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

Submitted to
Clark County Department of Comprehensive Planning

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1.0 Introduction

The purpose of this study is to assess the potential impacts of 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. This study investigates whether any adverse impacts already have been incurred 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.

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 have not yet been examined.

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 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 yearly 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.

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. In addition, 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.

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 also examined these types of factors in other major projects that are under development review by the County. Current 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. Appendix A 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 acquiring 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 property 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.

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. Updated sales information broken down by geographic area of the county and by zoning types will become available in the near future and will be added

to this report. However, 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

Additional data including geographical locations of all parcels sold, zoning of parcels, and information from later public land auctions will be added to this report when the data become available.

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 11 projects were reviewed and described with respect to location, size, date land purchased, zoning and phased development, and type of master-planned community. 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 11 projects were described (Appendix A) to provide a preliminary baseline for a monitoring program:

- Mountain's Edge
- Rhodes Ranch
- Southwest Ranch
- Pinnacle Peaks
- Southern Highlands
- Terracina
- Compass Point Developments
- Southern Mesa
- Summerlin South
- Apex Industrial Estate
- Coyote Springs

Interviews were held with representatives of many of these projects 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/Compass Point), Rob Beville (Southwest Ranch/Rhodes Homes), 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; Bristol Ellington, Assistant Director of Community Development, City of Henderson; Marta Brown from Major Projects, 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 1). 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 1 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

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 2 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 2, the total assessed value of the undeveloped land along these potential transportation routes exceeded \$2.9 billion in 2002. Table 2 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 2 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

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 3 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 3 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

Tables 1 and 3 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 3 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 4 shows the distribution of undeveloped land in North Las Vegas along its transportation corridors by zoning type, total assessed values, and acres, respectively.

Table 4 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.

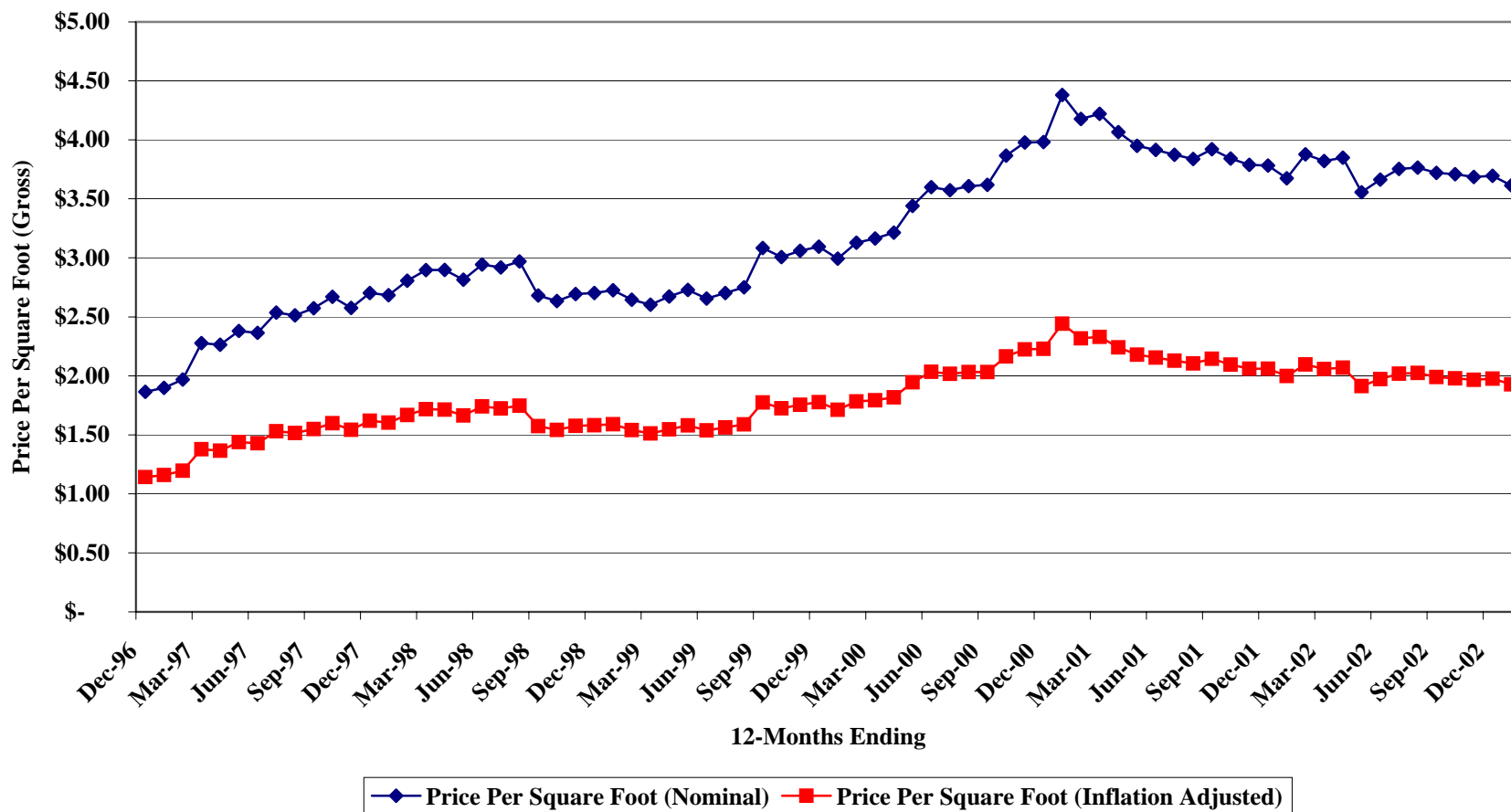
3.0 Analysis of Sales Data of Undeveloped Land

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 to 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

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.

analysis are sales price data and are composed of actual average sales prices of land sold in the County during 1996-2003.

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 Agüero) 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 5, 6, and 7 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 5 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 6 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 7 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

4.1 Introduction

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 Appendix A. 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)

4.2 Findings from the Interviews

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 seven 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. Changes from the original plans were typical ones those 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 when the repository actually would be located.

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 US 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 US 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Building permit aggregate data over time by category – residential, commercial, industrial, and geographic location. • Real estate sales transactions
6. Socio-demographics	<ul style="list-style-type: none"> • 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 is evident 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 vital that Clark County begin to develop a monitoring program to track changes in the land market.

APPENDIX A: MAJOR PROJECTS

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 26 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 and Southwest Ranch as well as other 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.

Some of the developments under review that have been approved and are being built include Coyote Springs, Mountains Edge, and Summerlin South. Several projects are in various stages of the approval process including Southern Highlands, Rhodes Ranch, Pinnacle Peaks (second phase), Southwest Ranch, Apex Industrial Estate, and Nevada Trails. Still, others have submitted concept plans but for a variety of reasons may still not go forward. These include the Moapa Golf and Riding Clubs (1,160 acres in Moapa) and The Quarry (156 acres).

At the time of the writing of this report, there were 11 projects whose plans were far enough along in the Major Projects' review process to warrant scrutiny. These projects included the following;

- Mountains Edge
- Rhodes Ranch
- Southwest Ranch
- Pinnacle Peaks
- Southern Highlands
- Terracina
- Compass Point
- Southern Mesa
- Summerlin South
- Apex Industrial Estate
- Coyote Springs

The following portion of this section of the report provides descriptions of these 11 major projects. It is important to note that these descriptions provide a type of 2003 baseline description of major development projects, although systematic indicators need to be established for a monitoring program. As part of a monitoring program, observed changes to these projects and new project information can be added to the database and then be evaluated over time. In this way, changes resulting from the nuclear waste repository program may be identified early in the process.

Mountain's Edge

The Mountain's Edge Plan was submitted to Clark County on July 10, 2002. The plan covers an area within the unincorporated town of Enterprise. The plan satisfies the requirements of the Clark County Major Projects' review. The plan was reviewed by Major Projects, revisions were made, and it was placed on a fast track for development. After its review by Clark County, it was then presented to the Enterprise Town Advisory Board, Clark County Board of Commissioners, and Clark County Planning Commission. Subsequently, the plan was adopted by the Board of County Commissioners. (Mountain's Edge Specific Plan, 2002)

The Mountain's Edge planning area totals 3,627 acres located in the unincorporated town of Enterprise and in the southwestern part of the Las Vegas Valley. Of the total acreage, 500 acres lie in an area previously approved the Board of County Commissioners known as Arlington Ranch. The Arlington Ranch plan is integrated into the land use calculations for the Mountain's Edge concept plan, which totals 2,400 acres.

The plan provides a series of policies and scenarios that identify anticipated land uses and general development patterns. The plan is different from a typical Clark County master plan. For example, the plan consists of several zoning districts under the master

developer's control that will be implemented through a development agreement.

Moreover, an overall framework for land use decisions is established to facilitate provision of future public services and facilities.

Historically, the Board of County Commissioners approved the Enterprise Land Use Plan in 1998, and incorporated Mountain's Edge's area as a Major Development Project at the same time. However, at the time of the approval, no land use categories were designated. The objective was to encourage a future planned community guided by the Major Projects' review procedure. The 2002 Specific Plan satisfies the second requirement in Clark County's process for Major Projects, which is to assess land use proposals and projects.

Rhodes Ranch

The Rhodes Ranch Plan was submitted to Clark County in April 1996. The proposed Rhodes Ranch planned community is located on the southwestern edge of the Las Vegas Valley, within unincorporated Clark County. The plan consists of over 1,347 undeveloped acres spread across four sections, and covers approximately 2 square miles. The master developer is the sole owner, though the majority of the land was acquired through a land exchange with BLM in 1996. It is roughly bounded by Sunset Road to the north, Durango Drive to the east, Pebble Road to the south, and Grand Canyon Drive to the west.

Over 80 percent of the land is planned to be developed into single family homes, with the remainder composed of mixed use development, neighborhood and community shopping, a town center, trails, and buffer areas. When developed, it is projected that 1,500 to 2,000 jobs directly related to the development will be generated. The project will be developed in three phases, with each individual phase set to develop at a different rate

due to mixtures in land use emphasis, as well as market conditions. The projected build-out is anticipated for completion in the year 2005.

Southwest Ranch

Southwest Ranch is approximately 500 acres and is located generally between Maule Avenue and Russell Road, and between Hualapai Way and Ft. Apache, in Spring Valley. The Southwest Ranch Specific Plan is located within the unincorporated town of Spring Valley in the southwestern portion of the Las Vegas Valley.

Three developers have entered into development agreements with the County to complete this project—Perma-Built, Distinctive Homes, L.L.C. and Rhodes Ranch General Partnership. Currently, each developer is in a different phase of development for the project.

Pinnacle Peaks

Pinnacle Peaks is located generally west of Rainbow Boulevard, south of Warm Springs Road, east of the railroad, and north of Pebble Road encompassing approximately 1,485 acres. American West Homes has been approved for development under R-2 and R-3 zoning classifications on 126 acres of this project.

In November 1998, the Board of County Commissioners approved 12 zoning changes and the development agreement. The zoning change approvals allow approximately 5,200 residential units with supporting commercial zoning. The development agreement stipulates that Southern Highlands provide certain public facilities, in addition to other infrastructure improvements and impact mitigation, which includes the following:

- Contributions totaling \$675,000 toward 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 2 additional acres for an elementary school site
- Traffic mitigation fee

Southern Highlands

Southern Highlands is located at the southern part of the Las Vegas Valley, generally bounded by I-15 on the east, Cactus Road on the north, Jones Road on the west, and Larson Road on the south, encompassing approximately 1,877.5 acres.

The development agreement and zoning change were approved by the Board of County Commissioners in November 1998 for a period of 25 years. Southern Highlands is limited to one private golf course, a maximum of 7,000 residential units, and 408 acres of non-residential private uses. There also is a potential hotel/casino site subject to future approvals. The development agreement stipulates that Southern Highlands provide certain public facilities, in addition to other infrastructure improvements and impact mitigation, including the following:

- 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 12-acre elementary school sites
- Development of seven public neighborhood parks totaling approximately 40 acres.
- Traffic mitigation fee

Terracina

The concept plan for Terracina was approved by the Board of County Commissioners. The development area is located within the unincorporated township of Enterprise, in the southwestern portion of the Las Vegas Valley. Several Clark County code revisions have been requested by the developers. That request also included a number of waivers to reduce setbacks, reduce the width of private streets, permit nonstandard improvements, and reduce the separation between off-set streets within Terracina Phase 2 on a portion of 110 acres in an area zoned R-2 (Medium Density Residential) within the Terracina Concept Plan Area.

Compass Point Development

The planning area for Compass Point is located within the unincorporated town of Enterprise in the southwestern portion of the Las Vegas Valley. The specific plan for Compass Point covers 298 acres of land, within a 637-acre planning area of undeveloped land generally bounded by Warm Springs road on the north, Windmill Lane on the south, Buffalo Drive on the west, and Rainbow Boulevard on the east. The Specific Plan was presented in April 2000.

Multiple zoning districts within a Planned Community Overlay District will be applied to facilitate the planning and development of the area. Sixty-two percent of the area is designated for suburban residential uses, with another 11 percent slotted for multifamily residential development. It is projected that there will be approximately 1,900 dwelling units. The remaining area is allotted for professional offices, and neighborhood commercial and public facilities. Approximately 65 acres in the northwestern portion of the planning area are within Clark County Department of Aviation's (CCDOA) Cooperative Management Agreement Area (CMA). The CCDOA

has neither made a final determination as to the mix of uses that will be allowed on property owned by Clark County within the CMA, nor have specific uses for this area been determined in the planning area. The exception is one 5-acre parcel owned by the master developer that has been planned for neighborhood commercial purposes.

The Compass Point area will be developed in four phases of 15 months each, starting with the northwest portion, and followed by the midsection, the southern portion, and the northeast portion, in that order. However, individual phases will develop at different rates to reflect market conditions and avoid an oversupply within each land use.

Southern Mesa

The Southern Mesa Plan includes approximately 1,120 acres of vacant and undeveloped land. The planning area is also located within the unincorporated town of Enterprise. The Specific Plan contains 132 acres of land, of which 80 acres have been identified for specific uses. The remaining area is planned for large projects, and will be the subject of future specification of land uses.

Multiple zoning districts will facilitate the planning and development of the area. The mixture of land uses includes more than 81 percent suburban residential of primary single family densities, 7 percent commercial development, 4.3 percent major development projects, offices, and public facilities.

The Southern Mesa Plan will be developed in two phases, although more than one of these phases might be under development at any given time based on market demand and absorption. Phase I is proposed to be completed by 2004 and Phase II by 2008. The actual developed land uses and densities may vary from the proposed land uses, incorporating future market demand.

Summerlin South

The Summerlin South planning area is situated within unincorporated Clark County on the western edge of the Las Vegas Valley. It covers 6,138 acres of undeveloped land generally bounded by Russell Road on the south, Red Rock Canyon National Conservation area on the west, and by Hualapai Way on the east. The master developer is the sole owner of the land, initially indicated to be an aircraft production facility. The concept plans were approved in 1994.

The land use and development guide for Summerlin South will amend the Clark County Comprehensive Plan and will establish development guidelines for the entire plan to be supplemented incrementally as individual “villages” are planned. The guidelines will also provide the framework for future land use decisions such as zoning requests reviews and village development plans. It will also aid in the planning of additional public services and facilities. The primary land use will be residential, although a mix of residential, retail, commercial, industrial, and institutional land is proposed for the project.

Beginning in 1991, the developer and the Clark County Department of Comprehensive Planning have been discussing the broad range of issues surrounding the development of Summerlin South. The project is planned for development on a village by village basis, initially limited to those located within Clark County’s Community District 2 and is anticipated that more than one village might be under development at any given time. Development within the first five years is expected to absorb between 1,000 and 1,500 acres.

Apex Industrial Estate

Apex Industrial Estate is located 13 miles northwest of Las Vegas, along I-15. Approximately 10,000 acres in size, the plan for this development projects an average of 300 acres of land to be sold annually. The park is tailored towards the industrial market, which includes distribution and manufacturing, research and development, and flex-space. However, existing zoning allows commercial and retail land uses along the high-visibility frontage roads.

Coyote Springs

The Coyote Springs Specific Plan differs from a typical Clark County master plan and covers a large, undeveloped parcel of land under single ownership. The Specific Plan contains alternative development standards that propose certain modifications to Title 30 of the Clark County Unified Development Code in anticipation of creating a Planned Community (P-C) Overlay District.

The Coyote Springs property consists of roughly 42,800 acres located approximately 50 miles north of Las Vegas. The lands controlled by the developer are situated within the Coyote Spring Valley, straddling both the Phranagat Wash and Kane Springs Wash. Approximately one-third of the land lies within Clark County and the remaining two-thirds are located in Lincoln County. The Specific Plan addresses the portion of the lands within Clark County, which consists of roughly 13,100 acres.

The strategy for development proposes a community over a 40-year planning cycle. The plan provides the overall framework for land use decisions and for the provision of future public services and facilities. The plan also proposes a series of villages featuring a mix of uses.

The purpose of this appendix was to describe the major development projects under the purview of Clark County's application process. While each project is briefly described providing some baseline data, the next step is to develop a program to systematically monitor any diversion or changes from these baseline conditions and project goals, and to identify factors contributing to these changes.