

Appendix I

Socioeconomics

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I.0 Socioeconomics

I.1 Baseline Socioeconomic Tables

Chapter 3.11 provides baseline information concerning the socioeconomic and demographic information on the Project Region and Study Area. Specific socioeconomic patterns are not discussed in this appendix. The following tables are provided in addition to the discussion provided in Chapter 3.11.

- Table I.1-1, Employment, Establishments, and Earnings by Industry in Clark County, Nevada, 2000
- Table I.1-2, Employment By Industry Sector In Clark County, Nevada, 1993 and 1997
- Table I.1-3, Earnings by Industry in Clark County, Nevada, 1993 and 1997
- Table I.1-4, Project Region Historic Population Trends, 1980 to 2000
- Table I.1-5, Clark County and State of Nevada Population Projections, 2000 to 2020
- Table I.1-6, Residential Building Permits, Clark County, Nevada, 1999 to 2003

The employment, establishment, and earnings data were obtained from two separate USBOC publications: the *2000 County Business Patterns* (USBOD 2000b) and the *Economic Census* (1992 and 1997) (USBOD 1992, 1997). The *2000 County Business Patterns* publication uses the North American Industry Classification (NAICS), and the *Economic Census* (1992 and 1997) uses the Standard Industrial Classification (SIC) system. The SIC classification system is an organizational system that identifies business establishments by the principal activity in which they are engaged. The NAICS system, like the SIC system, uses a coding system that classifies industries by the principal activity in which they are engaged and is used in the U.S., Canada, and Mexico. Because the industry categories used in the NAICS and SIC systems are slightly different, it is difficult to make direct comparisons concerning industry changes over time.

I.2 Impacts

IMPLAN Professional (Version 2.0) (IMPLAN), a computer-based modeling program, was used to predict economic effects associated with the proposed project alternatives. IMPLAN uses industry and employment data from the target county to predict indirect and induced effects of proposed project implementation. This input-output model is used by the analyst in conjunction with a detailed set of assumptions that are developed by the analyst and related to project details, to predict how project related expenditures would impact the economies of the target county. The input-output model predicts how dollars spent on the proposed project would affect specific industries within the county as dollars are spent and re-spent locally. The results are expressed as indirect and induced impacts to employment, value-added, total output, and indirect business taxes.

Table I.1-1 Employment, Establishments, and Earnings by Industry in Clark County, Nevada, 2000.

Industry Sector	Number of Employees	Number of Establishments	Annual Payroll
Accommodation & Food Services	220,354	2,439	\$5,405,715
Retail Trade	73,341	4,454	\$1,736,142
Construction	63,271	2,717	\$2,225,206
Admin, Support, Waste Mgt, Remediation Services	44,058	2,131	\$1,063,365
Health Care and Social Assistance	42,906	2,582	\$1,542,783
Professional, Scientific & Technical Services	28,999	3,330	\$1,307,545
Finance & Insurance	22,776	2,453	\$843,459
Transportation & Warehousing	21,230	543	\$490,610
Arts, Entertainment & Recreation	19,539	662	\$482,094
Other Services	19,138	2,171	\$414,111
Wholesale Trade	19,117	1,539	\$752,715
Manufacturing	17,875	882	\$615,098
Real Estate & Rental & Leasing	14,798	1,777	\$416,206
Information	14,423	536	\$612,632
Management of Companies & Enterprises	6,754	436	\$363,321
Auxiliaries	3,085	49	\$107,209
Utilities	2,500-4,999	41	\$0 N/A
Educational Services	2,765	226	\$117,789
Unclassified Establishments	965	608	\$29,958
Mining	250-499	39	\$0 N/A
Forestry, Fishing, Hunting, and Agriculture Support	100-249	16	\$0 N/A
Total	638,244 -641,141	29,631	\$18,525,958

Note:

The industry categories contained in this table are different from the industry categories contained in Tables I.1-2 and I.1-3. Table I.1-1 is based on 2000 County Business Patterns data, which use NAICS; Tables I.1-2 and I.1-3 are based on Economic Census data, which use the SIC System.

Source: USBOC 2000b.

Table I.1-2 Employment By Industry Sector in Clark County, Nevada, 1993 and 1997.

Industry Sector	1993				1997				% Change in No. of Employees (1993 - 1997)	% Change in No. of Establishments (1993 - 1997)
	No. of Employees	% of Total	No. of Establishments	% of Total	No. of Employees	% of Total	No. of Establishments	% of Total		
Services	210,437	55.8	7,257	38.2	274,313	52.4	9,482	37.9	30.4	30.7
Retail Trade	69,803	18.5	4,588	24.2	94,369	18.0	5,713	22.8	35.2	24.5
Construction	29,524	7.8	1,832	9.6	56,591	10.8	2,389	9.6	91.7	30.4
Finance, Insurance and Real Estate	20,031	5.3	2,185	11.5	29,030	5.5	3,282	13.1	44.9	50.2
Transport and Public Utilities	18,958	5.0	724	3.8	25,892	4.9	938	3.8	36.6	29.6
Wholesale Trade	13,652	3.6	1,212	6.4	19,746	3.8	1,551	6.2	44.6	28.0
Manufacturing	11,981	3.2	635	3.3	18,315	3.5	837	3.3	52.9	31.8
Agricultural Services, Forestry, and Fishing	2,217	0.6	351	1.8	4,451	0.9	480	1.9	100.8	36.8
Mining	295	0.1	33	0.2	786	0.2	53	0.2	166.4	60.6
Unclassified Establishments	215	0.1	169	0.9	144	0.0	288	1.2	-33.0	70.4
Total	377,113	100.0	18,986	100.0	523,637	100.0	25,013	100.0	38.9	31.7

Note:

Employment and Establishments data in 1993 and 1997 are based on the SIC System. The SIC employee data does not capture the number of workers who are self-employed, employees of private households, railroad employees, agricultural production workers, and most government workers. Therefore, the SIC system tends to slightly undercount the total number of employees.

Source: USBOC 1993, 1997.

Table I.1-3 Earning By Industry in Clark County, Nevada, 1993 and 1997.

Industry Sector	1993		1997		Percent of Change
	Annual Payroll (\$1,000)	Percent of Total 1993	Annual Payroll (\$1,000)	Percent of Total 1997	
Services	4,729,037	54.8	7,032,619	52.1	48.7
Retail Trade	1,036,184	12.0	1,626,492	12.0	57.0
Construction	921,186	10.7	1,767,408	13.1	91.9
Finance, Insurance, and Real Estate	580,009	6.7	931,305	6.9	60.6
Transportation and Public Utilities	575,557	6.7	777,892	5.8	35.2
Wholesale Trade	391,793	4.5	640,629	4.7	63-5
Manufacturing	343,171	4.0	604,797	4.5	76.2
Agricultural Services, Forestry, and Fishing	38,729	0.4	87,619	0.6	126.2
Mining	9,639	0.1	32,373	0.2	235.9
Unclassified Establishments	3,825	0.0	7,820	0.1	104.4
Total	8,629,130	100.0	13,508,954	100.0	56.6

Note:

Employment and Establishments data in 1993 and 1997 are based on the SIC System. The SIC employee data does not capture the number of workers who are self-employed, employees of private households, railroad employees, agricultural production workers, and most government workers. Therefore, the SIC system tends to slightly undercount the total number of employees.

Source: USBOC 1993, 1997.

Table I.1-4 Project Region Historic Population Trends, 1980 to 2000.

Place	Population			Percent Change		Average Annual 1980-2000
	1980	1990	2000	1980-90	1990-2000	
City of Boulder, NV	9,590	12,567	14,966	31.0	19.1	1.4
City of Henderson, NV	23,376	64,942	176,048	177.8	171.1	5.2
Town of Whitney, NV	6,449	11,870	17,731	84.1	49.4	3.1
City of North Las Vegas, NV	42,739	47,707	115,488	11.6	142.1	0.6
City of Las Vegas, NV	164,674	258,295	478,868	56.9	85.4	2.3
Las Vegas, NV/AZ MSA	463,087	741,459	1,563,282	60.0	110.8	2.4
Study Area Census Tracts	N/A	N/A	57,615	N/A	N/A	N/A
Clark County, NV	463,087	741,459	1,375,765	60.1	85.5	2.4
State of Nevada	800,508	1,201,833	1,998,257	50.1	66.3	2.1

Notes:

N/A = Not available.

Source: USBOC 1980, 1990, 2000a; and Hardcastle 2002.

Table I.1-5 Clark County and State of Nevada Population Projections, 2000 to 2020.

Place	Population Projections					Percentage Change				Average Annual Increase (Percent)
	2000	2005	2010	2015	2020	2000-2005	2005-2010	2010-2015	2015-2020	
Clark County, NV	1,375,765	1,761,614	1,969,348	2,082,455	2,123,277	28.0	11.8	5.7	2.0	2.7
State of Nevada	1,998,257	2,442,116	2,690,078	2,837,522	2,910,959	22.2	10.0	5.5	2.0	2.3

Source: Hardcastle 2002.

Table I.1-6 Residential Building Permits, Clark County, Nevada, 1999 to 2003.

Type of Residential Unit					
Permit Data By Year	Single Family Residential	Townhouses	Condominiums	Duplex/ Apartment Buildings	Total
1999					
No. of Units	6,994	385	795	2,627	10,801.0
No. of Permits	6,994	137	80	259	7,470.0
Valuation (\$ Millions)	\$566.9	\$34.3	\$50.6	\$149.1	\$800.9
2000					
No. of Units	8,303	127	1,068	2,238	11,736.0
No. of Permits	8,303	127	185	252	8,867.0
Valuation (\$ Millions)	\$848.0	\$8.7	\$81.5	\$102.2	\$1,040.4
2001					
No. of Units	10,323	175	1,093	4,276	15,867.0
No. of Permits	10,323	175	122	414	11,034.0
Valuation (\$ Millions)	\$1,101.7	\$11.3	\$91.5	\$185.9	\$1,392.4.0
2002					
No. of Units	10,432	190	1,700	3,287	15,609.0
No. of Permits	10,432	190	181	330	11,133.0
Valuation (\$ Millions)	\$1,079	\$12.5	\$190.5	\$168.6	\$1,451.3
2003					
No. of Units	11,150	29	1,530	4,531	17,240.0
No. of Permits	11,150	29	147	498	11,824.0
Valuation (\$ Millions)	\$1,159.4	\$1.7	\$77.4	\$214.6	\$1,451.1

Source: Clark County 2003b.

Direct impacts are the changes in the industries to which a final demand change was made. Indirect effects are changes in inter-industry purchases as they respond to the new demands of the directly affected industries. Induced effects typically reflect changes in spending from households as income increases or decreases due to the changes in production. Total impacts are simply the summation of the direct, indirect and induced impacts. Value-added is a measurement of the value that is added to intermediate goods and services. It is equal to the total of employee compensation, proprietor income, other property income, and indirect business taxes. Total-output is a measure of the total value of purchases by intermediate and final consumers, or by intermediate outlays plus value-added. Employment impacts show the number of new jobs that would be created as a result of the project as project related dollars are spent and re-spent within the regional economy and new jobs are created in other industries within the target counties. Indirect business tax impacts measure the amount of local (county, city and other local taxing entities), and State sales taxes combined that would occur as a result of project-related expenditures.

For purposes of environmental document preparation, more specifically Environmental Impact Statement (EIS) documents, IMPLAN allows for economic impacts to be quantified that are associated with the construction of a variety of projects (i.e., dams, pipelines, highways, loss of agricultural land, residential, etc.). For each type of economic impact, IMPLAN can generate reports that indicate the amount of impact to each industry in a local economy. The results can then be compared to baseline economic data to determine how the proposed project would affect a particular community (i.e., what industries would gain or lose the most jobs?, how would it affect the housing industry?, etc.)

1.2.1 Assumptions

Below is a list of key assumptions and project-related details that were used as a basis to predict economic impacts associated with the No Action Alternative and four action alternatives for the SCOP using IMPLAN.

All project construction expenditures are assumed to occur in Clark County, Nevada.

All project construction associated with the pipeline alternatives is assumed to occur over six years beginning in January 2007 and ending approximately in 2012 for both proposed action alternatives.

Construction of the EI is assumed to occur over two years beginning in January 2007 and ending in approximately 2009. The EI is evaluated in both action alternatives during the first two years of project construction of each action alternative.

All project construction for the No Action Alternative is assumed to occur in years 2012 and 2025. Construction impacts would occur as a result of the water treatment facilities unable to meet water quality standards at some point in the future and those facilities would need improvements to meet these standards.

- All of the alternatives include a \$29 million cost associated with treatment plant optimization. This cost was not used in the I-O model, and therefore the beneficial economic impacts do not reflect these expenditures.
- All project construction expenditures were applied to IMPLAN industry sector #40, Water, Sewer, and Pipeline Construction, which most closely represents construction of the proposed project).
- All dollars are presented in present day (2005) dollars.

1.2.2 Methodology

An Input-Output Model (IMPLAN) was used to predict economic effects resulting from pipeline construction of the pipeline alternatives and the EI based on cost estimates (2003 dollars) provided by Black and Veatch (B&V), the project engineer.

The average annual percentage change in the Consumer Price Index (CPI) from 1998 to 2003 was used as the basis to deflate construction costs from 2003 dollars to 2001 dollars for use in IMPLAN and to inflate economic impacts generated by IMPLAN from 2001 dollars to 2005 dollars.

The deflator was calculated at 1.022 and the inflator was calculated at 1.023. The inflator and deflator were then multiplied by the cost estimate given by B&V in 2003 dollars for each year. For example, the total construction costs for the EI in 2003 dollars of \$83,202,278 was multiplied by the deflator of 1.022 for years 2002 and 2001 to calculate the cost estimate in 2001 dollars to enter into IMPLAN. A formula was then entered into an Excel spreadsheet for each alternative and the different components of the EI to calculate all of the cost impacts for each year of construction using the inflator, deflator and original construction cost estimates from B&V.

Cost estimates in 2001 dollars were then entered into IMPLAN and a model was run for construction of the pipeline alternatives.

From these cost estimates, IMPLAN generated the direct, indirect, induced and total impacts for total output, value-added, employment and government taxation and revenue impacts for the three pipeline alternatives in 2001 (IMPLAN), 2003 (estimates provided by B&V), 2005 (present day estimates), and 2007 to 2012 dollars (project construction).

The impacts for the EI were calculated between 2007 and 2009. The impacts for the three pipeline alternatives were calculated between 2007 and 2012.

Only the top 10 industries that were expected to benefit in terms of total output, value-added, employment and government taxation and revenue were identified within the IMPLAN generated reports and within the EIS. For the three pipeline alternatives and the EI, the same top 10 industries are expected to benefit from construction of the proposed project.

The economic effects associated with operation and maintenance of the proposed project was not evaluated in this study.

For each of the alternatives involving pipeline construction, tables have been created from the IMPLAN model results that represent construction costs in terms of direct, indirect and induced impacts. Direct impacts are construction industry related, indirect impacts are changes in inter-industry related and induced impacts are from changes in spending from households as dollars are spent and re-spent in the community. For each of the pipeline alternatives, the top ten industries that are expected to benefit in terms of total output and value-added are presented in tabular form. The first two sectors represent construction and engineering services directly related to the wastewater treatment facilities. Sectors 3 through 10 are industries that are affected more through indirect and induced effects, as intermediate goods and services are purchased to supply the construction of the new development, and as income generated through construction is re-spent in the local economy on housing, food real estate, health care, etc. The tables created from the IMPLAN model are available upon request.