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Limiting growth in Las Vegas - a necessary growth strategy for the twenty-first century

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LIMITING GROWTH IN LAS VEGAS - A NECESSARY GROWTH STRATEGY FOR THE TWENTY-FIRST CENTURY

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ABSTRACT

Limiting Growth in Las Vegas - A Necessary Growth Strategy for the Twenty-first Century

by

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Land development in the Las Vegas Valley continues at an unprecedented rate and future growth will no doubt be strongly advocated. Yet, water resources in this desert area are finite, and in the near future, supply will fall short of demand. Plans are underway to supplement the existing supply, and proposals to secure additional sources are under investigation. But there are no guarantees these ambitious endeavors will materialize. In light of the pending water crisis, the pervasive "growth at all cost" policies now dominant in the valley must be abandoned and more realistic land-use policies developed; ones based on the most critical necessity for Las Vegas - water.

TABLE OF CONTENTS

TABLE OF ILLUSTRATIONS

CHAPTER 1: INTRODUCTION

Growth in the Las Vegas Valley has always been based on the belief of a seemingly endless supply of water, first from prolific artesian springs which served as the basis upon which early development occurred and later from the harnessing and management of the Colorado River. As a result, growth in this desert community throughout the twentieth century has been based on a water culture which ignored the status of a finite resource.

This belief system prevails today and development policies and pro-growth attitudes in Las Vegas reflect this fallacious assumption. But, as a new millennium approaches, even a cursory inspection will show continued growth is, at best, limited, and eventually will be restricted by water availability.

CHAPTER 2: GROWTH

Population Growth:

Contrary to popular belief, extraordinary growth has long been familiar to the Las Vegas Valley, not simply a phenomenon of the last two decades. From its early beginnings as a stopover spot for weary travelers on their way West, to its development as the entertainment and gambling mecca of the world, Las Vegas has surpassed all expectations of growth and enters the next century as one of the fastest growing cities in the world.

Spanish traders are credited by historians as being the first white men to camp in the Valley in 1831-32. They established a route from Santa Fe, New Mexico, to Los Angeles, California, carrying woolen goods from New Mexico in order to barter for cattle and horses with The Californians. This route would become known as the "Old Spanish Trail" and was the basis for growth across much of the southwest.

After Brigham Young led his followers into the valley of the Great Salt Lake in 1847, the Old Spanish Trail came into widespread use as a trade link between the Mormons in Utah and Southern California. Through time, the Old Spanish Trail became known as the Mormon Trail as emigrants, prospectors, and other restless Americans traveled the route camping along

prior fiscal year (Clark County Building Department, 1995). The service category, including gaming and business services, grew by 10.4 percent (Caruso, 1995).

CHAPTER 3: LAS VEGAS VALLEY WATER SUPPLY

Such phenomenal growth would not have been possible without a continual flow of water from a million-year-old aquifer and the Colorado River. Yet, it is not a perpetual or unlimited guarantee for sustaining growth.

Las Vegas Artesian Basin:

Ground water occurs under both artesian and water table conditions in the Las Vegas artesian basin and currently supplies 15 percent of total usage (45 percent during peak summer months). This dwindling water source is available only in the Las Vegas artesian basin which underlies the jurisdictional areas of the Las Vegas Valley Water District, City of North Las Vegas, and Nellis Air Force Base. Ground water is not available in the southern end of the Valley, which includes the City of Henderson, including the booming residential area of Green Valley, and the Henderson Industrial Area.

The total annual recharge to the artesian basin is estimated to be 25,000 to 35,000 acre-feet. But, artesian pressures in the Las Vegas Valley are currently declining. The cumulative effects of continued overdraft are evidenced by declining pressure levels and land subsidence (Figure 1) (Bureau of Reclamation, 1977, p. 51).

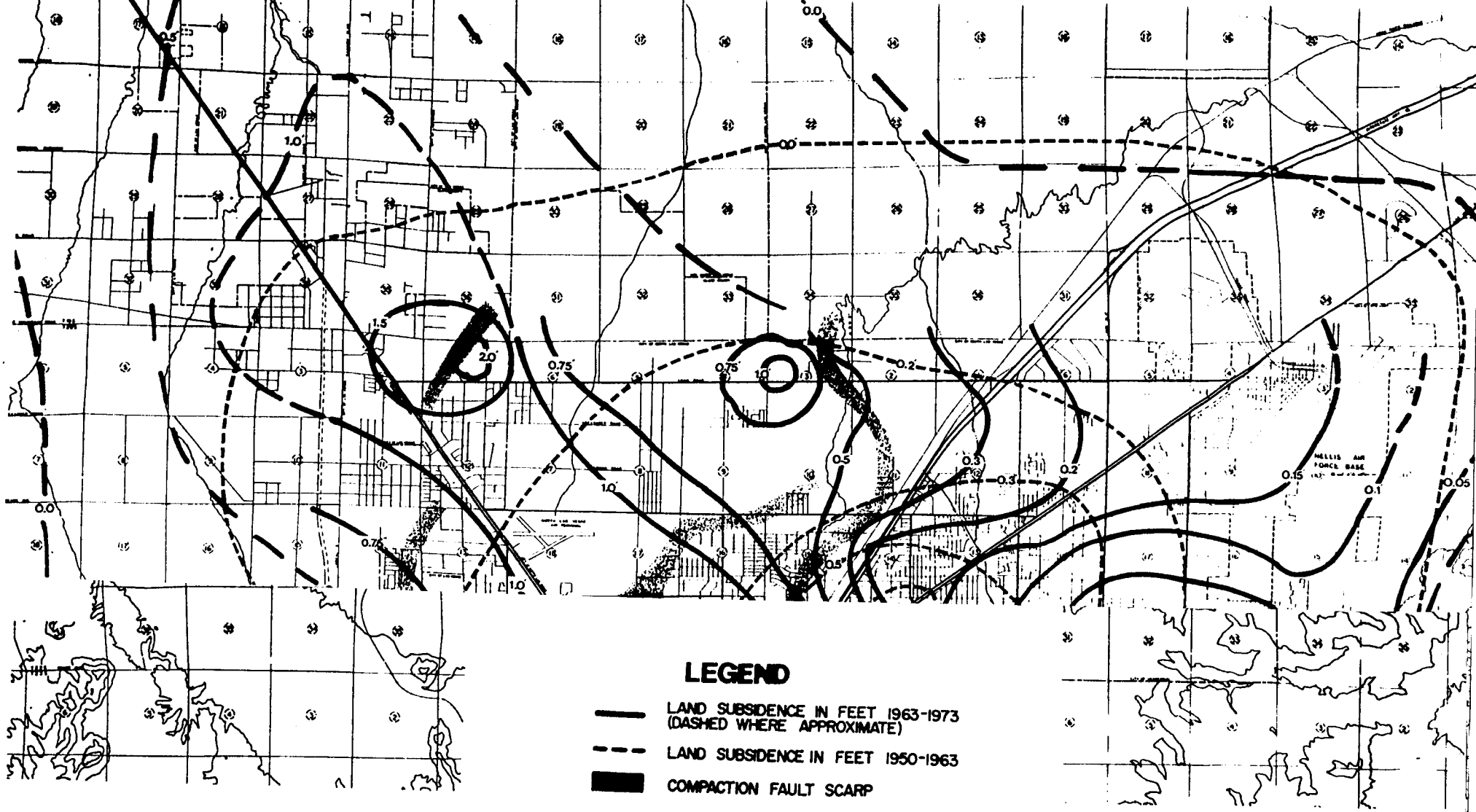


Figure 1

GEOLOGIC-SUBSIDENCE & FAULTS

REGIONAL COMPREHENSIVE PLAN

CLARK COUNTY REGIONAL PLANNING COUNCIL

Source: Department of the Interior, Bureau of Reclamation (1977). Final Environmental Statement - Second Stage Southern Nevada Water Project (INT FES 77-18). June 6, p. 30.

Until the installation of the Southern Nevada Water System, the principal development of the water supply was from the artesian system (Bureau of Reclamation, 1977, p. 48).

Colorado River:

In 1922, the Colorado River Compact was enacted to provide for the equitable division and apportionment of the waters of the Colorado River system among seven western states (Figure 2). It requires the Upper Basin States (Colorado, Utah, Wyoming, and New Mexico) to release a ten-year moving average of 7.5 million acre-feet (maf) to the Lower Basin States (Nevada, Arizona, and California). Under the Mexican Water Treaty of 1944, Mexico also is allotted 1.5 maf per year from the River. One acre-foot contains 325,853 gallons of water and will serve an average family of four for one year (Bureau of Reclamation, 1977, p. 7).

In 1963, the Supreme Court case, Arizona v. California (373 U.S. 546,565) settled an ongoing dispute for the water and set firm allotments for the seven states. Nevada's share is 300,000 acre-feet per year (afy) of consumptive use, and its "net use" of Colorado River water in any year cannot exceed this amount. That is, Nevada can withdraw (divert) more than 300,000 acre-feet within a particular calendar year as long as it does not exceed maximum contract amounts and returns sufficient water to the River (return flow) so that net usage is no greater than the apportionment (SNWA, 1994,

Figure 2

Source: The New York Times (1991). April 23:A1.

p. 7). Currently, slightly more than 40 percent of the water drawn from Lake Mead is treated and returned to the lake. Return flow credits for the Las Vegas area consist mainly of treated wastewater from domestic usage (Halverson, 1995).

The Las Vegas Valley obtains 85 percent of its water from the Colorado River captured in Lake Mead. The Alfred Merritt Smith Water Treatment Facility (AMSWTF) in tandem with the Robert B. Griffith Water Project comprise the Southern Nevada Water System (SNWS) which delivers the lake water to the cities of Las Vegas, North Las Vegas, Henderson, Boulder City, Nellis Air Force Base, and surrounding unincorporated areas of Clark County.

The SNWS consists of intake and treatment facilities at Lake Mead, 13 pumping plants, 16 rate-of-flow control stations, a three-mile long main aqueduct, the four-mile long River Mountain Tunnel, and approximately 60 miles of transmission lines (Bureau of Reclamation, 1993) (See Diagram 1). It has a peak delivery capacity of 484 million gallons per day (mgd) and currently operates at 75 percent capacity between October and April and reaches full capacity between May and September (Bureau of Reclamation, 1994, p. 1-5).

The SNWS repayment and delivery contract is for a total diversion of 299,000 afy, plus an allowance of 9,000 afy for system loss. Four of the purveyor members [the cities of Boulder City, Henderson, North Las Vegas, and the Las Vegas Valley Water District (LVVWD)] can receive a total of 295,000

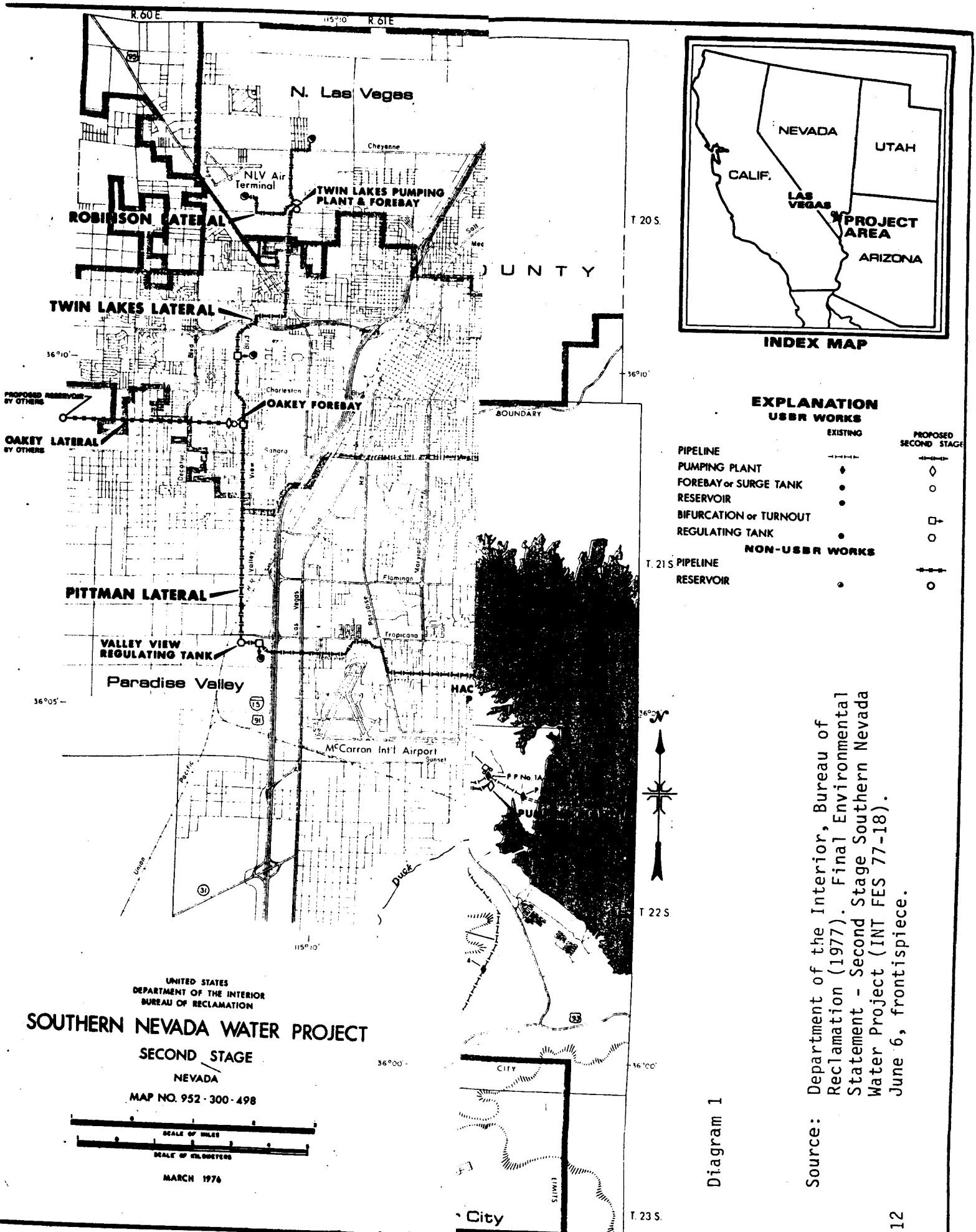


Diagram 1

Source: Department of the Interior, Bureau of Reclamation (1977). Final Environmental Statement - Second Stage Southern Nevada Water Project (INT FES 77-18). June 6, frontispiece.

afy from this contract; Nellis Air Force Base can receive the remaining 4,000 afy. Division of the 299,000 afy is as follows:

City of Boulder City	8,918 afy
City of Henderson	27,021 afy
LVVWD	232,426 afy
City of North Las Vegas	26,635 afy
Nellis	4,000 afy
	299,000 afy

(Source: SNWA Water Budget, Revised August 18, 1994, p. 15)

Pending Water Shortages:

Two factors operating simultaneously are threatening future water availability for Southern Nevada: The relentless population growth coupled with firm water allocations for the various purveyors. The pending crisis has sent purveyors scrambling in efforts to secure this vital resource.

In 1991, the Southern Nevada Water Authority (SNWA) was created to seek new water sources for Southern Nevada and to manage existing and future water resources. Its members include the cities of Boulder City, Henderson, Las Vegas and North Las Vegas; Las Vegas Valley Water District; Big Bend Water District (Laughlin); and Clark County Sanitation District.

In 1993, the SNWA and the LVVWD commissioned Planning and Management Consultants, Ltd. to study future demand projections and conservation impacts for the Las Vegas Valley. The findings were alarming: Current water supplies would be

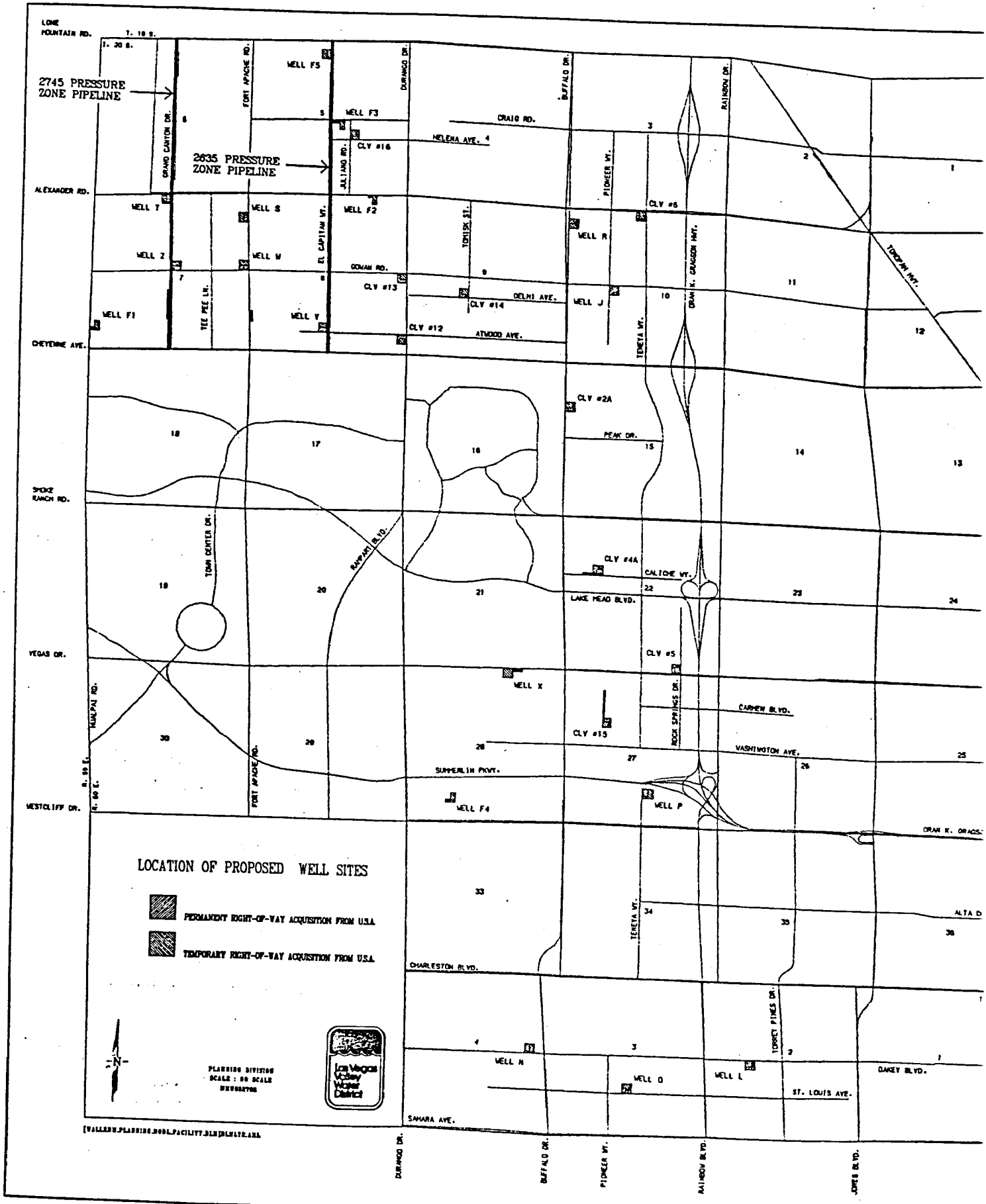


Diagram 2 Source: Las Vegas Valley Water District (1993). Final Environmental Assessment, FONSI/Decision Record NV-054-93-089. Sept. 2, p. 11.

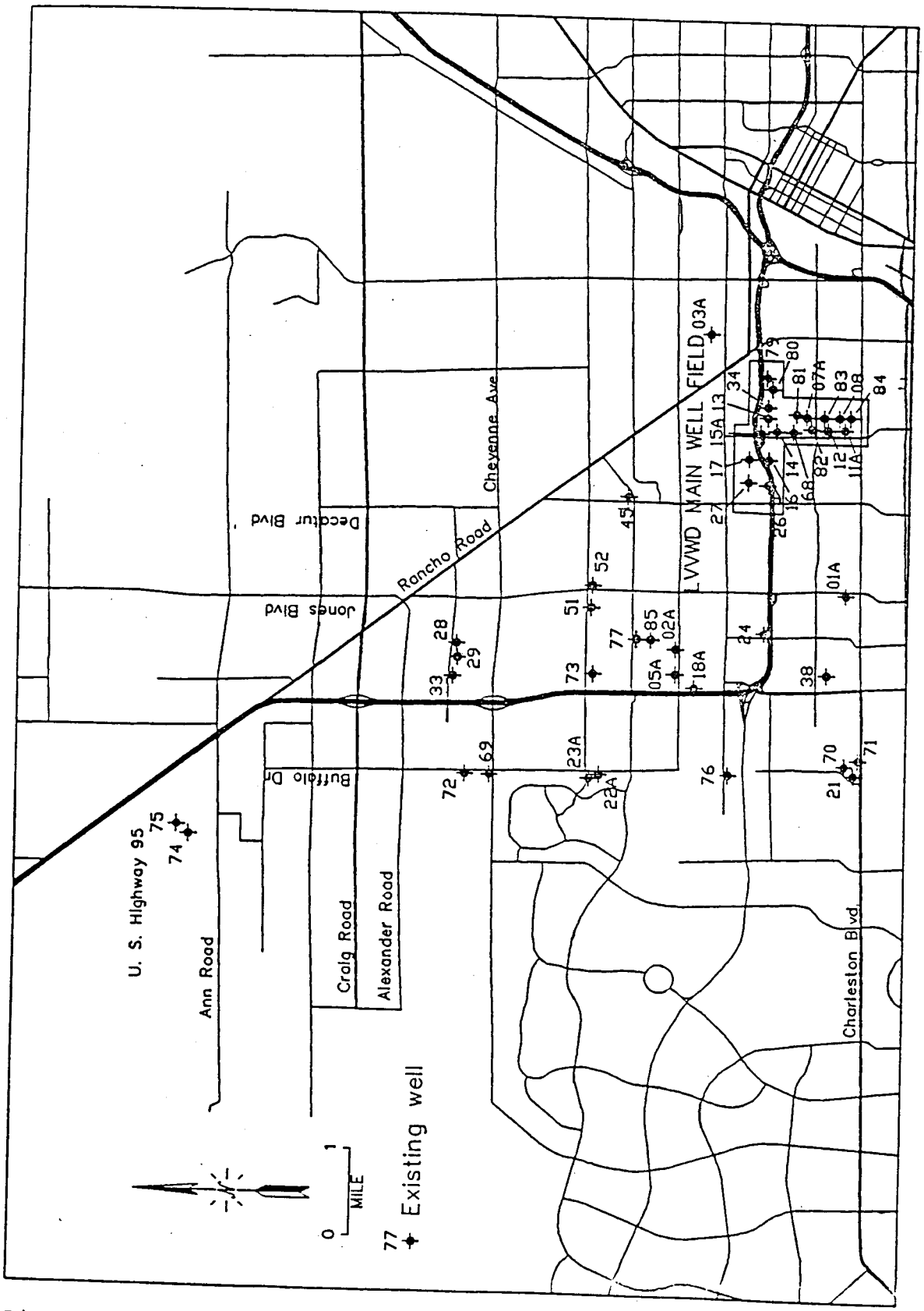


Diagram 3

Source: Las Vegas Valley Water District (1993). Final Environmental Assessment, FONSI/Decision Record NV-054-93-089. Sept. 2, p. 7.

future demands. The program has injected 98,000 acre-feet of water since 1988 and will continue to inject water as long as there is surplus water in the distribution system (Cole, 1995).

Even with aggressive recharging efforts by the LVVWD, the net loss to the artesian basin each year is tens of thousands of acre-feet causing the groundwater level to drop 3-5 feet a year in some areas and seven feet in others, according to state water engineers. "There's no question water levels are going down, said Terry Katzer, director of research for the District. "The cumulative impact of thousands of wells throughout the valley is significant."

Ground subsidence, resulting from the lowering of the water table and pressure, has resulted from the overdrafting. The greatest subsidence has been noted in the area of the Water District well field and along a strip of land about three miles northeast of the District property. In North Las Vegas, the results of subsidence have been cracked sidewalks and paving, and some building foundations and curbing have moved out of line. The Windsor Park neighborhood, for example, has received $3 million in government funds to mitigate damage to sinking homes.

In 1992, Mike Turnipseed, Nevada's State Water Engineer, issued Order 1054 in response to excessive groundwater usage and continuing subsidence problems. The Order placed a moratorium on commercial or industrial wells in excess of

average use was about 415 mgd and will climb to 480 mgd in 1997. By the year 2000, use is expected to reach 600 mgd (Bureau of Reclamation, 1994, p. 1-3).

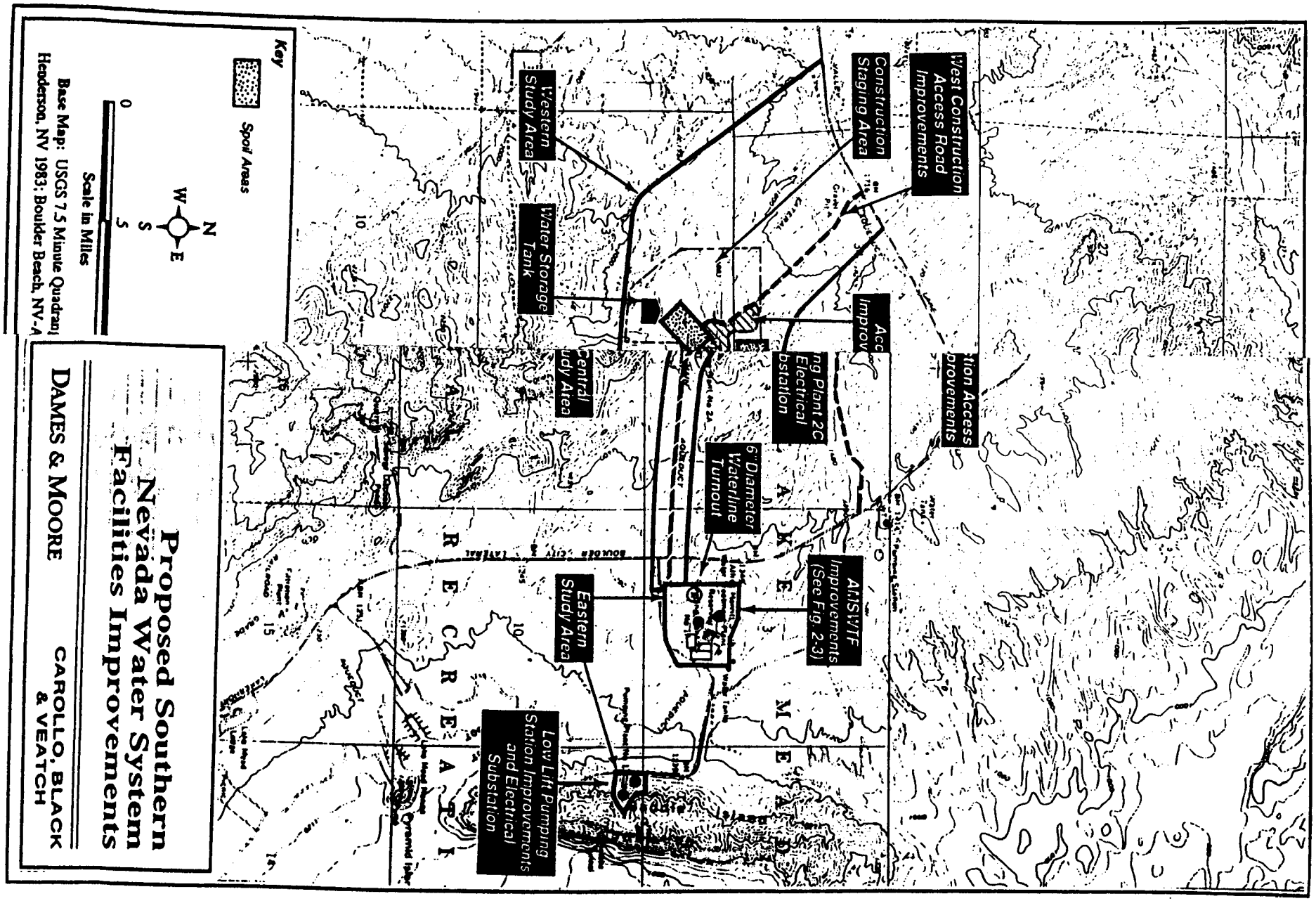
Estimates suggest the current system could service the peak demands associated with a populace of approximately 1.1 million. Assuming the rate of growth that occurred between 1992 and 1993 (6.5 percent), the population will exceed 1.1 million in 1997. Beyond that, the water demands would exceed the capacity of the SNWS (Bureau of Reclamation, 1994, 1-5). The Colorado River Commission (CRC) and the SNWA are taking steps to remedy the situation.

The CRC has been conducting a performance study of the SNWS and has identified ways in which to increase both reliability and capacity of the facilities (see Diagram 4). These improvements would increase the reliable capacity of the system from 400 mgd to 480 mgd by 1997 and 595 mgd by 1999. The cost for the two-phase project is $677 million (SNWA, 1995, p. 9) and will allow service to another 400,000 people (Hynes, 1995).

The SNWA has also recognized the need to study the feasibility of an additional treatment and transmission facility, the SNWA Treatment and Transmission Facility (SNWA-TTF). Project planning and environmental assessment activities for a new plant began in July 1993. A phased project, it will take 25 years to complete and will eventually deliver 906 mgd by 2025 (McKay, 1995).

Diagram 4

Source: Dames & Moore (1994). Environmental Assessment of the Colorado River Commission's Proposed Southern Nevada Water System Facilities Improvement Project, p. 2-2.



The combined cost for the SNWS expansion and the first phase of the SNWA-TTF (delivery capacity of 100 mgd) is an astronomical $1.2 billion (SNWA, 1995, p. 9). This figure includes debt service for capital costs and costs for operating and maintaining completed new facilities. This projection does not include:

* Purveyors' ongoing operating and maintenance costs;
* Purveyors' current financing costs;
* Major distribution infrastructure within each purveyors' service area - construction and related financing and operating and maintenance costs;
* Ongoing operating costs and reserve requirements for existing SNWS facilities;
* existing and future reuse and recharge costs;
* any future costs of resources (SNWA, 1995, p. 11).

Additionally, the authority has couched its estimates by saying the construction costs could end up being 30 percent lower or 50 percent higher (Hynes, 1995).

And where will the burden of financing these projects fall? Plans are to place it on residents and builders through rate and connection charge increases, known as impact fees. Estimates are that the average cost of connecting a home to the water system - about $1,000 - would need to more than double by 1999 and almost triple by 2002. The authority also calculates that rates would need to increase more than 50 percent by 2005. (Holmberg, 1995).

drilling more than 146 wells, laying more than 1,200 miles of pipeline over 10,000 acres of land, and building hundreds of miles of access roads (Pappa, 1990).

Cost estimates for the project vary. The LVVWD has estimated, without revealing a budget, that the project will run about $1.5 billion. Outside water engineers have estimated that the costs for a project of this magnitude could run between $3.3 and $5 billion (Citizen Alert, 1992).

Under Nevada law, the State Engineer has jurisdiction over all waters within the state. His office will decide whether to grant, deny, or modify these water applications. In addition, he will have to address the 3,600 protests that have been filed concerning the project.

Ranchers, conservationists, federal agencies, and rural politicians from the four counties warn that approval of the applications could dry up natural springs in the Death Valley National Monument in California, kill rare fish species that have survived since the Ice Age, and destroy verdant valleys throughout the West (Cannon, 1990). According to Janet Monaco, Senior Environmental Biologist for the LVVWD, the District has asked the State Engineer not to take any actions on these applications at this time.

In the "Tri-state Option," the states of Nevada, Arizona, and California could reach an agreement that would allow water to be viewed regionally. Through this agreement, the states would form a collective to establish water banks,

drinking supply will emerge. It will become our obligation to do whatever we have to, to make sure the water is there." Residents in the Valley have a lot riding on this promise.

For example, the City of Las Vegas has 1,462 acre-feet remaining from its water account, which in January stood at 6,106 acre-feet. Once this amount is promised, along with a small amount set aside for allocation next year, the city may face a moratorium on construction projects without further water commitments from the water district. But because of Mulroy's assurance, John Schlegel, acting director for the Community Planning and Development Department, says, "The water district assures us that water supply is not going to be a problem. The city is not going to put itself in the position of not accepting building applications and final map applications based on a lack of supply."

Henderson has pledged 9,642 acre-feet more than it has in its bank. It has reserved a large quantity of water for master-planned communities, including roughly 15,342 acre-feet that has yet to be allocated to specific projects within those communities (Hynes, 1995). But according to Wayne Robinson, Chief of Utility Services, the city only uses 60 percent of its allocation and the key to the apparent "over allocation" is how and when the water is committed; there is commitment to provide water <u>if</u> it is available.

The governments of North Las Vegas and unincorporated Clark County have refused to reserve water for master-planned

Bureau of Land Management Land Exchanges:

Of great consternation to Clark County's Planning Department are the land exchanges the Bureau of Land Management (BLM) is undertaking at a frenzied pace. A program intended to protect environmentally sensitive lands through exchange, it has paved the way for more growth in the Valley by placing thousands of acres of public land into private ownership. The door is then open to developers who can pressure the Planning Department into rezoning land from CD3 to CD2 designation.

Historically, the BLM is the steward of our public lands. It is "committed to manage, protect, and improve these lands in a manner to serve the needs of the American people for all times." In Southern Nevada, this stewardship falls over 3.7 million acres of land in Clark and southern Nye Counties called the Stateline Resource Area (SRA) (BLM, 1994, p. 1-2). In order to provide for community growth and public service needs, approximately 111,000 acres of public lands have been identified for disposal within the SRA (Department of Interior, p. 4-4) with approximately 56,800 acres anticipated for disposal in the Las Vegas Valley (DiPinto, 1995).

The disposal boundary in the Valley has been defined in the Supplemental Draft Stateline Resource Management Plan/EIS. BLM's boundary closely conjuncts the County's urban growth boundary in the eastern and northern areas of the Valley, but the northwestern and southern portions vary greatly, and this

In a letter from Holmes dated January 18, 1995, he accused BLM of failing to cooperate and collaborate with CCCP "in the planning of orderly growth and development in Clark County.... BLM has routinely resisted Clark County's efforts to acquire information about pending land exchanges" and this has "hampered the County's ability to evaluate and respond to land transactions which hold major implications for land use, water use, and the provision of services throughout the Las Vegas Valley." These actions belie a cooperative agreement entered into by the Planning Department and BLM over a decade ago.

In 1981, Clark County and BLM entered into a "Memorandum of Understanding" that established procedures to coordinate land use planning policies. Regarding realty actions, it states that BLM will "Provide the County an opportunity to (1) review and comment on applications submitted to BLM that would affect land use or development in Clark County, and (2) participate in development of the requisite environmental assessments. Participation will specifically include analyses of land use impacts and analyses of alternatives" (Clark County Board of Commissioners, 1994).

The County not only has grounds for its complaint according to the Memorandum but also by federal statute. The Federal Land Policy and Management Act (FLPMA) of 1976 establishes specific guidelines regarding land exchanges and

Under the direction of ex-Congressman James Bilbray, the "Las Vegas Valley Lands Planning Task Force" was established in 1994 in an attempt to transcend political issues and accomplish a better review of BLM's land exchange procedures. A collaborative effort, there were 30 participants including public land management agencies, local governments, utility companies, major developers, and members of the environmental community (Harris, 1994).

Unfortunately, the Task Force lost its leader when Congressman Bilbray failed in his 1994 re-election bid. Picking up the ball has been Michael Dwyer, District Manager of BLM, but because he is new to the Las Vegas District, no further action has occurred at this time (Buck, 1995). Dwyer does see a need, though, to strengthen communication among agencies, "I'm concerned that the decisions we make at the BLM don't adversely impact the quality of life in Las Vegas and Southern Nevada. We can only grow so much." (Rogers, 1995). But even if a consensus is reached between local and federal governments regarding land disposal issues, the "orderly growth and development" of land in the Valley will continue, dominated by policy choices untouched by water concerns.

CHAPTER 5: LIMITS ON GROWTH - A NECESSARY GROWTH STRATEGY

Various tools for controlling growth exist. Some counties in Wyoming, for example, have issued moratoriums at one time or another in order to gain time to plan for growth (Larmer, 1994, p. 9). Boulder City, just 30 miles from Las Vegas, controls growth by limiting the number of building permits issued each year. The city maintains its goal, 3 percent annual growth rate (Patlovich, 1995). But a rational policy for living within a desert community has already been developed, though never implemented, right here in Las Vegas.

Sustained Managed Growth Policy:

In 1991, Las Vegas had a brief encounter with a growth management plan which addressed the issues of water availability and uncontrolled growth. The Sustained Managed Growth Policy was created to this end, but, unfortunately, met its demise in the State Legislature less than two years later.

In a news release dated August 8, 1991, County Commissioners Paul Christensen and Bruce Woodbury heralded the plan. The policy "will assure maximum availability of water through managed supply and demand....Healthy growth would be better accommodated with water availability instead of having to institute a severe moratorium," Christensen said. Woodbury added, "The days of unlimited growth in the area we control

1. Geographic limits for urban development: Preferred geographic limits for land use and public infrastructure extension would be established. It would initiate zone changes on public land and encourage federal land management policies to conform to Urban Service Boundaries. Tax incentives would encourage urban development within preferred geographic limits.

2. Environmental management: Anticipation of incremental and cumulative environmental impacts would be integrated into the decision making process. This would include air quality considerations, encouragement of non-polluting economic development, modification of construction practices, and revised zoning regulations. Environmental impact constraints would be integrated into the sustained managed growth policy decision making process.

3. Fiscal management: Develop a long-range social and economic impact analysis framework to deal with the fiscal consequences of land use decisions. Evaluate the fiscal impacts of growth on government revenues and expenditures and make recommendations to address the question, "How do we pay for growth?"

4. Annual growth rate targets: Establish a system to reduce lag time between infrastructure demand and infrastructure delivery in "fast" growth periods. Such a system would, in "slow" periods of economic development,

CONCLUSION

With a population projection of 2 million by 2007, supplying this burgeoning populace with water will be challenging at best. Will Mulroy's "emerging" water supply materialize or will it be the biggest gamble facing Las Vegas? And following the accepted "growth at all costs" scenario simply exacerbates a precarious situation.

Yet, the effect of growth for growth sake cannot be underestimated. It is exciting, as well as financially fruitful. However, Las Vegas must come to the realization that the fruits of continued expansion require fulfilling a thirst for water which needs to be managed or the costs to the environment and the community will clearly outweigh the benefits. Therefore, a far more responsible approach to growth is necessary: one based on the <u>available</u> water supply.

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APPENDIX

278.160 Subject matter of master plan.

1. The master plan, with the accompanying charts, drawings, diagrams, schedules and reports, must include such of the following subject matter or portions thereof as are appropriate to the city, county or region, and as may be made the basis for the physical development thereof:

(a) Community design. Standards and principles governing the subdivision of land and suggestive patterns for community design and development.

(b) Conservation plan. For the conservation, development and utilization of natural resources, including water and its hydraulic force, underground water, water supply, forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals and other natural resources. The plan must also cover the reclamation of land and waters, flood control, prevention and control of the pollution of streams and other waters, regulation of the use of land in stream channels and other areas required for the accomplishment of the conservation plan, prevention, control and correction of the erosion of soils through proper clearing, grading and landscaping, beaches and shores, and protection of watersheds. The plan must also indicate the maximum tolerable air pollution level.

(c) Economic plan. Showing recommended schedules for the allocation and expenditure of public funds in order to provide for the economical and timely execution of the various components of the plan.

(d) Historical properties preservation plan. An inventory of significant historical, archaeological and architectural properties as defined by a city, county or region, and a statement of methods to encourage the preservation of those properties.

(e) Housing. Survey of housing conditions and needs and plans and procedure for improvement of housing standards and for the provision of adequate housing.

(f) Land use plan. An inventory and classification of natural land types and of existing land cover and uses, and comprehensive plans for the most desirable utilization of land.

(g) Population plan. An estimate of the total population which the natural resources of the city, county or region will support on a continuing basis without unreasonable impairment.

(h) Public buildings. Showing locations and arrangement of civic centers and all other public buildings, including the architecture thereof and the landscape treatment of the grounds thereof.

(i) Public services and facilities. Showing general plans for sewage, drainage and utilities, and rights of way, easements and facilities therefor.

(j) Recreation plan. Showing a comprehensive system of recreation areas, including natural reservations, parks, parkways, reserved riverbank strips, beaches, playgrounds and other recreation areas, including, when practicable, the locations and proposed development thereof.

(k) Seismic safety plan. Consisting of an identification and appraisal of seismic hazards such as susceptibility to surface ruptures from faulting, to ground shaking or to ground failures.

(l) Solid waste disposal plan. Showing general plans for disposal of solid waste.

(m) Streets and highways plan. Showing the general locations and widths of a comprehensive system of major traffic thoroughfares and other traffic ways and of streets and the recommended treatment thereof, building line setbacks, and a system of street naming or numbering, and house numbering, with recommendations concerning proposed changes.

(n) Transit plan. Showing a proposed system of transit lines, including rapid transit, streetcar, motorcoach and trolley coach lines and related facilities.

(o) Transportation plan. Showing a comprehensive transportation system, including locations of rights of way, terminals, viaducts and grade separations. The plan may also include port, harbor, aviation and related facilities.

2. The commission may prepare and adopt, as part of the master plan, other and additional plans and reports dealing with such other subjects as may in its judgment relate to the physical development of the city, county or region, and nothing contained in NRS 278.010 to 278.630, inclusive, prohibits the preparation and adoption of any such subject as a part of the master plan.

278.170 Coordination of master plans; adoption of all or parts.

1. The commission may prepare and adopt all or any part of the master plan or any subject thereof, except as provided in subsection 2, for all or any part of the city, county or region; but master regional plans must be coordinated with similar plans of adjoining regions, and master county and city plans within each region must be coordinated so as to fit properly into the master plan for the region.

2. In counties having a population of 100,000 or more, if the commission prepares and adopts less than all subjects of the master plan, as outlined in NRS 278.160, it shall include, in its preparation and adoption, the conservation and population plans described in that section.