YUCCA MOUNTAIN NUCLEAR WASTE REPOSITORY PROGRAM

IMPACTS ON THE UNDEVELOPED LAND MARKET IN CLARK COUNTY, NEVADA, RELATED TO THE SHIPMENTS OF NUCLEAR WASTE

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1.0 Introduction

The purpose of this study is to establish a baseline to assess future impacts that may result from the federal government's proposed program to transport high-level nuclear waste to the proposed Yucca Mountain Repository on undeveloped land in Clark County, Nevada. In addition, this study investigates whether any adverse impacts already have occurred or currently are affecting the undeveloped land market in Clark County as a result of the U.S. Department of Energy's (DOE's) repository program and its attendant shipping campaign, or the recent decisions by the U.S. Congress to site the repository at Yucca Mountain.

The results of the analyses presented in this report show that the repository program and attendant transportation of nuclear waste proposed through Clark County has not had any demonstrable impact on sales prices of undeveloped land or on transactions involving these lands at this time. Also, no evidence was discovered of any significant changes to development projects along possible shipment routes including their zoning, project design, or build-out rates. The interviews and analyses suggest that several factors may explain this lack of impact to date. These factors include the shortages of large parcels of undeveloped land for major projects in the Las Vegas Valley, low capital costs for land development, rapid build-out rates, and continuous high in-migration rates to the area. These factors would tend to mask any negative impacts from the high-level nuclear waste program on undeveloped lands. It is in this context that the emphasis in this study is to address the need for a regional monitoring system that could identify changes in undeveloped land.

Earlier socioeconomic assessments conducted for the Clark County Department of Comprehensive Planning examined the potential impacts of nuclear waste shipments

on property values along possible transportation routes for nuclear waste. These assessments included a study involving impacts on three property types—commercial, residential, and industrial—all located within 3 miles on each side of likely transportation routes of nuclear waste through Clark County. Potential impacts on commercial property values also were examined in a survey of key decision-makers in the hotel-gaming industry. However, possible impacts on undeveloped land values, sales, and transactions that may result from the proposal to site the repository at Yucca Mountain and to transport the waste through Clark County had not yet been examined. This report addresses that gap.

The potential for developing raw land in Clark County is a critical factor in the economic growth of the County. Therefore, it is critical to identify any impacts (or lack of impacts) the repository program may have on the undeveloped land market, as well as to evaluate whether there is a potential for any future impacts on undeveloped land. Another type of impact to assess on undeveloped land is whether planned developments have been hampered in any way, substantially modified, or delayed as a direct or indirect consequence of the repository program.

The first step in assessing the potential impacts of the repository program on undeveloped land was to develop a database of the undeveloped land parcels along the possible high-level nuclear waste transportation routes. While specific routes have not been chosen by DOE, Clark County personnel were able to provide a comprehensive database of land parcels along potential routes for this analysis. This database consisted of undeveloped land by parcel size, location, land parcel identification number, zoning classification, and assessed valuation. This database was developed using a geographic

information system (GIS) and consisted of all 265,000 land parcels located within 1 mile on each side of Interstate 15 (I-15), the Beltway, and U.S. Highway 95 (US 95), which are the three truck transportation corridors under consideration by the DOE for nuclear waste transport in Clark County.

The database developed for this study has two important functions. First, it provides a comprehensive profile of undeveloped land along the major transportation corridors within Clark County for the year 2002. The GIS database is a flexible tool permitting aggregation of land parcel data by location. Information on undeveloped parcels of land in the corridors examined is aggregated for specific geographic areas such as municipalities, regions, or neighborhoods, or by zoning classification. Second, information on the total assessed value of undeveloped land and any changes in value over time can demonstrate the level of vulnerability of this market from proposed shipments of nuclear waste.

This database also may be used to develop a monitoring system to identify future changes in the pattern and value of undeveloped land. Indicators can be established to gauge when change is occurring in the undeveloped land market and the magnitude of any change. Change in assessed values or sales of raw land can provide early indications of impacts. Moreover, this database contains information on undeveloped land near potential shipment routes for nuclear waste. Hence, the monitoring system for undeveloped land permits comparisons of changes along the shipment corridors with land sales at different distances from the potential routes.

The construction of this database permits periodic updates of information on the undeveloped land market. While the existing database cannot provide measures of actual

impacts resulting from the nuclear waste program today, it can be used to measure future changes to the land market.

This study also addressed the question of whether past and present raw land values already have been adversely impacted by the ongoing high-level nuclear waste program. Several analyses were performed to answer this question. First, the sales prices of undeveloped land for Clark County were analyzed for the period from 1996 to 2003. This analysis was followed by interviews with key real estate analysts from Applied Analysis, and Restrepo Consulting Group of Las Vegas. These key informants provided their perspective on changes in undeveloped land from 1997 to the present.

Another objective of this study was to assess whether developers' and the public's knowledge and concerns about possible future nuclear waste transportation through Clark County has had a dampening effect on either sales or values of undeveloped land, especially near potential shipment routes. To address this question, real estate analysts and developers were questioned whether they were aware of concerns regarding the nuclear waste program in any way dampening the pace of development, delaying projects, or changing the zoning, design, or mix of major development projects.

Another important indicator of potential impacts on undeveloped land in Clark County is the sale of newly disposed public land. Information on sales transactions for recently released land managed by the Bureau of Land Management (BLM) can assist in revealing any repository-related impact. For example, a decrease in the volume of sales transactions or land price diminution at public land auctions may suggest possible impacts from the nuclear waste program on undeveloped land.

Another potential indicator of impacts on undeveloped land is the rate at which new major developments are initiated, costs of land for master planned communities (falling within new major projects classification discussed below), and build-out rates of major projects in Clark County. Changes in the number, rate of development, zoning, and build-out of the major master-planned communities in Clark County could result from concerns over the nuclear waste repository. This study examined these factors for the major projects that were under development review by the County in 2002. Information on these major projects (current and proposed) can serve as a baseline for monitoring any impacts from a repository program on major projects in the County. This report suggests some initial indicators for inclusion into a development and major projects monitoring system.

This study of the repository impacts on undeveloped land is outlined as follows: Section 2.0 of the report describes on the GIS database of land parcels within 1 mile on each side of the potential shipment routes in Clark County. Section 3.0 examines the trends in the sale prices of undeveloped land in Clark County over time, and also analyzes land transactions and prices paid for publicly disposed land. Section 4.0 summarizes findings from interviews with representatives of major projects in Clark County. Section 5.0 addresses, in a preliminary fashion, some of the possible indicators that can be used in constructing a monitoring system for Clark County that is focused on land development. The Appendix provides a descriptive profile of the major projects in Clark County. The remainder of Section 1.0 outlines the four elements of the approach followed in the study.

1.1 Study Approach Elements

1.1.1 Development of a GIS for Undeveloped Land

The first element of the study's approach entailed compiling a database of undeveloped land located in possible shipment corridors for nuclear waste. A study area was defined as encompassing corridors 1 mile on each side of I-15, the Beltway, and US 95. The geographic boundary of 1 mile on either side of each of these roads was selected because earlier research by Urban Environmental Research (UER) on property values and other studies suggested that property values and development impacts from nuclear waste shipments could be anticipated at this distance (UER, Clark County Prperty Value Report on the Effects of the Federal Government's Proposal to Ship High-Level Nuclear Waste to a Repository at Yucca Mountain, May 2001). The construction of a database consisting of undeveloped land parcels incorporated data that included parcel number, location, parcel size (in acres), and zoning classification type by geographical location.

As a part of this first component of the study's approach, data on assessed value were obtained from the Clark County Assessor's Office that provided full coverage of the 2002 assessed values for all of the undeveloped land parcels discussed above. The assessed valuation of land in Clark County is completed every two years. Therefore, the assessed value data represent a snapshot of assessed value used for property taxes in July 2002. The total number of parcel records in the files was 265,000 records. Because jurisdictions use different zoning classifications for undeveloped parcels of land, it was important to standardize the zoning types across cities. Therefore, two databases were merged and the assessed valuation and parcel identification data were integrated with zoning types. The 1-mile study area boundary was selected based on criteria embedded in research findings. Some parcels of undeveloped land along the transportation corridor

that is under consideration for nuclear waste transport by DOE extend outside of the study area boundary. The GIS database reflects this limitation and some overestimation of the amount of undeveloped land was therefore unavoidable.

As a part of this first element of the analysis, two local areas - the City of Las Vegas and North Las Vegas - received special attention in the study because of the likelihood of significant impacts on undeveloped land in their transportation corridors. The GIS database is highly flexible and provides information on undeveloped land by zoning type or classification, parcel acreage, and assessed values within the prescribed boundaries of these two municipalities. The development of the database required not only the aggregation of 265,000 parcels of undeveloped land into a GIS, but also the integration of zoning districts among jurisdictions. In cases where the zoning could not be identified, they were categorized as "*unassigned*."

The Clark County Unified Development Code (Title 30) has established "zoning districts" to classify, regulate, and segregate the use of land, buildings, and structures in the unincorporated part of Clark County. These districts are divided into (a) Residential, (b) Commercial, (c) Manufacturing, (d) Special and (e) Overlay. Although the GIS database developed for this study uses these zoning types, it is important to note that each zoning district is further divided into its constituent subclasses. The Residential Zoning District, for example, has 11 subclasses and the Commercial Zoning District has 4 subclasses. Clark County zoning incorporates industrial districts (M-2) as part of its Manufacturing Zoning District.

The data set used in this analysis combines the two Special and Overlay Districts into one zoning type. Special Districts are areas/parcels that are zoned for open space or

public facilities (parks, schools, sewage treatment plants, and others), general highway frontage districts, or urban villages. Overlay Districts include such land uses as residential neighborhood preservation districts and planned communities.

In general, the zoning districts defined in the City of Las Vegas Zoning Code are consistent with those defined by Clark County, but there are exceptions that required consideration in this study. For example, 1 of the 11 residential zoning districts in Clark County is designated as an “Undeveloped District.” Because this zoning type accounted for 23 percent of the undeveloped corridor land in the City of Las Vegas, it was designated as a separate category in the database. According to the City of Las Vegas Zoning Code, the “Undeveloped District” functions as a temporary classification to be used until property is ready for development for a more intense, permanent use. This classification is intended as a temporary holding zone to prevent the premature or haphazard development of property. In addition, unlike Clark County’s zoning districts, which have a designated Manufacturing District, the City of Las Vegas Zoning Code instead designates Planned Business Park Districts, Commercial/Industrial Districts, and Industrial Districts (heavy manufacturing).

The City of Las Vegas has established zoning districts that are consistent with the zoning types established for the GIS database that covers Clark County. These include the following districts: Open Land, Residential, Commercial, Industrial, Overlay Districts, and a Planned Unit Development (PUD) District. In time, both the Open Land District and the PUD will be residential to a large extent.

Based on combining the zoning districts of the City of Las Vegas, North Las Vegas, and the unincorporated parts of Clark County, the database consists of the following zoning types:

- Commercial
- Freeway
- Industrial
- Manufacturing
- Unassigned
- Residential
- Special and Overlay
- Undeveloped

The analysis of the 2002 baseline data of undeveloped land in the shipment corridors contains the assessed value of these properties by zoning type and acreage. Special and Overlay Districts were combined as these properties generally will be developed for governmental and public purposes. The two categories of Industrial and Manufacturing also may be combined in a future monitoring system, but remain separate in this study.

1.1.2 Sales Price Analysis

Data on the selling prices of undeveloped land sales in the whole for Clark County, Nevada were obtained from Applied Analysis, Inc. of Las Vegas, and analyzed. The information on selling price trends constitutes the second element of the approach followed for this study and includes the selling price of land from December 1996 to January 2003. Applied Analysis, Inc. of Las Vegas developed these trend data and made

them available to UER. The existing trend data combined with key informant interviews provide sufficient information to draw inferences about the following:

- Trends in sales prices of undeveloped land in Clark County
- Impacts on existing undeveloped land and planned developments resulting from the nuclear waste transportation program and shipment campaign
- Market forces that are driving the demand for vacant land in Clark County

1.1.3 Analysis of Federal Land Disposal

During the period from November 1999 to August 2002, BLM held 10 auctions to dispose of public lands within the boundary defined by the Southern Nevada Public Land Management Act (refer to Section 3.2.1). The analyses of the sales at these public auctions constitute the third element in the study approach. The analysis of these land disposal data covers parcels sold during these auctions for private purpose. The land data include the following:

- Number of parcels offered and sold
- Size of parcels
- Appraised value of the parcels sold
- Sales price of parcels sold
- Acreage of parcels
- Mean sale price per acre

1.1.4 Analysis of Major Projects

The fourth element of the study approach involved analyzing trends in major projects. The first step in this part of the study involved identifying the major development projects under review in Clark County that were either being initiated,

planned, or those that were in the process of development. These projects were identified by the Clark County Department of Comprehensive Planning, Major Projects. The County also provided the key planning reports proposed for each development and identified the key developers for interviews about these projects.

Plans for each of the nine projects were reviewed and described with respect to location, acres, maximum number of residential units, phased development period, and other project descriptors (Table 1 and Appendix). This activity was followed by interviews with representatives of the projects. The resulting information can be used to establish a baseline of information about these major projects. In addition, these data can be used to develop a monitoring program that would track key indicators of trends in major projects including land costs, size ownership, location, build-out rates, and other important indicators in this market sector.

The interviewees were asked the following questions:

- *What is the size of the land parcel(s) for your major project?*
- *When was the land bought, and who was the original owner?*
- *What is the nature of the project and has its development kept to the original schedule?*
- *Have there been any significant changes (unexpected changes) to the plans since the project's conception in terms of development, building rates, zoning changes, or design changes?*
- *Have there been any changes in the project as a result of the proposed nuclear waste program or concerns about its possible effects on development, property values, or risks?*

- *What do you see as trends in the undeveloped land market, and future development trends in the Las Vegas area?*

The following 9 projects were described in the Appendix to provide a preliminary baseline for a monitoring program.

Table 1 Clark County Major Projects*

Developer	Acres	Maximum Units	Final Year of Development
Apex Industrial Estate	21,000	N/A	N/A
Coyote Springs	13,100	49,100	2042
Mountain's Edge	2,489	12,500	2010
Pinnacle Peaks	1,037	N/A	2016
The Quarry	160	920	2011
Rhodes Ranch	1,398	9,000	2015
Southern Highlands	2,300	8,500	2033
Southwest Ranch	497	N/A	2008
Summerlin South	6,138	18,000	2026

*** Clark County Major Projects as designated by Title 29 or 30**

Interviews were held with representatives of many of these projects, as well as, other developers within Clark County and all were supplemented by planning documents obtained from the Clark County Department of Comprehensive Planning. Interviews included the following individuals: Mark Dunford (Pinnacle Peaks), Craig Eddins (Southern Highlands), Randy Tarr (Terracina), Klif Andrews (Nevada Trails), Rob Beville (Southwest Ranch), and Tom Warden (Summerlin South).

To supplement information on undeveloped land prices, assessed values, development trends, and the role of federal land disposition on the local development market, interviews were held with the Clark County Assessor, Mark W. Schofield and other personnel from the Assessor's Office; John Restrepo, Principal, Restrepo Consulting Group; Jeremy Aguero, Principal, Applied Analysis; Michael Dwyer, Project Manager, Southern Nevada Planning Land Management Act Field Office; Chris Knight, Deputy Director, City of Las Vegas, Department of Planning and Development; Brystol

Ellington, Assistant Director of Community Development, City of Henderson; Marta Golding Brown, Assistant Planning Manager, Major Projects, Clark County Comprehensive Planning Department; Rebecca Bourke, Assistant Planning Manager/Major Projects Coordinator, Clark County Comprehensive Planning Department, and Justin Williams, Senior Planner, Advanced Planning Division, Clark County Comprehensive Planning Department.

2.0 Undeveloped Land Along Possible Nuclear Waste Corridors in Clark County: Development of Baseline Data

2.1 Introduction

This part of the study examines undeveloped land extending 1 mile on each side of I-15, the Beltway, and US 95 that have been identified as potential routes for nuclear waste shipments through Clark County. The objective of this section of the report is to characterize the undeveloped land along these highways using a GIS integrated database containing land values for July 2002. This GIS database was developed by the Clark County Comprehensive Planning Department in consultation with UER. The database information provides a baseline for measuring impacts on undeveloped land along these routes over time. Therefore, the database is structured to permit measurements of significant changes over time in the area's land market and may be used to alert decision-makers that change is occurring. In addition, these changes may be observed relative to the baseline information to estimate the nature and magnitude of any change. This part of the study also used some of the data gathered from the interviews with key real estate professionals to provide additional insight as to whether any adverse impacts had already occurred in the undeveloped land market as a result of the nuclear waste program along the potential shipping routes.

2.2 Analysis of Undeveloped Land

As described above, the analysis of undeveloped land in this report is based on July 2002 assessed valuation data. Table 1 provides the total acres of undeveloped land along the major highways within Clark County from Primm in southwestern Clark County to the Moapa exit in the northeastern section of the county to Cactus Spring along US 95. The table also provides data on total acreage of undeveloped land by zoning classifications. The total number of acres of undeveloped land in 2002 within 1 mile of the principal highways in Clark County identified as potential shipment routes was estimated to be 213,139 acres (Table 2). The largest percentage of this undeveloped land is zoned for residential development and represents 62 percent of the total undeveloped land being studied. Undeveloped land targeted for Special and Overlay zoning is the second largest zoning category and accounts for 23 percent of the total undeveloped land in the transportation corridors.

Table 2 Undeveloped Land by Acreage and Zoning: 1-Mile Corridor for I-15, the Beltway, and US 95, Clark County, 2002

Zoning Type	Undeveloped Land (In Acres)	Percent of Total Acres
Commercial	2,068.84	0.97
Freeway (access ways, right-of-way)	75.46	0.04
Industrial	237.37	0.11
Manufacturing	9,503.11	4.46
Unassigned	20,487.71	9.61
Residential	131,248.19	61.58
Special and Overlay	49,014.93	23.00
Undeveloped*	503.29	0.24
Total Undeveloped Land	**213,139.00**	**100.00**

*** A City of Las Vegas zoning designation**

Other percentages of undeveloped land include unassigned zoning at 10 percent, manufacturing at 4 percent, commercial at 1 percent, and freeway land (access ways),

industrial, and other undeveloped land each less than 1 percent of the total. Clearly, in terms of undeveloped land, three land uses dominate – Residential, Special, and Overlay Districts, and unassigned uses.

2.3 Assessed Values

Table 3 provides data on the total assessed valuation of the undeveloped land along the major highways in the study by zoning classification. As illustrated in Table 3, the total assessed value of the undeveloped land along these potential transportation routes exceeded $2.9 billion in 2002. Table 3 also provides the percentage of assessed value for each zoning classification of undeveloped along the transportation corridors being studied. As can be seen from this table, approximately 46 percent of the total assessed value of this undeveloped land is zoned for residential development (approximately $1.3 billion of the $2.9 billion total). While this residential land represents 46 percent of the total assessed value of the undeveloped land, it also represents 62 percent of the total number of acres of undeveloped land within the geographic boundaries of the potential transportation routes. Undeveloped land that is currently unassigned is valued at $647.5 million and Special and Overlay parcels are valued at $646.8 million. The total acreage of unassigned land was estimated to be approximately 10 percent of the total acreage, yet this category of land use constitutes approximately 22 percent of the total assessed value of undeveloped land in the study area.

Table 3 Total Assessed Value of Undeveloped Land Along Major Highways in Clark County, Nevada by Zoning Type, 2002

Zoning Type	Total Assessed Value in Dollars	Percent of Total Assessed Value
Commercial	138,508,557.00	4.75
Freeway	1,757,299.00	0.06
Industrial	14,207,238.00	0.49
Manufacturing	123,283,834.00	4.23
Unassigned	647,476,558.00	22.22
Residential	1,316,353,476.00	45.18
Special and Overlay	646,800,264.00	22.20
Undeveloped*	25,392,331.00	0.87
Total	**$2,913,779,557.00**	**100.00**

*** A City of Las Vegas zoning designation**

Similarly, while undeveloped commercial land accounts for 5 percent of the total assessed value, this land accounts for only 1 percent of the total acreage. The strong demand for particular land parcels for commercial development or mixed-use projects causes these individually selected parcels to be assessed at relatively higher values per acre, which is consistent with the prices developers are willing to pay in the market.

2.4 Analysis of Undeveloped Land: City of Las Vegas and North Las Vegas

The database used for this analysis permits the assessed value for undeveloped in the City of Las Vegas and North Las Vegas to be examined separately. Table 4 displays the information on undeveloped land for the City of Las Vegas. Within the City of Las Vegas there are 2,224 acres of undeveloped land that are within 1 mile on either side of the major highways. Although this amount of acreage is small compared to the total acreage of undeveloped corridor land for Clark County as a whole, the total assessed value is significant as it was assessed at $94.8 million in 2002.

Table 4 Total Assessed Value of Undeveloped Land Along Major Highways in the City of Las Vegas, Nevada by Zoning Type, 2002

Zoning Type	Total Assessed Value in Dollars	Percent of Total Assessed Value	Acres	Percent of Total Acreage
Commercial	9,588,281	10.12	135.45	6.09
Manufacturing	504,543	0.53	5.45	0.25
Unassigned	16,440,936	17.35	254.2	11.43
Residential	22,716,770	23.97	702.55	31.59
Special and Overlay	20,122,491	21.23	623.36	28.03
Undeveloped*	25,392,331	26.79	503.29	22.63
Total	**$94,765,352**	**100.00**	**2,224.00**	**100.00**

*** A City of Las Vegas zoning designation**

Tables 2 and 4 show that the percentage of undeveloped land by zoning classifications in the City of Las Vegas is dissimilar to the percentage distribution found for the total undeveloped land in Clark County. For example, in Clark County as a whole, undeveloped land zoned for residential uses accounts for 62 percent of the total, while in the City of Las Vegas this zoning type accounts for 32 percent of total acreage. However, the percentage of undeveloped land assigned to Special and Overlay zoning is relatively similar in percentage – 23 percent in Clark County and 28 percent in the City of Las Vegas. This zoning category amounts to a large percentage of undeveloped land for both jurisdictions and reflects future public development interests.

In Las Vegas, a special land use category has been established for specific future uses, and the City types these lands as “undeveloped.” This specific “undeveloped” zoning category found in the City is used for land that is currently unassigned with respect to zoning, but has been temporarily set aside for significant or special developments in an effort to reduce haphazard growth and development. The “undeveloped” land use category accounts for only 503.3 acres of land in the highway corridor in the City of Las Vegas. However, as a percentage of undeveloped land, this

category accounts for 23 percent of total undeveloped land in the Las Vegas highway corridor.

Table 4 also provides the percentage of the total undeveloped corridor land by zoning type and in acres for the City of Las Vegas. Land allocated for residential uses accounts for 32 percent of total land and Special and Overlay zoning accounts for 28 percent. Land zoned for commercial uses accounts for 6 percent of total acres, manufacturing constitutes less than 1 percent, and unassigned land constitutes approximately 11 percent.

In terms of assessed value, the undeveloped land use category contains the highest amount of value, assessed at $25,392,331 in 2002. This total represents 27 percent of the total assessed value in the City of Las Vegas for undeveloped land in this study. The second and third most important zoning types are Residential and Special and Overlay Districts, at assessed values of 24 percent and 21 percent of the total assessed value, respectively. Land zoned for commercial uses accounts for approximately 10 percent of the total assessed value, and manufacturing constitutes approximately 1 percent. These data suggest that the City of Las Vegas has a substantial amount of undeveloped land available for future development along its major highways.

An analysis of undeveloped land by zoning type, assessed value, and acreage also was completed for the City of North Las Vegas. The pattern of undeveloped land in the North Las Vegas shipment corridors is different from both the City of Las Vegas and Clark County as a whole. For example, residential zoning in acres in Clark County as a whole accounts for 62 percent of total undeveloped land and 46 percent of the assessed value, while in the City of Las Vegas it represents 32 percent of the undeveloped land

and 24 percent of the assessed value. In contrast, undeveloped residential land in North Las Vegas accounts for 94 percent of the total acres and 84 percent of the assessed value. Hence, undeveloped land in North Las Vegas has been reserved largely for future residential use. Earlier studies completed by UER found that residential property values were the most sensitive to property value diminution effects resulting from the shipment of nuclear waste. Therefore, property value changes should be carefully monitored along the possible shipment corridor in North Las Vegas. Again, future development along this corridor may be vulnerable to DOE's shipment program of high-level nuclear waste.

Table 5 shows the distribution of undeveloped land in North Las Vegas along its transportation corridors by zoning type, total assessed values, and acres, respectively.

Table 5 Total Assessed Value of Undeveloped Land Along Major Highways in North Las Vegas, Nevada by Zoning Type, 2002

Zoning Type	Total Assessed Value in Dollars	Percent of Total Assessed Value	Acres	Percent of Total Acreage
Commercial	1,209,054	1.02	33.75	0.49
Freeway	1,757,299	1.48	75.46	1.10
Industrial	14,207,238	11.97	237.37	3.48
Residential	99,703,202	83.97	6,355.63	93.18
Special and Overlay	1,854,058	1.56	119.26	1.75
Total	**$118,730,851**	**100.00**	**6,821.00**	**100.00**

As noted, undeveloped land in North Las Vegas in the transportation study area is zoned principally for residential land uses. With respect to the total amount of undeveloped land available, residential zoning accounts for 94 percent, industrial zoning represents 3 percent, freeway uses constitute 1 percent, and Special and Overlay Districts account for 2 percent. Commercial land uses account for less than 1 percent of the total. An interesting difference emerges when comparing undeveloped land along the study highways in the City of Las Vegas and North Las Vegas. While North Las Vegas has 6,821 acres of undeveloped land in the area study area, almost three times the 2,224

undeveloped acres in the City of Las Vegas, the total assessed value of the undeveloped land in both communities is quite close, totaling $94.8 million in the City of Las Vegas and $118.7 million in North Las Vegas. This similarity in total assessed value results directly from the dominance of residential zoning in North Las Vegas (94 percent of the assessed value) versus 24 percent of total assessed value for residential land use in the City of Las Vegas. The predominance of residential zoning, which is assessed at lower value than other uses, results in closer total assessed values between the City of Las Vegas and North Las Vegas than would be expected, given the large difference in the amount of undeveloped land in each community. Hence, at least in North Las Vegas, the placement of residential development along these transportation corridors potentially may make citizens more vulnerable to a transportation incident involving high-level nuclear waste than in other communities like Las Vegas.

2.5 Implications

The amount of undeveloped land along potential shipment routes in Clark County is significant with respect to land availability for future economic development. The value of these properties is also significant. Based on 2002 data, the total assessed valuation was estimated at almost $3.0 billion. Because so much of these parcels are zoned for residential and special purposes and high-end commercial uses, these properties may become vulnerable to a future scenario of nuclear waste shipments nearby. These vulnerabilities may include higher risk premiums, longer transaction periods, slower sales transactions, rezoning, and declines in the sales value.

3.0 Analysis of Sales Data of Undeveloped Land

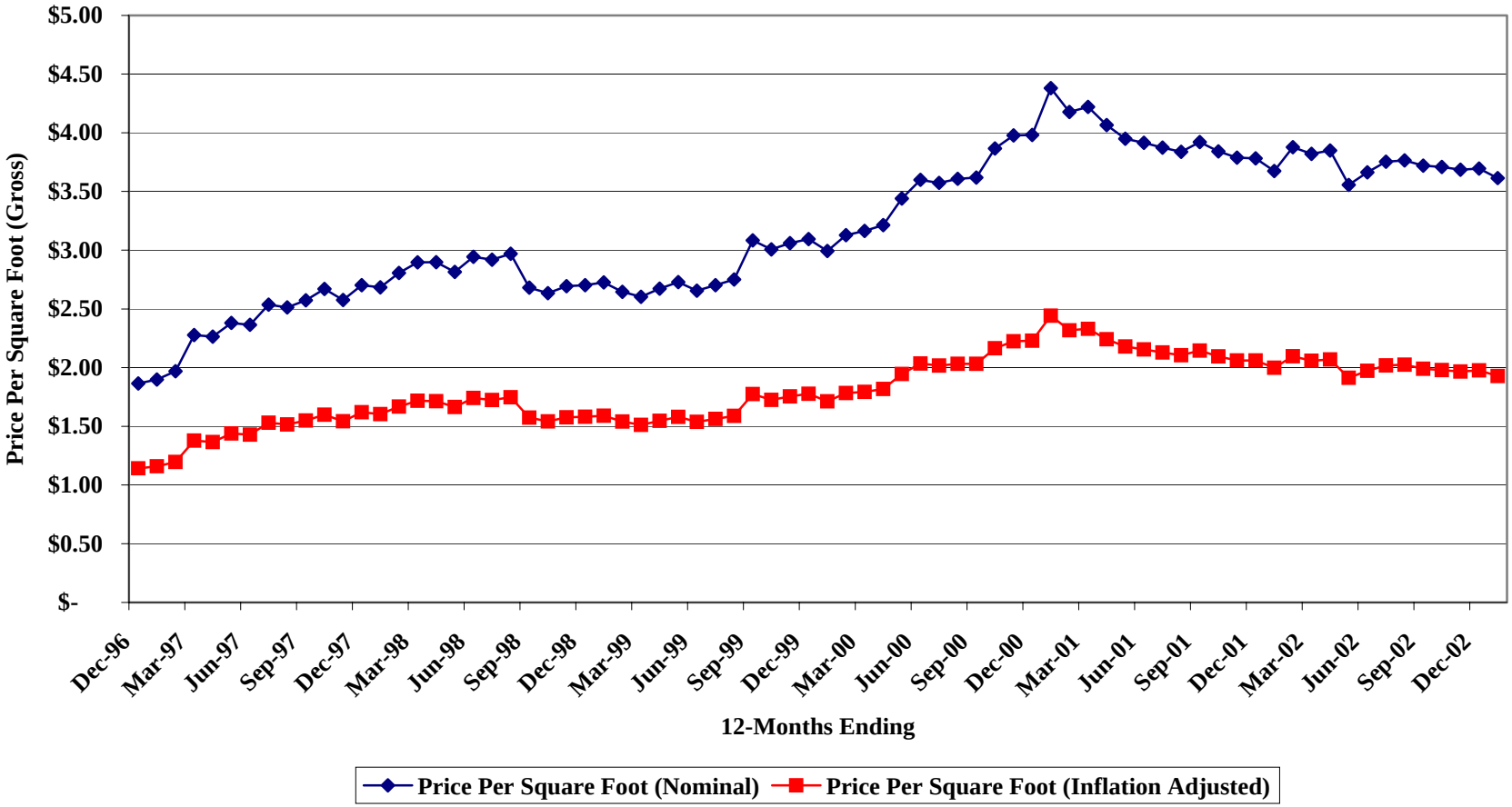
The major objective of this section of the report is to further analyze the undeveloped land market in Clark County as a whole and how it might be affected by the

high-level nuclear waste disposal program. In order accomplish this objective, three types of analysis are presented. First, an examination of trends in the sale of undeveloped land in Clark County from 1996 to 2003 is undertaken and discussed. Second, this trend analysis is supplemented by interviews with experts in local land and real estate trends to obtain their perspectives of the undeveloped land market and how it might be impacted by shipments of high-level nuclear waste. These interview data are incorporated into the analysis throughout the following sections of the report. The third type of analysis performed entails an examination of the disposition of public (mostly federal) lands for private and municipal development. The data related to the public auctions of these lands are evaluated to determine whether there are trends that reflect strong market demand for new large-scale developments in Clark County. These analyses lead to a discussion of whether the nuclear waste repository program has impacted or is presently impacting the sale of undeveloped land or plans for future land development.

3.1 Sales of Undeveloped Land in Clark County, 1996-2003

Figure 1 displays the selling price per square foot of undeveloped land in Clark County during the period from December 1996 to January 2003. The data are rolling 12-month averages and are in nominal and inflation-adjusted forms. Comparisons between this data set and the GIS-based data set discussed above cannot be readily made for several reasons. Most importantly, the data sets are not equivalent. The transportation corridor data are of assessed value of undeveloped land within 1 mile on each side of a highway that might be a route for transporting nuclear waste. The data used in this trend analysis are sales price data and are composed of actual average sales prices of land sold in the County during1996-2003.

Figure 1 Price per Square Foot for Vacant Land in Clark County, Nevada: Rolling 12-month Averages from December 1996 to January 2003*



Source: *Applied Analysis*, Las Vegas, Nevada.
*Note: The above chart does not represent all vacant land sales within the valley. It only represents a selected sample of land sales and should be used only as an indicator of the trend that is occurring in the Valley.

Based on the inflation-adjusted sales prices, vacant land was selling at approximately $1.25 per square foot between December 1996 and April 1997. From May 1997 to August 1998, average vacant land sales increased to $1.62 per square foot. Average vacant land sales then lowered to approximately $1.56 between the months of September 1998 to August 1999. From that date, prices for vacant land continued to increase to January 2001. For example, the average sales price per square foot rose from $1.77 in September 1999 to $2.44 in January 2001 and then subsequently fell to $2.06 per square foot by December 2001. Since then it has continued to fall, and by January 2003, the average sales price per square foot fell to $1.93. Using nominal sales data, the increase in sales price of undeveloped land rose to $4.38 per square foot in January 2001. The decline from the high in 2001 reflects a slight decline in the sales rate but also a continuing and sustained increase in absolute dollar over time. Information from Applied Analysis (Mr. Jeremy Aguero) suggests that the sharp increase in land values during the period from September 1999 to January 2001 period reflected a change in the mix of land uses sold as well as the impact of a perceived shortage in the supply of vacant property land parcels. The drop in land prices from its height in January 2001 can be viewed as a market correction or stabilization. At nominal prices, the national inflation in the real estate market increased during this period and prices per square foot rose from $3.00 to $4.00 per square foot of undeveloped land (Figure 1).

Interviews with professional economists provided information on land sales trends to the present. John Restrepo (Restrepo Consulting Group), a local land economics expert, indicated that during 2001, vacant land activity in general slowed in the Las Vegas Metropolitan area from previous growth trends. However, due to the increasing

demand for housing and land sales transactions, the prices paid for residential land has continued to increase to the present from 2001. Despite lower current demand for land for commercial development, residential land prices have escalated by approximately 15 to 20 percent over the last two years.

Restrepo identified one risk factor influencing the local market for undeveloped land—the slowdown in out-of-state tenants for commercial and office properties that is a part of a national trend in this sector. Nevertheless, as Restrepo suggests and the GIS database confirms, undeveloped land zoned for commercial purposes typically constitutes only a small percentage of the total undeveloped land in the Valley. In contrast, the rate of new master-planned communities and the robust retail trade sector has counteracted the sluggish demand for commercial land today. There also has been no slowdown in master-planned communities with typical plans constituting 500 or more acres. Such developments in Clark County are built-out over very short time frames.

According to all the interviews conducted for this study, there is no evidence of any adverse impacts on the undeveloped land market resulting from the nuclear waste program. Prices of vacant land continue to increase even near possible nuclear waste shipment routes, land for home construction continues to be in high demand, and the number of large-scale master-planned communities is increasing with rapid build-out rates. Despite a noticeable decline in County revenues after the September 11, 2001 terrorist events, undeveloped property values held constant in Clark County.

Although data on sales transactions of vacant land to the present will be available soon, interviews with personnel at Applied Analysis familiar with the data indicate that the price of vacant land and its assessed value held steadily after the September 11, 2001

terrorist events. During the last year, those interviewed reported prices for vacant land had increased over the previous year (2001). With low interest rates, there has been an increase in property investment activity. The combination of sales data and findings from the interviews suggest that the nuclear waste repository program and the recent federal decision to implement the repository program has not yet had any adverse impact on undeveloped land prices, the number of sales transactions, or changes in development plans.

Additional observations suggesting the lack of adverse impacts can be found in the number of master-planned communities currently on the market. According to the key informants representing major projects, there have been no changes observed in their development plans, zoning patterns, or in design characteristics. When asked specifically about development trends in North Las Vegas related to the BLM-released land along the Beltway (a possible shipment route for nuclear waste), the indications are that the development has proceeded as projected during the last 12 to 24 months.

According to the real estate economists interviewed, master-planned communities of 500 to 700 or more acres in the Las Vegas area may have a five-year build-out rate. Only 2 of the 34 master-planned communities initiated over the last eight years have not materialized. These developments may have failed because of poor management and not economics, according to those interviewed. In fact, one analyst suggested that the continued and stable growth trends were consistent with the population and real estate growth projections completed by the University of Nevada at Las Vegas five years ago (J. Restrepo, personal interview). Moreover, these trends reflect the strong consumer demand for master-planned communities.

However, a number of trends were identified for the near future that may impact real estate development. For example, the release of federal land to municipalities for private development could result in an expanded range of opportunities for large master-planned developments in the Las Vegas metropolitan area over the next 10 years. The fact that recent BLM-released lands sold at auction at prices greater than their appraised values is indicative of high market demand for such developments and the escalation of undeveloped property values. Recently, the America Nevada Corporation/Del Webb bought a 25,000-acre unimproved property for $47.5 million and sold the first phase of the plan to several builders at $160,000 per acre. According to the interviews, the nuclear waste transportation program has not been a viable factor in development plans, nor has it dampened property values in the undeveloped land market.

A worst-case scenario related to a possible transportation accident, according to one real estate expert, potentially could impact developments close to freeways, but in a robust land economy, it cannot be assumed that a downturn on one land use or in one area will affect all land uses. According to the real estate analysts interviewed, during the last eight years while the nuclear waste issue was receiving widespread recognition, it had no apparent effect “as far as property values, the rate of master planned communities coming on the market, and consumer behavior” (J. Restrepo, personal interview). The rapid pace of development along the Beltway in North Las Vegas during the last two years has also reinforced the fact that indicators of impacts—changes in development plans or designs and the rate of building completion—do not seem to have been hampered by the federal government’s nuclear waste repository program in Nevada.

3.2 Disposition of Federal Land in Clark County

One of the most substantial impacts on land development in Clark County over the last five years has been the disposition of public land held by the federal government, mostly by BLM. Most of these public land parcels generally surround the already developed areas of the greater Las Vegas area. The disposition of these public lands has provided opportunities for both Clark County and municipal governments to plan these areas for public uses and especially master-planned communities. The ability to use these public lands for private and public investments has resulted in significant involvement on the part of municipalities on securing these lands and planning their growth. Interviews with municipal planners and BLM officials have indicated that major benefits were identified in the policy to dispose adjacent federal public lands. These benefits are as follows:

- Public lands are relatively large, permitting phased and orderly growth by municipalities to meet their 10-year growth projections.
- Disposition of public land is generally initiated by the municipality and a plan for its growth is included. Environmentally sensitive areas are identified and municipal-BLM partnerships are typically developed. The municipalities or the County can identify public needs for facilities and open space (schools, public parks, sewage treatment plants, utilities, etc.) to meet their future growth requirements. Moreover, private interests bid at auction for land parcels, but the general plans for the development of the disposed land must be approved by the local jurisdiction. In a sense, the process permits orderly and coordinated growth, preventing haphazard development.

- The comparatively large tracts of publicly disposed land provide opportunities for master-planned communities and particularly designed projects with mixed uses. Without the availability of these new land parcels, the current Las Vegas land market would be limited with a very tight land market.
- The availability of federally disposed land has created a coordinated approach to regional growth and the integration of economic development, housing, public facilities, and transportation.

3.2.1 Background

The Federal Land Policy and Management Act of 1976 (FLPMA) authorized the legal use of public land to be privatized into community growth. Under FLPMA, each unit of BLM management or district would develop a land use plan identifying land management issues and areas that were developable. BLM issued a land use plan for Southern Nevada in October 1998. The Las Vegas Resource Management Plan was a product with individual communities and this plan specifically identified areas that could be privatized. Despite legal and political issues surrounding the implementation of this plan, the intent of the plan was to have both “value for value” land exchanges between private interests and BLM and outright purchases. The issues centered on the lack of coordination of sales, non-comparable sales, and undervalued federal land appraisals.

As a response to these issues and to control sprawl, Senators Bryan and Reid initiated a Public Land Task Force in October 1994. The outcome of the deliberations was to create a boundary around the Las Vegas metropolitan area that would accommodate 15 years of projected growth. The authorization was given to BLM that it could incorporate the earlier BLM plan and privatize federal land within this growth

boundary. The resulting legislation—the Southern Nevada Public Land Management Act (SNPLMA)—added 50,000 acres of BLM land to local jurisdictions. Of this land disposal, local governments could obtain, without cost, federal land for public uses and transfers. Of the original 50,000 acres within the boundary, approximately 50 percent of the land would be put up for private sales for development.

The disposed BLM land in 1997 was either scattered in small pieces or was found in fairly large tracts such as the 7,500 acres of public land located along the Beltway in North Las Vegas. Another 6,000 acres were annexed by the City of Henderson. Although the properties were appraised and local jurisdictions prepared planned phasing and generalized plans for the land, the parcels would come under a process of competitive sales through land auctions.

Interviews with local planners, representatives of development firms, and the Project Manager for the SNPLMA Project Office confirmed the widespread benefits of the Act. These included proactive local planning initiatives; land transfers involving improvements in Clark County; expansion of parks, trails, and conservation areas in Clark County; and operations cost recovery for BLM. The trend is that federally disposed land is increasing rapidly in value. According to BLM personnel, sales prices for public land have exceeded appraised values by as much as 45 percent.

Two questions were specifically asked of the BLM project manager: (1) Given the recent revenue declines in the Las Vegas area, why has the value of undeveloped land increased so rapidly?; and (2) Have there been any observable impacts on either property values, sales, or changes in plans as a result of the nuclear waste program?

Several interrelated explanations were given to the first question. First, outside of the public disposed land, there is a generally held view that the greater Las Vegas area is running out of large tracts of available land. This limitation in available land would tend to drive market prices up because of competition for newly released land. In addition, the sluggish national economy has given momentum to real estate investments because the cost of capital has declined concomitantly. Finally, despite a sluggish national economy during the last year, the population growth in Las Vegas has continued to increase, resulting in a strong demand for new residential development (Michael Dwyer, personal interview, October, 2002).

There also was no evidence provided by planning experts as to any discernable effects on the land market resulting from recent decisions related to the nuclear waste program. In fact, it was suggested that the most expensive sale of federally disposed raw land was a commercial site immediately adjacent the Beltway ($426,000 per acre). Dwyer indicated that "There virtually has been no impact on land from the nuclear program. There has not been any harm to date on the land market" (Michael Dwyer, personal interview, October, 2002).

In June 2002, Senators Reid and Ensign introduced the Clark County Conservation of Public Land and Natural Resources Act of 2002. The explicit purpose of the Act was to "establish wilderness areas, promote conservation, improve public land, and provide high quality development in Clark County, Nevada." Title IV of the Act amends the earlier SNPLMA to expand the boundary of the land disposal area. The Clark County Conservation of Public land and Natural Resources Act of 2002 added

approximately 22,000 additional acres to the disposal area in the northern part of the Las Vegas Valley, most of which are proximal to the Beltway and US 95.

3.2.2 Sales Analysis of Public Disposed Land

Tables 6, 7, and 8 provide data on the disposition of public land through SNPLMA. Up to August 2002, 186 parcels had been sold, generating over $150 million. Sixty-seven percent of all parcels sold were between 2.5 and 9.9 acres in size. Only one parcel was larger than 50 acres. That particular parcel represented the first phase of a major master-planned development of over 1,900 acres along the Beltway in North Las Vegas. Altogether, BLM will release 7,500 acres in this area. The demand for BLM-disposed land for development has been strong, with approximately 92 percent of all parcel offers sold at auction. The mean selling price per acre of parcels less than 50 acres ranged from $86,357 to $133,329. An important finding is that in most cases, the selling price of auctioned public land exceeded the appraised fair market value of these properties. On the average, sales prices were approximately 20 percent over the appraised values. This trend is indicative of the strong market demand for publicly released land. In November, 2002, 40 parcels were sold at auction. The fair market value of the 1,121 acres sold was $96,076, 450 and selling price was $179,345,999. This represents selling prices approximately 86 percent above appraised value. In the last land auction in June 2003, 33 out of the 326 parcels offered were sold. The total number of parcels sold amounted to 995 acres with a fair market value of $127,050,500 and a sales price of $232,285,000. This represents approximately 83 percent over the appraised value for these properties. Sales price per acre for land sales in the November 2002 auction was estimated at $155,000. This increased to $233,000,000 per acre in the June 2003 auction.

Table 6 SNPLMA Land Sales, Parcels, and Acres by Auction, November 1999 to August 2002

Date	First Time Parcels Offered	Parcels Previously Offered	Total Parcels Offered	Total Acres	Total Parcels Sold	Acres Sold
Nov 1999	23	0	23	181.25	20	105.00
June 2000	84	3	87	363.06	30	110.16
Nov 2000	23	54	77	300.42	36	180.47
Dec 2000	0	40	40	114.95	12	30.00
May 2001	22	4	26	2,033.00	17	1,983.00
June 2001	0	0	0	0	0	0
Nov 2001	23	14	37	161.20	25	123.70
Dec 2001	0	11	11	35.00	2	2.50
July 2002	28	11	39	210.00	36	201.25
Aug 2002	0	3	3	8.75	3	8.75
Totals	**203**	**140**	**343**	**3,407.63**	**186**	**2,779.83**

Table 7 Public Land Parcels, Percent Sold, and Mean Sale per Acre, by Parcel Size

Parcel Size (acres)	Offered	Sold	% Sold	% Offered by Size	Mean $ Acre
< 2.5	42	39	92.9	20.7	$132,550
2.5-4.9	74	65	87.8	36.5	86,357
5.0-9.9	62	59	95.2	30.5	133,038
10-50	24	22	91.7	11.8	133,329
> 50	1	1	100	.5	24,770
Total	**203**	**186**	**91.6**		

Table 8 SNPLMA Land Sales, Appraised Amount, Sales Price, and Percent Over Fair Market Value, Clark County

Date	Parcels Sold	Acres	Appraised Amount	Sales Price	% Over FMV	Average Sale/Acre
Nov 1999	20	105	$ 7,855,500	$ 9,478,500	120.66	$90,271
June 2000	30	110	13,812,500	15,079,000	109.17	136,882
Nov 2000	35	168	16,654,000	18,713,500	112.37	111,356
Dec 2000	12	30	2,088,400	2,093,500	100.24	69,783
May 2001	17	1983	49,313,000	58,378,000	118.38	29,439
Aug 2001	5	32	3,700,000	3,792,501	102.50	116,692
Nov 2001	25	123	9,807,500	13,465,610	137.30	108,856
Dec 2001	3	7	857,500	860,500	100.35	114,733
July 2002	36	201	21,752,500	30,929,000	142.19	153,684
Aug 2002	3	9	630,000	681,000	108.10	77,828
Nov 2002	40	1121	96,076,450	179,345,000	186.66	159,986
June 2003	33	995	127,050,500	232,285,000	183.00	233452
Total	**231**	**4885**	**$126,471,000**	**$565,101,111**		

4.0 Analysis of Major Development Projects and Trends

The objective of this section of the report is to examine the major development projects (new large-scale master-planned communities) in Clark County to determine if these developments have already been affected by the high-level nuclear waste program. The overall study provided data on the sale trends of undeveloped land in Clark County and determined whether there had been impacts on undeveloped land as a result of the nuclear waste program in Nevada. The analyses provided in this section of the report focus on these major projects that were or are under review by Clark County. Specifically provided are the following:

- Determination of whether there has been any slowdown in the rate in development of these projects
- Analysis of whether price diminution of the lands for these projects has already occurred
- Examination of whether changes in zoning, phasing, and design of these developments has already taken place
- Investigation of the concern expressed about the proposed repository and its attendant transportation and conclusions about if it has affected the planned developments

An additional focus for this section is how Clark County might begin to monitor changes resulting from repository-related conditions. Hence, interviews with key representatives involved in these major projects were held to obtain their views of what critical factors and indicators should be monitored that could quickly identify any changes in key project development trends. If such changes were to take place, additional

indicators (yet to be identified) could be examined to determine if the impacts were a result of conditions associated with the repository program.

The major development projects in Clark County by location, size, zoning, and phased development found are described in the Appendix. This discussion is based on the interviews with key developers and regulators of these projects. The interviews were used to determine the following:

- If any changes to their development had taken place as a result of the nuclear waste program
- If they perceived that land prices might have already been affected in the Valley as a result of repository program events
- What their views were about what constitutes the most suitable and relevant monitoring indicators of development trends (refer to Section 5.0)

The analysis of the interviews resulted in several important findings and most of these points listed below grew out of a consensus of those interviewed. Those interviewed for this report are listed in Section 1.0, and the findings of these interviews are discussed in this section.

The major findings include the following:

- There is a shortage of undeveloped land for major projects. There is a consensus among those interviewed that there is a shortage of significant land parcels available for major planned developments. Although the BLM land disposition has opened up new opportunities for private development within the growth boundaries, there is still a perception among members of the

development community that large land parcels are either not available or are being held for long periods of time awaiting increased demand.

- There is a strong demand for large-scale master-planned projects. Those interviewed indicated there is ample evidence suggesting that there is increasing consumer demand for master-planned communities characterized by projects 700 acres or more. The demand for master-planned projects is a function of continuing strong in-migration rates and consumer preferences for such developments. The combination of sustained consumer demand and limited land supply has resulted in increasing costs for large parcels of undeveloped land. The upswing in land costs also has resulted in increasing prices paid for residential homes, making it more difficult to build units in the Valley for entry-level homebuyers.
- There are nine major projects currently under review. These projects are large-scale master-planned communities and often are contained within the newly established growth boundaries. Development plans often reflect the views and interaction between the County, municipalities, and BLM with respect to BLM-disposed land parcels. These plans also reflect well-planned zoning, community and public needs, and phased approaches to development. Build-out can be very rapid for well-located new developments, especially along the Beltway.
- There is no evidence to suggest that the nuclear waste program has hampered sales prices of undeveloped land. Interviews with local real estate experts, developers, County assessors, and federal land managers indicate that the

nuclear waste program has had no observable adverse impacts on the land market. Those interviewed could not identify any negative impact on the following:

- Assessed value of undeveloped land
- Recent sale prices of land
- Neither the sale volume nor the cost of land near likely shipment routes
- Build-out rates of major projects
- Any changes in zoning, density, design, or phasing of planned developments, some of which are near highways identified for possible transportation of nuclear waste

The evidence that land prices generally have increased over the last five years, especially residential zoned land during the last two years, has been clearly demonstrated. The analysis in Section 3.0 showed that the sales prices of undeveloped land has continued to increase by 10 to 20 percent during the last two years for Clark County as a whole, despite the revenue decline in the casino-hotel industry. Moreover, BLM-released land has sold on the average at prices that exceed the appraised value of the land. Even small marginal parcels of land disposed of by BLM, which at first did not sell at auction, are now easily marketed at higher-than-expected prices. Of particular importance is the fact that subdivided land located along the Beltway has sold at comparatively high prices ($120,000 to $140,000 per acre) and has also experienced rapid build-out. Hence, even near potential shipment routes, land development activity continues to be sustained at very high levels.

- Land values and development activity along the Beltway have increased significantly. According to the County assessors, the trends in land values for undeveloped land have increased substantially over time. While there may have been a slight slowdown after the September 11, 2001 terrorist events, County assessors argue that long-term adverse impacts have not been observed. Considerable increases in the value of land have resulted along the Beltway. This has to do with new master-planned communities and the available utilities and infrastructure along the Beltway to support high levels of development. Mention was made of one parcel of land along the Beltway that has increased 20 percent in value per year over the last six years. County assessors also agreed that land prices along the Beltway were near their height in 2002, some selling at $200,000 per acre for residential land at key locations.

None of the developers interviewed indicated any change in their development plans because of the nuclear waste program at this time. Changes from the original plans were typical ones involving zoning, upsizing, densities, and added allocation for public infrastructure and facilities. For example, the first phase of the Southern Highlands master-planned community sold out quickly and the second phase has started. All developers identified the following factors to explain the past and current lack of impacts on the local land market from the nuclear waste program: high demand for new developments resulting from continued population in-migration, limited amount of available land for master-planned projects of significant size, rapid build-out prior to any decisions specifying routes and transportation mode, lack of public concern expressed

over the issue relative to housing needs, and high levels of uncertainty as to high-level nuclear waste shipment routes.

New development in the City of Las Vegas, especially in the northwest fringe area, supports the above arguments. According to the interviews with the City of Las Vegas planning personnel, the City's growth area is in the northwest, where 7,860 acres recently have been annexed within the federal lands disposal growth boundary. Master-planned communities include Summerlin South, and a new 1,000-acre project coming online near the Beltway and U.S. 95. Moreover, as part of the City's "nominated lands for disposal," a 500-acre satellite campus for the University of Nevada at Las Vegas is planned in this area.

According to City of Las Vegas planners, the current development pressure is on the edge of lands released by BLM. The new Town Center at U.S. 95 and the Beltway is planned for 2,000 acres of commercial space with residential planned centers around the project. Housing demand in this area is high, with subdivided residential land selling for $125,000 per acre and commercial land selling between $200,000 and $300,000 per acre. Despite the possibility that nuclear waste may be shipped "right through the growth area of Las Vegas," development there has been planned with land values and transactions at very high levels (C. Knight, City of Las Vegas).

Because the build-out in this area of the city is projected over a 10- to 20-year period, the designation of shipment routes for nuclear waste through this area would create issues for the development community. However, these issues do not appear to have arisen yet, although they may much later. At present, no impact has been observed by those interviewed that has resulted in slowing of land development. The development

of a regional monitoring system that would track indicators of change in the speed of build-out in areas of Clark County was viewed as critically important by many of those interviewed. Consequently, there was strong support for a regional monitoring system for land transactions and land values. According to City of Las Vegas planners, these indicators should include land values and real estate transactions near the Beltway and US 95, and at various distances from the possible routes.

5.0 Preliminary List and Discussion of Indicators: A Monitoring System for Land and Development Activity

This study examined whether the nuclear waste repository program has had any impacts on land values, land sales, or development plans. To achieve this objective, one analysis was undertaken on assessed values of undeveloped land 1 mile from each side of possible shipping routes. Although these data provide information at one point in time (2002), impacts cannot be effectively determined using only this information. Therefore, it was important to produce a baseline database, which is now in place for Clark County, from which changes over time can be observed in assessed valuation of the undeveloped land sector. This database, combined with other indicators, will aid in the development of a monitoring system and is only one of several important inputs into such a system.

In addition to this database, which contains specific information on undeveloped land along possible shipment corridors for nuclear waste, this study also addresses actual sales of undeveloped land over the last three years in Clark County as a whole. These data and updates can provide an important baseline condition from which to monitor change in sales prices of land. When updated and expanded, sales data could include parcel size, year sold, zoning, sale price of parcel, and price per acre, in addition to

geographic location. In this way, distance from possible shipment routes could be examined as a factor in explaining change in the land market.

Two other analyses were undertaken to complete the land development study. The first examined trends in the sales of federally disposed land at auction. These data included date of sale, number of parcels, sale price, sale price per acre, and appraised fair market value. Additional data can be added to this database including planned development, zoning, site information, and ownership. Because these data can depict trends over time, they are an excellent source that can permit the tracking of the conditions associated with the land market and demand for land. The record and trends in the federal lands disposition can be an effective barometer of changes in the local market, and could be incorporated into the design of a monitoring system.

The second analysis involved the characterization of major projects. Tracking the build-out rates, absorption, changes in project design and zoning, and rate in which new projects come online can be important indicators of change. Interviews were also held with key land/real estate analysts, representatives of major developments, Clark County assessors, and community planners. In any monitoring effort, scheduled follow-ups with these key informants and others would be critical because they provide early indications of changes they are encountering or that they perceive to be taking place.

Based on the research involved in this study, and the interviews specifically addressing monitoring needs of the local land market, indicators were determined for inclusion in a monitoring system. Changes in these indicators may provide early warning signals that impacts from the repository program are being realized.

Recommended indicators of change in the local land market resulting from the nuclear waste repository program are as follows:

Database	Indicators To Monitor
1. Assessed Value of Undeveloped Land	• Assessed valuation 1 mile on each side of the potential shipment routes • Assessed value by parcel number, zoning, size, and value per acre • Assessed value of raw land as above by jurisdiction, geographical areas, and designated routes • Assessed land values along rail lines in Clark County as above • Assessed value of land along shipment corridors verses control areas for comparison (distance from routes)
2. Sales Prices of Land	• Sales price data for Clark County as a whole over time, in dollars per square foot and per acre, averaged yearly • Sales price data by jurisdiction and geographical areas of interest • Sales price data – corridor areas versus the County as a whole • Sales prices by distance from possible shipping routes • Sales prices by zoning, parcel size (categories), and acreage
3. Major Projects	• List of past, present, and new major projects and principal characteristics • Data on build-out rates, phasing, zoning and design, costs of land, and costs to builders • Survey of representatives of major projects regarding issues, changes, concerns, and phasing
4. Public Land Disposition	• Survey of municipalities regarding annexation, land nomination, and project development plans • Land purchases by date, number of parcels, parcel size, location, zoning, price, price per acre, and appraised value • Time between purchase, development plans, and subdivision/ infrastructure development
5. Building permits	• Building permit aggregate data over time by category – residential, commercial, industrial, and geographic location. • Real estate sales transactions
6. Socio-demographics	• Relate real estate trends to population growth, Gross Domestic Product, employment, and other factors

There are a number of established land development and real estate indices that potentially can be incorporated into a tracking system. Based on the analyses completed

in this study, it appears that the land market in Clark County has not experienced any adverse impacts resulting from the federal government's program to transport nuclear waste through Clark County to the proposed Yucca Mountain repository. However, although aggregate land development data support this finding, the study cannot be definitive about particular individual projects or land sales that may have been hampered by investors' reluctance resulting from concerns over the repository. What is certain is that the volume and value of undeveloped land along proposed nuclear waste transportation routes in Clark County is significant and that these properties are vulnerable to actual nuclear waste shipments. Therefore, it is recommended that Clark County begin to develop a monitoring program to track changes in the land market.

APPENDIX: MAJOR PROJECTS

The purpose of this appendix is to provide a brief overview of Clark County's Major Project Team and their function, as well as, to provide a brief description of current Major Projects. The information in this section comes from the Major Project Team web site. (http://www.co.clark.nv.us/development_services/majproj_desc.htm).

The County's Major Project Team (Major Projects) was originally organizationally located in the Clark County Comprehensive Planning Department. The Major Projects team is composed of planners (to review zoning and subdivision applications, check plans prior to building permits for compliance with County codes or conditions of approval), associate engineers, and drainage and traffic engineers. These personnel provide professional functions as part of a comprehensive team review instead of providing these services in different departments as separate functions.

The Major Projects development process began in 1995-1996 by helping to support large-scale developments throughout the County's planning process. With a number of large master-planned communities coming online by 1999, the Major Projects' review team was created to include assisting new developments through the planning approval and development process. The Major Projects Team reviews planning applications and documents while the Major Projects Coordinator negotiates development agreements between the developer and the County and acts as a liaison between the developer, the community and the County. The Major Projects Team reviews and assistance are intended to help accelerate the application-review process; assist in promoting large-scale developments that meet the community's goals; and ensure that public capacity needs are met.

Title 30 of the Clark County Unified Development Code outlines the Major Projects process. The purpose of a review by Major Projects is to accomplish the following (also see Title 30.20):

- Allow for the comprehensive consideration of large projects
- Assess the impacts of the project on neighborhoods and the community
- Assess requirements for the project from the perspective of community resources
- Assist the Board of Commissioners in determining proper zoning

Source: (http://www.co.clark.nv.us/comprehensive_planning/MajorProjects.htm)

The prescribed benefits of a review may include: (1) the establishment of a Planned Community Overlay District; (2) an agreement for a proposed project outside the County's established urban growth boundary; and (3) an agreement over the timing of approval requirements. For example, the establishment of a Planned Community Overlay District allows greater flexibility in design. Overlay District zoning can be made only through a review by Major Projects. Prior to April 2000, approved developments under Major Projects required the adherence to code specifications under Title 29 of the Clark County Unified Development Code. The following projects were approved under these requirements:

- Rhodes Ranch
- Southern Highlands
- Pinnacle Peaks
- Summerlin South

In July 2000, Title 30 of the Clark County Unified Development Code was approved, which encompassed all the requirements for developments falling within the purview of Major Projects. Projects such as Apex Industrial Estate, Coyote Springs, Mountain's Edge, The Quarry, and Southwest Ranch as well as other future developments approved after July 2000 must meet the requirements of Title 30 of the Clark County Unified Development Code. Title 30 specifies land development regulations, improvement standards, mapping, zoning, and other development elements.

The following portion of this section of the report provides descriptions of the nine major projects currently be monitored.

APEX INDUSTRIAL

Apex Industrial Park is located thirteen (13) miles northwest of Las Vegas along both sides of Interstate 15 between the Las Vegas Boulevard interchange and the State Highway 93 interchange. Apex Industrial Park, Inc. (AIPI) is the master developer. The planned area includes 21,000 acres of industrial land and water rights, the existing Kerr McGee, Chemical Lime, Georgia Pacific and Republic Services (Apex landfill) facilities, and existing BLM-owned utility corridors. The Union Pacific Railroad traverses the property parallel to I-15.

The park is tailored towards the industrial market including distribution, manufacturing, research and development, flex-space, and power plants. Existing zoning allows commercial and retail along the high visibility frontage roads. The intent of this planned park was to establish and promote a high quality industrial area focusing on the specialized needs and concerns of heavy industry and potentially hazardous uses. Another major objective in establishing the Apex Industrial Park was to encourage the location or

relocation of appropriate industries in an effort to diversify and expand the County's economic base and provide for additional employment opportunities.

Construction of two power plants has been on-going by Mirant and Pinnacle West with completion and start up anticipated by Spring 2003.

COYOTE SPRINGS

The Coyote Springs project, in its entirety, contains approximately 42,800 acres located about 50 miles north of Las Vegas. It is bordered by the Delamar Mountains to the north, the Meadow Valley Mountains to the east, State Route 168 to the south, and U.S. 93 to the west. Access to Coyote Springs from Las Vegas is via I-15 to U.S. 93 or S.R. 168.

The Specific Plan addresses the portion of land located within Clark County, which is approximately 13,100 acres. The proposed project consists of a series of villages specific to the planning area featuring a mix of uses with a range of unit types, lot sizes and densities, and amenities including golf courses, clubhouse facilities, parks, and open space network linking different areas of the community.

The Master Plan encourages the effective use of natural topography, open space, and other natural and existing features and has a set of design guidelines intended to act a a guide for construction and development of the planning areas as a whole.

The development of the community is projected to be over a forty-year cycle. The developer envisions maintaining the rural character of the site by developing a series of villages with varying densities surrounded by open space and recreational opportunities. The latter phases focus on creating a self-reliant planned community with a full array of facilities and amenities.

MOUNTAINS EDGE

The Mountains Edge planning area contains approximately 3,627 acres and is located within the unincorporated town of Enterprise in the southwest portion of the Las Vegas Valley. The project is generally located south of Blue Diamond Road and west of Rainbow Boulevard within the south halves of Sections 21 and 22, most of Section 29, and all of Sections 27, 28 and 34 of Township 22 South, Range 60 East.

The Specific Plan includes approximately 2,413 acres. The Focus Property Group successfully obtained the available BLM land from the auction in November 2002. The planning area includes approximately 700 acres identified for public facilities including parks, schools, and a fire station. The Master Plan includes a Special Improvement District and over $80 million in roadway, flood control, traffic and utility infrastructure. The planned land uses include approximately 2,150 acres of single family and multi-family residential with another 114 acres of office professional and 150 acres of general commercial. The Development Agreement placed a residential cap of 12,500 units on the planned community. The Specific Plan and Design Guidelines provide a detailed description of the intent, goals and policies of the Mountains Edge Master Planned Community. Construction is expected to begin by mid-2003 with a projected 10 year build out.

PINNACLE PEAKS

Pinnacle Peaks is generally located west of Rainbow Boulevard, south of Warm Springs Road, west of the railroad, and north of Pebble Road. The project consists of approximately 1,485 acres.

On November 18, 1998, the Board of County Commissioners (BCC) approved the Development Agreement along with associated zone changes. The zone change approvals allow approximately 5,200 residential units with supporting commercial zoning. The Development Agreement stipulates provisions for certain public facilities, in addition to other infrastructure improvements and impact mitigation including:

- Contribution totaling $675,000 towards public services
- Contribution of a 2.5 acre site for public services
- Street improvements and utilities for a middle school site
- Acquisition and dedication of two (2) additional acres for an elementary school site
- Traffic mitigation fee

As of December 31, 2002, the County had issued building permits for 937 single family residential and 571 apartment units for this project.

QUARRY

The Quarry project contains approximately 160 acres and is located on the southeast corner of Sahara Avenue and Hollywood Boulevard in the Sunrise Manor Township. The easterly boundary is along Los Feliz and the southerly boundary is Vegas Valley Drive.

Pardee Homes of Nevada, Inc. is the developer of the project. They are expected to construct approximately 920 residential units with an estimated population of 2,293. Contributions include:

- Estimated $404,104 for parks
- Estimated $58,053 for fire services

- Estimated $20,396 for police services

The Development Agreement was approved by the BCC on February 5, 2003. Construction is expected to begin by the second half of 2003.

RHODES RANCH

Rhodes Ranch is situated on the southwestern edge of the Las Vegas Valley and encompasses 1,347 acres. It is generally bounded by Sunset Road and the Southern Beltway on the north, Durango Drive on the east, Pebble Road to the south, and Fort Apache Drive on the west.

The Rhodes Ranch Specific Plan was approved by the BCC on October 16, 1996. This Plan and the associated zone changes approved by the Board on December 18, 1996 and January 8, 1997, allow the following land use categories:

- Residential (including one golf course) - 1,082 acres
- Mixed Use (multi-family & limited commercial) - 130 acres
- Neighborhood Shopping - 5 acres
- Community Shopping - 50 acres
- Town Center - 80 acres

These categories are limited to a maximum of 9,000 residential units, one golf course, and 350 acres for non-residential private uses, including one hotel/casino site. The Rhodes Ranch Development Agreement was approved by the BCC on February 5, 1997 and extends through December 31, 2015. The Development Agreement requires provisions for certain public facilities, in addition to other infrastructure improvements and mitigation including:

- 40 acres of neighborhood parks
- Construction, equipment and dedication of a fire station
- Augmentation of maintenance and operation costs of the fire station for a period of up to 5 years
- Dedication of two (2) elementary school sites

As of December 31, 2002, the County had issued building permits for 2,150 single family residential and 1,112 condominium and apartment units, in addition to permits for the Information Center, Design and Sales Center, and the golf course.

SOUTHERN HIGHLANDS

Southern Highlands is situated in the southern portion of the Las Vegas Valley and encompasses approximately 2,299 acres. It is generally bounded by Interstate 15 on the east, Cactus on the north, Jones on the west, and Larson on the south.

The approved Land Use Plan allows the following land use categories:

- Residential (single family) - 1,549 acres
- Residential (medium) - 128 acres
- Golf Course - 230 acres
- Community Commercial - 43 acres
- Regional Commercial - 450 acres
- Public Facilities (parks 20-40 acres) - 129 acres

The Development Agreement and zone change were approved by the BCC on November 18, 1998 and amended on December 8, 1999. Southern Highlands is limited to one private golf course, a maximum of 8,500 residential units and 493 acres of non-residential private uses. There is also a potential hotel/casino site subject to future

approvals. The Development Agreement stipulates provisions for certain public facilities, in addition to other infrastructure improvements and impact mitigation including:

- Construction and dedication of a fire station
- Contribution for a fire engine and rescue unit
- Contribution of $600,000 towards a future Metro substation
- Street improvements and utilities for two (2) 12 acre elementary school sites
- Development of seven (7) public neighborhood parks totaling approximately 40 acres
- Traffic mitigation fee

This project also includes a realignment and name change for Decatur Boulevard to Southern Highlands Parkway extending from the present Decatur/Cactus intersection directly to the Lake Mead/I-15 interchange.

The elementary school at Broken Top and Starr Hills is under construction and scheduled to open Fall 2003. Also under construction is the fire station which will provide emergency services for the community. Goett Family Park, located at Southern Highlands and Starr Hills, is complete along with the Paseo linear park between Southern Highlands Parkway and Valley View. Another park located at the southwest corner of Somerset Hills and Valeneta Hills is under construction. Commercial building activity has commenced with approval of a commercial center and anchor grocery store.

As of December 31, 2002, the County had issued building permits for 3,571 single family residential and 340 apartment units for this project.

SOUTHWEST RANCH

The Southwest Ranch Concept Plan included Section 6, Township 22 South, Range 60 East and Section 31, Township 21 South, Range 60 East. The project is approximately 500 acres and is generally located between Maule Avenue and Russell Road and between Hualapai Way and Fort Apache Road within the Spring Valley planning area.

Perma-Bilt Homes, Distinctive Homes, LLC, and Rhodes Ranch General Partnership entered into a Development Agreement to complete this project. Development within this area is mostly comprised of single family traditional and compact lots with three apartment sites under construction and an approved commercial site at the southwest corner of Russell Road and Fort Apache. Perma-Bilt Homes has dedicated a multi-use linear channel and park/trail through the community.
This project has experienced intense growth with building permits issued for 748 single family and 278 multi-family residential units.

SUMMERLIN SOUTH

Summerlin South is located on the western edge of the Las Vegas Valley generally bounded by Charleston Boulevard on the north, Russell Road on the south, Hualapai Way on the east, and the Red Rock National Conservation Area on the west. The Summerlin South Land Use and Development Guide was approved by the BCC on June 21, 1995. Individual village plans provide details on specific land uses, traffic circulation, and locations of schools, fire stations, parks and libraries. Proposed development includes the following land use categories:

- Residential (single family) - 2,760 acres
- Residential (multi-family) - 540 acres
- Retail/Service - 200 acres
- Employment - 540 acres
- Institutional - 180 acres
- Open Space (includes golf courses) - 920 acres
- Right-of-Way - 998 acres

The project is limited to a maximum of 18,000 residential dwelling units, three (3) separate hotel/casino sites, and up to 90 holes of golf. The proposed general locations of the hotel/casino sites are Charleston Boulevard and Town Center Drive, Town Center Drive and the future Town Wide Arterial, and Tropicana Avenue and Town Center Drive.

The Development Agreement was approved by the BCC on February 7, 1996 for a period of thirty (30) years. The Agreement stipulates provision of certain public facilities, infrastructure improvement and impact mitigation including:

- Construction and dedication of a fire station
- Dedication of land for a second fire station
- Five acres for a satellite government center
- Twenty acres for a planned community sports park
- Right-of-way dedication and excavation for that portion of the Western Beltway located within the project

In addition, Summerlin is constructing neighborhood parks which exceed the minimum County requirements of 2 acres of park for every 1,000 residents and are receiving credit towards the Residential Construction Tax.

Village 14A and 14B are mostly complete with some remaining commercial along the Beltway. Most of the infrastructure for Village 13 East and Village 18 has been constructed. Village 13 West, Village 15A, Village 18 south of the R4 Channel, Village 19, and Village 16 are in the planning, design and development stages. Village 13 West plans include a unique high intensity residential and commercial district including an oval and linear park along Park Center Drive and a large mall and casino site along the Beltway.

As of December 31, 2002, the County had issued building permits for 6,204 single family residential and 466 apartment and condominium units for this project.

Volume 2: Impacts on the Undeveloped Land Market in Clark County, Nevada, Related to the Shipments of Nuclear Waste

January 2005

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BACKGROUND

Earlier socioeconomic assessments conducted for the Clark County Department of Comprehensive Planning's Nuclear Waste Division examined the potential impacts of nuclear waste shipments on property values along possible transportation routes for nuclear waste. These assessments included a study involving impacts on three property types - commercial, residential, and industrial - all located within 3 miles on each side of likely transportation routes of nuclear waste through Clark County. Potential impacts on commercial property values also were examined in a survey of key decision-makers in the hotel-gaming industry.

In 2002, valuation trends in undeveloped land sales, particularly sales of federal lands were documented, and existing major projects were analyzed to assess whether potential future shipments of High-Level Nuclear Waste were influencing current major development projects within Clark County. The results of that study, Volume 1: Impacts on the Undeveloped Land Market in Clark County, Nevada Related to the Shipment of Nuclear Waste concluded that the repository program and attendant transportation of nuclear waste proposed through Clark County had not had any demonstrable impact on sales prices of undeveloped land or on transactions involving these lands. In addition, no evidence was discovered of any significant changes to the 9 major development projects that were examined including their zoning, project design, or build-out rates.

This report builds on these earlier studies by surveying a larger pool of experts from the real estate industry about their perception of the general business climate and the potential for the Yucca Mountain Project to impact future development. The potential for developing raw land in Clark County is a vital factor in the economic growth of the County. Therefore, it is critical to begin to identify any impacts (or lack of impacts) the repository program may have on the undeveloped land market, as well as to evaluate whether there is a potential for any future impacts on undeveloped land.

The findings from this report along with the earlier studies are being integrated into Clark County's Monitoring Program. The Monitoring Program has been designed to capture changes to the social, environmental, and economic well being of Clark County residents resulting from the Yucca Mountain Project. The monitoring program provides an "*early warning system*" that allows Clark County decision makers to proactively respond to impacts from the Yucca Mountain Project.

OBJECTIVE

In the spring of 2004, Urban Environmental Research, LLC and their subcontractor, the University of Nevada Las Vegas' Cannon Center conducted a

random phone survey with 74 representatives of the real estate industry operating within Clark County, Nevada (see survey instrument, Appendix A). The 74 real estate industry representatives included appraisers, land developers, bankers, building and general contractors. Over two-thirds of the industry representatives surveyed had practiced in the Las Vegas area for more than 5 years (Table 1). The three objective of the survey were:

- to identify current views on the business climate within Clark County among this component of the business sector;
- to identify what factors might adversely affect the economic well being of the development community; and
- to identify if any current impacts within the development community could be discerned from the proposed future shipment of High-Level Radioactive Waste through Clark County.

Table 1. Duration of Practice within the Las Vegas Metropolitan Area

Years	Frequency	Percent
Less than One Year	5	6.8
1 - 5 Years	19	25.7
6 - 10 years	18	24.3
11 to 15 Years	11	14.9
More than 15 Years	21	28.4
TOTAL	**74**	***100.1**

*** Totals greater than 100% because of rounding**

SURVEY RESULTS

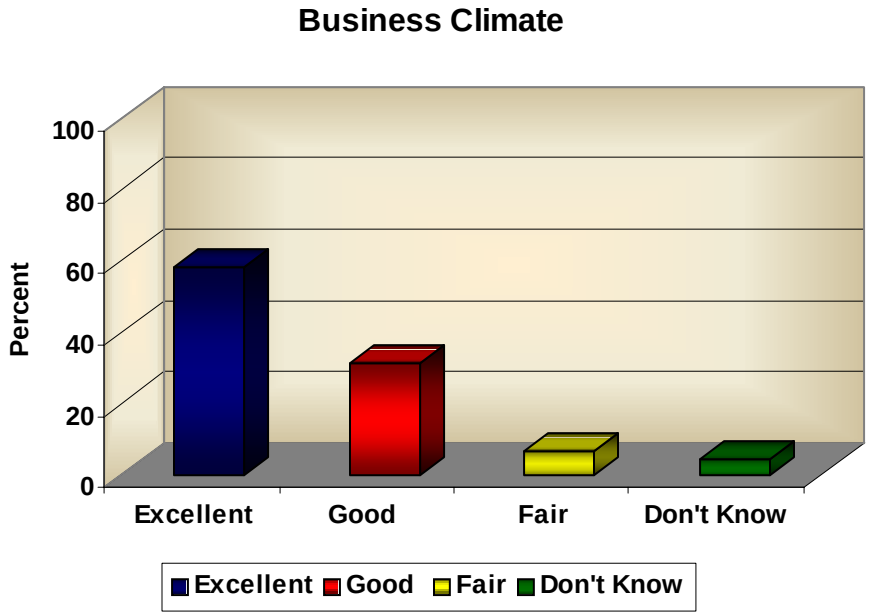
By an overwhelming majority (92%), the real estate industry representatives surveyed indicated that the cost of development had risen dramatically over the last five years. Survey respondents indicated that the high demand for new housing was the leading factor contributing to the rise in development costs. In fact, over 97% considered the demand for new housing to be an “important” or “very important” factor, while 92% identified the scarcity of large parcels of land in the Las Vegas metropolitan area to be an ‘important’ or “very important” factor. Other factors that were identified by the respondents as “important” or “very important” included: the release of public lands for development; the national lending rate for real estate; and, the amount of land held for speculation (Table 2).

Table 2. Factors Influencing the Cost of Undeveloped Land by Percent

Factor	Very Important	Important	Not Important	Not Important at All	Don't Know
High Demand for New Housing	85.1	12.2	0.0	1.4	1.4
Scarcity of Large Tracts of Land	64.9	27	5.4	1.4	1.4
Release of Public Lands	59.5	28.4	5.4	4.1	2.7
National Lending Rate	45.9	27	16.2	6.8	4.1
Land Held for Speculation	29.7	39.2	27	1.4	2.7

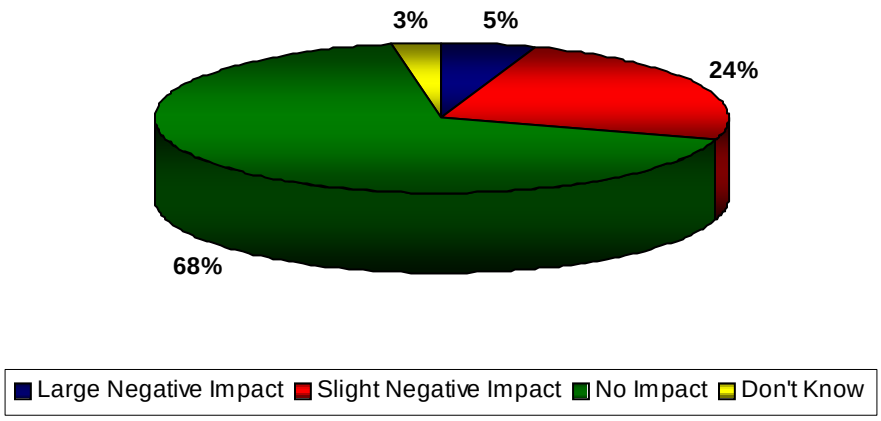
When representatives of the real estate industry were asked to “describe the business climate for new development currently in the Las Vegas area”, almost 90% indicated that it was ‘excellent’ or ‘good’ (Figure 1).

Figure 1. Current Business Climate for Development



Despite the overwhelming positive perception of the current business climate toward development, almost 30% of the real estate industry representatives surveyed indicated that the “possible future transportation of High-Level Radioactive Waste” had a large or slight negative impact “on current growth of the Valley” (Figure 2).

Figure 2. Current Impact of Possible Future High-Level Radioactive Waste Transportation



The real estate industry representatives surveyed were also asked to indicate whether they believe residential property values would be 'increased', 'decreased', or 'not affected at all' by certain types of nearby land uses (Table 3).

Table 3. Residential Property Value Affects Resulting from Various nearby Land Uses

Land Use Type	Increased Residential Property	Decreased Residential Property	No Affect Residential Property	Don't Know
Amusement Park	18.9	18.9	55.4	6.8
Day Care Center	50	6.8	40.5	2.7
Landfill	2.7	71.6	20.3	5.4
Non-Polluting Manufacturing Facility	32.4	25.7	35.1	6.8
Public School	70.3	2.7	21.6	5.4
Limited Access Highway	54.1	18.9	17.6	9.5
Casino	29.7	29.7	33.8	6.8
Polluting Manufacturing Facility	0.0	91.9	4.1	4.1
Homeless Shelter	4.1	73.0	12.2	10.8
Shopping Center	64.9	8.1	18.9	8.1
HLNW Transportation Route	0.0	71.6	18.9	9.5

The location of a public school was identified by 70.3% of those surveyed as having a positive affect on residential property values. Almost 65% surveyed indicated that a nearby shopping center had a positive impact on residential property values, while over half indicated that a limited access highway nearby would increase nearby residential property values. In contrast, three types of land

uses were identified by more than 70% of the respondents as decreasing nearby residential property values. These land use types included: a polluting manufacturing facility (91.9%), a landfill (71.6%), and a High-Level Radioactive Waste transportation route (71.6%).

It is interesting to note that this same question was asked of 512 Clark County, Nevada residents in August 2000 and of 502 residents of Santa Fe County, New Mexico in the summer of 1990, a decade earlier. The Clark County, Nevada residents were asked this question as part of an earlier surveyed conducted by Clark County's Nuclear Waste Division to assess potential impacts from the Yucca Mountain Project (UER 2001). The residents of Santa Fe, New Mexico, were asked the same question by Zia Research Associates in a survey designed to assess potential impacts from shipments of radioactive transuranic waste to the Waste Isolation Pilot Plant in New Mexico in Carlsbad, New Mexico (Zia Research Associates 1990). The Santa Fe survey was subsequently referenced in a judicial decision *(City of Santa Fe vs. Komis)* that resulted in the State of New Mexico having to compensate the property owner for stigma-induced property value diminution.

The views of the real estate experts surveyed in this study are consistent with not only the earlier survey of Clark County residents but also the Santa Fe residents. The earlier Clark County survey of residents found that having a public school and a shopping center nearby had a positive impact on residential property values, by 61.1%, and 52.5%, respectively. The Santa Fe, New Mexico study found that having a public school and a shopping center nearby had a positive impact on residential property values, by 61%, and 50%, respectively. The results of the current survey of real estate experts and the earlier surveys of residents of Clark County, Nevada and Santa Fe, New Mexico indicate strong consistency amongst experts as well as the general public about which types of land uses have positive impacts on residential property values.

Table 4. Comparison of Findings from Three Surveys of the Types of Land Uses that Increase Residential Property Values

Environmental Condition	Rank Order (Percent stating increasing property values)		
	Nevada Residential Survey (2000)	**New Mexico Residential Survey (1990)**	**Nevada Real Estate Industry Experts Survey (2004)**
Public school	61.1%	61%	70.3%
Shopping center	52.5%	50%	64.9%

Similarly, the recent survey of Clark County real estate experts identified the same three types of land uses as having the most negative affect on residential property values as those reported in the earlier residential surveys in Clark County, Nevada and Santa Fe, New Mexico (UER 2001 and Zia Research Associates 1990). All three surveys found that a polluting manufacturing plant, a landfill, and a highway or freeway used to ship nuclear waste would have the most negative affect on residential property values.

Table 5. Comparison of Findings from Three Surveys of the Types of Land Uses that Decrease Residential Property Values

Environmental Condition	Rank Order (Percent stating decreasing property values)		
	Nevada Residential Survey (2000)	**New Mexico Residential Survey (1990)**	**Nevada Real Estate Industry Experts Survey (2004)**
Polluting manufacturing facility	95.5%	89%	91.9%
Landfill and waste dumping site	93.9%	80%	71.6%
Freeway used to ship nuclear waste	86.3%	79%	71.6%

The consistency of findings among the three surveys indicate that both real estate industry experts and the general public hold similar views as to which types of nearby land uses have positive or negative impacts on residential property values. In addition, these finding appear to be consistent over time and in differing geographies. Finally, despite the fact that no license application has been submitted for the repository and therefore no shipments are occurring, nearly 30% of the real estate experts surveyed believe there is already a negative impact on current growth in the Las Vegas Valley.

The findings from this report along with the earlier study will be integrated into Clark County's Yucca Mountain Monitoring Program. The Monitoring Program has been designed to capture demonstrable changes to the social, environmental, and economic well being of Clark County residents resulting from the Yucca Mountain Project. The monitoring program provides an "*early warning system*" that allows Clark County decision makers to proactively respond to impacts from the Yucca Mountain Project.

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APPENDIX A: FINAL SURVEY

Survey of Land Development and Real Estate Community

We are calling from the University of Nevada at Las Vegas to examine trends in the real estate and development market especially as it relates to the "Undeveloped Land" market in the Las Vegas area. The University of Nevada at Las Vegas is under contract with Urban Environmental Research (UER), a consulting research firm located in Scottsdale Arizona. UER is currently conducting several research projects for Clark County, Department of Comprehensive Planning. This survey will take only a few minutes to complete. Your name was randomly selected from lists of those involved in the development industry in the Las Vegas Valley and your responses will be kept in total confidence. All answers to the survey will be statistically aggregated in order to avoid identifying any one individual respondent in the survey. Information on this survey can be obtained from ……

This survey concerns the topic of developing raw land (undeveloped land). Do you work in a professional capacity with undeveloped land? YES___ NO___
(If the answer to this is NO, say Thank You and indicate, "This survey involves only those with experience with undeveloped land".)

PART 1: RESPONDENTS BACKGROUND AND EXPERTISE

1. Of all the professional fields in land development and real estate, which would you say best describes your primary activity in the development process? Would you say it is?

- Real Estate
- Appraisals
- Development
- Building and Construction
- Banker
- Mortgage Companies
- Other (please identify)

2. How long have you lived in the Valley? _____ Years

3. How many years have you practiced as a (from Question #1) in the Las Vegas Area? _____ Years.

- Less than One Year
- 1 to 5 years
- 6 to 10 Years
- 11 to 15 Years
- More than 15 years

PART 2: GENERAL ATMOSPHERE FOR DEVELOPMENT OF RAW LAND

4. We are interested in knowing your views about the undeveloped land market in the Las Vegas area. Some land analysts have argued that the costs of undeveloped land in the Las Vegas have increased sharply over the last five years. In general, over the last five years would you say that the costs have…?

- Increased dramatically
- Increased
- Stayed Constant
- Decreased
- Decreased dramatically

5. I am going to give you a list of factors that may affect the price of undeveloped land. Please tell us how important each of these factors has been to the selling price of undeveloped land in the Las Vegas area.

	Very Important.	Important	Not Important	Not at All Important	Do Not Know
Scarcity of Large Tracts of Land					
High Demand for New Housing					
Substantial Amount of Land Held for Speculation					
Release of Public Land for Private Development					
National Lending Rate for Real Estate					

6. Is there any other factor not listed in the previous question that you believe substantially impacts the costs of undeveloped land in Las Vegas area? No___ YES(If Yes, please identify)_____

7. How important do you feel the release of public lands through the Southern Nevada Public Land Management Act has been for new private sector development in the Las Vegas area? Has the release of public lands been:

Very Important____
Important_____
Unimportant____
Not at all Important____

PART 3: PRESENT AND FUTURE BUSINESS CLIMATE

8. We would like to ask you a few questions about the business climate in the Las Vegas Valley. How would you describe the business climate for new development currently in the Las Vegas area? Would you say it is?

Excellent ___
Good ___
Fair ____
Poor ___

9. What if any factor do you believe poses the greatest threat to future development of land in the Valley (record factor)
_____

10. There has been a good deal of discussion about the possibility of shipping High- Level Radioactive Waste through the Las Vegas area in the future. How significant a factor has the possible future transportation of High- Level Radioactive Waste been on current growth of the Valley? Has it had a ….

- A large negative impact
- A slight negative impact
- No impact at all
- A slight positive impact
- A large positive impact

11. Now I am going to read you a list of things that may affect the value of residential property in Clark County. For each item I read to you, please tell me whether you believe it would increase, decrease, or have no affect on residential property values, which is the value of privately owned homes or property in Clark County. (Read each item and circle one number for each.)

	Increase Residential Property	Decrease Residential Property	Not Affect Residential Property	Don't Know
Amusement Park				
Day Care Center				
Landfill				
Non-polluting Manufacturing Facility				
Public School				
Limited Access Highway/Freeway				
Casino				
Polluting Manufacturing Facility				
Homeless Shelter				
Shopping Center				
High- Level Nuclear Waste Transportation Route				

Thank you very much.