	6182	6102	6617	6790	6989	7170	7371	7859	7781	7929	8110	
PROPOSED ACTION														
R-4	0	0	24	74	117	118	116	97	97	97	97	97	97	
7-9	0	0	13	40	43	45	43	32	32	32	32	32	32	
10-12	0	0	14	48	44	47	44	38	35	35	35	35	35	
TOTAL M-3 RELATED	0	0	51	162	204	208	204	173	164	167	167	167	167	
M-3 PLUS BASELINE	8736	8949	6234	6264	6821	7000	7193	7363	7535	7926	7948	8096	8277	
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.8	0.4	2.7	3.4	3.8	3.8	3.8	3.7	3.4	3.4	3.8	
ALTERNATIVE 2														
BASELINE REQUIREMENTS	8736	8949	6234	6264	6821	7000	7193	7363	7535	7926	7948	8096	8277	
PROPOSED ACTION														
R-4	0	0	24	74	117	118	116	97	97	97	97	97	97	
7-9	0	0	13	40	43	45	43	32	32	32	32	32	32	
10-12	0	0	14	48	44	47	44	38	35	35	35	35	35	
TOTAL M-3 RELATED	0	0	51	162	204	208	204	173	164	167	167	167	167	
M-3 PLUS BASELINE	8736	8949	6285	6426	6985	7188	7387	7560	7739	8123	8115	8263	8444	
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.6	2.4	3.7	3.4	3.8	3.8	3.8	3.7	3.4	3.4	3.8	
ALTERNATIVE 3														
BASELINE REQUIREMENTS	8736	8949	6182	6102	6617	6790	6989	7170	7371	7859	7781	7929	8110	
PROPOSED ACTION														
R-4	0	0	24	74	117	118	116	97	97	97	97	97	97	
7-9	0	0	13	40	43	45	43	32	32	32	32	32	32	
10-12	0	0	14	48	44	47	44	38	35	35	35	35	35	
TOTAL M-3 RELATED	0	0	51	162	204	208	204	173	164	167	167	167	167	
M-3 PLUS BASELINE	8736	8949	6234	6264	6821	7000	7193	7363	7535	7926	7948	8096	8277	
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.8	0.4	2.7	3.4	3.8	3.8	3.8	3.7	3.4	3.4	3.8	
ALTERNATIVE 4														
BASELINE REQUIREMENTS	8736	8949	6182	6102	6617	6790	6989	7170	7371	7859	7781	7929	8110	
PROPOSED ACTION														
R-4	0	0	24	74	117	118	116	97	97	97	97	97	97	
7-9	0	0	13	40	43	45	43	32	32	32	32	32	32	
10-12	0	0	14	48	44	47	44	38	35	35	35	35	35	
TOTAL M-3 RELATED	0	0	51	162	204	208	204	173	164	167	167	167	167	
M-3 PLUS BASELINE	8736	8949	6234	6264	6821	7000	7193	7363	7535	7926	7948	8096	8277	
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.8	0.4	2.7	3.4	3.8	3.8	3.8	3.7	3.4	3.4	3.8	
ALTERNATIVE 5														
BASELINE REQUIREMENTS	8736	8949	6182	6102	6617	6790	6989	7170	7371	7859	7781	7929	8110	
PROPOSED ACTION														
R-4	0	0	24	74	117	118	116	97	97	97	97	97	97	
7-9	0	0	13	40	43	45	43	32	32	32	32	32	32	
10-12	0	0	14	48	44	47	44	38	35	35	35	35	35	
TOTAL M-3 RELATED	0	0	51	162	204	208	204	173	164	167	167	167	167	
M-3 PLUS BASELINE	8736	8949	6234	6264	6821	7000	7193	7363	7535	7926	7948	8096	8277	
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.8	0.4	2.7	3.4	3.8	3.8	3.8	3.7	3.4	3.4	3.8	
ALTERNATIVE 6														
BASELINE REQUIREMENTS	8736	8949	6182	6102	6617	6790	6989	7170	7371	7859	7781	7929	8110	
PROPOSED ACTION														
R-4	0	0	24	74	117	118	116	97	97	97	97	97	97	
7-9	0	0	13	40	43	45	43	32	32	32	32	32	32	
10-12	0	0	14	48	44	47	44	38	35	35	35	35	35	
TOTAL M-3 RELATED	0	0	51	162	204	208	204	173	164	167	167	167	167	
M-3 PLUS BASELINE	8736	8949	6234	6264	6821	7000	7193	7363	7535	7926	7948	8096	8277	
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.8	0.4	2.7	3.4	3.8	3.8	3.8	3.7	3.4	3.4	3.8	
ALTERNATIVE 7														
BASELINE REQUIREMENTS	8736	8949	6182	6102	6617	6790	6989	7170	7371	7859	7781	7929	8110	
PROPOSED ACTION														
R-4	0	0	24	74	117	118	116	97	97	97	97	97	97	
7-9	0	0	13	40	43	45	43	32	32	32	32	32	32	
10-12	0	0	14	48	44	47	44	38	35	35	35	35	35	
TOTAL M-3 RELATED	0	0	51	162	204	208	204	173	164	167	167	167	167	
M-3 PLUS BASELINE	8736	8949	6234	6264	6821	7000	7193	7363	7535	7926	7948	8096	8277	
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.8	0.4	2.7	3.4	3.8	3.8	3.8	3.7	3.4	3.4	3.8	

SOURCE: ICM SCIENCES, 1 NOV 80

Table 2.1.8-3.

PROJECTED BASELINE AND MAX RELATED HEALTH SERVICES AND HOSPITAL BED REQUIREMENTS, IN CLARK
ASSUMING TREND BASELINE

ALTERNATIVE / REQUIREMENT	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASELINE													
PHYSICIANS	720	735	704	815	839	862	887	911	935	959	983	1007	1030
REGISTERED NURSES	2184	2265	2354	2447	2519	2588	2661	2733	2807	2878	2951	3021	3090
DENTISTS	257	266	277	208	296	304	313	321	330	337	347	355	363
MENTAL HEALTH PERSON	131	135	141	146	151	155	159	164	168	172	177	181	185
HOSPITAL BEDS	1941	2013	2072	2175	2239	2301	2365	2429	2495	2550	2623	2686	2746
PROPOSED ACTION													
PHYSICIANS	0	0	3	15	25	15	13	0	0	0	0	0	0
REGISTERED NURSES	0	0	9	47	76	59	37	0	0	0	0	0	0
DENTISTS	0	0	1	5	9	7	4	0	0	0	0	0	0
MENTAL HEALTH PERSON	0	0	0	2	4	3	2	0	0	0	0	0	0
HOSPITAL BEDS	0	0	8	42	67	52	34	0	0	0	0	0	0
ALTERNATIVE 1													
PHYSICIANS	0	0	3	15	25	19	13	0	0	0	0	0	0
REGISTERED NURSES	0	0	9	47	76	59	37	0	0	0	0	0	0
DENTISTS	0	0	1	5	9	7	4	0	0	0	0	0	0
MENTAL HEALTH PERSON	0	0	0	2	4	3	2	0	0	0	0	0	0
HOSPITAL BEDS	0	0	8	42	67	52	35	0	0	0	0	0	0
ALTERNATIVE 2													
PHYSICIANS	0	0	3	15	24	18	11	0	0	0	0	0	0
REGISTERED NURSES	0	0	7	47	74	55	34	0	0	0	0	0	0
DENTISTS	0	0	1	5	8	6	4	0	0	0	0	0	0
MENTAL HEALTH PERSON	0	0	0	2	4	3	2	0	0	0	0	0	0
HOSPITAL BEDS	0	0	8	41	63	47	31	0	0	0	0	0	0
ALTERNATIVE 4													
PHYSICIANS	0	0	0	0	17	17	14	3	0	0	0	0	0
REGISTERED NURSES	0	0	0	0	30	33	43	10	0	0	0	0	0
DENTISTS	0	0	0	0	4	6	9	1	0	0	0	0	0
MENTAL HEALTH PERSON	0	0	0	0	2	3	2	0	0	0	0	0	0
HOSPITAL BEDS	0	0	0	0	31	47	80	9	0	0	0	0	0
ALTERNATIVE 5													
PHYSICIANS	0	0	0	0	0	0	0	0	0	0	0	0	0
REGISTERED NURSES	0	0	0	0	0	0	0	0	0	0	0	0	0
DENTISTS	0	0	0	0	0	0	0	0	0	0	0	0	0
MENTAL HEALTH PERSON	0	0	0	0	0	0	0	0	0	0	0	0	0
HOSPITAL BEDS	0	0	0	0	0	0	0	0	0	0	0	0	0
ALTERNATIVE 6A													
PHYSICIANS	0	0	3	14	15	10	4	0	0	0	0	0	0
REGISTERED NURSES	0	0	7	42	47	30	14	0	0	0	0	0	0
DENTISTS	0	0	1	5	5	3	1	0	0	0	0	0	0
MENTAL HEALTH PERSON	0	0	0	2	2	1	0	0	0	0	0	0	0
HOSPITAL BEDS	0	0	8	37	42	26	17	0	0	0	0	0	0

SOURCE: HHS SCIENCES, 1 NOV 80

Public Safety

Tables 2.1.8-4 and 2.1.8-5 present the projected requirements for law enforcement and fire personnel in Clark County resulting from the M-X project. Clark County police and fire personnel requirements peak in 1986 under the Proposed Action and Alternatives 1, 2, 3, 5 and 8. Under Alternatives 4 and 6 police requirements peak in 1988 and fire requirements peak in 1987. The number of additional police personnel is expected to be at most 4.9 percent above the number projected to be needed under normal growth in the peak year of the Proposed Action and Alternatives 1, 2, 3, 5 and 8. Under Alternatives 4 and 6 police requirements are 3.1 percent and fire 2.2 percent over baseline requirements in the peak year. Effects are not expected to be significant in the peak year under any of the alternatives.

In Lincoln County, requirements for police and fire personnel reach a peak of 9 officers (112.5 percent over baseline) and 5 firefighters (83.3 percent over baseline) in 1986 under every alternative except 8. This large an increase (roughly double) over what would be expected under normal growth will likely place burdens on the existing system during peak years. Public safety requirements will be 20-25 percent lower under Alternative 8 than the other alternatives and will peak one year earlier in 1985.

Subsequent to peak year demands on public safety services the out-migration of construction workers will occur resulting in a continuing decrease at the county level in total personnel requirements attributable to M-X deployment. Personnel requirements stabilize and reach a steady state around 1989 or 1990 in both counties under most alternatives. This is the level of impact which can be most usefully mitigated through long range planning. The tables indicate the number of police and fire personnel that will be required in the long term and the percent over the baseline requirements they represent. In Clark County these long term needs can easily be accommodated, because of the strong infrastructure base which presently exists. However, in Lincoln County a boom-bust phenomenon will be observed. For example, police requirements due to M-X drop from 9 to 1 or 0 between peak year and long term under every alternative but 8 (under which requirements drop from 7 to 0). Thus, induced impacts are relatively shortlived and will thus cause strain on the present public safety capacities.

Parks and Recreation

M-X-induced population immigration to the Coyote Spring area will create an increased demand for both urban and regional parks and recreational facilities in Clark County. To meet these increased needs, recreation planning capabilities, funds and land will be required. Currently, Las Vegas City park facilities are at full capacity and use of those facilities continues to increase. Due to fiscal constraints, no plans currently exist for future land acquisitions for recreational purposes. The number of acres of land projected to be required for expansion of local recreational facilities in Clark County are presented in Table 2.1.8-6.

The projected population growth due to M-X would increase the total peak year land requirements for recreation and parks by 117 acres, but the long-term demand would be only 20 acres in Clark County, if Coyote Spring is chosen as the site for the first base, and by 15 acres if it is chosen as the site for the second base.

Table 2.1.8-4.

PROJECTED BASELINE AND M X RELATED REQUIREMENTS FOR LAW INDEPENDENT PERCENTAGE BY ALTERNATIVE, IN CLARK COUNTY, TREND BASELINE

ALTERNATIVE / PERCENTAGE REQUIREMENTS	1981	1983	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASELINE REQUIREMENTS	970	1006	1046	1087	1119	1150	1182	1214	1247	1279	1311	1343
UNDEVELOPED ACTION												
M X REQUIREMENTS	0	0	11	35	55	53	49	37	32	31	31	31
M X PLUS BASELINE	970	1006	1057	1122	1174	1203	1231	1251	1279	1310	1342	1374
PERCENT DIFFERENCE	0.0	0.0	1.1	3.2	4.9	4.6	4.1	3.0	2.6	2.4	2.4	2.3
ALTERNATIVE 1												
M X REQUIREMENTS	0	0	11	35	55	53	49	37	32	31	31	31
M X PLUS BASELINE	970	1006	1057	1122	1174	1203	1231	1251	1279	1310	1342	1374
PERCENT DIFFERENCE	0.0	0.0	1.1	3.2	4.9	4.6	4.1	3.0	2.6	2.4	2.4	2.3
ALTERNATIVE 2												
M X REQUIREMENTS	0	0	11	35	54	51	47	37	32	31	31	31
M X PLUS BASELINE	970	1006	1057	1122	1173	1201	1229	1251	1279	1310	1342	1374
PERCENT DIFFERENCE	0.0	0.0	1.1	3.2	4.8	4.4	4.0	3.0	2.6	2.4	2.4	2.3
ALTERNATIVE 4												
M X REQUIREMENTS	0	0	0	0	22	35	37	29	24	24	24	24
M X PLUS BASELINE	970	1006	1046	1087	1141	1185	1219	1243	1271	1303	1327	1357
PERCENT DIFFERENCE	0.0	0.0	0.0	0.0	2.0	3.0	3.1	2.4	1.9	1.9	1.8	1.7
ALTERNATIVE 5A												
M X REQUIREMENTS	0	0	0	0	20	35	37	29	24	24	24	24
M X PLUS BASELINE	970	1006	1046	1087	1141	1185	1219	1243	1271	1303	1327	1357
PERCENT DIFFERENCE	0.0	0.0	0.0	0.0	2.0	3.0	3.1	2.4	1.9	1.9	1.8	1.7
ALTERNATIVE 5B												
M X REQUIREMENTS	0	0	10	35	41	38	37	35	31	31	31	31
M X PLUS BASELINE	970	1006	1056	1117	1160	1188	1219	1247	1278	1310	1342	1374
PERCENT DIFFERENCE	0.0	0.0	1.0	3.9	1.7	3.1	3.1	3.9	2.5	2.4	2.4	2.3

CLARK COUNTY, INDEPENDENT, TREND BASELINE

Table 2.1.8-5.

PROJECTED BASELINE AND M X RELATED REQUIREMENTS FOR FIRE PROTECTION PERSONNEL BY ALTERNATIVE, IN CLARK
ASSUMING IFBFD BASELINE

ALTERNATIVE / PERSONNEL REQUIREMENTS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASELINE REQUIREMENTS	800	830	863	897	923	949	975	1002	1029	1055	1082	1107	1133
PROPOSED ACTION													
M X REQUIREMENTS	0	0	4	19	30	25	10	5	5	5	5	5	5
M X PLUS BASELINE	800	830	867	916	953	974	983	1007	1034	1060	1087	1112	1138
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.5	2.1	3.2	2.6	1.8	0.5	0.5	0.5	0.5	0.5	0.4
ALTERNATIVE 1													
M X REQUIREMENTS	0	0	4	19	30	25	10	5	5	5	5	5	5
M X PLUS BASELINE	800	830	867	916	953	974	983	1007	1034	1060	1087	1112	1138
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.5	2.1	3.2	2.6	1.8	0.5	0.5	0.5	0.5	0.5	0.4
ALTERNATIVE 2													
M X REQUIREMENTS	0	0	4	17	29	23	17	5	5	5	5	5	5
M X PLUS BASELINE	800	830	867	916	952	972	992	1007	1034	1060	1087	1112	1138
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.5	2.1	3.1	2.4	1.7	0.5	0.5	0.5	0.5	0.5	0.4
ALTERNATIVE 4													
M X REQUIREMENTS	0	0	0	0	14	21	18	8	4	4	4	4	4
M X PLUS BASELINE	800	830	863	897	937	970	993	1010	1033	1059	1086	1111	1137
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	1.5	2.2	1.8	0.8	0.4	0.4	0.4	0.4	0.4
ALTERNATIVE 6													
M X REQUIREMENTS	0	0	0	0	14	21	18	7	4	4	4	4	4
M X PLUS BASELINE	800	830	863	897	937	970	993	1007	1033	1059	1086	1111	1137
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	1.5	2.2	1.8	0.7	0.4	0.4	0.4	0.4	0.4
ALTERNATIVE 8A													
M X REQUIREMENTS	0	0	4	17	20	14	7	5	5	5	5	5	5
M X PLUS BASELINE	800	830	867	914	943	963	984	1007	1034	1060	1087	1112	1138
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.5	1.9	2.3	1.5	0.7	0.5	0.5	0.5	0.5	0.5	0.4

SOURCE: HUR SCIENTIFIC, 1 NOV 80

Table 2.1.8-6.

PROJECTED MONTH RELATED LAND REQUIREMENTS FOR PARKS AND PLAYGROUNDS, BY ALTERNATIVE, IN CLARK
ASSUMING TREND BASELINE

ALTERNATIVE / LAND REQUIREMENTS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
PROPOSED ACTION													
PLAYGROUNDS	0	0	3	12	19	15	11	3	3	3	3	3	3
NEIGHBORHOOD PARKS	0	0	3	15	24	20	15	4	4	4	4	4	4
COMMUNITY PARKS	0	0	11	46	74	61	46	13	13	13	13	13	13
TOTAL	0	0	17	73	117	96	72	20	20	20	20	20	20
ALTERNATIVE 1													
PLAYGROUNDS	0	0	3	12	19	15	11	3	3	3	3	3	3
NEIGHBORHOOD PARKS	0	0	3	15	24	20	15	4	4	4	4	4	4
COMMUNITY PARKS	0	0	11	46	74	61	46	13	13	13	13	13	13
TOTAL	0	0	17	73	117	96	72	20	20	20	20	20	20
ALTERNATIVE 2													
PLAYGROUNDS	0	0	3	12	18	14	10	3	3	3	3	3	3
NEIGHBORHOOD PARKS	0	0	3	15	24	19	14	4	4	4	4	4	4
COMMUNITY PARKS	0	0	11	46	72	58	42	13	13	13	13	13	13
TOTAL	0	0	17	73	114	91	66	20	20	20	20	20	20
ALTERNATIVE 4													
PLAYGROUNDS	0	0	0	0	9	13	11	5	2	2	2	2	2
NEIGHBORHOOD PARKS	0	0	0	0	12	17	15	6	3	3	3	3	3
COMMUNITY PARKS	0	0	0	0	36	53	46	19	10	10	10	10	10
TOTAL	0	0	0	0	57	83	72	30	15	15	15	15	15
ALTERNATIVE 6													
PLAYGROUNDS	0	0	0	0	9	13	11	5	2	2	2	2	2
NEIGHBORHOOD PARKS	0	0	0	0	12	17	15	6	3	3	3	3	3
COMMUNITY PARKS	0	0	0	0	36	52	45	19	10	10	10	10	10
TOTAL	0	0	0	0	57	82	71	30	15	15	15	15	15
ALTERNATIVE 8A													
PLAYGROUNDS	0	0	3	10	15	7	6	3	3	3	3	3	3
NEIGHBORHOOD PARKS	0	0	3	14	16	11	8	4	4	4	4	4	4
COMMUNITY PARKS	0	0	11	43	49	39	29	13	13	13	13	13	13
TOTAL	0	0	17	66	77	57	43	20	20	20	20	20	20

SOURCE: IBM SCIENCES, 1-MAY-80

Additional rural acreage may be required for such recreational pursuits as off-road vehicular activity in order to spare habitats of rare and endangered species of plants and wildlife. The U.S. Forest Service could open more lands for informal outdoor activities such as hunting, fishing and camping. Also, through subdivision and Planned Unit Development ordinances, a community can require certain amounts of recreation or open space in housing and mobile home developments.

Solid Waste Disposal

M-X-induced immigration to the Coyote Spring area will create additional quantities of solid wastes not only in residences but also in the additional business and governmental activities required to support this population increment in Clark County.

The population corresponding to the trend baseline growth will by 1989 exhaust the 720 acres currently available in Clark County for solid wastes disposal. If Coyote Spring is chosen as the site for the first base, the M-X-induced population demands for solid wastes disposal land area will begin in 1984. About 19 acres of landfill areas in Clark County and 4 acres in Lincoln County will provide for the M-X-induced solid wastes stream for these two counties and the same landfills will provide for all major-project induced solid wastes through 2009, that is over the 20-year operational life of the M-X defense system.

If on the other hand, Coyote Spring is chosen to be the site for the second base, the M-X-induced population increment demands for solid waste disposal land area would be reduced to 10 acres of landfill area in Clark County and 3 acres in Lincoln County.

The effect of M-X OB sites of Clark County land requirements for solid waste disposal are illustrated in Table 2.1.8-7.

EFFECTS ON QUALITY OF LIFE (2.1.9)

The impact projections are conditional in that they are contingent on the actions taken by policy makers and also on the basic assumptions concerning factors such as the levels and pace of development which will occur. Moreover, the components of quality of life are numerous and complex and there is a great deal of uncertainty as to the probable outcomes since the basic models are lacking. Individual preference functions are unknown and community preference functions are hard to ascertain. Nevertheless, an attempt has been made to provide comparisons, within the framework of certain assumptions, suggestive of the trend of growth impacts on the communities in question.

The rapid population growth that can be anticipated if an operating base is located in the Coyote Spring area will result in many objective and subjective changes in the quality of life in the surrounding communities. Figure 2.1.9-1, attempts to show potential changes in the quality of life that might reasonably be expected. The histograms portray an assessment of the impact on the quality of life, as measured by a particular index, in a range from acceptable to unacceptable. The four segments of the figure depict: (a) Baseline I, which simply portrays the county's particular index value as a proportion of the corresponding state index value (where acceptable denotes a value that is 50 percent better than the state

Table 2.1.8-7.

PROJECTED BASELINE AND M X RELATED LAND REQUIREMENTS (ACRES) FOR SOLID WASTE DISPOSAL, BY ALTERNATIVE, IN CLAIM ASSUMING TREND BASELINE

ALTERNATIVE / LAND REQUIREMENTS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
ALTERNATIVE 1													
BASELINE REQUIREMENTS	72.8	75.5	78.5	81.6	84.0	86.3	88.7	91.1	93.6	96.0	98.4	100.7	103.0
PROPOSED ACTION													
M X REQUIREMENTS	0.0	0.0	0.4	1.7	2.8	2.3	1.7	0.5	0.5	0.5	0.5	0.5	0.5
M X PLUS BASELINE	72.8	75.5	78.9	83.3	86.8	88.6	90.4	91.6	94.1	96.5	98.9	101.2	103.5
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.5	2.1	3.3	2.7	1.9	0.5	0.5	0.5	0.5	0.5	0.5
ALTERNATIVE 2													
BASELINE REQUIREMENTS	0.0	0.0	0.4	1.7	2.8	2.3	1.7	0.5	0.5	0.5	0.5	0.5	0.5
M X REQUIREMENTS	72.8	75.5	78.9	83.3	86.8	88.6	90.4	91.6	94.1	96.5	98.9	101.2	103.5
M X PLUS BASELINE	72.8	75.5	78.9	83.3	86.8	88.6	90.4	91.6	94.1	96.5	98.9	101.2	103.5
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.5	2.1	3.3	2.7	1.9	0.5	0.5	0.5	0.5	0.5	0.5
ALTERNATIVE 3													
BASELINE REQUIREMENTS	0.0	0.0	0.0	0.0	1.4	2.0	1.7	0.7	0.4	0.4	0.4	0.4	0.4
M X REQUIREMENTS	72.8	75.5	78.9	83.3	85.4	86.3	90.4	91.6	94.0	96.4	98.8	101.1	103.4
M X PLUS BASELINE	72.8	75.5	78.9	83.3	86.8	88.3	92.1	92.3	94.4	96.8	99.2	101.5	103.8
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	1.7	2.3	1.9	0.8	0.4	0.4	0.4	0.4	0.4
ALTERNATIVE 4													
BASELINE REQUIREMENTS	0.0	0.0	0.0	0.0	1.4	2.0	1.7	0.7	0.4	0.4	0.4	0.4	0.4
M X REQUIREMENTS	72.8	75.5	78.9	83.3	85.4	86.3	90.4	91.6	94.0	96.4	98.8	101.1	103.4
M X PLUS BASELINE	72.8	75.5	78.9	83.3	86.8	88.3	92.1	92.3	94.4	96.8	99.2	101.5	103.8
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	1.7	2.3	1.9	0.8	0.4	0.4	0.4	0.4	0.4
ALTERNATIVE 5													
BASELINE REQUIREMENTS	0.0	0.0	0.0	0.0	1.4	2.0	1.7	0.7	0.4	0.4	0.4	0.4	0.4
M X REQUIREMENTS	72.8	75.5	78.9	83.3	85.4	86.3	90.4	91.6	94.0	96.4	98.8	101.1	103.4
M X PLUS BASELINE	72.8	75.5	78.9	83.3	86.8	88.3	92.1	92.3	94.4	96.8	99.2	101.5	103.8
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	1.7	2.3	1.9	0.8	0.4	0.4	0.4	0.4	0.4

SOURCE: HDR SCIENCE, 4 NOV 80

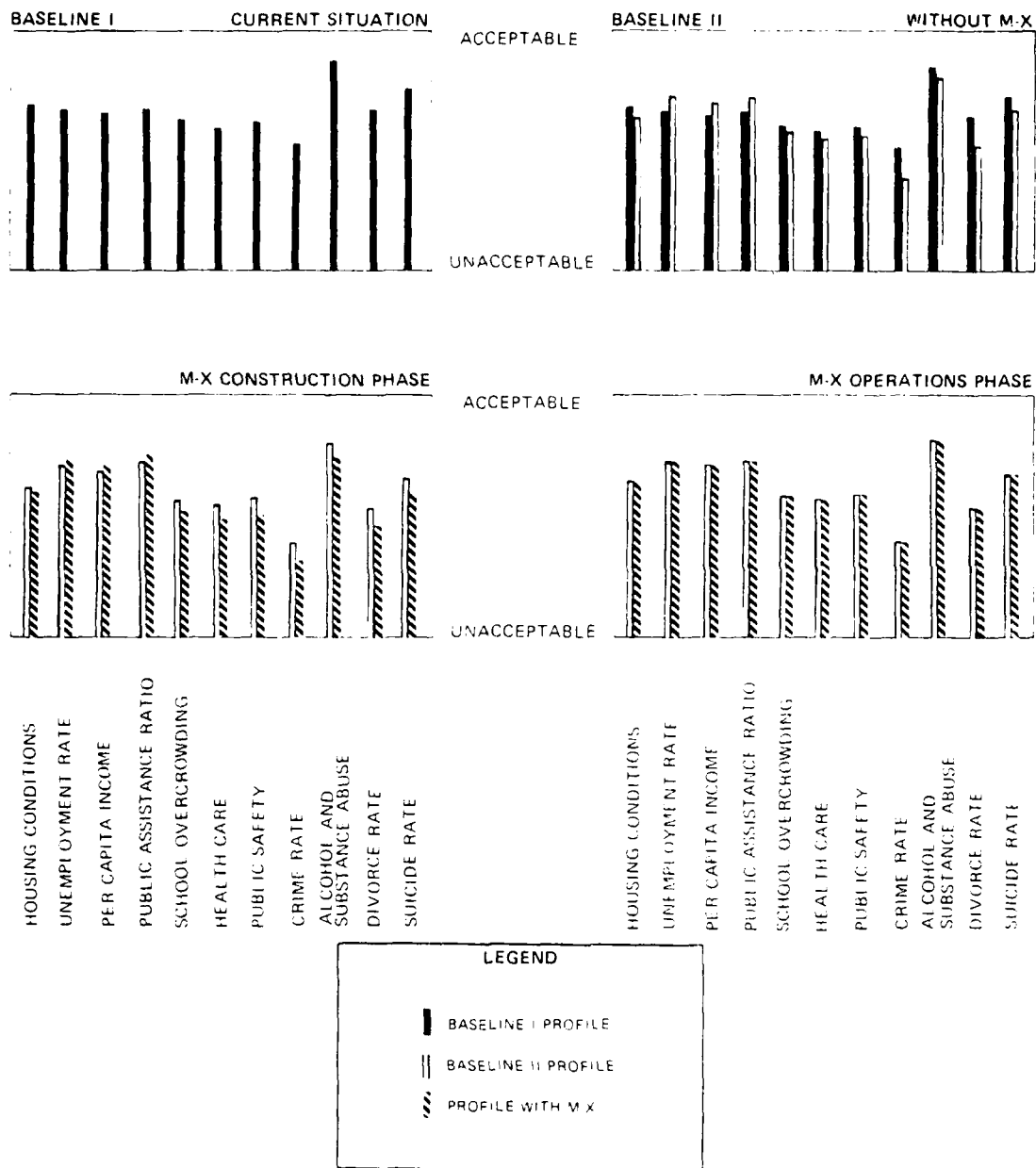


Figure 2.1.9-1. Potential changes in the quality of life profiles of Clark County, Nevada.

figure, and unacceptable represents a value that is 100 percent worse than the state figure), for 11 quality of life indices; (b) Baseline II, the anticipated changes in these indices without M-X deployment in the county, but with normal projected population growth; (c) anticipated changes during the M-X operations phase compared to Baseline II and (d) anticipated changes during the M-X operations phase compared to Baseline II. Changes in the indices are assumed to be related to the rapidity of population growth. Since the quality of life literature points to a rapid deterioration of social organization with boomtown growth, it is assumed that such indices as crime, alcohol and substance abuse, divorce and suicide rates, may increase as much as four times the compound annual population growth rate. The economic well-being indices, e.g., per capita income, the unemployment rate, and the public assistance ratio (the proportion of the population on public assistance of some kind), on the other hand, are assumed to change at only double the annual compound population change rate. The remaining indices, housing conditions (a measure of overcrowding), school overcrowding (the ratio of pupils to teachers), health care (doctors, dentists and registered nurses per 1,000 population, the number of hospital beds per 1,000 population), and public safety (ratio of police officers to population), collectively referred to as the community service indices, are all assumed to change inversely and linearly with the compound annual rate of population change.

Quality of Life Changes without M-X

Clark County has experienced fairly rapid growth over the last two decades and is projected to continue growing at a compound annual rate of growth of 3 percent between 1982 and 1992. This steady rate is unlikely to markedly affect the quality of life in Clark County. The community service indices, with the exception of housing, were all slightly below state average and are likely to remain so. Two of the social disorganization indices, the crime and divorce rates, already below state averages, are likely to worsen and contribute to a lowering of the quality of life. Two others, alcohol and substance abuse and the suicide rates, will also increase, and, although they contribute to a reduction in quality of life, they will still be above and just barely below state standards respectively. The economic well-being indices, initially at or below state standards, will most likely see a small improvement without M-X (Figure 2.1.9-1, upper left quadrant, which shows the Baseline II profile over Baseline I).

Quality of Life During the M-X Construction Phase

During the construction period, assuming that an operating base is located in the Coyote Springs area, a peak cumulative influx of 27,800 additional people is expected, resulting in a peak cumulative population change of 5.0 percent over the Baseline II in 1986. Up to the peak year, population will be growing at a compound annual rate of 5 percent. This somewhat faster rate of growth than without M-X, is likely to cause moderate changes in the quality of life in Clark County. Housing conditions and other community services indices are likely to be moderately strained temporarily, and the social disorganization indices will worsen and detract from the overall quality of life. For example, the suicide rate, previously lower than the state figure, will probably increase and become greater than the state baseline rate. Crime, on the other hand, while increasing, should still be less than Nevada's average. The economic well being indices should all show an improvement and thus contribute positively, albeit moderately, to the county's quality of life (Figure 2.1.9-1).

Quality of Life During M-X Operations Phase

By 1992, the steady-state M-X-related population influx will have stabilized at some 16,000 additional people, representing a 2.4 percent increase over the baseline population in that year. It will have taken 10 years to attain this level, denoting a compound annual growth rate of 3.3 percent. This is just slightly greater than the projected compound annual rate of growth without M-X, and so it can be safely assumed that the quality of life impacts will be, for all intents and purposes, identical to those projected in Baseline II (Figure 2.1.9-1, lower-right quadrant).

EFFECTS ON ENERGY (2.1.10)

Construction and operation of the M-X operating base near Coyote Spring Valley will require substantial improvements in energy transportation capabilities and additional electrical generating capacity. Development of these facilities must be in concert with M-X system construction. In addition, natural gas service would be required. To meet the M-X-induced demand for fossil fuels, natural gas lines could be extended into the area by Southwest Gas Corporation; no plans presently exist, however, for such extensions. Diesel and gasoline fuels would be reallocated to meet the induced consumption requirements of M-X construction.

It is projected that the proposed operating base and its related population increase near Coyote Spring Valley would result in an additional electrical demand of about 65 MW. Since the Lincoln County Power District (LCPD) which serves the area, has a peak service capacity of 16 MW, additional facilities to provide the M-X-related requirements would have to be constructed. Because Coyote Spring Valley is on the boundary between the service areas of LCPD and Nevada Power Company, these two utilities have met to discuss how the M-X power demand might be served. Based on these meetings, it is anticipated that there would be close cooperation between LCPD and Nevada Power Company in the planning, engineering, and construction of required transmission facilities. See ETR-24 for detailed information.

Mitigations

Careful siting, taking into account the environmental restrictions and concerns, can mitigate the potential impacts of both fuel and power facilities. Coordination with the utility companies can assure minimum impact on current electrical power and fuel users and assure that the M-X system becomes operational as planned. Similarly, impacts on fuel availability can be mitigated by timely adjustment of allocations. Alternate energy system development and energy conserving construction will reduce external energy demands.

EFFECTS ON TRANSPORTATION (2.1.11)

The major increase in population and the corresponding increase in traffic that would occur as a result of construction and operation of an operating base at Coyote Spring would occur in Las Vegas.

The anticipated in-migration of over 1,100 new households, under the proposed action, will generate around 11,000 new trips or traffic movements on an average day, once the base is fully obtained, many of which will be destined for the

operating base. In addition, 1,150 new jobs on the operating base, expected to be satisfied by the indigenous population, will result in many additional trips to the base from the neighboring communities. (Refer to Section 2.1.4 for a discussion of population effects.) In general, the impacts associated with this traffic increase would be similar to those discussed for the Beryl site in ETR-19.

Figures 2.1.11-1 and 2.1.11-2 present future traffic estimates for the vicinity of Coyote Spring including baseline traffic without the project, M-X related traffic and total or composite traffic. As shown, there would be about 20 percent more traffic if the site is used for a first operating base, as in the Proposed Action, than for a second operating base. Refer to ETR-19 for a discussion of the assumptions on traffic generation and the method of analysis.

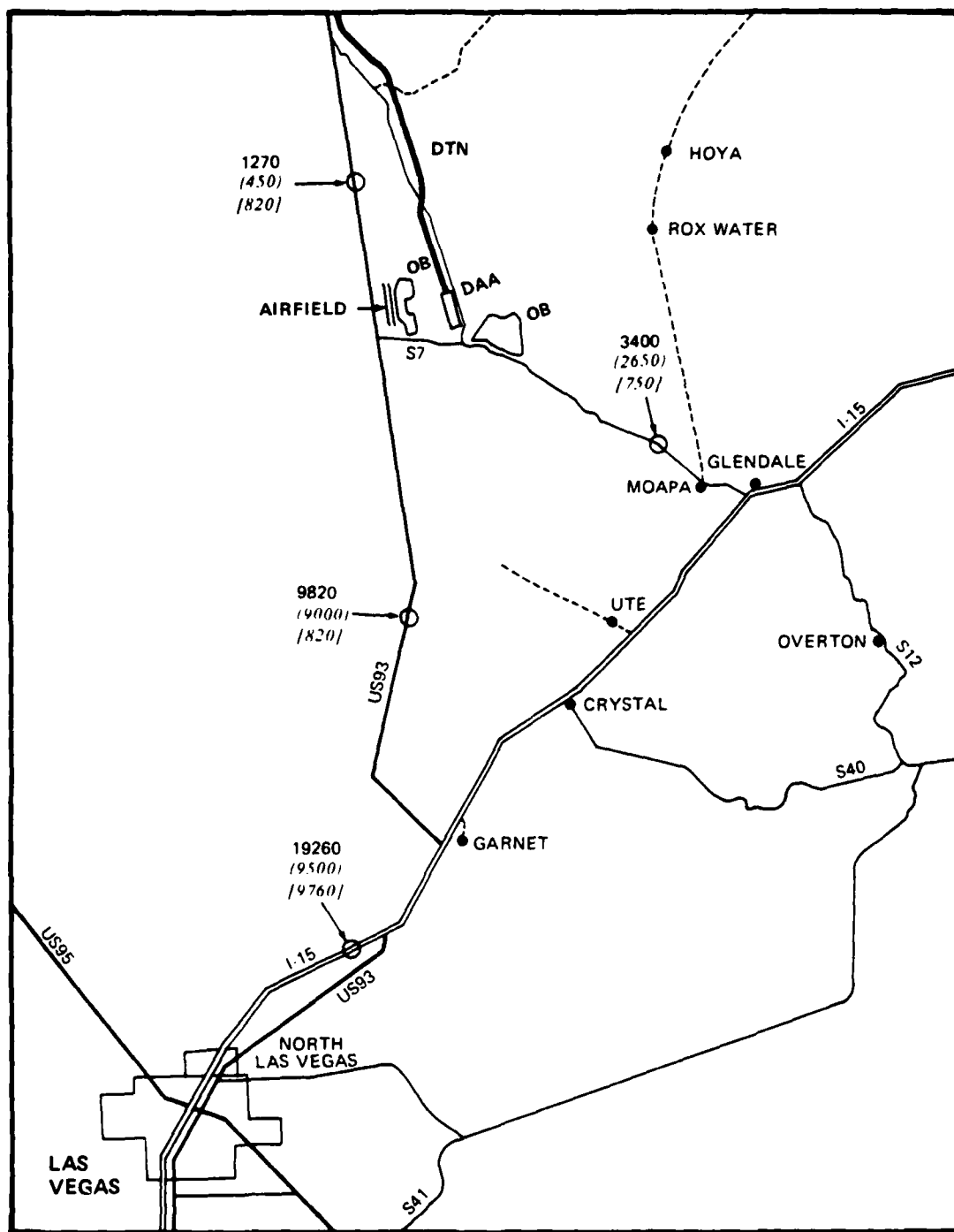
The largest impacts on traffic associated with this growth would be on the roads connecting the base with the neighboring communities. U.S. 93 between the proposed operating base site and the intersection of I-15 would have to carry as many as 10,000 vehicles per day if the first operating base is constructed at Coyote Spring. This would include up to 2,000 commuters, most of which would travel during peak hours. In order to accommodate this volume of traffic the existing road would have to be widened to four lanes.

State Highway 7 between the base and the Moapa Valley would have to carry about 3,500 vehicles per day by 1992 which would be a five fold increase in traffic. Although this would be well below the capacity of the road, each of the small communities could be impacted. Localized traffic problems requiring road improvements may result at some locations on the main routes.

EFFECTS ON NATIVE AMERICANS (2.1.12)

Extensive Southern Paiute aboriginal habitation sites could be directly impacted by construction activities. The Coyote Springs area is associated with dense concentrations of ancestral campsites and farming villages which date from prehistoric and early historic times. Siting of the OB in this region will be viewed by local Southern Paiutes as a direct threat to the material and spiritual preservation of these sites. Potential impacts to ancestral/sacred areas in the Coyote Spring Valley, Kane Springs Wash, Pahrnagat Wash, and Muddy River Areas are discussed in ETRs 21 and 23. The OB siting area also contains native flora and fauna which are culturally significant to local Southern Paiutes, and which are similarly endangered by construction activities. Wash areas, such as those associated with ephemeral streams in the siting region, are a favored habitat and gathering area for Southern Paiute basketry and cradleboard materials, and for medicinal and food plants. In addition, construction activities will affect the habitat of the desert tortoise, which has symbolic and sacred significance for Southern Paiute peoples (Laird 1976).

The radius of indirect impacts to ancestral/sacred sites is also relevant to culturally sensitive floral and faunal resources. Three areas immediately adjacent to the proposed base are particularly sensitive to local Southern Paiutes for traditional hunting and gathering activities. Coyote Spring is utilized for willow gathering, and big-horn sheep hunting is undertaken in adjacent mountain areas. Meadow Valley Wash, just east of the OB residential community, contain important seeds, Indian spinach, and medicinal herbs, and is also a rabbit hunting area. Finally, Kane Springs Wash is a major gathering area for pine-nuts, seeds, squaw berries,



LEGEND 000 TOTAL 1992 TRAFFIC
 1000 MAX TRAFFIC
 10000 1992 TRAFFIC WITHOUT MAX

SCHEMATIC: NOT TO SCALE

2201-A-2

Figure 2.1.11-1. Projected traffic volumes in the vicinity of Coyote Spring Valley, assuming first operating base.

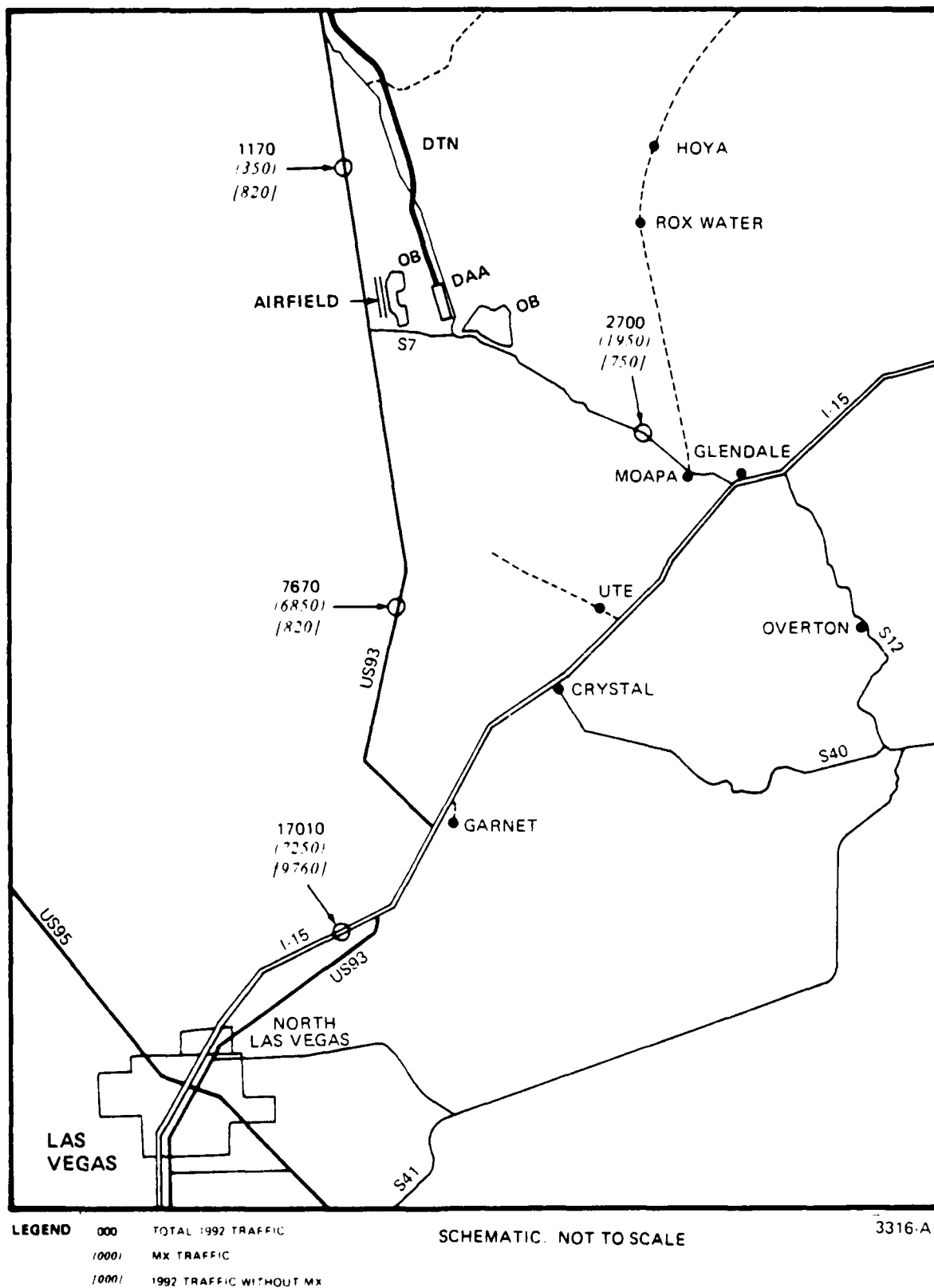


Figure 2.1.11-2. Projected traffic volumes in the vicinity of Coyote Spring Valley, assuming second operating base.

Indian spinach, medicinal plants, and cradleboard willows, and a center for traditional ceremonies. Greatest potential for indirect impacts to these important resources lies in the substantial population in-migration associated with the OB, and the expansion of construction and base personnel into adjacent areas for recreational activities. Damage to some areas of Kane Springs Wash, for example, has already resulted from ORV activity.

For a discussion for appropriate cultural resource mitigation measures, see ETR-21.

Farming is fundamental to the Moapa Indian reservation's economic base. Land withdrawal and water use, therefore, are expected to be issues of central concern to the Moapa Southern Paiutes.

The proposed OB complex site at Coyote Spring will not directly impact reservation lands or the acreage currently slated for Moapa Reservation expansion. However the proposed site does fall within the 1874 reservation boundaries and withdrawal of that land for the M-X could be considered an economic threat. The Moapa band of Southern Paiute has indicated an intention to recover those former lands.

The site is upstream from the Muddy River Springs, east of the Sheep Range in an area traversed by the waters which ultimately discharge Muddy River Springs and other springs used by the Moapa reservation.

The proposed action operating base at Coyote Spring would directly affect the water flow of the Muddy River and indirectly impact Moapa Reservation present and pending agricultural land resources. Water demands for the operation of the base at Coyote Spring would be about 4,000 acre-ft per year; peak demands would be as high as 4,400 acre-ft/year. When this usage is combined with construction demands of clusters upstream in the White River drainage system, up to 10,500 acre-ft/yr of groundwater could be used during the short-term construction years. This utilization would significantly affect the flow of the Muddy River Springs and the Muddy River, the lower outlet for the White River drainage, with a total flow of 36,000 acre-ft per year. This discharge is the long term perennial yield of the Coyote Spring, Kane Springs, and Muddy River Springs units (Eakins 1964:25).

During the long term, operations at the OB would require removal of 4,000 acre-ft/year at Coyote Springs for 30 years of operation which would, directly reduce the flow of Muddy River Springs for the life of the base. Total recharge in the Coyote Spring, Kane Springs, and Muddy River Springs areas combined from precipitation alone is only 2,600 acre-ft/year (Eakins 1964:22).

Under existing conditions the Muddy River springs are fed by groundwater originating in the Coyote Spring, Kane Springs, Pahroc, Pahrnagat, Dry Lake, Delamar, White River, Long, Jakes, Cave, Garden, and Coal valleys. Flow at the Muddy River Springs is relatively constant and feeds the agricultural, stock raising, domestic and craft needs of the Moapa Reservation as well as those of other users in the Muddy River Valley. The Moapa Reservation presently diverts 12 cfs from the Muddy River, fully 24 percent of the discharge of the Muddy River Springs (26 percent of the streamflow of the Muddy River at Moapa). Water use on the reservation is already 6.8 times that allotted under state decree. A reduction in the

flow of the Muddy River Springs would directly reduce Moapa access to water and diminish present and planned economic activities (especially greenhouse horticulture and cattle operations (Eakins 1964:l, Eakins 1966, Facilitators Inc. 1980).

A reduction in the flow of the Muddy River would also limit water available for the development of the Moapa Reservation expansion. Water for these expansion lands would be available after the demands of more senior users are met. Depletion of the groundwater upstream, including a short- or long-term lowering of the water table, would have a corresponding effect on the productivity of the Muddy River Springs.

Mitigation of the water problem at Coyote Spring can best be dealt with by avoidance. Avoidance could take the form of purchases of surplus water from Las Vegas covering construction, and operation needs during the lifetime of the base. This would relieve any stress on local groundwater resources. Wastewater from the base could then be a resource itself, helping to improve regional groundwater resources or used for agriculture, especially by the Moapa who face a water deficit in developing their proposed expansion. Unforeseen consequences of such a mitigative strategy would have to be investigated.

Other than by avoidance, mitigation would be accomplished by the adoption of a strict water regime to minimize use: landscaping with native plants that require no irrigation, rejection of plans for watered recreational areas, flow restrictions on showers, automatic faucet shutoffs, the use of waterless toilets, and minimum possible use of water for health and hygiene. These strategies would reduce base water consumption to a very low level.

The recent economic history of the Moapa band and the plans for future economic development on the reservation indicate that the Moapa band is striving to become economically independent, and is meeting with measurable success. Income for the Moapa Indians is generated from farming and ranching and some of the Indians have construction jobs, work in the leather shop or in the green houses.

The job opportunities which site construction make available are expected to be attractive to Native Americans whose economical circumstances are generally depressed. Construction of an OB near the Moapa reservation would make that reservation attractive for friends and relatives of the Moapa people in search of employment. The distances are not prohibitive and the promise of work nearby is expected to create an influx of unenrolled Southern Paiutes, as well as members of other tribes, into the Moapa reservation itself.

Some of the in-migrating Native Americans will obtain jobs created by M-X. While the housing situation on the reservation has been steadily improving over the last few years - there are 34 units now and 10 more are under construction - the population influx would render the housing facilities inadequate. Since most of the newcomers would not be enrolled members of the Moapa band, federal money for reservation housing would not be provided. While there are no schools or health facilities on the reservation itself, those in the nearby community of Overton would be utilized by the in-migrating Native Americans. (See ETR-21 for further details on possible impacts and some suggested mitigations to the Moapa Reservation).

Detailed cultural resource and socioeconomic data collected at the Moapa Reservation are being analyzed to refine the impact assessment.

EFFECTS ON ARCHAEOLOGICAL AND HISTORICAL RESOURCES (2.1.13)

Intensive field surveys have not been conducted in the proposed Coyote Spring OB siting area nor in the suitability zone surrounding the proposed OB. Therefore, direct and indirect impacts to cultural resources cannot be fully assessed at this time. Existing data, however, suggest that sites tend to be located in proximity to water sources regardless of topographic setting, but more frequently in the mountains and foothills above the valley bottoms. Areas of extremely high sensitivity surround the proposed OB site, and it is estimated that within a 20 mile radius of the proposed OB, approximately 700 mi², representing 55 percent of the area, can be considered to be of moderate to high sensitivity.

As depicted, the residential and recreational areas of the OB will directly impact approximately 9 mi² of potential moderate to high sensitivity area in the foothills north of the Muddy River, and approximately 3 mi² of moderate to low sensitivity area as a result of construction of the airfield, the DAA, the OB, the OBTS, and the roads connecting the OB to the residential area. The OB and the DAA are placed in a potentially sensitive area where the Muddy River begins to maintain a permanent surface flow. No water sources such as springs presently occur within the proposed suitability zone. However, areas of potential high site density may occur in association with other critical resources not identifiable from maps.

Recommendations for mitigating these potential direct impacts include movement of the residential area to the mid-bajada area on the west side of the Meadow Mountains and movement of the OBTS to the mid-bajada area north of Kane Springs Wash. Site density is expected to be somewhat lower here than in the foothills north of the Muddy River.

Indirect impacts are difficult to assess. However, previous studies (Lyneis and others 1980) have shown that population increase, accessibility, and site visibility contribute significantly to increased indirect impacts. These adverse effects include vandalism, collection of artifacts, theft of materials, and increased off-road vehicle use and recreational activities. Indirect impacts of this nature are anticipated to be much more extensive and more destructive to cultural resources than the direct effects of OB construction. These impacts will result from an induced population growth of nearly 28,000 in the region, with 15,000 people living on-base by 1989. Furthermore, there will be much increased accessibility to once remote areas due to the project road network.

National Register properties subject to indirect impacts include the Sheep Mountain Range, Black Canyon Petroglyphs, and the White River Narrows district. Other highly vulnerable areas include the Muddy River drainage, Arrow Canyon in the Moapa vicinity, the Meadow Valley drainage, and the Pahrangat and White River drainages. Numerous sites are known to occur in these areas surrounding the Coyote Spring OB. Impacts to valleys in the vicinity of this OB are summarized in ETR-5.

Growth-related impacts in nearby communities potentially include neglect and decline of architecturally and historically significant properties, incongruous new construction disruptive of the community's architectural integrity, and demolition of significant structures for new construction. Effects of this nature are likely to be

extensive in the urban Las Vegas area and in the smaller communities to the north including Caliente, Panaca, Alamo, Hiko, and Pioche.

While direct effects can frequently be mitigated through resource avoidance, indirect impacts are more difficult to mitigate. Reduced population incursion, restricted access to sensitive areas, protective measures, and increased public education are measures which can serve to reduce these effects. In contrast to direct impacts which are of shorter duration and coincide with the construction effort, the indirect impacts discussed are of long-term duration and will increase in proportion to the increase in population and the increase in accessibility. Both direct and indirect effects will result in the irretrievable commitment of nonrenewable cultural resources.

Because direct and indirect impacts on National Register and eligible properties are anticipated, a Programmatic Memorandum of Agreement has been developed between the Advisory Council on Historic Preservation and the Air Force and other concerned agencies. This document outlines a program which, if implemented, will avoid or satisfactorily mitigate adverse effects on historic and cultural properties.

Paleontological Resources

Paleontological resources will not be directly impacted as their locations are outside the base site.

2.2 NATURAL ENVIRONMENT

EFFECTS ON VEGETATION (2.2.1)

The Coyote Spring site would be used for the first operating base in the Proposed Action and in Alternative 1, 2, 3, and 8. It would be used for the second operating base in Alternative 4 and 6.

A general discussion of impacts to native vegetation that would result from the use of the Coyote Spring site is given in ETR-14.

Two significant sources of impact not discussed in detail in ETR-14 are effects on groundwater drawdown and increased collection of plants for commercial purposes. Groundwater over-drafting could cause the loss of deep-rooted phreatophytes like mesquite and desert willow, found in washes and arroyos. These plants provide important forage, cover and nesting habitat. The Coyote Spring hydrologic subunit contains several cactus and Yucca species that are commercially valuable as landscaping species. Plant poaching is expected to increase, resulting in loss of an unquantified number.

In addition, new urban development is expected in the Coyote Spring hydrologic subunit, in the vicinity of the new base. An unquantified area of native vegetation, mainly creosote bush scrub and Joshua tree woodland, would be permanently lost as a result of development of this new community.

EFFECTS ON WILDLIFE (2.2.2)

Mountains are important bighorn sheep habitats, supporting populations of approximately 1,300 bighorn sheep as of 1976. Recreational activities associated with increased human populations could interfere with the bighorns use of watering sources. Five migration routes, three of which cross Highway 93, are known to occur between mountain ranges surrounding Coyote Spring Valley. Increased traffic may cause sheep to avoid crossing, effectively blocking these routes, or result in more road kills. Illegal harvest may also increase. Herd health and stability in each range could be affected for as long as people remain in this area. Since the potential for significant impact to bighorn sheep exists, a more detailed analysis is presented in.

Mule deer, which occur in low members in this area, could be affected by increased recreation, but overall impacts to deer would not be very high. The chuckwalla (Sauromalus obesus), which is declining over much of its range, may be particularly impacted. This species may reach its northernmost range limit here and construction in this valley and adjacent Kane Springs valley (particularly on rocky slopes) could destroy chuckwalla habitat and individuals.

Gambel's quail occur throughout the lower elevations, and some loss of habitat would result. Areas which need to be protected from destruction are the newly constructed watering devices (guzzlers) in Kane Springs Wash.

EFFECTS ON AQUATIC SPECIES (2.2.3)

Direct impacts to aquatic habitats and species from the proposed Coyote Spring Valley OB would be restricted to direct physical disturbance of Pahranaagat Wash and its drainage system, and the downstream transport of sediments and non-point source pollutants toward Moapa. New residents to the area would be expected to increase fishing pressure on nearby resources. Current residents of Clark County contribute a large portion of angler-days and a high proportion of their harvest is taken from habitats far beyond the distance normally associated with recreational use drop-off distance (see Recreation). Table 2.2.3-1 is a sample of fishing resources beyond the normal recreational use area that are heavily used by Clark County residents. New OB residents would be closer to all of these resources and would, therefore, tend to use them at an even higher rate.

The largemouth bass populations in Pahranaagat reservoir (in Pahranaagat Valley 50-60 mi north of the potential OB site) probably would be reduced through increased fishing pressure as a result of increased population levels during construction and operations.

Management practices, including stream restoration, increased stocking, and legal bait and gear restriction, would probably require modifications to maintain acceptable fishing success levels.

EFFECTS ON PROTECTED SPECIES (2.2.4)

Protected Terrestrial Animals

A new community in Coyote Spring Valley could lead to loss of desert tortoise and their habitat. This species occurs throughout this watershed, particularly in washes and on slopes. The operating base community would occur in habitat

Table 2.2.3-1. Percent angler use and fish harvest by residents of Clark County at distant fishing resources.

RESOURCE NAME	DISTANCE TO POPULATION OF CLARK CO. (Air Miles)	PERCENT OF OF TOTAL ANGLER DAYS	PERCENT OF OF TOTAL FISH HARVEST
Cave Lake	220	27.2	34.8
Comins Lake	216	23.3	35.8
Haymeadow Reservoir	156	89.0	82.5
Adams-McGill Reservoir	160	34.6	16.2
White River	200	58.8	53.7
Cleve Creek	220	62.4	64.6
Baker Creek	210	61.7	44.4

3843

Source: 1979 Nevada DOW Angler Use Survey.

supporting one of the highest densities of desert tortoise in this area. Construction of the base in the southern part of this watershed could impact gila monster habitat. The exact range of the gila monster in Nevada is not well known.

Kane Springs Wash and Coyote Spring Wash Area are within desert tortoise range, and gila monsters possibly occur further south in Coyote Spring Wash. Some potential tortoise habitats would be destroyed by base construction and by off-road vehicle use, and without strict controls tortoise numbers could be further reduced by illegal taking for pets. A more detailed impact analysis was conducted for desert tortoise with results in ETR-17. Desert tortoise would be significantly impacted by the Coyote Spring Valley OB due to direct loss of 7000-7500 acres of habitat and the indirect effects of recreational use of lands surrounding the OB. Mitigation measures are discussed in ETR-17.

Bald eagles winter at the nearby Pahrangat National Wildlife Refuge and may leave the area if this refuge is heavily visited by people from the base.

Protected (or Recommended Protected) Aquatic Species

Near the proposed Coyote Spring Valley OB is Moapa Fish Sanctuary. In the several springs of this sanctuary occur the federally protected Moapa dace, the state protected Moapa White River springfish, the recommended protected Moapa speckled dace and three recommended protected invertebrates. Not only is this OB near the sanctuary, but it is also upslope from it. This is an important consideration with respect to groundwater withdrawal and its relation to water supply to the sanctuary. Some springs in the sanctuary are presently used for such recreational activities as swimming. Locating the OB near this sensitive habitat would most certainly increase recreational use unless it was regulated or prohibited.

About 35 mi north of the potential OB site are the Pahrangat Valley sensitive aquatic habitats (Hiko, Ash, and Crystal Springs) in which one federally protected fish, one state protected fish, one recommended protected fish and two recommended protected invertebrates occur. Outflows of these sensitive spring habitats are used for such recreation as swimming, picnicking, and camping. These activities would be expected to increase as a result of the location of the OB at Coyote Spring Valley. About 25 mi south is another habitat containing a recommended-protected invertebrate, and about 35 miles to the east in the Virgin River occurs one federally protected and two recommended-protected fish. These Virgin River fishes may be heavily influenced by any project-related pressures such as water disturbance by offroad vehicles, camping and picnicking. Fishing in the lower Virgin River is not popular. About 30-35 miles southeast of the project area occur transplanted populations of the federally protected Pahrump killifish and two species of recommended-protected invertebrates. Because they are located so close to Las Vegas (with 20 mi), it is not expected that impacts to these habitats would be experienced beyond that presently occurring.

In summary, an operating base at Coyote Spring may heavily impact two federally protected fish, two state protected fish, and about five recommended-protected invertebrates. Moreover, it would indirectly affect another two federally protected fish, two recommended-protected fish and at least three recommended-protected invertebrates. Of all the potential OB locations, the impacts at Coyote Spring site would be most difficult to mitigate with respect to protected and

recommended-protected aquatic species. A detailed impact discussion of alternatives involving this OB and potential mitigations are presented in ETR-17, Protected Species.

Protected Rare Plants

One rare plant species, the Steno sandwort (Arenaria stenomeres), occurs at the edge of the suitability zone of the Coyote Spring operating base. This location is within 2 miles of the proposed operating base location. Indirect impacts results from ORV use and recreational use could alter habitat for this species, resulting in a possible decrease in its abundance or a narrowing of its distribution. Quarry sites used for highway construction may result in habitat removal. Within the boundary of the Desert National Wildlife Range, two localities have been mapped (Nevada State Museum, 1980) for this species. The Steno sandwort is protected by the State of Nevada under NRS 527.270. These three are the only known locations for the plant.

Indirect impacts to rare species are likely to occur in surrounding recreational areas. Many habitat-restricted, endemic, and state-protected species, occur in lowland areas in the vicinity of this basing site, and may be impacted through an increase in ORV activity. Four species, the Nye milkvetch (Astragalus nyensis), the fragment Ash (Fraxinus cuspidata var. macropetala), the Rosy bicolored penstemon (Penstemon bicolor spp. roseus) and the triangle Geyer milkvetch (Astragalus geyeri var. triquetrus), occur in areas identified by the BLM as high potential ORV use areas. The risk to these species is likely to increase as the population, and therefore recreation level, increases. Both species of milkvetch are state-protected.

An increase in population has been identified as contributing to an increase in illegal collection of plants (Murphy, 1980). The Mormon Mountains, in southern Lincoln and Clark Counties, have been identified as a potential trouble spot for illegal plant collection.

Several populations of the rare pygmy agave (Agave utahensis var. eborispina) are located in the foothills of the Sheep Range. Agaves are in great commercial demand, and illegal collection is likely to occur.

Expansion of Moapa, the town nearest to the proposed OB site, could impact the triangle Geyer milkvetch (Astragalus geyeri var. triquetrus), and the state protected Nye milkvetch (A. nyensis), which occur within 2 mi of this town.

Wilderness and Significant Natural Areas

Development of a new community in the Coyote Spring watershed could indirectly impact nearby wilderness and significant natural areas. Wilderness/significant natural areas nearest to the proposed OB include the Desert National Wildlife Range (an administratively endorsed wilderness proposal), its objectives for wildlife conservation and protection of the natural environment may become indirectly affected by the proposed installation. Three designated wilderness study areas (WSAs) directly abut the eastern border of the Desert Game Range, and a designated WSA in the Arrow Canyon Range. All of these are located within a 6 mi radius of the potential Coyote Spring OB.

Potential wilderness and significant natural areas located within a 50-mi radius of the proposed OB location are listed in Table 1.2.1-1. Impacts anticipated due to M-X construction and operation in the vicinity of these areas would result from increased population-induced recreational activities.

EFFECTS ON WILDERNESS AND SIGNIFICANT NATURAL AREAS (2.2.5)

OB impacts on wilderness are detailed in ETR-18. Discussion here is limited to significant natural areas. Figure 2.2.5-1 shows the proximity of the operating base location for Coyote Spring to nearby key natural areas. There is no intersection of the base suitability envelope with significant natural areas; however, the Moapa Valley Fish Sanctuaries are within 1-2 miles of this zone.

As noted in ETR-18, impacts of basing sites are likely to be related to the recreational activities of the in-migrants. Again, using the indirect effects analysis areas likely to receive increased recreational use as a result of siting a base at Coyote include Pahrnagat Lakes, Desert National Wildlife Refuge, Moapa Valley Fish Sanctuaries, Key Pitman Wildlife Management Area, and Valley of Fire State Park.

EFFECTS ON SURFACE WATERS (2.2.6)

Construction and maintenance of the operating base could have an impact on surface water resource due to increases in flooding and erosion. Storm runoff would be increased by the introduction of impermeable surfaces and channelization. Water quality may be affected by increased sediment loads due to construction. Surface water is already appropriated for other uses. If surface water rights are purchased, stream volumes may be reduced locally but reduction of total surface water volume would be partially offset by return flow after treatment, especially during the maintenance phase.

Operating base construction in Coyote Spring Valley is predicted to result in a moderate short-term erosion impact due to the present moderate erosion rating of the soils. Revegetation of the disturbed soils as well as employment of proper engineering design will help mitigate the impacts. The long-term erosion impacts will be low if mitigations measures are employed.

EFFECTS ON GROUNDWATER RESOURCES (2.2.7)

Potential Impacts

The site lies in close proximity to an area which has been designated a critical groundwater basin (Moapa Springs) by the Nevada State Engineer. This area has the major discharge point (springs in the Moapa area) of a regional groundwater flow system defined by the drainage of the pluvial White River. Since it is thought that the flow from springs in the Moapa area derive their recharge from this regional system, a disturbance (water removal) would have some effect downstream. Since in the Coyote Spring Valley site is in close proximity upstream from the Moapa Springs, it is probable that groundwater pumpage at the OB site would reduce the flow in those springs. Current development of springs in the Moapa areas is such that essentially all the flow is beneficially used.

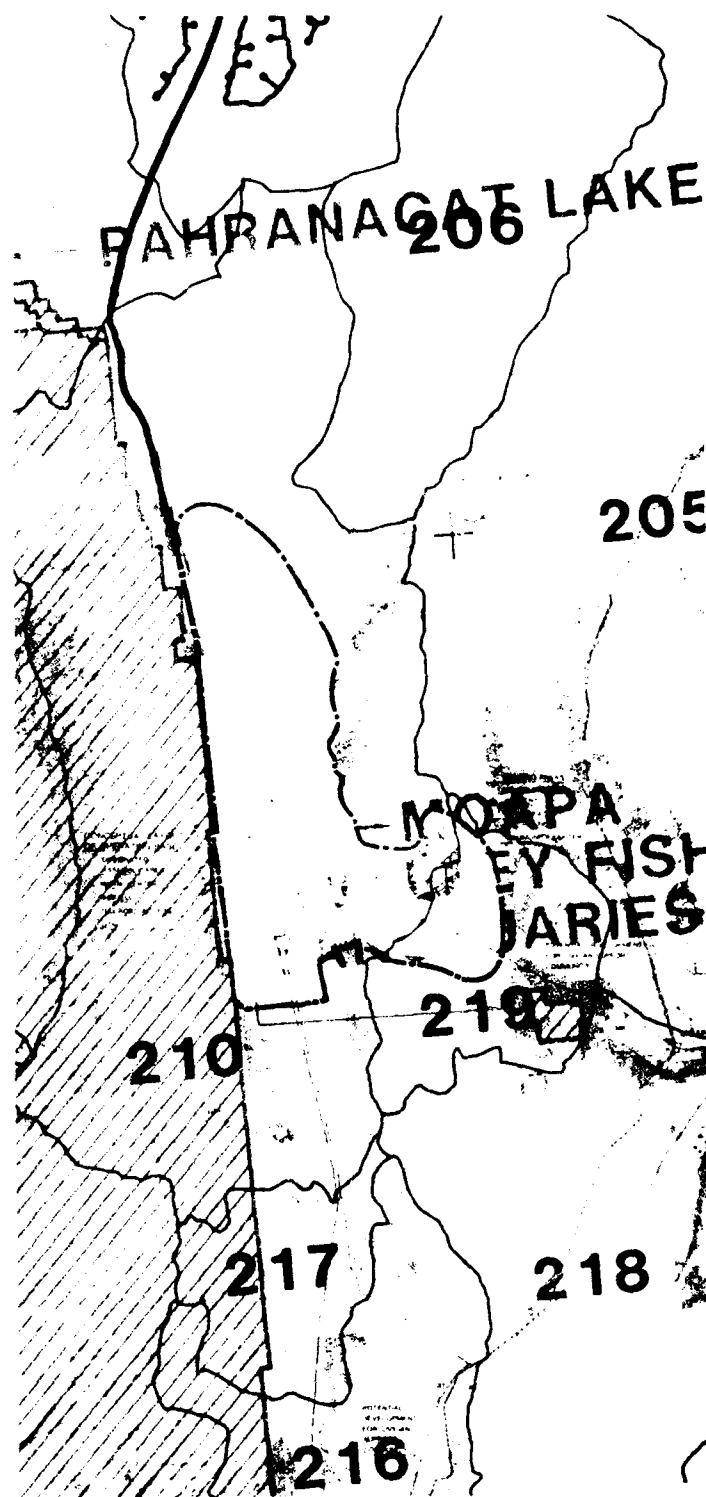


Figure 2.2.5-1. Coyote Spring suitability envelope vs. significant natural areas.

With M-X withdrawals, socioeconomic and biological impacts would occur as well as direct impacts to the groundwater resource. Socioeconomic impacts would stem from reduction of the supply available to spring appropriations. These impacts may result in spring appropriators having to drill wells in order to obtain a water supply or possibly deal with a permanent loss of supply if a new type of supply is not economically feasible. Loss of wildlife habitat would also be a likely impact due to reduction of flow from Moapa Springs. Certain protected and endangered species would be adversely impacted by a reduction in the springs flow.

Additional impacts to the groundwater resource include quality deterioration and land subsidence. As water is removed from storage, an hydraulic gradient is created. This gradient draws water from some distance away from the well and could there by deteriorate the water quality. If the quality of water from a particular source is already marginal for present uses, M-X-induced development could render the source unfit for those uses and effectively reduce the available supply. A compaction of the underlying strata could occur because of increased withdrawal rate. Land subsidence could occur near wells penetrating thick sequences of poorly consolidated sediments such as the valley-fill aquifers in the Great Basin Region. Associated with compaction could be the loss of interstitial spaces, premanent dewatering of storage volume, and loss of permeability resulting in permanent well yield reductions.

When compared with other sites in Nevada/Utah the relative potential for groundwater impacts at Coyote Spring Valley would be moderately high. This rating is due to the proximity to important springs. Since the groundwater resource is being used at capacity, the addition of M-X demands would create significant impacts.

M-X groundwater withdrawals would not exceed the perennial yield estimated by the Nevada State Engineer's Office for Coyote Spring and Kane Springs Valleys. However, this estimate is in conflict with an earlier, much smaller value. Current use is primarily for livestock and irrigation, with developments concentrated in the Muddy River Springs area. No significant impacts on groundwater levels would be expected due to M-X withdrawals from the aquifer. Many of the springs in these valleys discharge from perched zones. Pumping from these areas could significantly decrease spring discharge rates. Groundwater withdrawals may lower the hydraulic head in the underlying carbonate rock aquifer system and lower the discharge rate of Moapa Springs, located south of these valleys. Increased surface runoff during major storms would be minimal. Local increases in sheet and stream-channel erosion may occur. Construction activities could degrade surface-water quality during thunderstorms, but no significant impact on groundwater quality would be expected.

Mitigation Measures

The M-X well field would be designated to avoid existing pumpage centers, springs, and local users. In cooperation with state agencies, water levels, water quality, and spring discharge before and during operations would be monitored to detect potential changes in the groundwater system. A numerical simulation model would be employed to evaluate the effects of M-X withdrawal. The withdrawal procedures would be altered to minimize impacts. Construction of a pipeline to transport water from a nearby valley with more plentiful groundwater may be

earlier, lower perennial-yield estimate is correct. A local surface-drainage system would be constructed to safely convey runoff from the M-X operating base site to natural drainage, with erosion control structures to stabilize channels and prevent streambed erosion. Temporary ponds would be built to reduce peak flow and desilt the runoff to avoid downstream deposition. After completion of the M-X project, the water supply system may be available for local use.

EFFECTS ON AIR QUALITY (2.2.8)

To avoid redundancy in the text, the logic employed in the selection of a particular model and the limitations of the models are addressed in ETR-13.

Construction

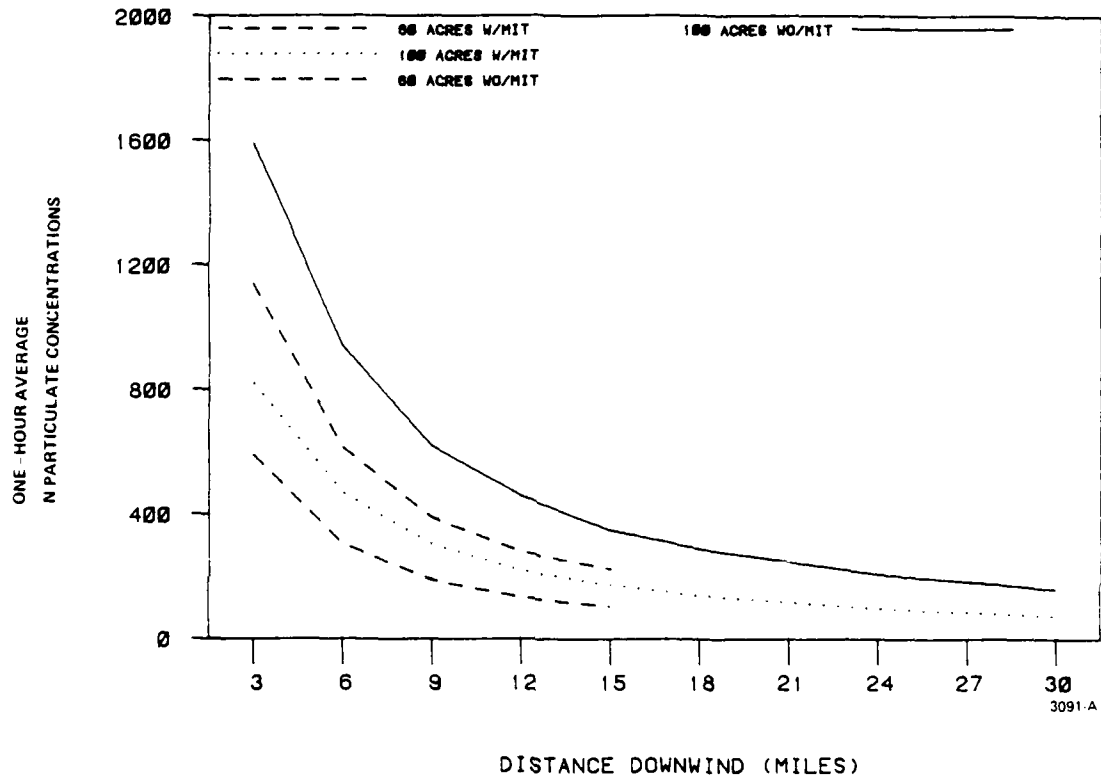
Figure 2.2.8-1 presents the PAL model results for two representative base construction area source sizes and two emission levels, unmitigated and mitigated. The mitigation case assumes application of enough dust palliative to reduce particulate emissions by 50 percent. Population is not affected, as there is no nearby major community. The results indicate that the Coyote Spring area will experience a particulate problem but due to model limitations (ETR-13), the predicted dust concentrations which show NAAQS exceedances are only a rough approximation.

Operation

The HIWAY model was used to examine the potential for local maxima of hydrocarbons, CO, and NO_x associated with peak-hour traffic. The results are shown in Table 2.2.8-1. The maximum predicted 1-hour CO concentration of 9.7 ppm is well below the federal or Nevada standard of 35 ppm. As there are no federal or Nevada 1-hour HC and NO_x standards, a direct comparison of the modeling results with standards is not possible. However, the estimated values are not anticipated to be of long duration.

The predicted one-hour HC levels exceed the three-hour standard. It is possible that the peak three-hour level will also exceed this standard. The HC standard is to be used as a guideline for attaining the photochemical oxidant standard. The potential for oxidant impacts in the Las Vegas nonattainment area due to HC and NO_x emissions will require sophisticated numerical modeling techniques and detailed emissions data not currently available. The IMPACT model and input variables used to predict impacts of CO and NO_x are discussed in Section 1.2.5. The modeling results for Coyote Springs show that CO reached an hourly maximum concentration of 1.5 ppm and NO_x reached an hourly maximum of 0.20 ppm (see Figures 2.2.8-2 and 2.2.8-3). The CO value is below both the federal and Nevada standard of 35 ppm and no significant adverse impacts are anticipated. The maximum one hour NO_x concentration of 0.20 ppm, while greater in magnitude than the federal and Nevada annual standard, is anticipated to be of extremely short duration and should not lead to any significant long-term impacts. The emissions of SO_x and HC are less in magnitude than those of NO_x or CO, so the predicted concentrations will also be smaller. Thus, no violation of the standards are expected for SO_x and HC.

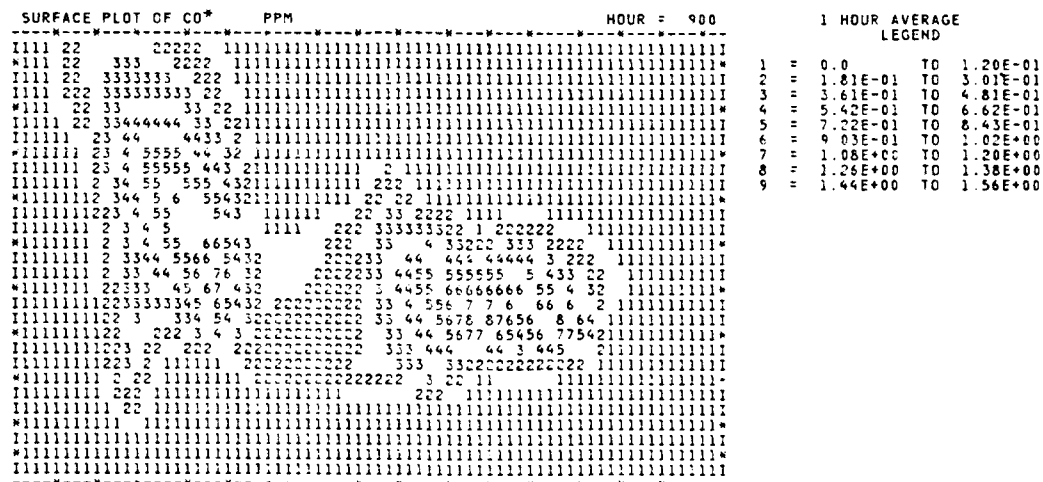
POTENTIAL FUGITIVE DUST IMPACTS DUE TO OB CONSTRUCTION



NOTE

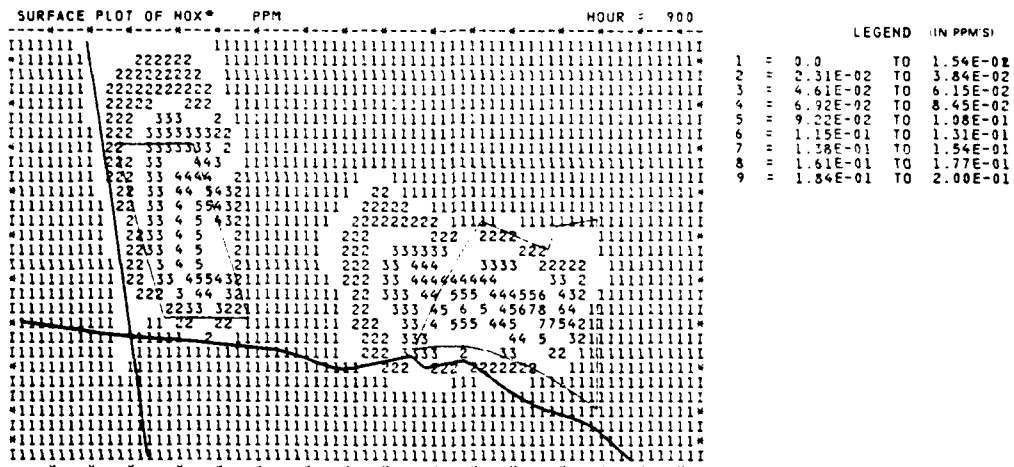
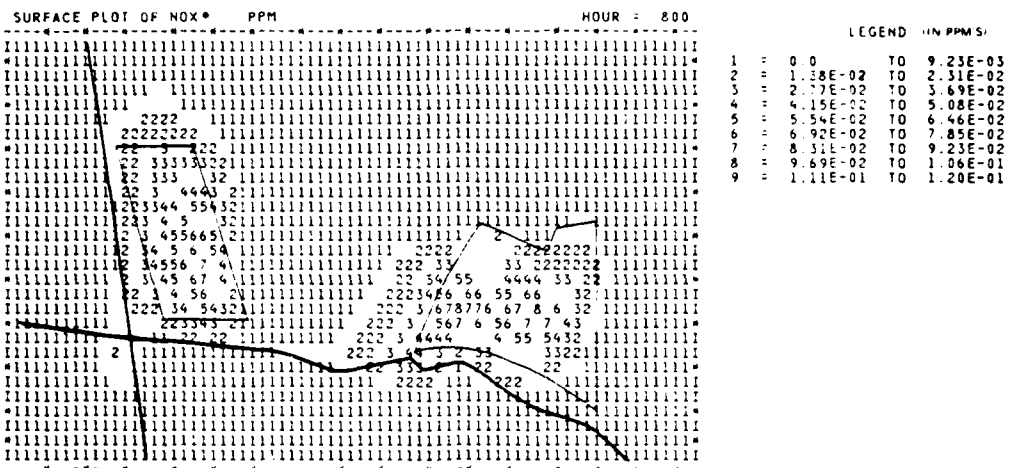
- 1.) CONCENTRATIONS ARE 1-HOUR AVERAGES, REPORTED IN MICROGRAMS PER CUBIC METER
- 2.) METEOROLOGICAL CONDITIONS WIND SPEED = 5 m/s, STABLE ATMOSPHERE, 500 METER MIXING HEIGHT.
- 3.) CONCENTRATIONS REPORTED FOR 60 AND 100 ACRES OF CONSTRUCTION ACTIVITY

Figure 2.2.8-1. Potential fugitive dust impacts due to OB construction.



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*NOTE: THIS IS A SCHEMATIC REPRESENTATION OF THE DATA RESULTS PRESENTED IN THE SURFACE PRINT FOR THIS SITE. BLANK SPACES INDICATE INTERMEDIATE VALUES BETWEEN ADJACENT INCREMENTS

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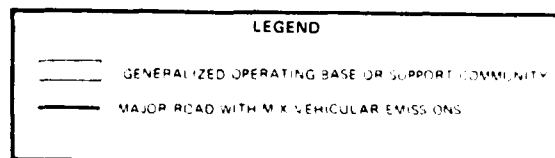


Figure 2.2.8-3. Predicted hourly NO_x concentrations at the Coyote Spring Valley OB site.

Table 2.2.8-1. Coyote Spring, traffic-related concentrations:¹ 1-hour average in $\mu\text{g}/\text{m}^3$ (ppm), 50 m from edge of roadway.

CLASSIFICATION	PEAK HOUR TRAFFIC ² VEHICLES/HR	CO	HC	NO _x
Baseline	85	457 (0.4)	58 (0.09)	79 (0.04)
Baseline Plus M-X Induced Traffic	2,125	11,105 (9.7)	1,771 (2.64)	1,887 (1.00)

3039-1

¹Worst case meteorological conditions: 1 meter per second wind, 25 meter mixing height, wind parallel to roadway, very stable atmosphere.

²Peak-hour traffic is assumed to be 15 percent of the Average Daily Traffic (ADT).

EFFECTS ON MINING AND GEOLOGY (2.2.9)

There are no known mines in the area, and the potential for future mining activities is expected to be low.

Soils Impacts

Soils will be impacted through several means during construction and operation of the potential OB site in Coyote Spring Valley. The erosion potential is presently slight to moderate in Coyote Springs Valley, except in Kane Springs wash where it is critical. However, as the soil surface is disturbed through earthwork and other construction activities, it will become more susceptible to the agents of erosion. Disturbances of the land cause surface drainage patterns to change, encouraging water erosion of the soil where it may not have occurred before. Wind erosion of the finer soil particles will result as the dry soils are loosened and moved about. If the most productive surface layers are eroded away, revegetation and any future agricultural development may become more difficult to establish at the site of erosion. In addition, as soils are washed away, roads may be undercut and gullies widened and deepened. Deposition of the material at some distance may cause other problems, including the degradation of surface waters.

Excavation activities have other potentials for adversely affecting the productivity of the surface soils, necessary to maintain for revegetation. Different soil horizons often contain accumulations of deleterious substances (salts, alkali, etc.) in concentrations that would restrict normal plant growth. Exposing and mixing of these undesirable soil horizons with the surface soils will result in the surface being reduced to a lower level of plant productivity. This will affect revegetation efforts as well as the value of the land for any future potential agricultural development. The chemistry of the underlying soils in Coyote Springs Valley are not known in enough detail at the present to determine the extent of this possible impact on soil productivity.

Excavation and earthwork activities may have a positive impact on the soils of Coyote Springs Valley. Many of the soils of this area, including the Durorthid and Paleorthid great groups, have hardpans cemented with silica and carbonates at 12 to 36 inches (30 to 91 cm) below the surface. Such hardpans limit effective root penetration, thereby restricting plant growth. Excavation and earthwork activities may serve to disrupt these hardpans and enhance plant reestablishment.

Heavy construction equipment operating on soil surfaces as well as regular passes of smaller vehicles over soil surfaces will cause the soil to compact and lose any structure it once had. Soil compaction results in lower filtration rates which, in turn, leads to increased runoff rates and erosion.

