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CLARK COUNTY NUCLEAR WASTE REPOSITORY PROGRAM

FINANCIAL ASSISTANCE GRANT
FISCAL YEAR 1990

Prepared for The Department of Energy

The Clark County Board of Commissioners

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- II. DATA BASE DEVELOPMENT AND MANAGEMENT SYSTEM
- III. TECHNICAL PROGRAMS
- IV. TRANSPORTATION STUDIES
- V. SOCIOECONOMICS
- VI. PUBLIC INFORMATION AND COMMUNITY AWARENESS PROGRAM
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- VIII. EMERGENCY RESPONSE PLANNING
- IX. ENVIRONMENT

Fiscal Year 1990

Grant Application

and

Budget Estimates

APPLICATION FOR FEDERAL ASSISTANCE

1. TYPE OF SUBMISSION: Application <input type="checkbox"/> Construction <input checked="" type="checkbox"/> Non-Construction Preapplication <input type="checkbox"/> Construction <input type="checkbox"/> Non-Construction	2. DATE SUBMITTED 	Applicant Identifier
	3. DATE RECEIVED BY STATE 	State Application Identifier
	4. DATE RECEIVED BY FEDERAL AGENCY 	Federal Identifier DE-FG08-89NV10819

5. APPLICANT INFORMATION

Legal Name: CLARK COUNTY	Organizational Unit: DEPARTMENT OF COMPREHENSIVE PLANNING
Address (give city, county, state, and zip code): CLARK COUNTY BOARD OF COMMISSIONERS 225 BRIDGER AVENUE - 5TH FLOOR LAS VEGAS, NEVADA 89155	Name and telephone number of the person to be contacted on matters involving this application (give area code): DONALD L. SHALMY, COUNTY MANAGER (702) 455-3530

6. EMPLOYER IDENTIFICATION NUMBER (EIN): <table border="1"> <tr> <td>8</td><td>8</td><td>-</td><td>6</td><td>0</td><td>0</td><td>0</td><td>0</td><td>2</td><td>8</td> </tr> </table>	8	8	-	6	0	0	0	0	2	8	7. TYPE OF APPLICANT: (enter appropriate letter in box) <input checked="" type="checkbox"/> B A. State B. County C. Municipal D. Township E. Interstate F. Intermunicipal G. Special District H. Independent School Dist. I. State Controlled Institution of Higher Learning J. Private University K. Indian Tribe L. Individual M. Profit Organization N. Other (Specify) _____
8	8	-	6	0	0	0	0	2	8		
8. TYPE OF APPLICATION: <input type="checkbox"/> New <input checked="" type="checkbox"/> Construction <input type="checkbox"/> Revision If Revision, enter appropriate letter(s) in box(es): <input type="checkbox"/> <input type="checkbox"/> A. Increase Award B. Decrease Award C. Increase Duration D. Decrease Duration Other (specify): _____	9. NAME OF FEDERAL AGENCY: U.S. DEPARTMENT OF ENERGY										

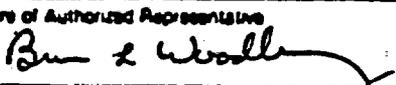
10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER: <table border="1"> <tr> <td>9</td><td>7</td><td>4</td><td>2</td><td>5</td> </tr> </table>	9	7	4	2	5	11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT: To provide public input to the siting of a repository at Yucca Mountain, Nevada.
9	7	4	2	5		
TITLE: NUCLEAR WASTE POLICY ACT						

12. AREAS AFFECTED BY PROJECT (include county, state, etc.): CLARK COUNTY, NEVADA
--

13. PROPOSED PROJECT: Start Date: 7/1/89 Ending Date: 9/30/90	14. CONGRESSIONAL DISTRICTS OF: a. Applicant: 01, 2 b. Project: 02
---	--

15. ESTIMATED FUNDING: <table border="1"> <tr> <td>a. Federal</td> <td>\$ 5,628,013</td> <td>.00</td> </tr> <tr> <td>b. Applicant</td> <td>\$</td> <td>.00</td> </tr> <tr> <td>c. State</td> <td>\$</td> <td>.00</td> </tr> <tr> <td>d. Local</td> <td>\$</td> <td>.00</td> </tr> <tr> <td>e. Other</td> <td>\$</td> <td>.00</td> </tr> <tr> <td>f. Program Income</td> <td>\$</td> <td>.00</td> </tr> <tr> <td>g. TOTAL</td> <td>\$ 5,628,013</td> <td>.00</td> </tr> </table>	a. Federal	\$ 5,628,013	.00	b. Applicant	\$.00	c. State	\$.00	d. Local	\$.00	e. Other	\$.00	f. Program Income	\$.00	g. TOTAL	\$ 5,628,013	.00	16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS? a. YES. THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON DATE _____ b. NO. <input type="checkbox"/> PROGRAM IS NOT COVERED BY E.O. 12372 <input type="checkbox"/> OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW
a. Federal	\$ 5,628,013	.00																				
b. Applicant	\$.00																				
c. State	\$.00																				
d. Local	\$.00																				
e. Other	\$.00																				
f. Program Income	\$.00																				
g. TOTAL	\$ 5,628,013	.00																				
	17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT? <input type="checkbox"/> Yes If "Yes," attach an explanation. <input type="checkbox"/> No																					

18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT. THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED

a. Typed Name of Authorized Representative BRUCE L. WOODBURY	b. Title CHAIRMAN, COUNTY COMMISSION	c. Telephone number (702) 455-3500
d. Signature of Authorized Representative 		e. Date Signed 11-21-87

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BUDGET INFORMATION — Nuclear Construction Programs

OMB Approval No. 0044

SECTION A — BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Clark County Nuclear Repos.	97-425	\$	\$	\$ 5,628,013	\$ -0-	\$ 5,628,013
2.						
3.						
4.						
5. TOTALS		\$	\$	\$ 5,628,013	\$ -0-	\$ 5,628,013

SECTION B — BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM FUNCTION OR ACTIVITY				Total (5)
	(1) Administration	(2) Data Base Mgt.	(3) Socio. & Tech.	(4) Local Govt. Coord.	
a. Personnel	\$ 473,427	\$ -0-	\$ -0-	\$ -0-	\$ 473,427
b. Fringe Benefits	153,619	-0-	-0-	-0-	153,619
c. Travel	50,000	-0-	-0-	-0-	50,000
d. Equipment	169,535	815,000	-0-	-0-	984,535
e. Supplies	166,390	-0-	-0-	-0-	166,390
f. Contractual	190,384	723,600	2,035,000	771,808	3,720,792
g. Construction	-0-	-0-	-0-	-0-	-0-
h. Other	37,450	41,800	-0-	-0-	79,250
i. Total Direct Charges (sum of 6a-6h)	1,240,805	1,580,400	2,035,000	771,808	5,628,013
j. Indirect Charges	-0-	-0-	-0-	-0-	-0-
k. TOTALS (sum of 6i and 6j)	\$ 1,240,805	\$ 1,580,400	\$ 2,035,000	\$ 771,808	\$ 5,628,013
7. Program Income	\$ -0-	\$ -0-	\$ -0-	\$ -0-	\$ -0-

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Standard Form 424A (4-80)
Prescribed by OMB Circular A-102

SECTION C - NON-FEDERAL RESOURCES

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS
8.	\$	\$	\$	\$
9.				
10.				
11.				
12. TOTALS (sum of lines 8 and 11)	\$	\$	\$	\$

SECTION D - FORECASTED CASH NEEDS

13. Federal	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
	\$ 5,628,013	\$ 177,429	\$ 1,362,646	\$ 2,043,969	\$ 2,043,969
14. Non-Federal	-0-	-0-	-0-	-0-	-0-
15. TOTAL (sum of lines 13 and 14)	\$ 5,628,013	\$ 177,429	\$ 1,362,646	\$ 2,043,969	\$ 2,043,969

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

(a) Grant Program	FUTURE FUNDING PERIODS (Years)			
	(b) First	(c) Second	(d) Third	(e) Fourth
16. Clark County Nuclear Repository Program	\$ 5,628,013	\$ 5,909,414	\$ 6,204,885	\$ 6,515,130
17.				
18.				
19.				
20. TOTALS (sum of lines 16-19)	\$ 5,628,013	\$ 5,909,414	\$ 6,204,885	\$ 6,515,130

SECTION F - OTHER BUDGET INFORMATION

(Attach additional Sheets if Necessary)

21. Direct Charges:	22. Indirect Charges:
23. Remarks	

Background

CLARK COUNTY YUCCA MOUNTAIN
NUCLEAR WASTE PROGRAM BUDGET ESTIMATES
FISCAL YEARS 1991 THROUGH 1993

Fiscal Year	Amount
1991	\$5,909,414
1992	\$6,204,885
1993	\$6,515,130

1. The budget estimates are contingent upon a number of factors, beyond the capabilities of Clark County and the Department of Energy to predict. Primary among these factors are Congressional appropriations. Appropriations of the level requested by the Department of Energy (DOE) for FY 1990 for affected units of local government (\$5 million) are reflected in the funding estimates for FY 1990. Funding for fiscal years 1991 through 1993 are based upon anticipated need. With lesser or greater appropriations priorities will have to be modified and funding levels adjusted accordingly.

**YUCCA MOUNTAIN NUCLEAR WASTE REPOSITORY PROGRAM
CLARK COUNTY AMENDED GRANT APPLICATION FOR FISCAL YEAR 1990**

BACKGROUND

The Nuclear Waste Policy Act of 1982 (NWPAA) enacted by Congress provided for the development of a program for the permanent, safe storage of spent fuel and high level nuclear waste. Subsequent to the naming of Yucca Mountain as one potential site, the State of Nevada organized a program to determine the impacts of such a repository on Nevada. It should also be noted that during this timeframe, the Clark County Board of Commissioners unanimously approved a resolution opposing the location of a repository at Yucca Mountain.

The State also established a program to fund local governments in Clark, Lincoln, and Nye Counties to assist them in monitoring DOE activities and in determining impacts.

One glaring deficiency in the NWPAA, however, was the ability of local governments to independently assess impacts that may affect individual communities. This was completely counter to previous federal programs such as the Clean Air and Clean Water Acts that provided more than ample provisions for local involvement.

The lack of local government involvement was corrected on December 22, 1987, when Congress approved Public Law 100-203, the Nuclear Waste Policy Amendments Act of 1987 (the NWPAA).

The Amendments provide the opportunity for "affected units of local government" to participate directly in activities related to the determination of suitability of the Yucca Mountain site and to evaluate impacts on communities from the proposed repository.

CLARK COUNTY AND AFFECTED LOCAL GOVERNMENT STATUS

On April 5, 1988, the Clark County Board of County Commissioners requested designation by the Secretary of the Department of Energy as an affected unit of local government under terms of the amended Nuclear Waste Policy Act. On April 21, 1988, Secretary of the Department of Energy, John S. Herrington, so designated Clark County as an affected unit of local government.

The NWPAA provides affected local governments with a series of independent funding options. Participation would include receipt of grants from the Department of Energy (DOE) as outlined in amended Section 116(c)1B of the Act for the following activities:

CLARK COUNTY AND AFFECTED LOCAL GOVERNMENT STATUS (CONTINUED)

1. To review activities taken under this subtitle with respect to the Yucca Mountain site for the purpose of determining any potential economic, social, public health and safety, and environmental impacts.
2. To develop a request for impact assistance.
3. To engage in any monitoring, testing or evaluation activities with respect to site characterization programs with regard to such site.
4. To provide information to Nevada residents regarding any activities with respect to the site.
5. To request information from, and make comments and recommendations to, the Secretary regarding any activities taken under this subtitle with respect to such site.

OTHER FUNDING OPTIONS

Mitigation Funding

In addition to grant funding, the Secretary of the Department of Energy (the Secretary) shall provide financial and technical assistance to the State of Nevada, and any affected unit of local government requesting such assistance. To quote further from the Act:

1. "Such assistance shall be designed to mitigate the impact on such state or affected unit of local government of the development of such repository and the characterization of such site.
2. Such assistance to such state or affected unit of local government of such state shall commence upon the initiation of site characterization activities."

In order to receive consideration for mitigation funding, the State of Nevada and any affected unit of local government may request assistance under this subsection by preparing and submitting to the Secretary a report on the economic, social, public health and safety, and environmental impacts that are likely to result from site characterization activities at the Yucca Mountain site. Such a report shall be submitted to the Secretary after the Secretary has submitted to the state a general plan for site characterization.

Payments Equal To Taxes

In addition to the financial assistance noted previously, "the Secretary shall grant to the State of Nevada and any affected unit of local government an amount each fiscal year equal to the amount such state or affected

Payments Equal to Taxes (continued)

unit of local government, respectively, would receive if authorized to tax site characterization activities at such site, and the development and operation of such repository, as such state or affected unit of local government taxes the non-federal real property and industrial activities occurring within such state or affected unit of local government."

"Such grants and mitigation funding shall continue until such time as all such activities, development, and operation are terminated at such site. The grants would then terminate one-year subsequent to the termination of such activities."

THE CLARK COUNTY PROGRAM

The attached Clark County work program defines activities and related support functions during the period between July 1, 1989 and September 30, 1990. (Please note that Clark County is requesting a change to the Federal Fiscal year October 1 to September 30). Figures 1 and 2 provide the organizational structure of Clark County's program. In addition, estimates have been provided for federal fiscal years 1990 and 1991 pursuant to the Department of Energy's request. Figure 2A illustrates the proposed organizational structure upon DOE grant approval and future Clark County Commission action. Figure 3 portrays Clark County's program and interaction with other entities.

The work areas have been defined to enable identification of potential impacts from a proposed repository on Clark County. The proposed budget is organized into the following categories:

- I. Personnel and Office Expenses.
- II. Data Base Development and Management System.
- III. Technical studies.
- IV. Transportation studies.
- V. Socioeconomic studies.
- VI. Public Information and Community Awareness programs.
- VII. Intergovernmental Coordination.
- VIII. Emergency Response Planning.
- IX. Environmental/Technical studies.

Figure 1

COMPREHENSIVE PLANNING ORGANIZATIONAL STRUCTURE

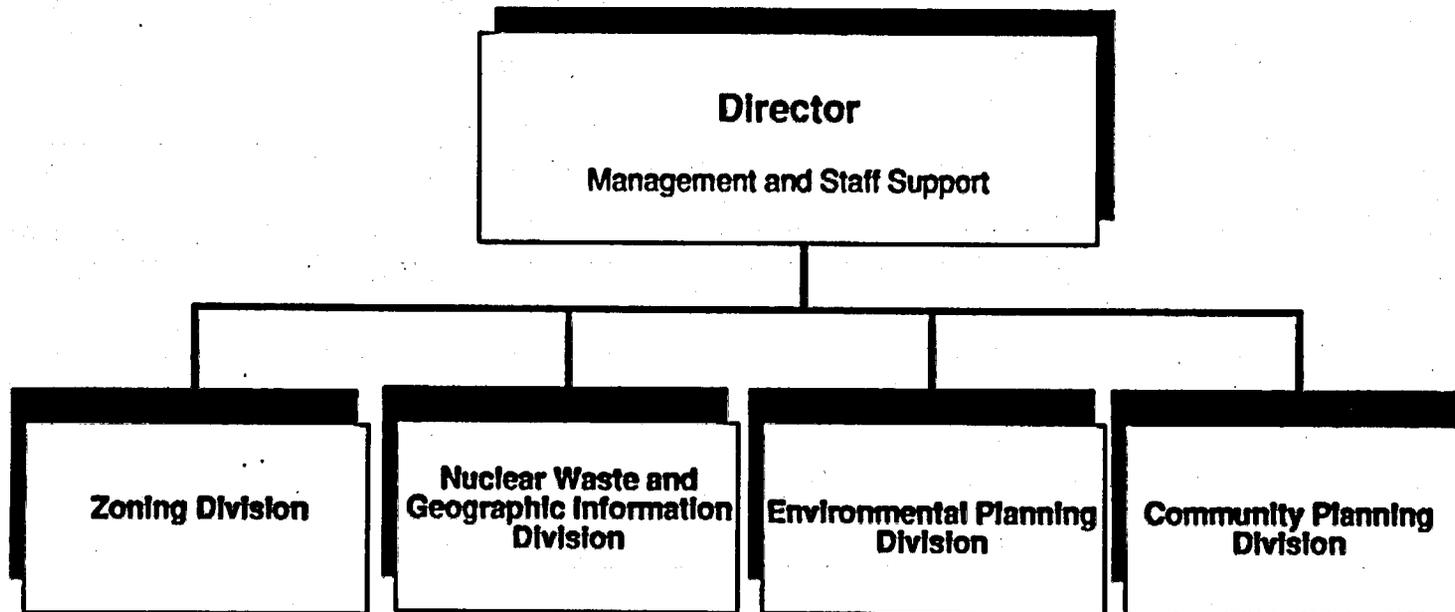


Figure 2

EXISTING CLARK COUNTY NUCLEAR WASTE REPOSITORY PROGRAM

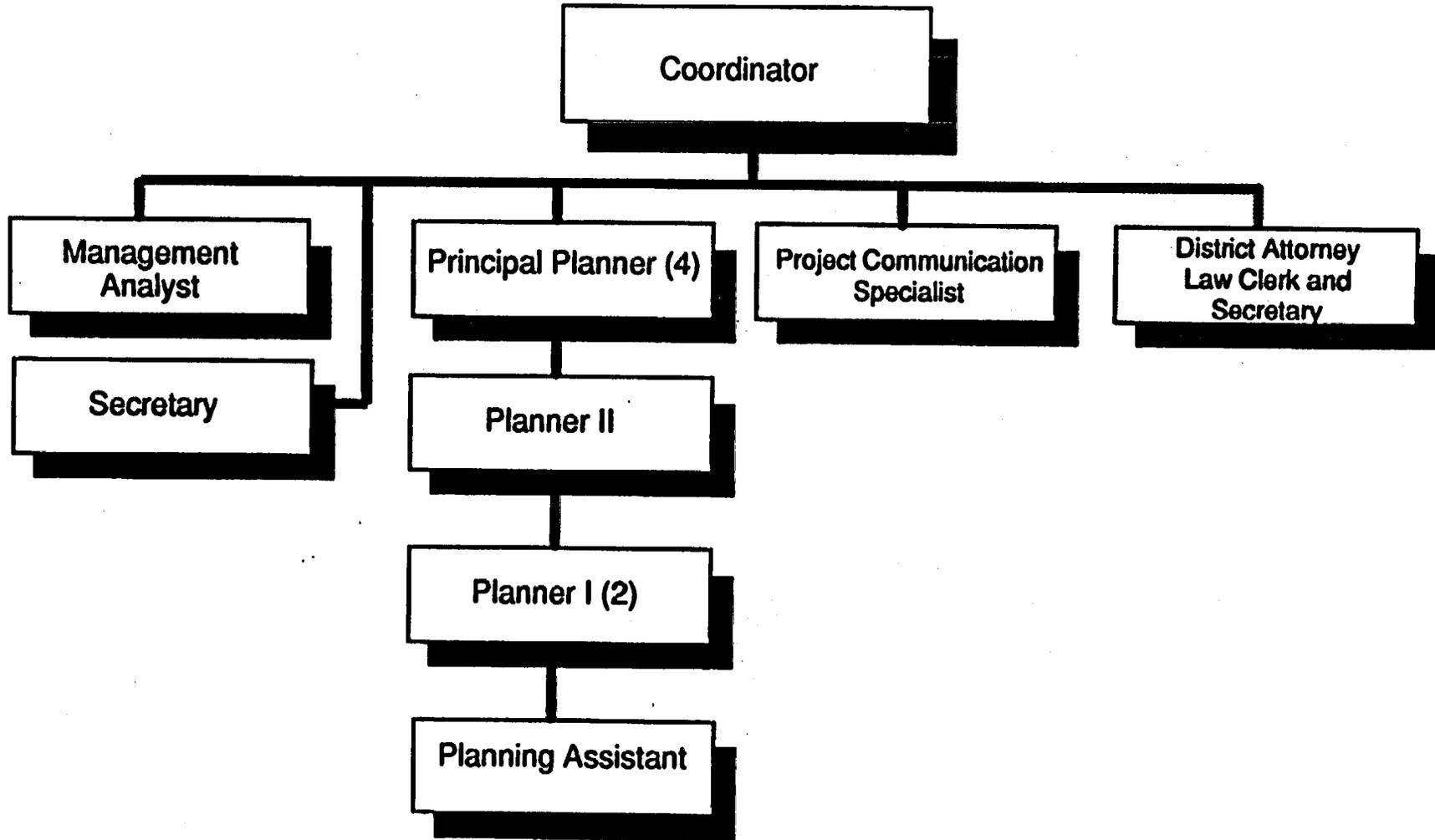
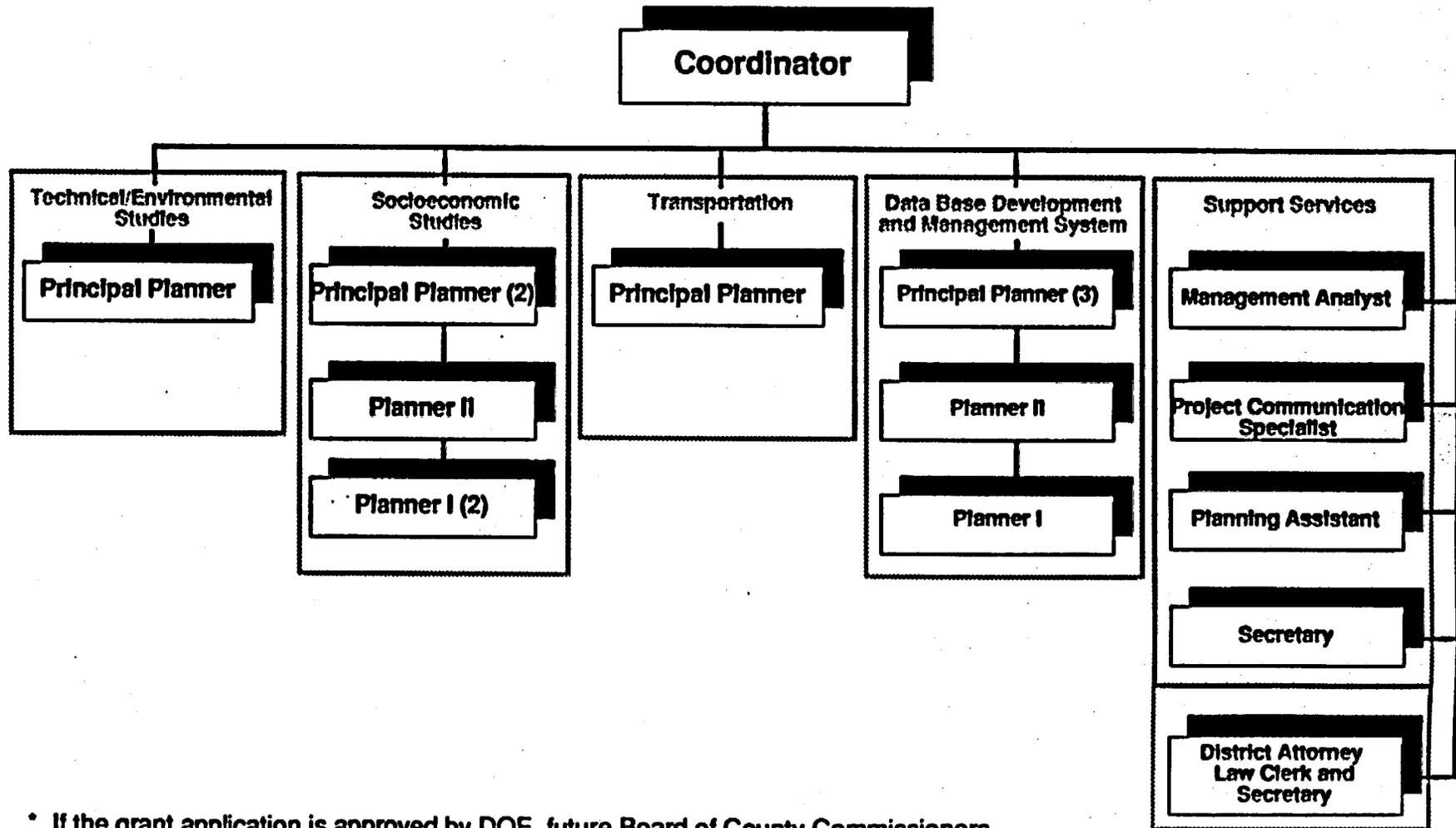


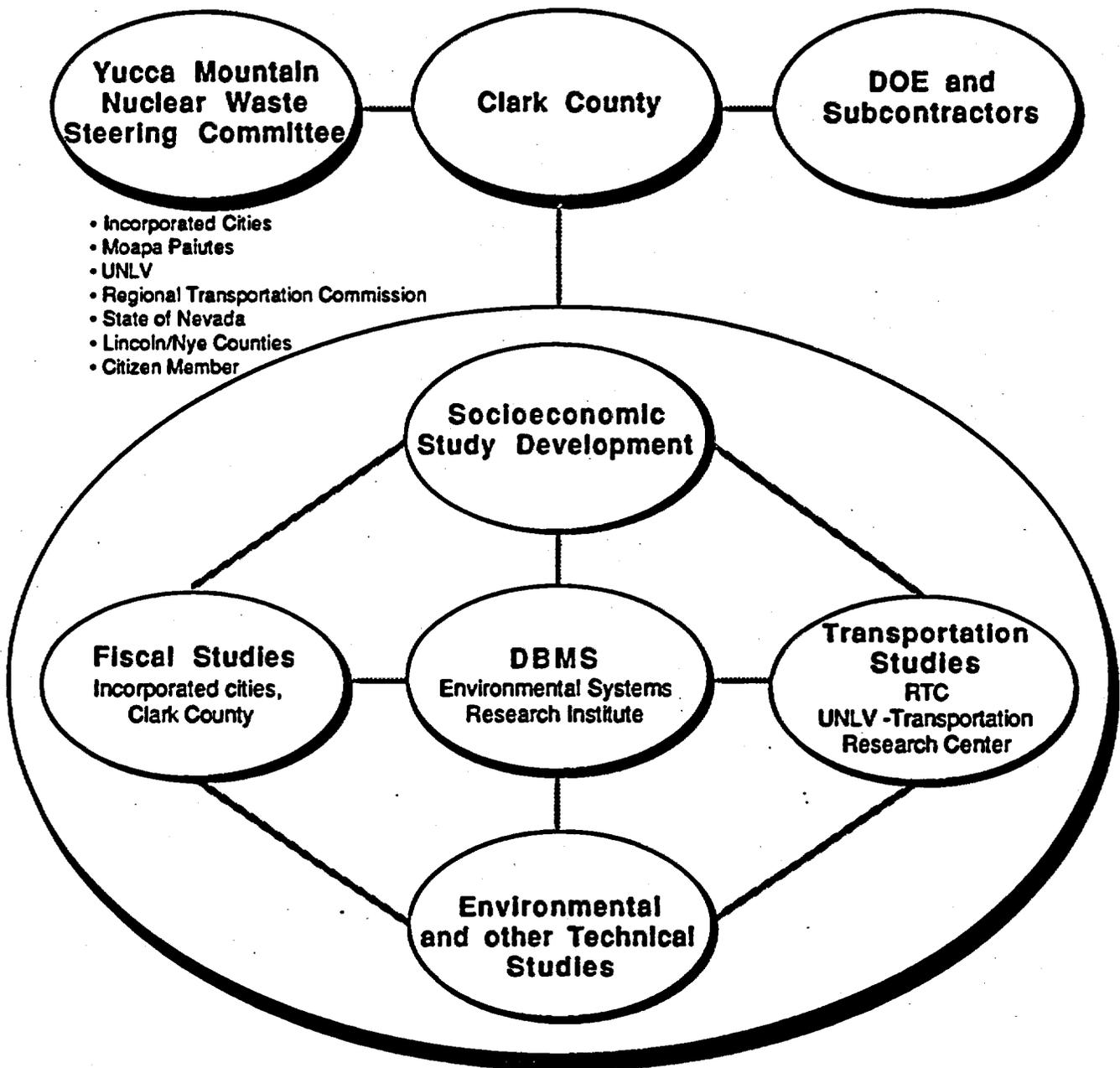
Figure 2A
**PROPOSED* CLARK COUNTY
 NUCLEAR WASTE REPOSITORY PROGRAM STAFF**



* If the grant application is approved by DOE, future Board of County Commissioners action will be needed to establish new grant funded positions.

Figure 3

CLARK COUNTY NUCLEAR WASTE REPOSITORY PROGRAM



Although this is the second year that Clark County has requested Department of Energy grant funding, the late approval of the first-year grant (mid-March 1989) means that program expenses in several work areas continue to be estimates. The funding allocations in these areas may have to be further refined. In most of the plan, however, there is greater definition in work tasks and cost.

While Clark County has been named as an affected unit of local government, it is important to recognize that there are incorporated cities in Clark County that will be impacted by the program. The cities of Boulder City, Henderson, Las Vegas and North Las Vegas are participating with the County on these activities. The Clark County Regional Transportation Commission (RTC) has been an important element in transportation activity definition. This relationship will be continued and strengthened. We anticipate that more comprehensive coordination will be developed with the University of Nevada, Las Vegas both through the Center for Business and Economic Research (CBER) and the Department of Engineering, particularly the recently created Transportation Research Center. The County and these entities will also coordinate closely with the State of Nevada as well as with the Department of Energy on their respective programs.

I. Personnel and Support Expenses

I. PERSONNEL AND SUPPORT EXPENSES

OBJECTIVE

In order to implement the objectives of the program, it is necessary to retain qualified staff. Figure 1 illustrates the proposed staff organization which will implement the program. The program will be organized under Yucca Mountain/Geographic Information System Division of Clark County Department of Comprehensive Planning.

The Clark County Nuclear Waste Project Division may, following DOE approval and future Board of County Commissioners action, ultimately include the following positions:

- 1 - Coordinator
- 7 - Principal Planners
- 1 - Management Analyst
- 1 - Project Communication Specialist
- 1 - Secretary
- 1 - Planner II
- 2 - Planner I
- 1 - Planning Assistant/Librarian
- 2 - Staff and support from District Attorney's office

The salaries listed are based on the Clark County wage scales with benefits. The Coordinator's salary is mid-range; the unfilled positions are entry level, those currently filled reflect the current level or anticipated level of the employee. Benefits include employee retirement, group insurance, industrial insurance, medicare and unemployment insurance. Costs for these items are finalized on the table on Page 4.

CURRENT STAFFING

\$627,046

° **Coordinator**

\$92,548.57

The Coordinator will be responsible for administering the operation of the Nuclear Waste Repository Study program. The duties will include, but not be limited to, implementing the responsibilities afforded under the Nuclear Waste Policy Act and Amendments. The position will include policy coordination with the State of Nevada and subcontractors, local governments, the Department of Energy and subcontractors, the Nevada Legislature, and Congress.

- Principal Planners(4) \$166,510.31

The Principal Planner(s), under direction of the Coordinator, will be responsible for implementing the studies of the program. These will include, but not be limited to: socioeconomic studies, transportation studies, technical studies, mitigation studies and others related to the program. The Principal Planner(s) will also work closely with the Clark County Nuclear Waste Steering Committee, policy committees, citizens groups and others.
- Planner I \$51,037.81

The Planner I(s) will provide staff support to the Principal Planners, Management Analyst and others upon request.
- Management Analyst \$47,919.67

Duties will include contract development and management and maintenance of fiscal records; preparation of financial reports and annual budgets; monitoring subcontractor's financial reports; serving as fiscal manager for Clark County's program.
- Project Communication Specialist \$32,121.57

The individual in this position will prepare information to inform the public and others on Yucca Mountain repository program developments.
- Secretary \$33,091.98

Duties include assisting technical and professional staff by providing advanced clerical support, coordinating travel arrangements for division staff, etc.
- Planning Assistant/Librarian \$36,213.88

This individual will organize information flow through the Division and plan and provide for permanent storage of information.

- Support Staff for Advanced Planning Geographic Information System (2) \$82,659.54

Staff support to implement the requirements of the geographic information system. Duties include, but are not limited to, data base maintenance, computerized cartography, and use of the modelling capabilities of the GIS in support of socioeconomic and transportation evaluations.

- Legal Advisor \$84,942.46

There is need to retain a legal advisor and support to prepare interlocal agreements, review contracts, advise the County with respect to the NNWPAA, DOE regulations, Nevada and federal legislation, and to have the capabilities to be able to evaluate these items. This activity will be performed within the Clark County District Attorney's Office. An attorney and secretary will be added to the District Attorney's staff as well as necessary equipment and supplies to support the activities.

CONSULTANT SERVICES (Estimate) \$2,085.000

The services of consultants will be required to conduct investigations in a number of study areas (this list may be expanded in time):

- Technical Investigators (\$100,000 - "Other" costs in budget) This is described in more detail in the Technical Programs area. Investigators may be retained to evaluate DOE and State studies as well as to ensure that Clark County analyses meet professional standards.
- Socioeconomic Advisors (\$250,000) Socioeconomic advisors will be retained to assist the County to implement the work plan relevant to the requirements of the NWPAA and the needs of Clark County.
- Socioeconomic Studies. (\$850,000) Consultants will be retained to implement the recommended study plans defined in Chapter V. This would be in addition to those studies to be performed by the RTC, CBER and TRC noted later.
- Staff Support in Washington. (\$50,000) The many facets of the Nuclear Waste Repository program make it desirable to have an individual or firm in Washington to keep the County abreast of impending meetings and congressional actions.

- Regional Transportation Commission (RTC). (\$400,000) Issues associated with the transportation of spent fuel and high-level nuclear waste through Clark County are of extreme importance to local governments and Clark County's citizens. The RTC will begin to organize transportation-related information to begin to evaluate impacts to the County. The RTC will interact closely with the County, State and UNLV in their work. The intended program is evaluated in more detail in Section IV (Transportation Studies).
- University of Nevada, Las Vegas (UNLV) - Business and Economic Research. (\$135,000) Clark County currently has a subcontract with UNLV to calibrate and validate an econometric model to develop a baseline of information on the economies of Clark, Lincoln and Nye Counties. This will assist Clark County in determining impacts to the local economy from site characterization and, should Yucca Mountain be found to be acceptable for the storage of nuclear waste, in later phases of the program.
- University of Nevada, Las Vegas (UNLV)-Engineering Department (TRC). (\$200,000) Support here is anticipated to enable the Engineering Department to add personnel (Director) and resources to assist Clark County in evaluating transportation issues associated with the Yucca Mountain program.
- Environmental Study. (\$100,000) A consultant(s) or individuals will be retained to evaluate potential environmental/technical impacts to Clark County from the proposed repository.

TRAVEL

\$50,000.00

The Nuclear Waste Repository Program is national in scope. It is, therefore, necessary for staff to attend meetings in other areas of the country. Meetings will include those with the Department of Energy, Nuclear Regulatory Commission, Western Interstate Energy Board, congressional representatives, committees and staff, etc. In addition, it is anticipated that travel will be required to interact with subcontractors that will be doing work with Clark County in defining socioeconomic, transportation and other impacts.

Clark County also needs to maintain liaison with the State of Nevada Nuclear Waste Project Office (NWPO) because of ongoing work and in many respects common interests. This will involve trips to Reno, Carson City, Phoenix, Denver and potentially other locations where State of Nevada study consultants are located.

The travel budget for the staff during FY 1989 was approximately \$12,000 for six months. This represented travel by three Comprehensive Planning staff, Commissioner Thalia Dondero who is a member of the Commission on Nuclear Projects, and several trips by other County Commissioners and management staff for such purposes as testifying before Congress and interacting with DOE and congressional offices. For the proposed FY 1990 grant period, travel funds need to be budgeted at a level consistent with past practices as well as the expanded role of Clark County as an affected unit of local government.

Because of the complexity of the program and often short lead times for meetings, it is not possible to accurately pinpoint destinations and personnel travelling on each trip. Travel is often dependent upon federal agencies and Congress. Likewise, in our new role as an affected local government, we will probably have to refine the schedule as the program develops.

OFFICE SUPPLIES AND OPERATING EXPENSES

\$203,840

Supplies and operating expenses for the Clark County Nuclear Waste Project Division for the grant period are estimates, based on expenses for operation during grant year FY 1989 adjusted for expected increases in program activities. Increases are primarily due to increased staff and Commission activities and escalating levels of program activity. Operating expenses include the following:

° **Office Space**

\$145,000

The Clark County Department of Comprehensive Planning will require expanded office space to meet the needs of the program. The estimates include funds for leasing office space to house division staff or to relocate office functions displaced by expanded division staff. Assignment and procurement of space is coordinated by the Clark County Manager's Department of Administrative Services. Cost of this lease will require further refinement. Included is the cost of renting meeting rooms in various locations to meet program requirements.

° **Improvements to Building Space**

(See Above)

It is expected that changing office needs may require minor restructuring of office space during the period. Such restructuring will entail the movement of office dividers, changes in lighting, wiring, etc.

- Office Supplies \$7,500

General office needs. Amounts are based on information for FY 1989 increased to meet the expanded needs of the program. Office supplies would include typing paper, writing supplies, replacement supplies for equipment and similar supplies.

OTHER

- Mailing Expenses \$5,500

Includes costs for handling expenses, postage, and miscellaneous shipping charges. Program activities will require routine shipment of materials to local governments, contractors, etc. Amounts are based on previous requests for FY 1988-89 adjusted for expected increases in program activities.

- Printing and Duplication \$4,500

Includes office needs for duplicating, printing, film processing and educational material concerning a wide range of subjects relative to the Yucca Mountain program. These expenses reflect costs associated with the actual printing of the materials by the County. The County will coordinate the dissemination of massive amounts of program information. The County will also duplicate a significant quantity of materials relative to technical issues, socioeconomic and transportation assessments and other aspects of federal/state activities for distribution to incorporated governments, interest groups, and other interested parties.

- Maintenance and Other Office Services \$6,275

Includes maintenance agreements for typewriters, copy machines, word processors, and computers; telephone maintenance; and other services, such as the taping of meetings.

- Insurance \$6,000

Routine cost of insurance for office contents as well as projected costs for insurance of vehicle.

- Vehicle Operation/Maintenance \$3,000

Includes the cost of purchase and operation of one mid-size vehicle dedicated to the program. Costs include gasoline, tires, batteries, oil, etc.

• Telephone/Communications

\$6,750

Costs include local and long distance expenses and costs for additional equipment needed during the grant period. Also included are costs associated with the establishment and maintenance of an electronic mail capability for facilitating communication and correspondence between the County, local governments, the State, and contractors.

• Data Processing and Office Equipment

(SEE DBMS)

Costs include needed data processing and office equipment used by program staff. (For description of data processing equipment see Section II-Data Base Development and Management System [DBMS].)

• Training

\$10,000

The expansion of Clark County Department of Comprehensive Planning Nuclear Waste Project program will create the need for training by the nature of the work. Funds will be required during the period to assist staff in upgrading skills and knowledge in work-related areas. Such training is considered important for efficient operation of the County division and represents an investment in staff development that will pay real dividends in terms of office productivity and individual job performance.

Courses to be considered for training include: Development programs for professionals, such as training on the Geographic Information System, as well as clerical-related activities such as shorthand; business communications; general office procedures and office administration; basic and advanced word processing concepts; technical report writing; and certain technical subject areas directly related to program specifications.

• Advertising

\$2,700

Advertising will be required in various national publications and scientific journals to recruit staff and to seek bidders on contracts. Notices will also be published regarding regulations, hearings, meetings, workshops, and advertising for positions that will need to be filled during the biennium.

OTHER EXPENSES continued)

° Professional Costs/ Subscriptions. \$6,615

Due to the need to keep current in all areas of high-level radioactive waste activities, the program will be required to subscribe to a number of publications and periodicals and to purchase books and other publications. The information is used both for planning and assessing repository-related activities and to keep local entities informed of important developments in the waste disposal process. Access to relevant publications and periodicals is important to the County's responsibilities. Subscriptions to calendars of events are also included.

INTERGOVERNMENTAL AND ENTITY COORDINATION \$621,808.00

See Section VII

EMERGENCY RESPONSE PLANNING \$150,000.00

See Section VII

DATA BASE DEVELOPMENT AND MANAGEMENT SYSTEM \$1,580,400.00

See Section II

II. Data Base Development and Management System

**Prepared by:
Environmental Systems Institute, Inc.
380 New York Street
Redlands, California 92373**

Clark County
Yucca Mountain
Nuclear Waste Repository Program
Data Base Development and Management System

Work Plan

Prepared by:
Environmental Systems Research Institute, Inc.
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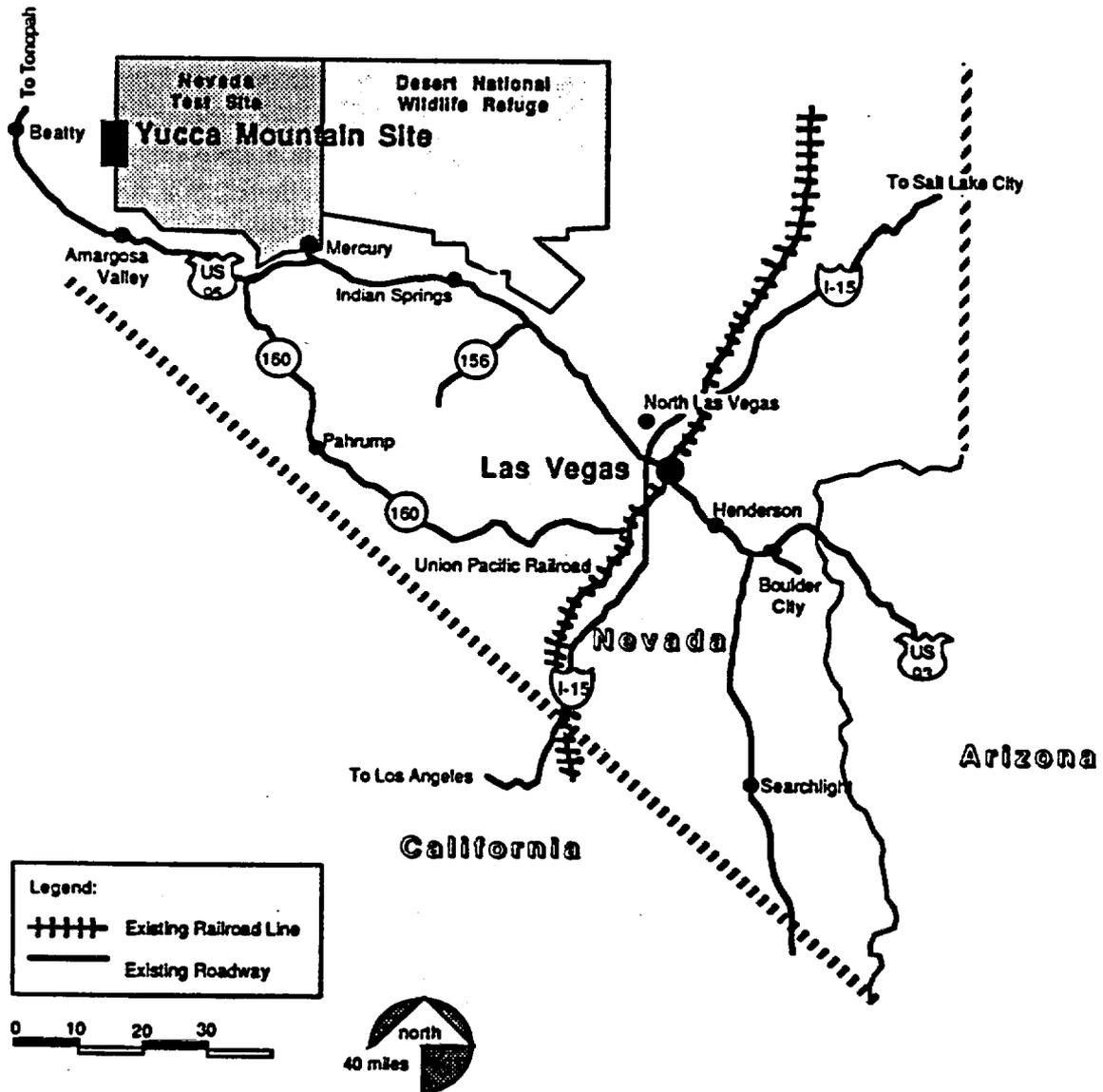
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Executive Summary

1 One of the fundamental requirements of the Clark County Yucca Mountain Nuclear Waste Repository Program (NWRP) is to develop a dependable baseline of information by which to assess potential impacts from the evaluation, development, and operation of the proposed Yucca Mountain Nuclear Waste Repository. At the present time, it is generally recognized that the data required to establish this baseline are either incomplete or unavailable in a suitable format for effective analysis. Development of a comprehensive Geographic Information System (GIS) will provide a common data base structure for storage and retrieval of information generated by studies of the proposed repository and constitutes a major goal of the NWRP. Figure 1-1 presents a location map of the principal NWRP study area.

A consistent and high quality baseline is needed for all potential impacts defined in the NWRP, including socioeconomic impacts such as the need to provide public services to meet the needs of additional repository workers and their families, a variety of transportation issues associated with the possible transport of radioactive waste through Southern Nevada, and a number of important environmental and technical issues and similar studies. Some of the needed information is currently maintained by the County in an automated GIS for a portion of Clark County (largely the Las Vegas Valley). A considerable amount of additional data must still be gathered. In order

Figure 1-1
Location Map
Yucca Mountain Nuclear Waste Repository Site



to both assemble an extensive quantity of information, and support a broad range of analytical studies, it will be necessary to augment the current Clark County GIS capability to meet the needs of the program.

1.1 Background

Clark County currently owns and maintains a GIS data base for a portion of Clark County (largely the Las Vegas Valley). At the local and state level over the past year, several proposals have been formulated to develop a GIS for the purpose of managing the geographic information to be generated from various contractors and consultants working on elements of the federal nuclear waste program. It should be noted that four GIS systems exist in various stages of development in Nevada: Clark County, Washoe County, the City of Las Vegas, and the City of Henderson. A considerable amount of time and effort has been expended to make these systems operational.

Since 1979, Clark County has implemented various urban and regional components of a GIS. The County's system and software is identical to that utilized by the U.S. Geological Survey (USGS). The County has also adopted many of the USGS cartographic standards. With many of the same concerns, Washoe County, the City of Henderson, and the City of Las Vegas acquired similar GIS capabilities in 1984, 1987, and 1988 respectively.

Early GIS development efforts in Clark County evaluated many sources of geographic data (1980). Data conversion commenced in 1982. Conversion consisted of data collection and automation of a number of environmental and socioeconomic factors for urban Clark County. Systems were also acquired to support a data model specifically tailored to Clark County's mapping and analysis requirements. This included a dedicated and interactive departmental minicomputer with special purpose software packages. Major software packages employed by the system include an extensive set of mapping programs: ARC/INFO, MINITAB statistical package, ELAS satellite image processing modules from NASA, RIM, and INFO relational data base management systems.

Data generated include information on the environment, socio-cultural attributes, the local transportation network, and geopolitical setting. The environmental component incorporates delineating soil type, vegetation, and other natural resource data, as examples. Socio-

cultural attributes include land use type and some socioeconomic information. The transportation component includes network information (e.g., road name, status, function, funding, ownership, and maintenance requirements). The geo-political component defines administrative boundaries employed by schools, incorporated cities, police departments, in census summaries, and others. The information in the environmental and socio-cultural sections is incomplete or needs to be refined or updated.

1.2 Project Objectives

Clark County is proposing to expand the capabilities of its Resource/Demographic Mapping and Analysis System to accomplish six major objectives of the Yucca Mountain NWRP: management of all NWRP generated data; expansion of the existing resource data base to meet study requirements; creation of a local repository of geographic information; development of strategic information and decision-making tools; development of a local non-automated document repository; and development of a coordinated data base management system to include all the entities in Clark County.

First, a major objective is that all NWRP-generated information be formatted to provide quick retrieval for analytical or reference purposes. The Licensing Support System (LSS) component of this grant, for example, is identified to support the cataloging of study-related information. Expansion of the County's Resource/Demographic Mapping and Analysis System is identified to provide data base management and analysis of spatially distributed and other information as needed in the study. The development of both information types provides overall NWRP management of data required for transportation studies, socioeconomic studies, and public information and community awareness programs.

Second, the existing automated data base will be expanded through the addition of resource/demographic information for those incorporated entities and unincorporated areas in Clark County. The additional information will be necessary to form the basis for future monitoring and modeling work to be performed as part of the socioeconomic, transportation, and emergency response and other components of the grant proposal.

Third, a local library of geographic information will be developed consistent with the national data base being constructed by the U.S.

Geological Survey, and the local data base developed by Clark County. This will provide a baseline of data and geographic information gathered by all parties in the performance of the many studies that will be performed throughout the life of the Yucca Mountain NWRP. Data collection methods will be standardized to improve compatibility and transferability of information. Various methods of data dissemination will be explored and a common method developed. This will be coordinated closely with DOE, the State of Nevada, and others. Methods to improve accessibility and currency of information will also be evaluated.

Fourth, employing the models and analytical tools emanating from the socioeconomic, transportation, emergency management, and other tasks of the proposal, a strategic information and decision-making tool will be developed to monitor and assess potential impacts. Among the future objectives to be pursued will be to improve the response time of local governments to emergency response situations. As an example, various emergency management response scenarios will be tested and evaluated utilizing the information collected and formatted.

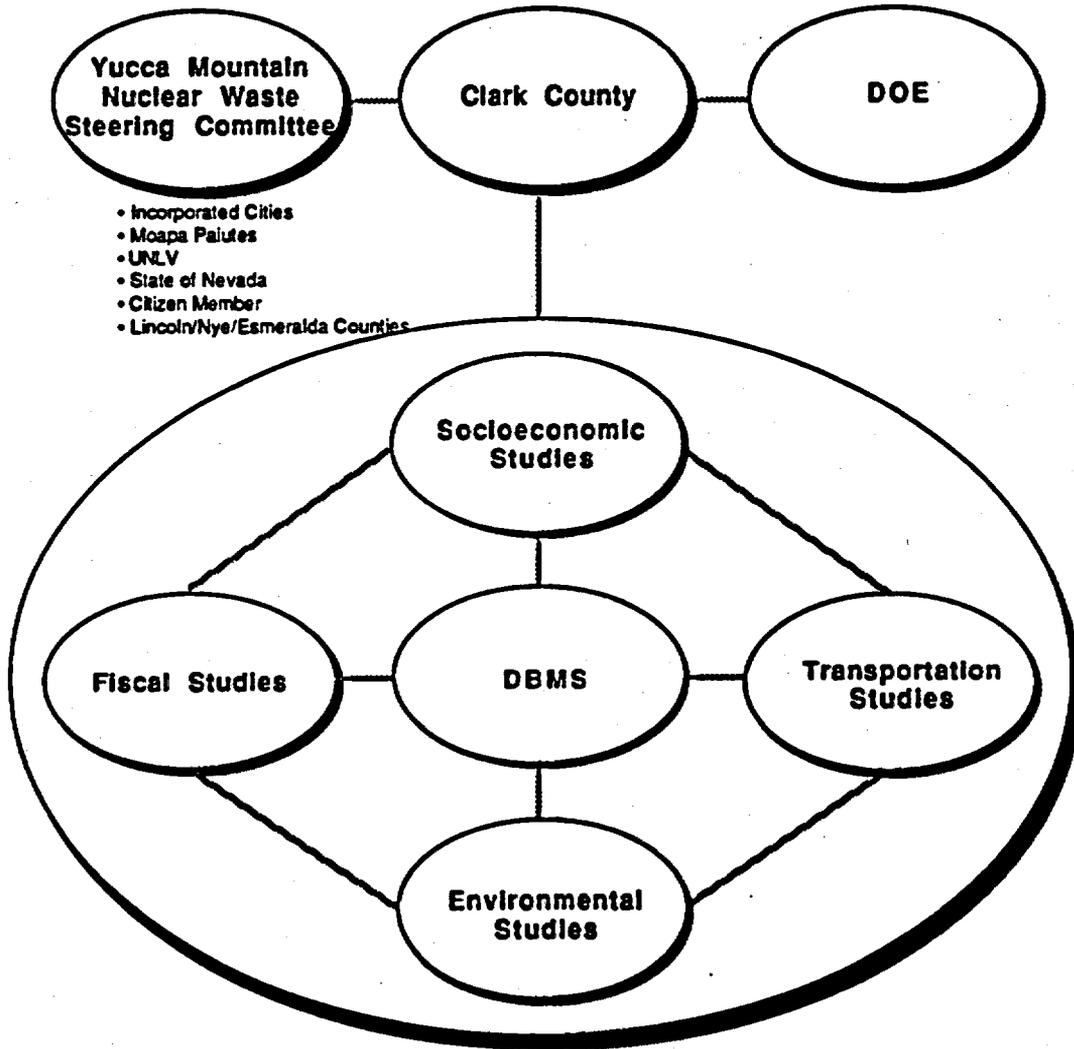
Fifth, a local depository of reports, documents, and other related textual information will be developed. This effort will include the documentation of all graphic information and analysis performed under the NWRP.

Sixth, efforts within the grant include the need to ensure that the information collected and generated is complete (including relevant information from all entities) and that all incorporated communities and entities, which will be potentially impacted by the repository, will be able to access the system.

1.3 Project Overview

The Data Base Development and Management System (DBMS) Work Plan establishes, through an organized series of tasks, a scope of work that will support NWRP requirements and assist in establishing a baseline of socioeconomic and environmental information. Many of the data needs and NWRP objectives will be refined, requiring flexibility in planning to accommodate this evolving program. It is expected that as additional data needs occur, the Work Plan will be modified as to scope, budget, and schedule.

Figure 1-2
Clark County
Yucca Mountain NWRP
PROJECT TEAM



- Incorporated Cities
- Moapa Paiutes
- UNLV
- State of Nevada
- Citizen Member
- Lincoln/Nye/Esmeralda Counties

ESRIs support role in the Program is clearly illustrated by the Clark County NWRP Project Team organization chart in Figure 1-2. As shown in the figure, Clark County oversees a team of specialists and contractors who will be carrying out the range of NWRP studies. Review of Clark County NWRP efforts will be performed by both the U.S. Department of Energy (DOE) and the Yucca Mountain Nuclear Waste Steering Committee. Analysis for the various studies will be supported by both the automated Yucca Mountain data base and specialized GIS applications tools and programming. The data base will serve as a source for information and quality standards as well as establish a common information baseline for all geographic-related program studies.

Detailed information regarding FY90 work plan tasks and schedule (Figure 5-1) are provided in later sections of this document. Key provisions of the overall FY90-93 work plan are listed below followed with project schedule (Figure 1-3), resource estimation (Figure 1-4), and staffing (Figure 1-5). Those items noted with a section number refer to task efforts presently under contract during FY90. Key provisions of the overall project work plan are also summarized below.

<u>Task</u>	<u>Section</u>	<u>Description</u>
1	2.1	Annual Work Plan
2	2.2	Information and Equipment Issues
3	2.3	Specifications for Additional Technology Procurement
4	2.4	Yucca Mountain Data Base Development
5		Yucca Mountain Data Base Maintenance
6		Develop Analytical and Monitoring Tools
7		Impact Analysis
8		Develop Emergency Management Response
9		Develop Strategic Information and Decision Making Tools
10	2.4	Develop Local Document Repository Capability
11		Institutionalize Data Dissemination Program
12		Impact Monitoring and Analysis
13	2.5	Meeting Support
14	2.6	Project Report
15	3.0	Project Administration and Management
16	4.0	Miscellaneous Support Services

Task 1 Section 2.1 - Develop Detailed Work Plan. This work effort commenced upon award of the contract. A two-day orientation or start-up meeting was held in order to familiarize project participants with GIS concepts in general. Critical to the Work Plan development effort was development of an initial schedule for all activities and products discussed in the scope of work. Detailed descriptions of project tasks and associated deliverables are also included. The project staff is expected to present the Final Work Plan on site and discuss the planned role of the DBMS in the NWRP. The task is scheduled from early July through late November 1989.

Task 2 Section 2.2 - Define Information and Equipment Issues. Work on this task formally began with a project workshop which was held in September 1989 to initiate and inform possible data providers, and others who may have future project involvement, of project objectives. Interview materials such as information handouts and questionnaires were prepared and presented at the workshop to indicate the general kinds of information needs the NWRP has and prepare the attendees for possible interviews.

It is anticipated that on-site interviewing will be carried out during FY90 as required NWRP studies are identified and contractors are retained to further define information needs. Consequently, the design process is expected to be an incremental and comprehensive

one. NWRP DBMS requirements and issues will likely be identified for each topical area (i.e., transportation, fiscal, other socioeconomic, and environmental), individually, as the attention of the NWRP shifts its focus among the key study areas.

Interviews will be scheduled, to the extent possible, during on-site visits for additional project business. Needs assessment and available data review findings will be documented and incorporated into the design and recommendations effort. Following collection of appropriate information, draft design working papers and memorandums will be prepared and presented on site to the County for critical review to assure their accuracy and completeness. Based on review comments, final documents will subsequently be developed. The task is scheduled from mid-September 1989, through mid-June 1990.

Task 3 Section 2.3 - Prepare Specifications for Additional Technology Procurement. It is anticipated that the schedule for this task will be refined during design efforts for Task 2.2. At this time, on-site meetings will be scheduled to review relevant task issues and evaluate County facilities. A Technology Specifications Memorandum is also planned in order to present relevant findings to the NWRP project team. The task is scheduled from late November 1989 through June 30, 1990.

Task 4 Section 2.4 - Yucca Mountain Data Base Development. Detailed scheduling for this task will likely be refined based on findings of Task 2.2 as it is performed. At this time, the schedule for Task 4 reflects the interest in supporting the NWRP DBMS development effort, following completion of the Work Plan, and the assumption that the data development activities prioritized for FY90 will have broad NWRP application. It is anticipated that much of the work to be performed under Task 2.4 will occur after FY90, following both the conceptual design work of Task 2.2 and the physical data base design/prototyping efforts described in Subtask 2.4.1.

A minimum of one initial on-site meeting is anticipated to begin work on the preliminary subtasks, and additional meetings will be scheduled as is appropriate. Three final deliverable documents are scheduled including the Physical Data Base Design Working Paper, Quality

Assurance Program Report, and Data Dictionary and Data Documentation Format and Issues Memorandum. Additional digital data files and products will be delivered consistent with NWRP priorities and available task budget. The task is scheduled from mid-November 1989 through June 30, 1990.

Task 5: Data Base Maintenance. Staff will be employed to verify the data base automation and conversion efforts as defined in Task 4. Staff will be trained in the sophisticated software packages which comprise the Resource/Demographic Mapping System. Once the geographic data base has been verified and accepted, the data base will be maintained by local staff. Where possible, data base maintenance efforts will be undertaken by the local governments and contractors participating in this program.

Task 6: Develop Analytical and Monitoring Tools. Using the digital information and modeling capabilities available in the Resource/Demographic Mapping and Analysis System, a series of analytical maps and associated statistics will be generated. The extensive base of environmental, socioeconomic, fiscal and other data generated will be used as the basis for monitoring the presence of impacts throughout the life of the program. The output will be generated in a form to enable the sensitivity of the models to various changes in user-specified criteria to be determined. Graphic output will be available (in either paper monochrome maps or keyed multicolored photographic products) as well as statistical information.

Task 7: Impact Analysis. The tools, data and methodology developed will be employed to evaluate potential impacts during the life of the nuclear waste repository program. This task will be coordinated with the other program participants in the Clark County Nuclear Waste Repository Work Program as well as the State of Nevada, DOE, the NRC and others. The results will provide the basis for determining potential impacts from the proposed repository that would require mitigation.

Task 8: Develop Emergency Management Response Program. Using the results of the monitoring and analysis generated under Task 7, and other trends in population and housing development, scenarios will be developed to consider alternative evacuation plans and fire/police routing and response plans in the event of an accident involving radioactive material. The various scenarios will be tested and mitigation strategies evaluated.

Task 9: Develop strategic Information and Decision-Making Tools. A series of policy recommendations will be generated and made available to federal and local government officials

for their review and consideration with input from all elements of the Clark County Nuclear Waste Repository Program, as well as other related studies, the results of the analysis performed under Task 6, and alternative scenarios developed under Task 7. It is envisioned that this effort will improve the effectiveness of local governments and greatly expand the capability of local entities to utilize information for decision-making purposes.

Task 10 Section 2.4: Develop Local Document Repository. In order to develop the local capability for adequately participating in the Nuclear Regulatory Commission's (NRC) proposed Licensing Support System (LSS), the County anticipates acquiring data processing equipment during the grant period to ensure compatibility with the LSS system.

The County anticipates procuring equipment for character/graphic scanning, optical disk storage and retrieval, micro/mini computer equipment, and compatible software for use in conjunction with the Resource/Demographic Mapping and Analysis System. This equipment is essential in enabling the County to incorporate the extensive and ever-increasing amounts of project data, information, and reports into the County's textual data base and to adequately compile necessary documents and perform needed analysis. This will be coordinated with DOE as system requirements are developed.

It is also anticipated that during the project period the County will have ongoing equipment requirements, unanticipated at this time, and a need for system upgrade equipment to accommodate expanding information management requirements.

Task 11: Institutionalize the Data Dissemination Program. In order to promote the use of the system by entities and the private sector, procedures will be developed and implemented for responding to requests for data and analysis. Institutional, financial and legal issues will be examined in order to structure the most efficient data transferral procedures possible. Other local agencies, such as libraries and schools, will be examined to determine if data can be organized and systems developed to disseminate information to the public and private sector.

Task 12: Impact Monitoring and Analysis. Task 12 will utilize the analytical and monitoring tools developed under Task 6 in order to periodically assess impacts and update analysis performed under Tasks 7 and 8. A series of policy recommendations will then be developed in coordination with federal and local government officials.

Task 13 Section 2.5 - Meeting Support. Support to the County with regard to this task will, essentially, extend through the duration of the project effort. A number of trips to Las Vegas as well as other locations are anticipated for project-related meetings. This task will also support work effort to develop appropriate presentation materials (e.g., overheads, slides, plots, handouts) for the various NWRP meetings. The dates of the on-site visits are presently undetermined. Staff are prepared to attend ad hoc meetings and provide a variety of meeting support services to the Comprehensive Planning Department at the level allowed by available task budget. The task is scheduled from September 1989 through June 30, 1990.

Task 14 Section 2.6 - Project Report. This task is scheduled to include an initial meeting intended to ensure that the final deliverable report will address the most critical concerns of the NWRP, with regard to findings of the FY90 effort and recommendations for the FY91 project. The deliverable Project Executive Summary Report will summarize the important findings and recommendations from previous task working papers and prioritize work that remains for ongoing NWRP efforts. Delivery of the final report is scheduled during the final month of the project. The task is scheduled from April 1990 through June 30, 1990.

Task 15 Section 3.0 - Project Administration and Management. This task officially began upon project start-up and will continue until FY90 project completion. Project management and administration, including coordination/communication with the Comprehensive Planning Department and other NWRP project team members, will be carried out routinely during the course of the project. Monthly Project Status Reports will be prepared and submitted to the County at approximately the middle of each following month. Quarterly Progress Reports will be prepared and submitted based on calendar quarters. Monthly trips to Las Vegas are scheduled to discuss project status with the NWRP Program Director.

Figure 1-3

Data Base Development & Management System

PROJECT GANTT CHART

Grant Period -- Quarters -- Fiscal Year Beginning October 1

Grant Tasks

- 1: Annual Work Plan
- 2: Information and Equipment Issues
- 3: Technology Augmentation
- 4: Yucca Mountain Data Base Development
- 5: Yucca Mountain Data Base Maintenance
- 6: Develop Analytical and Monitoring Tools
- 7: Impact Analysis
- 8: Develop Emergency Management Response
- 9: Develop Strategic Information and Decision Making Tools
- 10: Develop Local Document Repository Capability
- 11: Institutionalize Data Dissemination Program
- 12: Impact Monitoring and Analysis
- 13: Meeting Support
- 14: Annual Report
- 15: Project Administration & Management
- 16: Miscellaneous Support Services

Grant Tasks	FY90				FY91				FY92				FY93			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1: Annual Work Plan																
2: Information and Equipment Issues																
3: Technology Augmentation																
4: Yucca Mountain Data Base Development																
5: Yucca Mountain Data Base Maintenance																
6: Develop Analytical and Monitoring Tools																
7: Impact Analysis																
8: Develop Emergency Management Response																
9: Develop Strategic Information and Decision Making Tools																
10: Develop Local Document Repository Capability																
11: Institutionalize Data Dissemination Program																
12: Impact Monitoring and Analysis																
13: Meeting Support																
14: Annual Report																
15: Project Administration & Management																
16: Miscellaneous Support Services																

Figure 1-4

Data Base Development & Management System

PROJECT RESOURCES ESTIMATION CHART

Task	FY90			FY91			FY92		
	Staff Resources	Consultant/Contractor & Training	Contract/Purchase Computer Equipment & Overhead	Staff Resources	Consultant/Contractor & Training	Contract/Purchase Computer Equipment & Overhead	Staff Resources	Consultant/Contractor & Training	Contract/Purchase Computer Equipment & Overhead
1: Annual Work Plan	\$4,324	\$27,700		\$11,403			\$12,653		
2: Information and Equipment Issues	\$3,187	\$86,400		\$5,702			\$6,327		
3: Technology Augmentation	\$4,334	\$16,500	\$495,000	\$11,403			\$12,653		
4: Yucca Mountain Data Base Development	\$7,600	\$245,000		\$13,684			\$15,184		
5: Yucca Mountain Data Base Maintenance	\$42,330	\$200,000		\$148,230			\$164,490		
6: Develop Analytical and Monitoring Tools	\$78,172	\$41,800		\$142,538			\$158,184		
7: Impact Analysis	\$3,325			\$5,987			\$6,643		
8: Develop Emergency Management Response	\$26,502			\$51,314			\$56,938		
9: Develop Strategic Information and Decision Making Tools	\$28,502			\$51,314			\$56,938		
10: Develop Local Document Repository Capability	\$25,335		\$320,000	\$45,812			\$50,812		
11: Institutionalize Data Dissemination Program	\$18,001			\$34,208			\$37,858		
12: Impact Monitoring and Analysis	\$3,325			\$5,987			\$6,643		
13: Meeting Support	\$1,583	\$29,600		\$2,851			\$3,143		
14: Annual Report	\$17,418	\$15,900		\$31,356			\$34,786		
15: Project Administration & Management	\$3,187	\$48,600		\$5,702			\$6,327		
16: Miscellaneous Support Services	\$1,543	\$10,900		\$2,851			\$3,183		
TOTAL	\$316,687	\$765,400	\$415,000	\$570,151	-(1)-	-(1)-	\$632,655	-(1)-	-(1)-

Task	FY93		
	Staff Resources	Consultant/Contractor & Training	Contract/Purchase Computer Equipment & Overhead
1: Annual Work Plan	\$14,102		
2: Information and Equipment Issues	\$7,051		
3: Technology Augmentation	\$14,102		
4: Yucca Mountain Data Base Development	\$16,922		
5: Yucca Mountain Data Base Maintenance	\$183,328		
6: Develop Analytical and Monitoring Tools	\$176,275		
7: Impact Analysis	\$7,404		
8: Develop Emergency Management Response	\$83,459		
9: Develop Strategic Information and Decision Making Tools	\$83,459		
10: Develop Local Document Repository Capability	\$56,408		
11: Institutionalize Data Dissemination Program	\$42,304		
12: Impact Monitoring and Analysis	\$7,404		
13: Meeting Support	\$3,525		
14: Annual Report	\$36,789		
15: Project Administration & Management	\$7,051		
16: Miscellaneous Support Services	\$3,525		
TOTAL	\$705,096	-(1)-	-(1)-

-(1)- Estimates are presently being developed by the consultant during FY90
 -(2)- Computer Equipment & Overhead includes hardware, software, and necessary maintenance fees.

Figure 1-5

**Data Base Development & Management System
PROJECTED FY90-93 STAFFING REQUIREMENTS**

Schedule	Title	FY 90		FY 91		FY 92		FY 93	
		Positions	Wages & Benefits						
B	Coordinator (management)	1	\$69,523	1	\$72,854	1	\$76,352	1	\$80,025
30	Analyst	1	\$51,551	2	\$107,891	2	\$112,995	2	\$118,456
30	Demographer	0	\$0	1	\$53,945	1	\$56,498	1	\$59,228
30	Data Base Administrator	0.5	\$25,776	1	\$53,945	1	\$56,498	1	\$59,228
30	System Administrator	0.5	\$25,776	1	\$53,945	1	\$56,498	1	\$59,228
25	Cartographer II	1	\$42,868	1	\$44,867	1	\$46,965	1	\$49,168
21	Cartographer I	1	\$37,059	2	\$77,534	3	\$121,681	4	\$169,773
17	Cartographer	2	\$64,133	3	\$105,169	3	\$105,169	3	\$109,992
-	Digitizer/Low Level Processor (students)
	TOTAL	7	\$316,687	12	\$570,151	13	\$632,655	14	\$705,098

NOTE: This chart represents ESRT's preliminary thoughts regarding project staffing requirements. Organizational/administrative issues will be further refined as part of the project's work plan. Salary is based on the schedule's middle step and includes benefits. Each year's wages & benefits were then adjusted for 5% inflation.

Yucca Mountain Program Data Base Development and Application

2

The principal non-administrative work activities associated with the DBMS during FY90 in support of the Yucca Mountain NWRP are those related to data base development and application. Critical to any data base development activities are both careful planning and design. Thus, aspects of data base development such as data selection, the quality assurance program, physical design, and documentation, as well as data preparation, automation, and conversion methodologies have important implications for the desired data applications. Tasks encompassing these activities, in addition to general administrative and technical support, are described in this section. The principal tasks in the program include the following:

- Task 2.1 Develop Project Work Plan
- Task 2.2 Define Information and Equipment Issues
- Task 2.3 Prepare Specifications for Additional Technology Procurement
- Task 2.4 Yucca Mountain Data Base Development

- Task 2.5 Meeting Support
- Task 2.6 Project Report

2.1 Develop Project Work Plan

This document represents a comprehensive DBMS project Work Plan for the first full year effort, FY90. This task was initiated by a two-day Orientation Meeting attended by Clark County staff, ESRI project staff, and key NWRP contractors identified by the County. The meeting was conducted as a series of briefings and working sessions among the participants allowing everyone to review project requirements and issues as they are currently envisioned and become more familiar with general GIS concepts and applications.

During subsequent meetings and discussions with the County NWRP Program Director and other NWRP project team members, the work program was reviewed and refined. This series of meetings and discussions enabled the development of an effective program that utilizes GIS technology to establish an information baseline and support Yucca Mountain NWRP study requirements. The draft Work Plan document was presented to the County for critical review, which resulted in the finalization of this document.

The Work Plan establishes the work goals, schedules, and budgets for ESRI support under the contract. However, the magnitude and dynamic nature of the project suggest that this work plan will perhaps be modified on a periodic basis. Thus, as the project progresses, project requirements and issues will become increasingly focused and modification may be required to the project Work Plan.

Deliverables

This document is the project work plan for the DBMS component of the County's NWRP and the deliverable for this task effort. It details the project scope of work, schedule, budget, and deliverable products. A description of the required work effort, travel, etc., associated with the Work Plan, as well as all other project deliverables, is presented in Section 5.0, Project Budget, Schedule, and Deliverables.

2.2 Define Information and Equipment Issues

This task will play a critical role in clarifying and prioritizing subsequent work on the DBMS. Through a series of meetings and interviews with key project participants and NWRP project team members, project requirements will be identified and documented. Based on these findings, recommendations will be made to the County for a DBMS that will support the systematic and scientific evaluation of the potential impacts using GIS technology. Issues and design recommendations are expected to be identified and developed in the following areas:

1. GIS applications and data base design
2. Hardware/software and communications
3. Nuclear Waste Division organization and project administration

A series of three principal subtasks have been developed to support definition of information and equipment issues. These subtasks are described below.

2.2.1 Develop Detailed Needs Assessment Plan

The objective of this subtask is to identify entities, agencies, and individuals who can provide information regarding project issues and requirements as well as the data and possible GIS application needs of the specialists carrying out the various NWRP studies. During the FY90 project effort, it is anticipated that NWRP studies will focus on socioeconomic issues. These issues, which will provide the basis for most of DBMS data base development activities, are described in the Clark County Nuclear Waste Repository Program Socioeconomic Work Plan.

Some of the critical issues to be studied for the program must still be identified (e.g., environmental impacts) or refined (e.g., transportation, fiscal, and other socioeconomic impacts). Further, consultants who will be responsible for identifying significant project issues and implementing investigations are still being selected by the County. Consequently, development of the DBMS and data base needs will be an iterative/comprehensive effort. This process will require a series of meetings and discussions with both County staff and outside contractors during much of the FY90 project term.

Development of a plan for carrying out the DBMS needs assessment will follow review of the Socioeconomic Work Plan with the NWRP project team. The review will identify, at a survey level, general

DBMS applications and data requirements as well as individuals to contact for a more detailed needs assessment. Additional meetings will be held with the fiscal and transportation contractors to gather similar information. Follow-up interviews and meetings will be held with identified contact persons as the respective areas of study are undertaken.

The subtask was initiated with a presentation of the work plan and a workshop/seminar on GIS technology and the role it is expected to play in the NWRP. Descriptive materials including slides, handouts, and questionnaires were prepared for the Workshop. These materials are also intended to support future project presentations. The general kinds of information needed to design the DBMS, and the variety of methods by which the information can be gathered, will be reviewed. Workshop participants included representatives of the major federal, state, and local organizations and agencies that have an interest in the program and that potentially maintain relevant data for the DBMS. After the workshop, further discussions were held with the County NWRP project team to develop a preliminary list of organizations and staff that should be further interviewed. Follow-up interviews will be conducted with other key organizations that were not represented at the workshop.

*2.2.2 Identify Project
Requirements
and Issues*

This subtask will involve the collection and analysis of information necessary to define the project requirements and issues. The Socioeconomic Work Plan identifies, in general terms, issues organized into six primary potential areas of concern:

1. Public Impacts
2. Private Sector Impacts
3. Economic Impacts
4. Transportation Impacts
5. Other Community Impacts
6. Other Impacts

Several methods may be employed to gather the necessary information to support studies associated with the issue areas. These will include distribution of questionnaires, telephone interviews, and on-site interviews. It is anticipated that the majority of information will be collected through a series of scheduled on-site interviews with organizations and staff identified in Task 2.1. The interviews and

information gathering process will focus on the identification of baseline and analytical data requirements as well as ways in which GIS technology can assist in analysis, monitoring, and management of the studies carried out for the program.

Specific project issues that will be addressed include:

1. Yucca Mountain Application and Data Base Issues
2. Hardware/Software/Communications Issues
3. Organizational and Administrative Issues

Yucca Mountain Application and Data Base Issues. This effort will involve specifying the kinds of GIS applications that will need to be developed in order to define, analyze, model, and monitor socioeconomic data needed for the Yucca Mountain Program. These applications include activities such as data base expansion and development, and generation of both analytical and simple display maps and reports. Examples of applications will range from the simple—plotting basic data to create a location map, to the complex—modeling of growth-related fiscal impacts. Applications would include identification of impacted areas, and areas for which the data base will need to be developed.

After application needs and study areas for the Yucca Mountain NWRP are defined, the basic data required to support the applications can be identified. This is a critical step, and it will ensure that only the data required for analysis is put into the DBMS. All data will be carefully reviewed and guidelines established to ensure that it is relevant to the program needs and objectives. An initial survey and review of maps, reports, and digital data will be made. Examples of the data will be collected, whenever possible, during the interview process in order to support design activities.

Hardware/Software/Communications Issues. Issues will be identified concerning hardware, software, and communications necessary to support the program. Critical here will be an inventory and examination of existing hardware, software, and facilities of the key NWRP project team members including:

1. Clark County Comprehensive Planning Department
2. Clark County Information Systems Office

3. Socioeconomic consultant
4. Fiscal consultant
5. Transportation consultants (RTC and UNLV Transportation Research Center)
6. DOE (Las Vegas Office)

This effort will also include identification of the need for expanding GIS and image processing capabilities for support of the NWRP. Existing document processing and desktop publishing systems will be evaluated to assess their compatibility and flexibility for use in a very graphics-oriented environment. As there will be many potential users of the data base, an analysis of data sharing standards and communications requirements will be made. This will involve identifying issues associated with a wide area network (WAN), particularly as identified by DOE. Interface requirements to the DOE Licensing Support System (LSS) are also expected to be examined during the FY91 work effort.

Organizational/Administrative Issues. ESRI will assist Clark County in identification of organizational and administrative issues associated with the Yucca Mountain Nuclear Waste Division that should be considered to effectively achieve NWRP objectives. Staffing requirements, including the type, number, and organization of staff, will be analyzed and recommendations will be submitted. Overall inter- and intra-office organization, coordination, lines of responsibility, and coordination of system users will be reviewed.

As project issues are refined and County personnel or specialists are retained as part of the NWRP project team, meetings will be held with these specialists as well as with project staff in order to identify what the respective DBMS needs are and to gather information in support of subsequent data base and system design efforts. Activities under this subtask will be carried out with the objective of ensuring coordination of the issues and project requirements before providing recommendations.

2.2.3 Prepare Design and Recommendations Working Papers

This subtask will consider the findings from Task 2.2 and develop a series of design and recommendation working papers and technical memorandums for the major DBMS issue areas: GIS applications and data base design, hardware/software/communications, and organization/administration.

The GIS applications and data base design recommendations working paper will document a conceptual data base design for the DBMS. There are many factors that will influence the data base design. Some of the major factors will include the types of socioeconomic applications the data base must support, availability and format of required data, update and maintenance procedures, size of the data base, and hardware platform/configuration, as well as the number and sophistication of users. Relevant information with regard to these factors will have been gathered and documented during Task 2.2.

The conceptual design process will begin with a review of the data needs as reflected in the Socioeconomic Work Plan. Following this review, a detailed evaluation of existing data sources will be compiled based on follow-up interviews and meetings. For each kind of data required, for example roads, a recommended data source will be made. This recommendation will be based on an examination of existing data characteristics such as accuracy and resolution, map scale and geographic coverage, currency and quality, and possible automation problems and costs.

Existing digital data will be recommended whenever possible because of potential savings in cost and time requirements for automation. Therefore, particular attention will be given to an evaluation of existing County, USGS and DOE, as well as State of Nevada and subcontractor-generated digital data. For some required data, published maps and digital files may not be available or may not meet accuracy or temporal requirements. In these instances, recommendations will be made regarding alternative programs of data development involving map interpretation, photo interpretation, ground surveys, or image processing analysis.

A conceptual data base design will be produced that includes identification of data layers, annotation layers, attribute tables, and map library structures. General procedures for data automation or conversion will be defined. The design will also include an initial specification for a quality assurance program and a format for data base documentation (data dictionary).

The hardware/software/communications working paper will inventory existing hardware and software capability within the Comprehensive

Planning Department, and key consultants identified as part of the NWRP project team. This inventory will also include document processing and desktop publishing equipment. Also, a conceptual design for the DOE WAN as it is presently envisioned will be developed. It is anticipated that a system design will be developed during FY91 as the program is more clearly defined and as additional information regarding system needs becomes available.

The organizational/administrative design will be documented in summary memorandums that will include recommendations and options for program management and will focus on staffing, user support, training, data base and equipment maintenance, etc. Options for overall organizational arrangements will consider how best to coordinate inter-department, intra-department, and potentially inter-jurisdictional and inter-agency activities related to the program. The first memorandum will document findings of an initial review of how the NWRP project team currently operates. The second memorandum will document a final review for the FY90 contract with a view to addressing issues of concern for the following fiscal year.

Task Responsibilities

ESRI will have responsibilities for scheduling meetings and gathering the required information and development of the various deliverable documents. The County will assist ESRI in identifying project participants, providing meeting rooms and work space, and providing timely responses to inquiries and draft documents. It is also expected that a member of the County NWRP project team will be involved in most needs interviews to assist in identifying priority objectives.

Deliverables

As described above, the following deliverables will be developed for this task effort:

1. Draft and Final DBMS Applications and Data Base Design Working Paper
2. Draft and Final Hardware/Software and Communications Working Paper

3. Draft and Final Organization/Administration Design Recommendations Summary Memorandums (Initial and Final)

2.3 Prepare Specifications for Additional Technology Procurement

Meetings will be held with Clark County to develop detailed technical specifications for hardware, software, communications, or other needs for Comprehensive Planning or other key NWRP project team members. The specifications can be provided in a format that can be readily incorporated consistent with Clark County purchasing standards for procurement of the technology. Criteria to evaluate vendors, such as maintenance requirements, training, and compatibility with existing systems will also be provided. If desired, support will be provided in evaluation of hardware facilities as well as in overseeing all installation activities. A minimum of one technical memorandum will be prepared under the FY90 contract, with additional memorandums provided as requested and as available budget for this task allows.

Deliverables

Technology Specifications Technical Memorandum (additional memorandums will be prepared in response to County requests and in line with available task budget).

2.4 Yucca Mountain Data Base Development

This task will involve review, and update/augmentation where appropriate, of the existing Comprehensive Planning Department 1:24,000 scale Resource/Demographic Mapping and Analysis System. It will also include identification and development of data bases at suitable scales to support identified socioeconomic, fiscal, and other studies carried out by the NWRP project team. It is expected that this process will involve interpretation and mapping of new data, and digitizing or scanning of published maps or newly created manuscripts, as well as the update or conversion of existing digital data. Throughout this process, it will be critical that a quality assurance program is in place and guides the work. The program will include systematic documentation of data sources, attributes, and procedures for mapping and data automation.

Much of the data base development work performed under this task will require a multi-year effort and is expected to continue in FY91.

However, the objective of immediately developing some useful data based on expansion of the County's previous work efforts has led to prioritization of selected data base development activities. Task work activity descriptions presented below provide general information about task activities and highlight those specific work activities that are planned for FY90. Identified FY90 activities will be accomplished as task budgets allow.

Eight subtasks are identified under this task and are described below:

1. Physical Data Base Design
2. Develop and Implement Quality Assurance Program
3. Evaluate and Collect Data
4. Standardize Data
5. Automate Data
6. Convert Existing Digital Data
7. Create Data Base
8. Document Data Base

2.4.1 Physical Data Base Design

This subtask will involve taking the conceptual data base design developed under Subtask 2.2.3 and creating a detailed physical data base design. There are five primary components that will need to be designed for the Clark County Nuclear Waste Repository Program data base. These include the cartographic layers, feature attribute tables, lookup tables, annotation, and the map library. While designing these components to program requirements, the underlying goals will be to maintain data consistency/integrity, reduce data redundancy, and to increase system performance while maintaining maximum user flexibility.

As part of the data base design, there are three basic layer types and two variations. Basic layer types are polygons (soils, administrative areas), lines (streams, street centerlines), and points (wells). Variations on these layers include network (both polygon and line) and link (line and point) types. Selection of the layer type for the data base will depend on anticipated uses of the data identified in Subtask 2.2.2 and will be influenced by the scale and resolution of source data. For example, a stream may be a line at 1:250,000 scale, but a polygon at 1:24,000 scale. An archaeological site may be a point at 1:250,000, but a polygon at 1:24,000 scale.

Layer Design. There are many factors that will influence which data sets should be combined into layers for the Yucca Mountain DBMS. Some of the most important are data-to-data relationships and data-to-function relationships.

Before the final design is put together, consideration will be given to how the software is going to connect or combine the data. This will ensure that the most efficient and flexible system is developed for the project.

Attribute Table Design. The way feature attribute tables and lookup tables are designed will have a tremendous impact on system performance. In designing the feature attribute tables (FATs) and non-coverage related files, or lookup tables, the anticipated uses identified in Subtask 2.2.3 will be critical. In general, narrow files with correct item definitions will be the key. Data files will be normalized to the extent practical. Normalization will produce files that are easier to maintain, update, modify, and protect. Templates and a complete data dictionary of codes will result from this process.

Map Library Design. Existing County map library designs will be reviewed to see if there are areas where they can be enhanced. Map library design will be carefully considered because the selected structure will affect data base maintenance, data query, and system performance. Different designs used for storing the same data can have highly variable requirements for disk storage and performance.

Data Base Design Implementation Program. For each layer and attribute table, a data base implementation plan will be developed along with recommendations on future maintenance of the data. The many alternatives for data standardization, automation, data conversion, and attribute capture will be considered. The best alternative for each will be selected that meets the project's quality assurance program, and schedule and budget requirements.

Data Base Prototype. Data base designs and implementation plans always require modification when tested under production conditions. As a result, each layer will be prototyped prior to embarking on large-scale data development work. The prototype will implement the data base design and development plan over a limited geographic area. It will yield several benefits, including:

1. Providing a test of the physical data base design performance
2. Allowing development of procedures for performing tasks under production conditions
3. Assisting in the identification of obstacles to system implementation
4. Yielding timely results/products for management presentations and gaining continued management support

A number of guidelines will be followed for the prototype. First, the sample site must be representative of the entire study area and exhibit the full range of complexity. This will help ensure that lessons learned will be extended to the remainder of the data base. If a single representative area cannot be identified, it will be necessary to select more than one study area to prototype the data base design. Another consideration is the scope of the prototype. To be effective, the applications and processes being tested will be well-defined. A "peer review" of results will be conducted by NWRP project team members of each layer and application type. Finally, comments will be documented to ensure refinement of the final data base design.

Planned FY90 Activities

Physical design activities planned for FY90 include evaluation of the following data for the data base design effort:

- 1983 Comprehensive Planning Department Resource/Demographic and Analysis System (1:24,000 scale) update and augmentation
- 1988-89 land use, streets, and administrative boundaries.

Planned FY90 activities will be accomplished as task budget allows.

2.4.2 Develop and Implement Quality Assurance Program

Ensuring data base and product quality and developing acceptable program data standards will be the goals of the Quality Assurance (QA) program. These standards will be tailored to the specific requirements of the Yucca Mountain DBMS. To achieve the highest level of data base and product quality possible, detailed quality control (QC) procedures will be combined with system error checking software. The QA program will be focused on five primary activities:

1. Planning and review
2. Project tracking and material transmitting
3. Detailed QC checking
4. Hardware testing
5. Data quality reports

Planned FY90 Activities

The priority for QA program activities during the initial year of system development is development of appropriate standards for DBMS information and system requirements. These standards will be identified in the Quality Assurance Program Report. Deliverable digital data files and products will be identified when the Task 2.4 work effort is initiated.

**2.4.3 Evaluate and
Collect Data**

This subtask will involve evaluation and acquisition of the various existing data sources identified in Task 2.2 necessary for development of the DBMS. Possible existing data sources are expected to include maps, reports, aerial photography (1988-89 1"=400' scale coverage for selected portions of Southern Nevada), SPOT satellite imagery, fiscal and transportation models, and existing digital data (including USGS DEM and DLG files, and Comprehensive Planning Department 1983 resource level data). Samples of the data, in many instances, will previously have been collected for the design effort in Task 2.2. This subtask will involve collection of the data that is both appropriate for the desired analyses and necessary to provide the desired coverage for the Yucca Mountain NWRP study area. Collected data will be systematically cataloged and organized for subsequent preparation, automation, and QC purposes.

Planned FY90 Activities

The data evaluation effort during FY90 will primarily include the existing 1983 digital data and will consider which elements of the data base will potentially support the Yucca Mountain NWRP. In addition, available existing digital data will be surveyed and reviewed for its application to the DBMS. These data sets are likely to include USGS DLG and DEM files, as well as street and highway network files developed by private sources. Data sets identified during the design process will be reviewed and collected as required for the DBMS.

Collection of any presently unidentified data, as well as purchase of data, must be reviewed for consistency with NWRP priorities and available project budget.

2.4.4 Standardize Data

Data standardization will involve preparation of source data, manuscripts, and attribute data for automation. Source data for the project will vary greatly in scale, format, resolution, projection, and classification. Although several software tools can assist in resolving some of these problems, a number of steps will be taken before automation that will result in a more refined data base. These include:

1. Recompilation of source documents onto manuscripts specially prepared for automation; and
2. Preparation of source documents for direct automation.

Recompilation of source documents will be done for a variety of purposes, including assuring compliance with the data base design; recompiling unclear, poorly scaled, or cluttered manuscripts; registering map layers to a common geodetic base; and clarifying coincidence of boundaries among data sets. Preparation of source documents for direct automation will likely require creation of three general types of manuscripts including simple, composite, and integrated.

Planned FY90 Activities

Recompilation of 1988-89 aerial photography data will be performed during FY90 in developing land use, streets, and administrative boundaries data layers. Planned activities will be accomplished as task budget allows.

2.4.5 Automate Data

The automation process will produce clean digital map and attribute files for the layers being automated for the Yucca Mountain DBMS. During FY90 it is expected that data automation activities will be undertaken for the land use, streets, and administrative boundaries layers to be derived from 1988-89 aerial photography for selected portions of Southern Nevada. The automation effort will expand during FY91 and FY92, as data needs for NWRP project team studies are more clearly defined.

Planned FY90 Activities

Data automation activities will be undertaken for the land use, streets, and administrative boundaries layers to be derived from the 1988-89 aerial photography for a portion of Southern Nevada. The study area will include the Las Vegas Valley; the communities of Indian Springs, Moapa-Overton, Laughlin; and corridors on Interstate 15 and U.S. Highway 95 within the counties of Clark, Nye, and Lincoln. The extent to which FY90 automation activities are carried out will depend upon priorities and available task budget.

2.4.6 Convert Existing Digital Data Related to the Yucca Mountain Program

Existing digital data currently residing on the Clark County Comprehensive Planning Resource/Demographic Mapping and Analysis System, and other systems will be used and made part of the DBMS whenever appropriate. The appropriateness of the data for the NWRP, with respect to relevancy, accuracy, scale, currency, attributes, and so forth, will have been determined based on the guidelines under Task 2.2 and Subtask 2.4.3. Following data conversion, the output will be reviewed to ensure that the data have been converted correctly and that the quality is sufficient to support studies carried out for the Yucca Mountain NWRP. Finally, the data will be restructured and separated into multiple layers or combined with other layers, as defined in the final physical design.

Planned FY90 Activities

The principal data conversion activities planned for FY90 focus on the existing 1983 resource level data base maintained by the Comprehensive Planning Department. These data are expected to provide a core of information in development of the Yucca Mountain DBMS. Specific activities under this subtask, in support of conversion of the Department's data include:

- Monitoring and general support of the Department's data base inventory and documentation effort;
- Evaluation of the Department's CalComp plotter required for displaying data as part of the inventory and documentation effort;
- Evaluation of the 1983 resource level data base to assess suitability of the component layers for the Yucca Mountain DBMS and

required updates and expansion of the layers to meet the needs of NWRP studies; and

- Conversion of data layers relevant to the Clark County Yucca Mountain NWRP from the 1983 data base and other sources, to the 1983 datum and DEC VAX format for use on the Department's existing hardware platform.

Planned FY90 activities will be accomplished as task budget allows.

2.4.7 Create Data Base

As automation or data conversion is completed for each layer, the resulting individual coverages for each map sheet will be further processed to complete the data base creation process. Three steps are involved in this process including:

1. transformation
2. edge match/mapjoin
3. verification.

Transformation. Each map sheet (coverage) will be transformed from the inch coordinate system of the digitizing boards or scanner to the selected DBMS map projection and coordinate system. Each coverage will be entered into a digital grid of map sheet boundaries to ensure that they are all bounded by a standard border.

Edgematch/mapjoin. As groups of digital maps are processed, transformed and fit into the standard boundary, abutting coverages will be electronically edge matched. This process will assure that features that extend across map sheet boundaries are accurately aligned, topologically correct, and have the correct attributes associated with them. Following the edge match process, the individual coverages for each layer will be joined together to provide a continuous map layer for the project area. This process will be important for the converted 1983 resource level data before it is entered into a tile structure for the Yucca Mountain DBMS map library.

Data Base Verification. As portions of the data base are completed, selected products will be prepared to verify the completeness and accuracy of the data base. The verification products will include map features which have been symbolized to reflect

selected attribute information such as land use or population density. These products will be delivered to the County along with magnetic tapes containing the data base.

Planned FY90 Activities

During FY90, principal data to be entered into the data base will include selected layers from the 1983 data base as well as interpreted 1988-89 land use, streets, and administrative boundaries data. Planned FY90 activities will be accomplished as task budget allows.

**2.4.8 Document
Data Base**

It is difficult to overstress the importance of adequately documenting the data base design and subsequent implementation efforts. Documentation is necessary if users are to have confidence in the data, and if the data base is to remain functional beyond the tenure of those who originally conceive and build it. At a minimum, documentation will include a comprehensive data dictionary with templates and descriptions of all items and codes for each layer. Depending on DBMS requirements, the data dictionary, or parts of it, will be on-line and linked directly to the data base rather than exist as a stand-alone word processing file. An on-line data dictionary will support development of legends for plot series and enhance quality control operations by providing input into routines used during automated attribute checking.

In addition to the data dictionary, documentation will also include diagrams and discussions explaining the concept and content of each layer and map library; data sources for all layers, annotation, and attributes; and implementation procedures including processing tolerances.

Final components and structure for documentation will be worked out among the Clark County and the NWRP project team as NWRP needs in this area are determined. The documentation will be structured at a series of levels so that users can access both general and specific information within the system. Similar to the quality assurance program, comprehensive documentation is seen as vital in this highly visible and long-term program.

Planned FY90 Activities

Appropriate documentation formats will be designed and issues associated with development of a data dictionary for the Yucca Mountain DBMS (e.g., contents, organization, need for on-line system, accessibility, and other issues) will be identified. Documentation will be prepared for those data layers that are created for the Yucca Mountain DBMS.

Deliverables

1. Draft and Final Physical Data Base Design Working Paper
2. Draft and Final Quality Assurance Program Report
3. Draft and Final Data Dictionary and Data Base Documentation Formats and Issues Working Paper
4. ARC/INFO Digital Library Data Files for all Layers and Attributes

2.5 Meeting Support

Support will be provided to the Comprehensive Planning Department, as requested, through preparation of slides, handouts, final presentation computer maps/graphics, and statistical reports, for use in public information meetings, workshops, and other presentations. This will also include attendance/presentations in general meetings, as requested. In addition, staff can be provided to support work at the County facilities for short periods for this purpose. Besides providing tapes and hard copy output from the system, project staff will assist the County during meetings with government officials and the public (e.g., Project Briefing handout), to explain the DBMS, the processes by which data are being collected and automated, and logic structures for production of analytical products. Support on this task will be provided as is consistent with remaining available task budget.

2.6 Project Report

During the final months of the FY90 project, the status of the project effort will be assessed in terms of the work accomplished and the critical tasks that will need to be addressed during FY91. The assessment will be prepared as an executive project summary that will include a summary of findings from the previously described tasks as well as recommendations for required work to be carried out during the second year of the Yucca Mountain NWRP.

Deliverables

Draft and Final Executive Summary Project Report

Project Administration and Management

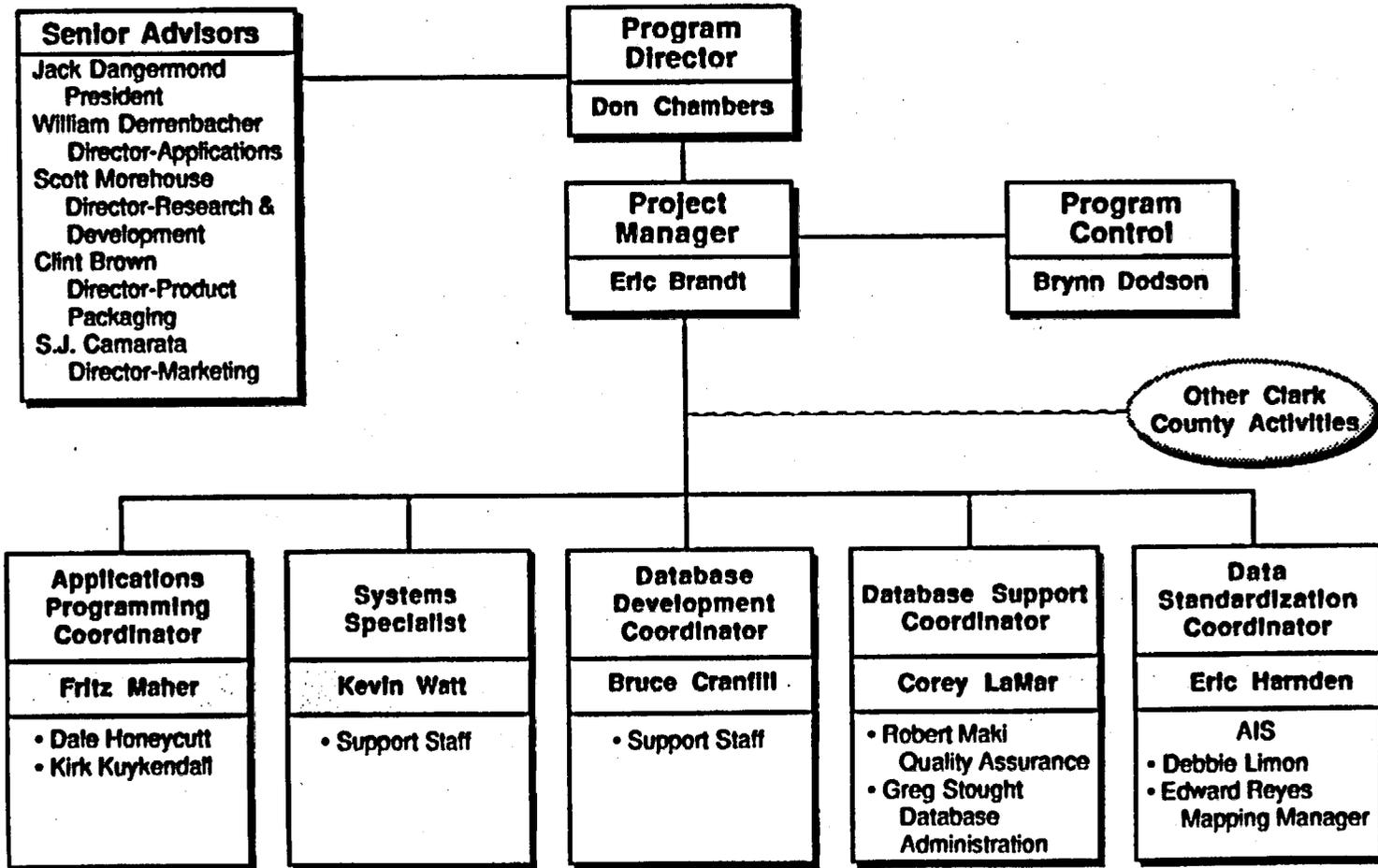
3

The organizational and administrative framework for this effort is selected to support the complex design and system development work for the NWRP. The framework provides for project participation by a team of key staff members selected from those specializations that are most critical to the County for the purposes of the NWRP. The project staff organization presented in Figure 3-1 provides accountability of work products through clear lines of reporting. The staff are also structured and will be mobilized in a manner to allow for a close working relationship between County personnel, management, and other contractors.

The project organization is structured according to logical groupings of technical disciplines. This facilitates keeping a stable pool of qualified and experienced project staff throughout the life of the project. This organizational structure provides each individual project staff member with a reporting base that remains constant irrespective of task assignment at any point in time. Project personnel are accessed for assignment to one or more tasks through their respective task manager. The project staff thus function in a matrix fashion with the Project Manager being responsible for facilitating overall integration of technical tasks, and timely identification and resolution of problems.

Figure 3-1

ESRI Project Staff Management Structure For Yucca Mountain NWRP



Data Base Development And Management System
November 1989

2.12-2 Work Plan

Clark County
Yucca Mountain
Nuclear Waste Repository Program

Fig. 3-1 ESRI Proj. Team Mngmt. St.

Due to the size and complexity of the project, a management structure using two levels of supervision was chosen to better control schedules, tasks, and costs. The first level of supervision is the management team consisting of Program Director and Project Manager. The Program Director and Project Manager function as counterparts because they will communicate daily and have access to the same information. The Program Director will retain complete responsibility for administrative and contractual matters and will be accountable to the County for all deliverables. The Project Manager will be responsible for the day-to-day management of the Nuclear Waste Repository Program. The management team will interact directly with the respective task managers, each of whom will supervise or perform the detailed activities to be defined in the Program Work Plan. Task Managers will report directly to the Project Manager. Task Manager responsibilities include task management planning, technical planning, applications design and programming, data base design and development, systems design and analysis, data base administration, documentation, quality assurance, and preparation of input to cost and schedule reports.

3.1 Provide Ongoing Project Management/ Support

Project management staff will provide overall direction, management, and administration of contract activities to ensure timeliness, accuracy, and efficiency in performance of all project tasks. Project Management responsibilities for this project will have particular significance in light of the evolving nature of the program and the sizeable coordination effort that will be required with the various NWRP project team members. Overall project management activities include three major components:

1. Program Management/Administration
2. Technical Support and Management
3. Management Control System

**3.1.1 Program
Management
Administration**

Management flexibility is important to both forecast and respond to impending changes as the Program evolves. The project staff will respond to, as well as recommend when appropriate, modifications to the Work Plan and Program activities. The planning and management of large, complex programs such as the NWRP require routine reevaluation and must be viewed as a dynamic process. Need for reevaluation will be carried out by the Program Director and Project Manager on a regular basis. Discussion of Program changes having contractual significance or requiring formal procedures will generally be conducted by the Program Director through the appropriate communication media (i.e., telephone, FAX, mail and courier services). In addition, travel by project staff will be necessary based on the Work Plan schedule and arrangements with the Comprehensive Planning Department.

Following are descriptions of the principal management roles:

Senior Advisors. Key senior personnel will be available to support the management staff during the course of the Yucca Mountain NWRP. These personnel will provide direct management and administrative support in an advisory capacity, as well as through provision of a broad range of resources needed to meet project requirements and objectives. As depicted in Figure 3-1, the Senior Advisors include the company President, Director of Applications, Director of Research and Development, Director of Product Packaging, and Director of Marketing.

Program Director. The Program Director will be responsible for the following general management activities:

- program planning and scheduling
- program monitoring and supervision
- provision of appropriate manpower and project resources
- overall financial management
- contract and subcontract administration
- program coordination and communication
- coordination with staff assigned to other Clark County GIS projects

In support of these activities, the program management structure ensures satisfaction of contract requirements, as well as coordination

and continuity of efforts among different components and phases of the program.

Project Manager. Working closely with the Program Director, the Project Manager will maintain responsibility for a number of important administrative functions on a day-to-day basis including:

- communications with the County Program Coordinator and support staff,
- designing detailed work plans and procedures,
- developing detailed production schedules,
- supervising daily project work,
- coordinating efforts of the project staff as well as joint efforts of both ESRI and Clark County,
- holding regular coordination meetings with ESRI staff assigned to other GIS projects for clients within Clark County including the County Manager's Office, and
- managing the project cost account.

The Project Manager's responsibilities also include preparation of regular correspondence as well as monthly status reports and a quarterly project progress report for submittal to the County. The status report will be presented to the NWRP Program Coordinator during monthly project coordination meetings in Las Vegas or other specified locations. In addition to maintaining regular project communication with the County via telephone, FAX and written correspondence will also be used. These activities are intended to assure close communications with the NWRP Project Team and ensure that project requirements for specialized consulting staff, services, and products are met in a timely manner.

3.1.2 Technical Support and Management

Technical support to the County, as well as task management, will be provided by carefully selected project staff including managers and specialists who will help carry out and manage the technical design, data base, and applications development work described in previous project tasks. As shown in Figure 3-1, these staff include specialists in applications programming, systems, data base development and support, and data standardization and mapping.

**3.1.3 Management
Control System**

Management support will be provided to the Project Manager and the Comprehensive Planning Department by the Program Control Unit. One of the management objectives is to act on potential cost, schedule, or technical problems to minimize their negative impacts rather than react to problems after they have become unavoidable fact. The Program Control Unit, applying proven management tools including a Job Cost Accounting System, the Spatial Project Tracking System (SPTS), and an industry-standard microcomputer-based project control system, will support the project staff as well as Clark County contract and technical managers in the following areas:

- Organize and plan the technical program utilizing current project staff and management support systems.
- Plan and budget the tasks within the contract.
- Maintain financial records of labor and other direct costs associated with the NWRP.
- Maintain budget and cost traceability and documentation.
- Provide status on work performed on the NWRP in relation to budgets and schedules.
- Analyze costs in relation to budgets and provide support in the development of a corrective action plan when necessary.
- Interface with other activities, accounting, contracts, and management to ensure the production of accurate and timely reports.

In addition to monthly internal NWRP reporting of cost and schedule status, the Program Control Unit will generate three principal management products for submittal to the County. These products include:

1. Monthly Project Status Report
2. Quarterly Progress Report
3. Invoices

Monthly Project Status Report. Monthly Project Status Reports will be submitted to the NWRP Program Director. The report will consist of a graphic schedule of project activities and associated current progress, a listing of all meetings attended noting attendance and purpose of the meeting, and a comparative status of actual and budgeted expenditures for time-and-materials work activities, as well as narrative summarization of program activities, accomplishments, findings, and cost and schedule variances (budget versus actuals).

Quarterly Progress Report. Prior to the close of each calendar quarter, Quarterly Progress Reports will be submitted to the Clark County Program Manager. The report will include the monthly Project Status Report for the last month of the quarter and updates to the Work Plan schedule as well as narrative summarization of project activities, accomplishments, and findings during the quarter.

Invoices. Invoices will be submitted for work performed on a monthly basis to the Clark County Contract Administrator. The work will be documented in the corresponding Monthly Project Status Report which will be attached to the invoice.

Deliverables

The deliverables for this task include the monthly status report memorandum and quarterly project progress report. Ongoing project management and communication will also be provided.

3.2 Internal Project Coordination with County Manager's Office Work Effort

Project management staff will coordinate with other ESRI staff assigned to other Clark County GIS projects, especially with the efforts of the County Manager's Office. Coordination activities will consist of bi-weekly briefings between the program directors and project managers of the respective projects to exchange project status data, potential issues, and work to be accomplished in the next reporting period. Results of these meetings will be summarized in the monthly project status reports in accordance with Subtask 3.1.3. Coordination will be performed with County Program Directors as required.

Miscellaneous Support Services

4

The Yucca Mountain NWRP may require additional services as the broad range of NWRP issues are more completely defined. Some of the additional services may be associated with presently defined tasks, and others may expand the NWRP into new areas. By the very nature of their support role in the NWRP, GIS support services will, in turn, require flexibility to address data, communications, and applications needs. In order to provide needed flexibility, the Work Plan includes a budgeted task to provide presently unspecified GIS support services under the terms of the existing FY90 contract.

This work effort will also provide general GIS support to the Comprehensive Planning Department, as requested, on a time-and-materials cost basis within the scope and budget of the project. Work performed under this task will be in response to a verbal or written request from the NWRP Program Director or designee. For assignments likely to exceed \$1,000.00 in cost, a letter will be submitted to the County confirming the request and including an estimate of costs and time requirements associated with the proposed effort.

Project Schedule, Budget, and Deliverables

5

5.1 Project Schedule

The schedule for the project work program is presented in Figure 5-1. The schedule indicates the anticipated duration of the work to be performed toward completion of each subtask. The schedule also indicates anticipated

- submittals of working papers and reports for review,
- on-site meetings and presentations,
- submittals of final products, and
- submittals of monthly and quarterly progress reports.

Generally, the Work Plan schedule is organized to provide for on-site meetings on a monthly basis in order to assure responsiveness of work performed under the task to NWRP needs. Presentations of draft working papers are also scheduled to clarify the County's understanding of project findings and assist the County's effort to effectively review the deliverables and provide meaningful feedback. In order to minimize unnecessary travel expenses, the schedule has been prepared with an attempt to make on-site visits multi-purpose. Thus, for example, on-site presentations are generally followed by start-up meetings for the subsequent project task. Key provisions of

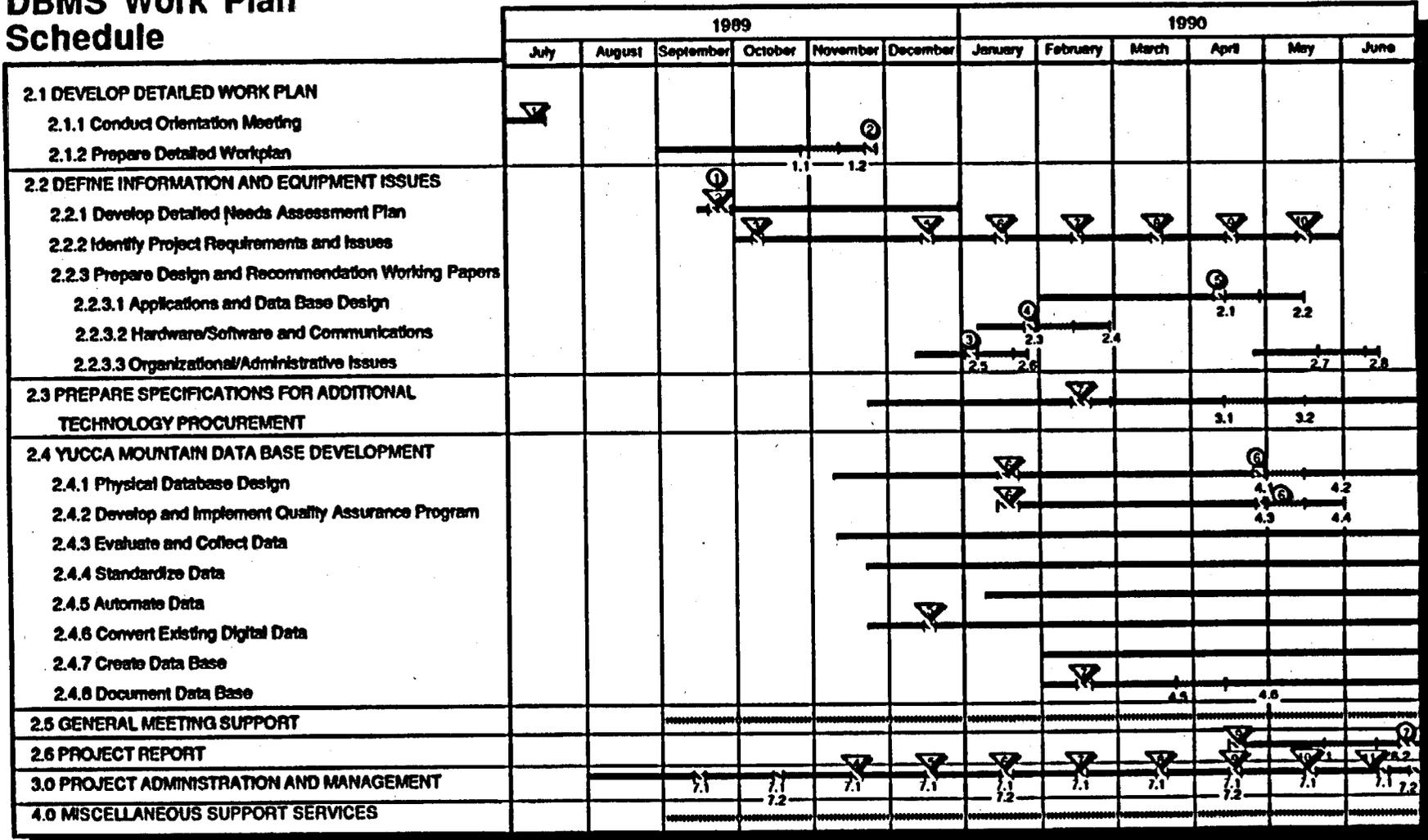
the Work Plan schedule are listed below with their section/task number for reference to the specific portions of this document. These tasks are also noted in the Work Plan schedule presented in Figure 5-1.

- 2.1 Develop Detailed Work Plan
- 2.2 Define Information and Equipment Issues
- 2.3 Prepare Specifications for Additional Technology Procurement
- 2.4 Yucca Mountain Data Base Development
- 2.5 Meeting Support
- 2.6 Project Report
- 3.0 Project Administration and Management
- 4.0 Miscellaneous Support Services

The timeline for each subtask indicates periods during which Clark County will review draft deliverable products and prepare written comments. These comments will be incorporated into the drafts in order to produce final deliverable products. Turn-around times for the final deliverables will depend on the extent of the comments received, but will generally be within two weeks.

It is clear that a number of NWRP issues remain to be defined before the schedule can truly be finalized. Understanding of the DBMS services requirements of the Yucca Mountain NWRP will continue to grow as the Program evolves. In light of this situation, it is recognized that a flexible approach to project scheduling will be required in order to accommodate the needs of this dynamic and long-term effort. Revisions to the DBMS project schedule will periodically be made to reflect these needs and the common understanding of the Clark County NWRP project team. In turn, periodic revisions of the FY90 DBMS Work Plan document are expected during the course of the work effort.

Figure 5-1
**DBMS Work Plan
 Schedule**



Key

- Consultant Off-Site
- ~~~~~ Consultant On-Site
- County Review
- Periodic Support as Requested
- ▽ Meeting
- ⊙ Presentation

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NUC WSTE

5.2 Project Budget

Budget for the Clark County NWRP effort has been planned for required staff, computer, subcontractor, and travel/per diem resources in support of the NWRP DBMS Work Plan. The planned period of performance for this FY90 effort is June 12, 1989, through June 30, 1990. As noted for the task descriptions in this Work Plan, possible changes in the scope of work associated with refinement of the NWRP will also impact estimated task costs. It may, therefore, be necessary to periodically review planned task budgets in relation to current NWRP priorities and objectives. Possible changes required to provide for the responsive and timely provision of DBMS services will be discussed with the NWRP Program Coordinator.

The Work Plan budget, which includes total labor hours, budgeted dollars by task, and related information, has been provided to the County as an attachment to the transmittal letter for this deliverable product. This has been done due to the proprietary nature of this cost information and the intention of Clark County to distribute copies of the Work Plan outside of the County. The total not-to-exceed value of the DBMS work effort is \$450,000.00.

5.3 Project Deliverables

The proposed schedule illustrates a series of numbered deliverable products to be delivered as a result of work performed for each subtask of the Work Plan. The products are listed in Table 5.1 along with the numbers of copies to be provided, the subtasks to which each product pertains, the anticipated length of the review period for the County, and products for which a presentation or meeting is planned.

Each deliverable product is identified by a "section.task-number". The first digit of the number indicates the associated section of this Work Plan. The second and third digits of the number indicate the task or subtask for which the deliverable will be prepared. The hyphenated (third) portion of each number provides a unique number for each deliverable within a task. The deliverables are generally identified as one of the following types:

Memorandum. A summation of conclusions reached during project meetings and presentations. When appropriate, a memorandum will also include a list of action items to be completed, assignment of responsibility for completing action items, and a scheduled date for their conclusions.

Working Paper. A report presenting the findings of a subtask or related subtasks for County review and comment. A working paper typically will consist of a textual description of findings that may be supported by diagrams, tables, and matrices. Working papers will initially be submitted in draft form to the County, followed by final versions that incorporate revisions and comments.

Report. A relatively static document that is intended to stand alone as a deliverable product to the County and which will not be integrated with other deliverables for final submittal. Reports, typically, will be submitted in draft form to the County, followed by final versions that incorporate revisions and comments.

Status/Progress Reports. Brief written descriptions of work completed during the preceding reporting period. The reports will also identify work to be accomplished during the subsequent reporting period, problems encountered, and actions to be taken to resolve the problems.

Digital Data Files. Digital data files developed for the DBMS project will be delivered to the County on magnetic tape(s) in a format compatible with the County's system.

Table 5-1
PROJECT DELIVERABLES
Clark County Nuclear Waste Repository Program

<u>Deliverable</u>		<u>Reports</u>			<u>Review Period</u>	<u>Meeting/ Presentation**</u>
<u>Section/Task Number</u>	<u>Name</u>	<u>Camera Ready</u>	<u>Floppy Disk*</u>	<u>Bound Copies</u>		
2.1.2-1	Draft GIS Work Plan	---	---	10	2 weeks	---
2.1.2-2	Final GIS Work Plan	1	1	15	---	P-2
2.2.3-1	Draft Applications/Data Base Design Working Paper	---	---	10	2 weeks	P-5
2.2.3-2	Final Applications/Data Base Design Working Paper	1	1	15	---	---
2.2.3-3	Draft Hardware/Software and Communications Technical Working Paper	---	---	10	2 weeks	P-4
2.2.3-4	Final Hardware/Software and Communications Technical Working Paper	1	1	15	---	---
2.2.3-5	Initial Organization/Administration Design Recommendations Summary Memorandum	---	---	10	2 weeks	P-3
2.2.3-6	Revised Organization/Administration Design Recommendations Summary Memorandum	1	1	15	---	---
2.2.3-7	Draft Final Organization/Administration Design Recommendations Summary Memorandum	---	---	10	2 weeks	---
2.2.3-8	Final Organization/Administration Design Recommendations Summary Memorandum	1	1	15	---	---
2.3.0-1	Draft Technology Specifications Technical Memorandum	---	---	10	2 weeks	M-7

* All final reports, working papers, and memorandums, along with their tables, charts, and diagrams will be provided on a Macintosh disk.

** A meeting precedes and provides input to deliverable product preparation. A presentation follows product submittal and serves to gather comments about the product for use in subsequent product revision.

Table 5-1 (Continued)
PROJECT DELIVERABLES
 Clark County Nuclear Waste Repository Program

<u>Deliverable</u>		<u>Reports</u>			<u>Digital</u>	<u>Review</u>	<u>Meeting/</u>
<u>Section/Task</u>	<u>Name</u>	<u>Camera</u>	<u>Floppy</u>	<u>Bound</u>	<u>Data</u>	<u>Period</u>	<u>Presentation**</u>
<u>Number</u>		<u>Ready</u>	<u>Disk*</u>	<u>Copies</u>	<u>Tapes</u>		
2.3.0-2	Final Technology Specifications Technical Memorandum	1	1	15		---	---
2.4.1-1	Draft Physical Data Base Design Working Paper	---	---	10		2 weeks	M-6/P-6
2.4.1-2	Final Physical Data Base Design Working Paper	1	1	15		---	---
2.4.2-3	Draft Quality Assurance Program Report	---	---	10		2 weeks	M-6/P-6
2.4.2-4	Final Quality Assurance Program Report	1	1	15		---	---
2.4.8-5	Draft Data Dictionary and Data Base Documentation Format and Issues Working Paper	---	---	10		3 weeks	M-7
2.4.8-6	Final Data Dictionary and Data Base Documentation Format and Issues Working Paper	1	1	15		---	---
2.4.8-7	ARC/INFO Digital Library Files for all Completed Layers and Attributes				1		
2.6.0-1	Draft Project Executive Summary Report	---	---	10		2 weeks	M-9
2.6.0-2	Final Project Executive Summary Report	1	1	15		---	P-7
3.1.3-1	Monthly Project Status Report	1***	---	---		---	Monthly
3.1.3-2	Quarterly Progress Report	1	1	10		---	Quarterly

* All final reports, working papers, and memorandums, along with their tables, charts, and diagrams will be provided on a Macintosh disk.

** A meeting precedes and provides input to deliverable product preparation. A presentation follows product submittal and serves to gather comments about the product for use in subsequent product revision.

*** A single camera-ready copy of each monthly and quarterly report will be submitted.

APPENDIX A

APPENDIX A

Acronyms

DBDMS	Data Base Development and Management System
NWRP	Nuclear Waste Repository Program
GIS	Geographic Information System
ESRI	Environmental Systems Research Institute
DOE	United States Department of Energy
LSS	Licensing Support System
WAN	Wide Area Network
QA	Quality Assurance
QC	Quality Control
USGS	United States Geological Survey
DLG	Digital Line Graph
DEM	Digital Elevation Model
SPTS	Spatial Project Tracking System
AIS	Aerial Information Systems, Inc.
SPOT	System Pour l'Observation de la Terre
ARC/INFO®	ESRI's registered trademark GIS software

III. Technical Programs

III. TECHNICAL PROGRAMS

(Estimate) \$100,000.00

BACKGROUND

The Nuclear Waste Policy Amendments Act of 1987 specifies a role for states and affected local governments for performing on-site technical investigations; specifically, to engage in any monitoring, testing, or evaluation activities with respect to site characterization activities. The primary concern of Clark County is ensuring that its citizens are protected and that resources of interest to the County are not impacted. With this in mind, it is the intention of Clark County to pursue studies and research in those topical areas that could influence the residents of Clark County.

OBJECTIVE

It is anticipated that at a minimum the following activities will be undertaken in fiscal year 1989:

- 1) Review of Department of Energy and State of Nevada technical documents.
- 2) Development of a technical program to determine needed studies of interest to Clark County.

Task 1: Review of Department of Energy and State of Nevada Technical Documents.

Consultants may be retained to evaluate technical documents relating to issues that could conceivably affect Clark County. Consultants may also be retained for various specialties to ensure that the studies that could conceivably influence Clark County will meet high professional standards. It is also anticipated that staff will be added to facilitate the review of the extensive number of DOE documents and other technical information.

Task 2: Development of a technical program to determine needed studies of interest to Clark County.

Task 2 is concerned with the need to evaluate the proposed Yucca Mountain program and define issues of importance that may require further analysis by the County and/or consultants. This may require retaining a technical consultant, to assist in defining task items. Depending on the degree of analysis required, it may also require the development of an on-site monitoring program or similar analyses. One potential item of interest to Clark County is regional groundwater flow. Clark County, for example, in conjunction with the State of Nevada, U.S. Geological Survey and Bureau of Reclamation, is currently evaluating the "carbonate" aquifer system which underlies Clark County and much of eastern Nevada. If the proposed Yucca Mountain repository occurs above an existing regional system, a future source of water supply for the Las Vegas Valley could be impacted. Clark County wants to ensure that water supplies potentially available from a regional system are not impacted.

SECTION III, Technical Programs, could be modified in FY 1990 based on the activities defined in Tasks 1 and 2 above.

IV. Transportation Studies

IV. TRANSPORTATION STUDIES

\$400,000 (RTC)

BACKGROUND

To date, the Department of Energy (DOE) has relied exclusively on Department of Transportation (DOT) regulations to regulate the transport of radioactive materials. More specifically, HM-164 has been employed which defines routing criteria. The regulations note that the "preferred routes" are interstates or state-selected routes. The transport of radioactive materials from the Northeast, Midwest and Southeast to a repository at Yucca Mountain under HM-164 criteria in the absence of state-selected routes would involve use of Interstate 15, U.S. 93, and U.S. 95, all of which traverse through the densely-populated Las Vegas Valley. The principal rail link, the Union Pacific Railroad, also travels through the heart of Las Vegas. These routes have all been identified in the Final Environmental Assessment published by DOE in December 1986. In the absence of highly-specific transportation-related data for those segments of transport routes identified by DOE, local officials have justifiably refrained from requesting the State to designate routes through HM-164.

The primary concern of local governments within Clark County is that due to geography and a lack of alternative interstate routing, utilization of DOE's proposed routes would funnel radioactive waste through the most densely populated portions of the Las Vegas Valley. The preferred routing would also include the most sensitive part of the community, the Las Vegas "Strip" and downtown gaming areas. Those portions of Interstate 15 and U.S. 95 located within the urbanized area and considered for nuclear waste transport are the most heavily-travelled corridors within the State. The routes are already exhibiting overcapacity problems as a result of having to accommodate more traffic than they were originally designed to handle. Financing of major improvements and additional facilities along these corridors has yet to be secured.

It is critical to examine alternative routes for all aspects of nuclear waste transport by developing a highly technical and specific data base required for such analyses. A planning program which addresses the transport of nuclear waste will be most effective if it is well-integrated with Clark County's ongoing transportation planning process. Though the daily transportation needs of the community are noticeably different than the needs of DOE's shippers, the mere fact that the Las Vegas Valley supports one surface transportation system inevitably requires coordination of planning efforts to ensure the safest and most cost-effective sharing of the system.

Program Objectives

The primary objective of Clark County's proposed transportation planning program, in concert with the Regional Transportation Commission (RTC), is to ensure public safety with respect to the transport of nuclear waste and to accomplish these objectives without placing a financial burden on local governments. While the issue of nuclear waste transport is no less significant to other urbanized areas, none will experience the potential magnitude of shipments as will the Las Vegas Valley under current proposals.

It is not the intent of Clark County's transportation planning program to replace the transportation planning effort being undertaken by the State of Nevada and the Department of Energy, but to supplement that effort. It is appropriate that the State assess the issues on a statewide basis in coordination with local, regional, and federal agencies. It is also appropriate, however, that Clark County and RTC assess transportation at the local level in cooperation with other local governments and the University of Nevada, Las Vegas. These organizations have responsibility for emergency response and transportation planning in Clark County and best understand the local transportation network and its relationship to Yucca Mountain nuclear repository considerations. It is also the intention of Clark County and the RTC to work closely with DOE on transportation planning efforts through the soon to be established Clark County Technical Steering Committee.

The Specific Roles of Clark County and the Regional Transportation Commission

The RTC is the designated Metropolitan Planning Organization (MPO) for transportation planning purposes for Clark County. As the MPO, RTC has responsibility for maintaining the system-wide travel demand forecasting model for the Las Vegas Valley, along with overall maintenance of the area's transportation planning program. In carrying out these responsibilities, RTC maintains a very close working relationship with Clark County's local governments. Much of the critical data related to land use which helps drive the travel demand forecasting model is obtained from Clark County through the Department of Comprehensive Planning and other County departments. As a participant in Clark County's Yucca Mountain nuclear waste planning program, RTC proposes maximum coordination with Clark County Comprehensive Planning in developing capabilities related to the travel-demand forecasting model, routing/risk models, and system monitoring as well as information for emergency response purposes. Efforts are presently under way to ensure computer-related hardware/software compatibility between RTC and Clark County, as well as other local governments and the newly-created University of Nevada, Las Vegas, Transportation Research Center.

Proposed Work Tasks Associated with Transportation Studies Element

The RTC, through Clark County, proposes the following scope of work relating to the nuclear waste transportation planning effort:

The Clark County Nuclear Waste Program will require that a timely and effective transportation planning process be developed that accurately reflects the unique needs associated with the movement of high-level nuclear waste. To accomplish this goal, RTC will supervise the formulation, development, application, testing and maintenance of a data base system capable of addressing the challenges and risks associated with the shipment of high-level waste. As noted in Figure IV-1, transportation planning requires a sound data set capable of conducting analysis. Indeed, the development of this data base is crucial relative to the new challenges that high-level waste transport entails.

The work tasks described below involve the development and maintenance of the first state of the transportation planning process. Attention has been focused upon those data sets and relationships that will most likely affect the mobility of the population and the evaluation of potential routes for high-level nuclear waste. Specifically, the work program for the period 1990 through 1992 involves:

- Establishing the concept, the structure and design of a transportation management system.
- Establishing basic information relative to transportation of hazardous materials as a baseline to compare the risks associated with high-level nuclear waste transport.
- Identifying conflicts between existing emergency response characteristics and existing hazards as a baseline to define impacts associated with transporting high-level waste through Clark County.

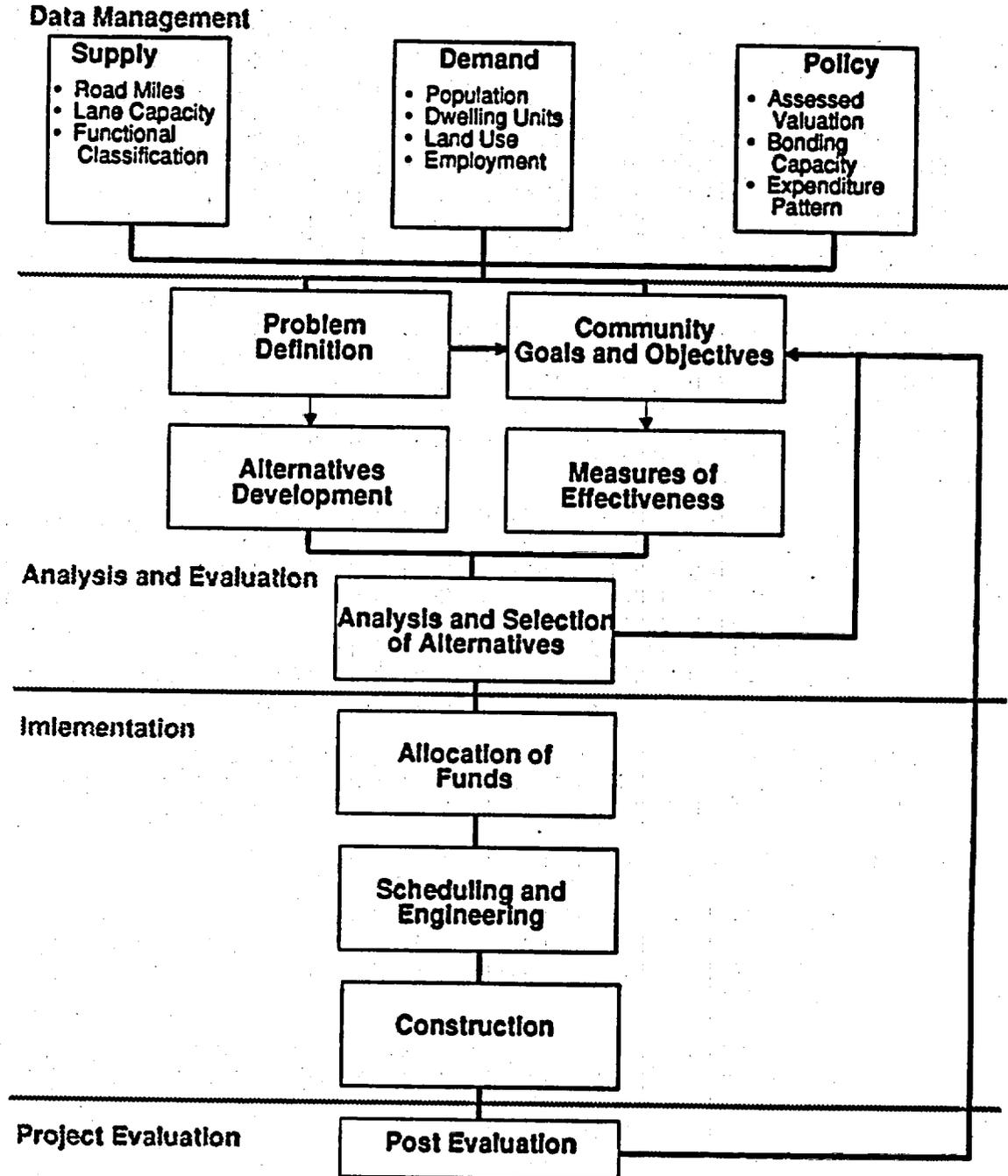
The following task descriptions provide a detailed description of how RTC will prepare a program that establishes a baseline for comparing the effects that Yucca Mountain activities may have on the Las Vegas Valley.

TASK 1: GIS- Transportation Functional Requirements Study

To facilitate the development of a data base capable of documenting baseline transportation conditions proposed for the Yucca Mountain Repository, a GIS Functional Requirements Plan will be prepared for the RTC.

The purpose of this plan is to establish a framework for RTC to build the analytical capacity needed for the accurate and timely evaluation of transportation issues associated with the potential movement of high-level nuclear waste through Clark County. The study will document four issues relative to the development of a GIS Transportation data base management system.

Figure IV-1 TRANSPORTATION PLANNING PROCESS



These issues include:

- 1) Defining the existing analytical and information needs associated with high-level nuclear waste and transportation planning. Specific data sources and planning models will be documented as to their current use in transportation planning.
- 2) In conjunction with the above work element, specific transportation relationships will be defined as they pertain to operations (existing and establishing projected conditions), maintenance, and the establishment of future needs.
- 3) Formulation of a conceptual data base design that addresses the requirements delineated above.
- 4) The actual design and specification of the data base structure.

This task will ensure that the RTC's work effort will be compatible with the County's GIS system. Furthermore, it will facilitate data collection efforts required to operate routing and risk models, as well as the regional transportation model, TranPlan. It is anticipated that this work task will occur concurrently with the specialized transportation studies and enhance the interrelationships between the work efforts underway through the County.

Task 2: Data Collection

To accurately assess the impacts associated with the movement of high-level nuclear waste, data must be collected relative to the operation of the geographic information system (GIS), routing and risk models, and aggregate transportation demand-capacity models. By gathering data and operating these models, RTC will have the capacity to simulate current transportation flows and build the analytical capacity needed to establish the baseline condition. Subsequently, RTC will have the capability to conduct an accurate and timely evaluation of impacts related to the shipment of high-level nuclear wastes.

As a first step, data will be collected on travel demands, system operation and capital investment. Each of these categories refers to the RTC's obligation to maintain a continuing, comprehensive and coordinated transportation planning process as mandated by 49 CFR Parts 450 through 613, the Cooperative Agreement for Regional Transportation Planning, and subsequent Policies and Procedures adopted by the Regional Transportation Commission (RTC) of Clark County.

Pursuant to travel demands, the following data will be collected:

- Population distribution and density.
- Establishment based employment.
- Land use (type and square feet).
- Trip characteristics (work, non-work, home based, non-home based)
- Origin and destination trends.
- Traffic volumes (AADT and peak hour).
- Mode split.
- Vehicle occupancy.
- Truck volumes.

This data will serve as the primary input variables for the demand-capacity model and will help determine what the baseline case is for current travel requirements in the Las Vegas metropolitan area.

An inventory of supply information will also be developed to determine the existing resources available for transportation. Data to be collected includes:

- Capacity by roadway segment (link segment).
- Capacity by intersection location (node).
- Transit Capacity (by vehicular equivalents).

Using this information it will then be possible to develop an understanding of baseline system performance by:

- 1) Constructing and calibrating existing travel flows on the current transportation system.
- 2) Establishing an array of performance measures that accurately characterize existing system efficiency.

Standard measures of effectiveness to be developed include point to point average trip time, point to point average trip speed, peak period volume/capacity ratios, level of service, and accidents rates per route per year.

Concluding the data collection effort, a systematic evaluation of the capital investment requirements will be completed. Data items that will be obtained include:

- Current maintenance and rehabilitation cost by type of facility.
- Escalation factors for projecting future maintenance and rehabilitation cost.
- Capital investment requirements associated with committed transportation projects.

At the completion of this task, data will be transferred into the data base management system structure defined in Task 1. In addition, a data collection plan will be formulated that seeks to determine a cost efficient means to maintain the regional transportation data base. Part of this data collection management plan will be the development of a series of tests that will allow for the accurate comparison of modeled results and real world conditions. By doing this, RTC will be able to ensure the timeliness and effectiveness of its review of impacts associated with changes in the transportation system attributable to the movement of high-level nuclear waste.

TASK 3: Development of Transportation-Related Graphic Capabilities

The RTC will undertake development of graphic capabilities through the acquisition of appropriate hardware, software, and through personnel training. Task 3 will be coordinated closely with Clark County and will be interactive. The maps resulting from this effort will be used in the specialized transportation studies (See Task 4) and for distribution to those with responsibilities in transportation planning efforts related to the high-level nuclear waste program including the Department of Energy and its contractors.

TASK 4: Specialized Transportation Studies with Respect to the Yucca Mountain Nuclear Waste Program

The RTC will also undertake specialized support studies relative to the establishment and documentation of baseline conditions. Specifically, these work efforts will address issues regarding existing institutional, regulatory, and policy frameworks as they pertain to the planning, development and management of the transportation system generally and hazardous materials specifically.

TASK
4.A.:

Hazardous Materials Baseline Conditions Analysis

The goal of this study is to document the existing movement of hazardous materials by mode through the urbanized area of Las Vegas and establish existing levels of danger (what the base hazard is today and how will it change). This will provide a common ground by which nuclear waste can be compared with other hazardous materials. Specific origin and destination patterns, types of materials, potential exposure levels, and routes used by hazardous materials will be documented both statistically and graphically. From this analysis, the level of risk associated with hazardous materials will be established on a corridor by corridor basis.

Regulatory and institutional factors as they pertain to the management of hazardous materials will also be reviewed. Particular attention will be focused upon the ability of existing local and state agencies to manage issues associated with the transportation of nuclear materials through Las Vegas currently. This will define the capacity of these institutions to regulate possible shipments of high-level waste. It will also establish the requirements for nuclear waste planning activities to test the sensitivity of regulatory agencies in meeting the challenges the Yucca Mountain project may impose on Clark County's police powers to protect citizen welfare.

TASK
4.B.:

Urban Transportation Planning Organization Study

To facilitate the nuclear waste planning efforts, an organizational study will be completed that addresses the institutional and legal requirements associated with transportation planning. Responsibilities of participating Federal, State and local entities will be defined. Department of Transportation regulations, as they apply to RTC, will be examined and compared with Department of Energy requirements to determine how nuclear planning efforts should be managed to ensure compliance with RTC's Federal mandate to ensure a coordinated comprehensive and continuing transportation planning process. Local and State statutes will be reviewed as they relate to the planning process. Linkages will be identified between jurisdictions and the nuclear waste program, and a planning framework established that will coordinate the usage of baseline material in future planning activities.

TASK 5: Emergency Response Inventory

As part of Clark County's effort to establish basic transportation information related to the Yucca Mountain project, an inventory will be conducted of the transportation characteristics of existing emergency response facilities. The purpose of this task is to build an array of information capable of evaluating the interaction between emergency response capabilities and the operational level of service on the roadway system.

To this end, attention will be focused on identifying:

- Classification of emergency response facilities.
- The location of existing response facilities.
- Equipment and supplies - type, location and availability.
- Service Areas - By type of facility (Demographic Land Use):
 - 1) Population
 - 2) Households
 - 3) Commercial establishments
 - 4) Industrial establishments
 - 5) Public facilities
- Roadway Characteristics by Service area:
 - 1) Major thoroughfares
 - 2) Existing operational characteristics
 - 3) Average response times
 - 4) Peak hour response times
 - 5) Base period response times.

Data collected from this effort will be used to assess the operational effectiveness from a transportation standpoint of existing emergency response facilities. This will provide a basis from which the County will be able to identify:

- 1) Deficiencies relative to the transportation of high level waste (i.e., response times during anticipated movement schedules).
- 2) Transportation improvements needed to improve response times.

TASK 6: Rail Inventory and Baseline Condition

The role of rail transport potentially could be significant to the movement of high-level nuclear waste and the impacts to Clark County. Rail yards and rail corridors are not always contiguous with highway corridors, and are typically owned and operated by private corporations.

Because of this, traditional urban transportation planning at the local level does not consider this mode at the level of detail given to streets and highways. In light of this, a substantial amount of data is required with regard to:

- Land Use/Rail Corridor Location
- Physical Conditions
- Operating Conditions
- Rail-Vehicular Access.

By having this data, local government will establish a baseline to:

- Assess emergency response requirements along rail corridors
- Review and assess risks to activity centers near rail lines and yards
- Develop alternate route plans with regard to nuclear waste shipments by rail through Clark County.

All of these areas represent critical policy choices that local decision-makers may review in their efforts to assess the effects of a repository on Clark County.

This task will also be coordinated with the GIS work associated with the nuclear waste program. Indeed, the GIS will prove beneficial in the storage of data related to the geographic location of rail corridors, the ownership of these corridors and their physical and operating conditions.

TABLE IV-1

Clark County Nuclear Waste Program

Transportation Budget

	FY90	FY91	FY92	TOTAL
1: GIS Functional Requirements	75,000			\$75,000
2: Data Collection	100,000	100,000	75,000	\$275,000
3: Mapping Capability		75,000	100,000	\$175,000
4: Specialized Studies				
a. Hazardous Materials	100,000	100,000		\$200,000
b. Organizational Study	50,000			\$50,000
5: Emergency Response Inventory	75,000	75,000	75,000	\$225,000
6: Rail Assessment		85,000	85,000	\$170,000
TOTAL	\$400,000	\$435,000	\$335,000	\$1,170,000

V. Socioeconomics

**Prepared by:
Richard C. Moore
502 East 24th Street
Cheyenne, Wyoming 82001**

V. SOCIOECONOMICS

\$850,000

BACKGROUND

A major component of the Clark County Yucca Mountain program will be to determine potential socioeconomic impacts to communities in southern Nevada from the proposed repository. While the economy of Las Vegas is primarily associated with gaming, a sizable number of workers residing in the metropolitan area are currently employed either at the Nevada Test Site (NTS) or work with DOE and subcontractors in Las Vegas. There is, therefore, potentially a strong relationship between current commuting patterns related to NTS activities and those anticipated for the Yucca Mountain program.

Despite the distance from Las Vegas to the repository, it is probable that, because of the estimated life of the repository, commuting patterns will be similar to those practiced by current NTS workers. (In some respects, commuting to Yucca Mountain could be less distance because many NTS workers presently have to commute further within the test site from Mercury to reach their work area.) Likewise, the opportunity exists for smaller unincorporated communities in Clark County closer to the proposed repository (Indian Springs, as an example) to experience growth as well.

The net result is that Clark County will undoubtedly experience an influx of workers and their families, the number varying with the phase of the program. In general, this will mean the need to provide community services to mitigate impacts to Clark County as provided for in the NWPAA.

OBJECTIVE

The objective of the Clark County socioeconomic program will be to develop a base of information and to perform a series of studies to determine potential socioeconomic impacts from the proposed repository at Yucca Mountain. Also intended is the development of a process, especially in the fiscal area, to enable the potential impacts from a range of possible employee numbers, resource requirements, and similar, to be evaluated.

Efforts during FY 1990 will build upon work initiated during FY 1989 to define socioeconomic issues of significance and then to formulate studies to determine potential impacts. Included will be an evaluation of the availability of data, developing a data collection program, and organizing the hardware, software and data analysis necessary to enable mitigable impacts to be determined (also see Section II).

While the program is oriented towards activities during the site characterization phase of the program, the information collected and the process developed will be essential in evaluating impacts during the later construction, operations and decommissioning phases should Yucca Mountain be selected as the repository site.

SOCIOECONOMICS (continued)

DRAFT OF WORK PROGRAM

The following are a definition of socioeconomic tasks that will be undertaken during FY 1990, as well as those for later years. Pages V-3 and V-4 illustrate a prioritization of tasks and a preliminary estimate of costs for each individual task item. These estimates may require revision. The work program will require further refinement subsequent to review by the Clark County Nuclear Waste Steering Committee. The work tasks were developed subsequent to a series of meetings held with local entities, further modified by review of the Clark County Steering Committee.

It should also be noted that Section II, Data Base Development and Management System, is an integral part of the socioeconomic program. The work elements in Section V will define the data generation, organization and management requirements in Section II.

ESTIMATES FOR PLANNING PURPOSES ONLY - NOT FINAL BUDGET

PREPARED BY RICHARD C. MOORE

Clark County Nuclear Waste Repository Program Socioeconomic Work Plan Cost Summary Matrix

Reference Number	Objective	Cost (\$1,000)				Total
		1990	1991	1992	1993	
1.	Public Impacts					
1.1	Population Modeling	100	150	100	100	450
1.2	Indian Springs Community Development Plan	75				0
1.3	Civil Defense Warning System Upgrade				75	75
1.4	Emergency Response Communications	150	250			500
1.5	Data Transfer			50		50
1.6	Tracking				20	20
1.7	Medical Facilities Radiological Response Plan				80	80
1.8	Capital Facilities		75	75		150
1.9	Public Safety Facilities			75		75
1.10	Parks and Recreation Facilities			150		150
1.11	School Facilities and Services			75	100	175
1.12	School Site Selection				150	150
1.13	Waste Water Treatment					
	Indian Springs	25	75			100
	Pretreatment Standards				50	50
	Sludge Disposal				50	50
1.14	Water Supply	50	50	50	100	250
1.15	Infrastructure Maintenance		100	100	100	300
1.16	Services	75	75			75
1.17	Cost of Facilities and Services	50	100	100		250
1.18	Fiscal Working Group	15	15	10	10	50
1.19	Fiscal Assessment Model	150	100	100	100	450
	Subtotal - Public Impacts	690	890	885	835	3,450
2.	Private Sector Impacts					
2.1	Impact on Economic Development				150	150
2.2	Local Labor Analysis	70				70
	Subtotal - Private Sector Impacts	70	0	0	150	220
3.	Economic Impacts					
3.1	Economic Linkages		100	100		200
3.2	Risk Mitigation				50	50
3.3	Economic Base Analysis		75	75		150
	Subtotal - Economic Impacts	0	175	175	50	400

ESTIMATES FOR PLANNING PURPOSES ONLY - NOT FINAL BUDGET

4.	Transportation Impacts	1990	1991	1992	1993	Total
4.1	Organizational Study	100				100
4.2	Transportation Assessment System	200				200
4.3	Baseline Facilities Inventory		50			50
4.4	Needs Assessment		50	50		100
4.5	Emergency Response Baseline and Planning	50	200			300
4.6	Hazardous Materials Plan	50	150	200	200	600
4.7	Regional Transportation Plan				25	25
4.8	Rail Impact Assessment		50	50	50	200
	Subtotal - Transportation Impacts	400	500	300	275	1,575

5.	Other Community Impacts	1990	1991	1992	1993	Total
5.1	Community Development Financing		80			80
	Subtotal - Other Community Impacts	0	80	0	0	80

6.	Other Impacts	1990	1991	1992	1993	Total
6.1	Mitigation Plan for Site Characterization Impacts		40			80
6.2	Monitoring		40	40	40	180
6.3	NTS Employment Analysis	40	80			80
6.4	Research Capability Development			60		60
6.5	Media Information Program	*	20	20	90	130
6.6	Public Information Program	*	80	80	80	240
6.7	Legal Issues	*	30	30	30	90
6.8	WIPP Shipment Impact Analysis				80	80
6.9	WIPP Case Study					30
6.10	Nellis AFB Economic Analysis					20
	Subtotal - Other Impacts	40	290	230	320	990

Total		1990	1991	1992	1993	Total
	Total	1,200	2,035	1,590	1,730	6,905

* Items funded from other portions of Grant

**SOCIOECONOMIC WORK PLAN
PREPARED BY RICHARD C. MOORE**

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Program Description

Project Development Schedule

The schedule currently proposed by the Department of Energy for development of the proposed Yucca Mountain Nuclear Waste Repository calls for scoping hearings on an environmental impact statement in the immediate future, release of a draft environmental impact statement in 1993, release of the final EIS in 1994, and licensing by the Nuclear Regulatory Commission between 1995 and 1998. Construction on the proposed Yucca Mountain Nuclear Waste Repository would begin in 1998, with operations commencing in 2003 or later. The Department of Energy is behind schedule in their site characterization program. The Secretary of Energy is considering revisions to the program. Clark County should be prepared to provide as much information as possible on the impacts of the proposed Yucca Mountain Nuclear Waste Repository when scoping hearings are held. The Clark County socioeconomic studies should be completed in time for the County to provide detailed comments on the draft EIS.

Although it is reasonable to expect that the release of the draft EIS will be delayed, it is not prudent to assume that this delay will be lengthy. The Department of Energy will soon release a revised schedule and will make every effort to adhere to that schedule. Their goal on this issue was stated in the *Semi-Annual Progress Report, September 15, 1988 - April 15, 1989* as follows:

The DOE's goal is to develop a realistic schedule for the repository program that will be aggressively followed to minimize delay and, along with other initiatives being taken, will establish confidence that the schedule will be met.

Clark County must be prepared to provide information during scoping, respond to the draft EIS, the final EIS, and the licensing process. Studies needed to predict the impact of the proposed Yucca Mountain Nuclear Waste Repository and proposed alternative high-level nuclear waste transportation plans must be completed in time to provide meaningful input into the decision making process.

Clark County Nuclear Waste Repository Program

The design of a socioeconomic impact assessment system for Clark County must recognize the complexities of Clark County. The Las Vegas valley is a large urban area which has, and will continue to experience extremely rapid growth. Within this urban area, a number of incorporated cities provide services and facilities to their citizens. Clark County provides services to unincorporated towns in the Las Vegas urban area. The unincorporated towns of Paradise, Winchester, and Spring Valley have a population base as large as the City of Las Vegas. There is also a large unincorporated rural area served by Clark County. Clark County must also provide service these rural areas of the County, including the unincorporated town of Indian Springs.

Rapid growth has strained the capacity of local governments. There is no surplus capacity or excess revenue available. The cost to local governments of providing services is based primarily on the resident population served. Revenues, however, are primarily a function of the number of visitors. Projects such as new hotel and casino complexes increase the resident population which must be served, but also contribute to the revenue base of local governments. In contrast, resident population increase due to the proposed Yucca Mountain Nuclear Waste Repository will increase the demands on local governments without a commensurate increase in the revenue base. Because there is no excess capacity available, it will be difficult to meet the demands created by growth from projects which do not contribute to the revenue base of local governments. Although this growth may be relatively small in percentage terms compared to the population of the County, the absolute demands created by this growth could create needs which local governments cannot meet with existing resources. The socioeconomic impact assessment system for Clark County is designed to provide an accurate assessment of these impacts.

Population modeling tools will be developed to forecast the magnitude and location of future growth in the county. Detailed studies will be conducted to determine future service and facility needs and costs. The transportation planning process will be utilized to develop a description of the future transportation system in Clark County. The results of these studies will provide estimates of future baseline costs of facilities and services, of infrastructure maintenance, and of transportation system development for input into a fiscal assessment model. This will provide an accurate description of the future fiscal conditions of local governments in Clark County. The impact assessment system can then be used to identify impacts from the proposed Yucca Mountain Nuclear Waste Repository. The impacts of the proposed Yucca Mountain Nuclear Waste

Repository can then be considered in the context of the projected fiscal condition of local governments. The system is designed to be able to respond to changes in the repository program, providing revised impact assessments in response to changes.

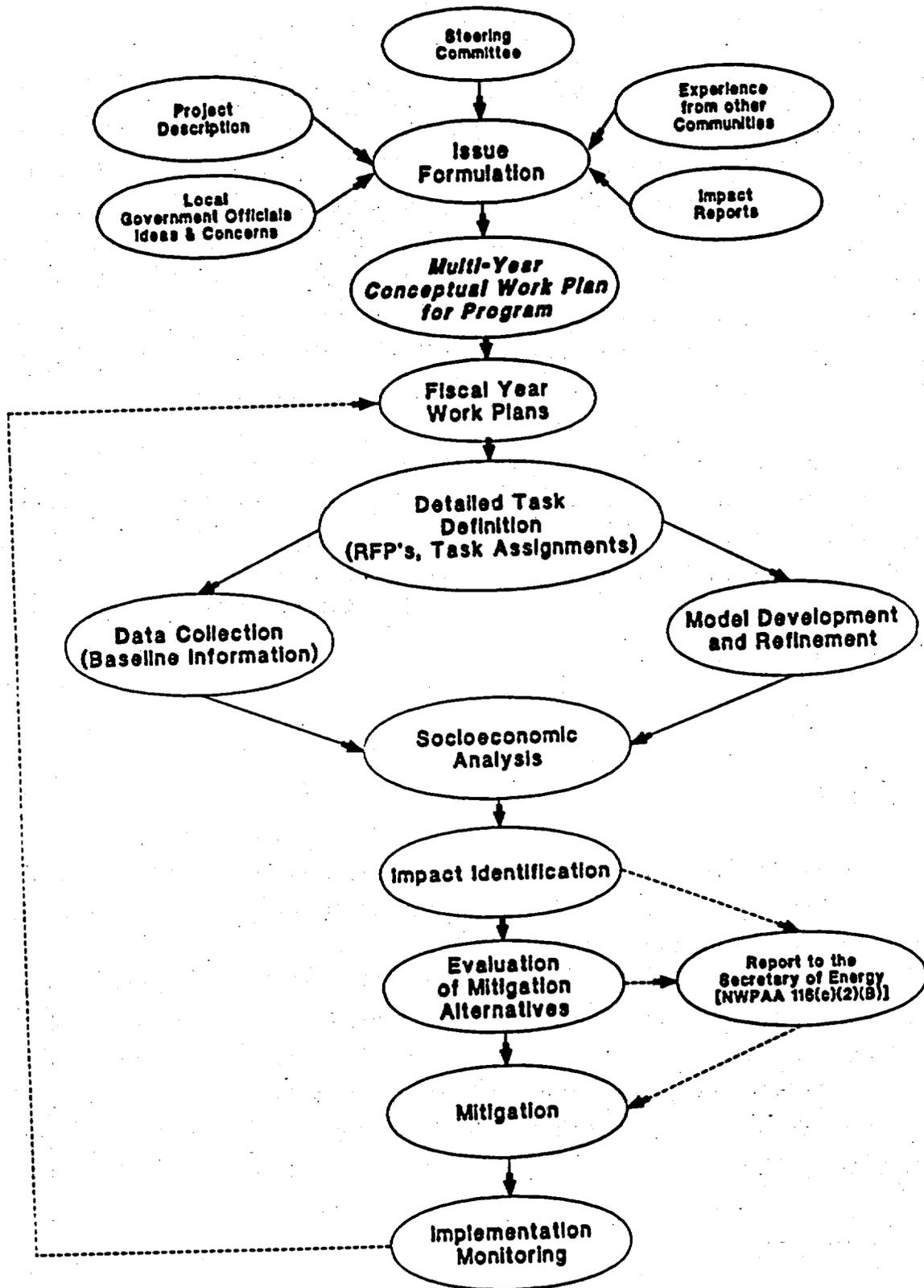
Detailed community planning must be conducted in order to prepare an accurate assessment of the future conditions in Clark County. Due to limited resources, much of this planning could not be conducted without the resources available from the Clark County Nuclear Waste Repository Program. Clark County must be capable of providing accurate impact assessments for input into the project decision process. The time frame for conducting these impact assessments mandates that much of the planning for future needs must be conducted sooner than would be done in the absence of the proposed Yucca Mountain Nuclear Waste Repository. The availability of grant funds provides the necessary resources to local governments in Clark County to conduct the necessary planning to determine which issues will be critical in the future.

The socioeconomic component of the Clark County Nuclear Waste Repository Program will be developed in phases. An awareness of these phases is necessary to understanding of the *Socioeconomic Work Plan*. These phases began with the formulation of issues, and will be completed with the implementation of mitigation programs if the proposed Yucca Mountain Nuclear Waste Repository is constructed. These phases are shown in Figure 1. A brief discussion of each of these phases follows.

Issue Formulation

Development of the *Socioeconomic Work Plan* began with the formulation of specific issues which should be investigated by Clark County. The identification of issues began with a review of the project description for the proposed Yucca Mountain Nuclear Waste Repository as described in the Environmental Assessment and the Department of Energy's Mission Plan. Discussions were held with local government officials to elicit their concerns and ideas. Other impact assessments of the proposed Yucca Mountain Nuclear Waste Repository (e.g. - DOE's *Section 175 Report*, the State of Nevada's *Interim Report*) were reviewed to identify potential areas of impact, data shortfalls, and recommendations for areas requiring additional study or investigation. Experience gained from other communities which have experienced impact, particularly those impacted by federal projects,

Clark County Socioeconomic Studies Process Flow Diagram



was also utilized to identify issues.

A *List of Issues* resulting from this process was compiled and circulated to members of the Clark County Nuclear Waste Repository Program Steering Committee. Members of the Steering Committee were requested to rank the issues by priority (*High, Medium, or Low*), and provide their opinion regarding the time frame (1990 through 1992) within which issues should be addressed.

Of the 153 issues identified, 74, or almost half, were ranked as *High* priority for 1990. The *High* or *Medium-high* ranking received by the vast majority of the issues indicated that the *List of Issues* would form an excellent basis for the development of a *Socioeconomic Work Plan* which reflects the concerns of the Steering Committee. The number of issues assigned to each ranking is shown below:

High	94
Medium-high	22
Medium	32
Medium-low	2
Low	3

Thus, the Steering Committee recognized that the majority of the items contained in the *List of Issues* are high priority items which should be studied as soon as possible.

Socioeconomic Work Plan

The goal at this stage of the process was to develop a conceptual work plan for a multi-year planning effort. Three primary guidelines were followed in the development of the conceptual work plan. First, data collection and analysis will be integrated through the concurrent refinement of the County's Geographic Information System. The timing for work elements strongly linked to the Geographic Information System must correlate to the timing of the development of capability to utilize this system. For example, data collected during studies should be catalogued in a format consistent with the Geographic Information System data base. Therefore, design of the Geographic Information System data base should be completed before extensive baseline data collection begins. Second, the Clark County socioeconomic program is designed to complement the socioeconomic assessment system developed by the State of Nevada. Instead of creating an entirely separate

capability, the goal is to develop more detailed information and assessment capabilities, providing a higher degree of accuracy in impact assessments. Third, because of the long time frame involved for this program, the work plan would have to be flexible, allowing for adjustment as the study effort proceeds.

Issues were grouped into the categories of *Public Impacts, Private Sector Impacts, Economic Impacts, Transportation Impacts, Other Community Impacts, and Other Impacts*. Within each of these broad categories, the issues were grouped by common objectives. The objectives were selected based upon standard socioeconomic impact assessment theories. For each objective, the time frame for completion was established and major tasks were defined. Task descriptions are intended to be broad, providing a general overview of the direction of the program and the relationship between objectives.

Fiscal Year Work Plans

A separate work plan will be developed for each fiscal year of the program. Adjustments to the timing of work plan objectives will be made to reflect current conditions. Additional study elements can be added if appropriate, or elements can be eliminated if no longer necessary.

Detailed Task Definition

As each objective is implemented, a detailed task description will be prepared. This description could be either a task assignment for work to be completed by local government personnel, or a proposal for work to be completed by a consultant.

Data Collection

As shown on Figure 1, data collection will proceed concurrently with model development and refinement. Data collection will be designed to allow integration of all the data collected through the Geographic Information System. Therefore, the timing for data collection must be coordinated with the data base design of the Geographic Information System.

In many cases, baseline information does not currently exist, or is extremely limited, for important areas of the work plan. In these cases, specific studies will be conducted to generate this

information. The studies will be designed to ensure that the information generated reflects the management and fiscal policies of local governments. The specific information will replace assumptions previously used in the assessment system, providing a more accurate description of future baseline conditions in Clark County.

Model Development and Refinement

Further development and refinement of fiscal and population projection models will proceed concurrently with the data collection phase of the program. As studies are completed providing more specific information, it will be integrated into the models. Initial development of these models will provide the capability of providing projections of future baseline conditions and initial impact assessments.

Socioeconomic Analysis

The overall goal of the Clark County program is to develop a system which can assess impacts of the proposed Yucca Mountain Nuclear Waste Repository whenever needed. Impact assessments may be required during many phases of the project, including the scoping process for the environmental impact statement, comments on the draft environmental impact statement, the NRC licensing process, or congressional hearings. The capability of conducting impact assessments will be developed prior the completion of model development and data collection. This capability will be utilized to provide initial impact assessments of site characterization of the proposed Yucca Mountain Nuclear Waste Repository and to provide impact assessments for construction and operation of the proposed Yucca Mountain Nuclear Waste Repository as necessary.

Impact Identification

Impacts to local governments in Clark County from the proposed Yucca Mountain Nuclear Waste Repository will be identified through the impact assessment system. Impacts requiring mitigation will be described.

Evaluation of Mitigation Alternatives

Section 116(c) of the Nuclear Waste Policy Act as amended specifically provides:

The Secretary shall provide financial and technical assistance to the State of Nevada or any affected unit of local government requesting such assistance. Such assistance shall be designed to mitigate the impact on such State or affected unit of local government of the development of such repository and the characterization of such site. Such assistance to such State or affected unit of local government shall commence upon initiation of site characterization activities. The State of Nevada and any affected unit of local government may request assistance under this subsection by preparing and submitting to the Secretary a report on the economic, social, public health and safety, and environmental impacts that are likely to result from site characterization activities at the Yucca Mountain site.

Specific mitigation programs will be developed to determine the appropriate method of mitigating the impacts identified. The necessary funding to mitigate the impacts will be determined based upon the mitigation programs adopted.

Mitigation

The process which will be followed under Section 116(c) of the Nuclear Waste Policy Act as amended to provide mitigation to affected local governments is not well defined. Because of the uncertainties in this process; timely, well defined studies are essential to the development of acceptable mitigation programs. Technical and financial assistance programs as provided under Section 116(c) will be developed based upon the specific impacts identified and accepted mitigation procedures.

Implementation

When funded, the mitigation programs will be implemented. The mitigation programs will be monitored to ensure that they are successful in reducing or eliminating the identified impacts.

Program Schedule

The schedule for the Clark County socioeconomic studies in relationship to the current schedule for development of the proposed Yucca Mountain Nuclear Waste Repository is shown in Figure 2. The major relationships between tasks are also shown.

Clark County Socioeconomic Studies

DOE Project Schedule
(Subject to Change)

1990 Site Characterization → 1991 Site Characterization → 1992 Site Characterization → 1993 Draft Environmental Impact Statement → 1994 Final Environmental Impact Statement → 1995 - 1996 NRC Licensing → 1998 Start of Construction

Population Model

- REM
- SAM
- Development
- Consensus
- Analysis

- REM & SAM
- Calibration
- Impact
- Scenarios

Facilities & Services

- Communications
- Costs of Fac. & Services
- Wastewater
- Water
- Indian Springs Plan

- Data Transfer
- Capital Facilities
- Public Safety
- Parks & Rec
- School Fac/Ser
- Water
- Maintenance
- Services
- Costs

- CD Warning
- Tracking
- Med Fac Plan
- School Fac/Ser
- Waste Water
- Water
- Maintenance

Fiscal Model

- Model Dec. & Verification
- Begin Transfer
- Design GIS Link

- Model Update
- Date from Studies
- Preliminary Socioeconomic
- Analysis

- Model Update
- Socioeconomic
- Analysis
- Impact
- Identification
- Mitigation
- Plan
- Development

- Implement
- Mitigation
- Plan

**Trans-
portation**

- Organization
- Study
- Assessment
- System
- ER Baseline
- Plan
- HazMat Plan
- Rail

- Baseline
- Inventory
- Needs
- Assessment
- ER Plan
- HazMat Plan
- Rail

- Needs
- Assessment
- HazMat Plan
- Rail
- HazMat Plan
- Regional Trans.
- Plan
- Rail

**Private Economic
Other**

- Labor Analysis
- Monitoring
- Public Info
- WIPP Case
- Study
- Nolis Anal.
- Legal
- NTS Analysis

- Econ. Linkages
- Base Analysis
- Com. Dev.
- Financing
- Monitoring
- Public Info
- Legal
- Research Cap.

- Econ. Dev.
- Risk Mitigation
- Monitoring
- Media Info
- Public Info
- Legal
- WIPP Impacts

Sources:
Project Schedule: DOE OCRWM 9/89
Studies: Clark County Socioeconomic Work Plan

Figure 2

1 Public Impacts

Goal

The necessary baseline information and assessment capabilities will be developed to determine potential impacts to public services and facilities from the characterization, construction, and operation of the Yucca Mountain Nuclear Waste Repository. The work effort will complement the Socioeconomic Impact Assessment System developed by the State of Nevada Socioeconomic Study. The combination of these two study efforts will allow Clark County to assess project impacts and develop a comprehensive mitigation plan to compensate local governments for project related costs.

1.1 Population Modeling

The objective is to develop population forecasting capability for Clark County which will have the capacity to allocate projected growth to small land use areas. The REMI population model developed by the State of Nevada socioeconomic study will be expanded to provide information on expected and actual growth patterns in the Las Vegas Valley. The impact of transportation infrastructure improvements on growth patterns will be assessed. The Department of Comprehensive Planning's population monitoring system will be integrated into the population modeling system.

1.1.1 Local Units of Government Involved

Clark County

Center for Business and Economic Research - UNLV

Southern Nevada Area Population Projections and Estimates (SNAPPE) Committee

1.1.2 Time Frame Required for Completion (Fiscal Year)

1990 - 1993

Support for the REMI users group and coordination with the Southern Nevada Area Population and Estimates Committee will continue over the entire study period. Population estimates will be

provided on a periodic basis for planning and impact evaluation. The population projection methodology will be improved through monitoring of actual growth, patterns of growth, and impacts due to site characterization.

1990

Work will focus on documentation and calibration of the REMI model. The population monitoring system data will be evaluated for use in calibrating a small area population model. Subcounty allocation methods will be evaluated. The conceptual design of a small area population model using the Geographic Information System will be developed.

1991

Refinement of the REMI model will continue. Results of the 1990 Census will be analyzed. Population and demographic data from the Census will be utilized to provide a new bench mark for population modeling. Methods of allocating project employees to specific areas will be developed. Projections of site characterization population impacts will be developed. A small area population model will be developed and calibrated.

1992

Refinement of the modeling systems will continue. The impact of transportation systems on growth patterns will be analyzed. Methods will be developed to predict future enrollments by type of land use development.

1993

Refinement of the modeling systems will continue. Projections of different impact scenarios will be developed.

1.1.3 Relationship to Geographic Information System

Boundaries of local governments can be displayed using the Geographic Information System. Developable land, proposed developments, and housing construction activities can be analyzed for potential and actual growth areas. Monitoring system information on the residency pattern of Yucca Mountain Nuclear Waste Repository employees and school enrollments due to the project can be analyzed. This will provide information on growth patterns related to the project. The

Geographic Information System can be used to develop a small land use allocation model for predicting population increases with individual jurisdictions and areas in Clark County.

The Geographic Information System can be used to display existing and planned transportation infrastructure improvements. Land use surrounding transportation facilities can be analyzed to for growth potential.

1.1.4 Major Tasks

Support will be provided to a REMI Model users group. Population projections and methodology will be coordinated with the Southern Nevada Area Population Projections and Estimates (SNAPPE) committee.

The subcounty allocation model will be evaluated to determine the capability to distribute expected population growth to local government jurisdictions and land use areas. The model will be expanded as necessary to provide projections of where growth will occur within Clark County. Projections will be aggregated by local government jurisdictions to provide for input into the fiscal assessment system. The capability to analyze the impact of increases and decreases in employment, including Yucca Mountain Nuclear Waste Repository employment, will be developed. Jurisdiction specific impacts resulting from the change in employment levels for the project will be determined.

The calibration of the REMI population model by the Center for Business and Economic Research and by the State of Nevada socioeconomic study will be documented. These calibrations of the model will be evaluated to determine the specific calibration to be used for the Clark County Nuclear Waste Project. The subcounty allocation model developed by the State of Nevada socioeconomic study will be acquired for use by the County. The Department of Comprehensive Planning's existing methods for monitoring residential housing activity and population will be evaluated. Results of the 1990 Census will be analyzed. Population and demographic statistics from the census will be used to provide a new bench mark for the population models. Changes needed to support the population modeling effort will be identified. A small area allocation model will be developed to allocate population projections from the REMI model and the subcounty allocation model to areas within Clark County. The capability of using the Geographic Information System to aggregate population projections by area to specific jurisdictions will be developed. The modeling system will be integrated with the Department of Comprehensive Planning's population

monitoring system. Procedures will be developed to allow local governments within Clark County to access the small allocation model for their use in planning.

A system will be developed to correlate assessor's data file on property types to per student yield for an area to predict future enrollments by type of land use development. The population modeling system will be integrated with the Clark County School District's cohort survival model. Projections by school enrollment area will be provided to the Clark County School District. School districts are entitled to an annual support payment under PL 874 for students who are dependents of federal employees. Annual surveys of students are conducted to determine the number of students who are dependents of federal employees. A method to incorporate survey data from these surveys of students who are dependents of federal employees into the population modeling system will be developed.

Existing and proposed transportation infrastructure, land use adjacent to transportation facilities, and zoning classifications will be identified. Potential changes in growth patterns due to transportation infrastructure improvements will be assessed. Cost to facilities and services of growth along transportation corridors will be estimated compared with the cost of providing services in other areas. The impact that changes in growth patterns would have on the selection criteria for routes selected for radiological materials transportation will be assessed.

1.1.5 Expected Products

- Population projections by land use area
- Population projections aggregated to local government jurisdiction
- Enrollment projections by school enrollment areas
- Population projections for transportation corridors
- Assessment of growth patterns along transportation corridors
- Site characterization population estimates

1.1.6 Estimated Cost

\$450,000

1.1.7 Data Availability

The Clark County Department of Comprehensive planning has been maintaining a population monitoring system since 1980. The present system in use was developed in 1984, providing good data since that time. Population estimates are developed each year for tax districts; township, section, and range; traffic analysis zone; census tract; and zip code. The data from this system will provide a good initial data base for development of a small area population projection system.

Existing methods of allocating REMI population projections to sub-county areas are discussed in *Clark County and Subarea Population Projections for Use in Updating Clark County's 208 Water Quality Management Plan* (Planning Information Corporation, June 1989). This document provides an excellent analysis of the population distribution methods currently available.

The following NWPO Yucca Mountain Socioeconomic Project documents are relevant:

County Level Comparison of the REMIN V FS 53 Model (ED00011)

Population/Demographic Characteristics (ED003)

Retirement Migration and Military Retirement (ED0009)

A substantial amount of work has been conducted for the NWPO Yucca Mountain Socioeconomic Project on population modeling, calibration of the REMI model, and sub-county population allocation which has not yet been documented. Work completed to date will be documented. Essential data and information required for maintenance of the economic-demographic and sub-county allocation impact assessment capability should be maintained current. Every effort should be made to coordinate work conducted under this task with the State of Nevada.

1.2 Indian Springs Community Development Plan

Analysis of the survey data of NTS workers indicates a trend toward more NTS workers residing in Indian Springs. In the *Section 175 Report*, the Department of Energy predicted that employees working at the Yucca Mountain Nuclear Waste Repository during site characterization are likely to exhibit similar residency patterns. Impact areas identified by the Department of Energy included education, public health (water and sewer), law enforcement, fire protection, cultural and recreation, and social services. Preparation of a community development plan for Indian Springs is necessary to determine the growth potential in Indian Springs, to accurately quantify impacts, and to develop mitigation plans if appropriate.

1.2.1 Local Units of Government Involved

**Clark County
Indian Springs Town Advisory Board**

1.2.2 Time Frame Required for Completion (Fiscal Year)

1990

1.2.3 Relationship to Geographic Information System

The Geographic Information System can be used to analyze land use in Indian Springs and surrounding areas. Locations of existing and future utilities, parks, schools, and other community features can be analyzed and identified.

1.2.4 Major Tasks

Future population scenarios for Indian Springs will be developed. A target population projection for planning purposes will be selected. An inventory of existing housing will be developed. Future housing requirements will be developed. Facilities, utilities, roads, and services required to serve the target population will be determined. A community development plan to meet the projected demand will be prepared for Indian Springs.

1.2.5 Expected Products

Community Development Plan for Indian Springs

1.2.6 Estimated Cost

\$75,000

1.2.7 Data Availability

Community maps have been collected for the existing Geographic Information System data base. The data base needs to be updated and automated to show the current and planned location of roads, utilities, and other land use features. Data on public facilities and services has been collected as part of the State of Nevada socioeconomic study. This data should be verified with local officials and updated as necessary.

1.3 Civil Defense Warning System Upgrade

The objective is to determine the cost of required upgrades to the Civil Defense Warning System for the baseline case. The feasibility of providing adequate control in specific areas impacted by a high-level nuclear waste transportation accident will be assessed to ensure that total costs of the upgrade are available for input to the fiscal assessment system.

1.3.1 Local Units of Government Involved

Clark County
Las Vegas
North Las Vegas
Henderson
Indian Springs

1.3.2 Time Frame Required for Completion (Fiscal Year)

1993

1.3.3 Relationship to Geographic Information System

The Geographic Information System will be used to display the existing warning system coverage, to analyze preferred system coverage, and to support the identification of potential sites for system upgrade.

1.3.4 Major Tasks

The existing Civil Defense Warning System in the Las Vegas urban area will be described. The description will include the location of sirens, type of equipment available at each location, and the jurisdiction with control of the siren. The area covered by each siren will be mapped along with the location of proposed routes for transporting high-level nuclear waste and other hazardous materials through the urban area.

Methods to upgrade the sirens to provide specific area control and voice information will be investigated. Technical specifications of needed equipment will be developed. Potential sites for sirens will be identified. Alternative area specific warning systems will be evaluated. A management plan will be developed for control of warning systems along identified routes for nuclear waste and other hazardous materials shipments. The feasibility, cost and time frame for implementing the proposed system will be estimated.

1.3.5 Expected Products

Feasibility study for upgrading the Civil Defense Warning System
Estimated cost of the upgrade
Implementation plan

1.3.6 Estimated Cost

\$75,000

1.3.7 Data Availability

Maps and data on the existing civil defense warning system have been collected for the Geographic Information System. This information needs to be checked and updated.

1.4 Emergency Response Communication

The objective is to develop a plan and to determine the cost for improving emergency response communications between the government agencies in Clark County involved in emergency response activities. There is a limited time frame within which the frequency allocation plan must be developed and submitted to the Federal Communications Commission. If the planning is not completed, frequencies will be allocated to commercial interests, and the potential for an area wide communications system with common channels for emergencies will be lost. The improvement of emergency response communications is considered a high priority by local emergency response agencies. Since upgrade of the system will require significant investments by local governments, accurate identification of the cost of improvements is essential. Ultimately, improvement of communications would be required if the proposed Yucca Mountain Nuclear Waste Repository is approved and nuclear materials are transported through Clark County.

1.4.1 Local Units of Government Involved

All

1.4.2 Time Frame Required for Completion (Fiscal Year)

1990 - 1991

1.4.3 Relationship to Geographic Information System

The Geographic Information System will be used to display or provide statistical reports on the location and type of communication equipment available at each agency. Locations and coverage of repeater stations and antennas can also be reported or displayed.

1.4.4 Major Tasks

The communications problems identified by the PepCon accident will be evaluated for the communications needs which would be experienced during a transportation accident involving nuclear materials.

Agencies included in the study will be identified. The existing communications systems and equipment for agencies will be inventoried, including type of equipment, age, and expected replacement cycle. National and State standards for emergency response communication will be identified. The existing communications capability will be compared to these standards. Shortfalls in communications capabilities will be identified.

Alternative communication systems will be evaluated to determine options for upgrading the communications systems to meet national and State standards. Sites for repeater stations and antennas will be identified. Estimated costs and funding mechanisms for preferred alternatives will be developed.

Communication requirements in rural areas along the proposed transportation routes for nuclear waste will be identified. Once the preferred alternative is selected, a phase-in plan will be developed for implementation of the preferred system. The estimated cost of the phase-in plan by jurisdiction will be developed for input into the fiscal assessment model.

1.4.5 Expected Products

Plan to upgrade the communications system

Phase-in schedule and estimated costs to implement the plan

1.4.6 Estimated Cost

\$500,000

1.4.7 Data Availability

Radio Communications Studies have been completed for the State of Nevada. Radio coverage surveys have been conducted in the Las Vegas/Clark County Urban areas. A preliminary count of equipment in use was obtained, but was not intended to be a detailed survey. Additional communications studies for Clark County should be based upon the results of the previous study efforts. Topographic relief in Clark County is available in the existing data base of the Geographic Information System. Building locations and foot prints is available as of 1986. This information

will need to be updated and building heights added to the data base for specific coverage assessments.

1.5 Emergency Management Data Exchange

Emergency response to an event involving hazardous or radiological materials usually requires providing data and information between centrally located data bases to agencies responding to the event. Response times can be improved if this information can be transferred electronically. The requirements necessary to exchange emergency response data and information between agencies will be determined.

1.5.1 Local Units of Government Involved

All

1.5.2 Time Frame Required for Completion (Fiscal Year)

1992

1.5.3 Relationship to Geographic Information System

The Geographic Information System can provide standards for geocoded data base information to ensure the collection and maintenance of comparable data by all agencies.

1.5.4 Major Tasks

Agencies which maintain emergency response data and information will be identified. The type of data maintained and the need to provide that data to emergency responders will be evaluated. Agencies which will require emergency response data and information to respond to a hazardous or radiological materials event will be identified. Data and information which requires exchange between agencies will be inventoried and assigned priorities. An inventory of existing equipment and software programs for these agencies will be developed.

The alternatives for electronic data exchange will be developed. Based upon the preferred alternative selected, equipment and software requirements will be specified for each agency. Data base formats will be developed to provide consistent coding of information and data.

1.5.5 Expected Products

Electronic data exchange plan

1.5.6 Estimated Cost

\$50,000

1.5.7 Data Availability

No available data sources have been identified.

1.6 Emergency Response Vehicle Tracking

The technology for tracking the location of vehicles is developing rapidly. This technology, developed to track the location of commercial vehicles, can be readily applied to emergency response vehicles to provide a cost effective means of responding to emergencies of all types by local emergency response agencies. The feasibility and cost of using vehicle tracking systems to provide the location of key emergency response equipment during emergencies will be evaluated to determine if the baseline cost of public safety and emergency response equipment can be reduced through more efficient management of resources. The system would also reduce the cost of equipment required to respond to a nuclear materials transportation accident if the proposed Yucca Mountain Nuclear Waste Repository is approved.

1.6.1 Local Units of Government Involved

Transportation Research Center

1.6.2 Time Frame Required for Completion (Fiscal Year)

1993

1.6.3 Relationship to Geographic Information System

The Geographic Information System can be used for street network data files for use by a tracking system.

1.6.4 Major Tasks

The feasibility of implementing a tracking system to provide the location of key local emergency response vehicles will be assessed. The vehicles to be tracked will be identified. Alternative systems will be evaluated to determine a preferred system. The feasibility and cost of using vehicle tracking systems to provide the location of key emergency response equipment during emergencies will be evaluated to determine if the baseline cost of public safety and emergency response equipment can be reduced through more efficient management of resources. The cost and sources of funding for implementing a system will be identified.

1.6.5 Expected Products

Plan for emergency response vehicle tracking system

1.6.6 Estimated Cost

\$20,000

1.6.7 Data Availability

No available data sources have been identified.

1.7 Medical Facilities Radiological Response Plan

The objective is to develop a radiological response plan for medical facilities and personnel who will be involved in treating victims of an accident involving low-level, transuranic, and high-level nuclear waste. Medical facilities must be capable of responding to needs created due to existing shipments of nuclear materials and proposed shipments of transuranic waste to the Waste Isolation Pilot Project in New Mexico. The cost of this response capability is necessary for input into the fiscal assessment system.

1.7.1 Local Units of Government Involved

All

1.7.2 Time Frame Required for Completion (Fiscal Year)

1993

1.7.3 Relationship to Geographic Information System

Medical facilities with capability of treating victims of accidents involving radiological materials can be displayed by the Geographic Information System. The service area of coverage for each hospital will be analyzed for inclusion in the emergency response plan.

1.7.4 Major Tasks

The existing capability of medical facilities to treat victims of a radiological accident will be inventoried. A radiological response plan for medical facilities will be developed which identifies preferred and alternative facilities for treatment of a victim of a radiological accident.

Radiological plans will be developed for each medical facility identified as a preferred or alternative facility. The estimated cost of equipment required to implement the plans will be developed. Training requirements for medical facility personnel and staff will be determined. Available training classes will be identified. Cost of providing the training will be estimated.

1.7.5 Expected Products

Medical facilities radiological plan
Equipment needs for medical facilities
Training schedule for medical personnel

1.7.6 Estimated Cost

\$80,000

1.7.7 Data Availability

The Geographic Information System data base contains information on each hospital including number of rooms and emergency response facilities. Emergency response coverage areas for each hospital for various types of emergency response activities should be developed.

1.8 Capital Facilities

The objective is to identify existing and future capital facility needs and provide estimated costs of future capital facilities, both without and with the proposed Yucca Mountain Nuclear Waste Repository, for inclusion in the fiscal assessment system.

1.8.1 Local Units of Government Involved

All

1.8.2 Time Frame Required for Completion (Fiscal Year)

1991 - 1992

1.8.3 Relationship to Geographic Information System

Service areas for capital facilities can be displayed using the Geographic Information System. Potential sites for future capital facilities can be identified. As growth expands in the Las Vegas

valley, the Geographic Information System can be used to analyze the distance of new facilities from existing, centralized facilities. The Geographic Information System can be used to support the identification of alternative sites for new capital facilities.

1.8.4 Major Tasks

An inventory of existing, but unfunded, capital facility needs will be compiled. Future capital facility requirements will be estimated based upon the population modeling capability and the fiscal assessment system. Short-range and long-range capital facilities improvement plans will be developed. The long-range plan will be based upon the most likely future population for Clark County. The required phasing of capital facilities to meet alternate future population scenarios will be developed, allowing for assessment of capital facility needs due to changes in baseline population growth or to possible impacts from the proposed Yucca Mountain Nuclear Waste Repository. Proposed locations for facilities will be identified. Estimated costs of providing the new facilities will be developed. Operation and maintenance costs for new facilities will be estimated. Methods of assessing the impact of the Yucca Mountain Nuclear Waste Repository will be developed.

1.8.5 Expected Products

- Inventory of existing, unfunded capital facility needs
- Inventory of future capital facility needs
- Cost estimate for capital facilities

1.8.6 Estimated Cost

\$150,000

1.8.7 Data Availability

The Geographic Information System data base contains an inventory of capital facilities owned by Clark County. This data base should be expanded to include all government owned capital facilities in Clark County.

The following NWPO Yucca Mountain Socioeconomic Project document is relevant:

Public Infrastructure, Community Services and Facilities (CF0001)

A substantial amount of work has been conducted for the NWPO Yucca Mountain Socioeconomic Project on capital facilities. An initial inventory of capital facilities and future needs has been compiled, and methods of estimating future capital facilities needs has been developed. This information should be verified with local officials. Methods of maintaining this data base need to be developed. Better definition of future capital facility needs will provide more accurate information for input into the fiscal assessment system. Every effort should be made to coordinate work conducted under this task with the State of Nevada.

1.9 Public Safety Facilities and Equipment

The objective is to determine baseline law enforcement and fire protection facilities and equipment requirements and costs in Clark County. The capability of assessing demands on law enforcement facilities, equipment and personnel resulting from future population growth will be developed for input into the fiscal assessment system.

1.9.1 Local Units of Government Involved

Clark County
Metro Police
Henderson
Las Vegas
North Las Vegas

1.9.2 Time Frame Required for Completion (Fiscal Year)

1992

1.9.3 Relationship to Geographic Information System

The location and service area of existing and proposed public safety facilities and equipment can be displayed using the Geographic Information System. Population growth areas can be analyzed to determine areas where population growth will be outside of existing service areas. Transportation corridors which will require increased levels of law enforcement due to project related traffic can be identified.

1.9.4 Major Tasks

The demographic characteristics of the population associated with site characterization of the Yucca Mountain Nuclear Waste Repository will be analyzed to determine the expected demand on law enforcement services. Additional traffic due to the project will be evaluated to determine the demand for law enforcement due to traffic increases.

The baseline requirements for new police substations and fire stations will be determined. Based upon population growth estimates and desired service levels, the number and approximate location of new facilities will be determined. The capability of assessing project impacts on public safety facilities will be developed.

The requirements for new facilities will be established. Law enforcement capital facility needs in outlying areas will be determined based upon the criteria for new substations and population growth projections. Based upon these requirements, site selection studies for new police substations and fire stations will be conducted. The primary area of investigation will be the northwest quadrant of the metropolitan area, Henderson, and Indian Springs. The impact of increased law enforcement demands in Indian Springs will be assessed. Site selection studies for new police substations will be conducted, including relocation of the substation located at the Jones and Expressway site to a Lake Mead and Expressway Site. Estimated costs of new facilities will be developed. Methods of assessing the impact of the Yucca Mountain Nuclear Waste Repository will be developed.

1.9.5 Expected Products

Law enforcement demand projections for future population

Estimates of number of additional police personnel
Estimates of additional police substations required
Identified sites for new police substations and fire stations
Estimated costs of new facilities

1.9.6 Estimated Cost

\$75,000

1.9.7 Data Availability

The Geographic Information System data base contains the location of public safety facilities by type. This information was last updated in 1986. A separate data base contains a listing of mobil equipment for both public and private sector facilities as of August, 1989. These data bases should be updated as necessary and integrated into the Geographic Information System.

An initial inventory of public safety facilities and future needs has been compiled, and methods of estimating future facilities needs has been developed. This information should be verified with local officials. Methods of maintaining this data base need to be developed. Better definition of future public safety facility needs will provide more accurate information for input into the fiscal assessment system. Every effort should be made to coordinate work conducted under this task with the State of Nevada.

1.10 Parks and Recreation Facilities

The objective is to identify and determine the baseline requirements for parks and recreation facilities. A method of projecting the acquisition cost of suitable land for expansion of parks and recreation facilities will be developed for input into the fiscal impact assessment system.

1.10.1 Local Units of Government Involved

**Clark County
Las Vegas
North Las Vegas
Indian Springs**

1.10.2 Time Frame Required for Completion (Fiscal Year)

1992

1.10.3 Relationship to Geographic Information System

The Geographic Information System can be used to identify areas subject to population growth. It can also be used to support the identification of sites for parks and recreation facilities.

1.10.4 Major Tasks

In coordination with the Parks and Recreation Department, park and community recreation facility standards will be evaluated to determine the appropriate standards for use in the Clark County urban and rural areas. Based upon the standards selected and the future population growth expected, the amount of park land and the number and type of recreational facilities will be determined. Existing parks and recreation facilities will be compared to the expected future population growth areas to determine areas where neighborhood or community parks and recreational facilities will be required.

Criteria will be established for park and recreation facility sites. Based upon these criteria, potential sites will be identified within the areas where shortages are expected. Sites will be ranked according to suitability and cost. Methods of assessing the impact of the Yucca Mountain Nuclear Waste Repository will be developed.

1.10.5 Expected Products

**Preferred and alternative sites for parks and recreation facilities
Estimated site acquisition and utility costs**

1.10.6 Estimated Cost

\$150,000

1.10.7 Data Availability

The Geographic Information System data base contains the name, location and acreage of parks as of 1986. This information should be updated and expanded to include the type and amount of recreation facilities available at each location. A considerable amount of work has been completed by the Clark County Departments of Comprehensive Planning and Parks and Recreation in establishing park standards and determining park site location needs. This information will be updated as necessary and evaluated to determine additional work required to address the needs for the Clark County Nuclear Waste Program.

An initial inventory of recreation facilities has been compiled, and methods of estimating future recreation facilities needs has been developed. This information should be verified with local officials. Methods of maintaining this data base need to be developed. Better definition of future recreation facility needs will provide more accurate information for input into the fiscal assessment system. Every effort should be made to coordinate work conducted under this task with the State of Nevada.

1.11 School Facilities and Services

The objective is to determine the additional facilities and services required by the Clark County School District for the expected population growth in the County. Population growth in Clark County has, and will continue, to place significant demands on the School District. Understanding how the School District will meet these demands is essential to an accurate fiscal assessment of the School District. Demands created due to the proposed Yucca Mountain Nuclear Waste Repository may be significant, and must be considered in comparison with the total future demands placed upon the School District. Site characterization of the proposed Yucca Mountain Nuclear Waste Repository will result in the need for additional educational facilities in locations not currently planned by the School District to meet baseline requirements for educational facilities.

1.11.1 Local Units of Government Involved

Clark County School District

1.11.2 Time Frame Required for Completion (Fiscal Year)

1992 - 1993

1.11.3 Relationship to Geographic Information System

Existing schools, attendance areas, and enrollments can be analyzed and displayed using the Geographic Information System. Expected future population growth areas can be analyzed to identify areas where existing school facilities will not be adequate. Identification of future school sites can be supported by the Geographic Information System. The location of central services facilities can be compared to areas receiving growth.

1.11.4 Major Tasks

Population growth patterns will be estimated from the population modeling system and the small area land use model. Projected baseline student enrollments by areas will be developed. These will be compared to previous enrollment estimates prepared by the District. Actual enrollment information will be used to calibrate the projection capability. The demand for and the location of new schools to meet the demand created by the repository will be estimated. The impact on the School District's central services resulting from growth on the perimeter of the urban area will be assessed. Methods of assessing the impact of the Yucca Mountain Nuclear Waste Repository will be developed. Using the methods developed, the impact of current Department of Energy activities in southern Nevada on the School District will be assessed.

The need for additional school facilities in Indian Springs as a result of projected population increases due to site characterization activities will be assessed.

The Clark County School District is currently impacted by a large number of students of dependents of federal employees of the Department of Energy, the Department of Defense, and other federal agencies. The site characterization of the proposed Yucca Mountain Nuclear Waste Repository cause additional impact to the District in the foreseeable future. Federal property is not normally

subject to local property taxes, which are also usually the principal source of local revenues for school districts. Therefore, several programs have been developed to assist school districts in meeting the cost of providing education to dependents of federal employees. For capital facilities, PL 815 provides grant funds to school districts for school facilities required as a direct result of federal activities impacting the capacity requirements of a district. Funding for this program has been limited in recent time, resulting in extreme competition for the funds available. Methods of obtaining federal grants, such as the PL 815 program, for new schools required as a result of federal activities in and around Clark County will be investigated. For operational expenses, school districts are entitled to an annual support payment under PL 874 for students who are dependents of federal employees. Annual surveys of students are conducted to determine the number of students who are dependents of federal employees. School districts are eligible for payments for dependents of employees of federal contractors, for both construction activities and operations. These students are frequently missed by school districts in their annual surveys. The PL 874 program will be analyzed to determine methods to maximize payments for students enrolled in Clark County schools who are dependents of federal employees.

1.11.5 Expected Products

- Estimated number and location of new schools
- Estimated facility additions in Indian Springs
- Assessment of available federal grant funds for facilities and operations
- Assessment of impact to the School District's central services facilities

1.11.6 Estimated Cost

\$175,000

1.11.7 Data Availability

The Geographic Information System data base contains the name, location, and grade level for schools as of 1986. Enrollment boundaries for each school in the Geographic Information System are based upon the 1982 boundaries. The School District maintains their own Geographic Information System which includes the capacity and number of students enrolled in each school. These data bases should be updated and integrated.

An initial inventory of school facilities and future needs has been compiled, and methods of estimating future school facilities needs has been developed. This information should be verified with local officials. Methods of maintaining this data base need to be developed. Better definition of future school facility needs will provide more accurate information for input into the fiscal assessment system. Every effort should be made to coordinate work conducted under this task with the State of Nevada.

1.12 Assessment of School Siting Needs

The objective is to identify and determine the acquisition cost of suitable land for school sites required due to population growth occurring in Clark County for input into the fiscal assessment system. Any potential school site related needs attributed to the site characterization of the proposed Yucca Mountain Nuclear Waste Repository will be identified.

1.12.1 Local Units of Government Involved

Clark County
Clark County School District
Indian Springs

1.12.2 Time Frame Required for Completion (Fiscal Year)

1993

1.12.3 Relationship to Geographic Information System

The Geographic Information System can be used to identify areas subject to population growth. It can also be used to identify school enrollment areas, existing utility lines, services and potential school sites. The Geographic Information System can be used to identify public land holdings which could potentially be used for school sites. District allocation analysis can be conducted to assist in identifying the number and location of future school sites.

1.12.4 Major Tasks

Projected student enrollments will be compared to present and planned capacity by enrollment area. Enrollment areas where capacity shortfalls will occur will then be identified.

Criteria for school sites will be based upon criteria developed by the School District. Potential school sites will be identified within the enrollment areas expected to have capacity shortfalls. The cost of providing utilities to each site will be estimated. Identified sites will be ranked for suitability and cost. Methods of assessing the impact of the Yucca Mountain Nuclear Waste Repository will be developed. Any potential school site related needs attributed to the site characterization of the proposed Yucca Mountain Nuclear Waste Repository will be identified.

1.12.5 Expected Products

Preferred and alternative sites for schools
Estimated site acquisition and utility costs

1.12.6 Estimated Cost

\$150,000

1.12.7 Data Availability

The Geographic Information System data base includes public lands managed by the Bureau of Land Management which are available for transfer for public use as of 1984. If the land has been committed to a specific use, the public agency is identified.

1.13 Waste Water Treatment

The objective is to develop the information necessary to project the actual cost of sewer collection and sewage treatment for the future population in Clark County.

1.13.1 Local Units of Government Involved

Clark County Sanitation District

1.13.2 Time Frame Required for Completion (Fiscal Year)

1991 - 1993

1.13.3 Relationship to Geographic Information System

Sewage collection systems and treatment plants can be displayed and analyzed using the Geographic Information System. The location of industries with discharges to sewer systems can also be identified. The relationship between existing rural systems and existing collection lines can be displayed and analyzed.

1.13.4 Major Tasks

Expected population served from each sewer system will be projected using the population modeling system. Existing per capita sewage generation rates will be analyzed to determine appropriate rates for use in projecting future sewage treatment requirements. Projected future demand for sewage treatment facilities will be projected based upon the total future population expected.

The requirements and cost of rehabilitating the sewer collection system and the wastewater treatment facility in Indian Springs will be assessed. A rate study for rural wastewater treatment systems in Clark County will be conducted to provide accurate data on revenues and cost of providing wastewater treatment. Estimated cost of sewer system improvements and wastewater treatment will be developed for input into the fiscal assessment system.

Industrial wastewater can have a significant impact on the capacity requirements and costs of wastewater treatment for a municipal system. Pretreatment standards for industries can radically alter these capacity requirements and costs. An accurate assessment of future requirements for the treatment of industrial wastewater is essential to the accurate projection of future wastewater treatment costs. An inventory of industries will be developed. Typical wastewater produced by these industries will be characterized. Pretreatment standards for discharge of wastewater to the

sewer system from these industries will be developed. The future wastewater treatment facility needs, and the cost of wastewater treatment based upon the implementation of pretreatment standards will be developed for input into the fiscal assessment system.

The quantity of sewage sludge produced will be estimated based upon projected future population. Criteria for land disposal of the sludge will be established to determine the area of land needed for a disposal site. Site selection studies for acquisition of additional land for sewage sludge disposal will be conducted. The estimated cost of sludge disposal will be developed for input to the fiscal assessment system.

Methods of assessing the impact of the Yucca Mountain Nuclear Waste Repository will be developed.

1.13.5 Expected Products

Improvement plan for Indian Springs sewer and wastewater treatment facilities
Pretreatment standards for industrial discharges to public sewer system
Sewage sludge disposal plan

1.13.6 Estimated Cost

\$200,000

1.13.7 Data Availability

The Geographic Information System data base includes the boundaries of sewer districts and major collector lines as of 1985.

An initial inventory of sewage treatment facilities and future needs has been compiled, and methods of estimating future sewage treatment facilities needs has been developed. This information should be verified with local officials. Methods of maintaining this data base need to be developed. Better definition of future sewage treatment facilities needs will provide more accurate information for input into the fiscal assessment system. Every effort should be made to coordinate work conducted under this task with the State of Nevada.

1.14 Water Supply

The objective is to determine the cost of providing an adequate water supply for the total future population in the Las Vegas Valley.

1.14.1 Local Units of Government Involved

**Las Vegas Valley Water District
North Las Vegas
Henderson**

1.14.2 Time Frame Required for Completion (Fiscal Year)

1990 - 1993

1.14.3 Relationship to Geographic Information System

The service area for each water supply district can be displayed using the Geographic Information System. Sources of supply, water treatment facilities, water storage facilities, and distribution systems can be displayed and analyzed using the Geographic Information System.

1.14.4 Major Tasks

Expected population served from each water supply system will be projected using the population modeling system. Existing per capita consumption rates will be analyzed to determine appropriate consumption rates for use in projecting future demand. Projected future demand for water will be projected based upon the total future population expected with the Yucca Mountain Nuclear Waste Repository.

The expected future demand on the Indian Springs water system and other satellite water supply systems will be assessed. Existing studies of satellite water systems will be evaluated to determine additional studies which should be undertaken. The capability of satellite systems to meet the demand will be assessed, and alternatives to maintaining these systems will be evaluated. The

impact of growth in the northwest part of the valley served primarily by private well and septic systems will be evaluated. Work completed in 1990 will focus primarily on evaluation of the water supply system for Indian Springs.

Additional sources of water supply to meet the future demand will be evaluated. Opportunities for obtaining more water out of the Colorado River system will be assessed. Water reuse by parks and industry will be evaluated to maximize use of existing water supplies.

A cost of service study for the water supply system will be conducted, including the cost of obtaining additional sources of water and the cost of upgrading rural systems.

Methods of assessing the impact of the Yucca Mountain Nuclear Waste Repository will be developed.

1.14.5 Expected Products

Future water supply alternatives

Cost of providing water to the expanded population

1.14.6 Estimated Cost

\$250,000

1.14.7 Data Availability

The Geographic Information System data base includes boundaries and major water transmission lines as of 1988.

An initial inventory of water treatment facilities and water supply and future needs has been compiled. Methods of estimating future water supply requirements and treatment facilities needs have been developed. This information should be verified with local officials. Methods of maintaining this data base need to be developed. Better definition of future water treatment facility and water supply needs will provide more accurate information for input into the fiscal assessment

system. Every effort should be made to coordinate work conducted under this task with the State of Nevada.

1.15 Infrastructure Maintenance Costs

Infrastructure owned and maintained by local governments includes buildings, water and wastewater systems, maintenance shops, garages, correctional facilities, recreation facilities, and other capital facilities. Rapid growth is requiring local governments in Clark County to rapidly expand the infrastructure in the urban area. As this new infrastructure ages, maintenance costs will increase in the future. The financial burden in meeting the demand for new infrastructure also makes it difficult to meet the maintenance requirements of existing infrastructure, resulting in deferral of maintenance. The quantification of these new and deferred infrastructure repair and replacement costs is essential to provide accurate costs for input into the fiscal assessment system.

1.15.1 Local Units of Government Involved

All

1.15.2 Time Frame Required for Completion (Fiscal Year)

1991 - 1993

1.15.3 Relationship to Geographic Information System

The location of capital facilities can be displayed with the Geographic Information System. The maintenance and replacement schedules for facilities can be symbolized on maps or presented in tabular reports to assist in facility management.

1.15.4 Major Tasks

The Office of Technology Assessment study on infrastructure will be reviewed to determine findings applicable to Clark County. Infrastructure studies completed by other States (e.g., - Washington State) and local governments will be assessed to determine applicability for Clark County.

An inventory of capital facilities and maintenance schedules for each government will be compiled. Existing maintenance schedules for facilities will be analyzed to determine their adequacy. Useful life for each facility will be estimated.

Future repair and replacement costs will be estimated for each facility. A facilities repair and replacement plan will be developed. The need for sinking funds for capital facilities replacement will be evaluated. Cost of implementing the plan will be estimated for inclusion in the fiscal impact assessment system.

Existing funding sources for maintenance of capital facilities will be identified and evaluated for adequacy to meet identified maintenance requirements. Alternative funding sources will be evaluated to identify possible methods of overcoming shortfalls.

Methods of assessing the impact of the Yucca Mountain Nuclear Waste Repository will be developed.

1.15.5 Expected Products

- Facilities maintenance plans
- Facilities replacement plans
- Estimated repair and replacement costs
- Funding methods

1.15.6 Estimated Cost

\$300,000

1.15.7 Data Availability

The Geographic Information System contains the location of bridges as of 1982.

The State of Nevada socioeconomic study has identified infrastructure maintenance as a problem area facing local governments in the future. Work completed in this area should be verified with local officials and updated as necessary.

1.16 Services

The objective is to develop community standards for facilities and services to be used in Clark County to determine future needs caused by population growth. These standards will be used to determine the baseline and future demand for services resulting from population increases in Clark County.

1.16.1 Local Units of Government Involved

All

1.16.2 Time Frame Required for Completion (Fiscal Year)

1990 -1991

1.16.3 Relationship to Geographic Information System

Community standards for facilities and services can be entered into the Geographic Information System. Existing services and facilities can be compared to these standards to determine areas where facilities and services are below standards desired by the community.

The location of service providers and recreational facilities can be displayed or reported in tabular form using the Geographic Information System. These locations can be compared with expected population growth areas.

1.16.4 Major Tasks

A socioeconomic impact assessment of local governments requires the collection of data by agency and by service in four broad categories. These include the population served by the agency or program, program activity levels, *factors of production* of the agency, and expenditures. Agencies and programs evaluated may include the broad categories of general government, judicial, public safety, public works, social services, culture and recreation, enterprise funds, education, and special districts.

Services and facilities to be included will be identified. Work completed for the State of Nevada socioeconomic study will be reviewed to determine the amount of research already conducted on community standards. Additional research will be conducted as necessary to develop alternative community standards for Clark County. Research conducted could include review of existing socioeconomic literature, surveys of western communities, and surveys of urban areas comparable to Clark County.

Alternative community standards and statements justifying their applicability to Clark will be developed for presentation to local officials. Standards adopted by local officials will be utilized in impact assessments.

Existing services will be analyzed to determine services included in the evaluation. Existing service levels will be determined. Desired service level standards for an urban area will be developed. Existing service levels will be compared with appropriate service level standards to determine the desired level of services for the area.

The demand for services by new residents, particularly in rural areas, will be compared with current service demand. The need to change the level of services to meet different needs of new residents will be assessed.

Results will be incorporated into the fiscal assessment system. Methods of assessing the impact of the Yucca Mountain Nuclear Waste Repository will be developed.

1.16.5 Expected Products

Desired service level standards

Changes in level of services required to meet increased population

Services required in Indian Springs

1.16.6 Estimated Cost

\$150,000

1.16.7 Data Availability

The following NWPO Yucca Mountain Socioeconomic Project document is relevant:

Public Infrastructure, Community Services and Facilities (CF0001)

A substantial amount of work has been conducted for the NWPO Yucca Mountain Socioeconomic Project in this area. This information should be verified with local officials. Methods of maintaining this data base need to be developed. Better definition of future needs will provide more accurate information for input into the fiscal assessment system. Every effort should be made to coordinate work conducted under this task with the State of Nevada.

1.17 Cost of Facilities and Services

The objective is to determine accurately costs of facilities and services in Clark County for input into the fiscal assessment system.

1.17.1 Local Units of Government Involved

All

1.17.2 Time Frame Required for Completion (Fiscal Year)

1990 - 1992

1.17.3 Relationship to Geographic Information System

Location of existing and proposed facilities can be displayed or reported in tabular form by the Geographic Information System. Facilities with deferred maintenance requirements can be identified.

1.17.4 Major Tasks

Budget constraints may have forced the current level of services and facilities to be below the desired level. To assess impacts accurately, the desired level of facilities and services will be

determined. The estimated cost of providing these facilities and services will be developed for inclusion in the fiscal impact assessment system.

The administrative costs to local governments of responding to the needs created during planning for the Yucca Mountain Nuclear Waste Repository will be identified. A system will be developed to provide these costs as inputs to the fiscal assessment system.

Impacts from site characterization activities of the Yucca Mountain Nuclear Waste Repository will be assessed. The population modeling system and the fiscal impact assessment system will be used to develop an estimate of the impacts to date and the expected future impacts from site characterization.

1.17.5 Expected Products

Facilities and Services Plan

Estimated cost of facilities and services

1.17.6 Estimated Cost

\$250,000

1.17.7 Data Availability

The following NWPO Yucca Mountain Socioeconomic Project document is relevant:

Service and Budget Factors: Technical Memorandum (FS0002)

A substantial amount of work has been conducted for the NWPO Yucca Mountain Socioeconomic Project in this area. This information should be verified with local officials. Methods of maintaining this data base need to be developed. Better definition of future needs will provide more accurate information for input into the fiscal assessment system. Every effort should be made to coordinate work conducted under this task with the State of Nevada.

1.18 Fiscal Working Group

The objective is to establish and support a working group on fiscal matters to develop an understanding of the fiscal conditions and opportunities within the dynamically growing area of southern Nevada.

1.18.1 Local Units of Government Involved

Center for Business and Economic Research - UNLV

1.18.2 Time Frame Required for Completion (Fiscal Year)

1990 - 1993

1.18.3 Relationship to Geographic Information System

The Geographic Information System can be used to support efforts of the fiscal working group by providing socioeconomic data aggregated to the jurisdiction level.

1.18.4 Major Tasks

Key fiscal persons in the State and local governments, the University of Nevada, and private groups will be identified for membership on the working group. Previous study efforts on fiscal matters, including the State of Nevada socioeconomic impact assessment and the study by the Urban Institute, will be evaluated by the working group. Recommendations from these studies on monitoring fiscal conditions and possible changes to the State's fiscal structure will be evaluated.

The state controlled revenue system does not respond to future needs due to a growth impact. Ways which the State system could be modified to respond to growth impacts will be evaluated. Revenue shortfalls due to lags in the revenue system will be quantified. Methods to increase Clark County School District's share of school revenues to reflect rapid growth conditions will be investigated.

Revenue flows generated during site characterization will be analyzed to determine their applicability to construction and operation of the Yucca Mountain Nuclear Waste Repository. Methods of influencing the future flow of revenue to local governments impacted by construction and operation of the project will be evaluated.

1.18.5 Expected Products

Recommended system improvements for rapid growth areas
Analysis of site characterization revenue flows

1.18.6 Estimated Cost

\$50,000

1.18.7 Data Availability

The Urban Institute study and the State of Nevada Yucca Mountain Socioeconomic Project documents contain a significant amount of information which should be utilized by the committee.

1.19 Fiscal Assessment Model

The objective is to implement the budget forecasting capabilities developed for the State of Nevada Socioeconomic Study in Clark County to meet the specific needs of Clark County. These needs include the capability of assessing the fiscal impacts of growth in unincorporated areas of the County such as Indian Springs and the specific problems of an urban area where many government entities share the costs of services and facilities for additional population.

1.19.1 Local Units of Government Involved

All

1.19.2 Time Frame Required for Completion (Fiscal Year)

1990 - 1993

To maintain the fiscal assessment system, annual revisions are required to reflect changes in budget priorities made by local governments as a result of their annual budget processes. When adequately developed, the fiscal assessment system can be used to support this annual process. Analysis of specific alternate scenarios of management changes, costs of future development, and other factors will be provided.

1990

The current fiscal assessment system developed by the State of Nevada socioeconomic program will be reviewed with local government officials to verify assumptions and results. Documentation of the system will be developed. Steps necessary to transfer the capability of utilizing the fiscal assessment system will be identified. A conceptual design of a more geographical based system utilizing the capability of the Geographic Information System will be developed.

1991

The fiscal assessment system will be updated to reflect current revenue and expenditure patterns. Preliminary results from other studies will be incorporated into the fiscal assessment system. Methods of assessing the impacts of the Yucca Mountain Nuclear Waste Repository will be developed. Fiscal impacts of site characterization activities will be analyzed. Transfer of system capabilities to local governments will continue. The design of the geographical based fiscal assessment system will be implemented.

1992

The fiscal assessment system will be updated to reflect current revenue and expenditure patterns. Results from other studies will be incorporated into the fiscal assessment system as they become available.

1993

The fiscal assessment system will be updated to reflect current revenue and expenditure patterns. Final results from other studies will be incorporated into the fiscal assessment system.

1.19.3 Relationship to Geographic Information System

The Geographic Information System will be used to report in tabular form the areas in southern Nevada projected to receive additional population growth. This information will be required for

budget projections by jurisdiction. It can also be used to aggregate economic and fiscal data by land use area.

1.19.4 Major Tasks

The fiscal impact assessment system will be modified to allow the assessment of fiscal impacts resulting from additional population in unincorporated areas of Clark County. A set of revenue projection models will be developed to provide the capability of assessing multi-year revenue projections for State and local governments.

Accurately predicting growth patterns in a large, urban area with many jurisdictions is difficult. Additional facilities and services required due to growth cannot be accurately assessed by jurisdiction for long planning horizons. The total cost of providing services and facilities for future population, however, can be estimated for the entire area. The fiscal impact assessment system will be modified to provide a composite budget forecast for all units of government within Clark County. This will provide total cost and revenue estimates for the Las Vegas urban area providing an accurate fiscal assessment within the urban area.

The possibility of a reduction in expected growth rates in Clark County due to risk aspects of the project will be analyzed to determine the impacts a reduction in growth rates would have on the amortization of capital facilities. The increased burden on the remaining population to retire debt will be evaluated for a reduced growth rate scenario.

The requirements of maintaining and operating the fiscal impact assessment system will be described. These requirements will be compared to existing capabilities of the County and other local governments. The costs of obtaining, operating and maintaining the system will be estimated. The model will be used to develop an assessment of the fiscal condition of local governments in Clark County.

Methods of providing projections of the fiscal impact by jurisdiction resulting from the Yucca Mountain Nuclear Waste Repository will be developed.

1.19.5 Expected Products

Projected costs and revenue of growth for unincorporated areas of Clark County
Accumulated budgets for all governments in Clark County
Requirements and estimated cost of obtaining, operating, and maintaining the fiscal impact assessment system
Site characterization fiscal impact assessment
Fiscal Assessment System

1.19.6 Estimated Cost

\$450,000

1.19.7 Data Availability

The following NWPO Yucca Mountain Socioeconomic Project documents are relevant:

Nevada Local Government Revenue Analysis (FS0004)

Nevada State Revenue Analysis (FS0003)

Summary of Background Fiscal Data and Analysis (FS0007)

A substantial amount of work has been conducted for the NWPO Yucca Mountain Socioeconomic Project on this task. The methodology used should be verified with local officials. Methods of maintaining this methodology need to be developed. Every effort should be made to coordinate work conducted under this task with the State of Nevada.

2 Private Sector Impacts

Goal

Impacts to the private sector from the characterization, construction, and operation of the Yucca Mountain Nuclear Waste Repository will be identified and evaluated. Strategies to reduce impacts and increase benefits to the private sector from the project will be developed.

2.1 Impact on Economic Development

The objective is to develop baseline information on the success of economic development and diversification efforts in Clark County. A monitoring system will be developed to allow assessment of how the business community and others in Las Vegas perceive the potential impact of nuclear risk of the proposed Yucca Mountain Nuclear Waste Repository on tourism and other industries.

2.1.1 Local Units of Government Involved

Center for Business and Economic Research - UNLV

2.1.2 Time Frame Required for Completion (Fiscal Year)

1993

2.1.3 Relationship to Geographic Information System

The Geographic Information System can be used to prepare geographical based information, including maps, statistics and other data for brochures and other information promoting Clark County.

2.1.4 Major Tasks

Organizations which will be requested to participate in this study include the Nevada Development Authority, the Las Vegas Convention Bureau, local Chambers of Commerce, local development

agencies, and other appropriate organizations. A monitoring system will be developed to allow assessment of how the business community and others in Las Vegas perceive the potential impact of nuclear risk of the proposed Yucca Mountain Nuclear Waste Repository on tourism and other industries. Based upon the results of the monitoring and analysis, strategies will be developed to counter the impact that risk has on tourism and economic development. A program will be developed to market the positive aspects of Las Vegas for tourism and business location to counter possible risk impacts.

The results of economic development efforts for the past five years will be analyzed to develop a baseline of reasons that firms recruited by Clark County economic development efforts did not choose Clark County as a location for their business. Reasons for not selecting Clark County will be categorized as nuclear related, other image related, and other. The impact of the image of nuclear risk on economic development activities will be summarized. Any stigma effect deriving from planning for the Yucca Mountain Nuclear Waste Repository will be documented and monitored.

2.1.5 Expected Products

Analysis of economic development efforts
Risk Impact Monitoring Program
Options for reducing risk related impacts

2.1.6 Estimated Cost

\$150,000

2.1.7 Data Availability

The following NWPO Yucca Mountain Socioeconomic Project documents are relevant:

Business Profile of Metropolitan Las Vegas (ED0007)

Current Target Industry Analysis (ED0008)

Results from the Corporate Decision-Makers Survey (RP0032)

2.2 Local Labor Analysis

The objective is to determine the availability of local labor for site characterization. Procedures will be developed to maximize use of the local labor force to reduce impacts caused by in-migration of temporary workers. Areas where demand for skilled local labor by the proposed Yucca Mountain Nuclear Waste Repository could result in a shortage of skilled workers for other projects in Clark County will be identified.

2.2.1 Local Units of Government Involved

Center for Business and Economic Research - UNLV

2.2.2 Time Frame Required for Completion (Fiscal Year)

1990

2.2.3 Relationship to Geographic Information System

None

2.2.4 Major Tasks

Labor requirements for site characterization of the proposed Yucca Mountain Nuclear Waste Repository by different crafts and skills will be identified. Employment and unemployment data from the Employment Security Division and labor unions will be analyzed to determine the availability of local labor by craft category. Procedures which will ensure the maximum utilization of local labor force will be evaluated for implementation.

Areas where demand for workers by the proposed Yucca Mountain Nuclear Waste Repository may create a shortage of skilled workers for other projects in Clark County will be identified. The potential shortages over time will be estimated by craft or skill. Methods of mitigating these shortages will be evaluated, including the implementation of training programs if warranted.

2.2.5 Expected Products

Site characterization labor requirements by craft
Local labor force availability
Procedures to maximize the utilization of local labor
Procedures to mitigate shortages of skilled labor

2.2.6 Estimated Cost

\$70,000

2.2.7 Data Availability

Employment and unemployment data is maintained by the Employment Security Division. Local labor unions also maintain similar data.

3 Economic Impacts

Goal

Economic impacts, including impacts on tourism and gaming, will be assessed in conjunction with the State of Nevada Socioeconomic Study. Strategies to reduce or mitigate project impacts will be developed.

3.1 Economic Linkages

The objective is to identify opportunities for economic development and diversification in Clark County which would reduce or mitigate project impacts.

3.1.1 Local Units of Government Involved

Center for Business and Economic Research - UNLV

3.1.2 Time Frame Required for Completion (Fiscal Year)

1991 - 1992

3.1.3 Relationship to Geographic Information System

The Geographic Information System can be used to display the location of existing industries by SIC code. Potential industrial sites can be analyzed along with transportation and utility corridors.

3.1.4 Major Tasks

An economic linkages study will be conducted on existing and future industries located in southern Nevada. Light manufacturing, processing and warehousing activities which will be required in the future will be identified.

3.1.5 Expected Products

Economic linkages report on industries in southern Nevada
Economic development opportunities
Targeted industries

3.1.6 Estimated Cost

\$200,000

3.1.7 Data Availability

The following NWPO Yucca Mountain Socioeconomic Project documents are relevant:

Business Profile of Metropolitan Las Vegas (ED0007)

Current Target Industry Analysis (ED0008)

3.2 Risk Mitigation

The handling, transportation and storage of high-level nuclear waste materials presents the risk of release of radiological materials to the environment. Operation of the proposed Yucca Mountain Nuclear Waste Repository will result in some of these risks being imposed on Clark County. Although experts may disagree on the level of these risks, the public perception of this risk may have adverse impacts on the economy of Clark County through reduction in tourism and economic development. The objective is to determine if potential negative impacts to the economy resulting from risk impacts, real and perceived, can be reduced through a positive action program.

3.2.1 Local Units of Government Involved

Center for Business and Economic Research - UNLV

3.2.2 Time Frame Required for Completion (Fiscal Year)

1993

3.2.3 Relationship to Geographic Information System

The Geographic Information System can be used to display potential transportation corridors and providers of emergency services. It can also be used to analyze potential land use and environmental conflicts along transportation corridors.

3.2.4 Major Tasks

A survey of officials with economic responsibilities and economic development planners in Clark County will be conducted to determine the degree to which they believe the proposed Yucca Mountain Nuclear Waste Repository will cause economic impacts on Clark County. The degree of risk to the economy of Clark County will be quantified. Methods of reducing economic risk effects will be identified. The feasibility and costs of implementing these methods will be determined. Whether or not risk impacts on the economy can be reduced through programs to ensure safe transportation and storage will be investigated.

3.2.5 Expected Products

Feasibility and costs of methods of reducing economic risk impacts

3.2.6 Estimated Cost

\$50,000

3.2.7 Data Availability

The following NWPO Yucca Mountain Socioeconomic Project documents are relevant:

Results from the Corporate Decision-Makers Survey (RP00032)

Risk Perception, Risk-Induced Behavior, and Potential Adverse Economic Impacts from a Repository at Yucca Mountain, Nevada (RP0001)

Perceived Risk, Stigma, and Potential Economic Impacts of a High-level Nuclear Waste Repository in Nevada (RP0056)

3.3 Economic Base Analysis

The objective is to develop a more thorough understanding of the economic base of Clark County for use in the economic-demographic model, and economic development.

3.3.1 Local Units of Government Involved

Center for Business and Economic Research - UNLV

3.3.2 Time Frame Required for Completion (Fiscal Year)

1991 - 1992

3.3.3 Relationship to Geographic Information System

The location of businesses by SIC code, employee data, and other variables can be analyzed and aggregated by geographic area using the Geographic Information System.

3.3.4 Major Tasks

The Employment Security Department data file will be obtained and analyzed. A list of firms and their employment statistics by SIC code, address, zip code will be developed.

Firms in Clark County will be surveyed to obtain basic information on each business location. Information solicited will include SIC code of the business, the characteristic of the business, the type of business, location (rural vrs. urban), number of employees (full time, part time and seasonal), residency of employees, inputs, products produced or services provided, source of input materials, market for products, and type and quantity of hazardous materials stored on site.

Results of the survey will be entered into a data base for analysis. The SIC codes for the businesses will be compared to the information obtained for the businesses to determine if the SIC codes adequately describe the type of businesses conducted in Clark County. Additional methods of classifying businesses will be developed if necessary. Data on employee residency versus place of work will be developed for traffic generation studies. Firms will be classified as basic or non-basic. Relationships between markets and sources of supplies for firms within the county will be

analyzed. Firms which store hazardous materials on-site will be identified for emergency response purposes.

3.3.5 Expected Products

Economic base analysis of Clark County
Basic to non-basic ratios
Hazardous materials storage locations
Employment by residency

3.3.6 Estimated Cost

\$150,000

3.3.7 Data Availability

The Geographic Information System data base includes commercial uses by location. More information is available specifically for casinos. Locations of major hazardous materials sites have been identified through work conducted under SARA Title III.

A substantial amount of work has been conducted for the NWPO Yucca Mountain Socioeconomic Project on the economic base of Clark County. All of this work has not yet been documented. Every effort should be made to coordinate work conducted under this task with the State of Nevada.

4 Transportation Impacts

Goal

Rapid growth is placing significant demands on the transportation system in Clark County. To accurately plan for the impact associated with the shipments of nuclear waste through the Las Vegas Valley, the comprehensive, coordinated and continuing transportation planning process must be followed. To support this process, all data, special studies, and monitoring efforts should be integrated with the current planning process. Specifically, a special Regional Transportation Plan must be developed to provide a sound basis for the assessment of impacts of the Yucca Mountain Nuclear Waste Repository.

A complete understanding of the future transportation system in Clark County is essential for accurate socioeconomic impact projections. Transportation infrastructure improvements will influence growth patterns in the future in the urban area. An accurate assessment of the cost of constructing and maintaining the transportation system is essential for accurate fiscal impact assessments. Local routing decisions and emergency response requirements cannot be determined without a complete understanding of the future transportation system.

4.1 Urban Area Transportation Planning Organizational Study

The objective is to evaluate the nuclear waste planning process and determine areas where coordination will be required to meet the Regional Transportation Commission's legal obligations in ensuring a comprehensive, coordinated and continuing transportation process as mandated by the *Cooperative Agreement Providing for Regional Transportation Planning*.

4.1.1 Local Units of Government Involved

Regional Transportation Commission
Transportation Research Center
Comprehensive Planning

4.1.2 Time Frame Required for Completion (Fiscal Year)

1990

4.1.3 Relationship to Geographic Information System

The Geographic Information System can be used to display jurisdictional boundaries of local governments participating in the Regional Transportation Commission.

4.1.4 Major Tasks

Key organizations participating in transportation planning in Clark County will be identified. Funding sources, amount of funding, and restrictions on the use of funds will be determined for the organizations identified.

State and federal requirements for transportation planning will be identified. The requirements of the Regional Transportation Commission agreement will be described. Mandated planning processes which must be followed will be described.

Local government planning processes, such as land use planning, which affect transportation planning will be identified and described. Methods of integrating transportation planning with other planning processes will be evaluated.

Existing planning organizations will be identified and their respective enabling statutes reviewed. The existing transportation planning system will be described and evaluated. Alternatives to existing functions will be formulated relative to better regional coordination for nuclear waste planning. A proposed structure will then be offered which identifies functional and managerial responsibilities for nuclear waste planning. A management and monitoring plan will be developed for the implementation of the Baseline Facilities Inventory, the Needs Assessment, and the Regional Transportation Plan.

4.1.5 Expected Products

Recommended organization for planning related to the Yucca Mountain Nuclear Waste Repository

4.1.6 Estimated Cost

\$100,000

4.1.7 Data Availability

No data sources have been identified for this task.

4.2 Transportation Assessment System Development

The objective is to develop a basic system to provide assessment of the transportation needs for both the baseline conditions in Clark County and for assessment of the impacts of the Yucca Mountain Nuclear Waste Repository in the future.

4.2.1 Local Units of Government Involved

**Regional Transportation Commission
Transportation Research Center**

4.2.2 Time Frame Required for Completion (Fiscal Year)

1990

4.2.3 Relationship to Geographic Information System

The Geographic Information System can be used as the data base for the assessment system.

4.2.4 Major Tasks

A transportation systems data base will be developed. Items to include in the data base will be identified. Existing sources of data will be identified and the quality of the data will be evaluated. Data needs will be described. Available data will be collected and incorporated into the data base system. The Tranplan model will be calibrated for Clark County.

4.2.5 Expected Products

Transportation systems data base
Calibrated Tranplan Model

4.2.6 Estimated Cost

\$200,000

4.2.7 Data Availability

No existing data sources have been identified for this task.

4.3 Urban Transportation Baseline Facilities Inventory

The objective is to develop an inventory of baseline transportation facilities and the maintenance costs for those facilities.

4.3.1 Local Units of Government Involved

Regional Transportation Commission
Transportation Research Center

4.3.2 Time Frame Required for Completion (Fiscal Year)

1990 -1991

4.3.3 Relationship to Geographic Information System

Trends in traffic flows on major arterials throughout the valley can be analyzed with the Geographic Information System. The U.S. 95 corridor, traffic volumes, and trip generation activities can be analyzed using the Geographic Information System. Infrastructure maintenance information can be maintained with the Geographic Information System. Data on the condition of streets, arterials, and freeways can be linked to specific reference points for retrieval. Planned maintenance schedules can be prepared and displayed on maps or tabular reports by milepost or other appropriate reference point.

4.3.4 Major Tasks

A transportation surveillance system will be developed to provide comprehensive data base for analyzing trends in traffic flows on major arterials throughout the valley. The surveillance program will be used to verify the results of the transportation modelling process as well as to provide the basis for monitoring changes in travel patterns that might influence the choice of routes for nuclear waste shipments.

Traffic on the U.S. 95 corridor will be analyzed to determine traffic volumes, trip generation, location of residential areas contributing to traffic volumes and other related aspects. Level of service ratings for current and future traffic levels will be determined. Impacts on travel time due to reduction in levels of service will be determined for various residential areas.

An inventory of existing transportation infrastructure will be completed. Maintenance costs for infrastructure will be developed. Local governments will be surveyed to determine existing pavement management capabilities. Streets to include in a pavement management study will be selected. Non-destructive testing of selected streets will be conducted to obtain data on existing pavement conditions. A pavement management plan will be completed based upon pavement data. The estimated cost of continuing street maintenance and deferred maintenance will be developed for input into the fiscal assessment system. Inventory work will also include information on infrastructure such as pipelines carrying hazardous or flammable materials, electrical transmission lines, and fixed facilities handling hazardous materials where these could interact with potential nuclear waste transportation highway and rail routes.

4.3.5 Expected Products

**Transportation surveillance system
Traffic study for U.S. 95
Transportation infrastructure inventory
Transportation infrastructure maintenance costs**

4.3.6 Estimated Cost

These tasks will be funded from a variety of sources. The contribution of the Clark County Nuclear Waste Program will be determined based upon the availability of funds and funding needed to complete the task. For planning purposes, the total cost is estimated at \$1,000,000 with an estimated cost of \$50,000 to the Clark County Nuclear Waste Program for tasks necessary to develop a system capable of assessing the impacts of the Yucca Mountain Nuclear Waste Repository.

4.3.7 Data Availability

The University of Nevada – Reno is conducting a transportation study on US 95. This study will include information on pavement condition, traffic volumes and accident locations.

4.4 Urban Transportation Facilities Needs Assessment

The objective is to monitor and describe committed changes to the future transportation system in Clark County.

4.4.1 Local Units of Government Involved

**Regional Transportation Commission
Transportation Research Center**

4.4.2 Time Frame Required for Completion (Fiscal Year)

1991 - 1992

4.4.3 Relationship to Geographic Information System

The Geographic Information System will be used to maintain and update information relative to the location of existing conditions (both operational and infrastructure) and projected requirements.

4.4.4 Major Tasks

Necessary improvements to the transportation system will be profiled and mapped. Source materials for this information will include specialized studies which document the location and design of future infrastructure improvements. The normal transportation feasibility and design studies will be augmented as necessary to ensure that potential transportation impacts of the Yucca Mountain Nuclear Waste Repository are considered. The estimated cost of infrastructure improvements and additions will be provided for input into the baseline fiscal assessment model. A monitoring system will be developed to provide updated information on the transportation system for the population modeling system and the fiscal assessment system.

4.4.5 Expected Products

Transportation Infrastructure Improvements Plan
Estimated Cost of Infrastructure Improvements

4.4.6 Estimated Cost

These tasks will be funded from a variety of sources. The contribution of the Clark County Nuclear Waste Program will be determined based upon the availability of funds and funding needed to complete the task. For planning purposes, the total cost is estimated at \$3,000,000 with an estimated cost of \$100,000 to the Clark County Nuclear Waste Program for tasks necessary to develop a system capable of assessing the impacts of the Yucca Mountain Nuclear Waste Repository.

4.4.7 Data Availability

The following NWPO Yucca Mountain Socioeconomic Project document is relevant:

Report on the Development of Transportation Corridors in the Las Vegas Valley Urban Area
(SC0006)

4.5 Emergency Response Baseline Inventory and Planning

The objective is to develop a detailed inventory of the characteristics of emergency response organizations and responder teams. Appropriate emergency response planning will be completed using this information.

4.5.1 Local Units of Government Involved

Transportation Research Center

4.5.2 Time Frame Required for Completion (Fiscal Year)

1990 - 1991

4.5.3 Relationship to Geographic Information System

The location of emergency response resources can be displayed using the Geographic Information System. Response times and optimum routing analysis can be performed based upon different scenarios.

4.5.4 Major Tasks

Existing computer software programs designed for managing emergency response activities will be identified. The capabilities, limitations and requirements of each program will be identified. Users of programs will be contacted to determine their level of satisfaction and problems with the systems. The feasibility of implementing preferred systems in Clark County will be assessed. The specific requirements for implementing selected programs in Clark County will be identified. The expected benefits from implementation of a program will be described. Integration of commercial software

products with the Geographic Information System will be evaluated. The estimated cost of implementation will be provided.

The feasibility of using nuclear power plant emergency response plans as an example for development of a local emergency response plan for radiological incidents will be assessed. Radiological and hazardous materials emergency response plans for transportation accidents developed by other states and communities will be evaluated for examples of emergency response guidelines and checklists.

Emergency response agencies will be surveyed to determine the availability of existing hazardous and radiological materials response equipment. An inventory of the type, condition, and location of existing equipment will be developed. Existing maintenance and calibration schedules will be documented. An inventory of capital facilities for emergency response agencies will be compiled.

Emergency response agencies will be surveyed to determine existing radiological materials training programs used for emergency responders. The adequacy of existing training will be assessed. Training requirements for each agency will be established. Estimated costs of training, including man hours spent in training, will be developed.

The lifting equipment needs to respond to an accident involving both truck and rail casks will be determined. Availability of appropriate lifting equipment in the area will be determined. The location of lifting equipment will be inventoried.

Low-level radiological materials, transuranic materials, and hazardous materials emergency response needs will be identified for incorporation into the emergency response planning process.

A local government emergency response plan for hazardous and radiological materials transportation accidents will be developed. A plan for coordinating the response of local agencies with that of State of Nevada and Federal agencies will be included in the emergency response plan. A maintenance and calibration schedule for radiological response equipment will be developed.

Based upon the local emergency response plan, the requirements for emergency response training, planning, and equipment will be established. The estimated cost of implementing the plan will be developed.

4.5.5 Expected Products

**Radiological materials emergency response plan
Equipment and training needs
Estimated cost of implementing emergency response plan
Evaluation of emergency response management systems**

4.5.6 Estimated Cost

\$300,000

4.5.7 Data Availability

A substantial amount of work has been conducted by the State of Nevada in this area. Every effort should be made to coordinate work conducted under this task with the State of Nevada.

4.6 Hazardous Materials Transportation Plan

The objective is to develop a hazardous materials transportation plan for Clark County which includes consideration of transportation of radiological materials.

4.6.1 Local Units of Government Involved

**Regional Transportation Commission
Transportation Research Center**

4.6.2 Time Frame Required for Completion (Fiscal Year)

1990 - 1993

4.6.3 Relationship to Geographic Information System

The transportation network can be displayed with the Geographic Information System. Existing and proposed hazardous materials routes can be analyzed with the Geographic Information System. Population density and traffic volumes along proposed routes can be analyzed with the Geographic Information System. Existing land use that conflicts with transportation of hazardous materials can be analyzed for appropriate buffer distances for avoidance areas. The potential locations of parking areas, service facilities, and other facilities can be identified through the Geographic Information System. The effect on the number of shipments of alternative locations of a MRS facility can be analyzed with the Geographic Information System.

4.6.4 Major Tasks

Current County ordinances for industrial and manufacturing districts M-D, M-1, M-2, and M-3 zoning designations will be evaluated to determine the existing land use regulation of hazardous and radiological materials. Amendments to the existing ordinance will be recommended as appropriate.

A risk analysis of existing hazardous materials transportation will be conducted for a baseline. Existing hazardous materials transportation ordinances and routes will be analyzed for uniformity and consistency, and to identify needed modifications. Federal and State requirements for the local regulation of the transportation of hazardous materials will be evaluated. Regional, uniform and consistent hazardous materials transportation ordinances will be developed for consideration. A radiological materials transportation fee system will be developed for local governments to support emergency response needs.

The regulatory requirements regarding access to prenotification information by local governments will be evaluated. Access by local governments to the information available from TRANSCOM will be determined. The types of information available from the TRANSCOM nuclear waste transportation monitoring system will be summarized. Local governments and their emergency response agencies will be requested to identify the type of information and frequency which they would like to receive. Methods of providing this information to local governments will be investigated.

The Department of Energy data base on location of high-level nuclear waste will be entered into the Geographic Information System. Alternative locations of a MRS facility under consideration will also be entered into the Geographic Information System. The timing and volume of shipments with different MRS locations will be analyzed to determine the impact of alternatives on Clark County.

When appropriate, transportation routes for radiological shipments will be identified. Existing and future land uses that should be avoided, such as existing and future schools, will be identified for avoidance areas. The need for restrictions along identified routes will be evaluated. Necessary improvements to routes will be assessed, and the estimated cost of required improvements will be developed for input into the fiscal assessment system.

Locations of "safe havens", or secure parking areas for hazardous materials shipments for service, maintenance, inspection, and rest for drivers will be identified. Local agency escort points, if required, will also be identified. Available parking areas will be assessed to determine improvements needed. Costs of improvements to existing parking areas and for development of new sites will be estimated. Hazardous materials transportation routes, radiological materials transportation routes and parking areas will be incorporated into the Geographic Information System.

4.6.5 Expected Products

- Shipment volume estimating system
- Method of obtaining information from the TRANSCOM system
- Description of information available from TRANSCOM
- Hazardous materials transportation baseline analysis
- Hazardous materials transportation ordinances
- Radiological materials transportation fee system
- Transportation routes for radiological materials
- Avoidance areas for radiological materials transportation
- "Safe havens" or secure parking areas
- Estimated costs of improvements to transportation system

4.6.6 Estimated Cost

These tasks will be funded from a variety of sources. The contribution of the Clark County Nuclear Waste Program will be determined based upon the availability of funds and funding needed to complete the task. For planning purposes, the total cost is estimated at \$500,000 with an estimated cost of \$300,000 to the Clark County Nuclear Waste Program.

4.6.7 Data Availability

The following NWPO document is relevant:

The United States Department of Transportation Inconsistency Rulings prepared by Florence J. Phillips for the Nevada Agency for Nuclear Projects.

4.7 Regional Transportation Plan

The objective is to participate in the update of the Clark county Regional Transportation Plan. The work effort will identify short and long range transportation requirements for Clark County. Because of the special nature and needs of nuclear waste shipments, the Regional Transportation Plan's Scope will have to include both baseline needs as well as special requirements associated with nuclear waste movements. The special studies task will serve as a guide for identifying those needs as they pertain to capital improvements needed to meet the needs of nuclear waste shipments.

4.7.1 Local Units of Government Involved

Regional Transportation Commission
Transportation Research Center

4.7.2 Time Frame Required for Completion (Fiscal Year)

1993

4.7.3 Relationship to Geographic Information System

The Geographic Information System can be used to support all aspects of the development of a comprehensive transportation plan.

4.7.4 Major Tasks

A Regional Transportation Plan will be developed that defines both the existing and committed transportation system based upon the work completed as a result of the planning process. The Regional Transportation Plan will be developed and adopted in conformity with the State, federal, and local transportation planning requirements.

4.7.5 Expected Products

Regional Transportation Plan

4.7.6 Estimated Cost

These tasks will be funded from a variety of sources. The contribution of the Clark County Nuclear Waste Program will be determined based upon the availability of funds and funding needed to complete the task. For planning purposes, the total cost is estimated at \$175,000 with an estimated cost of \$25,000 to the Clark County Nuclear Waste Program.

4.7.7 Data Availability

No existing data sources were identified for this task.

4.8 Rail line and rail yard Locations

The objective is to assess the impact of alternative rail line and rail yard locations on transportation systems, including routes for shipments of high-level nuclear waste.

4.8.1 Local Units of Government Involved

Transportation Research Center

4.8.2 Time Frame Required for Completion (Fiscal Year)

1990 - 1993

4.8.3 Relationship to Geographic Information System

Existing and alternative locations of railroads, yards and switches can be mapped using the Geographic Information System. Alternative routes to the Yucca Mountain Nuclear Waste Repository can be mapped.

4.8.4 Major Tasks

An inventory will be compiled of baseline information on the Union Pacific rail line physical infrastructure, including track bed and rail conditions, signals, traffic volumes, accident rates, and other factors. Information on specific rail and highway accidents and incidents will be collected and evaluated.

Existing rail lines and potential new rail spurs will be evaluated in relation to other potential hazardous and radiological materials transportation routes in Clark County.

Existing rail shipments through the area will be analyzed to determine the volume, frequency, and types of materials shipped. Future traffic volumes will be estimated, including proposed shipments to the Yucca Mountain Nuclear Waste Repository. The impact on transportation systems and emergency response requirements of various rail line and rail yard locations and routes to the repository will be assessed.

4.8.5 Expected Products

Data on existing and future rail shipments of hazardous materials
Impact assessment of rail line and yard locations

4.8.6 Estimated Cost

\$200,000

4.8.7 Data Availability

No existing data sources were identified for this task.

5 Other Community Impacts

Goal

Baseline information gathering, research and program development will be conducted for other community impact areas.

5.1 Community Development Financing

In the *Section 175 Report*, the Department of Energy predicted that employees working at the Yucca Mountain Nuclear Waste Repository during site characterization are likely to exhibit similar residency patterns. Impact areas identified by the Department of Energy included education, public health (water and sewer), law enforcement, fire protection, cultural and recreation, and social services. Community leaders in Indian Springs have identified the difficulty in obtaining financing as a major impediment to additional development in the community. Therefore, a plan to finance community infrastructure and housing additions in rural areas of Clark County, particularly Indian Springs will be developed.

5.1.1 Local Units of Government Involved

Clark County

5.1.2 Time Frame Required for Completion (Fiscal Year)

1991

5.1.3 Relationship to Geographic Information System

Community development plans can be displayed using the Geographic Information System.

5.1.4 Major Tasks

Alternative methods of financing community development activities in Indian Springs will be evaluated. A package describing the community development plan and demand for housing will be developed for submittal to lending institutions in support of loan applications. Methods which the Department of Energy could take to help developers obtain financing for developments required as a result of site characterization will be investigated. Alternatives investigated will include loan guarantees of construction loans or guarantees to pay the rent on vacant mobil home or recreational vehicle spaces.

5.1.5 Expected Products

Alternative financing plans for community development
Community development profile

5.1.6 Estimated Cost

\$80,000

5.1.7 Data Availability

No existing data sources were identified for this task.

6 Other Impacts

Goal

Baseline information gathering, research and program development will be conducted in areas not addressed by other sections of this work plan.

6.1 Mitigation Plan for Site Characterization Impacts

The objective is to conduct the necessary intergovernmental planning required for assessment and mitigation of impacts resulting from site characterization of the Yucca Mountain Nuclear Waste Repository.

6.1.1 Local Units of Government Involved

All

6.1.2 Time Frame Required for Completion (Fiscal Year)

1990 - 1991

6.1.3 Relationship to Geographic Information System

The Geographic Information System can be used to support the planning process.

6.1.4 Major Tasks

Effective intergovernmental planning processes will be used for impact assessments, mitigation planning, and implementation of mitigation programs. Participants in the planning process will include officials and agency personnel from local governments, the State of Nevada, and appropriate federal agencies.

6.1.5 Expected Products

Impact assessment and mitigation plans for site characterization

6.1.6 Estimated Cost

\$80,000

6.1.7 Data Availability

The following NWPO Yucca Mountain Socioeconomic Project document is relevant:

Impact Management and Mitigation Program (IM0001)

6.2 Monitoring

The objective is to monitor the Yucca Mountain Nuclear Waste Repository project and the Department of Energy.

6.2.1 Local Units of Government Involved

All

6.2.2 Time Frame Required for Completion (Fiscal Year)

1990 - 1993

6.2.3 Relationship to Geographic Information System

Project information can be entered into the Geographic Information System.

6.2.4 Major Tasks

The source and type of data pertaining to the Department of Energy's operations in Nevada will be evaluated to identify data appropriate for input into a project monitoring system. A program

for the Department of Energy to provide periodic monitoring data to State and local governments will be developed for consideration by the Department of Energy. Specifications for input of data into the Geographic Information System will be developed.

Information on the Yucca Mountain Nuclear Waste Repository will be reviewed as it becomes available from the Department of Energy, the State of Nevada, and other sources. Summaries of pertinent information will be prepared. Requirements of the Department of Energy under the Nuclear Waste Policy Act, as amended, will be described. The Department of Energy will be monitored to ensure compliance with these provisions. Monitoring tasks will be coordinated with the State of Nevada to avoid duplication of effort and to provide for the sharing of information.

Key assumptions effecting socioeconomic impacts in the project description prepared by the Department of Energy will be described. Discussions will be held with Department of Energy personnel to obtain better data for these key assumptions. Project management alternatives to influence project impacts will be discussed with the appropriate Department of Energy officials.

6.2.5 Expected Products

Project Monitoring System

Yucca Mountain Nuclear Waste Repository Project Description

Department of Energy's responsibilities under the NWPA, as amended

Monitoring reports on DOE's progress in meeting responsibilities

6.2.6 Estimated Cost

\$180,000

6.2.7 Data Availability

The following NWPO Yucca Mountain Socioeconomic Project document is relevant:

Preliminary List of Factors for Site Characterization Monitoring (MM0001)

Project Description (Appendix A.1.0) (PD0001)

6.3 NTS Employment Analysis

The objective is to analyze employee data obtained from the survey of Nevada Test Site employees for information related to Clark County. Through further analysis of residency location of employees and community characteristics, the choice of residency of the Department of Energy's employees can be predicted with greater accuracy.

6.3.1 Local Units of Government Involved

Center for Business and Economic Research - UNLV

6.3.2 Time Frame Required for Completion (Fiscal Year)

1990

6.3.3 Relationship to Geographic Information System

The Geographic Information System can be used to analyze characteristics of employee residency by type of employment and community characteristics.

6.3.4 Major Tasks

The analysis of the Nevada Test Survey data will be reviewed to determine additional analysis required. The Nevada Test Site survey information will be further analyzed. Project management policies by employers will be compared to their employee residency patterns to determine correlations between policies and residency patterns. Characteristics of communities where Nevada Test Site workers reside will be developed. Housing availability, quality and type of housing, schools, parks, visual impression, and other community characteristics will be inventoried. Correlations between residency locations and community characteristics will be developed. Changes in community characteristics which would result in capture of additional workers will be identified. The residency location of workers by type of employment will be analyzed and compared to the type of workers expected for the Yucca Mountain Nuclear Waste Repository. The analysis will be conducted in cooperation with the State of Nevada and the Department of Energy.

6.3.5 Expected Products

Community characteristics
Analysis of worker residency choices
Community development objectives

6.3.6 Estimated Cost

\$120,000

6.3.7 Data Availability

The following NWPO Yucca Mountain Socioeconomic Project document is relevant:

NTS Employee Questionnaire: Data Coding and Summary Tabulation (PD0005)

An initial analysis of the NTS Survey data has been performed as part of the State of Nevada socioeconomic study.

6.4 Research Capability Development

The objective is to identify develop additional technical capabilities at the University of Nevada – Las Vegas which will be required to meet the research needs of the State of Nevada and Clark County.

6.4.1 Local Units of Government Involved

Center for Business and Economic Research - UNLV

6.4.2 Time Frame Required for Completion (Fiscal Year)

1991

6.4.3 Relationship to Geographic Information System

An inventory of available digital data can be provided to the Center for Business and Economic Research to supplement findings regarding research and information requirements.

6.4.4 Major Tasks

The research needs of Clark County and the State of Nevada resulting from the Yucca Mountain Nuclear Waste Repository and alternatives for nuclear waste disposal will be identified through a literature search and discussions with Department of Energy personnel, MRS Commission personnel, the Nuclear Waste Technical Advisory personnel, and other identified experts. Technical programs needed to achieve those research needs will be described. The estimated cost and funding sources for programs which could be established at UNLV to meet identified research needs will be developed.

6.4.5 Expected Products

Research needs for Clark County and the State of Nevada
Description of technical programs
Cost of programs and possible funding sources

6.4.6 Estimated Cost

\$60,000

6.4.7 Data Availability

The following NWPO Yucca Mountain Socioeconomic Project documents are relevant:

Linkages to Project Description (Appendix A.3.1) and Employment/Local Economy (Appendix A.3.2) (ED0001)

6.5 Media Information Program

The objective is to develop a media plan and materials to ensure accurate information is provided to the public in the event of an incident involving the proposed Yucca Mountain Nuclear Waste Repository.

6.5.1 Local Units of Government Involved

All

6.5.2 Time Frame Required for Completion (Fiscal Year)

1990 - 1993

6.5.3 Relationship to Geographic Information System

The Geographic Information System can be used to prepare maps, reports and other graphics supporting the public education program.

6.5.4 Major Tasks

Representatives of local news media play a significant role in providing information to the public during an incident receiving national attention. The accuracy of the coverage by the local media and the manner in which the local media present information can have a significant impact on the public perception of an area. A media plan will be developed for local and national news reporters. Educational materials will be prepared which will allow the presentation of accurate and unbiased background information during an incident. Materials will be designed to show the steps which Clark County and the State of Nevada are taking to ensure an adequate response capability to a transportation accident in Clark County.

A specific public information plan will be developed for use if an incident occurs. Standard briefing materials, both printed and video, on radiological materials, cask design, and other aspects will be prepared. A public relations plan will be developed for an incident outside of the immediate area to reduce stigma effect of an accident if the incident becomes linked to southern Nevada through

association with the Yucca Mountain Nuclear Waste Repository. Work under this task will be coordinated with the State of Nevada.

6.5.5 Expected Products

Media educational materials
Public information program for an incident

6.5.6 Estimated Cost

\$150,000

6.5.7 Data Availability

No existing data sources have been identified for this task.

6.6 Public Information Program

The objective is to keep local governmental officials and personnel, and the general public informed about the Clark County Nuclear Waste Repository Program, the Yucca Mountain Nuclear Waste Repository, and its impacts on Clark County.

6.6.1 Local Units of Government Involved

Clark County

6.6.2 Time Frame Required for Completion (Fiscal Year)

1990 - 1993

6.6.3 Relationship to Geographic Information System

The Geographic Information System can be used to prepare maps and other informational materials.

6.6.4 Major Tasks

Local government officials and personnel with a need for information on issues related to the Yucca Mountain Nuclear Waste Repository will be identified. A mailing list of local organizations, media personnel, and citizens will be developed and maintained.

A periodic newsletter will be prepared to describe the status of the Yucca Mountain Nuclear Waste Repository, the Clark County Nuclear Waste Repository Program, and other issues related to the project. Documents issued by the Department of Energy, the State of Nevada, and others will be reviewed and summarized for inclusion in the newsletter. Congressional activity, State legislative matters, permitting, licensing, and other activities will be monitored and reported. Progress under the Clark County Nuclear Waste Repository Program will be described. Fact sheets describing the Yucca Mountain Nuclear Waste Repository, the Clark County Nuclear Waste Repository Program, and other issues will be prepared and distributed. Fact sheets will be updated as required. Periodic press releases to the local media and national media will be prepared as appropriate. Work under this task will be coordinated with the State of Nevada.

6.6.5 Expected Products

Data base of officials and personnel who need information on the Yucca Mountain Nuclear Waste Repository

Newsletter

Fact Sheets

Press releases

Public education program

6.6.6 Estimated Cost

\$320,000

6.6.7 Data Availability

The State of Nevada Nuclear Waste Policy Office and the Department of Energy have prepared fact sheets on the proposed Yucca Mountain Nuclear Waste Repository. This information should be reviewed to determine its applicability to the Clark County Nuclear Waste Repository Program.

6.7 Legal Issues

The objective is to ensure that local government officials are informed regarding legal issues related to the Yucca Mountain Nuclear Waste Repository and radiological materials transportation.

6.7.1 Local Units of Government Involved

All

6.7.2 Time Frame Required for Completion (Fiscal Year)

1990 - 1993

6.7.3 Relationship to Geographic Information System

None

6.7.4 Major Tasks

Insurance coverage and liability issues for local governments will be investigated. The coverage of the Price-Anderson Act, as amended, will be described in terms of response requirements of local governments. Insurance coverage limitations for local government contractors working on radiological materials issues will be investigated. Workers' Compensation coverage for persons responding to a radiological materials transportation accident will be described.

Local governments' legal staff personnel who need to receive training regarding Department of Transportation Regulations and the Nuclear Waste Policy Act will be identified. Training requirements for legal staff will be developed. Periodic workshops on legal issues associated with

the Yucca Mountain Nuclear Waste Repository will be held for selected local government legal staff personnel.

6.7.5 Expected Products

Report on liability coverage for local governments

Report on insurance limitations

Report on Workers' Compensation coverage

Training requirements for legal staff

Legal Staff workshops

6.7.6 Estimated Cost

\$170,000

6.7.7 Data Availability

The following NWPO document is relevant:

The United States Department of Transportation Inconsistency Rulings prepared by Florence J. Phillips for the Nevada Agency for Nuclear Projects.

6.8 WIPP Shipment Impact Analysis

The objective is to identify needs created by the proposed shipments to the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico. Needs caused by the Yucca Mountain Nuclear Waste Repository can then be compared to the needs caused by the WIPP shipments to determine the most effective means of responding to the combined needs.

6.8.1 Local Units of Government Involved

All

6.8.2 Time Frame Required for Completion (Fiscal Year)

1992

6.8.3 Relationship to Geographic Information System

The Geographic Information System can be used to inventory and report on existing equipment available to respond to an accident involving a WIPP shipment. Routes for WIPP shipments can be evaluated and planned with analytical support from the Geographic Information System.

6.8.4 Major Tasks

The impact of the proposed WIPP shipments on local government response requirements will be assessed. Equipment and communication needs will be identified. The estimated cost of obtaining and maintaining an adequate emergency response capability for WIPP shipments will be developed. These needs will be compared to the needs caused by the Yucca Mountain Nuclear Waste Repository to determine the most effective means for responding to the combined needs.

6.8.5 Expected Products

Impact assessment of WIPP shipments

6.8.6 Estimated Cost

\$80,000

6.8.7 Data Availability

On-going planning by the Western Interstate Energy Board High-level Waste Committee and the Western Governors' Association Task Force on the Transportation of Transuranic Materials should be periodically reviewed. Both of these committees will be producing relevant reports in the future.

6.9 Mitigation Planning Case Studies

The objective is to identify lessons learned from the development of the Waste Isolation Pilot Plant and other similar federally sponsored projects.

6.9.1 Local Units of Government Involved

Clark County

6.9.2 Time Frame Required for Completion (Fiscal Year)

1990

6.9.3 Relationship to Geographic Information System

None

6.9.4 Major Tasks

Federal projects to be analyzed will be selected. A case study for each selected project, including the Waste Isolation Pilot Plant, will be prepared. Issues evaluated will include the impact of bypasses on tourism, development of mitigation programs, and the implementation of agreed upon mitigation.

6.9.5 Expected Products

Federal Project Case Studies

6.9.6 Estimated Cost

\$30,000

6.9.7 Data Availability

The following NWPO Yucca Mountain Socioeconomic Project documents are relevant:

New Mexico's Waste Isolation Pilot Project (WIPP: A Historical Overview (RP0016)

The U.S. Department of Energy's Attempt to Site the Monitored Retrievable Storage Facility (MRS) in Tennessee (RP0017)

6.10 Nellis Air Force Base

The objective is to determine the economic impact that Nellis Air Force Base has on Clark County.

6.10.1 Local Units of Government Involved

Center for Business and Economic Research - UNLV

6.10.2 Time Frame Required for Completion (Fiscal Year)

1990

6.10.3 Relationship to Geographic Information System

The Geographic Information system can be used to support analysis of the residency patterns of Nellis Air Force Base personnel and their commuting patterns, the location of purchases made by Nellis, and other factors.

6.10.4 Major Tasks

Work completed for the State of Nevada Socioeconomic study will be reviewed to determine the level of information currently available. Work products on Nellis Air Force Base currently being prepared by the Air Force for their State of Nevada economic impact assessment will be reviewed. Additional information requirements to assess the economic impact of Nellis AFB on Clark County will be identified.

An employment residency analysis for employees of Nellis Air Force Base will be conducted. The REMI population model will be utilized to identify the population currently associated with Nellis Air Force Base. Alternative future scenarios for Nellis Air Force Base will be analyzed to assess the range of possible future effects. Fiscal impacts of each alternative will be assessed using the fiscal impact assessment model.

6.10.5 Expected Products

Economic Impact Assessment of Nellis Air Force Base

6.10.6 Estimated Cost

\$20,000

6.10.7 Data Availability

The following NWPO Yucca Mountain Socioeconomic Project document is relevant:

Nellis AFB and its Contribution to the Southern Nevada Economy (ED0012)

VI. Public Information and Community Awareness Program

VI. PUBLIC INFORMATION AND COMMUNITY AWARENESS PROGRAMS - \$40,000.00

OBJECTIVE

An important program objective is to ensure that the public is informed on all issues associated with siting a nuclear repository at Yucca Mountain. Clark County will initiate a public and media information program to keep Southern Nevada apprised of the high-level nuclear waste activities. The program will include the development of information material, provision of computerized information access and the preparation of other informational items. A staff person will be added to organize and implement public information program objectives. (Also see the Public Information and Media Information tasks of Section V - Socioeconomic)

SCOPE OF WORK

- Task 1 The development and distribution of informational materials to provide citizens, local governments, organizations, and others with information about repository issues.
- Task 2 To work with Clark County standing committees (Comprehensive Planning Steering Committee, the Environmental Quality Policy Review Board), the Clark County Nuclear Waste Steering Committee and others to inform the various publics of issues relative to the proposed Yucca Mountain repository program.
- Task 3 The acquisition and utilization of informational tools to facilitate the public understanding of issues.
- Task 4 The preparation of detailed brochures on the proposed site, newsletters and similar materials to be distributed to the public, news media, and other governmental agencies.
- Task 5 The organization of a Speaker's Bureau to provide a mechanism for conveying issues to the public.

VII. Intergovernmental and Entity Coordination

VII. INTERGOVERNMENTAL AND ENTITY COORDINATION

\$800,000.00
(Estimates)

BACKGROUND

Within Clark County there are a number of incorporated communities and agencies potentially affected by the proposed repository. One of the most important requirements in the proposed repository program is the need to consider and evaluate a broad range of priorities and viewpoints. Because of this, there is need to closely coordinate with a number of governments and governmental agencies to ensure that various priorities can be coordinated effectively. There is also the need to facilitate the participation of entities and governments in the program. This would include providing financial assistance to enable entities to work with Clark County in determining potential impacts to all of Clark County's citizens.

PROGRAM OBJECTIVES

The primary objective of this task is to ensure that governments and governmental agencies associated with the proposed Yucca Mountain repository program closely coordinate with each other. For example, a steering committee has been established, comprised of representatives from the cities of Boulder City, Henderson, Las Vegas, Mesquite and North Las Vegas, the Paiutes residing in Clark County, UNLV and a citizen member, that will meet regularly and deliberate Yucca Mountain related issues. Lincoln and Nye Counties and DOE will be notified of steering committee meetings and will be invited to attend the sessions as well. In addition, it is the intent of Clark County to continue to interact with the State of Nevada, the State of Nevada's Nuclear Waste Steering Committee, and others.

SCOPE OF WORK

The following tasks are included:

- Task 1 As noted previously, a steering committee has been established comprised of incorporated communities in Clark County, the University of Nevada, Las Vegas, a representative of the Clark County Paiutes and a citizen member. The committee has been developed to discuss technical, socioeconomic and other issues related to the program. As noted previously, representatives from Nye and Lincoln counties, and the State of Nevada have been invited to attend meetings. DOE and potentially others will also be extended invitations to participate to ensure comprehensive program development.
- Task 2 It is anticipated that a policy committee made up of elected officials representing Clark County, incorporated communities and potentially others will be established. The purpose of the Policy Committee will be to deliberate policy questions associated with the program.

- Task 3** Clark County intends to fully participate on the existing State of Nevada Planning Steering Committee, organized DOE committees as well as other committees and groups devoted to the Yucca Mountain repository program.
- Task 4** Financial assistance is being made available to incorporated communities, the Clark County Paiutes, the University of Nevada, Las Vegas, and the Regional Transportation Commission (described in Section IV) to facilitate their participation in the program. These grants have been approved by DOE. The entities are currently evaluating tasks to determine additional coordination requirements.

VIII. Emergency Response Planning

VIII EMERGENCY RESPONSE PLANNING

\$150,000
(Estimated)

STUDY PROPOSAL AND FUNDING REQUEST

Among the needed baseline information in the Yucca Mountain program is an assessment of the current emergency response capabilities of local governments. This will provide a basis for emergency response needs to be determined should the Yucca Mountain site be selected as the final repository site. The importance of this element has also been recognized in Clark County's socioeconomic program (See section V Tasks 1.4 through 1.6.)

One glaring deficiency in Clark County (and Nevada) emergency response capabilities is in the area of communications. Currently, local communities are often unable to communicate in a manner that would maximize the effectiveness of emergency response capabilities. An integrated communications system is necessary.

The development of such a system in Nevada will require a considerable amount of time (see schedule). Ultimately, having an integrated communication system operational will ensure that the emergency response needs of the Yucca Mountain program are fulfilled.

The State of Nevada has already funded the first two phases of the program. Anticipated planning work in the third phase will provide a conceptual framework for the system.

BACKGROUND

The Southern Nevada Integrated Communication System (SNICS) Steering Committee has been involved with emergency response planning program development over the last several years.

SNICS is proposing, as support to Clark County's effort to develop a baseline of information, to determine the impact of a repository at Yucca Mountain and to coordinate development of a study of an integrated communication system for local government, public safety agencies and related supporting agencies.

It is anticipated that the SNICS Steering Committee with Clark County as the lead, would oversee the selection of a consultant to perform the required studies. SNICS Steering Committee would provide the necessary coordination with user agencies or organizations, in support of Clark County's repository program efforts.

The SNICS Steering Committee is composed of the Emergency Management directors of the City of Las Vegas, City of Henderson, City of North Las Vegas, City of Boulder City, and Clark County. The Metropolitan Police Department has recently assigned an Emergency Management Coordinator and he has been invited to join the Steering Committee. The Emergency Management Coordinators were appointed to this task by action of their respective governing bodies in 1987, and have completed several preliminary tasks toward the development of an integrated communication system. Funding will be utilized to continue the planning efforts.

Public meetings were held to identify potential system users. In addition to the obvious public safety users, (e.g. police, fire, emergency management) many other agencies were identified that would need to participate in the system in order to provide critical support to the community during disasters or major emergencies. The Clark County School District, Las Vegas Valley Water District, McCarran International Airport, several state and federal agencies, along with the local governments themselves, were all invited to participate in a users' committee to determine the features needed in such a system.

In 1987 Nevada Legislature appropriated \$200,000 to be used for the study of radio communication needs throughout the state. A contract was awarded to Diversified Communications Engineering by the State of Nevada Emergency Response Commission (NERC) to conduct a feasibility study on the use of the 800 mhz radio frequencies within the State of Nevada and to determine the efficiency of those frequencies relative to other frequencies currently in use. That study has been completed and was accepted by the 1989 Legislature.

Currently, the NERC is ready to initiate the start of the next phase of the communication system planning process. This would include the completion of a frequency utilization plan required by the Federal Communication Commission. Clark County is ready to begin the development of a detailed local conceptual plan for a communication system to begin to identify the needs of user agencies. The length of time needed to implement such a system related to the Yucca Mountain study necessitates the beginning of Phase III in FY 1990.

While it was initially presumed that the detailed conceptual plan would evolve from the individual planning efforts of the user agencies, local emergency response personnel now realize that a coordinated effort should be initiated as soon as possible to determine potential impacts from the siting of Yucca Mountain as a nuclear waste repository.

The Yucca Mountain site will affect our communication needs in two critical areas. One is the issue of a centralized communication and vehicle location system that requires a "top-down" system of communication to pass critical information from federal authorities to the local response units via a single state access point. This is a total reversal of all historic use of response-oriented radio communication systems. Historically, the local agencies were first notified, responded and requested assistance via a system that was built from the "bottom-up" as more agencies became involved. Now it is expected that the vehicle tracking system will indicate to the Federal Control Center that a single designated receiving point within the state will be required which will then notify local response agencies to respond. Critical information to safely handle the event will be transmitted to responders via this same system. The exact impacts that this will have on the conceptual design of our system is unknown and must be evaluated.

COMMUNICATION STUDY GENERAL WORK PLAN

Phase I

- Feasibility Study - Completed with State Funds 1988.

Phase II

- FCC Required Frequency Allotment Plan - Underway in 1989 and funded by the State of Nevada.

Phase III (Proposed under this grant.)

- FY 1990 - Study and completion of conceptual plan for integrated communication system by contract consultant to detail specific impacts of Yucca Mountain project.

Phase IV

- FY 1991 - Detailed engineering design of integrated communication system with detailed cost analysis of those features required by impact of Yucca Mountain project.

Phase V

- Beyond 1992 - Construction phase using a mix of monies.

IX. Environment

IX. ENVIRONMENT

\$100,000.00

Section 116(c)(1)(B)(1) provides funding for affected units of local government to enable them to review activities related to the Yucca Mountain site for purposes of determining impacts. This includes potential impacts to the environment.

As with Section V, which evaluates socioeconomic impacts, there is need to establish a baseline of information by which to determine whether environmental impacts could be experienced from activities associated with the Yucca Mountain program.

Although Clark County currently has considerable environmentally-related information incorporated within its GIS system, there is need, however, to evaluate this information and to determine data currency as well as applicability to the Yucca Mountain program. Likewise, the information is limited to urbanized Clark County and does not contain data for the rural areas of the County potentially impacted by factors associated with the repository (e.g. transportation).

It should be noted that Sections II and V describe tasks that are oriented towards the collection and evaluation of socioeconomic information. Other information such as flood plain and air quality data are examples of environmental data which should be available to evaluate potential transportation impacts. The former, for example, would be required if a new rail route is being considered in the Las Vegas Valley; the latter would be needed to determine the potential impact from transportation, as well as to develop local data needed for DOE's risk assessment models (meteorological information as one class of needed information).

Section IX when completed will define information needs related to potential environmental impacts from activities associated with the Yucca Mountain program and will develop data collection efforts and studies to establish baseline information to determine impacts. Development of potential environmental studies will be undertaken during FY 1990.