FINAL October 2001

IMPACTS TO CLARK COUNTY AND LOCAL GOVERNMENTAL PUBLIC SAFETY AGENCIES RESULTING FROM THE YUCCA MOUNTAIN PROJECT

Sheila Conway
Alvin Mushkatel
K.D. Pijawka

Prepared for the
Clark County Department of Comprehensive Planning
Nuclear Waste Division

8687 East Via de Ventura Dr., Suite 211
Scottsdale, AZ 85258

TABLE OF CONTENTS

LIST OF TABLES

EXECUTIVE SUMMARY

This report summarizes several studies that were conducted as part of a contract with Clark County's Nuclear Waste Division. These studies examined the fiscal impacts on public safety agencies of shipping high-level nuclear waste (HLW) to Nevada within Clark County, as well as five of its incorporated jurisdictions and the Moapa reservation.

This fiscal impact study does not attempt to estimate the total costs to public safety agencies within Clark County government and its local jurisdictions from the Department of Energy's shipping of HLW. Rather, only the incremental or additional costs to governmental entities that would be directly attributable to the siting of the repository at Yucca Mountain and the subsequent shipping campaign are projected. This fiscal impact study of public safety agencies uses a case study approach that provides each County and local government public safety personnel with three scenarios describing a "future" shipping campaign, and asks these public safety personnel to describe how the events would impact their agency. Public safety personnel were then asked to compile a list of resources, training, personnel, equipment, and capital outlays necessary for them to be able to ensure the public health, safety, and welfare and to carry out their agency's mission for each of the three scenarios. (See Appendix A, attached.)

The three scenarios were rooted in the DOE's Draft Environmental Impact Statement (DEIS). The first, a "benign" scenario in which shipping occurs as planned and without incident; a second scenario that described an accident that did not result in any release of radioactive materials; and a third scenario that contained a serious accident and release of radioactive materials resulting in a fire and radioactive plume. The incidents were located at the Sahara exit of the Western Beltway three years after shipping is projected to commence. This route is identified in the DEIS as a potential route for shipping the waste. Each of the scenarios contained

some estimate of property value impacts based on property value diminution studies conducted by UER for the State in the summer of 2000 that used similar scenarios and interviewed appraisers and lenders in the Valley.

The results of the study indicate major negative impacts on the public safety agencies within Clark County and its local jurisdictions. The potential vulnerabilities to these agencies and the hospitals in Southern Nevada are described in the report as well as the fiscal impacts to the public safety agencies. Because of the length of time between now and the when shipments may actually begin, the ambiguities surrounding the actual shipment routes, and the modal mix, the fiscal projections are tentative. The potential fiscal impacts and vulnerabilities to **only Clark County** public safety agencies just to the year 2007 when the shipping is proposed to begin include: over $67.6 million for police services, over $195.8 million for fire services, and over $10.6 million for emergency management.

Despite a very high degree of professionalism and effort, none of the public safety agencies are currently adequately prepared, trained, or equipped to respond to any of the three HLW shipping scenarios used in the study. This finding is consistent with a 1995 Public Safety Advisory Committee's report that examined public safety needs in Clark County.

The current County Emergency Operations Center that would be the focal point of the County's response to an incident involving HLW is only adequate for a very short duration event.

Southern Nevada hospitals are not adequately equipped, nor are personnel properly trained to effectively manage a HLW incident like that contained in Scenario 3. The hospital system is already strained under current needs, and the projected hospital needs for the area are

daunting. This system will not be adequate to handle the events described in the scenarios in this study.

The total projected costs, to just the public safety agencies examined in this study, to be adequately prepared for a third scenario event (the Maximum Reasonably Foreseeable Accident in this study that is rooted in the DEIS) is $359,986,630.

This $359,986,630 projected fiscal cost for public safety agencies includes $274.1 million for Clark County; $45.1 million for the Las Vegas; $23.3 million in North Las Vegas; $1.3 million for Henderson; almost $7.0 million for Mesquite; approximately $400,000 for Boulder City; and $8.5 million for the Moapa Band. The estimate for Clark County is higher than it might be because all of the fiscal impacts estimated for the Las Vegas Metropolitan Police Department have been attributed to the County, but some portion of these projected costs should be attributed to the City of Las Vegas.

The largest projected costs to these public safety agencies falls under the categories of facilities, equipment, personnel, and training. For police services, the projected fiscal cost is over $72.5 million for the communities examined in this study. Fire Departments' projected fiscal costs total over $275.3 million, and the Offices of Emergency Management fiscal cost projections total over $12 million. These cost projections are for the agencies to be prepared for a Scenario 3 incident beginning in 2003. The projections do not include costs that will be recurring, such as vehicle and equipment replacement costs, or the dollar costs of training new employees after 2007. Hence, the fiscal cost projections in the report will tend to under estimate (are conservative) some of the fiscal impacts to the public safety agencies.

Additional Haz/Mat Radiological personnel, training, and equipment are viewed as critical needs among the public safety agencies. The hospitals lack sufficient decontamination facilities, equipment, and trained personnel.

Current planning activities are progressing, regional public safety organizations are beginning to grapple with the problems posed by HLW shipments, and a Southern Nevada hospital system approach is developing with the help of the Clark County Health District. There is a critical need for a strong regional effort to ensure that the County, the municipalities, and the Moapa Band of Paiutes are prepared for HLW shipments. Additional resources for the hospitals and Health District are not projected in this study, only their training and equipment needs.

1.0 INTRODUCTION TO THE STUDY

In the summer of 2000, the Clark County Commission approved a contract with Urban Environmental Research, LLC, through the Clark County Nuclear Waste Division to undertake a public safety fiscal impact analysis of the effects of shipping high-level nuclear waste (HLW) on the public safety agencies within Clark County and its jurisdictions. These public safety fiscal cost impact studies were not the first effort to examine the issues and needs of public safety agencies from the siting of the HLW repository [1,2]. The studies are, however, the first effort to actually project the potential fiscal costs to the public safety agencies within Clark County that will be directly attributable to the shipping of HLW through the County to the repository.

This report summarizes the **public safety** fiscal impacts to agencies within Clark County, the Cities of Las Vegas, North Las Vegas, Henderson, Mesquite, Boulder City, as well as the Moapa Reservation. The studies summarized in this report focus specifically on the public safety agencies that have been identified as likely to be the agencies most critically impacted by such a shipping campaign. In addition, the public safety agencies' programmatic, training, and fiscal needs in providing for emergencies are explicitly recognized and identified in the NWPA, NWPAA, and through the NEPA as being part of the federal responsibility in siting and shipping HLW. Finally, these agencies are charged with protecting the health, safety, and welfare of citizens in an emergency. They must be prepared to respond should a radiological incident or emergency occur.

The governmental fiscal impact studies summarized in this report were designed to be similar to fiscal studies that have been performed on Nevada's State agencies by the principals of Urban Environmental Research, LLC from 1987 through 1997 [3a-d].

It is important to note one primary aspect of this study. What is being studied and estimated is not the total fiscal cost or budget of Clark County or any local jurisdiction public safety agency. Rather, the investigation focuses on the increment or additional cost to these agencies that is directly attributable to the repository's siting at Yucca Mountain and the related HLW shipping campaign. Hence, the cost estimates are fiscal impacts that will be directly attributable to the siting, and would not be incurred by these governmental agencies if the repository and shipping campaign do not occur.

All of the public safety fiscal studies summarized in this report are based on a case study methodology that examined the potential impacts of DOE's shipment campaign under three different HLW shipping scenarios (Table 1 and Appendix A). This report summarizes the cost estimates of additional services, or increased capacity (in the form of training, equipment, personnel, communications, or capital spending) that these governmental agencies would need to be adequately prepared under each of these three scenarios. Each scenario contains a different set of conditions concerning the future of HLW transport should the Department of Energy (DOE) move forward with its plans contained in its Draft Environmental Impact Statement (DEIS) for the repository. For a detailed discussion of the methodology and scenarios that were used to develop the reports summarized in this document, please refer to the individual County reports.

TABLE 1
SUMMARY OF SCENARIOS

	Description
1	No accident of any kind has occurred. However, anti-nuclear environmental groups and property owners along the route (who claim that their property values will decrease) have generated considerable publicity.

2	Shipments of nuclear waste to the Yucca Mountain repository site have progressed for several years without incident. Three days after New Year's Day 2010, the driver of a truck transporting nuclear waste loses control of the vehicle and runs into the median of Interstate 15. The cask containing the nuclear waste breaks away from the trailer and skids 50 yards along the median of I-15 in North Las Vegas. The cask remains intact and no radiation is released, but the national media covers the event heavily.
3*	An accident involving a truck carrying spent nuclear fuel and a gasoline tanker on I-15 near the Las Vegas Strip. The accident triggers a chain reaction collision. Twenty-seven civilians, four sheriff's deputies, and seven firefighters are hospitalized after exposure to radiation at the site of accident. Another 1,000 or more persons are exposed to radiation from the fire's radioactive plume. Experts indicate that 5 to 200 latent cancer fatalities may result from the accident. The affected highway and several access ramps are closed for four days. The two drivers of the spent fuel hauler and the gasoline tanker, and one driver-escort, died from head injuries and burns. Six months later, the cleanup effort is still under way, and thousands of lawsuits have been filed. Preliminary reports estimate cleanup costs and economic losses in excess of $1 billion.

*Source: State of Nevada, Nuclear Waste Project Office.

1.0 CLARK COUNTY PUBLIC SAFETY AGENCIES

Although there are a number of agencies that are participants in Clark County's Public Safety Coordination Team, after discussions with Jim O'Brien from the Clark County Office of Emergency Management, as well as the schedule for studying other County agencies, it was decided to limit the Clark County public safety study (individual city studies examined other public safety agencies) to the following agencies:

- Las Vegas Metropolitan Police Department;
- Clark County Fire;
- Clark County Office of Emergency Management (OEM); and
- Valley hospitals

1.1 Las Vegas Metropolitan Police Department

The Las Vegas Metropolitan Police Department results from a merger between the Las Vegas Police Department and the Clark County Sheriff's Department in 1973 [(4)]. The merger consolidated the two largest law enforcement agencies in the state. When the Nevada Legislature merged these two law enforcement agencies on July 1, 1973, it established the Las Vegas Metropolitan Police Department (LVMPD), which is responsible for all police services within

the city limits of Las Vegas and the unincorporated portions of Clark County. This merger was an effort to take advantage of economies of scale, avoid duplication of services, and increase efficiency. At the time of the consolidation, the two police forces were responsible for the safety of over 270,000 citizens, and as of July 1999, its 1749 authorized commissioned police officers and 855 authorized civilian personnel are responsible for the safety of over one million people. By July 2001, it was expected that the LVMPD would have 2935 authorized positions with about a 2% vacancy rate. Of these 2935 positions, it was projected that there would be 1969 commissioned positions and 966 civilian positions.

The LVMPD has responsibility for a large number of functions in an emergency as designated in the Clark County Emergency Operations Plan [(5)]. The LVMPD provides various services in the following areas: "order maintenance, crime suppression, investigation, apprehension, and incarceration of offenders, protection of residents and visitors, community relations and crime prevention" [(5)]. In addition, the LVMPD plays an active role in assisting the Federal Bureau of Investigation regarding incidents involving weapons of mass destruction [(6)]. The LVMPD is the lead agency in the County for emergencies involving avalanche, bomb threats, civil disturbances, and the co-lead with the Fire Department on search and rescue events, and the co-lead with the Federal Bureau of Investigation on terrorism events. The LVMPD will often be the first responder to a hazardous materials incident and will establish perimeters to contain the situation and isolate it from public access while waiting for the County Fire Department's Hazardous Materials Team to arrive. The LVMPD also assists in mass evacuations, conducts rural search and rescue operations, and participates in unified command. In short, the LVMPD has major responsibilities in emergency incidents including any incidents involving HLW.

Table 2 provides a breakdown of the projected fiscal costs to this agency. The LVMPD acknowledges that the direct impact of either Scenario 1 or 2 would be minor in and of themselves, but the mere shipment of HLW would result in them preparing for incidents that would involve similar expenditures to those listed for Scenario 3. Scenario 3 represents the Maximum Reasonable Foreseeable Accident (MRFA). Because of the nature of the LVMPD (and the other Clark County public safety agencies discussed here) and their response and preparedness functions, they are mandated to prepare and plan for the MRFA. Just as was the case in the State Fiscal Impact Reports, public safety agencies plan for the MRFA and assume if this type of an event can be effectively planned for and managed, lesser types of incidents (Scenarios 1 and 2) will not pose problems that cannot be managed. Hence, the dollar estimates contained in Table 2 for the LVMPD are projected costs for each of the three Scenarios (projected into one table without counting any single item twice in the cost projection), with the understanding that Scenario 3 is the driver of the estimates. The cost projections are indicative of a 1995 report by the Public Safety Advisory Group which found at that time that all of the public safety agencies in Clark County lacked sufficient capacity in the form of training, equipment and personnel and planning to adequately deal with the problems associated with shipping HLW through the Valley [(2)]. Indeed, it is clear that the MRFA for some on the LVMPD may entail a terrorist incident involving weapons of mass destruction and the transport of HLW. Yet, for purposes of consistency in this cost projection, Scenario 3 remains the MRFA for these projections.

As can be seen from Table 2, the total estimated impacts to the LVMPD to prepare for the MRFA contained in Scenario 3 are projected to be over $68 million. Personnel costs that are projected to be over $17 million for additional patrol officers to handle increased call volume

when transportation of HLW begins in 2007, and for Haz-Mat/Rad Specialists and additional training of officers. By 2010, the population that the LVMPD will serve is projected to be over 1.5 million [7]. If the Department meets its goal of maintaining at least 2.0 Police Officers per 1000, it currently has a ratio of 1.84 per 1000; the LVMPD will have 2890 police officers. In order to provide protective equipment for the LVMPD officers and for marked units (projected to be 1570 patrol vehicles) and their calibration another $7.2 million of cost is projected.

TABLE 2
PROJECTED FISCAL COSTS ON LAS VEGAS METRO POLICE DEPARTMENT

Personnel			
Total (Includes 3% annual inflation through 2007)		**$17,582,464**	
Equipment			
1.Radiological Survey Meters	3,135,825		Protective equipment and radiological dosimeter to ensure safety of officers. Monitors for 1570 patrol vehicles, 9 command vehicles and 50 additional vehicles from specialized response units for 1629 vehicles.
2.Calibrations	276,930		
3. Personal Victoreen Dosimeters	1,516,680		
4.Annual calibrations	245,120		
5.Revealer Dosimeter kits, protective suits	232,795		
Subtotal	**5,407,350**		
Total (Includes 3% annual inflation through 2007)		**$7,246,366**	
Systems			
6. 9-1-1 Reverse Notification System	57,300		Critical in the event of evacuation
7. Operating cost annually	14,000		
Subtotal	**71,300**		
Total (Includes 5% annual inflation through 2007)		**$95,549**	
Vehicles			Because LVMPD officers carry weapons, neither the Las Vegas nor Clark County Fire Departments will take responsibility for decon for LVMPD officers and assuming responsibility for their weapons.
8. 87 Black & White Units	3,567,000		
9. 5 Mobile Command Units	400,000		
10. 5 Diesel P/U Trucks	175,000		
11. Portable Decontamination Trailer	125,000		
Subtotal	**4,267,000**		
Total (Includes 5% annual inflation through 2007)		**$5,718,188**	
Facilities			Current DOC location is too close to the potential transportation corridor thus making redundancy extremely important.
1. Police Substation	6,000,000		
2. Operating Cost	800,000		
3. Department Operations Center	13,000,000		
4. Operating Costs	800,000		
Subtotal	**20,600,000**		
Total (Includes 5% annual inflation through 2007)		**$27,605,970**	
Training and Planning			
1. Recruit Academy for 174 personnel	4,273,854		Training costs (computed based on overtime)
2. Training of Haz-Mat/Rad Specialists	190,182		Training costs for a Rad. Specialist
3. Radiological Refresher training	1,555,254		

TABLE 2 PROJECTED FISCAL COSTS ON LAS VEGAS METRO POLICE DEPARTMENT			
4. Update Haz-Mat Emergency Plan	10,000		
Subtotal	**6,029,290**		
Total (Includes 5% annual inflation through 2007)		**$8,080,604**	
Vehicle maintenance, insurance, fuel etc.	**1,759,000**		
Total (Includes 5% annual inflation through 2007)		**$2,357,228**	

The largest single category of projected cost for LVMPD is noted in the facilities category in Table 2. The projected cost for a police substation, a department's operations center, and accompanying operations costs is over $27.6 million. Finally, training of personnel and planning costs are projected to be over $8 million. Training would be undertaken on an overtime basis because the reason for the additional training and planning is directly attributable to the shipment of HLW and it is not part of personnel's normal training needs. Table 2 clearly contains cost projections that demonstrate the serious negative fiscal implications of a HLW shipping campaign through the LVMPD jurisdiction.

1.2 Clark County Fire Department

The Clark County Fire Department (FD) traces its origins back to November 1953 when it was first chartered [(8)]. Clark County is the largest fire department in the state of Nevada and it was the first county fire department to receive an Insurance Service Office Class 1 rating. At the time of this writing, the only available budgetary information is from the Clark County Department of Finance which groups several agencies including Fire and the LVMPD together under the budget heading of public safety, and the organizational information is somewhat dated. Yet, the projected impacts from the transportation of HLW through the County provided by the Clark County Fire Department are the most thought out and thorough projections we have received in our studies in Nevada. In 1997-98, the FD had a budget of just over $51.6 million,

and had 549 paid employees and 400 volunteers in mostly rural areas that provide fire and emergency medical services to the public.

The Clark County Fire Department, through its Fire Protection Engineer, Richard Brenner (in conjunction with Deputy Chief Hanson), prepared a very detailed impact cost projection for this study. The FD is another response line agency that prepares by examining the Maximum Reasonably Feasible Accident and determining what it would need in addition to what the Department possesses to prepare for the incident. In this case, the MRFA as described in Scenario 3 is used, but the FD believes a terrorist incident involving weapons of mass destruction would be more destructive and also possibly more likely. Hence, while each of the three Scenarios was examined, needs and projected costs are provided only for the third scenario. There is, as Brenner notes, considerable uncertainty regarding the demographics of Clark County in the future, as well as the modal mix of shipments, their exact routes, and FD call volumes. Hence, the projections provided are of a tentative nature given these ambiguities [(9)].

As can be seen from Table 3, the FD, in part because of its responsibilities, will sustain enormous impact from the shipping of HLW through the Valley as specified in the scenarios. The FD will require substantial augmentation of its current capacity and that projected for 2007, in order to be able to respond effectively to the incident described in the third Scenario. This augmentation is a direct result of the shipment of HLW through Clark County to the repository, as well as the enormous size of the County (discussed above) that will require better and faster access and communications if transportation shipments through the County commence.

TABLE 3 PROJECTED FISCAL COSTS ON THE CLARK COUNTY FIRE DEPARTMENT			
Agency	**Cost**		**Purpose/Vulnerability**
Personnel			New personnel are a direct result of increased call volume and the threat of a radiological incident as described in scenario 3. These personnel will augment the County's capacity in Haz Mat RAD and EMS. The new personnel include also fire, and helicopter mechanics, and fire mechanics and dispatchers
1. 158 Emergency Response Personnel			
2. Including 110 Haz-Mat/Rad Spec., Heavy Rescue and Rad specialists	$13,462,362		
3. 36 Paramedics	4,447,776		
4. 4 Logistics officers	570,307		
5. 8 Fire Training Officers	886,808		
6. 24 Support personnel	2,400,000		
Subtotal	21,767,255		
TOTAL (includes 3% annual inflation until 2007)		**25,991,241**	
Equipment			Rad Survey instruments for all units (100). Personal dosimeters for all firefighters including volunteers. Satellite telephones needed in rural areas.
1. Rad.Survey Meters + annual calibration	209,500		
2. Personal Dosimeters, Calibrations, Reader kits	865,495		
3. Satellite Telephones + Yearly Usage + equipment	2,157,608		
Subtotal	**3,232,603**		
TOTAL (includes 5% annual inflation until 2007)		**4,331,997**	
Systems			Needed in the event evacuation is necessary in a large area
1. 9-1-1 reverse Notification System + operating cost	57,300		
TOTAL (includes 5% annual inflation until 2007)		**76,787**	
Apparatus			Additional truck companies and Haz-Mat units to prepare for the 3rd scenario and augment capacity.
1. 3 truck Companies + equipment	2,355,000		
2. 3 Engine Companies + equipment	1,155,000		
3. 3 Heavy Duty Rescue Units + equipment	792,000		
4. 2 Haz-Mat units & 2 Heavy Rescue Units + equip	2,600,000		
5. Cascade/Light Refilling Unit	300,000		
6. 2 portable Decon Units	250,000		2 Portable Mass decon units are for FD personnel to do a mass decontamination with male and female corridors
Subtotal	**7,452,000**		
TOTAL (includes 5% annual inflation until 2007)		**9,986,392**	
Facilities			Fire stations will be located close to transportation routes and where risk is deemed higher to reduce response time and respond to increased calls. Helicopters are needed to reach rural and isolated areas of Clark County. Heliports are for fire stations.
1. 2 Fire Stations	12,000,000		
2. Training Center and Fire Station	16,000,000		
3. Operating costs	2,000,000		
4. Vehicle support/warehouse facility	5,000,000		
5. 4 Heliports	4,000,000		
6. 2 Helicopters	60,000,000		
7. Operating costs	2,000,000		
Subtotal	**104,400,000**		
TOTAL (includes 5% annual inflation until 2007)		**139,000,000**	

TABLE 3 PROJECTED FISCAL COSTS ON THE CLARK COUNTY FIRE DEPARTMENT			
Agency	**Cost**		**Purpose/Vulnerability**
Training and Planning			Firefighter equipment includes turn-outs, helmets, self-contained breathing apparatus, etc.
1. Costs associated with the Recruit Academy 158 new personnel class will be done six times			
a. Books, supplies reproductions	115,000		
b. Training Personnel and overtime rate (6 x 1,363,907)	1,363,907		Personnel needed to train classes at a 12 week totals, with back fill required with overtime at 24 hour shifts
Subtotal	**8,183,443**		
TOTAL (includes 3% annual inflation until 2007)		**9,771,460**	
Training and Planning for Haz-Mat/Rad Specialists			All training and planning must be conducted on an overtime basis due to already burdensome required training
80 Hour recertification for both teams including overtime	2,733,324		
TOTAL (includes 3% annual inflation until 2007)		**3,263,733**	
Refresher training 8 hours annually-all personnel	499,842		
TOTAL (includes 3% annual inflation until 2007)		**569,838**	
Update Operating Procedures			
1. Annual update	10,000		
Miscellaneous			
Apparatus Insurance	10,000		
Maintenance of Fire apparatus/vehicles	40,000		
Fuel	50,000		
Capital Recovery of Apparatus & vehicles	2,600,000		
Subtotal	**2,160,000**		
TOTAL (includes 5% annual inflation until 2007)		**2,894,607**	
CLARK COUNTY FIRE DEPARTMENT TOTAL		**$195,896,055**	

The initial estimate of total fiscal impact is $195,896,055 to the County to obtain the necessary Fire Department capacity to effectively respond to the MRFA. This figure includes inflation factors until the year 2007 when the shipments are projected to commence. Obviously, some of these costs will be annual or recurring costs that the County will need to confront at various intervals. For example, fire truck companies, engines and other equipment have not only maintenance schedules but also replacement schedules that entail continuing fiscal impacts to the County as long as the shipments continue. The new personnel required by the FD are to bolster

its response capacity to local calls, as well as adding significantly to its Haz-Mat/Rad capability. The FD responsibilities for an event like the MRFA will be enormous and include provision of EMS (emergency medical services), evacuations, and decontamination. Over $25 million is slated to provide new personnel in these areas along with fire training officers, logistics officers, and support personnel (see Table 3).

The equipment needs for survey meters and dosimeters address the issue of being able to measure and monitor exposure. Because of the County Fire Department's Computer Aided Dispatch system, the closest units are sent to an incident. Because the FD cannot ensure that only particular units will respond to an MRFA, each vehicle and firefighter must be able to monitor radiation exposure. In addition, because of the enormous area Clark County covers, the use of helicopters to bolster local capacity in a Scenario 3 event is critical. The rural areas of the County are served by almost entirely volunteer fire departments and will need assistance. Because of this need for assistance, helicopters are needed to be able to transport technical and other assistance quickly to areas throughout Clark County. In addition, a training center increasing the capacity of the FD to train and update its personnel in radiological hazards will be required. Once again, because this FD is stretched thin to begin with, all training must be provided on an overtime basis to a force of almost 3000 by 2007. The Clark County Fire Department is a professional force that like other Clark County agencies has only just been able to meet the fast growing demand for services. There is inadequate capacity in the FD to respond effectively to a Scenario 3 incident and the cost to bring this agency to the point where it can be successful is almost $196 million.

1.3 Clark County Office of Emergency Management

The Clark County Office of Emergency Management (OEM) is located within Clark County's Administrative Services Department. Neither the size of the Office (number of personnel), nor its budget are indicative of the critical role it plays in planning, preparing for, mitigating or responding to emergencies. Ultimately, the Clark County Board of Commissioners is the body where local responsibility for health and safety of residents reside. The OEM acts on behalf of the Commission and "is responsible for implementing the necessary coordination support as needed during day-to-day emergencies, and during conditions of major emergency or disaster declarations" (10:Basic-2). It is critical to understand that local emergency services are provided by local public safety agencies, and that the role of the OEM is to aid in coordinating efforts to mitigate, prepare, respond or to recover from disasters and emergencies and serve as the single point of coordination support for the County's public safety agencies. In emergencies, the OEM functions to coordinate County requests for disaster declarations and aid from the State and Federal government.

Much of the OEM's efforts are carried out through two organizations; the Clark County Public Safety Coordination Team (PSCT: the organizations belonging to this group were used to compose the list that was used to identify agencies to interview for this study) and through the Local Emergency Planning Committee (LEPC). The PSCT is composed of organizational officials from key public safety agencies that permit the emergency management function to be integrated in the County. In addition to the PSCT, incidents and planning for Hazardous Materials events fall within the purview of the OEM and the LEPC. The LEPC, chaired by the OEM's Director, fulfills a federal requirement of the Superfund Amendments and Reauthorization Act of 1986 (SARA) and Title III "Emergency Planning and Community Right

to Know [11]. Hence, this very small Office has major responsibilities for coordinating the drafting and promulgation of plans that guide future planning, training, and response to all types of emergencies and hazardous materials events.

The EOC for the County is located in the County Government Center, and any event that requires its operationalization has OEM present to aid in coordinating the response. The County operates within an Incident Command System that is a standard organization format for multi-agency emergency response. Incident Command System training is provided through the Clark County Fire Department's Training Center, the LVMPD, and the OEM. The EOC for the County is really a single large room that is normally used for computer training activities that can be converted in 30 to 60 minutes into an EOC [10:Response-75-76]. Using the Incident Command System (ICS), which is a standardized organization format by function, different agencies are designated as lead depending on the nature of the disaster. It should be clear that the County does not have a lot of experience with operationalizing the EOC at the more severe disaster levels because there have not been many serious disasters in the County. The budget for the OEM reflects the small size of the agency consisting of 2 professional staff and 2 support staff. The total for salaries, benefits, and supplies is $359,653 for the current fiscal year. Approximately one-half of the agency's budget is reimbursed from the State's Division of Emergency Management. Next year's fiscal budget is $391,059.

Despite the size of the OEM, the shipping of HLW through Clark County and the siting of the proposed repository at Yucca Mountain will have substantial fiscal impacts on this agency. Once again, it is the third Scenario for which the cost estimates are provided as this agency also plans and prepares for the MRFA. Table 4 contains the cost projections for the OEM.

TABLE 4 PROJECTED FISCAL COSTS ON THE CLARK COUNTY OFFICE OF EMERGENCY MANAGEMENT			
Agency	**Cost**		**Purpose/Vulnerability**
Personnel			
1. Additional personnel for training and planning	$285,000		Includes 1 planning spec., 1 training spec. and 2 support staff
Subtotal			
TOTAL (includes 3% annual inflation until 2007)		340,340	
Facilities			
Regional EOC			The current Clark County EOC is inadequate for an MRFA event.
Subtotal	7,650,000		
TOTAL (includes 5% annual inflation until 2007)		10,251,731	
Equipment			
Communication hand helds, computers etc.			
Subtotal	10,000		
TOTAL (includes 5% annual inflation until 2007)		12,762	
Planning and Training			
Additional training + planning for four professional staff			
Subtotal	8,000		Annual expense
TOTAL (includes 3% annual inflation until 2007)		9,552	
Total		**$10,614,385**	

One of the major impacts on this agency is the necessity of upgrading the County EOC. The current EOC is adequate for short-term smaller disasters, but certainly would be inadequate for the MRFA and would result in possibly disrupting the normal business of the County Government Center [(12)]. Hence, the OEM feels it would be imperative to have an EOC similar to the one in Broward County, Florida. That facility is estimated to be about 45,000 square feet and costs about $170 per square foot, or roughly $10.25 million dollars.

The remaining projected costs from the repository on the OEM are largely for additional personnel for planning and training needs, as well as some minor projected costs for equipment. As can be seen in Table 4, the entire projected cost to this agency from Scenario 3 is just over $10.6 million, with some of this amount being in the form of recurring expenses.

1.4 Clark County Health District and Southern Nevada Hospitals

This section of the report on the public safety agencies of Clark County and the impacts of shipping HLW through the County examines the Clark County Health District (CHD), and the hospitals in the County. The Clark County Health District is a special district, and it serves as the public health agency for the County and its cities. The CHD performs a large number of health related services, including providing permits for all commercial food establishments, testing water and inspecting non-surface water, providing food handlers with health cards, and investigating blood borne diseases. More importantly for our focus are its roles in administering the underground storage tank inspections, permitting and inspecting the solid waste disposal sites and sewage disposal systems, providing hazardous waste inspections for small quantity generators, monitoring air quality, and a variety of other services. Most importantly, the CHD provides medical direction, protocols and standards for emergency medical services (EMS) within the county, permits EMS provider agencies, and licenses and certifies all EMS personnel.

It is in this last role that the CHD's role in emergencies intersects with our focus on the impacts from shipping HLW through Clark County. Because of these responsibilities, the CHD is a member of the Clark County Public Safety Coordination Team (PSCT) that is empowered through County administrative code. In addition, the CHD is a member of the LEPC whose focus is on hazardous materials emergency planning and response. Perhaps the best agency for providing insight into the state of emergency medical service preparedness for an MRFA (Scenario 3) is the CHD. Yet, as will be seen there has until recently been little systematic effort to assess regional emergency medical service [13]. (The CHD is also covered in depth in the forthcoming report on fiscal impact to Clark County Governmental Agencies.)

The CHD has about 500 employees, and approximately eight are in EMS. The budget for the CHD for 2000-2001 is about $48.7 million. No mission statement or EMS plan had been finalized at the time of the interview, and by in large the CHD has relied on the OEM Emergency Operations Plan for direction with regard to EMS. There should be an EMS plan by the end of this year. There is a Mass Casualty Plan (a plan to deal with mass (multiple) casualties that are beyond the immediate capability of any community's ability to respond without implementation of the Mass Casualty Plan) that CHD was involved in preparing with the OEM and the PSCT in 1997, that is currently being revised and updated. There is a Haz-Mat group with the Environmental Health Division in CHD, and the EMS has been actively building relations with the Clark County School District to provide current Emergency Medical Services. A study that was completed about seven years ago determined that the local hospitals had little ability to decontaminate injured patients brought to their hospital. Funds are being sought from the LEPC to replicate this study and assess current capacity. From the CHD perspective, there is a lack of portable decontamination units throughout the local hospitals as most rely on either external or more likely very limited internal units.

Interviews with one of the two private ambulance companies in Southern Nevada that has responsibility for the areas in the eastern part of the City of Las Vegas and the City of North Las Vegas reveals concern about whether patients are decontaminated before they attempt to transport them. In addition, no one seems totally clear about how much decontamination capability exists at each of the hospitals [(14).] Recently there has been a move among the hospitals and the CHD to be more proactive on a regional basis. In part, this action seems to be associated with the growing Valley wide crisis in emergency room capacity. The EMS Advisory Board has recently adopted an Operations Protocol for Emergency Department Closure [(15)]. A program

called “Divert” has been implemented because demand for emergency room services far exceeds supply. When a hospital is in a super divert mode, no additional patients may be brought to it for emergency department services unless the patient’s life may be jeopardized from bypassing a facility, and the emergency room is essentially closed until those that are waiting for services have been provided for. Emergency Departments are permitted to request closure status from the central dispatch and they may remain closed for one hour unless other hospitals in their regions also request closure. In addition, the new operations protocol requires Sunrise Hospital and the University Medical Center to rotate closure status and to communicate directly with each other concerning their status. This protocol is the result of the capacity crisis in emergency department services. While Sunrise is quadrupling their emergency medical department’s space to 80,000 square feet, the rapid growth of the Valley almost ensures this will be insufficient.

Recently, because of considerable effort by some of the local safety and environmental managers at some of the hospitals, especially Sunrise, a regional voluntary association has been established called the Southern Nevada Healthcare and Safety Association [16,17]. This group along with the CHD and other members of the PSCT in the County are attempting to revise the Mass Casualty Plan, and determine the status or capacity of the local hospitals for radiological emergencies. They are also beginning to seek and coordinate additional training for hazardous materials and radiological events with the help of the Nevada Division of Emergency Management and DOE contractors. Yet, at this time, there is a paucity of information concerning local capacity and more importantly how these local hospitals believe they may be impacted from the shipment of HLW through Southern Nevada. As a result, efforts were made to contact and interview the safety, environmental or risk coordinators of nine of the major hospitals. In the

next section, the views of these hospitals and the CHD concerning the potential impacts from the siting of repository are discussed.

TABLE 5
PROJECTED FISCAL COSTS ON THE CLARK COUNTY HEALTH DISTRICT AND LOCAL HOSPITALS

Agency	Purpose/Vulnerability
1. Radiological Training for CHD, ambulance, hospitals	Local hospitals, ambulance services, and CHD personnel need additional radiological training
2. Greater awareness about the potential hazard including public outreach	The CHD must inform the public concerning the nature of the hazard and what to do in the event of an emergency
3 A comprehensive needs assessment of CHD and the hospitals needs to be undertaken	There is not good information concerning training, levels, equipment availability, decontamination capability etc.
4. Radiological and mass casualty plans needed	Current planning is inadequate and needs updating and revision
5. Data base system will be inadequate to track	
6. Additional training for nursing staff	Nursing shortage already exists and services are strained, any additional training will be expensive and require more overtime CHD believes EMS will be needed from outside the District
Hospitals	
1. RAD Training at all Levels	Current training levels are insufficient despite recent DOE RAD training because of the low-level shipments. At least one hospital has a Memorandum of Understanding with DOE/NV to provide mutual assistance
2. Internal Plans are needed	
3. Decontamination facilities are by-in-large inadequate	Can not decontaminate victims adequately in a mass casualty incident--it risks contamination of hospitals
4. Many of the hospitals will need a separate professional staff person to handle all associated problems--training, decontamination, planning etc.	
5. Location of event might block entrance into some of the hospitals or one or more might be contaminated	Planning necessary that considers the closing and contamination of one or more hospitals due to their location near routes
6 Decontamination needs could be on-going	Third scenario lasts for months could lead to tremendous sustained demand on decontamination facilities

Because of the ambiguity of the DOE plans and the only recently emerging awareness among those interviewed at this time, the information that was gathered tended to be of a qualitative nature. Almost all of the information obtained in the interviews tended to focus on either current capacity, or areas of vulnerability that would likely be adversely impacted by transportation of HLW to the repository. The CHD is not prepared to respond to the shipping

campaign described in a Scenario 1 event, but to be consistent with the other public safety agencies the third scenario is the only one singled out for scrutiny. The reason that even the first scenario would be a challenge to be prepared for is the perceived lack of training among hospital, ambulance, and CHD staff for radiological hazards. Additionally, the CHD believes that the level of consciousness among emergency department professionals and EMS needs to be raised concerning the potential shipment of HLW, and a clearer delineation of responsibilities among EMS, ambulance, Fire Department, and other public safety agency personnel. Indeed, there appears to be some confusion what role the County Health Officer would play in declaring an emergency. Table 5 lists these needs as potential vulnerabilities, along with the importance of a comprehensive needs assessment based on potential shipping scenarios.

The current radiological and mass casualty planning by the CHD is in need of updating, and currently would not be adequate for an MRFA event. In addition, the role of the CHD in educating the public along with the LVMD, and the Clark County School District needs clarification. Any mass decontamination of the public will result in a likely crisis, as current capacity is inadequate. Additional personnel, software, and equipment will be needed for record keeping for employee training. One must understand the crisis in nursing, and the shortage that exists, when thinking about their additional training needs. The CHD believes that EMS from outside the area will be necessary in a Scenario 3 event. When current conditions lead to the closure of local hospital emergency departments for up to 3 hours because 47 patients are waiting for care and/or admittance, and it is deemed unsafe to bring additionally critically ill persons to that hospital, one can understand why the additional possibilities of providing EMS from a Scenario 3 event are disconcerting to the CHD.

Recently, the State of Nevada Department of Human Resources, Health Division Bureau of Licensure and Certification has provided us with the current number of hospital beds in Clark County. The Mass Casualty Plan from 1997 indicates that there were about 2470 beds in 1997 (18:resources-3). This number is out of date with the expansion of several of the hospitals, most notably perhaps Sunrise Hospital. The hospitals that we attempted to arrange interviews are included in Table 6.

TABLE 6
CLARK COUNTY HOSPITAL BEDS BY FACILITY

Facility Name	Number of Beds
University Medical Center-Beds	542
Valley Hospital & Medical Center-Beds	400
Summerlin Hospital & Medical Center	169
Lake Mead Hospital	198
Boulder City Hospital	67
St. Rose Dominican Hospital (2 campuses)	279
Mountain View Hospital	196
Sunrise Hospital & Medical Center	688

Neither Summerlin Hospital nor St. Rose Dominican was able to meet with us, and because Summerlin is a new hospital and it was not included in the 1997 Mass Casualty Plan. The number of beds among the 9 hospitals is 2539, and this number exceeds the 2470 available in 1997 by only 69 beds. One additional hospital that was not contacted was the O'Callaghan Federal Hospital at Nellis Air Force Base that would add to the capacity of Southern Nevada hospitals. What is clear is that despite tremendous growth by some hospitals, the number of beds has clearly not kept up with the population growth in the Valley.

The seven hospitals that took part in the study provide an interesting picture of the local hospital capacity as it relates to EMS and impacts from shipping HLW to the repository through Clark County. First, the DOE has been providing RAD training in the Las Vegas Valley, most recently at the University Medical Center (UMC) on April 13, 2001 where about 20-25 people

from hospitals in the Valley had signed up. This RAD training had also taken place at Sunrise Hospital earlier and has been on going since the commencement of low-level nuclear waste shipping through the valley. One purpose is for these individuals to take their training back to their hospitals and train others [19]. In addition, UMC and Sunrise have been actively involved in the LEPC, and State training involving weapons of mass destruction. In fact not only has the DOE with the State Division of Emergency Management been offering this RAD training, but Sunrise Hospital and Medical Center, and Sunrise Children's Hospital has entered into a Memorandum of Understanding (MOU) with the Nevada Operations Office of DOE [20]. The purpose of this MOU is to delineate "interface responsibilities of mutual assistance associated with DOE/NV and other emergency incidents as appropriate," and that these programs may consist of emergency offsite assistance, transportation of DOE/NV-owned hazardous materials, storage of hazardous materials, and research and development at DOE/NV operations. The MOU is not intended to be unidirectional and aid may flow from DOE/NV to the hospital as well.

The two hospitals that seem to have been most active to date in this area are the two largest (Sunrise and UMC) and those that provide the widest array of services (e.g. Level I trauma centers, Level III Neonatal care). In addition, the UMC has been very active in meeting with the Clark County Nuclear Waste division personnel, as well as with the State agencies. Yet, even these hospitals are not prepared to handle serious radiological incidents at this time. For example, the UMC indicates that its nurses, doctors, security people and ambulance drivers need more training to prevent contamination of the hospital because if it is not contained it could shut the hospital down. In addition, there is a need for more training in use of personal protective equipment (PPE). UMC is like many of the hospitals that have a separate small room that is used for decontamination that can hold up to three people. Sometimes these rooms have separate

entrances (a must) and sometimes the water used can run in to other areas, unless care is exercised. There is widespread agreement that decontamination facilities are not adequate in Southern Nevada for serious incidents involving mass casualties. In addition, there is a lack of internal plans for a large-scale radiation incident.

Desert Springs is not unlike many of the hospitals that have very small decontamination facilities that are separate from the hospital, but inadequate for more than just a couple of people. There is a feeling that the hospitals will have a sufficient number of PPE's by 2007. In the case of Desert Springs, the location of the scenario incident might actually impact the hospital's operation for personnel and patients blocking entrance. It could in fact potentially contaminate the hospital. This possibility needs to be thought through very carefully, that is an event on a transportation corridor contaminating one of the hospitals. Mountain View Hospital representatives point out that the sustained nature of a Scenario 3 event might result in sustained demand on decontamination facilities at hospitals as patients, in part out of fear, continue to seek this service. Lake Mead Hospital is another hospital that, depending on where the accident is and where fallout travels, might find its physical structure contaminated and have to close. Its decontamination facilities are largely nonexistent at this time.

As representatives from Boulder City Hospital point out, it is not only just emergency department personnel that should be trained for radiological incidents, but their doctors, nurses and other personnel need to be trained especially if it is an on-going incident. This would involve training up to 200 staff at just this small hospital. There is a general view that there has been little preparation and that a Scenario 3 type event would quickly overwhelm local resources. Valley Hospital and Medical Center feels that training needs must also include the security staff, as well as the engineering personnel. They estimate at least 50 people would require additional training.

Once again, additional dosimeters, PPE respirator suits, and additional decontamination capacity would be needed. They are very concerned about the severe nursing shortage in the area and if it continues how it will impact the capacity of local hospitals to effectively respond to an incident. Sunrise believes that far more of its clinical personnel need training in this area. Radiological Emergency Assistance Center/Training Site (REAC/TS) training is provided for some and is sponsored by the DOE. The State Supervisor of the Radiation section has spoken to hospital staff, as well as several DOE staff. Yet even Sunrise feels far more training, equipment, and increased communication capacity would be necessary to handle a MRFA.

In short, the Valley hospitals are stretched to the brink right now. The emergency departments are diverting patients to other hospitals, there is a nursing crisis, and because of the high migration in and out of the area, doctors who have been trained in radiological incidents have frequently left the area. The training, equipment, and decontamination facilities are all inadequate for a MRFA. Finally, it is possible that three or more hospitals might be affected by an incident to the point where entrance is very difficult, or the buildings themselves are contaminated. Local medical and hospital services are not adequate to meet the demands placed upon them from the incident described in the third scenario. These conditions are not unique to Southern Nevada hospitals, but the third scenario will clearly cause the hospital system to crash and its inadequacies to become apparent. What is in need of study is how such a HLW transportation scenario event might affect the hospitals in communities located along the transportation corridor in other states.

2.0 LAS VEGAS PUBLIC SAFETY

In Las Vegas, the police function is carried out by the Las Vegas Metropolitan Police Department that also encompasses the County that was discussed in the previous section 2.0. The

emergency management and medical functions are all carried out by the Fire and Rescue Department (F&R) with emergency management being housed in the F&R as an Office of Emergency Management. Hence, after a general introduction to the Fire and Rescue activity, the Office of Emergency Management (OEM) and then the F&R will be examined in depth regarding the effects of the posited scenarios.

The Public Safety activity portion of the City's budget is over $212 million dollars or approximately 31% of the total budget and 53.8% of the City's General Fund budget [(21:10)]. Of the over $212 million for public safety, $53,493,471 out of the general fund is for the Fire and Rescue Department, and an additional $15.575 million from the Capital Projects Fund goes to the Department. In short, 32.5% of the total public safety budget is for the F&R. While the F&R is a well-trained and modern department, its growth has not kept up with the City's budget. For example, in 1990, there were 277 Firefighters or 1.005 per 1000 population, but by 2000, there were 391 authorized Firefighters or .807 per 1000 population [(22)]. These numbers should be compared to the national average which as of November 1999, 1.28 Firefighters per 1000 [(ibid.)].

On November 7, 2000, a ballot measure (tax initiative) passed that will expand the number of fire stations by 4 to be located in the western area of the City where growth is the fastest. The measure will also add 96 new positions, 48 Firefighters and 48 Paramedics. Finally, the measure will fund the replacement of a significant portion of the City's trucks and engine companies. The F&R concedes that this may not be enough as over 96% of population growth in the City over the next 20 years is projected to be in the west and northwest portions of the City, and that projected population growth in the Town Center may lead to traffic congestion and slower response times. In short, the City is already stretching its fire service capacity in the rapidly developing northwest portion of the City.

The F&R Department has four divisions. These divisions include Suppression (Operations), Administration, Emergency Medical Services, and Fire Prevention (Fire Marshal) [23].

2.1 Las Vegas Fire Department

The current capacity of the Las Vegas F&R is not sufficient to deal with the MRFA as described in the third scenario. In fact, the current capacity of all of the Clark County Public Safety agencies is inadequate to effectively deal with all of the public safety needs from the shipping of waste according to a 1995 needs assessment done by a Public Safety Advisory Group [2]. That report analyzed the training, equipment, planning, and communication needs in the Valley and found the capacity to be lacking. The F&R Department lacks the requisite training, equipment, and personnel, and the current planning is inadequate to respond effectively to the incident described in the third scenario based on the MRFA. If one closely examines the F&R's *Fire Plan 2003*, it quickly becomes evident that the Department is stretched by the current size of the City, and the projected growth. The necessity of increasing the Department's capacity to continue its effectiveness resulted in the recently approved ballot initiative providing for more fire stations and Firefighters [24]. Even so, the F&R feels considerably greater capacity would be necessitated by the shipment of HLW described in the scenarios. Table 7 displays the cost estimate of impacts to the Las Vegas Fire and Rescue. These estimates are based on the F&R needing to prepare for a Scenario 3 incident in order to fulfill their public safety functions and mandates.

TABLE 7 PROJECTED FISCAL COSTS ON LAS VEGAS PUBLIC SAFETY		
Agency	**Cost**	
Fire and Rescue Department		
Personnel	5,711,370	
Equipment	1,326,051	
Apparatus	5,756,448	
Facilities	27,093,185	
Training		
Recruit Academy	1,887,309	
Haz-Mat/Rad Specialists	1,724,246	
Radiological Refresher Training	418,962	
Update Haz-Mat Emergency Plan	14,071	
Reverse 911 Warning System	80,627	
Miscellaneous	584,524	
Subtotal		**44,596,793**
Office of Emergency Management		
Personnel		
Planning, Operations, Exercise, and Training	455,000	
Support Staff - 2.5 FTE	106,265	
Capital Project		
New Emergency Operations Center		
Equipment		
Computers		
Emergency Support Function		
150-200 Hours Of Consultant Time		
300 Hours Of Federal Agency Time		
13 Work Groups From City Departments		
Emergency Housing For 30,000		
Subtotal		**561,265**
Grand Total		**$45,158,058**

The F&R believes that the scenarios and shipments of HLW would add about 10% to their call volume and necessitate about a 10% increase of existing staff (57.5 Firefighters) [(26)]. The personnel cost noted in Table 7 is made up largely of new Hazardous Material/RAD Specialists, Training Officers and Paramedics. The total for these personnel including inflation projected to 2007 (the year scheduled shipping begins in the scenarios) is roughly $5.7 million **per year** during the time the shipment of HLW continues. The equipment needed to adequately respond to the scenarios includes personnel, Victoreen dosimeters and their annual calibration

for the Firefighters, air packs, and portable decontamination tents requiring roughly another $1.3 million. Of this total, at least $52,000 is an annual cost for calibration and the replacement costs for the other equipment have not been included as the cost projections are for 2007 and not the life of the HLW project. The F&R would also require some apparatus for these Firefighters including truck companies, engine companies, Haz-Mat/Rad units, a Cascade/Light Refilling unit, and a portable mass decontamination trailer. The total cost of these apparatus, including 5% for inflation between 2001 and 2007, is roughly $5.75 million. Finally, the Firefighters will need at least one fire station in the Northwest part of the City near the route posted in the scenarios, and an additional Training Center and Fire Station or a northwest facility. The total cost of these facilities, including the 5% inflation factor between 2001 and 2007, is approximately $27 million. Of this total, approximately $1.7 million is an annual operating cost.

The F&R has major responsibilities for training and planning. The costs associated with the 57.5 new personnel amounts to an additional $1.46 million to the cost of preparing for the shipment of HLW. Finally, all training and planning must be conducted on an overtime basis because of the already large amount of training required for Firefighters annually. The Recruit academy will have to add personnel to provide some of the Haz-Mat/Rad training required. There will have to be a Radiological Specialist Response Team as a result of the shipments according the F&R, as well as the updating the current Haz-Mat team. All personnel will take basic radiological planning training for a minimum of 8 hours per year. Finally, plans will need to be updated including the Radiological component of the current Haz-Mat plan. The cost of this training and planning beginning in 2007 is approximately $1.88 million for the costs at the Recruit Academy, $1.7 million for the Haz-Mat/Rad specialists overtime and certifications and recertification in radiological (both teams), $418,000 for the training of current staff, and

$14,000 for planning. There is also a need for a Reverse 911 system projected to cost over $80,000. Finally, miscellaneous costs are estimated at roughly $584,000 for apparatus insurance, fuel maintenance and capital recovery of apparatus. The total estimated impact cost of the scenarios to the F&R for the year 2007 is $44,596,793. These cost estimates contain sizable recurring annual and replacement costs that will be incurred by the City during the shipping campaign some of which are noted in this narrative but included in the $44 million figure. It is important to remember that this cost estimate is just to get the F&R to 2007 and the start of the shipping.

2.2 Las Vegas Office of Emergency Management

The OEM had an acting director during the time the interviews were conducted. A new director was selected in December of 2000, and he has reviewed and provided details necessary for estimating the impacts projected in this report. The OEM is a one-person office that is charged with coordination of emergency incidents through the emergency operations center (EOC), but all City emergencies are coordinated by the City Manager [23]. In addition, it is this office where all-hazards planning take place. The mission of the OEM is the same as that of the F&R. It entails the protection of life and property by providing a set of services that include fire prevention and suppression, investigation, emergency medical services and hazardous materials and explosive device management. The OEM for the City, because of its location within the F&R, has the flavor of a fire and rescue department and is not a stand-alone unit. Nevertheless, because of its potentially major role in planning and preparing for an incident related to the HLW transportation, its fiscal impact projections are treated separately here. In order to be adequately prepared for the shipping of HLW through the Valley a considerable amount of effort must be exerted to increase the capacity of the OEM according to its former acting director.

While there are three scenarios presented to each agency, the OEM along with the F&R, because of the nature of their emergency preparedness and response functions, are prone to plan for the Maximum Reasonable Foreseeable Accident (MRFA) discussed above. Hence, just as the planning in the F&R was targeted toward the third scenario (assuming that if an effective response could be mounted for these events those described in Scenarios 1 and 2 would pose no additional problems), the OEM targeted the third scenario in its responses. Hence, the list of needs to prepare the OEM for the shipping of HLW through the Valley does not differ by scenario.

Although the City of Las Vegas OEM has identified a new emergency operations center as critical, if Clark County constructs a new emergency operations center as discussed in Section 2.0, then it may be feasible to avoid this expense. There is a case that can be made for redundancy, as was recently demonstrated in the terrorist attack on the World Trade Center (WTC) in New York. In this incident, the City of New York was forced to relocate its emergency operations center because its original site was damaged by the collapse of the WTC. Given the dangers of transporting HLW, it is reasonable to argue that both the City of Las Vegas and Clark County should have their own emergency operations centers that are adequate to ensure that at least one facility is available in case of an accident. Yet, for purposes of this report, only one emergency operations center (within Clark County) has been included in the estimate of fiscal impacts.

The cost estimates to Las Vegas's OEM to prepare for any or all of the three scenarios include additional personnel for plan revisions, and monies for staff to train City Executive Staff in EOC Operations and Recovery procedures are contained in Table 7. This Office will also supervise the training of some 229 Public Works staff members in basic nuclear awareness. The

cost of the training the Public Works personnel is not included in these cost projections. In addition, another department, the Detention and Enforcement Department, was not interviewed but the new OEM director included cost projections for basic training of 40 City Marshals in the training cost projections for OEM.

3.0 NORTH LAS VEGAS PUBLIC SAFETY

3.1 North Las Vegas Police

Interviews with personnel of the City's Police Department were undertaken because of the department's role in emergency response, rescue, communications, street control, and evacuation. Deputy Chief of Police, Ken Kiphart, coordinated the information effort, which included information on baseline capacities, budget and additional needs and costs based on the Scenario 3 event occurring at the intersection of Decatur Blvd. and the Northern Beltway.

According to interviews with police personnel, in the year 2000, there were 129 patrol officers and 52 marked cars. Of this number of officers, 82 percent conduct street patrol and respond to service calls; 8 percent are involved in traffic control at any one time; and 10 percent are involved in "special" operations. Currently, there is no training related to radiological events involving evacuation. However, 50 percent of the supervisors may have some training in disaster management [(26)].

Police Department personnel identified the following needs so the department can be prepared for a Scenario 3 event:

- All police need training in radiological emergency response and evacuation.
- Because police personnel will be in the field during accident conditions, controlling traffic and coordinating any evacuation, some protective equipment will be required for approximately 120 officers.

- The police department will have to develop a contingency plan for evacuation, neighborhood protection, inter-agency cooperation, and other aspects of a city disaster plan. This will take one year to develop and involve a full-time planner/officer at a cost of $150,000.
- A major accident as depicted in Scenario 3 will require a city "emergency mobilization plan" based on the extent of the plume.
- The department estimates that an increase of 50 percent in the number of police cars will be needed to ensure that 75 cars are available for the city during such an emergency. Approximately 25 new cars each costing $32,000 were identified. The estimated total cost for the additional vehicles is $800,000.
- A traffic engineer also will be required on a six-month basis during the accident period to assist in traffic control planning at a total cost of around $80,000.
- Under a fully mobilized plan, 60 officers will be required on duty for the first two weeks of the emergency period. Currently, normal duty calls for 10 officers per shift. Costs incurred were estimated for overtime pay for 50 officers per day/12 hour shifts, at $35/hour for two weeks. A full mobilization plan for the emergency period will cost the department $35,000. Over the next five months following a Scenario 3 incident, an additional 30 officers may be required on a 24-hour/day basis. The estimated cost for longer-term response by the police department may add another $3,528,000 in overtime pay.

Table 8 indicates that there are impacts of over $700,000 for additional equipment and training for the North Las Vegas Police Department because of the DOE's proposed shipment campaign of HLW.

TABLE 8 PROJECTED FISCAL COSTS ON NORTH LAS VEGAS PUBLIC SAFETY			
Agency	**Cost**		**Purpose/Vulnerability**
Police Department			
Equipment & Training for 180 person force	$711,021		Dosimeters and annual calibration & 1 revealer dosimeter reader kit. Police officers initial HAZMAT/Rad training – basic & annual recertification
Subtotal		$711,021	
Fire Department			
Personnel – 36 Firefighters	3,249,775		2 Fire Training Officers,2 Captains 6 Paramedics,5 Engineers, & 21 Firefighters
Equipment	601,354		36 Radiological Survey Meter, Victoreens/Annual Calibration, 111 Personal Victoreen Dosimeters, 36 Air Packs, 36 One-Hour Light Weight Bottles, 5 Portable Decon Tents
Apparatus	1,388,339		2 Truck Companies & Equipment
Facilities	12,060,861		2 Fire Stations & Operating Costs
Training and Planning	5,121,073		Recruit Academy Training, Haz-Mat/Rad Training & Recertification
Subtotal		**22,421,402**	
Emergency Response Planning			
Develop Emergency Response Plan	13,401		Develop/Update Emergency Response Plan
EMS Training & New Personnel	194,222		40 Hour Training For 2 New Personnel + Salary Costs
Subtotal		**207,623**	
TOTAL		**$23,340,046**	

3.2 North Las Vegas Fire Department

Additional costs to the City of North Las Vegas's Fire Department in capital outlays (facilities), equipment, planning and training in order to be prepared to respond to a possible transportation event involving nuclear waste in 2010 were estimated by Fire Department personnel. Currently, the City will need assistance from other jurisdictions if an event is either significantly large or involves hazardous materials. With respect to radiological incidents, the capacity to respond effectively is inadequate. For example, only one radiological monitoring device is located in the division chief's vehicle and some radiological training related to monitoring (not response) is provided by a local industrial firm on a voluntary basis.

This level of training and equipment is inadequate for a possible accident event as depicted in Scenario 3. In fact, the interviewees suggested that the City is under capacity to meet even current urban service demands. For example, the interviews with fire department personnel indicated that the 14,000 calls per year exceed the number of calls for comparable cities in the western U.S.. Moreover, because "one-half of the city now lives north of Alexander Road, the one available station near the area is inadequate." An additional station is now planned to be built in two years time, but would only serve as a "stop gap" measure.

It is apparent that there is a serious deficit in capacity to meet even a minimum response to a MRFA radiological incident, and that assistance would be required from other jurisdictions. In a worst-case scenario, a radiological incident would "tie up all available resources leaving the rest of the city unprotected."

Table 8 summarizes the additional equipment, training, and facilities needed in order to have adequate capacity for the City's fire and emergency medical personnel to be prepared for an accident as depicted in Scenario 3.

In addition to new capital facilities and equipment, radiological monitoring equipment and response training for all firefighters is viewed as essential. While the City will manage the incident as first-on-scene responders in order to isolate contaminated areas, it will continue to rely on well-equipped and trained hazardous materials response teams from Clark County and the City of Las Vegas. However, some decontamination and support service for existing teams is also viewed as a responsibility of the City's Fire Department personnel. The additional costs for training, facilities, and equipment for the Fire Department are estimated to be $22,421,402 (Table 8). This includes inflationary cost assumptions from present value to year 2007, when the

shipment campaign starts. Costs for Emergency Response Planning and Training could reach $207,623.

4.0 HENDERSON PUBLIC SAFETY COSTS

The projected costs for additional public safety training, equipment, and plans associated with nuclear waste shipments along Interstate 15 in Henderson are estimated in this section. These costs are additional to the provision of services to an already existing and projected population and economic base. These additional costs are related directly to the specific needs for new public safety facilities, equipment, training, and planning in order for the City to be prepared for an accident involving nuclear waste.

The information regarding the City's public safety needs and costs related to preparedness and response to possible accident events were developed by Ray Moser of the Henderson Police Department and Michael Cyphers of the City Fire Department [27]. They were assisted by personnel in the two City departments. All cost estimates have been adjusted to 2007 dollars, but they do not include employee benefits and administrative costs.

4.1 Henderson Police Department

By the time the transportation of nuclear waste is assumed to begin, the number of officers on the police force is projected to be around 366. Additional police training to handle a nuclear waste transportation accident as depicted in Scenario 3 would include 20 hours of training directed at managing nuclear accidents, 10 hours of updated training in handling mass evacuations, and 10 hours of other training needs. The total cost for such training was estimated by Police Department personnel to be about $510,195. (Table 9).

The need for a specialized vehicle to function as a mobile 911 back-up, as well as mobile command post, was identified by both fire and police personnel. The cost of such a vehicle was

estimated to $402,029 (Table 9). Lastly, the cost of Ion Chamber survey meters for 15 vehicles was estimated at over $40,000 (Table 9). The total cost for preparing the Police Department for a possible nuclear waste transportation accident was estimated to be $952,427 (Table 9).

TABLE 9
PROJECTED FISCAL COSTS ON HENDERSON PUBLIC SAFETY

Agency	Cost		Purpose
Police Department			
Salaries During Training for 366 officers	$510,195		Overtime during Nuclear Accident Training
Equipment	402,029		Specialized Mobile Command Post, Dispatch Center, and 911 backup vehicle
Equipment	$40,203		15 Ion Chamber Survey Meters
Subtotal		$952,427	
Fire Department			
Salaries During Training	$140,592		Overtime during 20 Hours of Radiation Training
Emergency Response Plan	$70,296		Overtime during 10 Hours of Mass Evacuation Training
Equipment	$75,045		28 Ion Chamber Survey Meters
Subtotal		$285,933	
Emergency Management			
Emergency Response Plan	$13,401		Preparation Emergency Response Plan
911 Reverse Notification System	$73,705*		Reverse Notification System Expansion from 48 to 96 lines
Public Information Program	$61,463		
Subtotal		$148,569	
TOTAL		**$1,386,929**	

4.2 Henderson Fire Department

Preparation by the City of Henderson's Fire Department to be able to effectively respond to a Scenario 3 event would require additional training of its operations personnel in the areas of radiation response and mass evacuation. The fire department provided information on the costs of this training. Based on the salaries of major classes of personnel (Captains, Engineers, Firefighter/Paramedics and Firefighters); a projected staff of 264 by year 2005; and overtime salaries for training (20 hours for radiation response and 10 hours for mass evacuation), the cost was estimated at over $140,000 (Table 9).

Currently, the City's Fire Department has 28 vehicles. In the case of a radiological incident, these vehicles will require radiation (Ion Chambers) survey meters as first response units. Based on the current 28 vehicles, the cost of the Ion Chamber equipment is estimated at over $75,000 (Table 9). Again, because the nuclear waste transportation program in the scenarios is assumed to commence in 2007, this cost estimation will be increased based on the number of vehicles in the fire department in 2007 and the likely increased costs of the radiation meters. Preparedness costs based on current dollars include both training costs and equipment costs for a total of $285,933 (Table 9).

4.3 Henderson Office of Emergency Management

As mentioned earlier, although the Office of Emergency Management maintains Henderson's Emergency Operations Plan, the Plan does not contain a planning element devoted to a serious radiological emergency. The Office identified the need for preparing, printing, and distributing a high-level nuclear waste emergency management plan that would be added to the City's Emergency Operations Plan as an annex. The preparation and printing of an emergency response plan that incorporates a nuclear waste accident on I-15 is estimated to cost over $13,000 (Table 9).

The memorandum (September 25, 2000) by the City of Henderson to UER on Henderson's needs in the area of emergency preparedness includes public notification and education associated with the emergency management plan and possible simulation exercises. The basic costs for a public information program housed in the Office of Emergency Management would amount to approximately $61,000 (Table 9). This would include the development and dissemination of information targeted to key stakeholders, public safety organizations, NGO's, and personnel responsible for hospitals, day-care centers, nursing homes

and schools. Most City personnel that were interviewed view public education and outreach on nuclear waste issues as being an important public safety activity.

Currently, City personnel are active on various commissions and committees regarding the proposed nuclear waste program. If the proposed program is implemented, then additional personnel may be required in the planning, public information, and education areas. Based on additional personnel requirements in other Valley cities, the City of Henderson may require an additional two staff persons to help in planning, information activities, and interact with other cities, the County, and the State in regional planning issues connected with nuclear waste.

While Henderson currently has a Reverse 911 System, emergency management personnel indicated that it would be necessary to increase the number of telephone lines available for outgoing emergency messages. The estimated cost of expanding the current 48 lines to 96 (the number of lines identified by the Office of Emergency Management) is estimated to be around $73,000 (Table 9).

Three items were specifically identified as needed in the Emergency Management Office: an emergency response plan preparation, an expanded 911 Reverse Notification System, and a Public Information/Education Program. The projected costs of these three items were estimated at over $148,000 in year 2000 dollars (Table 9).

Table 9 shows the projected cost breakdown by Department and purpose. These costs are associated with being prepared for an accident event as depicted in Scenario 3. The projected costs for training, equipment and planning for the three public safety departments are $1,386,929. These are in current dollars and salaries.

5.0 MESQUITE PUBLIC SAFETY COSTS

5.1 Mesquite Police Department

The following facilities, equipment, and training have been identified as necessary in order to be prepared for the transportation of nuclear waste through Mesquite and to respond to an incident in the event that there is no release of radioactive materials. If a release such as that described in Scenario 3 were to occur, it is clear that even with new and expanded capacity, such an emergency along the I-15 route would require emergency management support from outside the area. The costs included in this report are only those necessary to prepare Mesquite's firefighters and police to provide first-response support for an accident event on I-15 involving a truck containing HLW where there is no release of radiation.

TABLE 10
PROJECTED FISCAL COSTS ON MESQUITE PUBLIC SAFETY

Agency	Cost		Purpose
Police Department			
Salaries	$1,876,446		24 New Police Officers + 6 Support Staff
Training	$34,754		8 Hour Radiation Training
Equipment	$917,760		Vehicles and Equipment
Subtotal		**$2,828,960**	
Fire Department			
Salaries	$1,874,429		17 New Firefighters
Training	$319,732		Training for Haz-Mat/RAD Specialists overtime based 240-hour initial & 8 Hour Refresher Training
Emergency Response Plan	$13,401		Emergency Response Plan
Equipment	$1,943,889		911 Reverse Notification System, Haz-Mat Rad Unit & Equipment; Rescue Truck & Equipment
Subtotal		**$4,151,451**	
TOTAL		**$6,980,411**	

The cost estimates are based on a shipment campaign beginning in 2007 with a scenario-based accident occurring in 2010. The inflation factors and equipment/training costs are based on the City of Las Vegas Fire and Rescue Department's estimates, but adjustments have been made

to reflect the size of the Mesquite community and its needs. The following needs were identified in the public safety area to prepare for the shipment of HLW along I-15 through Mesquite.

The police will need additional 24 officers and 6 support staff, as well as vehicles and equipment to stock the vehicles. All City of Mesquite police officers will need personal dosimeters and radiological training. The police department will also need a Revealer Dosimeter kit. These needs are based solely on the need to provide support to Mesquite's firefighters in a first response level event. Any other level of support would require additional assistance from other jurisdictions including the Nevada Highway Patrol. The total projected costs for Mesquites Police Department is over $2.8 million.

5.2 Mesquite Fire Department

The City of Mesquite will also need 17 new firefighters. In addition, all City of Mesquite firefighters will need 240-hour Haz-Mat/RAD training and an 8-hour annual refresher course so that they are able to appropriately manage a first response in case of an incident with a HLW transport vehicle. It is expected that in case of any event where there is a potential release of radioactive material, additional support would be required by other jurisdictions.

In order to prepare for an incident involving a HLW truck along I-15 within Mesquite, the fire department will need to acquire a Haz-Mat RAD unit and a medium sized rescue unit, as well as, a 911 Reverse Notification System. The fire department will also need to develop a special emergency response plan for the transport of HLW and the plan will need to be updated annually. The estimated costs to Mesquite's Fire Department are over $4.1 million.

6.0 PUBLIC SAFETY IMPACTS TO BOULDER CITY

Based on the limited information that is available describing potential shipment routes, none of the proposed shipments will travel on potential routes that are close to Boulder City.

Hence, the scenarios describe no conditions under which the City's general-purpose departments would experience any fiscal impacts, as there will not be any devaluation in assessed property values [28]. This is largely a result of the transportation corridor in the scenarios being designated as Interstate 15. The City administrative officials interviewed all concurred that while there might be some public safety impacts, the scenarios poised would not impact the City (short of a radioactive plume drifting to Boulder City).

Two possible exceptions to the lack of negative impacts could occur if alterations were made in the transportation of the waste. The first alteration that would impact the City would be if DOE were to use US 95 that runs through the heart of the City. This possibility is not foreseen as a possibility in the DOE's DEIS. Hence, it was not pursued with City staff. A second possibility that does concern the City is the eventual construction of a new corridor that would divert and upgrade US 93 under study at this time by the Nevada Department of Transportation (NDOT) [29,30]. The concern would be that the new US 93 or the new transportation corridor might be designated as a route for transporting HLW. Additionally, plans are underway and an evaluation of the potential for another crossing of the Colorado River downstream from Hoover Dam. While it seems unlikely, if any of these eventualities were to occur and the DOE were to designate these routes as transportation routes for HLW, the City would be heavily impacted according to the City.

6.1 Boulder City Police Department

The Boulder City Police Department consists of 29 commissioned officers. At any one time, there are 3 full-time officers on a shift. In addition, a Reserve bureau consists of some sworn officers that serve about 30 hours a month in return for a $200 clothing allowance. Currently, the Boulder City Police Department needs about 8 persons per shift (not including

detectives). The Department is currently strained by the demand for services and it is operating at full capacity [31]. What this means is that any additional demands on the force that are not anticipated or planned for can result in a deficiency in services.

The second and third scenarios are of considerable concern to the Boulder City Police Department. Drawing from the Department's experience with the Pepcon explosion and recent flooding in Henderson, several important facts are discernable. First, currently over one-half of the department lives in Henderson and they cannot get to Boulder City in an emergency when the road is cut off. In the Pepcon explosion and subsequent response, the Police Department retained only two detectives in Boulder City and sent the remaining 13 officers to Henderson. They were not able to communicate with the Henderson Police Department except by telephone. At the last flood in Henderson, the majority of the force could not get to Boulder City from Henderson where they live. The problem encountered occurs in the third scenario when I-15 is closed for an extended period. If traffic is rerouted directly to the Boulder Highway and through Boulder City, the Police Department will not be able to manage the rerouted traffic and collateral demands. Currently the City is getting about 20-30,000 vehicles a day passing through it on the Boulder Highway. If some of the traffic that is rerouted off the interstate comes through the City, police estimate that it will easily amount to 80-100,000 vehicles a day.

If the third scenario were to occur, the Department could not manage the rerouted traffic and would need the following equipment, personnel, and training (Table 11). The Boulder City Police Department estimates that an additional 6 new officers would be needed at a minimum (in addition to the projected force in 2007 when shipping begins) to provide some assurance that traffic could be controlled. The estimate of six officers assumes that some aid will be provided to augment the City's capacity by other local police departments. In addition, two new vehicles will

be needed. One new dispatcher will be needed, and training for the entire force in basic HAZ-MAT/Rad. This training is computed at an overtime rate of $59 per hour. Additionally, the officers would need a place to sleep in the City and beds. Not all of these needs actual costs can be estimated because of some missing information, but for most of it, the projections are listed in Table 11. Based on available information, the impact to Boulder City's Police Department could be almost $**405,000.**

TABLE 11
PROJECTED COSTS ON BOULDER CITY PUBLIC SAFETY

Agency	Cost		Purpose/Vulnerability
Police Department			
Personnel- 6 new officers @$31,000 per year	$186,000		Assistance as needed & Traffic Control
Equipment-2-3 new vehicles	200,000		About $32,000 per vehicle not including Insurance, operations
			Additional vulnerabilities include: inability to get police officers to Boulder City from where they live, understaffed force already
Training for 40 person force	18,880		Police officers HAZMAT/Rad training-basic
Subtotal		**$404,880**	
Fire Department			
			Any use of US 93, or change of DEIS considered routes that would bring HLW near or through the City would result in major additional, personnel, training and equipment needs.
TOTAL		**$404,880**	

6.2 Boulder City Fire Department

The Boulder City Fire Department has one centrally located fire station to cover the entire City. A shift consists of 1 Captain, 1 Engineer, 2 firefighter paramedics, and 1 emergency medical technician [(32)]. There is only very basic decontamination equipment available, although there is some additional capacity for decontamination at the Boulder City hospital. The force is augmented with callback personnel, as well as with 20 Intermediates that are all EMS and firefighters trained personnel. All personnel have NFPA standard HAZMAT first responder training (about 24 hours worth) and all have been re-certified in basic radiation training by the

Test Site. The Boulder City Fire Department has an Insurance Service Office (ISO) rating of Class 3 for fire suppression. Currently, the force has 1 Paramedic Reserve unit, a fire engine ladder truck, a second engine (pumper used by call-back personnel), and two more rescue units. The department also has sufficient cascade systems for its personnel.

Given the current projected transportation plans, and the location on I-15 for the incidents described in Scenarios 2 and 3, the Department does not believe that it is likely that they would be called upon [28]. They did provide the Henderson Fire Department with assistance during the Pepcon explosion. Boulder City officials re-examine the need for an additional fire station on an annual basis. At the current rate of expansion and request for services, a second station is realistic within 5 to 8 years. The timing for the additional station, will be influenced by the corridor selected as part of CANAMEX. As a result of the location of the incident, the Boulder Fire Department sees no additional demands being placed on it for services that it is not capable of providing. Should the transportation corridors currently outlined in the DEIS be altered, or a new crossing of the Colorado be constructed, or US 93 be considered as a corridor, the public safety needs in Boulder City would have to be reexamined.

7.0 MOAPA PUBLIC SAFETY

The Moapa Band of Paiutes identified the following facilities, equipment, and training in order to be prepared for the transportation of nuclear waste across tribal lands and respond to a mishap described in Scenarios 2 and 3. It is clear that even with new and expanded capacity, an emergency involving the release of radioactive materials near or on the Moapa Band will require emergency management support from outside the Moapa Band [33]. For example, a hazardous materials response unit was not included as an item by the Moapa Band. It is important that the

County considers a Haz Mat/Rad Unit for the larger area and provides MOUs with the Moapa Band for its possible use in an emergency.

The costs included in this section of the report are those that will provide the Moapa Band with a first-on-scene response capability by trained firefighters to be able to manage an emergency response on tribal lands resulting from a shipment incident involving HLW. The cost estimates are based on a shipment campaign beginning in 2007 with a scenario-based accident occurring in 2010. The inflation factors and equipment/training costs are based on both the Clark County Fire Department and the City of Las Vegas Fire and Rescue Department's estimates, but adjustments have been made to reflect the size of the Moapa community and its needs.

7.1 Moapa Fire Department

The Moapa Band identified the following needs of support for a Tribal Fire Department resulting from the DOE's proposed HLW shipment campaign:

a. quipment—fire truck and associated supplies
b. raining for fire fighters
c. upplies—suits, oxygen tanks, generators, radios, (etc.)
d. ribal Fire Station/ Dispatch Center (operational 24/7 hours/days).

Outside of fire and medical trucks, supplies and associated equipment, and personnel training, another major cost item is for a fire station/dispatch center. This facility is assumed to be smaller in size than similar facilities in the City of Las Vegas and this facility will not require land acquisition costs. As Table 12 shows, the costs for a fire station, equipment, fire and rescue trucks, and training will amount to an estimated $8,038,643 by year 2007.

TABLE 12 PROJECTED FISCAL COSTS ON MOAPA PUBLIC SAFETY		
Agency	**Cost**	
City of Moapa Fire and Rescue		
Personnel	1,791,292	
Equipment	216,546	
Apparatus	1,200,257	
Facilities	4,735,965	
Training & Planning	81,183	
Update Haz-Mat Emergency Plan	13,401	
Subtotal		**8,038,643**
Office of Emergency Management		
Personnel (Planning, Operations, Exercise, and Training)	154,000	
Support Staff – 2.5 FTE	49,353	
Equipment	277,500	
Subtotal		**480,853**
TOTAL		**$8,519,497**

The assumptions used in the fiscal analysis are based on the needs identified by tribal personnel and data from the Clark County Fire Department and the City of Las Vegas Fire and Rescue. The assumptions include personnel costs for 20 firefighters at a cost of $1.8 million in year 2007. Equipment needed for 20 firefighters to respond to an accident event is estimated to be $216,545 excluding emergency trucks. One fire truck, a medium-size rescue unit, and equipment (ambulance) would incur costs estimated at $1.2 million. The establishment of a fire station facility (two-thirds the size similar of Las Vegas facilities) would cost approximately $4.7 million in 2007 including operating costs. This figure excludes land acquisition costs to the Tribe.

7.2 Moapa Office of Emergency Management

As stated earlier, the current emergency management capacity of the Moapa Band is seriously deficient and would be inadequate to deal with the HLW shipment incidents described in Scenarios 2 and 3. The medical, fire emergency equipment, and training necessary for an effective response to a potential accident involving nuclear waste is virtually non-existent. Interviews suggested the necessity of the Moapa Band being somewhat self-sufficient in the

emergency response area given its responsibility as a "nation" and the fact that is relatively isolated. Memoranda of Understanding among various local entities will certainly help in terms of shared resources, coordination and planning, but will not provide assurance to the Moapa Band of its responsibility for its own safety. Capacity building from the ground up in the area of emergency management is seen as warranted by the Moapa Band based on the shipment scenarios. The cost estimates are based on providing a limited capacity to respond to a Scenario 3 event for year 2007 and include:

A. Emergency Medical Response
   (1) Rescue Truck-ambulance and assorted supplies
   (2) Trained paramedics or EMT
   (3) Tribal emergency response coordinator, funding, training, plus support staff

B. Administration/Governmental Costs
   (1) Development of MOU between tribe and other governmental agencies
   (2) Attorney time
   (3) Administrative cost & personnel for planning, RFPs, & purchasing etc.
   (4) Tribal council time.

These costs will include over $200,000 for personnel and over $275,000 for equipment. Overall the Office of Emergency Management cost projections are over $480,000.

8.0 DISCUSSION OF NEEDS

8.1 Fiscal Impact Costs on Clark County and Local Jurisdictions Police Departments

The fiscal cost projections for all of the police departments examined in Clark County indicate that the largest expense will be for equipment and facilities. Yet as can be seen from Table 13, not all of the police departments follow this pattern. Both Henderson and Mesquite Police Departments project higher costs for training their personnel than they do for equipment and facilities. Of the total of $72,583,657 of projected fiscal costs to these police departments, over $43 million is in the form of expected costs for new equipment and facilities. However, it is largely the LVMPD's cost estimates that drive this total because of the Department's

overwhelming size and needs when compared to the smaller jurisdictional and community forces. Nevertheless, the equipment needs of all of these police departments reflect personnel who are largely inadequately prepared for the type of risk posed by the radiological hazard associated with shipping HLW through these communities. As discussed, there is an immediate need for dosimeters and other equipment to protect police personnel. The large projected cost for personnel needs ($20,155,105) is also dominated by the $17+ million of projected personnel cost by the LVMPD. Significant training costs are evident in North Las Vegas, as well as for the LVMPD.

Table 13
Projected Fiscal Impacts Costs on Police Departments

	Personnel	Training	Equipment	Cost
Clark County	$17,582,464	$8,080,604	$42,023,301**	$67,686,369
Las Vegas	*	*	*	*
North Las Vegas	0	711,021	0	711,021
Henderson	510,195	0	442,232	952,427
Mesquite	1,876,446	34,754	917,760	2,828,960
Boulder City	186,000	18,880	200,000	404,880
Moapa	0	0	0	0
Totals	**$20,155,105**	**$8,845,259**	**$43,583,293**	**$72,583,657**

* Las Vegas Metro provides services to both Clark County and the City of Las Vegas
** Equipment includes capital costs

8.2 Fiscal Impact Costs on Clark County and Local Jurisdictions Fire Departments and Offices of Emergency Management\

The largest fiscal cost projections for any single public safety need are found in those costs associated with Fire and Emergency Medical Services. The location of the incidents contained in the scenarios do affect the size of the projected fiscal impacts as can be seen in the Boulder City Fire Department's lack of projected impact. Yet, the projected fiscal impacts on fire departments constitute the largest cost estimates. The prominence of these cost projections when compared to police or emergency management impacts is what one would expect. It is the fire departments' personnel that are the first responders to these types of incidents. Hence, the speed of their response, their preparedness for such incidents, the training and equipment must all

ensure effective, efficient and quick response. The size of the potentially affected area within some of the jurisdictions can be particularly problematic as has been pointed out, and results in the necessity of additional fire stations in some instances, as well as additional helicopters for the Clark County Fire Department.

As can be seen from Table 14, the largest single expense is for equipment including some capital costs that are for additional fire stations. The large total for equipment for the Clark County Fire Department (when compared to other jurisdictions and communities) is a direct result of the size of the County and its responsibilities for training and response. The $156,289,783 of projected costs for equipment to the Clark County Fire Department is over four times that projected for the Las Vegas Fire and Rescue Department. The major fiscal implications from the proposed shipping of HLW through Clark County on public safety agencies are particularly evident from Table 14. The total for fire departments is over $275 million. The large amount when compared to police or fire is in part a result of the multi-functions performed by fire forces. Training impacts are projected to constitute over $23 million, and personnel costs over $39 million. The critical importance of firefighters to respond to an emergency incident effectively has been made clear in numerous instances. These fiscal projections for Fire Departments point to the serious effort that will need to be undertaken for these forces to be adequately prepared and able to respond to an incident involving HLW.

TABLE 14
PROJECTED FISCAL IMPACT COSTS ON FIRE DEPARTMENTS

	Personnel	Training	Equipment	Cost
Clark County	$25,991,241	$13,615,031	$156,289,783**	$195,896,055
Las Vegas	5,711,370	4,044,588	34,840,835	44,596,793
North Las Vegas	3,851,129	5,121,073	13,449,200	22,421,402
Henderson	140,592	70,296	75,045	285,933
Mesquite	1,874,429	333,133	1,943,889	4,151,451
Boulder City	0	0	0	0
Moapa	1,791,292	94,584	6,152,768	8,038,644
Totals	**$39,360,053**	**$23,278,705**	**$212,751,520**	**$275,390,278**

** Equipment includes capital costs

Table 15 contains the fiscal cost projections for the Offices of Emergency Management studied. These projected costs are significantly lower than those for either fire or police services because, in part, the emergency management functions are all or in part frequently subsumed within the functions of fire departments (Mesquite and Boulder City for example). The large equipment cost for Clark County's OEM is a result of the necessity of providing a county-wide emergency operations center that can quickly become operational and be sustained over an extended period of time in the event of a radiological incident as described in Scenario 3. While the Las Vegas Fire and Rescue Department indicates it also needs such a emergency operations center, and we believe it is justified if for no other reason than redundancy, it has not been included so as to error on the side of conservative estimates. Even so, the projected cost for Offices of Emergency Management examined is over $12 million. These offices, among other roles, play the critical role of coordinating response and it is clear from the projected fiscal impacts that they must be upgraded to effectively carry out their function.

TABLE 15
PROJECTED FISCAL IMPACT COSTS ON
OFFICES OF EMERGENCY MANAGEMENT

	Personnel	Training	Equipment	Cost
Clark County	$340,340	$9,552	$10,264,493**	$10,614,385
Las Vegas	561,265	0	0	561,265
North Las Vegas	0	207,623	0	207,623
Henderson	61,463	13,401	73,705	148,569
Mesquite	0	0	0	0
Boulder City	0	0	0	0
Moapa	203,353	0	277,500	480,853
Totals	**$1,166,421**	**$230,576**	**$10,615,698**	**$12,012,695**

** Equipment includes capital costs

8.3 Total Projected Fiscal Costs on Clark County and Local Jurisdictions Public Safety Agencies

The total projected fiscal cost to the communities and the Moapa Band that was examined in this study is over $359 million (see Table 16). The largest projected cost is to Clark County public safety agencies estimated at over $274 million (this includes all of the cost projections for

the LVMPD which is also funded and responsible to the City of Las Vegas, but the projected costs for convenience are all attributed to Clark County). Because all of the projected costs for the LVMPD are ascribed to the County in Table 16, the projected fiscal impact of over $45 million for the City of Las Vegas considerably underestimates the City's actual cost projection that should contain some portion of the police cost projection (LVMPD) attributed to Clark County. In addition, even the over $359 million cost projection for all of the communities examined is low because it does not contain dollar estimates for the Southern Nevada hospitals studied, and were found to be inadequately equipped or trained to handle a radiological emergency as described in the MRFA (Scenario 3).

For the City of North Las Vegas the projected fiscal costs exceed $23 million, and for the Moapa Band the projected cost is over $8.5 million reflecting their location near the potential transportation route and current lack of capacity. Even the jurisdictions of Boulder City and Henderson are projected to incur some fiscal impacts despite their location away from projected transportation routes. The total cost projection of $359,986,630 should be viewed as a conservative overall public safety agency cost projection for not only the reasons already discussed above, but because many of the fiscal costs projected are not one-time impacts or costs. Rather, many of the costs uncovered are annual or periodically recurring costs (training for new personnel or for requalification or replacement costs for equipment) and are not included in these projections. In this context, the fiscal cost projections for public safety agencies in Clark County, the cities of Las Vegas, North Las Vegas, Henderson, Boulder City and the Moapa Band are likely far too low.

TABLE 16 TOTAL PROJECTED COSTS BY COMMUNITY/COUNTY				
	Police	**Fire**	**Emergency Management**	**Cost**
Clark County	$67,686,369	$195,896,055	$10,614,385	$274,196,809
Las Vegas	*	44,596,793	561,265	$45,158,058
North Las Vegas	711,021	22,421,402	207,623	$23,340,046
Henderson	952,427	285,933	148,569	$1,386,929
Mesquite	2,828,960	4,151,451	***	$6,980,411
Boulder City	404,880	**	**	$404,880
Moapa	N/A	8,038,644	480,853	$8,519,497
Totals	**$72,583,657**	**$275,390,278**	**$12,012,695**	**$359,986,630**

* Las Vegas Metro provides services to both Clark County and the City of Las Vegas
** Because of the projected distance to the HLW shipment corridor, Boulder City estimated impacts only for the Police Department.
*** In Mesquite, Emergency Management is a function of the Fire Department and thus costs are combined under Fire.

REFERENCES

(1). Urban Environmental Research, LLC, (September 1999). *Public Safety Impacts as a Result of Nuclear Waste Transport: Clark County, Nevada*. Urban Environmental Research LLC for the Clark County Department of Comprehensive Planning, Nuclear Waste Division.

(2). Public Safety Advisory Group, (January 1995). *Report on The Proposed Yucca Mountain Repository: Issues and Impacts.* Either available through the Clark County Office of Emergency management, Las Vegas, Nevada or the Nevada Nuclear Waste project office, Carson City, Nevada.

(3a). Mountain West Research, (June 1989). *Yucca Mountain Socioeconomic Project: An Interim Report on the State of Nevada Socioeconomic Studies.* Mountain West Research for the Nevada Nuclear Waste Project Office, Carson City, Nevada.

(3b). Mushkatel, Alvin (June 1988). "Nevada Division of Emergency Management," Phase IIIA, Yucca Mountain Socioeconomic Project Task 4.1, *Nuclear Waste Policy Act and Federal Mandate Demands and State Costs.* Nevada Nuclear Waste Project Office, Carson City, Nevada. Updated May 1989 and June 1992.

(3c). Mushkatel, Alvin "State Level Cost Analysis and Intergovernmental Relations: The Department of Motor Vehicles and public Safety," Phase IIIA, Yucca Mountain Socioeconomic Project, Task 4.1, *Nuclear Waste Policy Act and Federal mandate Demands and State Costs.* Nevada Nuclear Waste Project Office, Carson City, Nevada.

(3d). Planning Information Corporation and Alvin Mushkatel, (1998). *The Fiscal Effects of Proposed Transportation of Spent Nuclear Fuel on Nevada State Agencies: The Department of Transportation, The Nevada Highway Patrol, The Division of Emergency Management and the Public Service Commission.* Nevada Nuclear Waste Project Office, Carson City, Nevada.

(4). Las Vegas Metropolitan Police Department, Internet Site at: http://www.lvmpd.com/overview/ovrovr.htm.

(5). Clark County Nevada Emergency Operations Plan, (August 1998). The Plan is a Clark County Public Safety Coordination Team Effort coordinated by the Office of Emergency Management. Available through the Clark County Office of Emergency Management, PO Box 551713, 500 S. Grand Central Pky. 6th Floor, Las Vegas, NV. 89155-1713

(6). Las Vegas Metropolitan Police Department, June 15, 2000. Weapons of Mass Destruction and Hazardous Materials Plan. Department Manual Reference: 5/213.14.

(7). Lt. Martin Lehtinen, Las Vegas Metropolitan Police Department, Emergency Management Support Bureau. Resource Assessment for High level Nuclear Waste Incident. Mimeo Provided May 16, 2001.

(8). Clark County Fire Department, August 21, 1997. Multi-Year Strategic and Operational Plan, 97-98 edition. Available thorough the Clark County Fire Department, 575 East Flamingo Drive, Las Vegas, Nevada 89119.

(9). Brenner, Richard Fire Engineer, Clark County Fire Department. Personal communication May 9, 2001.

(10). Clark County Nevada Emergency Operations Plan, (August 1998). The Plan is a Clark County Public Safety Coordination Team Effort coordinated by the Office of Emergency Management. Available through the Clark County Office of Emergency Management, PO Box 551713, 500 S. Grand Central Pky. 6th Floor, Las Vegas, NV. 89155-1713

(11). Clark County Local Emergency Planning Committee, September 1998. Hazardous Materials Emergency Response Plan. Available through the Clark County Office of Emergency Management.

(12). Interview with Jim O'Brien, Plans and Operations Officer, Clark County Office of Emergency Management.

(13). Interview with Jane Shunney, Assistant to the Chief Health officer, Clark County, Nevada. March 13, 2001.

(14). Pete Carlo, Director of Operations, Southwest Ambulance. Interview, March 15, 2001.

(15). EMS Procedure for Emergency Department Closure, Revised and Endorsed by the EMS Medical Advisory Board, 4/4/2001.

(16). Linda Alonso, Safety and Environmental Management Coordinator, Sunrise Hospital and Medical Center, Interview, 4/14/2001.

(17). Jim Strafella, Director Life and Safety Operations, Valley Hospital Medical Center, 3/12/2001.

(18). Clark County Multi-Jurisdictional Mass Casualty Plan, May 1, 1997. Available through the Clark County Health District, or the Office of Emergency Management.

(19). Martin Heiny, Director of Risk Management /Safety, University Medical Center Interview April 11, 2001.

(20). Memorandum of Understanding between United States Department of Energy Nevada Operations Office and Sunrise Hospital and Medical Center, LLC Sunrise Children's Hospital. June 19, 2000. Available from Linda Alonso, Safety and Environmental Management Coordinator, Sunrise Hospital and Medical Center.

(21). City of Las Vegas, (May 16, 2000). *Budget in Brief Fiscal Year 2000*. available through the Department of Finance and Business Services, City of Las Vegas.
]
(22). Fire Safety Initiative 2000, Speaking Points. Internal Document, Las Vegas Fire and Rescue Department.

(23). Interview, Rick Diebold, Acting Office of Emergency Management Director, Las Vegas Fire and Rescue Department. September 6, 2000.

(24). Las Vegas Fire and Rescue Department, (January 1998). *Fire Plan 2003*. City of Las Vegas.

(25). William Whealan, Battalion Chief of Special Operations. Las Vegas Fire and Rescue Department. Written Communication, November 6, 2000.

(26). Clark County Department of Comprehensive Planning, *City of North Las Vegas: Governmental and Fiscal Impact Report Related to the Shipments of nuclear Waste.*

(27). Clark County Department of Comprehensive Planning, *City of Henderson: Governmental and Fiscal Impact Report*.

(28). Clark County Department of Comprehensive Planning, *Boulder City Governmental and Fiscal Impact Report*.

(29). Boulder City Corridor Study, 2000. *Planning for a Bright Future*. Newsletter distributed jointly by Nevada Department of Transportation, Boulder City and CH2MHill. Newsletter NO.1, Spring 2000.

(30). Boulder City Corridor Study, 2000. *PMT Begins to Narrow Solutions*. Newsletter distributed jointly by the Ne and Boulder City. CH2MHill. Newsletter NO. 2, Summer 2000.

(31) Interview, Chief William Turk and Lt. W.A. Brown, Boulder City Police Department. December 6-8, 2000.

(32). Interview, Deputy Fire Chief Edward Hulbert, Boulder City Fire Department. December 13, 2000. Additional interviews were also held with Fire Chief Dean Molberg.

(33). Clark County Department of Comprehensive Planning, *Moapa Band of Pauite Indians: Governmental and Fiscal Impact Report Related to the Shipments of High-Level Nuclear Waste*.