

IN THE SUPREME COURT OF THE STATE OF NEVADA

CITY OF LAS VEGAS, A POLITICAL
SUBDIVISION OF THE STATE OF
NEVADA,

Appellant,

vs.

180 LAND CO., LLC, A NEVADA LIMITED-
LIABILITY COMPANY; AND FORE STARS,
LTD., A NEVADA LIMITED-LIABILITY
COMPANY,

Respondents.

180 LAND CO., LLC, A NEVADA LIMITED-
LIABILITY COMPANY; AND FORE STARS,
LTD., A NEVADA LIMITED-LIABILITY
COMPANY,

Appellants/Cross-Respondents,

vs.

CITY OF LAS VEGAS, A POLITICAL
SUBDIVISION OF THE STATE OF
NEVADA,

Respondent/Cross-Appellant.

No. 84345

Electronically Filed
Sep 29 2022 10:30 p.m.
Elizabeth A. Brown
Clerk of Supreme Court

No. 84640

**AMENDED
JOINT APPENDIX
VOLUME 75, PART 8**

LAW OFFICES OF KERMITT L. WATERS

Kermitt L. Waters, Esq.

Nevada Bar No. 2571

kermitt@kermittwaters.com

James J. Leavitt, Esq.

Nevada Bar No. 6032

jim@kermittwaters.com

Michael A. Schneider, Esq.

Nevada Bar No. 8887

michael@kermittwaters.com

Autumn L. Waters, Esq.

Nevada Bar No. 8917

autumn@kermittwaters.com

704 South Ninth Street

Las Vegas, Nevada 89101

Telephone: (702) 733-8877

*Attorneys for 180 Land Co., LLC and
Fore Stars, Ltd.*

LAS VEGAS CITY ATTORNEY'S OFFICE

Bryan K. Scott, Esq.

Nevada Bar No. 4381

bscott@lasvegasnevada.gov

Philip R. Byrnes, Esq.

pbyrnes@lasvegasnevada.gov

Nevada Bar No. 166

Rebecca Wolfson, Esq.

rwolfson@lasvegasnevada.gov

Nevada Bar No. 14132

495 S. Main Street, 6th Floor

Las Vegas, Nevada 89101

Telephone: (702) 229-6629

Attorneys for City of Las Vegas

CLAGGETT & SYKES LAW FIRM

Micah S. Echols, Esq.

Nevada Bar No. 8437

micah@claggettlaw.com

4101 Meadows Lane, Suite 100

Las Vegas, Nevada 89107

(702) 655-2346 – Telephone

*Attorneys for 180 Land Co., LLC and
Fore Stars, Ltd.*

McDONALD CARANO LLP

George F. Ogilvie III, Esq.

Nevada Bar No. 3552

gogilvie@mcdonaldcarano.com

Amanda C. Yen, Esq.

ayen@mcdonaldcarano.com

Nevada Bar No. 9726

Christopher Molina, Esq.

cmolina@mcdonaldcarano.com

Nevada Bar No. 14092

2300 W. Sahara Ave., Ste. 1200

Las Vegas, Nevada 89102

Telephone: (702) 873-4100

LEONARD LAW, PC

Debbie Leonard, Esq.

debbie@leonardlawpc.com

Nevada Bar No. 8260

955 S. Virginia Street Ste. 220

Reno, Nevada 89502

Telephone: (775) 964.4656

SHUTE, MIHALY & WEINBERGER, LLP

Andrew W. Schwartz, Esq.

schwartz@smwlaw.com

California Bar No. 87699

(admitted pro hac vice)

Lauren M. Tarpey, Esq.

ltarpey@smwlaw.com

California Bar No. 321775

(admitted pro hac vice)

396 Hayes Street

San Francisco, California 94102

Telephone: (415) 552-7272

Attorneys for City of Las Vegas

3G Leisure And Cultural Services

3G.1 Background

The demand for City leisure and cultural facilities and programs in Las Vegas is a function of a variety of variables. While some of these variables can be readily defined and quantified, others must be examined qualitatively and are subject to different interpretations. These variables are:

- population (increase/decrease)
- access to existing facilities (distribution of pop./physical barriers/economic barriers)
- quality of existing lands and facilities
- quantity and quality of existing leisure time programs
- private parks and recreation programs
- interests of the region and the locale
- age breakdown of the population
- climate of the area
- parks developed by other entities (locations, services, quality)
- special considerations (tourists, urban areas)

The City of Las Vegas' Department of Parks and Leisure is responsible for planning, developing and maintaining leisure and cultural facilities and programs within the community. To accomplish these functions, the Department is organized into six divisions:

- Administration
- Parks and Open Spaces
- Recreation
- Adaptive Recreation
- Cultural and Community Affairs
- Senior Citizens

"Las Vegas 2000 and Beyond" Actions relating to Parks and Leisure are:

- Provide leadership and creative mechanisms to help fund further

development of the cultural community.

- Encourage and support development of adequate cultural facilities.
- Create environments favorable to the artist and the creation of art.
- Encourage partnerships between education, government, business and community cultural agencies.
- Create incentives and remove existing barriers to encourage private sector participation in the communities cultural development.
- Create an urban/metropolitan parks and recreation entity ...under one multi-funded regional district.
- Clarify local government programs for providing recreation and leisure activities.
- Encourage private development of open spaces, leisure facilities and landscape maintenance.
- Develop a regional park master plan.
- Generate alternative funding to organize a park foundation.
- Use volunteer seniors to staff a school for homeless children.
- Regulate local services and money for seniors.
- Provide affordable housing and medical services for seniors.
- Encourage wellness programs in senior housing locations.
- Use volunteer Senior Citizens to assist teachers and students.

Parks and Open Spaces

Introduction

Parks and open space are an important part of improving the quality of life for Las Vegas citizens. Parks and open space give people an opportunity to exercise, relax, and congregate for group activities. In addition, parks add an aesthetic value to the City, which improves public perception and interest in the area. The Parks and Open Spaces Division of the Department of Parks and Leisure is responsible for managing all City owned parks and landscaped areas in the City. The

Division also maintains 22 miles of medians, 19 "school parks" and is responsible for preparation and cleanup of sites for programs and activities.

Existing Inventory

The Parks Division currently maintains 30 City parks. Through joint use agreements with Clark County School District, the community is also allowed to utilize 48 School District sites for park and recreation use. Table 9 lists the City parks along with their size, and recreational facilities. The City parks in Table 9 are also classified by size and/or function into four park types as defined by the Parks Department of Las Vegas. The parks are classified as Neighborhood Parks, District Parks, Major Urban Parks, or Regional Parks. The Department of Parks and Leisure plans on adding nine new parks over the next five years. A listing of planned or proposed parks can be found in the Appendix section III.

Neighborhood Parks (0-25 acres) are intended to serve households located within walking distance of the park (neighborhoods). The facilities within these parks are primarily limited to family recreation such as playgrounds and picnicking. The parks should be centered within a neighborhood environment and ideally be located adjacent to an elementary school in an effort to complement the school recreation facilities. Determination of a neighborhood park location should consider the density of the area being considered for development, physical barriers of access to the park (e.g. large volume transportation routes), existing park location, and the age breakdown of the user populace. (Table 10)

District Parks (25-50 acres) are intended to serve several neighborhoods. The district park offers a wider array of recreation facilities, attributed to a larger service population and thus, a greater diversity of interests. In addition to the uses offered by neighborhood parks, the parks might offer play fields

for team sports or courts for tennis, volleyball, and basketball and areas for special events, nature study, and community/senior center. Sites adjacent to junior and senior high schools provide excellent opportunities for development as district parks. Other community facility sites offer viable alternative development locations, such as next to libraries, fire stations, and police stations. (Table 10)

Major Urban Parks (50-100 acres) differ from district parks primarily in park size, service area, and function. Since the parks are larger, they may offer unique activities that could not be supported by the smaller user populations of the district parks or neighborhood parks. (Table 10)

Regional Parks (100 acres or more) serve an entire urban area. The park should include a scenic, undisturbed landscape and offer activities such as horseback riding, picnicking, camping and swimming, fishing, or boating in water oriented areas.


Analysis

Parkland standards have been developed by the Department of Parks and Leisure. The standards are intended to base park needs on suitable levels-of-service. The standards attempt to quantify some of the mostly qualitative variables involved in parkland assessment. The Parks and Leisure Department is currently using the standards listed in Table 10 to assess priority areas for park development. Map 8 shows the location of City Parks as

well as their service areas based on the above standards. The map also indicates those areas not serviced adequately by City parks. Table 10 also shows the City's parkland in comparison to City standards.

The above standards are intended to base park needs on suitable levels-of-service. The standards, however, lack the ability to adequately assess many qualitative variables associated with the leisure activity assessment. The following is a list of variables which might affect the provision of leisure activities. A Leisure and Cultural Facilities Master Plan for the City should be developed which analyzes these variables thoroughly. A more complete explanation of how these variables effect leisure and cultural service pro-

Table 10

 Las Vegas Parks Analysis			
CITY OF LAS VEGAS PARKLAND STANDARDS			
Park Type	Service Area	Desired Size	Ac/1000 Persons
Neighborhood Park	1/2 mile radius	0-25 acres	2-2.5
District Park	1-2 mile radius	25-50 acres	2.5-3
Major Urban Parks	15 min. drive	50-100 acres	2.5-5
Regional Parks	Entire urban area	100 acres or more	10
CITY OF LAS VEGAS PARKLANDS vs. CITY OF LAS VEGAS STANDARDS			
Park Type	Parkland In City	Min. Requirements	Adequacy
Neighborhood Park	192	580.24	-388.24
District Park	41	725.3	-684.3
Major Urban Parks	251	725.3	-474.3
Regional Parks*	0	1000.5	-1000.5
*includes Floyd Lamb State Park			

Source: CLV Parks & Leisure Dept.

GP.CF Table 10 LV Parks;PM/pm/9-9-91

Table 9

City of Las Vegas Parks

NEIGHBORHOOD PARKS

	ACREAGE	INVENTORY KEY #
Angel Park	10	5,6,11,13,15,17
Cragin Park	12	3,7,13,16,17
Coleman Park	4	5
Doolittle Park	19	2,3,4,5,6,7,11,13,16
Hadland Park	18	2,3,5,7,13,16
Jaycee Park	22	2,3,4,5,6,7,9,10,11,13,15,17,18
Lions Mem./Fantasy Park	21	2,3,5,8,9,10,13,18
Lubertha Johnson Park	0.75	5
Mojave Ball Fields	14	3,13
Mary Dutton Park	0.25	5
South Meadows Park	2	5
Stewart Place Park	2.5	2,5
W. Charleston Lions Park	2	5
Baker Park	6.5	3,5,7,16,17
Baskin Park	7.5	2,5,6,11,13,15,17
Charleston Heights Park	6	2,3,5,7,11,18
Dexter Park	6	2,3,4,5,13
Ethel Pearson	1.5	2,5,17
Heers Park	12	5,7
Huntridge Circle Park	3.5	No Facilities
James Gay III Park	1.5	4,5,17
Mirabelli Park	3.5	4,5,10
Rotary Park	8	2,5,9,10,13,16,18
Wildwood Park	1	4,5,6,11,18
W. Wayne Bunker Park	7.5	5,17

Total

192

DISTRICT PARKS

Ed Fountain Park	41	2,3,5,7,10,12,13,18
------------------	----	---------------------

Total

41

MAJOR URBAN PARKS

Freedom Park	62	2,3,5,6,7,9,10,11,13,18
Lorenzi Park	62	1,2,3,4,5,7,9,10,13,14,17,18
Nature Park	86	No facilities

Total

210

REGIONAL PARKS

No regional parks in inventory

Total

0

TOTAL PARKLAND

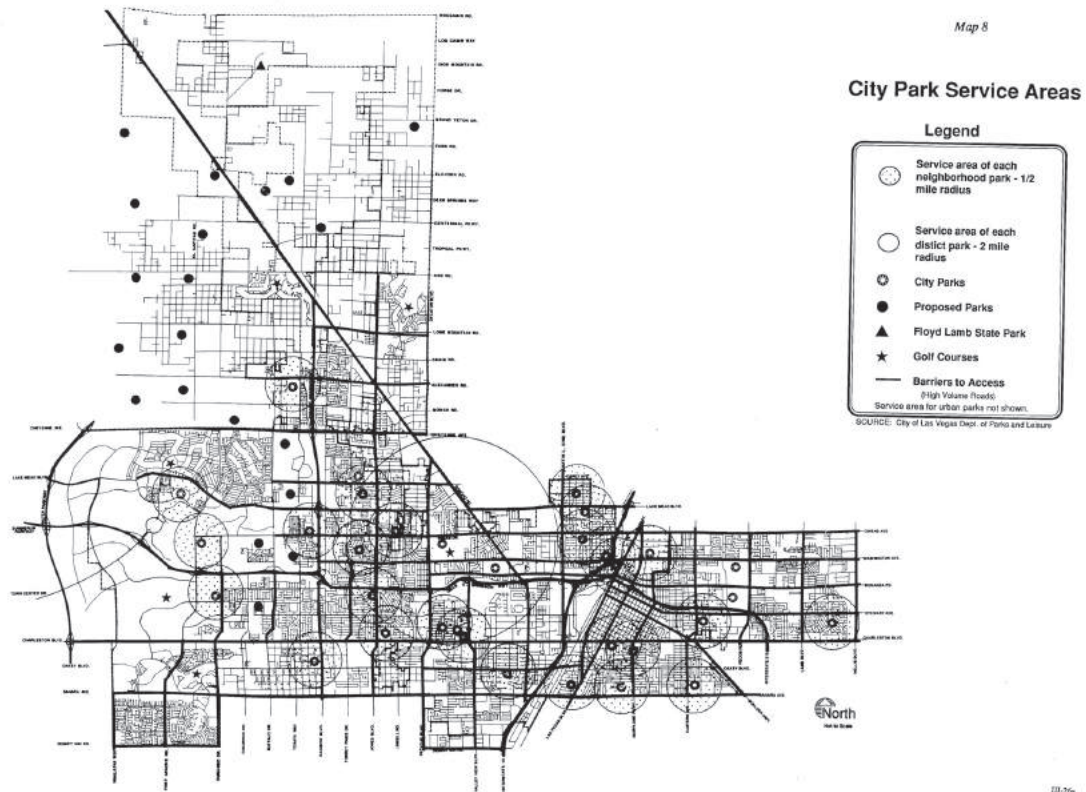
443.5

KEY

Fitness center	1	Football/soccer	7	Restrooms	13	Barbecue fac	2
Frisbee golf	8	Shuffleboard	14	Ball diamonds	3	Picnic area	9
Spray fountain	15	Basketball	4	Horseshoes	10	Swimming	16
Play area	5	Jogging track	11	Tennis	17	Fitness court	6
Over-the-line	12	Volleyball	18				

Source: CLV Parks & Leisure Dept.

GP.CF Table 9 CLV Parks;PM:pm/9-9-91

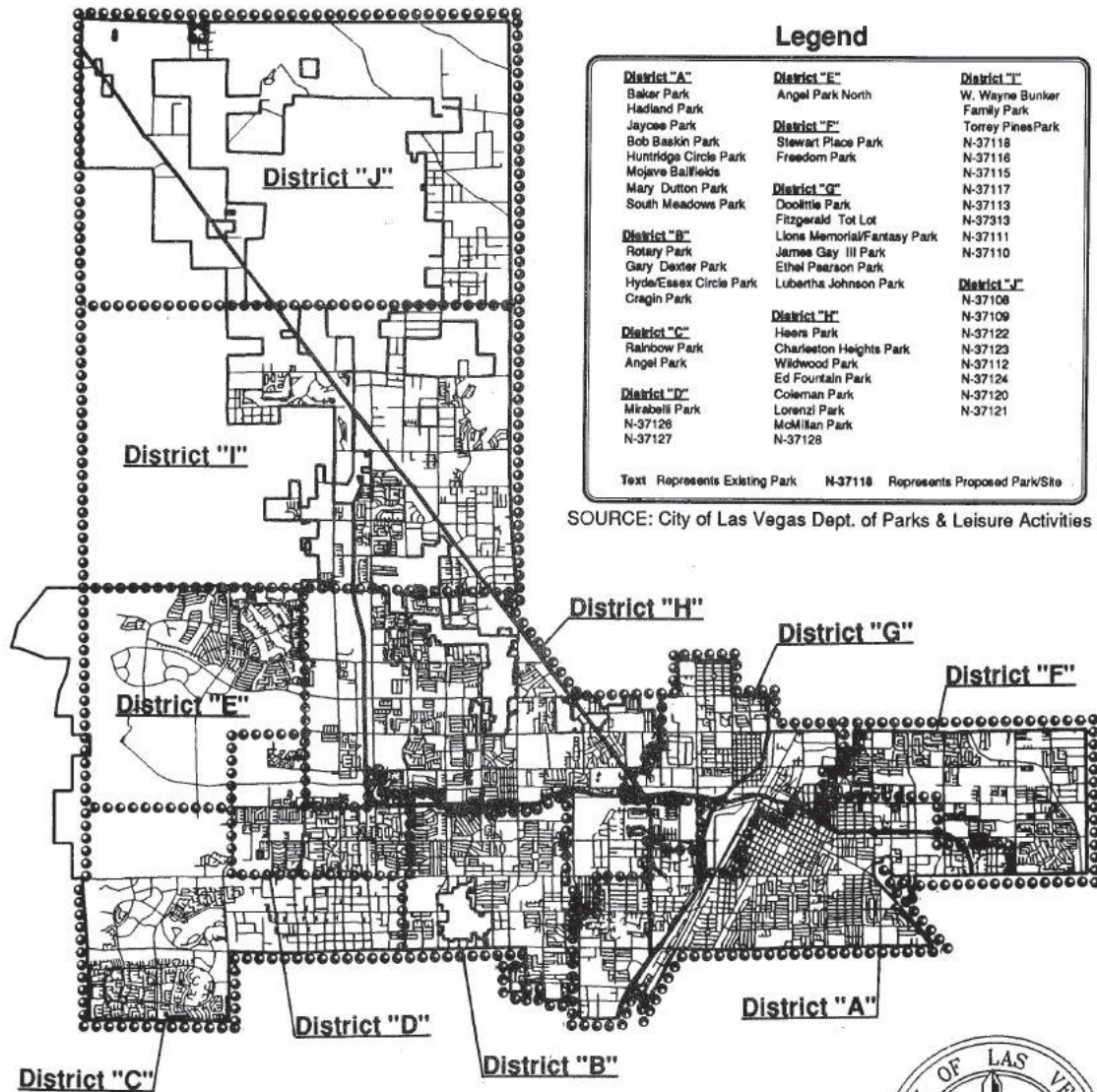


13-26a

CLV053081
2899

13143

Parks District and Impact Fees



May 15, 1991

GIS maps are normally produced
only to meet the needs of the City.
No Warranty is made as to
the accuracy or quality of maps.

Geographic Information System



III-26b

CLV053082

2900

13144

vision is located in the Appendix section III.

Access to existing facilities

Access can be limited by one or all of the following items:

- Physical Barriers to Access:
 - High volume roads
 - Land terrain
 - Distance From Homes to Park or Facility (Map 8 displays some physical barriers)
- Economic Barriers to Access
- Social Barriers to Access

Quality of existing parks and leisure facilities

Existing parks which contain obsolete or damaged equipment limit the effectiveness of the park. Inventories of park and facility equipment must be kept to insure they are operating properly. Existing parks with limited activities fill a statistical acreage need, although they do not necessarily meet the activity demands for the area.

Interests of the region and the locale

Different areas of the City may hold varied leisure interests. While tennis may be the popular game in one section of town, other areas may favor volleyball or basketball. Interests can be generally defined by conducting a community attitude survey.

Age breakdown of the population

Many areas within the City may fall short of serving a dominant age group that requires special recreational uses or equipment.

Parks and leisure activities provided by other entities

Parks or leisure activities provided by other entities, such as the State or private companies, either within the City limits or including City areas within their service boundaries may negate a need for similar City services to be offered.

Recreation

Introduction

The City of Las Vegas offers year round recreation opportunities to the community through the Recreation Division of the Department of Parks and Leisure Activities. Activities range from sporting events to educational activities to community and child care activities. The Safekey Program is an example of one recreation program which provides children with recreational and educational opportunities after school until their parents return from work or appointments. The program is offered at 30 locations throughout Las Vegas.

Existing Inventory

The Recreation Division offers a diverse program of recreational opportunities at various centers throughout the City. Below is a list facilities utilized for recreational purposes.

Community Centers and Community Schools - The Recreation Division utilizes the following community schools and community centers for arts, crafts, education, physical recreation, and safekey programs. Community schools are Clark County School District junior high schools located in Las Vegas which are utilized by the Parks and Leisure Department after school hours through the joint use agreement between the City and CCSD. The programs offered in community schools are staffed by employees of the school and the Recreation Division. Community centers owned and operated by the City of Las Vegas are listed in Appendix section III. (Map 12)

Stewart/Mojave Sports Center - This is an indoor recreation center used for a variety of physical recreation uses.

City Parks - City Parks are utilized for sporting events, community activities, reservations for private parties and picnics.

Pools - The Recreation Division utilizes one year round City pool and six seasonal City pools for aquatic programming.

Elementary and Junior High Schools - Through a joint use contract between the City of Las Vegas and the Clark County School District, the City may utilize school facilities after school operations for the purpose of recreation, education, and community activities. High schools are not utilized due to the large number of school activities that take place after normal school hours.

Analysis

Based on current and projected population, certain needs can be assessed using guidelines that define adequate levels of service. In addition to the guidelines, planning for recreational facilities must examine the locations and accessibility to the community users. The following standards can be used to assess recreation needs after inventories are completed for these facilities.

<u>Facility</u>	<u>Standard Population</u>
Softball Diamond	1/6,000
Swimming Pool	1/30,000
Golf Course (18 holes)	1/50,000
Tennis Court	1/3,600
Basketball Courts*	1/5,000
Baseball Fields*	1/5000
Volleyball Courts*	1/5000

SOURCE: Guidelines from Department of Parks and Recreation

** from National Recreation and Park Association*

Due to explosive growth in recent years, a growing popularity of the City's year round recreation programs and a minimum number of fields and courts, recreation facilities can not always be maintained properly. Because the fields and courts are in year round use, there is not ample time for grass to grow back, new pavement to be poured, or for new equipment to be installed. When new facilities are developed, the

demand for use of the facility occurs immediately. The City needs to be able to rotate use on fields to allow them time for recuperation, repair and additions. This can only be accomplished by adding more fields to the current inventory.

Adaptive Recreation

Introduction

Adaptive Recreation serves both mentally and physically challenged citizens. The goals of adaptive recreation programs in the City of Las Vegas is to meet the physical, emotional, social, and intellectual needs of disabled citizens by providing planned recreational experiences. Activities are designed to maintain and increase the participants recreational and leisure skills. The Adaptive Recreation Division is responsible for these programs within the City of Las Vegas.

Existing Inventory and Analysis

Programs and events are currently available through the Lorenzi Adaptive Recreation Center and the Adaptive Outreach Unit. The center services approximately 80 clients on a daily basis. An additional 10-20 persons are put on waiting lists due to the small facility size.

In addition to the adaptive recreation centers, it is the goal of the Department of Parks and Leisure to facilitate adaptive uses throughout all park and recreation facilities.

The Outreach Unit provides after-school recreation, recreational swimming, wheelchair sports, summer camp, and field trips for the physically handicapped. Leisure Connection, a program administered through the outreach program enables physically handicapped adults to travel in groups to movies, bowling, restaurants, etc. This program is designed to help handicapped citizens reenter society and the community.

The Division also administers a number of sports activities and civic events, specifically adapted for handicapped citizens.

Recreational Trails

There is a growing need for convenient outdoor recreation lands and tracts of open space in or near urban areas. In "The Report of the President's Commission on American Outdoors", it is pointed out that by year 2000, eighty percent of Americans will be living in metropolitan areas. With this in mind, it is important that recreational needs of our community be addressed before or, at minimum, concurrent with our growth so that accessible recreational opportunities are not lost.

Recreational trails can transform leisure and cultural facilities into a leisure and cultural "system". For example, the "system" might enable a bicyclist or a pedestrian to go from the residential area that they live in to a local or regional park facility and then to another park facility via a secure trail. In the Northwest, horse keeping and horseback riding are very popular due to the rural character of the area and the larger lots where horses are permitted by zoning. As a result of these desires and concerns, it was proposed that the City establish a recreational trail system.

Map 10 depicts general locations of frequently used trails in the Northwest Area. The proposed trail plan does not depict precise trail alignments or exact locations of improvements. Detailed trail planning should accompany adjacent land development and street right-of-way improvement. As a tool for implementation, it is vital that a Recreational Trail Master Plan be completed for the City of Las Vegas. This Master Plan could establish trail opportunities and routes within the City, as well as linkages to regional trails connecting to places like Floyd

Lamb State Park, Mt. Charleston, Red Rock Canyon and BLM public lands.

Cultural Arts

Introduction

Cultural activities increase a community's quality of life by providing opportunities to develop citizen learning and/or participation in fine arts and humanities. The activities offer residents of the City a different option for creative and satisfying use of their leisure time. Cultural arts in Las Vegas include arts and humanities programs which focus on the presentation of the visual and performing arts, while addressing ethnic diversity, education, audience development, and the needs of special populations. A successful cultural and community affair program can provide an enjoyable leisure time activity for citizens of all ages and backgrounds. Cultural and Community Affairs, a division of the Department of Parks and Leisure Activities, is responsible for staffing, planning, and running cultural programs for the City.

Existing Inventory

Currently, the City has two cultural art centers catering to the needs of cultural and community affairs: the Reed Whipple Center and the Charleston Heights Art Center. City Parks and rented theatre and convention space at Cashman Field are also utilized by this Division to fulfill its needs for activity space. Other proposed facilities for cultural uses are listed in the Appendix Section III.

The Division of Cultural and Community Affairs offers a variety of cultural and community enriching programs. Some of the programs currently offered are listed in Appendix Section III.

The Cultural and Community Affairs Division has prepared a ten year plan which discusses these programs and

future facility proposals in more detail.

Analysis

Cultural facility and program needs must be assessed in a qualitative manner. Analysis is based on what services are currently offered, currently offered and deficient, or not offered. Presently, many programs cannot be offered due to a lack of space for training and performances. The Community and Cultural Affairs ten year plan addresses programming needs.

The City has two cultural facilities located in the central and western areas of the City. The northwest area, eastern area and southern area of the City are presently not serviced by facilities.

Senior Citizen Facilities

Introduction

The Senior Citizen Programs Division of the Department of Parks and Leisure offers cultural, social and recreational activities to the over 55 community. The Division offers classes, informal socialization, dances and, with the help of federal aid, legal assistance.

Existing Inventory

The senior population of Las Vegas is served primarily by the Las Vegas Dula Senior Complex and the Derfelt Senior Center. The centers function as gathering places for seniors. The Senior Law Project is also administered through the Division.

Dula Senior Complex - Within this complex, the Senior Citizen Programs Division provides exercise and dance classes, arts and crafts classes, discussion groups, card groups, billiards and other recreation and leisure time activities. Dula Center, which is attached to the senior complex, offers active seniors a complementary variety of recreational facilities in the same convenient central location.

Derfelt Senior Center - The Derfelt

Senior Center is located in Lorenzi Park. This smaller center functions as a neighborhood center for seniors. Arts and crafts, discussion groups and a variety of classes and activities take place at Derfelt Senior Center.

Senior Law Project - A program designed to give seniors free legal advice. The project is currently administered at 345 North 11th Street.

Analysis

Senior centers, ideally, should be located within walking distance (one mile) of all senior citizens. Since seniors are not all living in pockets throughout the community, this goal would be difficult to achieve. A more realistic approach would place senior centers in the proximity of large concentrations of senior citizens. The Senior Citizen Programs Division uses a five mile service radius as a realistic approach to serving the senior citizen populace. The five mile radius relieves seniors from taking long drives through unfamiliar areas. Research shows that the primary users of the senior facilities are 70 years of age and over, therefore easy access is a key to providing effective senior services. The locations on Map 11 identify areas of high senior concentrations based on "Las Vegas Perspective" data. The map also identifies existing and proposed senior centers and their service areas.

Supplementary Leisure and Cultural Resources

Joint Use Agreement - Clark County School District

The Clark County School District provides an excellent opportunity to improve the efficiency of recreation provision through joint-use agreements. The joint-use agreements divide responsibilities for park operations and maintenance between the Clark County School District and the City of Las Vegas Department of Parks and Leisure. Joint-use agreements create

recreational opportunities in areas that might otherwise be deficient in one or more recreation activities due to lack of funds or inability to secure land.

It is evident that both the Clark County School District and the Department of Parks and Leisure Activities are maximizing use of the school facilities and the City's Park system. However, Parks and Leisure Time Activities programs can not all be realized due to a shortfall in the number of facilities in comparison to demand for recreation services. Presently, scheduling for school use and park use is full and new programs cannot be activated without increased staffing and facilities. The Recreation Division, Adaptive Recreation Division and Parks and Open Space Division participate in Joint-Use Agreement activities. Some school facilities might also provide facilities similar to a Neighborhood Park or leisure activity center. An inventory of school facilities must be taken and assessed when determining future park needs in a Parks and Leisure Plan.

Las Vegas-Clark County Library District

The Las Vegas-Clark County Library District has planned a total of six libraries in the City of Las Vegas. The libraries will provide cultural facilities such as art centers and museums, as well as its primary role of supplying books. The Community and Cultural Affairs Division should coordinate activities with the Library District to maximize cultural opportunities for residents of the City of Las Vegas. Facilities and program Inventories of both entities should be examined and coordinated to eliminate possible duplication of services.

State Park Resources

State Park Resources play an important role in parkland need assessment. Services offered within the various parks may alleviate the need for duplicating those services within the City Park system. State parks located within

the City may also eliminate the need for smaller neighborhood parks for residential areas located in close proximity to the regional or state park. Floyd Lamb State Park directly affects the provision of parkland within Las Vegas. This State Park is located within the City boundary and offers activities compatible with interests of the Northwest area of the City. The park offers picnicking, horse riding, gun ranges and a number of other activities. Because the population in the Northwest area of the City is sparse, it is inefficient to offer City Park services in all Northwest locations. Floyd Lamb State Park fills some of that void for park and passive recreation service.

Natural Reservations

The State of Nevada enjoys the luxury of having many natural reservations that offer physical and passive recreation activities as well as natural beauty. The Las Vegas area is surrounded by natural reservations. Toiyabe National Forest and Red Rock Canyon lie on the west side of the Valley. Hiking, climbing, snow skiing, picnicking and passive recreation can be enjoyed in these locations. The Lake Mead National Recreation Area is located on the east side of the Valley. This area includes recreational opportunities such as swimming, water skiing and fishing, as well as hiking and site seeing. Natural desert surrounds the Valley. The desert is currently protected land maintained by the Bureau of Land Management. Horse riding and sight seeing are popular desert activities.

Clark County and North Las Vegas

Clark County and North Las Vegas both provide parks which service areas within the City. The City should avoid developing new parks which overlap services with these existing parks. Parks in North Las Vegas and Clark County with service areas extending into the City need to be identified and considered when developing new parks.

Private Facilities

Many specialized leisure activities not made available by the City may be offered by private interests. A study examining private park and recreation provision should be initiated to determine if the private interests are sufficient enough to alleviate the need for the City to offer the same services.

3G.2 Issues

Issue 1: Leisure and Cultural Facility Development

Certain areas of the City are not serviced adequately by leisure and cultural facilities. Some areas have no facilities, while in other areas improper location restricts full use of facilities by the intended market population. A leisure or cultural facility placed on the opposite side of a high volume road from the intended target population may greatly limit its use.

Due to explosive growth in recent years, the City has not been able to keep pace with demands for park land, recreation and adaptive recreation facilities, senior facilities, or cultural arts facilities. This need can be shown by comparing existing Las Vegas facilities with national and local standards. An additional need exists for more data for planning leisure and cultural facilities including population characteristics, citizen interests and perceptions, and available facilities. This can be obtained through surveys and the 1990 Census.

Existing parks with limited activities fill a statistical acreage need, although they may not necessarily meet the actual activity demands for the area. Inventories must be studied to assess which services are not offered in certain areas of the City.

The City needs to develop a master leisure and cultural facilities plan that addresses many of the park location issues listed previously. It is essential for orderly growth that this information be collected, analyzed and used to guide future leisure and cultural development in the City.

Issue 2: Services Provided by Other Entities

Other public and private agencies provide leisure and cultural activities which might be duplicated unnecessarily. A study is needed that assesses their impact on activities provided by the City.

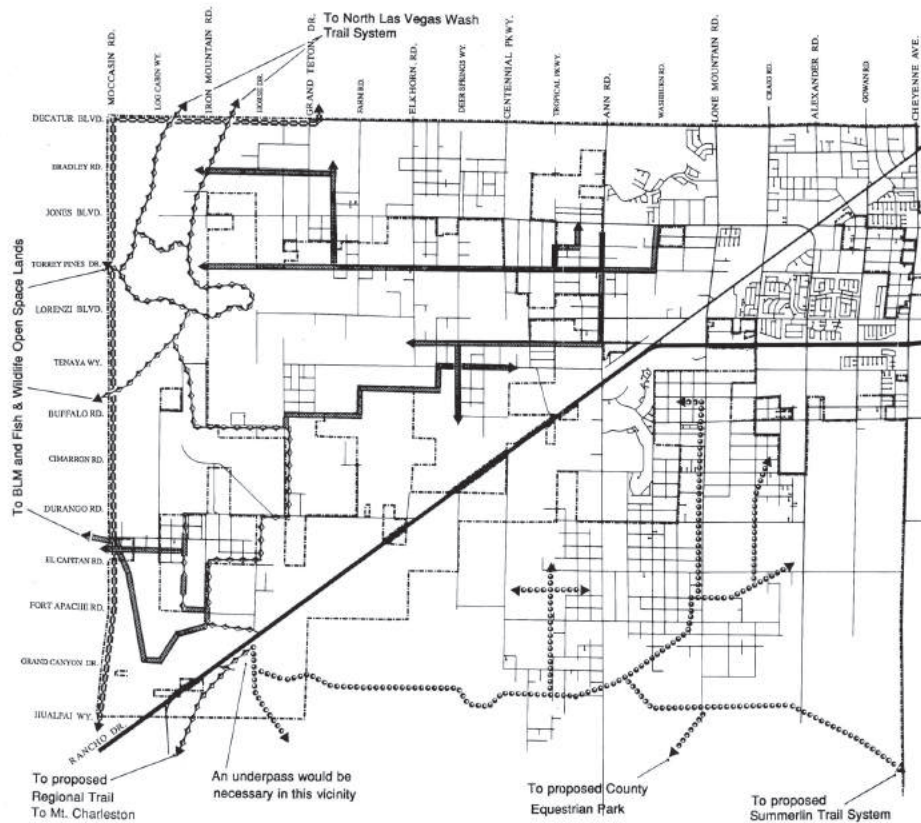
Issue 3: Staff Requirements

An increase in facilities will require an increase in staff. At the present time, the Parks and Leisure Department lacks personnel to properly maintain and administer programs to meet the existing demand. The demand for programs will increase with population growth, adding to the current staff deficiencies.

Issue 4: Maintenance

Sports activities facilities cannot be maintained properly due to year round use on the limited number of facilities for Recreation Division use. The grass needs ample time to recover from use. Equipment is in constant use, leaving little time for replacement or repairs.

Existing parks which contain obsolete or damaged equipment limit the effectiveness of the park. Inventories of park and facility equipment must be kept to insure they are operating properly.



Map 10



Proposed Trails

LEGEND

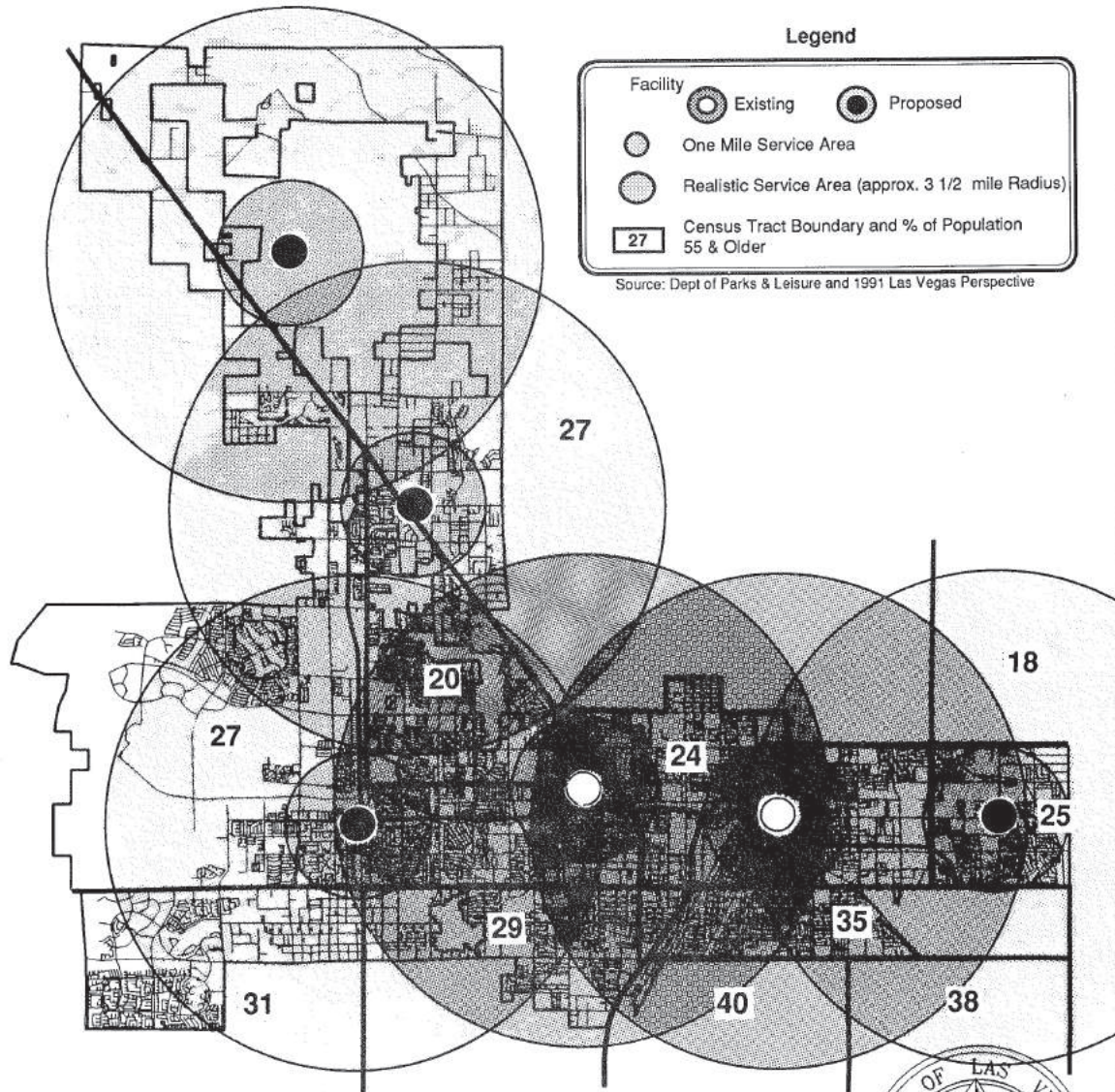
- Suggested Lone Mountain Area Trails
- Suggested Sheep Mountain Area Trails
- >——> Proposed Park Trail and Recreational Trail to Mt Charleston Wilderness Area
- Nevada Power Line Trail

Source: City of Las Vegas, Dept. of Community Planning & Development

III-304

CLV053087
2905

Senior Center Service Area



Source: Dept of Parks & Leisure and 1991 Las Vegas Perspective



GIS maps are normally produced only to meet the needs of the City.
No Warranty is made as to the accuracy or quality of maps.
Geographic Information System



III-30b

CLV053088
2906

13150

Community Facilities III-30c

CLV053089
2907

13151

Las Vegas General Plan Community Facilities Element

Map 12

Parks, Schools and Other Community Facilities

Legend

Parks

A	Stewart Place Park	KK	Charleston Heights Park
B	Hodland Park	LL	Heers Park
C	Mojave Ball Fields	MM	N-37130
D	Freedom Park	NN	Sun City, Summerlin C.C.
E	Lions Memorial/Fantasy Park	OO	W. Wayne Bunker Family Park
F	Jaycee Park	PP	N-37118
G	Baker Park	QQ	N-37116
H	Hurridge Circle Park	RR	N-37115
I	Mary Dutton Park	SS	N-37117
J	South Meadows Park	TT	N-37114
K	James Gay III Park	UU	Painted Desert C.C.
L	Ethel Pearson Park	VV	Los Prados C.C.
M	Fitzgerald Tori Lot	WW	N-37113
N	Doolittle Park	XX	N-37110
O	Lubertha Johnson Park	YY	N-37112
P	Lorenz Park	ZZ	N-37122
Q	Bob Baskin Park	AAA	N-37122
R	Rotary Park	BBB	N-37124
S	Cragin Park	CCC	Floyd Lamb State Park
T	Hyde/Essex Circle Park	DDD	N-37128
U	Ed Fountain Park	EEE	N-37121
V	Las Vegas Municipal G.C.	FFF	N-37120
W	Mirabel Park	GGG	Torrey Pines Park
X	Gary Dexter Park		
Y	Rainbow Park		
Z	Canyon Gate C.C.		
AA	Angel Park G.C.		
BB	Angel Park		
CC	Angel Park North		
DD	N-37126		
EE	Coleman Park		
GG	N-37128		
HH	N-37129		
II	McMillan Park		
JJ	Wildwood Park		

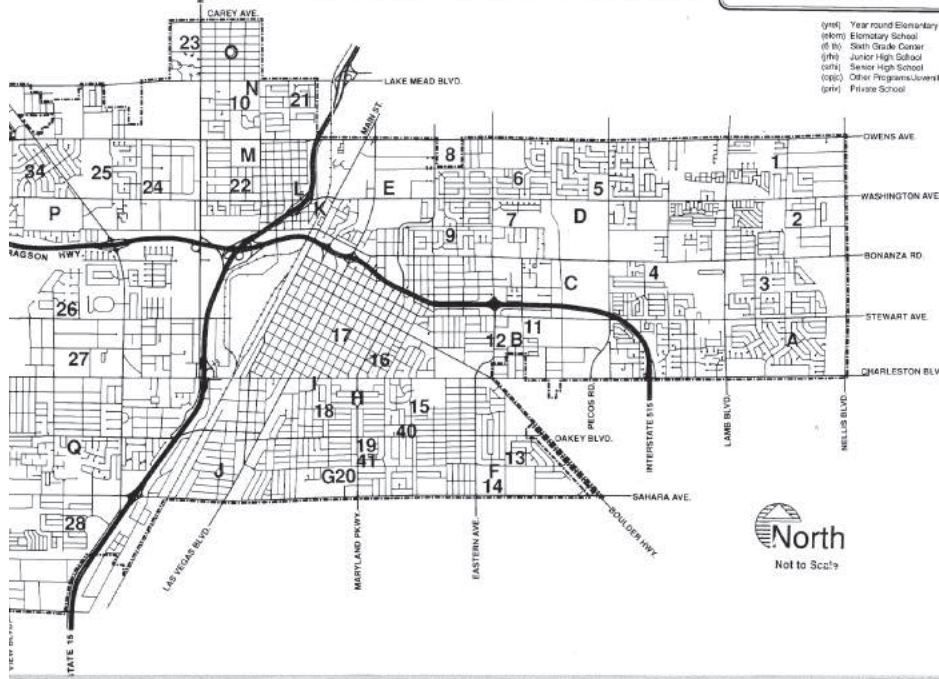
N-37126 Represents Proposed Park Site

Legend

Schools

1	Ira J. Earl (yrel)	41	St. Anne's (priv)
2	Dell H. Robinson (yrl)	42	Proposed
3	Elbert Edwards (yrel)	43	Bonanza (srhi)
4	Oran K. Gragdon (yrel)	44	Herbert Derfelt (elem)
5	C.C. Runnow (yrel)	45	M.J. Christensen (elem)
6	Walter Bracken (elem)	46	Proposed
7	Robert Lunt (elem)	47	Proposed
8	Rancho (srhi)	48	Waher E. Jacobson (elem)
9	Halie Howatson (yrel)	49	Waher O. Johnson (yrl)
10	Matt Kelly (6 th)	50	Helen Marie Smith (elem)
11	Roy W. Martin (yrl)	51	O.K. Adcock (elem)
12	Variety Club (oppc)	52	Frank F. Garside (yrl)
13	John F. Miller (oppc)	53	Rose Warren (elem)
14	K.O. Knudsen (yrl)	54	Vail Preman (elem)
15	Crestwood (elem)	55	Paul E. Cully (elem)
16	St. Joseph's (priv)	56	St. Francis (priv)
17	Lae Vegas (srhi)	57	J.T. McWilliams (elem)
18	John S. Park (elem)	58	Bertha Ronczow (elem)
19	Bishop Gorman (srhi)	59	Doris Reed (elem)
20	J.C. Fremont (yrl)	60	Brintley (yrl)
21	Lily & Wang Fong (elem)	61	Lily & Wang Fong (elem)
22	Madison (6 th)	62	Cimarron-Memorial (srhi)
23	Kennel R. Booker (6 th)	63	James E. McMillan (elem)
24	Mabel Hoggard (6 th)	64	Elythe & Lloyd Katz (elem)
25	Faith Lutheran (yrl)	65	Proposed
26	Our Lady of Las Vegas (priv)	66	Meadows (priv)
27	Howard Wadden (elem)	67	Proposed
28	Rex Bell (elem)	68	Proposed
29	Edward W. Clark (srhi)	69	Helen Academy (priv)
30	James Cashman (yrl)	70	R.E. Tobler (elem)
31	Vegas Verde (elem)	71	Dorothy Eisenberg (elem)
32	Hyde Park (yrl)	72	Mark A. Kahre (elem)
33	E.W. Griffith (elem)	73	Ernest A. Becker (yrl)
34	Twin Lakes (elem)	74	Parson (elem)
35	Robert O. Gibson (yrl)	75	Ruthie Desair (elem)
36	Ruth Fyle (elem)	76	Ernest J. May (elem)
37	Western (srhi)	77	Proposed
38	Red Rock (elem)	78	Proposed
39	Doris Hancock (elem)	79	Proposed
40	Temple Bath Shalom (priv)		

SOURCES: Dept. of Parks & Leisure, Bureau of Land Management and the Clark County School District

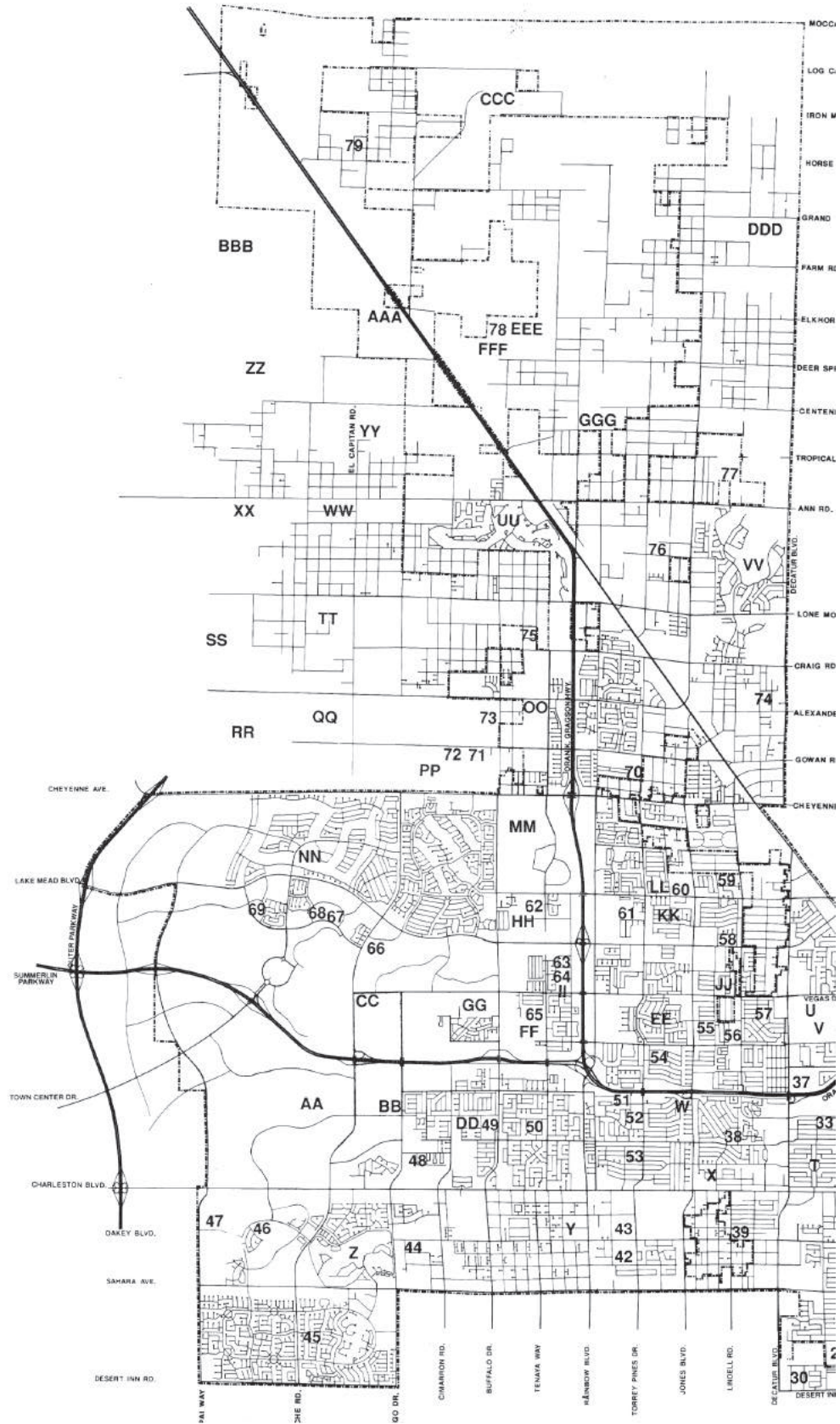


(yrel) Year round Elementary School
(elem) Elementary School
(6 th) Sixth Grade Center
(yrl) Junior High School
(srhi) Senior High School
(oppc) Other Programs/Junior Center
(priv) Private School

CLV053090

2908

13152



CLV053091

2909

13153

Issue 5: Recreational Trails

Many areas of the City of Las Vegas were developed in a rural lifestyle that remains today. The problem with most of these areas is that urbanization eventually encompassed them and access to open space was either cut off or diminished due to development. In the case of equestrian oriented neighborhoods this had a devastating effect due to the loss of open desert in which to ride. A system of recreational trails could help to reestablish this lifestyle, in some cases, as well as preserve rural areas that have to date not been effected by development, such as the Northwest Area of the City.

A rapidly growing urban area also has growing demands for recreational facilities. It becomes more and more important to furnish facilities and access to them. Access should not be based solely on the ability to drive an automobile to the park or recreational facility. In a City already congested with problems related to the automobile, facilities which can be reached by pedestrian, bicycle or equestrian travel helps alleviate some of the stress on our transportation system as well as providing a form of recreation in itself.

Issue 6: Park and Leisure Facility Security

Park and leisure facility use can not be maximized, if crime is evident or perceived in the parks. The City must recognize the need for more Park Rangers with the addition of parks and leisure facilities to successfully protect the parks and leisure facilities.

3G.3 Goal, Objectives, Policies and Programs

Goal: Provide efficient and cost-effective community facilities and services.

Objective A: Continue to provide an adequate and diverse system of parks and recreational facilities and services at the local, district and City-wide levels.

Policy A1: Coordinate planning, including determination of appropriate locations, size, and type of facilities for municipal parks and other recreational operations, with the City's General Plan.

Program A1.1: By 1992, coordinate with other City Departments and administer a community survey which can detail demographic information, special leisure and cultural arts interests, and assess public perception of leisure and cultural activities services in the City.

Program A1.2: By 1992, establish service and development standards for parks and recreational facilities that consider the City's fiscal resources and capabilities.

Program A1.3: By 1992, establish criteria to determine the adequacy of parks and recreational facilities in the review of development proposals.

Program A1.4: Periodically reevaluate the adequacy of parks and recreational facilities in accordance with determined service standards.

Program A1.5: By 1992, coordinate leisure and cultural facility locations and transit route locations and identified citizen user groups to improve access to parks for all citizens who lack mobility.

Program A1.6: By 1992, develop a Master Recreational Trail Plan which links existing low density equestrian areas with Floyd Lamb State Park, BLM lands, the Desert National Wildlife Areas, and other open space areas.

Program A1.7: By 1993, develop a Master Plan for leisure and cultural facility development which includes the products of the previous programs and complies with all development concepts included in the City of Las Vegas General Plan.

Policy A2: Continue to provide a variety of parks and recreational facilities.

Program A2.1: Continue to develop neighborhood and community parks to serve the needs of residents throughout all areas of the City.

Program A2.2: Continue to coordinate planning with the Clark County School District to avoid unnecessary duplication of recreational opportunities provided by public schools and private organizations.

Program A2.3: Identify opportunities to provide linkages, such as recreational trails, between parks and recreation in accordance with the update of the City's General Plan.

Policy A3: Continue to provide organized recreational activities and services at community recreation centers and park facilities throughout the City.

Program A3.1: Continue to provide programs for all ages in adaptive recreation, sports, and arts and crafts, as well as classes for special interest groups, and meeting rooms for clubs and service organizations.

Program A3.2: Continue to sponsor specialized programs and activities for senior citizens.

Objective B: Continue to provide an equitable means of financing park facilities and recreational services to serve the residents of Las Vegas.

Policy B1: Continue to utilize public funds, within budgetary constraints, to facilitate parks and recreational development and services.

Program B1.1: Continue to seek federal, state, Las Vegas Convention and Visitors Authority grants, Park Impact Fee Funds and other grants or endowments for parks and recreational facilities.

Program B1.2: Continue the cooperative arrangement with the Clark County School District to provide joint neighborhood park and school sites.

Program B1.3: Continue to coordinate plans with federal and state agencies to secure public lands which are suitable for park use.

Program B1.4: Continue to explore opportunities for public/private joint financing in the operation of public parks and recreational facilities.

Program B1.5: Generate alternative funding to organize a park foundation.

Program B1.6: Explore the feasibility of a major Parks and Leisure Activities bond issue ranging from \$15-20 million dollars.

Policy B2: Cooperate with private developers to ensure that adequate park space and recreational facilities are provided to meet the needs of new residents.

Program B2.1: Evaluate and monitor new development in accordance with the General Plan and with zoning and subdivision regulations to ensure adequacy of parks and recreational facilities.

Program B2.2: Encourage land dedication or land designation and construction of parks and recreational facilities for private maintenance, as may be appropriate, for large scale master planned developments.

Policy B3: Consider establishment of benefit assessment districts for park purposes along with other public facilities and services in various areas of the

City when requested by these residents.

Program B3.1: Continue to review various types of benefit assessment districts, particularly the use of property secured revenue bonds.

Policy B4: Provide continuing recreational programs and maintain park facilities by utilizing general funds, user fees and other resources.

Program B4.1: Continue to perpetuate reasonable user fees for city recreational facilities and programs.

Program B4.2: Continue to periodically reevaluate fees for recreational facilities and programs to ensure that such programs are available to all residents at reasonable cost.

Objective C: Provide efficient management of park and recreational facilities.

Policy C1: Establish priorities in the improvement of existing City parks which provide maximum benefit to the public.

Program C1.1: Maintain a list of priorities for park facility and recreational program improvements.

Program C1.2: Continue to coordinate and review plans for development of park facilities and recreational program improvements with the City Parks and Recreation Advisory Commission.

Program C1.3: Continue to encourage input from citizens and various organizations concerning park facilities and recreational programs.

Objective D: Provide expanded opportunities for cultural and artistic facilities, pursuits and programs.

Policy D1: Continue to encourage and sponsor cultural facilities and activities which enhance the opportunities for cultural and artistic expression in the community.

Program D1.1: Continue to sponsor ongoing community cultural activities, such as the Civic Ballet, Las Vegas Symphony and Rainbow Company.

Program D1.2: Continue to sponsor art exhibits and performances at city facilities and parks.

Program D1.3: Continue to maintain existing and encourage new city facilities for cultural enrichment, such as the Lorenzi Park Art Museum, the Reed Whipple Center, the Charleston Heights Arts Center, the Children's Discovery Museum, the Museum of Natural History and the Proposed Neon Park and Museum.

Program D1.4: Continue to provide leadership and creative mechanisms to help fund further development of the cultural community.

Program D1.5: Create environments favorable to the artist and creation of art.

Policy D2: Continue to provide City assistance to enhance community cultural activities through coordination of events and use of City facilities.

Program D2.1: Continue city support of cultural enrichment programs and community events.

Program D2.2: Continue to make city facilities available to community cultural groups at minimum possible cost.

Program D2.3: Continue to provide printed material describing City facilities, including capacities, hours of availability, cost range and any special consideration for their use.

Policy D3: Encourage private efforts to expand the cultural artistic base of the community.

Program D3.1: Encourage private sector participation in the community's cultural development.

3G.4 Evaluation and Implementation Matrix

The following Evaluation and Implementation Matrix (EIM) was prepared as a measurable summary of the above Policies and Programs. The EIM is to be used:

- as a method of measuring the implementation progress of the General Plan
- as a budgeting document for specific work programs
- as a tool for developing work programs

The following abbreviations apply to the Evaluation and Implementation Matrix

City Departments

CCSD	Clark County School District
CP	Community Planning and Development
FN	Finance Department
LVCLD	Las Vegas-Clark County Library District
PL	Parks and Leisure

EVALUATION AND IMPLEMENTATION MATRIX: LEISURE AND CULTURAL FACILITIES					
POLICY (PROG.)	SUMMARY	RESPONSIBLE DEPARTMENTS	DATE OF IMPLEM.	ACTION/PRODUCT (RELATED PROGRAM)	REMARKS
A1 (A1.1)	Administer a community survey.	PL, CP	1992	Determine community and area interests and needs.	In preparation for a master plan for parks and leisure
A1 (A1.2)	Establish and adopt service standards.	PL, CP	1992	Research, establish, adopt, monitor and report a LOS.	In preparation for a master plan for parks and leisure
A1 (A1.3)	Adopt standards that can be used in development review process.	PL, CP	1992	Assess effects on park and leisure by new dev.	
A1 (A1.4)	Periodically reevaluate park needs based on standards.	PL	ongoing	Reassess park needs periodically.	
A1 (A1.5)	Coordinate leisure and cultural facilities locations with transit rtes.	PL, transit co.	1993	Study in master park and recreation plan.	
A1 (A1.6)	Develop master rec. trail plan.	PL, CP	1993	Develop and Implement a master recreational trail plan.	
A1 (A1.7)	Develop master park and rec. plan.	PL, CP	1993	Develop and adopt a master parks and recreation plan.	
A2 (A2.1)	Develop parks to service all res. of the City.	PL, CP	ongoing	Study in master park and recreation plan.	
A2 (A2.2)	Coordinate park planning with CCSD to avoid duplication.	PL, CCSD	ongoing	Study areas where possible duplication might occur.	
A2 (A2.3)	Provide linkages between parks.	PL, CP	ongoing	Use rec. trails when possible include concept in rec. plan.	
A3 (A3.1)	Provide recreation opportunities for everyone in the City.	PL	ongoing	Study to determine needs.	
A3 (A3.2)	Provide programs and activities for Senior Citizens.	PL	ongoing	Study to determine senior needs.	
B1 (B1.1)	Continue to seek and utilize grants.	PL	ongoing	Research and utilize all grants offered for park or recreation.	
B1 (B1.2)	Joint use of park and school.	PL,CCSD	ongoing	Continue coordinating to maximize land use.	
B1 (B1.3)	Continue to acquire public lands suitable for leisure dev.	PL	ongoing	Acquire BLM lands.	
B1 (B1.4)	Explore possibilities public/private joint financing of projects.	PL	ongoing	Study innovative financing method.	
B1 (B1.5)	Generate funding for a park foundation.	PL	ongoing	Study innovative financing methods.	
B1 (B1.6)	Bond issue for Park and Leisure	PL, FN	ongoing	Feasibility study for a large bond issue.	

LEISURE AND CULTURAL FACILITIES (cont'd)					REMARKS
POLICY (PROG.)	SUMMARY	RESPONSIBLE DEPARTMENTS	DATE OF IMPLM.	ACTION /PRODUCT (RELATED PROGRAM)	
B2 (B2.1)	Coordinate with private side to ensure Parks in new develop.	PL	ongoing	Coordination program	
B2 (B2.2)	Encourage private dev. and maint. of parks in planned developments.	PL, CP	ongoing	Coordinate with developers to encourage development.	
B3 (B3.1)	Review various types of benefit assessment districts.	PL, CP	1992	Particularly revenue bonds to ease initial expenses.	
B4 (B4.1)	Perpetuate reasonable user fees for facilities and programs.	PL	ongoing	Study user fee possibilities.	
B4 (B4.2)	Continue to reevaluate fees based on reasonability.	PL	ongoing	Study to determine reasonable fees.	
C1 (C1.1)	Maintain priority list of dev. and improvements.	PL	1993	Set priorities for dev. in plan.	Follow park and rec. master plan
C1 (C1.2)	Coordinate park dev. plans with an advisory commission.	PL	ongoing	Work with an advisory commission.	
C1 (C1.3)	Encourage input from citizens for park and rec. issues.	PL	ongoing	Develop and administer a community survey.	
D1 (D1.1)	Sponsor ongoing cultural events and artistic expression.	PL	ongoing	Continue cultural programs.	
D1 (D1.2)	Sponsor at City Facilities and parks.	PL	ongoing	City events to install comm. feeling among residents.	
D1 (D1.3)	Encourage new facilities for cultural activities.	PL	ongoing	Offer more areas for activities and improve access.	
D1 (D1.4)	Provide leadership and funding for cultural development in City.	PL	ongoing	Creative financing, programs, and exhibits.	
D1 (D1.5)	Create environments favorable for artist expression.	PL	ongoing	Study possibilities for artist courtyard or adaptive reuse.	
D2 (D2.1)	City support for cultural programs and community events.	PL	ongoing	Improve cultural possibilities.	
D2 (D2.2)	Minimize cost for cultural groups to use City facilities.	PL	ongoing	Develop special fees for cultural arts groups.	
D2 (D2.3)	Advertise City availability of cultural facilities.	PL	ongoing	Continue aggressive marketing program.	
D3 (D3.1)	Encourage private participation in cultural development	PL	ongoing	Encourage public/private cooperation.	

IV. Infrastructure

CLV053098

2916

13160



IV. INFRASTRUCTURE

4A Sewer Collection and Treatment System	2	4C. Flood Control System		List of Figures:	
4A.1 Background	2	4C.1 Background	28	1. Projected Wastewater Treatment Requirements 1990-2000	3
4A.2 Issues		4C.2 Issues		2. Population as it Affects Miles of Sewer Lines	5
1. Sewer service for North Las Vegas	6	1. Land Management	28		
2. City facility capacities and service areas	7	2. Water Quality	28		
3. Levels of service and land use planning	7	3. Water Management	29	List of Tables:	
4. Capital Improvement Plan	8	4C.3 Goal, Objectives, Policies and Programs	29	1. Estimate of Sewage Flows	4
4A.3 Goal, Objectives, Policies and Programs	9	4C.4 Evaluation and Implementation Matrix	31	2. State Water Permits Issued	17
4A.4 Evaluation and Implementation Matrix	11	4D. Solid Waste		3. Allocations of Colorado River Water as of May 1, 1990	19
Endnotes	14	4D.1 Background		4. Las Vegas Valley Water District - Water Consumption of Various Types of Development	21
Bibliography	14	Collection	35	List of Maps:	
		Disposal	35	1. Sewer Collector Systems, Existing & Proposed Facilities	4a
4B. Water Distribution System	15	Existing Conditions	35	2. Las Vegas Valley Water District	16a
4B.1 Background		Facilities	35	3. City of Las Vegas Water	16b
Water Supplies and Uses	15	Recycling	36	4. City of Las Vegas Flood Control Projects	28a
Sources of Water	15	Hazardous Waste	36	5. Las Vegas Valley Flood Control System	28b
Groundwater	15	4D.2 Issue	36	6. Solid Waste Transfer Stations	36a
Surface Water	16	4D.3 Goal, Objectives, Policies and Programs	37	7. Apex Landfill Site	36b
4B.2 Issues		4D.4 Evaluation and Implementation Matrix	37		
1. Resource Conservation	18	Endnotes	37		
2. Coordination of Water Service	20	Bibliography	37		
3. Levels of Service	21				
4. Other Providers	22				
4B.3 Goal, Objectives, Policies and Programs	23				
4B.4 Evaluation and Implementation Matrix	24				
Definitions	27				
Endnotes	27				
Bibliography	27				

Introduction

The infrastructure of the City is comprised of four major components which are discussed in the following order:

- 4A. Sewer Collection and Treatment System
- 4B. Water Distribution System
- 4C. Flood Control System
- 4D. Solid Waste

Infrastructure is the aggregate of the sewer, water, flood control and solid waste facilities that allow the City to function.¹ This does not include schools, hospitals, jails, or other buildings with special public purposes. These are discussed in the Community Facilities section. Streets and circulation are in the Circulation section. Typically, infrastructure and facilities, like government itself, are responsive to social objectives. These objectives include health, safety, welfare, economic development, employment and recreation. The connection between land use designations and these facilities is important and subtle. Proper infrastructure planning allows for greater population densities and more economical development.

Land development requires water, sewer, trash disposal, drainage and roads. These facilities enable the buildings to be built, accessed, and safely used. Project development involves a variety of technical, fiscal, legal, environmental and political issues.

The City is traditionally the provider of infrastructure. Las Vegas does not provide its own water and solid waste services. Water is provided by the Las Vegas Valley Water District. Solid waste disposal is provided by a private corporation, Silver State Disposal. Otherwise, the City provides for the health, safety and welfare of its citizens directly by providing a wastewater collection and treatment and the use of washes and construction of chan-

nels for flood control. Local road improvements and flood control are coordinated through funding arrangements with the Regional Transportation Commission and the Clark County Regional Flood Control District. The City provides for infrastructure planning and construction in concert with other providers. These planning and construction activities are affected by market demands, local and regional land use plans and population estimates.

Once built, infrastructure facilities are usually maintained by the government. The long-term costs of these facilities on the City shows up in annual budget allocations to build, rebuild and maintain them. Operation and maintenance costs are as important as capital construction costs in evaluating the ability of the City to provide infrastructure to support its growth and development.

4A. Sewer Collection and Treatment System

4A.1 Background

There are two types of sewers in the City: sanitary and storm sewers. Sanitary sewers carry away the wastewater from residential and institutional uses, frequently combined with industrial effluent. Storm sewers carry the rainwater collected from roofs, roads and other impervious surfaces.

There are public and individual benefits which accrue from centralized wastewater collection and treatment systems. They include:

1. Improved health by minimizing exposure to waste-borne diseases.
2. Improved standards of living by making housing more affordable for everyone by reducing lot size and location requirements for wastewater treatment. Septic sys-

tems require one-quarter acre minimum lot, with public water, to effectively treat sewage from a house.

3. Promoting quality of life by eliminating the odor and insects associated with wastewater disposal.

The first wastewater collection system improvements were installed in the City of Las Vegas in 1912. Subsequent improvements were made to the system by bonds authorized in 1932 and 1942, and later as necessary to meet the needs of more and more customers over a larger and larger area. Today the Public Works Department is responsible for underground sewer collection system of approximately 660 miles to over 250,000 customers.

The City has been doing sewer master planning for many years. The first known available sewer master plan was titled "Report Upon a Master Plan of Sewer Systems for City of Las Vegas and Clark County Area."² This 1951 report provided plans for the city limits of Las Vegas and for the newly developing area known as "The Strip".

The 1959 "Report on Sewage Problems of the City of Las Vegas, Nevada", used higher population estimates to reflect the growth trends throughout the southwest and Las Vegas. Part of this projection effort was a generalized future land use projection as applied to the Report area. "...we have projected future land use as applied to the Report area. It is not our intent to establish a master plan for the future development of the Las Vegas area. We have only attempted to project what will be a very general pattern of the future development of the area in order to estimate future sewage flows and trunk sewer requirements."³ This 1959 report was updated in 1963. The latter sewer master plan report and its map represent the "defining document that our current system is built on."⁴

The 1969 master plan focused on collection system plans, rather than the treatment facilities. This was because of a proposed City-County facility interconnection.⁵

The 1974 report provided an update which addressed long-range system needs. These include increasing line sizes, identifying the Husite collection line locations and deleting the collection system detail for North Las Vegas. The 1974 update reflected EPA funding requirements and required a different analysis of the sewerage system, placing emphasis on industrial waste, inflow and infiltration and rate studies. This report pointed out that the general pattern of growth was northwesterly, and advised that the City not provide

sewer to areas which were not in the City limits. This was suggested in order to avoid duplication of lines in the border areas. The issues of infiltration (groundwater entering the lines) and inflow (stormwater intrusion into the pipes) were discussed. In 1951, groundwater was regularly encountered at six feet. By 1974, the report stated "Observations of trench construction ... indicates there is no groundwater anywhere in the City area at the depths where infiltration... could possibly occur."⁶ Regarding industrial waste, the 1974 report minimized its effect on the sewerage system since "There is no industry contributing to the Las Vegas Sewer System..." which met the EPA definition for industrial waste.⁷

The 1980 Action Plan, like the 1974 report, was not a master plan. It, too, focused on regulatory and economic analysis of the City sewer system. The 1980 report covered expected annexations. The conclusion was that sewer system improvements would have to occur whether or not annexations occurred in the northwest. At the time of this report, many of the areas not yet annexed by the City were nonetheless included in the Northwest Collection System Study.

The 1982 report reflected changing technologies and sophistication associated with detailed collection systems analysis. This analysis included the process of relating land use designations to population and flow projec-

Figure 1

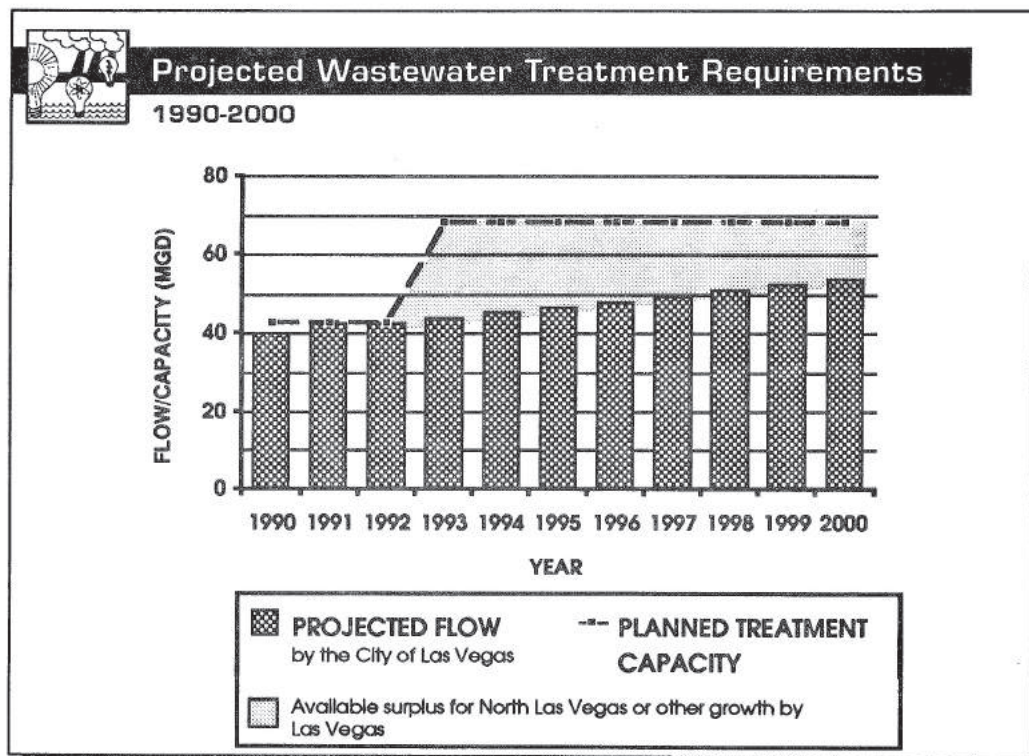



Table 1

 Estimate of Sewage Flows by North Las Vegas based on Typical Buildouts								
Designation	Planned/ Equivalent Densities DU/AC	Acreage	Estimated Net DU/AC	Potential Buildout	ERU	MGY	MGD	
RLD Rural Residential-Low Density	≤ 2.0	4,700	2.0	9,400 (u)	1.0	846,000,000	2,317,808	
CD Residential-Low Density	≤ 6.0	20,600	4.6	94,760 (u)	1.0	8,528,400,000	23,365,479	
HD Residential-High Density	≤ 18.0	5,600	13.0	72,800	.7	4,586,400,000	12,565,479	
MXC Mixed Use Commercial		3,100	.33 FAR	1,023 (ac)*	5.83 acre ^a	536,768,000	1,470,508	
O/BP Office/Business Park		2,000	.23 FAR	460 (ac)*	4.06 acre ^a	4,586,400,000	12,565,479	
I Industrial		2,000	.25 FAR	500(ac)*	2.21 acre ^a	99,450,000	272,466	
OS Open Space/Trails/Drainage		3,000						
Totals		41,000		176,960 units (u) 86,379,480 sq. ft. (*based on built acres)			40,452,334	

¹ An ERU=90,000 gallons of domestic strength wastewater generated by a single family house

² ERU figures based on estimated number of gallons by use. NLV staff assumes the following:
 Industrial .05 gallons/building sq. ft.;
 Commercial .10 gallons/building sq. ft.;
 Office/Business Park .10 gallons/building sq. ft.
 (Source: City of North Las Vegas Planning Dept., May 1991)

FAR - Floor Area Ratio. The ratio of building coverage per gross acre of land. $10,990/43,560 = .25$ FAR

GP, IN S Table 1 Est flow; RBjpm/2-30-92

tions. The consultant attempted to catalog records so they could be maintained and updated to reduce future data entry needs. The report also extended the study boundary to the base of the mountains to the west.

Two conclusions may be drawn from the summary of these various master plans and action plans. First, that the various plans have evolved from building a system capable of meeting projected populations in agreed upon areas, to a perspective of monitoring and analyzing the system for its relationship to directions of growth, design criteria and the financing of the utility. Second, that the system capacity appears to be based upon overall projections far greater than actual growth figures.

The intent of this last statement is not to say that the City has built an excessive treatment and collection system. The City must also accept all sewage flows from North Las Vegas. The City also develops projections for specific land areas and projects and may enter into oversizing agreements with developers to prepare for possible growth in such areas.

Such flow projections have led to projected wastewater treatment requirements for the period 1990-2000 (Figure 1). The treatment capacity for the City appears to be far beyond its own expected flows. However, the City also provides sewage treatment for North Las Vegas.

According to the projections on Table 1,

if North Las Vegas builds out to its adopted Master Plan, it will ultimately contribute 40,452,334 gallons per day to the City's treatment plant. Over time, this development could lead to conflicts between the needs of the City and those of North Las Vegas. A close monitoring of the growth trends and assumptions of each entity will avoid conflicts in allocating treatment plant capacity.

Figure 2 shows the changes in population and miles of collection system as well as predictions to the year 2000. Collection is expected to keep pace with the population of the City. This is primarily because the majority of the collection system is constructed at the expense of the developer as sites are developed. Map 1 shows the main

Infrastructure

IV-4a

CLV053103

2921

13165

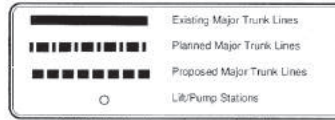
Las Vegas General Plan
Infrastructure Element

Map 1

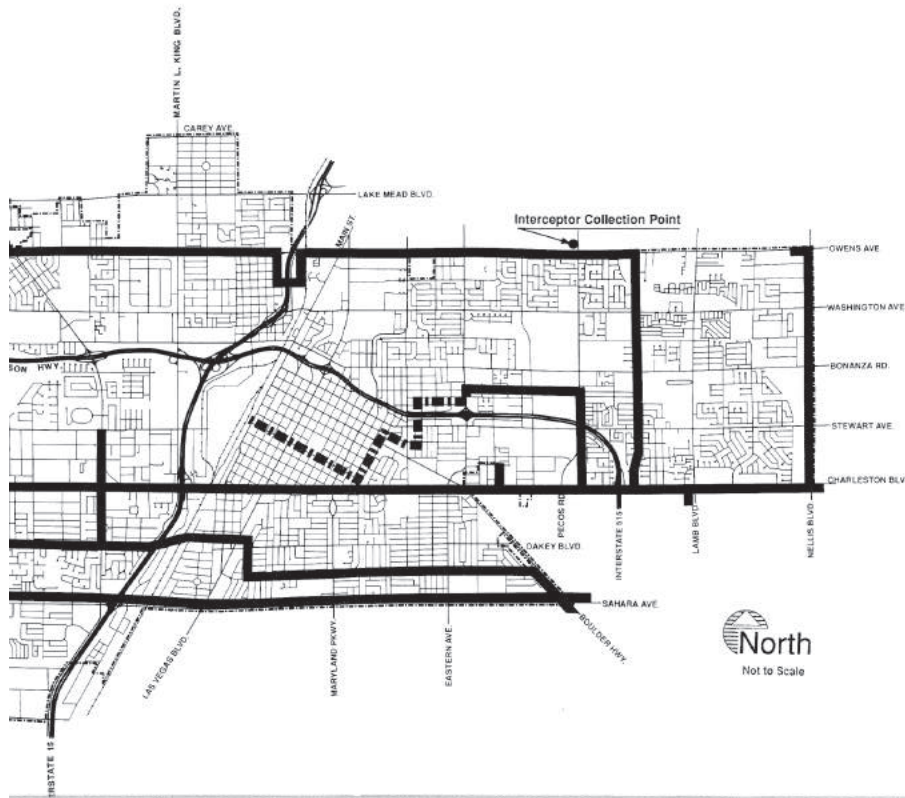
City of Las Vegas Sewer Collector System

Sewer Pipelines

LEGEND



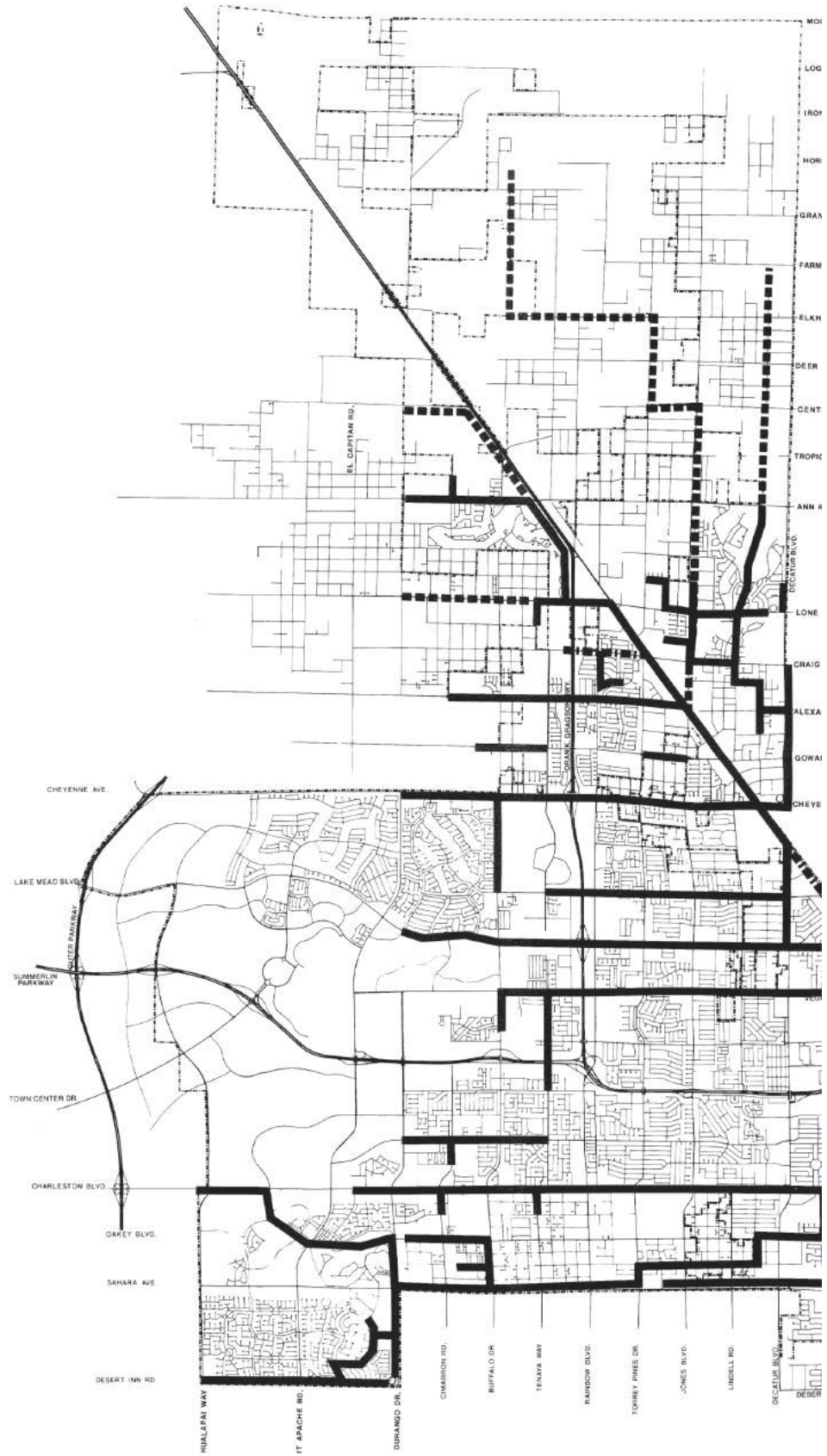
SOURCE: City of Las Vegas Department of Public Works



CLV053104

2922

13166



CLV053105

2923

13167

sewer lines serving areas of development approved by the City.

The goal of the Public Works Department is to provide high quality wastewater collection services at reasonable rates. This is accomplished by planning the expansions to the system, and operating and maintaining the system, to meet the needs of new developments while maintaining or enhancing the quality of service to existing customers. Pipes varying in size convey wastes from homes and places of work to the treatment plant generally by "gravity

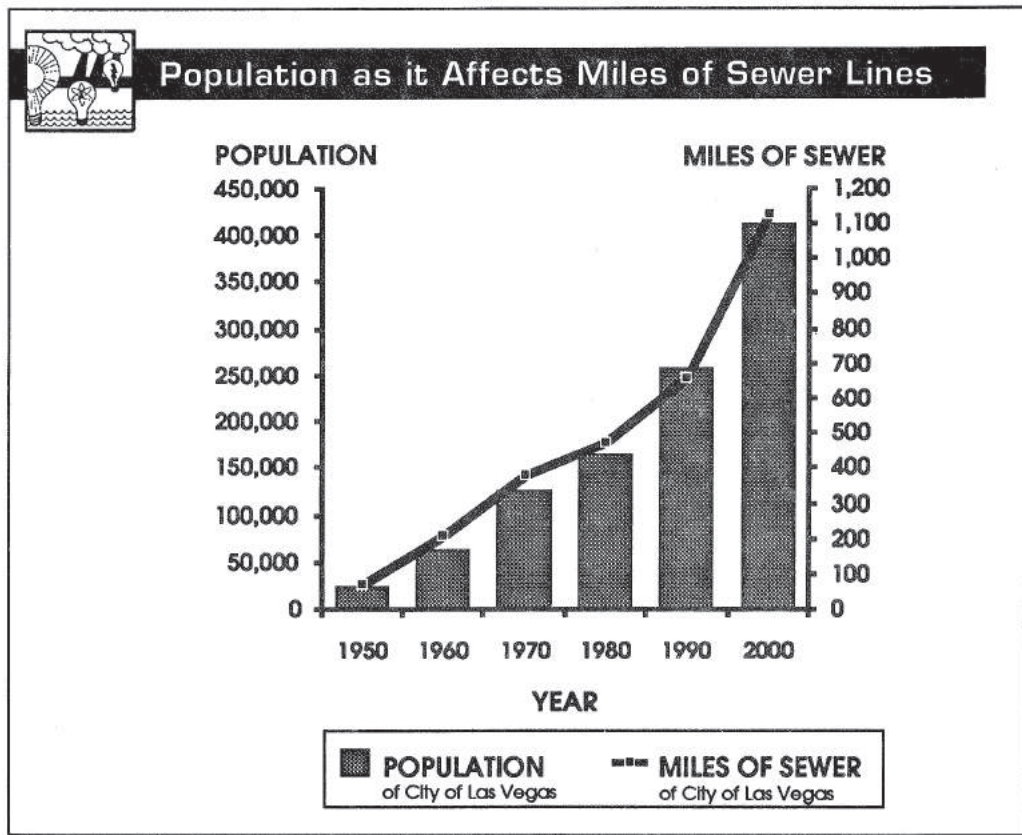
flow". This term means that the pipes are tilted within the ground to cause the liquid wastes to flow downhill without the need for pumps. This increases the reliability of the system and reduces or eliminates the energy costs associated with pumping.

The Public Works Department extends the collection system to meet the needs of new customers by oversizing and extension policies. The construction is funded through the City's Capital Improvement Program (CIP).³

The following two paragraphs are excerpted from "Public Works 2000", February, 1991, p. 54, City of Las Vegas, Department of Public Works.

The oversizing policy allows the City to pay for the added portion of costs of a collection system that is beyond the needs of an individual development. A similar policy allows a development to recover a portion of its original investment in collection system extensions from others tapping onto the extension. These methods of system expan-

Figure 2



Source: *Public Works 2000*, February, 1991, p. 54, City of Las Vegas, Department of Public Works,

GP.IN S Fig 2 sewer lines;RB:pm/8-31-91

sion are driven by the real estate market while conforming to local master land use plans. Such methods provide a cost-effective means for infrastructure expansion.

To address the needs for the collection system for the Year 2000 and beyond, the Engineering Planning Division will update the Sewer Master Plan to address the physical and administrative aspects of the growing system. It will also provide a collection system modeling program which will link with the Geographic Information System (G.I.S.) to provide accurate and timely responses to citizen inquiries regarding the availability and location of potential connection to the collection system. The Sanitation Division will continue to operate and maintain the ever-expanding collection system to meet the future needs of the community.

The City of Las Vegas Sanitation Division is currently undertaking a major expansion of its Wastewater Treatment Plant, in two phases, 1991 and 1994, respectively. Phase I, completed in 1991, the capacity is nearly doubled to 66 million gallons per day (MGD) from the currently permitted 37.5 MGD. This is expected to meet the needs of the City through the year 2008. This date coincides with the termination date for contracted service requirements to provide sewage treatment for the City of North Las Vegas. Phase II of the expansion will add facilities for tertiary treatment to remove additional amounts of phosphorus, ammonia compounds and chlorine as required by Federal Clean Water Standards.

In 1988, the City of Las Vegas was directed to initiate and create its Industrial Waste Pretreatment Program (IWPP) in accordance with the Code of Federal Regulations. The IWPP enables the City to identify and detect industries who generate industrial wastes and discharge to the City's

sewer system.

With the growing level of environmental sensitivity, the Sanitation Division anticipates that standards for wastewater will become increasingly stringent. Division staff is monitoring this situation and considers the facilities planning needed to meet these requirements one of its major duties. Additionally, resource management within the Valley will be more important. With the growing concern over water conservation, measures such as reuse of effluent may be initiated which will require the cooperation of all the entities within the Valley. Reuse programs are complicated by the "return flow credit" considerations for using water from the Colorado River. By returning treated water to the river, a greater amount than that allocated by agreement (300,000 acre feet per year) can be diverted to support growth.

This General Plan update springs from several requirements. Among them are the requirement for timely data, the requirement to keep up with changing issues and their focus, and the requirement to develop strategic planning for resources. This last requirement was addressed in the 1990 "Las Vegas 2000 and Beyond" strategic plan" which is described in the Introduction Section.

The '2000' document contained "Actions" specified to be accomplished ("the process is not over. . . We must put these plans into action.") These actions are incorporated into the Plan update so that the process of citizen involvement and institutional response will continue.

The Actions relating to the Sewer Collection and Treatment System are:

- Develop a sanitary sewer collection, treatment and distribution system which considers cost (scale and location) in relationship to valleywide topography.

- Explore possible opportunities for gray water projects.

4A.2 Issues

The City of Las Vegas' sanitary sewer plans are fundamental to the operation of a sound system for the collection and treatment of wastewater. However, these operations should be reviewed in the context of the City resources of land, water, roads and air. These City resources are assets which benefit Las Vegas and its citizens, and which contribute to the growth of the entire valley. Sewer issues for this General Plan update include:

Issue 1: Sewer Service For North Las Vegas

In 1952, the cities of Las Vegas and North Las Vegas executed an interlocal agreement (subsequently amended) which provides that Las Vegas will accept and treat all of the wastewater from North Las Vegas. The agreement expires July 15, 2009. The interceptor connection points are shown on Map 1. North Las Vegas installs, operates and maintains its own collection system.

The agreement provides for user charges (which include operations costs), a water sampling program to verify and modify treatment and connection fees to be charged to all users. The billing rates are based on "equivalent residential units" (ERU) for each type of user discharge. The agreement defines an ERU as being the "wastewater discharge equivalent to that discharged by a single family dwelling unit, i.e., 90,000 gallons of domestic strength wastewater per year." Based on an average household size of 2.5 persons, this is 247 gallons per day per household. The City is

paid annually by the City of North Las Vegas for its total customers at the same rate as the City charges its customers. This interlocal agreement was modified in September, 1990, to incorporate ordinances drafted by each City governing the treatment of industrial wastes.

The North Las Vegas Master Plan, adopted in November, 1989, provides for the future growth of a 41,000 acre City. Of this acreage, 30,900 acres are designated residential; 7,100 acres have the potential for Gaming Enterprise uses (although officially designated as mixed use commercial, office/business park or industrial); and 3,000 acres are listed as open space. The designations are shown on Table 1. Column 3 "Estimated Net DU/AC" represents the expected amount of development of each land category, based on present buildout rates. The calculations are based on information provided by the North Las Vegas Planning and Public Works staff.

The projections from Table 1 show that North Las Vegas, as planned, may consume all the extra capacity that will soon be added to the treatment plan. In the meantime, should Las Vegas grow faster than projected, there may be competition for collector line and treatment plant capacities. This competition could require larger interceptor and collection lines, as well as accelerated schedules for constructing new treatment plant capability.

Issue 2: City Facility Capacities and Service Areas

Plant and pipe capacities are based upon factors which may include probable land use densities. Land use designations indicate an expected maximum density, or dwelling units

per gross acre, but are always subject to revision. Collection and treatment systems are sized according to such present day information. These are adjusted as the market causes changes to the land use plans.

Service areas are planning boundaries established by a jurisdiction. They designate the expected limits of service to be provided for a period of time. A service area boundary allows the City to keep pace with its growth pressures by containing locations and expenditures for services. There is a relationship between project design and the capacity to provide service. That relationship is a function of existing uses, expected populations, and capacities of existing facilities.

The issue here is to assure that adequate facility capacity is available to support development within a designated area. The General Plan for the City specifies the location of expected growth. Facilities, such as sewer lines, are sized to handle that growth. Should a project with a use intensity greater than that designated by the City be submitted for review, it should be analyzed in light of its effects on the capacity of facilities to absorb that growth. The decision should be in the context of the developer paying for the added capacity, or the City not allowing the growth, or that the service line may be moved to accommodate the new growth. Each of these alternatives is considered in the light of the goals of preserving the public health, safety and welfare.

Issue 3: Levels of Service and Land Use Planning

A level of service can be expressed very simply as a unit of demand per capita. For example, in the "Water

Budget", the Colorado River Commission calculates the average flow from the Las Vegas Treatment Plant at 143 gallons per person per day. Based on 2.5 persons per household, a single family dwelling may be estimated to generate 358 gallons of sewage per day.*

Once agreed upon, an advantage of such a figure is that the effect of a development on the capacity of existing pipes and plants can be measured in quantitative terms. Collection lines, lift stations and treatment plants can be checked to see if there is enough design capacity to absorb the added flow. By the same token, proposed developments and approved land uses can be quantified to provide an estimate for future designs and possibly their timing and funding. The assumption here is that a land use plan, once adopted, will be enforced. If changes to the Plan are necessary, they will be made based upon considerations including the effects on traffic, pollution, water requirements, solid waste disposal, parks, public finances and the political impact of change.

Levels of service may also be expressed qualitatively. That is, a treatment plant may have to meet federal or state standards at its discharge outlet. These standards are expressed in terms such as "1 part per million of phosphorous", or ".30 milligrams of suspended solids per liter." Yet, there still remain the considerations of line sizing and operations and maintenance, all a function of adopted land uses. Ultimately, design capacity and the ability of the plant to meet standards are directly tied to population.

*The earlier figure of 90,000 gallons per ERU equals 247 gallons per household per day.