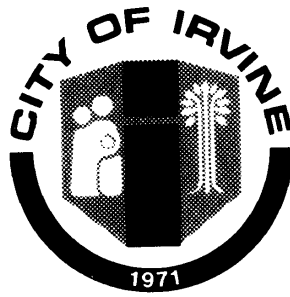


PARKS AND PARK FACILITIES STANDARDS



COMMUNITY SERVICES COMMISSION

PARKS AND PARK FACILITIES STANDARDS

Preliminary Guidelines

The City of Irvine is committed to providing a quality public park system that will meet the anticipated needs and demands of the residents. The purpose of the Parks and Park Facilities Standards is to establish park development standards for guidance in acceptance of park land, collection of park fees, or provision of in lieu improvements, and criteria for design of public and private parks.

The City's General Plan and Subdivision Ordinance require developers to dedicate park land and/or improvements/amenities, and/or pay fees in lieu of dedication, at a rate of five (5) acres per thousand (1,000) population (General Plan, Element K and Subdivision Ordinance, Section 5-5-1004). The City of Irvine public park system is divided into two park categories: community parks and neighborhood parks. Neighborhood parks are further divided into public and private parks. The allocation of land and improvements is apportioned at 2 acres to community parks and 3 acres to public and/or private neighborhood parks.

To provide a park system which includes the greatest public benefit, the following guidelines are used when planning parks:

1. To serve the community as a whole, a 20-acre improved community park for every 10,000 population is the Community Services Commission's goal when developing residential villages. Development agreements are considered when needed to vary the allocation of park credits to allow for development of community parks.
2. Public neighborhood parks are incorporated within residential developments to serve the immediate neighborhood, supplemented by private parks. Private parks and/or improvements to private parks shall be provided when they have a clear benefit to the community.
3. The Community Services Commission, working with the development community, endeavor to address the development of parks at the earliest stages of development, to communicate the City's park interests.

Community Services Commission
July 5, 2000

TABLE OF CONTENTS

INTRODUCTION.....	vi
SECTION I. RECREATIONAL FACILITY STANDARDS.....	I-1
SECTION II. PARK LAND DEDICATION	II-1
A. PUBLIC PARK DEDICATION	II-2
B. PRIVATE PARK DEDICATION	II-2
SECTION III. FAIR MARKET VALUE (FMV) LAND APPRAISAL PROCESS	III-1
A. WHEN A FMV LAND APPRAISAL IS REQUIRED	III-2
B. DEFINITION OF FAIR MARKET VALUE (PER SUBDIVISION ORDINANCE)	III-2
C. FMV LAND APPRAISAL PROCESS	III-2
D. METHOD AND CRITERIA TO BE USED BY THE APPRAISER COMPLETING THE FMV EVALUATION	III-3
E. APPEAL PROCESS.....	III-4
SECTION 4. PARK CREDIT VALUES.....	IV-1
A. PURPOSE OF SCHEDULE OF IMPROVEMENT VALUES.....	IV-2
B. SCHEDULE OF IMPROVEMENT VALUES TABLE	IV-2
C. CALCULATION OF PARK IMPROVEMENT CREDITS.....	IV-2
D. ANNUAL ADJUSTMENT AND COMPREHENSIVE UPDATE OF PARK AND RECREATIONAL IMPROVEMENT VALUES.....	IV-2
E. SPECIFIC IMPROVEMENT VALUE ADJUSTMENT	IV-3
F. IMPROVEMENT CREDIT FOR RECREATIONAL AMENITIES NOT LISTED IN THE SCHEDULE	IV-3
SECTION V. SAMPLE PARK CREDIT CALCULATIONS.....	V-1
A. CALCULATING PARK ACREAGE REQUIREMENT	V-2
B. CALCULATION OF PARK DEDICATION CREDITS FOR IMPROVEMENTS AND AMENITIES ..	V-3
SECTION VI. UNIVERSAL DESIGN STANDARDS & GUIDELINES FOR PARKS ...	VI-1
A. INTRODUCTION.....	VI-2
B. STANDARDS AND GUIDELINES UNIVERSAL SIGNS, SYMBOLS AND PICTOGRAMS	VI-3
C. PARKING AREAS	VI-4
D. ACCESSIBLE PATH OF TRAVEL	VI-6
E. ATHLETIC FIELDS AND COURTS	VI-8
F. SPECTATOR SEATING	VI-9
G. TABLES, BENCHES, DRINKING FOUNTAINS, AND BARBECUES	VI-12
H. CONCESSION AND TICKET AREAS	VI-14
I. PLAY LOTS	VI-16
J. PUBLIC POOLS (PUBLIC PARKS ONLY)	VI-16
K. BIBLIOGRAPHY	VI-19
SECTION VII. PARK DESIGN STANDARDS.....	VII-1
A. ATHLETIC FIELDS AND COURT STANDARDS	VII-2

1.	Standards Applicable to All Baseball and Softball Fields	VII-2
2.	Regulation Baseball Field	VII-5
3.	Youth Baseball Field (80')	VII-7
4.	Youth Baseball Field (60' and 70')	VII-9
5.	Softball Field.....	VII-11
6.	Backstop and Spectator Area	VII-13
7.	Softball / Baseball Diamond Drainage Patterns	VII-14
8.	Soccer, Football, Lacrosse, and Rugby Fields.....	VII-15
9.	Soccer/Rugby Field Drainage Patterns	VII-18
10.	Field Overlay	VII-19
11.	Outdoor Basketball Court	VII-20
12.	Tennis Court.....	VII-23
13.	Tournament Tennis Courts.....	VII-25
14.	Racquetball/Handball Court.....	VII-26
15.	Handball/Racquetball Ball Wall	VII-27
16.	Grass and Concrete Volleyball Courts	VII-28
17.	Sand Volleyball Court	VII-29
18.	Youth and Adult Roller Hockey Rinks.....	VII-30
19.	Putting Green	VII-33
20.	Bocce Court.....	VII-34
21.	Maintenance Compound and Soil Material Bunker	VII-35
B.	PLAYGROUND DESIGN STANDARDS.....	VII-38
1.	Intent	VII-38
2.	Guidelines for Provision of Playgrounds	VII-38
3.	Requirements for Playgrounds.....	VII-38
C.	POOL AND AUXILIARY FACILITIES	VII-43
1.	Introduction	VII-43
2.	Pool Water Surface and Type.....	VII-44
3.	Design of Pools and Spas.....	VII-46
4.	Design of Pool Areas and Accessory Structures.....	VII-50
D.	LIGHTING STANDARDS FOR PUBLIC FACILITIES	VII-54
1.	Athletic Field Lighting Standards.....	VII-54
2.	Security Lighting (Irvine Uniform Security Code).....	VII-64
E.	OPEN SPACE TRAILS AND FACILITIES.....	VII-67
1.	Introduction	VII-67
2.	Trail Design	VII-68
3.	Trail Accessibility Guidelines.....	VII-73
4.	Trail Crossings	VII-77
5.	Trail Fencing, Gates and Hitching Posts	VII-81
6.	Trail Signs	VII-83
7.	Trailheads	VII-87
8.	Parking and Drop Off Area.....	VII-90
9.	Specific Facilities and Amenities.....	VII-92
SECTION 8. PUBLIC FACILITIES.....		VIII-1
8.1.	USER GUIDE	VIII-2
8.1.1.	Intent	VIII-2
8.1.2.	Approval Authority	VIII-3

8.1.3. Organization	VIII-3
8.2. SITE FURNISHINGS.....	VIII-4
8.2.1. Barbecue	VIII-4
8.2.2. Park Bench	VIII-6
8.2.3. Bicycle Rack	VIII-8
8.2.4. Display Cabinet	VIII-9
8.2.5. Drinking Fountain.....	VIII-10
8.2.6. Picnic Table	VIII-12
8.2.7. Recycling Receptacle	VIII-14
8.2.8. Trash Receptacle	VIII-16
8.2.9. Monument Sign	VIII-18
8.2.10. Publicly Maintained Walls and Concrete	VIII-19
8.3. ATHLETIC EQUIPMENT	VIII-20
8.3.1. Baseball/Softball	VIII-20
8.3.1.1. Baseball/Softball Bases, Home Plate and Pitching Rubber ...	VIII-21
8.3.1.2. Baseball/Softball Field Covers	VIII-23
8.3.1.3. Baseball/Softball Foul Pole	VIII-24
8.3.1.4. Baseball/Softball Field Surface	VIII-24
8.3.1.5. Baseball/Softball Windscreen	VIII-25
8.3.1.6. Baseball/Softball Benches	VIII-25
8.3.1.7. Baseball/Softball Bat Rack.....	VIII-26
8.3.2. Basketball Goal System.....	VIII-27
8.3.3. Par/Vita Course	VIII-29
8.3.4. Racquetball Door	VIII-30
8.3.5. Roller Hockey Goals	VIII-31
8.3.6. Soccer Goals	VIII-32
8.3.7. Tennis Equipment.....	VIII-34
8.3.8. Volleyball Equipment	VIII-36
8.4. BUILDINGS	VIII-38
8.4.1. Planning and Design Process	VIII-38
8.4.2. Resource Efficient Buildings	VIII-40
8.4.3. Building Design.....	VIII-41
8.4.4. Plumbing.....	VIII-42
8.4.5. Drinking Fountains, Interior or Mounted on Outside of the Building .	VIII-43
8.4.6. Restroom Fixtures and Accessories	VIII-44
8.4.7. Restroom Surfaces Community Centers	VIII-46
8.4.8. Restroom Surfaces Stand Alone	VIII-47
8.4.9. Kitchen Appliances Community Centers.....	VIII-48
8.4.10. Kitchen Appliances Concession Stands	VIII-49
8.4.11. Locking Hardware Mechanical.....	VIII-50
8.4.12. Locking Hardware -- Electro-Mechanical.....	VIII-57
8.4.13. Communication Standards	VIII-60
8.5. ELECTRICAL	VIII-64
8.5.1. Megger Test.....	VIII-64
8.5.2. Pole and Fixture for Trail and Pathway Lighting	VIII-65
8.5.3. Bollard Light.....	VIII-72
8.5.4. Electrical Pedestals	VIII-75
8.5.5. Parking Pole and Fixture	VIII-78

8.5.6. Athletic Field Lighting	VIII-81
8.5.6.1. Basketball Lighting	VIII-82
8.5.6.2. Playing Court Lighting	VIII-84
8.5.6.3. Tennis Court Lighting	VIII-87
8.5.7. Canopy Lighting (Picnic Shelters and Gazebos)	VIII-91
8.5.8. Exterior Building Lighting	VIII-92
8.5.9. Exterior Building Flood Lighting for Flags or Signage	VIII-94
8.5.10. Exit Sign/Lighting	VIII-97
8.5.11. Sign Lighting	VIII-99

INTRODUCTION

The City of Irvine Parks and Park Facilities Standards Manual was developed by the Community Services Department as a companion to Subdivision Ordinance Section 5-5-1004, Park Dedication. This reference manual consolidates policies, procedures, guidelines and standards for public and private parks, public facilities, and related recreational amenities into a single document. The intent of this manual is to provide guidance to all parties involved with park dedication and design and/or public facilities development. This manual covers facility standards, dedication procedures and design standards for:

- ◆ Public parks
- ◆ Private parks (where park dedication credit has been granted)
- ◆ City maintained buildings
- ◆ Publicly owned and maintained lighting, signs, and walls and concrete.

The chart below summarizes the applicability of the standards contained in this document.

<u>All Parks (Private and Public)</u>	▪ Section I ▪ Section II ▪ Section III ▪ Section IV ▪ Section V ▪ Section VI ▪ Subsection VII A ▪ Subsection VII B ▪ Subsection VII C	These sections apply to all public parks and to all private parks. Certain standards contained in these sections that apply to public parks only are specifically noted.
<u>Public Parks and Facilities only</u>	▪ Subsection VII D ▪ Section VIII	These sections apply to the design of public parks and facilities only, with the goal of reducing long-term maintenance costs for public facilities.

Although the manual is comprehensive, each section can function in a stand-alone manner. For ease of use, sections of the Subdivision Ordinance have been referenced. Any questions and concerns about these standards should be directed to the Community Development Department.

City of Irvine
Park Standards Manual

SECTION I. RECREATIONAL FACILITY STANDARDS

INTRODUCTION

Facility Standards are used in Park Planning to predict the number of recreational facilities that will be needed to serve a given new population. In 1988, the City adopted the "Irvine Community Parks Master Plan," which included Facilities Standards for the provision of recreational amenities based on the population. These standards were used between 1988 and 2005 and resulted in the current number and distribution of recreational amenities in the City. In 1988, these standards were based on community needs, as identified in focus groups and surveys, demographics of the City, recreational trends, comparable cities, and existing recognized standards, such as those published by the National Recreation and Parks Association (NRPA). The standards also were developed with assumed continued shared use of Irvine Unified School District (IUSD) facilities, through the Joint Use Agreement between the City and IUSD. The Joint Use agreement, which minimizes duplication of facilities in the City, is still in operation today.

This new section reflects an update of the Facility Standards from the 1988 Community Parks Master Plan, as well as relocation of these standards to the Park/Public Facility Standards document. The updated Facility Standards in this section were created based on the number of facilities that currently exist in the City and the 2005 estimated population of the City of 175,000 people. Due to the condition that the City actually did build facilities over the past 17 years at a similar rate to the 1988 adopted standards, many of the facility standards remained unchanged or were only slightly modified. Some significant changes to the standards are due to IUSD increasing the size of and decreasing the number of school facilities in the City (fewer neighborhood schools) where the City is now taking an increased responsibility for athletic fields, particularly lighted facilities. Another trend that has affected the standards is that private parks owned and maintained by Homeowner's Associations now make up for a majority of neighborhood park facilities, making private parks a significant partner, along with schools, in provision of recreational facilities.

RECREATIONAL FACILITY STANDARDS - 2005

ACTIVE RECREATION FACILITIES		Current Standard ⁽¹⁾			Actually Built			Recommended		
		Standard/ Population	Provided by		Standard/ Population	Provided by		Standard/ Population	Provided by	
			City	IUSD		City	IUSD		City	IUSD
Soccer Fields	Unlighted	1 / 4,250	50%	50%	1 / 3,977	20%	80%	1 / 4,250	20%	80%
	Lighted	1 / 8,500	50%	50%	1 / 8,750	90%	10%	1 / 8,500	90%	10%
Baseball/Softball Fields	Unlighted	1 / 2,500	50%	50%	1 / 2,611	20%	80%	1 / 2,500	20%	80%
	Lighted	1 / 5,000	50%	50%	1 / 5,645	75%	25%	1 / 5,000	75%	25%
Basketball Courts	Unlighted	1 / 1,250	25%	75%	1 / 1,450	10%	90%	1 / 1,250	10%	90%
	Lighted	1 / 5,000	25%	75%	1 / 17,500	60%	40%	1 / 5,000	60%	40%
Volleyball Courts	Unlighted	1 / 2,000	25%	75%	1 / 5,300	33%	67%	1 / 5,000	33%	67%
Racquetball/Handball	Unlighted	1 / 20,000	100%	0%	1 / 5,000	25%	75%	1 / 2,500	25%	75%
Tennis Courts	Lighted	1 / 3,000	100%	0%	1 / 1,500	33%	(2)	1 / 1,200	33%	(2)

COMMUNITY FACILITIES	Current Standard			Actually Built or Planned	Recommended
	CPMP ⁽¹⁾		General Plan		
	Standard / Population	City	IUSD	Standard / Population	Standard / Population
Community Buildings	10,000 s.f. / 10,000	100%	0%	10,000 s.f. / 20,000	10,000 s.f. / 10,000
Community Center	1 center / Com. park			no standard	5,000 s.f. / 10,000
Senior Center	1 center / 50,000			5,000 s.f. / 50,000	2,000 s.f. / 10,000
Youth/Family Center	1 center / 10,000			no standard	1,000 s.f. / 10,000
Art Center	1 center / 216,000			no standard	1,000 s.f. / 10,000
Gymnasium	1 gym. / 10,000			no standard	1,000 s.f. / 10,000
Public Pools					
50 meter competition	1 pool / 20,000	60%	40%	1 pool / 100,000	1 pool / 75,000
Recreation Jr. Olympic	1 pool / 29,000	60%	40%	1 pool / 20,000	1 pool / 58,000

OTHER FACILITIES	Current Standard		Actually Built or Planned	Recommended
	CPMP ⁽¹⁾	General Plan	Standard / Population	Standard / Population
Children's Playground	no standard	no standard	1.8 s.f. / person	1.8 s.f. / person
Picnic Tables	no standard	no standard	1 table / acre (2 min.)	1 table / acre (2 min.)
Barbecues	no standard	no standard	1 group BBQ / 4 tables or 1 family BBQ / 2 tables	1 group BBQ / 4 tables or 1 family BBQ / 2 tables

⁽¹⁾ 1988 Community Parks Master Plan (CPMP)

⁽²⁾ Provided in private parks

City of Irvine
Park Standards Manual

SECTION II. PARK LAND DEDICATION

A. PUBLIC PARK DEDICATION

Land proposed to be dedicated for public park purposes shall be shown on the tentative tract map. All dedications of land shall be in accordance with the Subdivision Map Act. Land shall be conveyed in fee simple to the City of Irvine free and clear of all encumbrances, except those which will not interfere with the use of the land for its intended purposes as defined in the City's General Plan and which the City of Irvine agrees to accept. It is preferred that dedications occur on the final map, however, a separate document, (i.e. Grant Deed, Irrevocable Offer of Dedication) may be used to convey land. When a separate document is used, a Subdivision Application shall be submitted to the City Engineer for processing. The Subdivision Application and conveyance document must comply with all pertinent conditions of approval for public park dedications. Upon approval by the City, the conveyance document will be recorded.

B. PRIVATE PARK DEDICATION

Private park dedications shall be evaluated on a case-by-case basis per Subdivision Ordinance Section 5-5-1004 (F). Per Section 5-5-1004 (B) (3), private neighborhood parks shall be a minimum of one-third (0.33) acre in size. If several areas are proposed for park dedication credit, they should be physically linked together to form a network of recreational opportunities; however each individual area should be at least 0.33 (one-third) usable contiguous acre and shall be evaluated for a minimum of 100 feet wide or special design considerations. Subdivisions which include land required as a private park shall be required to submit a written instrument reserving such required park land in perpetuity prior to the issuance of building permits to be approved by the Directors of Community Development and Community Services.

Please note that for subdivisions and/or residential development projects, conditions of approval for private park dedications may be applied on a case-by-case basis depending upon the specifics of the application.

City of Irvine
Park Standards Manual

**SECTION III. FAIR MARKET VALUE (FMV) LAND
APPRAISAL PROCESS**

I. CITYWIDE (AREAS OUTSIDE THE 2045 GENERAL PLAN FOCUS AREAS)

A. WHEN A FAIR MARKET VALUE LAND APPRAISAL IS REQUIRED

(Also see Section 5-5-1004(B)(1) of the Subdivision Ordinance)

All projects seeking park dedication credit for minimum improvements, recreational amenities, design and construction costs, land off-site, and/or in-lieu fees require an appraisal to assess the fair market value (FMV) of land. The purpose of the appraisal is to estimate the cost to the City for purchasing parkland within the development or with another development with similar characteristics.

B. DEFINITION OF FAIR MARKET VALUE (PER SUBDIVISION ORDINANCE)

Fair Market Value shall be defined as the estimated per acre value of entitled land (i.e. subdivided land with consistent General Plan and Zoning Ordinance land uses) with basic infrastructure abutting the property, as determined by the Planning Commission, based upon an appraisal by a qualified appraiser. Basic infrastructure to the site perimeter shall include rough grading, installation of streets, curbs and gutters, and installation of trunk line utilities. Off-site basic infrastructure improvements costs are not eligible for park credit since they are considered in the land appraisal. Items potentially eligible to receive park dedication credits (i.e., minimum improvements, recreational amenities, and design and construction costs) are not included as part of the appraisal process.

C. FMV LAND APPRAISAL PROCESS

At the time of filing of the Park Plan application, the applicant can choose either to have the City hire the land appraiser or to submit an appraisal subject to peer review by the City hired land appraiser. Depending on the option chosen, the following procedures shall apply:

1. City Prepared Appraisal. At the time of filing of the Park Plan application, the applicant shall submit a request for a land appraisal to the Director of Community Development. The City shall hire an appraiser to perform the land appraisal at applicant's expense. The applicant and City staff shall agree on the timing of the appraisal; however, the appraisal shall be prepared no later than eight weeks prior to the first public meeting on the Park Plan to allow the applicant to review the appraisal, and any objections by the applicant shall be received no later than six weeks after the appraisal is provided to the applicant, unless the parties agree otherwise.
2. Applicant Prepared Appraisal with Peer Review by City. At the time of filing of the Park Plan application, the applicant shall notify the City of their intent to prepare the land appraisal. The City shall hire an appraiser to perform peer review of the appraisal at the applicant's expense. The applicant and City staff shall agree on the timing of the appraisal; however, the applicant shall submit the completed appraisal for City review no later than eight weeks prior to the first

public hearing on the Park Plan, and the peer review by the City hired appraiser shall be completed no later than six weeks after the appraisal is provided to the City unless the parties agree otherwise.

The Director of Community Development shall select and hire a certified MAI (Member of Appraisal Institute) appraiser to perform the appraisal or the peer review of the appraisal. City staff shall evaluate the eligibility of appraisers based on credentials and any potential conflicts of interest based on appraisals completed within the past five years or may hire pre-qualified appraisers from the City's approved Master Consultant list. The applicant and City staff shall agree on the timing of the appraisal. City staff shall review the completed appraisal for consistent application of the method and criteria listed below in Section D.

The appraisal shall be reviewed by the Community Services Commission and approved by the Planning Commission in conjunction with the Park Plan application. The City or the applicant may request that the appraisal is prepared or updated by the appraiser within 90 days prior to approval by the Planning Commission. All appraisal costs, including the cost for the City hired appraiser, shall be paid by the applicant prior to approval of the appraisal by the Planning Commission.

An appraisal shall expire twelve (12) months from the date the appraisal was approved by the Planning Commission. If an applicant submits a Park Plan Modification that expands the overall land area outlined in the approved Park Plan, a new appraisal shall be required, if the previous appraisal has expired. In cases where payment of park in-lieu fees is required and more than 12 months expires from the date of the preparation of the appraisal to payment of all of the park-in-lieu fees, either the City or the applicant may request that the remaining park-in-lieu fees be adjusted at the time of payment of the fees based on the average regional construction cost index for the past year for the Los Angeles region. As an alternative to the use of the Los Angeles region construction cost index, either the City or the applicant may request that the remaining fees are re-calculated using a new appraisal prepared in conformance with all provisions of this section, where the party requesting the appraisal will bear the cost of the appraisal.

An applicant may propose to use a previously approved, non-expired FMV determination for land which is similar in nature, at the discretion of the Director of Community Development. The following items, including but not limited to, terrain, physical features, and zoning density, will be evaluated to determine eligibility.

The same appraisal process shall apply to residential developments located on business and industrial designated land.

D. METHOD AND CRITERIA TO BE USED BY THE APPRAISER COMPLETING THE FMV EVALUATION

The appraiser, in evaluating the FMV of the land, shall utilize the following method:

A comparison process which utilizes comparative recent residential land sales as the basis to determine the value of land in residential projects with similar density,

size, location, and other characteristics that effect the value of land. Comparable recent residential land sales within the City of Irvine shall be considered within the appraisal. Any mathematical adjustments made to actual comparable land sale values shall be quantified in numerical terms in the appraisal report, including assumptions regarding adjustments for less desirable site characteristics, type of construction, and any other assumptions regarding land values beyond actual sales price. The appraiser, in evaluating the FMV of the land, shall utilize the following criteria:

1. The maximum residential density of the site, if any, as approved by the underlying subdivision map, conditional use permit, or other discretionary application; and
2. Basic infrastructure to the site perimeter shall include rough grading, installation of streets, curbs and gutters, and installation of trunk line utilities. On-site improvements eligible to receive park dedication credits (i.e., minimum improvements, recreational amenities, and associated improvement costs) are not included as part of the appraised value.

E. APPEAL PROCESS

In the event that the applicant disagrees with the FMV determination by the appraiser, the applicant may present their objections in writing to the Director of Community Development for consideration. If an agreement is not reached, this written objection will be presented to the Community Services Commission and Planning Commission as a part of the review of the appraisal. The applicant may appeal the Planning Commission decision to the City Council.

II. PROJECTS WITHIN THE RESIDENTIAL AND RESIDENTIAL MIXED-USE OVERLAY (2045 GENERAL PLAN FOCUS AREAS 1, 2, and 3)

In recognition of unique circumstances related to the development of residential uses within the Residential and Residential Mixed-Use Overlay (Focus Areas 1, 2, and 3, as defined in the 2045 General Plan), the following process has been developed to address appraisals related to residential development in this area where land purchased by the City for public park uses may not have the same value as land developed for residential uses.

A. WHEN A FAIR MARKET VALUE LAND APPRAISAL IS REQUIRED

(Also see Section 5-5-1004 (B) (1) of the Subdivision Ordinance)

All projects seeking park dedication credit for minimum improvements, recreational amenities, design and construction costs, land off-site, and/or in-lieu fees require an appraisal to assess the fair market value (FMV) of land. The purpose of the appraisal is to estimate the City's cost to purchase parkland within the Residential and Residential Mixed-Use Overlay of the 2045 General Plan (Focus Areas 1, 2, and 3).

B. DEFINITION OF FAIR MARKET VALUE

Fair Market Value shall be defined as the estimated per acre value of entitled non-residential land (i.e. subdivided land consistent with General Plan and Zoning Ordinance land uses) with basic infrastructure abutting the property, as determined by the Planning Commission, based upon an appraisal by a qualified appraiser. Basic infrastructure to the site perimeter shall include rough grading, installation of streets, curbs and gutters, and installation of trunk line utilities. Off-site basic infrastructure improvements costs are not eligible for park credit since they are considered in the land appraisal. Items potentially eligible to receive park dedication credits (i.e., minimum improvements, recreational amenities, and design and construction costs) are not included as part of the appraisal process.

C. FMV LAND APPRAISAL PROCESS

At the time of filing of the Park Plan application, the applicant can choose either to have the City hire the land appraiser or to submit an appraisal subject to peer review by the City hired land appraiser. Depending on the option chosen, the following procedures shall apply:

1. City Prepared Appraisal. At the time of filing of the Park Plan application, the applicant shall submit a request for a land appraisal to the Director of Community Development. The City shall hire an appraiser to perform the land appraisal at applicant's expense. The applicant and City staff shall agree on the timing of the appraisal; however, the appraisal shall be prepared

no later than 8 weeks prior to the first public meeting on the Park Plan to allow the applicant time to review the appraisal, and any objections by the applicant shall be received no later than 6 weeks after the appraisal is provided to the applicant, unless the parties agree otherwise.

2. Applicant Prepared Appraisal with Peer Review by City. At the time of filing of the Park Plan application, the applicant shall notify the City of their intent to prepare the land appraisal. The City shall hire an appraiser to perform peer review of the appraisal at the applicant's expense. The applicant and City staff shall agree on the timing of the appraisal; however, the applicant shall submit the completed appraisal for City review no later than 8 weeks prior to the first public hearing on the Park Plan, and the peer review by the City hired appraiser shall be completed no later than 6 weeks after the appraisal is provided to the City, unless the parties agree otherwise.

The Director of Community Development shall select and hire a certified MAI (Member of Appraisal Institute) appraiser to perform the appraisal or the peer review of the appraisal. City staff shall evaluate the eligibility of appraisers based on credentials and any potential conflicts of interest based on appraisals completed within the past five years, or may hire pre-qualified appraisers from the City's approved Master Consultant list. The applicant and City staff shall agree on the timing of the appraisal. City staff shall review the completed appraisal for consistent application of the method and criteria listed below in Section D.

The appraisal shall be reviewed by the Community Services Commission and approved by the Planning Commission in conjunction with the park plan application. The City or the applicant may request that the appraisal is prepared or updated by the appraiser within 90 days prior to approval by the Planning Commission. All appraisal costs, including the cost for the City hired appraiser, shall be paid by the applicant prior to approval of the appraisal by the Planning Commission.

An appraisal shall expire twelve (12) months from the date the appraisal was approved by the Planning Commission. If an applicant submits a Park Plan Modification that expands the overall area outlined in the approved Park Plan, a new appraisal shall be required, if the previous appraisal has expired. In cases where payment of park in-lieu fees is required and more than 12 months expires from the date of the preparation of the appraisal to payment of all of the park-in-lieu fees, either the City or the applicant may request that the remaining park-in-lieu fees be adjusted at the time of payment of the fees based on the average regional construction cost index for the past year for the Los Angeles region. As an alternative to the use of the Los Angeles region construction cost index, either the City or the applicant may request that the remaining fees are re-calculated using a new appraisal prepared in conformance with all provisions of this section, where the party requesting the appraisal will bear the cost of the appraisal.

An applicant may propose to use a previously approved, non-expired FMV determination for land which is similar in nature, at the discretion of the Director of Community Development. The following items, including but not limited to, terrain, physical features, and zoning density, will be evaluated to determine eligibility.

D. METHOD AND CRITERIA TO BE USED BY THE APPRAISER COMPLETING THE FMV EVALUATION

The appraiser, in evaluating the fair market value of the land, shall utilize the following method:

A comparison process which utilizes comparative recent entitled non-residential land sales within the respective Focus Area as the basis to determine the value that the City could purchase land for public park use. Any mathematical adjustments made to actual comparable land sale values shall be quantified in numerical terms in the appraisal report, including assumptions regarding adjustments for less desirable site characteristics, type of construction, and any other assumptions regarding land values beyond actual sales price. Because any developed site must be cleared for park use, the appraiser in determining FMV shall include in the value the estimated cost to demolish any structures and clear the site for use as a park.

Basic infrastructure to the site perimeter shall include rough grading, installation of streets, curbs and gutters and installation of trunk line utilities.

E. APPEAL PROCESS

In the event that the applicant disagrees with the FMV determination by the appraiser, the applicant may present his/her objections in writing to the Director of Community Development for consideration. If an agreement is not reached, this written objection will be presented to the Community Services Commission and Planning Commission as a part of the review of the appraisal. The applicant may appeal the Planning Commission decision to the City Council.

4. Park Credit Values

PARK CREDIT VALUES

A. PURPOSE OF SCHEDULE OF IMPROVEMENT VALUES

(Also see Section 5-5-1004 (B) (2) of the Subdivision Ordinance – Park Dedication Improvements)

City of Irvine (City) Municipal Code Section 5-5-1004, subsections A.2 and D, allows park dedication requirements to be satisfied through the provision of eligible park and recreational improvements. These improvements are grouped into three categories: minimum improvements, recreational amenities, and development costs.

B. SCHEDULE OF IMPROVEMENT VALUES TABLE

The Schedule of Park and Recreational Improvement Values (Schedule) lists minimum improvements, recreational amenities, and development (design and construction) costs that are eligible for park credit given that the amenities are constructed to City Standards. The Schedule is provided as Table A of this section. An adopted dollar value is assigned to each type of improvement, along with the percentage eligible for park credit. In general, recreational amenities in public parks receive 100 percent credit. Amenities in private parks are eligible for 0 percent to 100 percent credit depending on the perceived value as a public benefit, which is recommended by the Community Services Commission and approved by the Planning Commission as a part of the Park Plan approval process. Improvements that are required or requested by the City are eligible for 100 percent park improvement credit.

C. CALCULATION OF PARK IMPROVEMENT CREDITS

Credit for park improvements is calculated per City Municipal Code Section 5-5-1004. The aggregate dollar value of all eligible improvements is divided by the value of an acre of land in the development to obtain an acre equivalent to the value of the improvements. Park improvement credits per acre are calculated in accordance with City Municipal Code Section 5-5-1004, whereby the aggregate dollar of all eligible improvements is divided by the appraised value of land in the development.

D. ANNUAL ADJUSTMENT AND COMPREHENSIVE UPDATE OF PARK AND RECREATIONAL IMPROVEMENT VALUES

Park and recreational improvement values listed in the Schedule will be adjusted annually using the December – December Construction Cost Index for the Los Angeles region, as published by the Engineering News Record. This annual adjustment will be applied equally to all improvements listed in the Schedule, prepared administratively, approved by the Director of Community Development, and take effect on February 1 of each year.

PARK CREDIT VALUES

A comprehensive update of the improvement values shall be conducted every five years and shall be subject to the approval of the Planning Commission upon recommendation of the Community Services Commission. As opposed to the annual Construction Cost Index adjustment, five-year comprehensive updates will involve a more vigorous review of the improvement values, and could be based on professional cost estimation, review of costs incurred under recent City-led construction projects, as well as feedback from the development community. The Community Services Commission shall hold a minimum of one public meeting and the Planning Commission shall hold a minimum of one public hearing as defined in Zoning Ordinance Section 2-23.

E. SPECIFIC IMPROVEMENT VALUE ADJUSTMENT

A developer may request to have a specific park or recreational improvement value on the Schedule revised provided that the value has not been comprehensively updated within the past one year. In conjunction with the Park Plan application, the developer shall submit information and proof to the Director of Community Development stating the requested change and justifying why a value needs to be adjusted. The request shall include a minimum of three construction cost estimates or actual bids for the proposed improvement not more than 12 months old at the time of the submittal. In conjunction with consideration of the Park Plan, the Planning Commission shall decide, upon recommendation of the Community Services Commission, whether or not to approve the proposed revision to the improvement values. If approved, the revised improvement value will be valid only for the specific Park Plan in which the improvement value was requested. The Community Services Commission may also recommend, and the Planning Commission may approve, that the adjusted value be incorporated into the Park/Public Park Facility Standards for all future projects.

F. IMPROVEMENT CREDIT FOR RECREATIONAL AMENITIES NOT LISTED IN THE SCHEDULE

A developer or the Director of Community Development may request improvement credit for a park or recreational amenity that is not listed on the Schedule. In conjunction with the Park Plan application, the developer shall submit a letter to the Director of Community Development requesting the credit and include supporting information describing the proposed improvement, the recreational value of the improvement, and the requested improvement credit. The information shall include a minimum of three construction cost estimates or actual bids for the proposed improvement not more than 12 months old at the time of the submittal of the request. In conjunction with consideration of the Park Plan, the Planning Commission shall decide upon recommendation of the Community Services Commission whether the improvement should receive park credit, the value of the improvement, and, for private parks, the allowed percentage of park credit. If approved, the park credit will

PARK CREDIT VALUES

be valid only for the specific Park Plan for which it was requested. The Community Services Commission may also recommend, and the Planning Commission may approve, that the adjusted value be incorporated into the Standards for all future projects.

Public park and recreational amenities not listed in the Schedule may be eligible for park improvement credit if specifically requested by the City.

The Community Services Commission and Planning Commission shall consider the following in determining whether private park and recreational improvements not listed on the Schedule are eligible to receive park improvement credit:

1. The proposed improvement is an improvement similar to and consistent with other improvements typically provided in public parks;
2. The proposed park or recreational improvement meets any and all National or State association standards for the proposed recreational activity (applicable standards to be approved by the City);
3. Developer demonstrates demand for proposed park or recreational improvement and lack of availability within the surrounding community;
4. Credit of 0 to 100 percent shall be based on the perceived value of the proposed improvement as a public benefit, which is recommended by the Community Services Commission and approved by the Planning Commission as a part of the Park Plan approval process.

PARK CREDIT VALUES

TABLE A - SCHEDULE OF PARK AND RECREATIONAL IMPROVEMENT VALUES

IMPROVEMENT	CONDITION	MAXIMUM VALUE	UNIT	% CREDIT	
				PUBLIC	PRIVATE
A. Minimum Improvements					
Construction Water	Lump sum	\$ 4,612.50	l.s.	100	0-100
Temporary Utilities	Lump sum	\$ 9,348.00	l.s.	100	0-100
Site Grading, Rough	On-site only	\$ 2.82	/cu.yd.	100	0-100
Site Grading, Fine	On-site only	\$ 0.23	/sq. ft.	100	0-100
Site Drainage	On-site only	\$ 0.60	/sq. ft.	100	0-100
Utility Connections	Lump sum that can be applied to storm drain, domestic water, reclaimed water, sewer, electrical, gas, or telephone connections	\$ 62,525.00	l.s.	100	0-100
Hardscape, Sidewalks	Minimum 5' wide; concrete	\$ 4.97	/sq. ft.	100	0-100
Hardscape, Mow-Strip	Concrete	\$ 10.76	/sq. ft.	100	0-100
Turf	Hydroseeded	\$ 0.21	/sq. ft.	100	0-100
Ground Cover	Flats, @ 12" O.C.	\$ 3.74	/sq. ft.	100	0-100
Shrubs	Minimum 5 gallon size	\$ 16.91	each	100	0-100
Trees	Minimum 15 gallon size	\$ 158.88	each	100	0-100
Mulch/Soil Preparation		\$ 0.26	/sq. ft.	100	0-100
Automatic Irrigation	Computer-controlled	\$ 0.51	/sq. ft.	100	0-100
Security Lighting ⁽¹⁾	Approximately 1 light per 100 lin. ft. of pavement (must meet Uniform Security Code requirements)	\$ 4,612.50	each	100	0-100
B. Recreational Amenities ⁽¹⁾					
Picnic Table	Permanent, non-moveable (slab); passive or group picnic areas only	\$ 1,008.60	each	100	0-100

PARK CREDIT VALUES

TABLE A - SCHEDULE OF PARK AND RECREATIONAL IMPROVEMENT VALUES

IMPROVEMENT	CONDITION	MAXIMUM VALUE	UNIT	% CREDIT	
				PUBLIC	PRIVATE
Concrete Pavement	Under tables, bleachers, etc.	\$ 5.64	/sq. ft.	100	0-100
Barbecue - Group	Non-gas in public parks; gas or non-gas in private parks; must be adjacent to permanent picnic tables	\$ 1,035.00	each	100	0-100
Barbecue - Family	Non-gas in public parks; gas or non-gas in private parks; must be adjacent to permanent picnic tables	\$ 642.00	each	100	0-100
Barbecue - Single	Non-gas in public parks; gas or non-gas in private parks; must be adjacent to permanent picnic tables	\$ 249.00	each	100	0-100
Bike Rack	Eligible in public parks only	\$ 486.88	each	100	0
Drinking Fountain	Americans with Disabilities Act (ADA) accessible	\$ 4,349.00	each	100	0-100
Bench	Permanent, non-moveable	\$ 1,430.90	each	100	0
Trash Receptacle	Permanent holder	\$ 549.00	each	100	0
Trash Receptacle – Solar Compactor and Compacting Recycler	Permanent holder	\$ 5,109.63	each	100	0
Recycling Receptacle	Permanent holder	\$ 456.13	each	100	0
Dog Bag Dispenser	Permanent holder	\$ 299.00	each	100	0
Monument Signs	Eligible in public parks only; lighted to City Standards	\$ 11,787.50	each	100	0
Tot Lot/Play Equipment	Must have adjacent permanent, non-moveable bench and be a minimum of 40' diameter or 1,500 sq. ft.; must meet State of California Safety Standards and City Tot Lot Standards;	\$ 57.18	/sq. ft.	100	0-100

PARK CREDIT VALUES

TABLE A - SCHEDULE OF PARK AND RECREATIONAL IMPROVEMENT VALUES

IMPROVEMENT	CONDITION	MAXIMUM VALUE	UNIT	% CREDIT	
				PUBLIC	PRIVATE
	ADA accessible				
Par Course	Spacing between stations must meet manufacturer's recommendations; 8 station minimum; running surface other than grass	\$ 1,513.47	per station	100	0-100
Parking Lot - Lighted	Eligible in public parks only and then only when spaces are designated for park use	\$ 6.12	/sq. ft.	100	0
Shade Structure	For group recreation purposes only; minimum 50% shade coverage	\$ 59.45	/sq. ft.	100	0-100
Public Restroom		\$ 244.77	/sq. ft.	100	0-100
ATHLETIC COURTS AND EQUIPMENT: All courts need an ADA accessible drinking fountain nearby. Minimum 6' safety zones needed around courts. All hard courts must be 6" reinforced concrete (or equally durable material as approved by the City) designed to prevent cracking. All lighted courts must meet City Lighting Standards.					
Basketball - Full Court (Unlighted)	50' x 94' playing area	\$ 49,148.75	each	100	0-100
Basketball - Full Court (Lighted)	50' x 94' playing area	\$ 66,573.75	each	100	0-100
Basketball - Half Court (Unlighted)	50' x 47' playing area	\$ 26,560.00	each	100	0-100
Basketball - Half Court (Lighted)	50' x 47' playing area	\$ 36,041.00	each	100	0-100
Multi-use (Unlighted)	50' x 94' playing area	\$ 54,991.25	each	100	0-100
Multi-use (Lighted)	50' x 94' playing area	\$ 64,523.75	each	100	0-100
Racquetball (Unlighted)	20' x 40' x 20' with back wall minimum 12' high	\$ 87,099.38	each	100	0-100
Racquetball (Lighted)	20' x 40' x 20' with back wall minimum 12' high	\$ 112,716.18	each	100	0-100
Tennis (Unlighted)	36'x78' with 12' clearance on each side and 12'	\$ 72,558.73	each	100	0-100

PARK CREDIT VALUES

TABLE A - SCHEDULE OF PARK AND RECREATIONAL IMPROVEMENT VALUES

IMPROVEMENT	CONDITION	MAXIMUM VALUE	UNIT	% CREDIT	
				PUBLIC	PRIVATE
	high mesh covered fence				
Tennis (Lighted)	36'x78' with 12' clearance on each side and 12' high mesh covered fence	\$ 92,056.28	each	100	0-100
Volleyball - Sand (Unlighted)	30' x 60' playing area	\$ 12,730.50	each	100	0-100
Volleyball - Sand (Lighted)	30' x 60' playing area	\$ 26,670.50	each	100	0-100
Volleyball - Hard Court (Unlighted)	30' x 60' playing area	\$ 21,965.75	each	100	0-100
Volleyball - Hard Court (Lighted)	30' x 60' playing area	\$ 35,178.00	each	100	0-100
ATHLETIC FIELDS AND EQUIPMENT					
Baseball Field – Regulation	90'	\$ 120,199.70	each	100	0-100
Baseball Field – Youth	80'	\$ 105,442.78 (4) (7)	each	100	0-100
Baseball Field – Youth	60' or 70'	\$ 101,129.58 (5) (7)	each	100	0-100
Softball Field		\$ 89,445.60 (6) (7)	each	100	0-100
Soccer Field	180' x 300'	\$ 83,983.38	each	100	0-100
Soccer Goals	Goals must have "optional" back bar	\$ 3,275.90	/pair	100	0-100
Lacrosse Field	110 yards x 60 yards	\$ 53,010.90	each	100	0-100
Football Field	160' x 360'	\$ 48,648.00	each	100	0-100
Rugby Field	150' x 360'	\$ 34,405.68	each	100	0-100
Spectator Bleachers	5 tier with guard rails; seats minimum 75 persons; ADA accessible seating area	\$ 9,225.00	each	100	0-100

PARK CREDIT VALUES

TABLE A - SCHEDULE OF PARK AND RECREATIONAL IMPROVEMENT VALUES

IMPROVEMENT	CONDITION	MAXIMUM VALUE	UNIT	% CREDIT	
				PUBLIC	PRIVATE
Batting cages	Two batting cages, including brickdust surface, fencing, netting, and homeplate	\$ 51,537.00	each	100	0-100
Scoreboard	Electronic scoreboard	\$ 41,229.60	each	100	0-100
Maintenance yard	Per City specifications	\$ 85,036.05	each	100	0-100
Athletic Field Lighting Poles	Height and design of lights to be dedicated by need to meet City Athletic Field Lighting Standards	\$ 34,358.00	each	100	0-100
POOLS AND POOL SUPPORT FACILITIES: All pool areas must meet City Pool and Auxiliary Standards. Facilities must be ADA accessible. All pool support facilities must meet Health and Safety Code requirements.					
Pool-Jr. Olympic	Minimum length 75'; minimum depth 5'; minimum lane width 7'; minimum 1.5' space at sides; designed to allow for swim team usage	\$ 132.23	/sq. ft.	100	0-100
Lap or Family Pool	Minimum 1,500 sf (except for a small lap pool, minimum 1,000 sf); minimum 37.5' length; minimum 5' depth at the deep end	\$ 132.23	/sq. ft.	50 or 100 ⁽³⁾	0-50 or 0-100 ⁽³⁾
Shallow Pool	Maximum depth less than 5'	\$ 132.23	/sq. ft.	25	0-25
Wading Pool	Minimum 100 sf, maximum 400 sf eligible for credit; separate from the main pool	\$ 132.23	/sq. ft.	100	0-100
Spa	Minimum 80 sf, maximum 250 sf; maximum 1 spa per 1,500 units eligible for park credit	\$ 132.23	/sq. ft.	100	0-100
Deep Water	Minimum 6'9" depth at the deep end; portion of the pool with depth between 5' and 6'9" only may receive this park credit instead of the regular pool credit	\$ 148.63	/sq. ft.	100	0-100
Zero Depth Entry	ADA accessible; portion of the pool with depth from zero-depth to 3'6" only may receive this park credit instead of the regular pool credit	\$ 132.23	/sq. ft.	100	0-100

PARK CREDIT VALUES

TABLE A - SCHEDULE OF PARK AND RECREATIONAL IMPROVEMENT VALUES

IMPROVEMENT	CONDITION	MAXIMUM VALUE	UNIT	% CREDIT	
				PUBLIC	PRIVATE
Pool ramps	ADA accessible; ramp area only may receive this park credit instead of the regular pool credit	\$ 132.23	/sq. ft.	100	0-100
Interactive Water Feature	Reviewed on a case-by-case basis	(2)	/sq. ft.	100	0-100
Water Play Elements	Such as slides and diving boards; reviewed on a case-by-case basis	(2)	/sq. ft.	100	0-100
Restrooms/Showers	Percent credit to match percent credit for the pool	\$ 244.77	/sq. ft.	100	0-100
Deck	Percent credit to match percent credit for the pool	\$ 8.20	/sq. ft.	100	0-100
Shade Structure	Percent credit to match percent credit for the pool	\$ 42.44	/sq. ft.	100	0-100
Fencing	Percent credit to match percent credit for the pool; minimum 6' high	\$ 29.35	/lin. ft.	100	0-100
Pool Equipment Area	Percent credit to match percent credit for the pool	\$ 47.11	/sq. ft.	100	0-100
Pool Equipment Building	Percent credit to match percent credit for the pool	\$ 244.77	/sq. ft.	100	0-100
COMMUNITY BUILDINGS					
Multi-purpose room	Available for reservation; minimum 600 sq. ft.; adjacent kitchen	\$ 244.77	/sq. ft.	100	0-100
Kitchen	Must be primarily for multi-purpose room use	\$ 244.77	/sq. ft.	100	0-100
Indoor athletic court	Resilient surface	\$ 244.77	/sq. ft.	100	0-100
Exercise room/gyms	Resilient surfaces	\$ 244.77	/sq. ft.	100	0-100
Restrooms/showers/lockers		\$ 244.77	/sq. ft.	100	0-100

PARK CREDIT VALUES

TABLE A - SCHEDULE OF PARK AND RECREATIONAL IMPROVEMENT VALUES

IMPROVEMENT	CONDITION	MAXIMUM VALUE	UNIT	% CREDIT	
				PUBLIC	PRIVATE
Media room		\$ 244.77	/sq. ft.	100	0-100
C. Development Costs					
Mobilization	% of estimated "Minimum Improvements" plus "Recreational Amenities"	2%		100	0-100
Design Fees/Survey	% of estimated "Minimum Improvements" plus "Recreational Amenities"	7%		100	0-100
Fees & Permits	% of estimated "Minimum Improvements" plus "Recreational Amenities"	2%		100	0-100
Contingencies	% of estimated "Minimum Improvements" plus "Recreational Amenities"	7%		100	0-100
Landscape Maintenance	Cost of initial 3 months landscape establishment period	\$ 0.05	/sq. ft.	100	0-100

- (1) All recreational amenities must meet all applicable requirements of the Park/Public Facility Standards to receive park improvement credit.
- (2) Maximum value based on actual bids provided by developer.
- (3) 100% credit for a lap or family pool that is the only pool in the development or lap or family pool that is required per section 2.2.4.A.2; 50% credit for all other lap or family pools.
- (4) Youth Baseball Fields – 80' designed with a field overlay (i.e., no outfield fencing) will have credit value reduced by 43.8%.
- (5) Youth Baseball Fields – 60' or 70' designed with a field overlay (i.e., no outfield fencing) will have credit value reduced by 41.8%.
- (6) Softball fields designed with a field overlay (i.e., no outfield fencing) will have credit value reduced by 44.39%.
- (7) In the case of field overlays, the field type with the highest value will be used to determine park credit. Because field overlays do not require outfield fencing, improvement values for the various baseball/softball fields must first be calculated according to footnotes 4, 5, and 6. If the City requests an overlay and the cost of providing that amenity results in a cost in excess of the highest calculated field improvement value, the applicant may request that a specific credit value be granted for the field overlay, based on actual project bids.

City of Irvine
Park Standards Manual

SECTION V. SAMPLE PARK CREDIT CALCULATIONS

A. CALCULATING PARK ACREAGE REQUIREMENT

(Also see Section 5-5-1004 of the Subdivision Ordinance – Park Dedication)

1. Determine how many people will be generated by the development using the factor(s) listed below, adopted by the City (from the 2000 US Census), for the density classification(s) which applies to the project.

Dwelling Units per Net Acre	Persons per Dwelling Unit	Acres per Dwelling Unit
0 to 1.0	3.25	0.0163
1.1 to 6.5	2.94	0.0146
6.6 to 12.5	2.57	0.0128
12.6 to 31.0	2.29	0.0115
31.1 to 50.0	1.30	0.0065

2. Multiply the number of dwelling units generated by your subdivision by the average number of persons per dwelling unit factor. This determines the total population generated by the project.
3. Irvine's Local Park Code requires developers to provide 5.0 acres of park land per 1,000 people. The 5.0 acres of required park land per 1,000 people are apportioned into 3.0 acres of neighborhood park land and 2.0 acres of community park land. Therefore, in order to calculate the number of acres required for a particular project, divide the number of people generated by 1,000 and then multiply by 3.0 to determine the neighborhood park requirements. Multiply by 2.0 to determine the community park requirements.
4. The developer of new ownership units affordable for households of low and moderate income, as defined in the City of Irvine General Plan - Housing Element, may be allowed to reduce the dedication standard to 3.5 acres, which are apportioned into 1.5 acres of community park land and 2.0 acres of neighborhood park land, where one (1) acre is private and one (1) acre is public.
5. Therefore, in order to calculate the number of acres required for a particular project, divide the number of people generated by 1,000 and then multiply by 1.5 to determine the community park requirements. Multiply by 2.0 to determine neighborhood park credits.

Example:

Given:

Density of proposed development = 11.2 dwelling units per net acre (**or** 56 dwelling units on 5 net acres)

Step 1:

From table, determine that 11.2 density falls in the 6.6 to 12.5 dwelling units per net acre (low-medium density residential zoning) category which will generate an average of 2.60 persons per dwelling unit.

56 dwelling units x 2.60 average persons per dwelling unit = 145.6, round up to 146 persons (ALWAYS ROUND PERSONS UP TO A WHOLE NUMBER)

Step 2:

146 persons x 2 acres community park land per 1000 persons = 0.292, round to 0.29 acres of community park land (ROUND ACRES TO HUNDREDTHS PLACE)

146 persons x 3 acres neighborhood park land per 1000 persons = 0.438, round up to 0.44 acres of neighborhood park land (ROUND ACRES TO HUNDREDTHS PLACE)

Result:

TOTAL PARK LAND REQUIREMENT = 0.29 acres of community park land + 0.44 acres of neighborhood park land = 0.73 total acres

B. CALCULATION OF PARK DEDICATION CREDITS FOR IMPROVEMENTS AND AMENITIES

In determining the park credit for improvements, the formulas listed below shall be used.

Definition of Terms:

MI = total value of minimum improvements

RA = total value of eligible recreational amenities

IC = total value of eligible construction and design costs

Fair Market Value (FMV) = value of one acre of entitled land with basic infrastructure abutting the property as determined by an independent appraisal. Minimum improvements and amenities are not included as part of the appraisal process.

Basic Infrastructure (off-site) = rough grading, installation of streets, curb and gutter, and installation of trunk line utilities, to the site. The cost of these basic infrastructure improvements are not eligible for park credit since they are accounted for in the land appraisal.

Calculation of Park Credits for Improvements and Amenities:

$$\frac{\$ \text{ value of all amenities}}{\$ \text{ value of land per acre}} = \frac{\text{MI} + \text{RA} + \text{IC}}{\text{FMV}} = \text{PARK CREDIT (in acres)}$$

Calculation of Total Park Credit:

Add:

Total park credit in acres for all minimum improvements, recreational amenities, and improvement costs (result from above, in acres)

plus

Land (size in acres)

= Total Park Credit (in acres)

The developer is eligible for this total acreage figure based upon allowable park credit improvements. For example, the applicant can satisfy the requirement for a neighborhood park by providing the required minimum amount of land (i.e., 4 acres public neighborhood) and if dedication credit deficient, make up the difference by providing improvements and amenities.

Example:

The following sample park credit calculation illustrates a hypothetical application of the above equations.

Given:

Park dedication requirement of 0.73 acres

The fair market value of the land with basic infrastructure is \$625,000.00 per acre (assumes appraisal has been approved)

Land (lot size) acres is 0.33 acres

Step 1:

Using the minimum improvements schedule in Chapter I.V., for the 0.33 acre lot, the total dollar value of the minimum improvements is \$107,684.20.

Step 2:

Use the fair market value appraisal of \$625,000.00 per acre to convert \$107,684.20 of minimum improvements into an acreage equivalent. (\$107,684.20 x \$625,000.00 per acre = 0.17 acres)

Result:

The developer must provide any combination of park amenities and improvement costs or pay in-lieu fees that satisfy the difference between the required and provided amount of acreage which is 0.73 acres - (0.33 acres land + 0.17 acres of minimum improvements) = 0.23 acres

In other words, the developer must provide, in addition to the 0.33 acres of land, a minimum of \$143,750 (0.23 acres x \$625,000 per acre) in recreational amenities and/or improvement costs.

OR

\$143,750 in in-lieu fees.

City of Irvine
Park Standards Manual

**SECTION VI. UNIVERSAL DESIGN STANDARDS &
GUIDELINES FOR PARKS**

A. INTRODUCTION

The City of Irvine Community Services Department is committed to providing and preserving the highest quality parks and community services for all Irvine residents. Our goal is to build and operate our parks and programs in such a manner so as to eliminate barriers that would impede or interfere with any person's full enjoyment of our park environments. To that end, we have four specific goals:

- to provide all park visitors access to park amenities
- to provide opportunities for all park visitors to experience the park environments to the fullest extent possible
- to provide equal accessibility to all programs and facilities
- to comply with all standards, guidelines and regulations

To achieve our goals, the Community Services Department has adopted universal design standards and guidelines for all new parks. Universal design standards and guidelines ensure that environments are relatively free of handicapping elements. So, regardless of a person's abilities, the environment is available to be experienced as fully as possible. When accessible companion seating is provided adjacent to benches, wheelchair users can freely sit next to friends and family. When paths of travel are adjacent to open fields, grandparents with walkers can watch their grandchildren's soccer games. When sidewalks are level, wide and free of obstructions, blind individuals can walk freely.

There are distinct differences between public and private parks in terms of general use, programs and amenities. Standards and guidelines applicable to public park facilities only, will be identified "Public Parks Only" throughout this Section. Standards not specifically designated as "Public Parks Only" apply to all parks, public and private. Private parks that are not receiving park credit must still meet applicable accessibility standards.

The universal design standards and guidelines in this manual have been developed with the assistance of community members, and experts in the fields of park planning, facilities management, building and safety and landscape architecture. It is the intention of the Community Services Commission that these standards/guidelines will be incorporated into the design and construction of all public community and neighborhood parks and facilities and within private parks and facilities. Departure from these standards will require approval from the Director of Community Services or designee. Further, the City of Irvine is committed to implementing universal accessibility standards and guidelines established through the Americans with Disabilities Act (ADA)/Department of Justice and with Chapter 11B Title 24 of the California Code of Regulations (CA Building Code).

It is the responsibility of the design professional to ensure that all current applicable accessibility standards (ADA and Title 24) are met as updates occur.

B. STANDARDS AND GUIDELINES

UNIVERSAL SIGNS, SYMBOLS AND PICTOGRAMS

Directional signs	Directional signs indicating the distance to the nearest accessible path of travel should be placed at all park pedestrian entrances and at accessible parking areas. All directional signs must be accompanied by the International Symbol of Accessibility. Per Title 24 requirements, all permanent directional or informational signs, when suspended or projected 80" or more above the ground along the path of travel, must have upper case letters at least 3" high.
Identification Signs	Per Title 24 requirements, signs identifying permanent use of rooms and spaces shall have 1/32" raised letters 5/8" to 2" high, sans serif, uppercase, and Grade II Braille, mounted on the latch side of any doors at 60" above the floor. These signs must be approachable to within 3" without obstruction.
Pictograms	Pictograms are recommended in addition to text, but must be accompanied by the equivalent verbal description placed below in raised letters and Grade II Braille when used in a permanently signed room or space. Pictograms should have minimum 6" borders. The International Symbol of Accessibility and circles and triangles are not considered pictograms.
Materials and Graphics	All signs must have a non-glare finish and contrasting characters with backgrounds; all signs shall have numbers and letters that are legible as defined above.



The International Symbol of Accessibility should only be used to indicate access for individuals with limited mobility, including wheelchair users.



The Low Vision Access pictogram may be used to indicate access for people who are blind or have low vision to park amenities such as a guided tour, a path to a nature trail or a scent garden, a tactile tour or an exhibit that may be touched.



The Volume Control pictogram indicates the location of telephones that have handsets with amplified sound and/or adjustable volume controls.

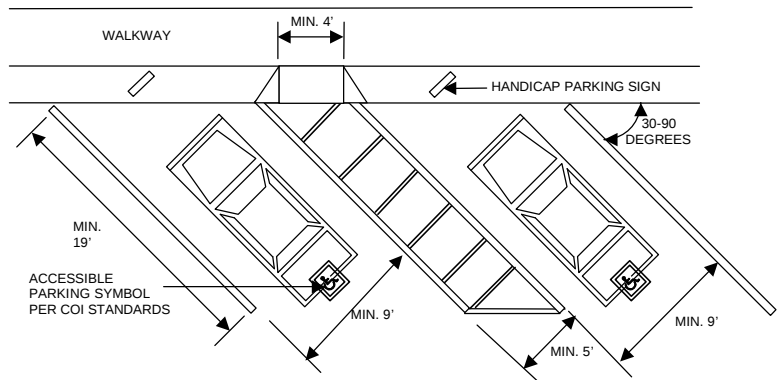
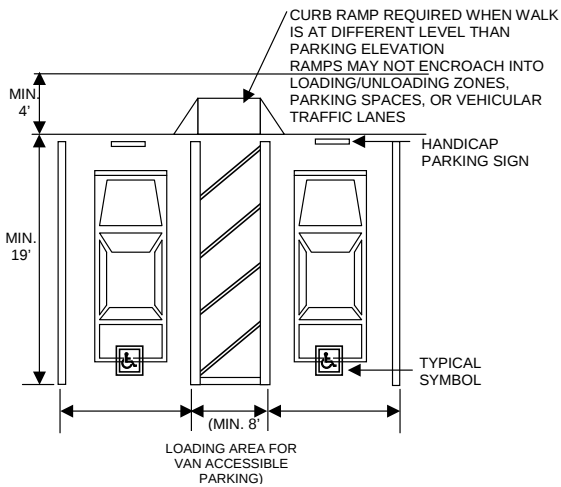
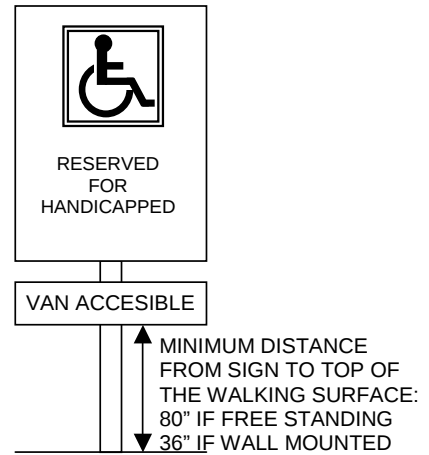
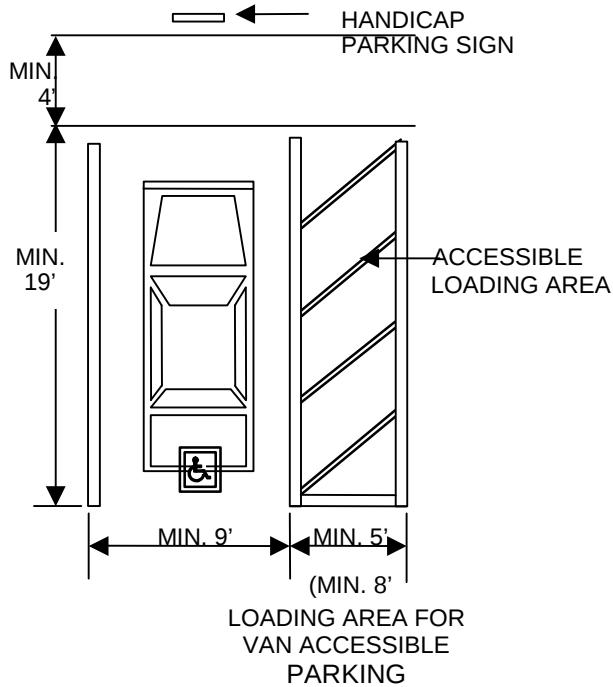


The Braille pictogram indicates that printed matter is available in Braille, including exhibition labeling, publications and signage.

C. PARKING AREAS

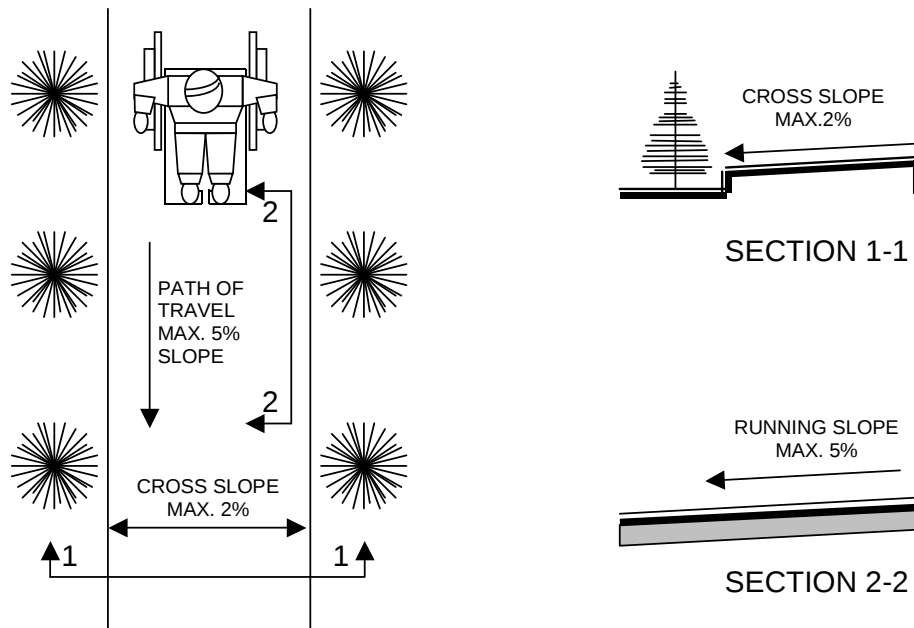
Van Accessible Space	The accessible parking requirements are established by the State of California. In addition to the minimum requirement of the State and City building codes, 50 percent of the required accessible parking stalls in public parks shall be “van accessible” (“Public Parks Only”). Dimension for access aisles and loading areas are established by the State of California and are incorporated in the Building Code. Van accessible loading areas must be 8 feet wide by 19 feet long. Refer to the exhibit on the next page.
Single Space	Single handicapped parking stalls shall have a loading area at least 5 feet wide and 19 feet long. Refer to the exhibit on the next page.
Accessible Route	From any accessible parking space, there must be a connecting 48-inch-wide accessible route. The accessible route must not be obstructed by any objects including vehicles that may extend into the accessible route, curbs, outdoor furniture, or shrubbery.
On-Street Parking	The goal is for on-site accessible parking to be provided for all parks, particularly if there is a pool, clubhouse or any other amenity which may draw a large number of people. When the park is under one acre, there may be design challenges when it makes more sense to have on-street accessible parking. However, if the park is an acre or more, on-site accessible parking is required. When allowed, an accessible curbside parking space may be provided when on-street parking is granted through the administrative relief procedure (Section 2.2 of the Zoning Code). Location and design of such spaces shall be subject to the approval of the Chief Building Official and the City Engineer.
Surface slope	The surface slope of the accessible parking space and access aisle shall not exceed 2 percent in any direction.
Curb Ramp	A curb ramp is required when an accessible walkway is at a different elevation than a parking space. The ramp may not encroach into loading/unloading zones, parking spaces, or vehicular traffic lanes.
Accessible Path	All park entrances shall be designed to accommodate a continuous accessible path of travel from the street connecting through the parking area to the park activities. When more than one route of travel is provided, all routes shall be accessible per CA Building Code 1114B.1.2.
Bench	A 6-foot bench with an accessible companion seating pad, 4 feet wide and 5 feet deep with a painted universal disabled symbol, should be located within 15 feet or, as close as possible from any designated accessible parking space.

PARKING AREAS AND DIMENSIONS



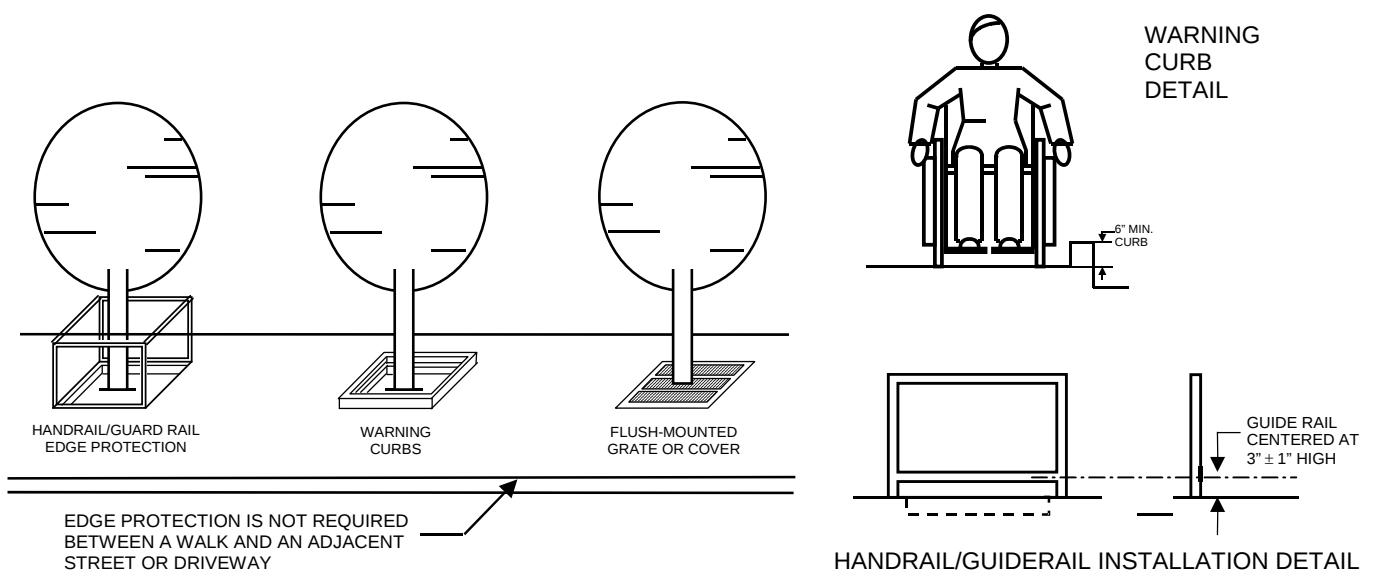
D. ACCESSIBLE PATH OF TRAVEL

Slope	Accessible paths of travel shall have a maximum cross slope of 2 percent or 1:50 and a maximum running slope of 5 percent or 1:20, as illustrated below.
Perimeter Path	An uninterrupted accessible perimeter pedestrian path of travel is desired around the entire circumference of the park facility. ▪ Surface: firm, stable, non-slip surface. ▪ Width: minimum 5 feet. ▪ Slope for ramps: maximum slope of 1:20 is preferred, maximum 1:12 is permitted. A 1:20 slope means that a change in vertical height of no more than one foot can occur for every twenty feet of distance. Flatter is better.
Connecting Paths	The design of the park shall include a network of accessible paths of travel providing connections to all passive and active park areas. An accessible path of travel shall be provided to each major park amenity, including but not limited to each court, playground, picnic area, and pool. ▪ Width: minimum 4 feet.
Uninterrupted Surface	▪ Steps or abrupt changes in level shall not interrupt accessible paths. ▪ Accessible paths of travel must have all weather slip resistant surfaces. ▪ Concrete Pavers used for accessible paths of travel shall provide a smooth surface and shall be preapproved by the Director of Community Services or designee. Textured concrete or cobblestone may be acceptable as an accent feature outside of the path of travel. Smoother is better.



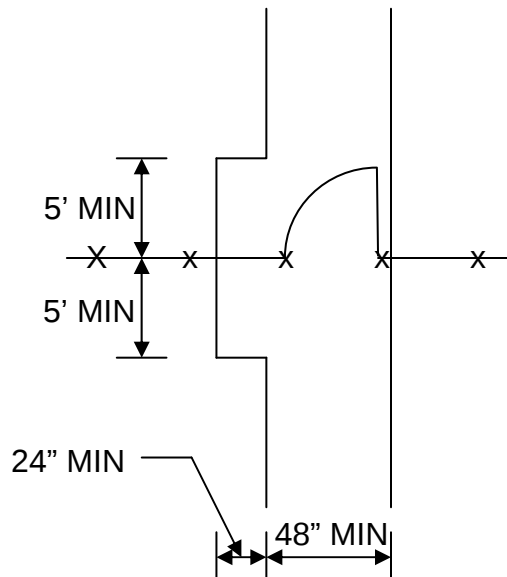
ACCESSIBLE PATH OF TRAVEL (CONTINUED)

Encroachment	There shall be no encroachment into the accessible path of travel.
Hazard Protection	Clearance shall be provided when potentially dangerous elements, including but not limited to tree wells, power poles, CATV boxes, telecommunication antennas, equipment buildings, landscaping, or public art are located adjacent to the accessible path of travel. Some examples are illustrated below.
Edge protection	Abrupt changes in level in close proximity to the accessible path of travel, except between a walk or a sidewalk and an adjacent street or driveway, exceeding 3 inches in vertical height shall require edge protection. Protection can be used as illustrated below: ▪ Handrails or guardrails, 3 feet high. ▪ Guardrail height shall be 42 inches if vertical height differential exceeds 30 inches ▪ Warning curb, minimum 6 inches high ▪ Flush mounted grate or cover protection. When the path of travel is incorporated into a wider walkway, edge protection is not necessary if the obstruction will not encroach within the accessible path of travel.
Cut-thrus over Berms	Accessible path of travel through berms should be considered where the berms are over 100 feet long, and a cut through would enhance equal access to fields and courts ("Public Parks Only").
Shade Trees	Accessible paths of travel should be located near trees for shade when possible and consistent with the City Landscape Standards.



E. ATHLETIC FIELDS AND COURTS

Standards	Refer to City of Irvine Park Standard Manual, Section VII.A, Athletic Fields and Court Standards.
Title 24	All amenities shall conform to California Title 24 Accessibility Regulations. Any proposed variations shall be subject to approval by the Chief Building Official.
Athletic Courts	An accessible path of travel to each athletic court is required.
Baseball and Softball Fields	Ballfield dugouts and access to playing surface from the dugout shall be 100 percent accessible. If spectator seating is provided, it shall conform to spectator seating requirements shown on page VI-9.
Soccer/ Football Fields	Accessible path of travel to each athletic field is highly desirable for the purpose of accessible spectator seating. The accessible path of travel shall not pose a safety hazard (i.e., hardscape within the safety zone).
Tennis Courts	Tennis court gates or fence openings shall have a minimum 36 inch clearance.
Gates	All fencing shall have easy swinging gates with accessible latches, hardware, and switches. The gates shall have a landing area minimum 6' wide and minimum 5' long on each side of the gate per drawing below. Examples of accessible hardware are provided in Section VIII-12, Hardware Specifications.



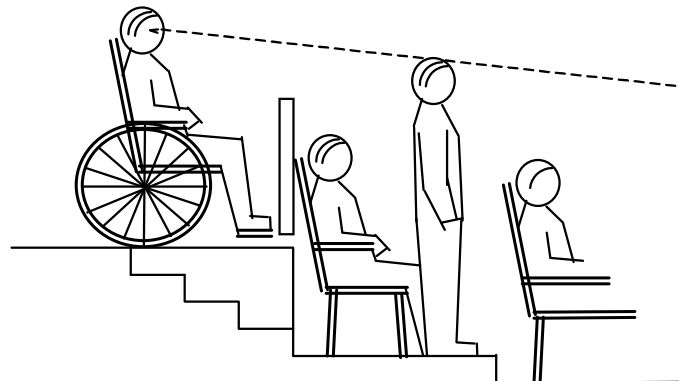
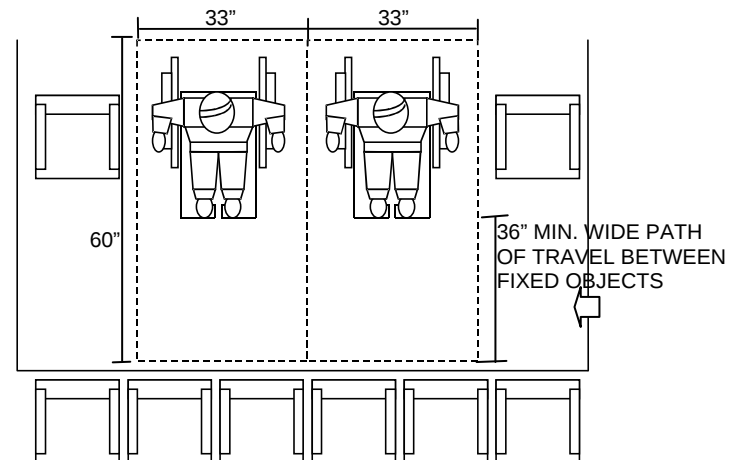
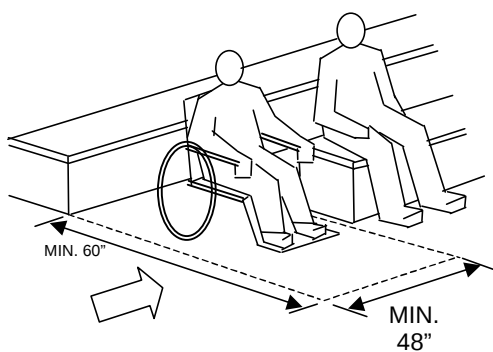
F. SPECTATOR SEATING

Requirement	Whenever feasible, all fields and courts that do not have spectator seating shall have an accessible area on each side of the field that is suitable for viewing the game, located at the center field location or as near as possible without being a safety hazard. Accessible area shall have a maximum 2 percent slope in any direction. All constructed spectator-viewing areas, such as bleachers and tiered concrete structures, shall have integrated accessible seating with companion seating.
Spectator Viewing Areas Without Fixed Seating	Soccer, basketball, volleyball, and non-tournament tennis often have no spectator seating. If possible, an area for accessible seating shall be located at the edge of the safety zone within the preferred viewing area and shall be connected with an accessible path of travel. This requirement may be waived if permanent seating could jeopardize athletic participant safety or create undue constraints for the operation of multiple activities.
Title 24	All seating facilities shall conform to California Title 24 Accessibility Regulations.
Walkways	Textured concrete or pavers used on accessible paths of travel shall provide a smooth surface and be preapproved by the Director of Community Services or designee. Textured concrete or cobblestone may be acceptable as an accent feature outside of the path of travel. Smoother is better.
Access to Seating	An accessible path of travel with adequate space for forward or rear-side access to wheelchair seating must be provided.
Companion Seating	A companion seat shall be provided adjacent to each required accessible seating pad. The accessible space shall be marked with a reduced size blue universal sign painted or stenciled on the concrete pad. Construction plans shall show the 4 foot wide by 5 foot deep area and the blue universal sign painted on the concrete pad. See diagram on the following page.
Comparable Line of Sight	All accessible seating must provide a comparable line of sight to other spectator seating. All accessible seating with companion seating must be located within the center of the playing field. When accessible seating is located behind other spectator seating and the spectators are expected to stand during the activity, the accessible seating must provide a comparable line of sight over standing spectators. A comparable line of sight allows a person using a wheelchair to see the playing surface between the heads and over the shoulders of the persons standing in the rows in front (Public Parks Only).

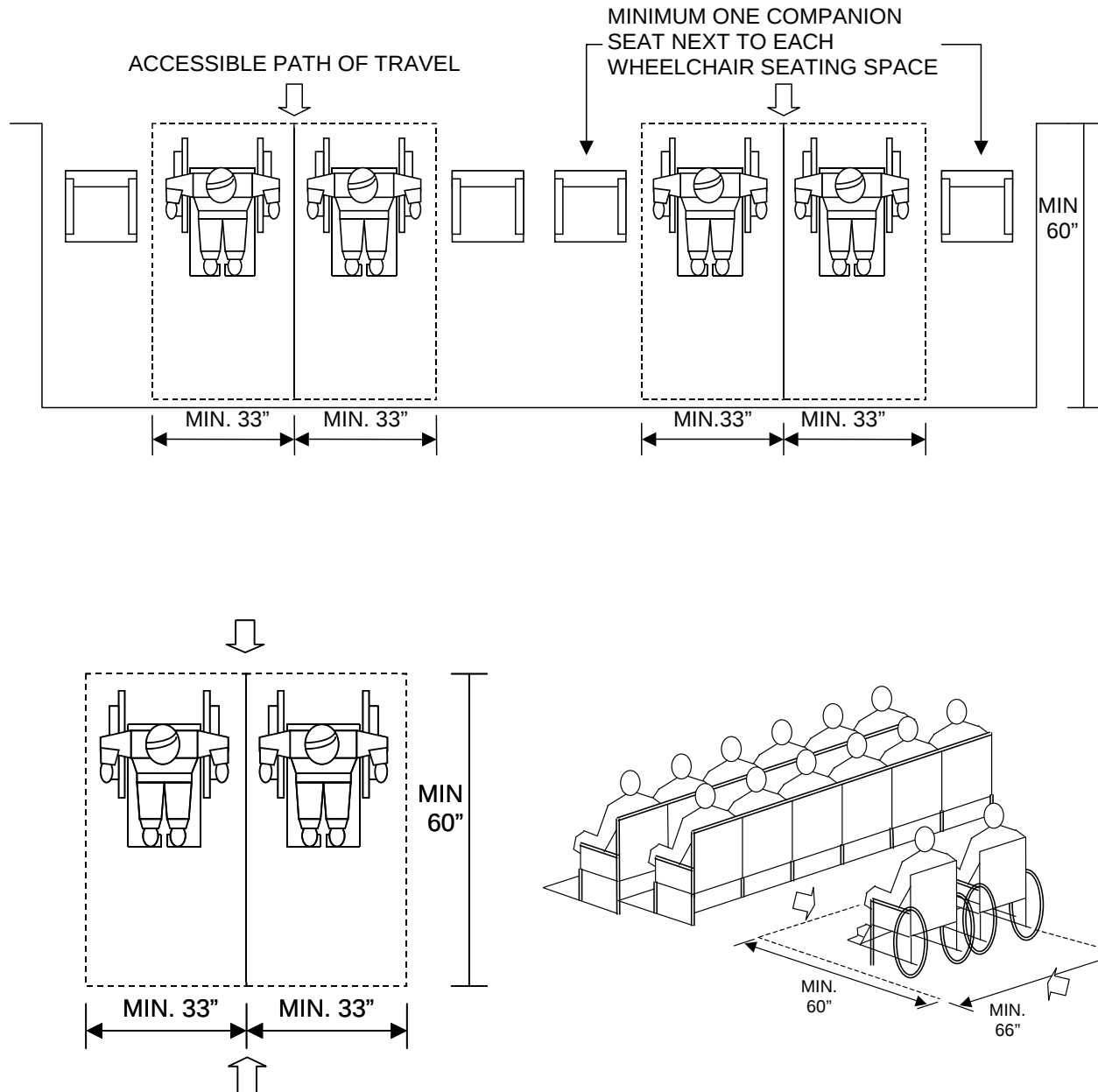
Outside Stairways

The upper approach and all treads shall be marked by a strip of clearly contrasting color at least two inches wide and not more than four inches wide placed parallel to and not more than one inch from the nose of the step or landing to alert the visually impaired. The strip shall be of a material that is at least as slip resistant as the other treads of the stairs. A painted strip shall be acceptable (Section 1133B.4.4 of Title 24).

SPECTATOR AND COMPANION SEATING SIDE ACCESS



SPECTATOR AND COMPANION SEATING (CONTINUED) FORWARD OR REAR ACCESS



AN ACCESSIBLE ROUTE MUST CONNECT ACCESSIBLE SEATING LOCATIONS WITH PERFORMING AREAS, INCLUDING STAGES, ARENA FLOORS, DRESSING ROOMS, LOCKER ROOMS, AND OTHER SPACES USED BY PERFORMERS. EACH ACCESSIBLE LOCATION SHALL ADJOIN AN EGRESS AISLE AT LEAST ON ONE SIDE.

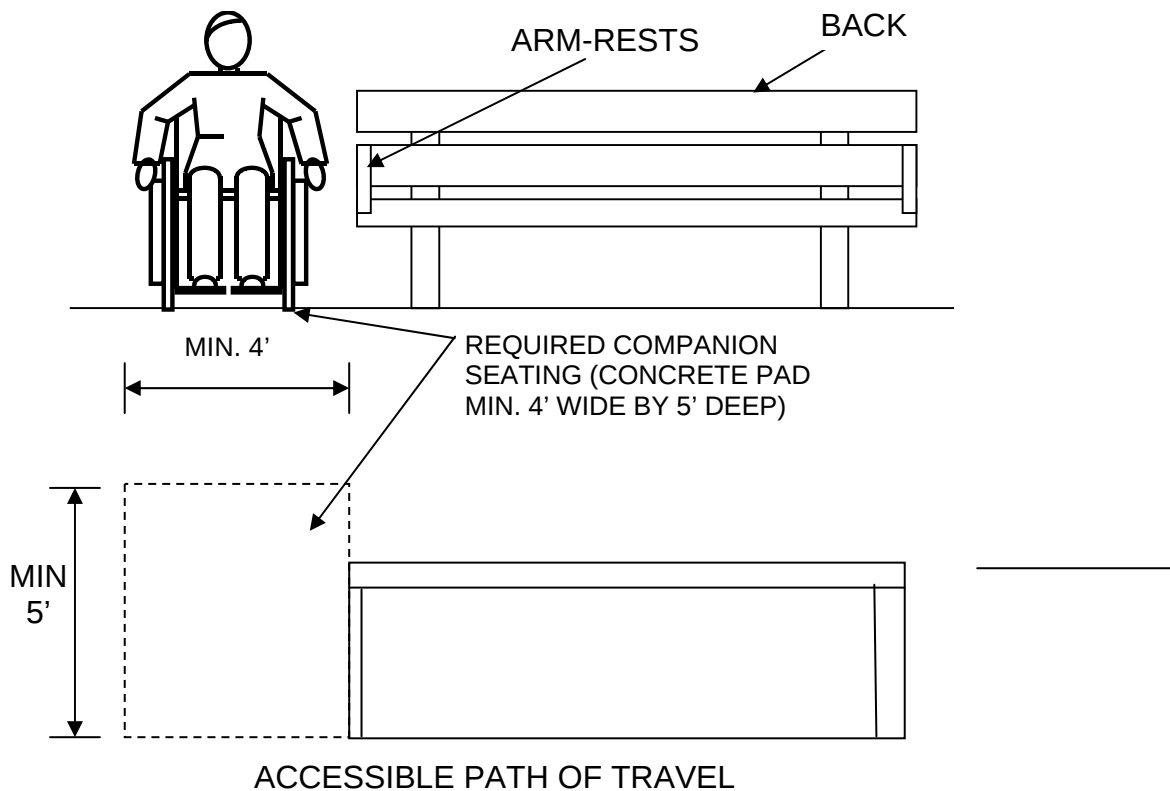
G.TABLES, BENCHES, DRINKING FOUNTAINS, AND BARBECUES

Picnic Tables	In groupings of 4 (four) or more tables, 50 percent of all picnic tables shall be accessible and shall meet accessibility height and clearance requirements. When less than four tables are provided at one location, each table shall be accessible. All picnic table pads shall be concrete or a City-approved accessible material. Non-accessible picnic tables may be placed on decomposed granite. See Section VIII-A-2 for model numbers (Public Parks only).
----------------------	---

ACCESSIBLE TABLE
- EXAMPLE

TABLES, BENCHES, DRINKING FOUNTAINS, AND BARBECUES (CONTINUED)

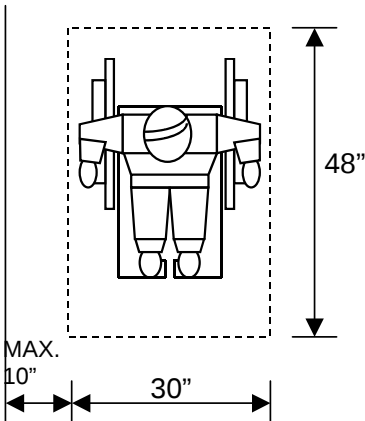
Park Benches	100 percent of all park benches shall be accessible to person with disabilities. All park benches shall have backs and armrests in conformance with ADAAG guidelines. 100 percent of all park benches shall have at least one adjacent 4 foot wide by 5 foot deep concrete pad to accommodate wheelchairs next to the bench and outside of the accessible path of travel. The space shall be marked with a reduced size blue universal sign painted or stenciled on the concrete pad. Construction plans shall show the 4 foot by 5 foot area and the blue universal sign painted on the concrete pad. See Section VIII-A-3 for model numbers (Public Parks only).
Drinking Fountains	All drinking fountains shall be accessible to person with disabilities and placed outside of the path of travel. See Chapter VIII-A-4 of the Park Standards Manual for Model Numbers.
Barbecues	All barbecues shall be accessible to person with disabilities. See Section VIII-A-5 for Model Numbers ("Public Parks Only").



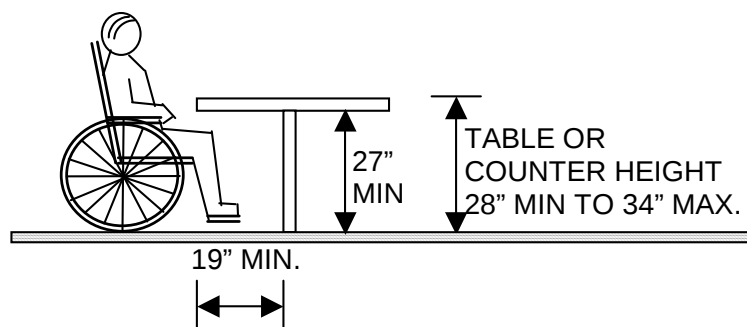
H. CONCESSION AND TICKET AREAS

Concession Areas	All concession areas shall be accessible to persons with disabilities and shall comply with State, Title 24, and ADA requirements.
Reach Ranges	Accessible paths of travel, accessible counter heights and objects within allowable reach ranges for both employees and customers must be provided.
Sales Facilities	Concession and refreshment sales facilities must be accessible on both sides of the counter.
Other Amenities	All other amenities available to the public must also be fully accessible. Example of such amenities include: ▪ Accessible counters tops must provide a 30" x 48" clear floor space. ▪ Roll under and extended tables must be between 28" to 34" from the floor or ground. ▪ Low ticket counter knee clearance is at least 27" high, 30" wide and 19" deep.

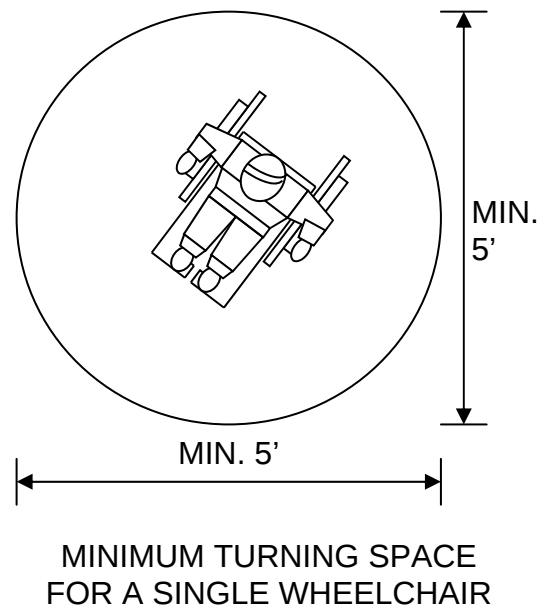
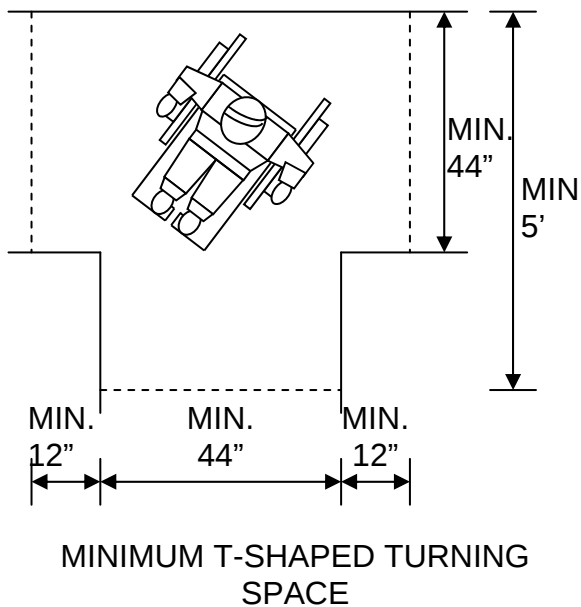
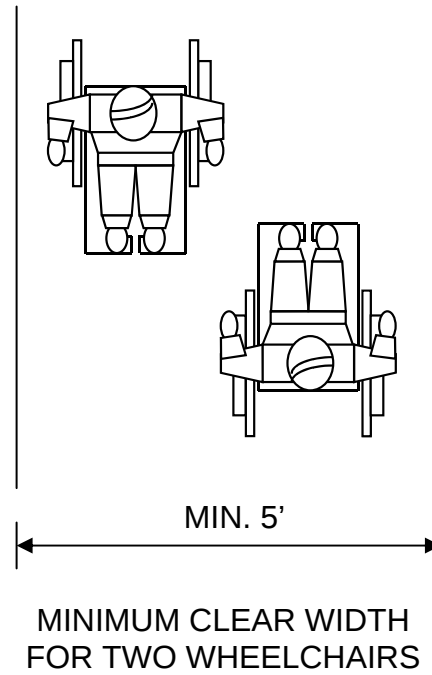
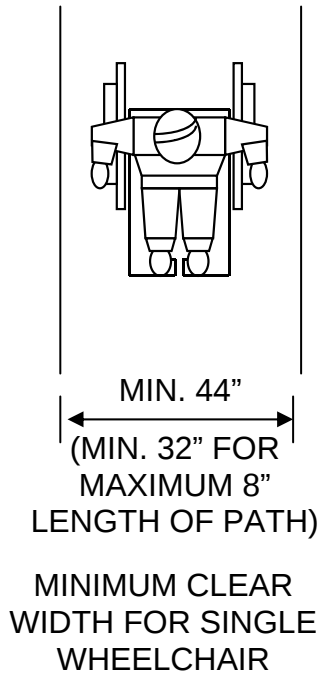
CLEAR FLOOR SPACE



MINIMUM KNEE CLEARANCE



WHEELCHAIR CLEAR PATH AND TURNING SPACE



I. PLAY LOTS

Refer to City of Irvine Park Standard Manual, Section VII.B, Playground Design Standards.

J. PUBLIC POOLS (PUBLIC PARKS ONLY)

Refer to City of Irvine Park Standard Manual, Section VII.C, Pool and Auxiliary Facilities Standards.

General	All public instructional/recreational pools with a shallow end of 3'6" or less shall be accessible. Permanent ramps or zero depth entry are the preferred means of access.
Pool Accessibility	At least one accessible means of water entry/exit (i.e., swimming pool lift, wet ramp, or zero depth entry) shall be provided and located on an accessible route. Public pools with more than 300 linear feet of pool perimeter shall provide a minimum of two accessible means of water entry/exit located on accessible routes, with only one means being a lift. When a second accessible means of water entry/exit is provided, it must be located so that in combination with the first accessible means of water entry/exit it will serve both ends and sides of the public pool.
Pool Ramps	When public pool ramps are provided, they should be equipped with Landings and Handrails that meet the following specifications: ▪ Firm stable and slip resistant ramp surface ▪ Maximum 1:12 ramp slope ▪ 36 inches clear width with double hand rails on each side ▪ Level Landings must be located at the bottom and top of each ramp and ramp run. At least one level landing must be located between 24 and 30 inches below the stationary water level. Landings must be: (a) At least as wide as the ramp run leading to the landing. (b) A minimum length of 60 inches clear. (c) A minimum size of 60 X 60 inches if the ramp changes direction.

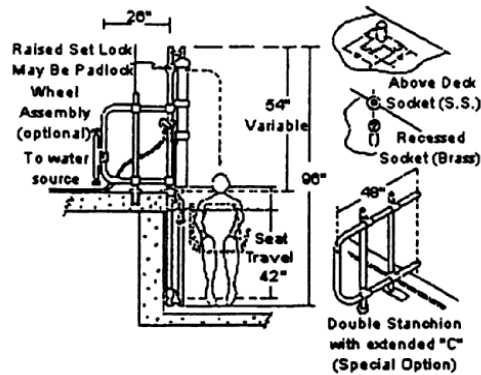
PUBLIC POOLS (CONTINUED)

Pool Ramps (Continued)	▪ Handrails for ramps should include the following: (a) A double handrail located on each side of the ramp with a 36 inch width. (b) The top handrail gripping surface should be mounted at 34 to 38 inches above the ramp surface, and the second handrail should be mounted between 26 and 28 inches high. (c) Handrails may extend beyond the base of the stairs or the base of a ramp. (d) Handrails must be affixed so as not to allow movement in any direction. (e) Handrail diameter shall be 1.25 to 1.5 inches. (f) If handrails are mounted adjacent to the public pool wall, the space between the wall and the handrail shall be 1.5 inches.
Swimming Pool Lifts	The following Guidelines for public pool lifts set forth by the National Center for Accessibility are commonly accepted for the construction and design of new facilities: ▪ Unassisted operation from both the water and deck locations ▪ 17 inches height from the bottom of the lift chair to the pool deck ▪ Minimum lift seat width of 19 inches, rigid in construction with back support ▪ Equipped with an attached foot rest ▪ Equipped with bi-lateral arms that swing away for lift transfers ▪ Maximum operation of 5 pounds of pressure with no tight grasping, twisting, or pinching ▪ Lift seat must submerge 18 to 20 inches below the water level for vertical travel ▪ Post informational sign in a public location that provides instruction for use and location of pool lift ▪ Pool lift must perform a minimum 180 degree rotation ▪ Pool lift must accommodate a maximum body weight of 300 pounds ▪ Preferred model numbers are indicated in park standards manual Section VII-28.
Gates	Fencing should have easy swinging gates with accessible latches, hardware, and switches. The gates shall have loading area minimum 6' wide and 5' long on each side of the gate (see Exhibit on Page VI-9). Hardware specifications are contained in Section VIII-12, Public Facilities Equipment Specifications.

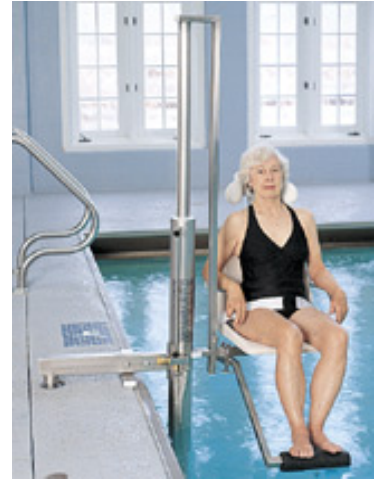
PUBLIC POOL ACCESSORIES



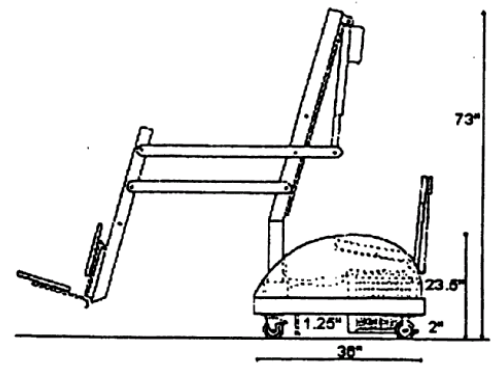
POOL LIFT (Shown from Aquatic Access Inc., Model IGAT-180 In-Ground)



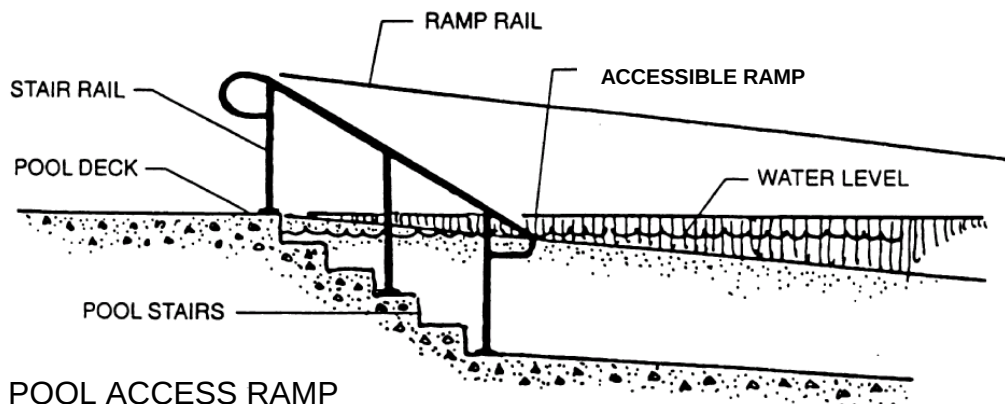
WATER POWERED LIFT
(Shown: Lift from Return to Pool Access Lifts)



POOL LIFT WITH
FLIP-UP LEFT
OUTER ARM,
HEADREST WITH
ADJUSTABLE
HEIGHT AND SEAT
BELT
(Shown: Lift from
Aquatic Access Inc.)



LIFT (Shown: PAL Item #46-725
from Return to Pool Access Lifts)



K. BIBLIOGRAPHY

Title 24 of the California Code of regulations; California Building Code, Chapter 11B

State and Federal Guidelines for Equipment and Accessibility

National Center on Physical Activity and Disability

City of Irvine Zoning Ordinance, 2001

City of Irvine Subdivision Ordinance, 2001

City of Irvine Community Parks Master Plan

City of Irvine Public Facility Standard Manual, November, 2000

City of Irvine Landscape Design Manual, January, 2001

References – Private Document

California Disabled Accessibility Guidebook (CalDAG), 2003

- General Parking Requirements – Van Accessible Parking Space Design – 1129B.4.2
- General Parking Requirements – Single Space Parking Space Design – 1129B.4.1
- International Symbol of Accessibility and Typical Pictograms
- Occupancy Specific Requirements – Miscellaneous Area – 1104B.3.12 and 3.13

City of Irvine
Park Standards Manual

SECTION VII. PARK DESIGN STANDARDS

A. ATHLETIC FIELDS AND COURT STANDARDS

1. STANDARDS APPLICABLE TO ALL BASEBALL AND SOFTBALL FIELDS

- Accessibility:** All fields, dugouts and spectator areas shall provide access for disabled individuals by way of walkways, ramps, or other acceptable means. All amenities shall conform to California Title 24 Accessibility Regulations. Any proposed variations shall be subject to approval by the Chief Building Official.
- Backstops:** Backstop shall be surrounded by a 6 inch high concrete curb or block wall on the outside of the backstop to keep water from draining onto the field. All concrete surrounding the backstop shall slope 1 percent away from the field. For backstop design, see page VII-8.
- Batting Cages:** Batting cages may be required when more than two lighted ballfields are located on one site. Each batting cage shall have a minimum inside dimension of 70 feet by 15 feet (for Regulation and Pony Baseball Use) or 60 feet by 15 feet (for youth baseball or softball use). The floor shall be a 4-inch thick concrete pad with a centered floor drain. The perimeter fencing shall be 12 feet high chain link fence supported by 2 ⁷/₈" galvanized steel posts, maximum 8 feet on center. The chain link shall be 2-inch grid, 6 gauge chain link fabric with knuckled selvage at top and bottom. All chain link shall be covered on the inside with #36 nylon netting, 1 ³/₄ square inch, latex treated, with poly rope border, or approved equals. The chain link shall be fastened with screen rings 18 inches long on center. Each batting cage shall have two 120V outlets, located at the door end of the cage. Each batting cage shall have its own door with lockable latch. The batting cages shall be equipped with sports turf and a homeplate mat. See Section VIII.A for detailed equipment specifications.
- Drinking Fountain:** A handicapped accessible drinking fountain shall be placed behind the backstop directly behind home plate or behind each dugout. See Section VIII.A for detailed equipment specifications.
- Dugouts:** Dugouts shall be located along the first and third baselines, behind the backstop wings. They shall consist of concrete pads at field grade that are sloped away from the field, and surrounded by an 8 foot high 6 gauge chain link with black windscreen fabric on three sides and the top of the dugout. The windscreen fabric on top of the dugout shall be attached at a 9-foot height to the backstop wing, and at the top of the 8-foot high dugout fence, forming a "roof." The windscreen fabric on back and sides of dugout shall be attached from 18" from ground to 8' in height. The dugouts shall be 30 feet long, 10 feet wide, and equipped with a 25 foot long aluminum bench, a bat rack (on the homeplate side of the dugout), latching gates to the infield swinging into the dugout and gates at each end of the dugout which swing into the dugout (see diagram on page VII-9). See Section VIII.A for detailed equipment specifications.
- Electrical Outlets:** 30 amp electrical outlets shall be placed behind the backstop at home plate (1) and behind both dugouts.
- Field Drainage:** The fields will typically be crowned in the center with drainage to the sides. However, if the specific site or field overlay makes this drainage pattern unacceptable, other drainage patterns shown on page VII-9 may be considered. Control boxes and drainage grates shall not be located on playing fields and shall be vandal resistant. All drain pipes coming from drains with exposed grates, will be a minimum of 6-inch diameter. Any turns in the pipe greater than a 45 degree angle will be made with sweep ell's. All turf infields and all infields in Community Parks shall have approved subsurface drains designed to remove the water from the site (such as to storm drains).

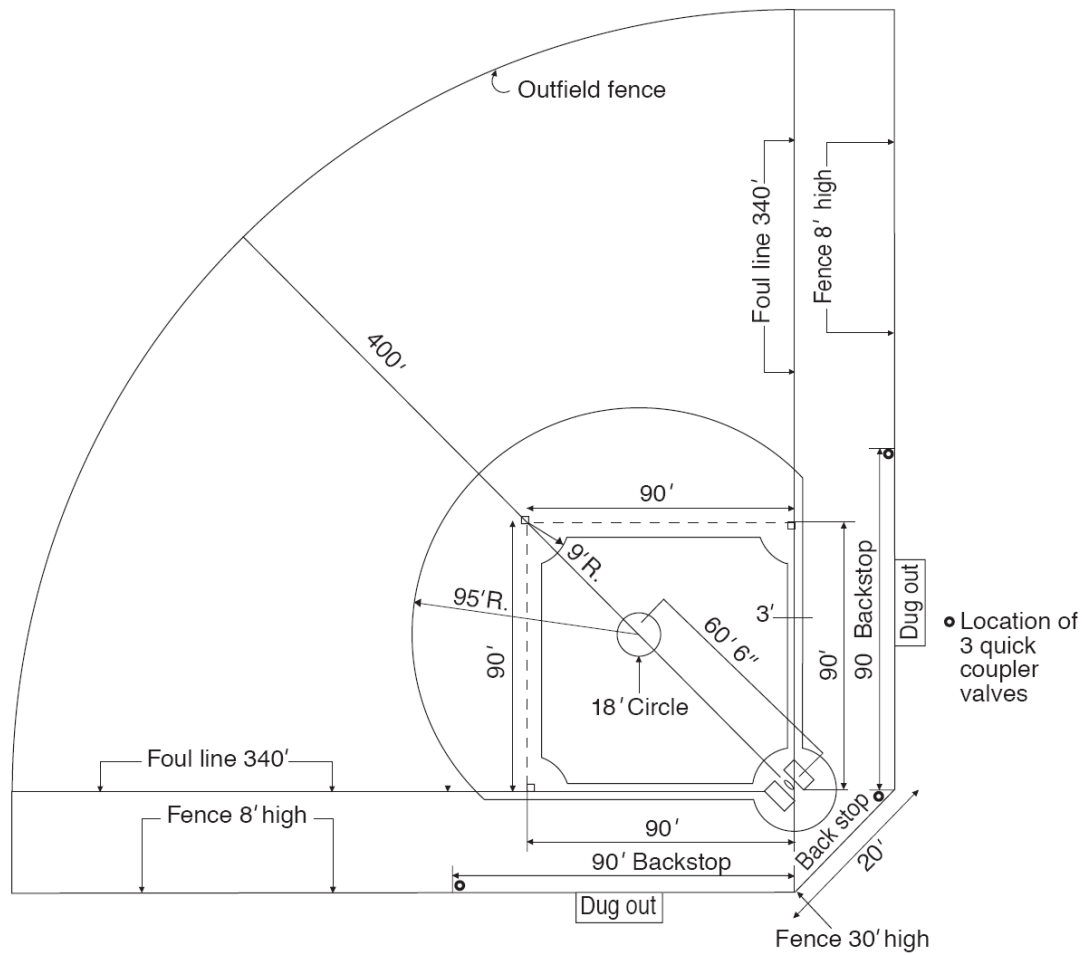
Drainage Systems:	All drainage systems must meet current NPDES requirements.
Field Gradient:	Field gradients shall vary from site to site. Field gradients will range from 1.00 to 1.25 percent for skinned and turf infields and from 1.25 to 1.50 percent for outfield turf.
Field Orientation:	The preferred field orientation places the back of the home plate facing due north to northeast, and the first baseline running west. However, optimum utilization of the site may require variations from this preferred orientation.
Infield Surfaces:	1. Gradation – A minimum of 95% of particles shall pass the 2.0 mm sieve. Minimum combined silt and clay content shall be 25% with the maximum not to exceed 30%. All remaining particles will fall under the classification of sand. The USDA soil classification shall be sandy loam to sandy clay loam. 2. The color of the material shall be gold to reddish gold. 3. Stabilizer shall be blended at a minimum rate of 0.3% by weight with the maximum rate not to exceed 0.4% by weight. All blending will be done with a pug mill that includes a weigh belt feeder in order to insure the proper ration and the uniform blending of the Stabilizer. 4. The infield mix shall be six inches deep. 5. The finished grade shall be laser graded by a company specializing in laser grading of sports fields.
Infield Equipment:	Home plates, bases, base ground anchors, and pitching rubbers shall be provided at the time of construction, but shall be installed by the City of Irvine. For ballfields with turf infields, a pitchers mound cover and a home plate cover shall be provided. See Section VIII.A for detailed equipment specifications.
Infield Watering:	All infields shall have a manual irrigation watering system that is capable of watering all infield brick dust areas. Sufficient number of valves shall be provided depending on the available pressure and the size of the main line at the site. Sprinklers shall be installed along the perimeter of the infield area, 3/4 inch to 1 inch above the brick dust surface. The sprinkler heads shall be Rain Bird 6504 high speed stainless steel. Valves and valve boxes shall be installed at the end of the dugout fence, on the spectator side of the fence out of the path of travel and not blocking any views. Valves shall be Rain Bird GB series valves with the solenoid not wired. Valves shall be installed in rectangular valve boxes at least 14 inches by 20 inches, manufactured by Ametek, Carson, or an approved equal, and installed per City Landscape Standards. Reclaimed water shall be used for all infield watering. Further requirements for irrigation are provided in the City Landscape Manual, at www.cityofirvine.org/depts/pw/deveng/standards_manuals/landscape_manual.asp .
Lighting:	The goal is that all fields at community parks are lighted for night-time use; however, each community park site shall be evaluated for appropriateness for lighting. Lighting will be included at neighborhood park sites with athletic fields whenever possible and appropriate. When lights are provided for athletic fields, lighting levels shall be per City Lighting Standards in effect at the time of City acceptance of the facility. Light poles shall be located behind the backstop, wings parallel to first and third baselines, and outside the area of play. The number of poles and lamps required shall be determined by the field configuration and the photometric measurements. Lighting level requirements vary with each type of field, as indicated on pages i5 – 34 of this Section. Security lights shall be located halfway down the poles, not to exceed 30 feet in height, and illuminate the dugouts when field lights are off from dusk to dawn. Poles within the fenced playing areas shall be padded. A minimum 10 foot wide clear path of travel is required to access each light pole with a truck. This path can be turf and does not need to be paved, but may not have any obstructions, such as major changes in grade, berms, walls, lighting standards, valve boxes, or fences, that would obstruct

occasional truck access.

- Outfield Fencing:** Permanent outfield fencing shall be required where there is no field overlay. All permanent fencing shall be a minimum 8 feet high and constructed of 6-gauge chain link. The fences shall have top, center, and bottom rails. For permanent fencing there shall be concrete mow strips and the fence will be covered with windscreen fabric. See Section VIII.A for detailed equipment specifications.
- Pole Pads:** All poles within or in the vicinity of the playing area that are not protected by a fence shall have six 6 feet high pole pads. See Section VIII.A for detailed equipment specifications.
- Quick Couplers:** Three (3) quick water coupler valves shall be placed as follows: two along the field lines near the fence at the dugouts, and one in the grass area immediately behind the second base.
- Scoreboard:** This is an optional item for ball diamonds. However, all ball diamonds shall have conduit installed from the electrical panel to one outfield light pole for future electrical connection of scoreboards.
- Spectator Area:** A concrete-paved spectator area is required at all community park sites and at all regulation baseball fields. Although the spectator area is desirable in neighborhood parks, each site shall be evaluated for appropriateness, technical feasibility and financial impact. Spectator areas shall consist of either: (a) five (5) rows of aluminum bleachers seating 70 for each side of the field, placed on a concrete pad (see diagram on page VII-8); or (b) a tiered concrete structure. Companion seating for wheelchair users shall be provided within or immediately adjacent to each bleacher. All concrete shall drain away from the playing field. See Section VIII.A for detailed equipment specifications.
- Sports Park Garage:** Community park sites with multiple active sports fields shall include a garage for storage of field carts and field landscape supplies. Garages shall be a minimum of 15' by 20' and shall include a hose bib adjacent to the garage. Garage shall have a roll-up door and the floor shall have a ramp or be flush with the sidewalk so that the carts have full access.
- Turf:** Turf type shall be a Bermuda variety determined by Public Works, Landscape Maintenance Superintendent and installed by stolonizing, sodding, or an acceptable alternative, determined by Public Works, Landscaping Maintenance Superintendent.

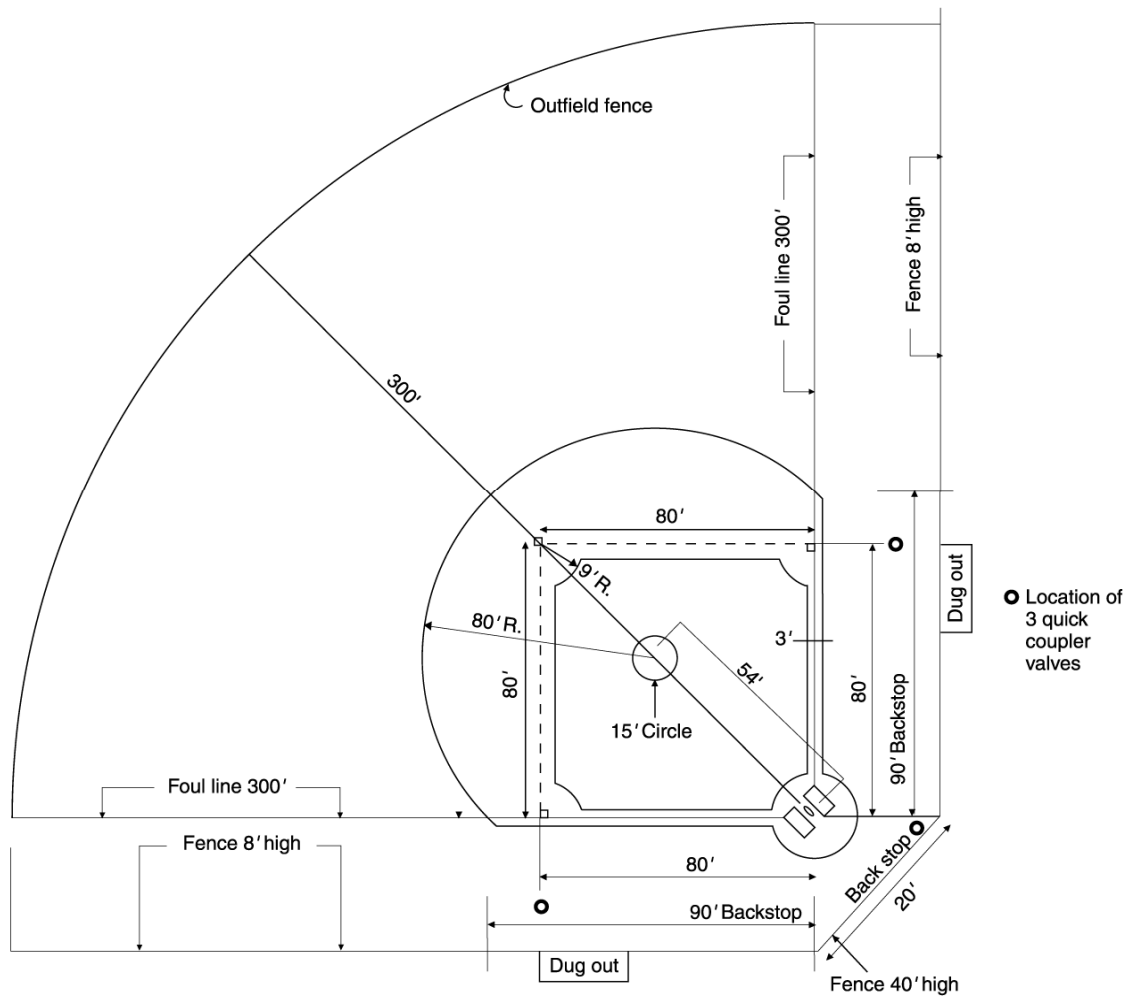
2. REGULATION BASEBALL FIELD

Base Length:	90 feet
Mound Size:	18 feet diameter, 10 inches high, to be constructed by the City after facility acceptance
Infield Radius:	95 feet from center of the mound
Infield Surface:	Turf
Pitching Rubber:	60 feet 6 inches distance from back point of home plate to front of rubber
Foul Line to Home Plate:	Minimum: 320 feet; Ideal : 320 feet-340 feet
Centerfield to Home Plate:	Minimum: 380 feet; Ideal: 380 feet-400 feet
Backstop to Home Plate:	40 feet
Minimum Setback:	125 feet from home plate and 100 feet from base to the street , parking areas, or other park amenities and/or structures.
Distance Around the Field:	A flat area minimum 25 feet wide and clear of any obstructions shall be provided around the outfield limit, except if there is a permanent outfield fence.
Field Drainage:	A sub-grade infield drainage system that meets current NPDES regulations, shall be installed for all regulation fields.
Scorekeeper's Area:	An elevated concrete scorekeeper's area shall be provided behind the backstop, directly behind home plate, and shall include a 20 amp electrical outlet.
Spectator Area:	Required.
Backstop:	Permanent winged-style backstop required. See page VII-9 for backstop design.
Bull Pens:	For lighted fields, if space allows, a 75 feet by 10 feet fenced area with access from the dugouts shall provided. The fence shall be 8 feet high.
Warm Up Area:	For lighted fields only, if possible, a flat and unobstructed space will be provided near the field for two teams to warm up. This area should not be provided if there is an impact on other park activities or facilities or, for existing facilities, if it requires elimination of more than 10 trees.
Lighting:	Minimum maintained lighting levels shall be 40 to 50 footcandles infield and 20 to 30 footcandles outfield. Regulation Baseball fields at Community Parks shall be lighted. See Section VII.D Lighting Standards for Public Facilities.



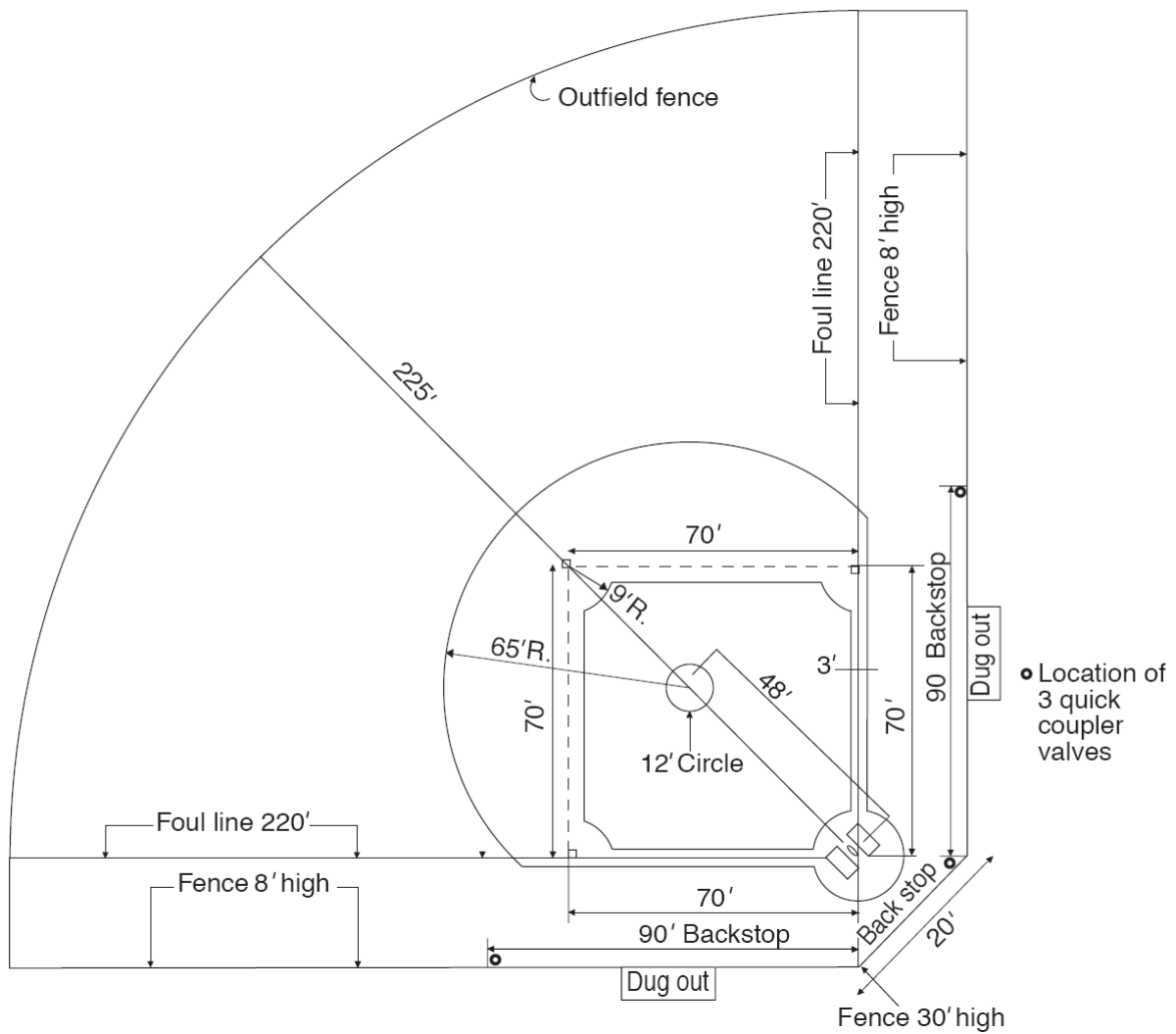
3. YOUTH BASEBALL FIELD (80')

Base Length:	80 feet
Mound Size:	15 feet diameter, 8 inches high (mound constructed by City after facility acceptance)
Infield Radius:	80 feet from center of the mound
Infield Surface:	Turf
Pitching Rubber:	54 feet distance from back point of home plate to front of rubber
Foul Line to Home Plate:	Minimum: 285 feet; Ideal: 300 feet
Centerfield to Home plate:	300 feet
Backstop to Home Plate:	30 feet
Minimum Setback:	100 feet from home plate and 75 feet from base path to street, parking areas or other park amenities and/or structures.
Distance Around the Field:	A flat area minimum 25 feet wide and clear of any obstructions shall be provided around the outfield limit, except if there is a permanent outfield fence.
Spectator Area:	Required
Backstop:	Permanent winged-style backstop required. See page VII-9 for backstop design.
Bull Pens:	For lighted fields, if space allows, a 75 feet by 10 feet fenced area with access from the dugouts shall be provided. The fence shall be 8 feet high.
Warm Up Area:	For lighted fields, if possible, a flat and unobstructed space will be provided near the field for two teams to warm up. This area should not be provided if there is an impact on other park activities or facilities or, for existing facilities, if it requires elimination of more than 10 trees.
Lighting:	Minimum maintained lighting levels shall be 20 to 30 footcandles infield, 15 to 20 footcandles outfield. See Section VII.D Lighting Standards for Public Facilities.



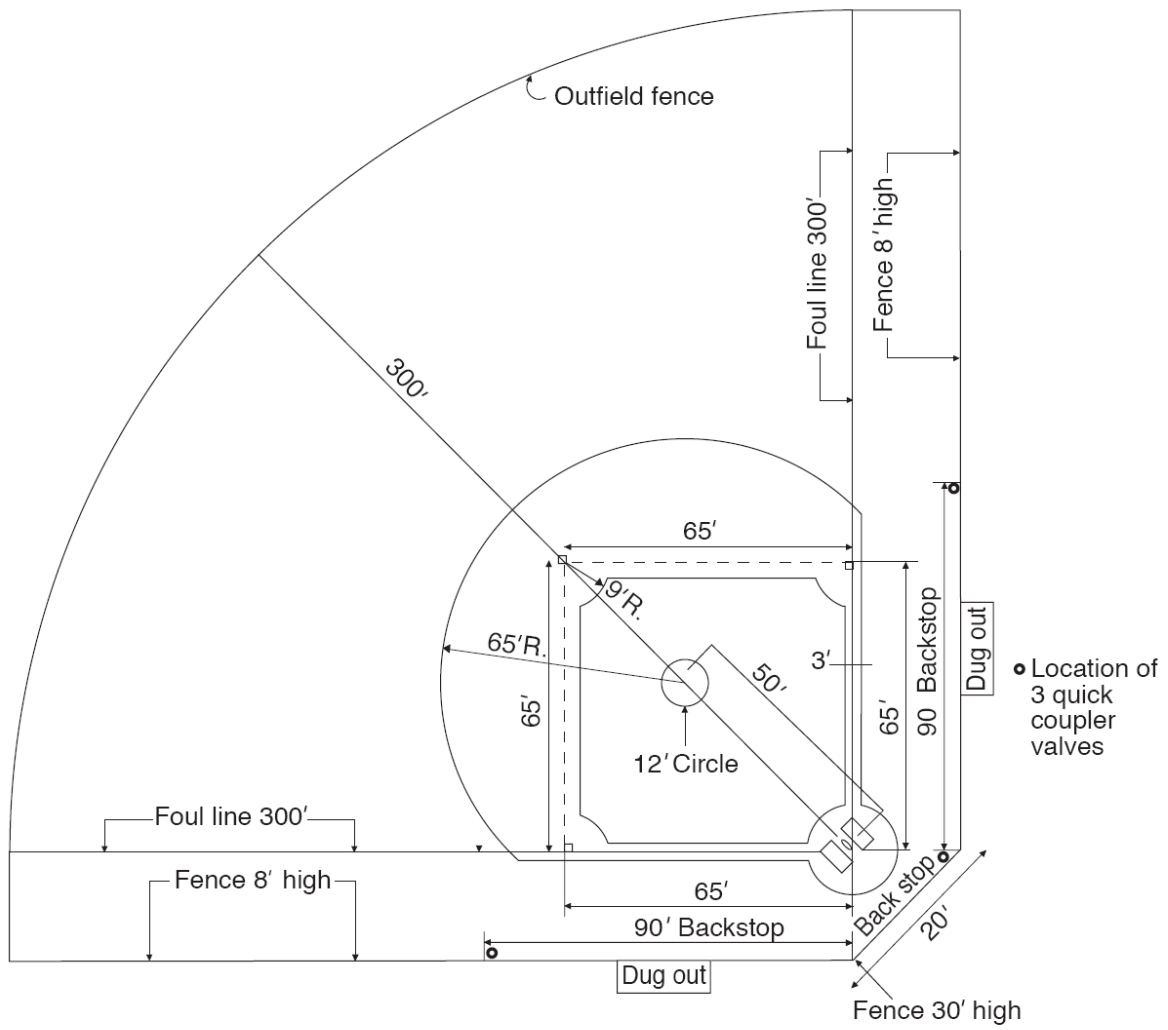
4. YOUTH BASEBALL FIELD (60' AND 70')

Base Length:	60 feet or 70 feet
Mound Distance/Type:	Baseball: 44 feet (12 feet diameter, 4 inches high) 48 feet (12 feet diameter, 6 inches high) Mound to be constructed by City after facility acceptance
Infield Radius:	65 feet from center of mound
Infield Surface:	Turf
Pitching Rubber	44 feet, 46 feet, or 48 feet from back point of home plate to front of rubber
Foul Line to Home Plate:	220 feet
Center Field to Home Plate:	225 feet minimum
Backstop to Home Plate:	25 feet
Minimum Setback:	75 feet from home plate and 75 feet from base path to street, parking areas or park amenities/structures.
Distance Around the Field:	A flat area minimum 25 feet wide and clear of any obstructions shall be provided around the outfield limit, except if there is a permanent outfield fence.
Backstop:	Permanent winged-style backstop required. See page VII-9 for backstop design.
Warm Up Area:	For lighted fields, if possible, a flat and unobstructed space will be provided near the field for two teams to warm up. This area should not be provided if there is an impact on other park activities or facilities or, for existing facilities, if it requires elimination of more than 10 trees.
Lighting:	Minimum maintained lighting levels shall be 20 to 30 footcandles infield, 15 to 20 footcandles outfield. See Section VII.D Lighting Standards for Public Facilities.



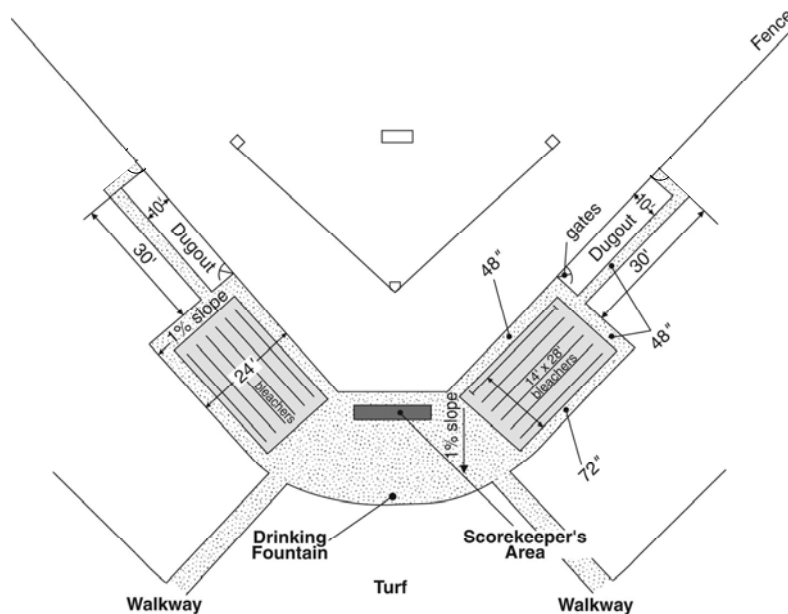
5. SOFTBALL FIELD

Base Length:	60 feet, 65 feet
Infield Radius:	65 feet from center of pitching rubber
Infield Surface:	Brick dust
Pitching Rubber:	50 feet from back point of home plate to front of rubber to be installed by the City
Foul Line to Home Plate:	300 feet minimum
Backstop to Home Plate:	25 feet
Minimum Setback:	75 feet from home plate and 75 feet from base path to street, parking areas, or other park amenities and/or structures
Distance Around the Field:	A flat area minimum 25 feet wide and clear of any obstructions shall be provided around the outfield limit, except if there is a permanent outfield fence.
Backstop:	Permanent winged-style backstop required. In situations where space is limited between fields, a clam-shaped backstop may be used. See page VII-8 for backstop design.
Warm Up Area:	For lighted fields, if possible, a flat and unobstructed space will be provided near the field for two teams to warm up. This area should not be provided if there is an impact on other park activities or facilities or, for existing facilities, if it requires elimination of more than 10 trees.
Lighting:	Minimum maintained lighting levels shall be 20 to 30 footcandles infield, 15 to 20 footcandles outfield. See Section VII.D Lighting Standards for Public Facilities.

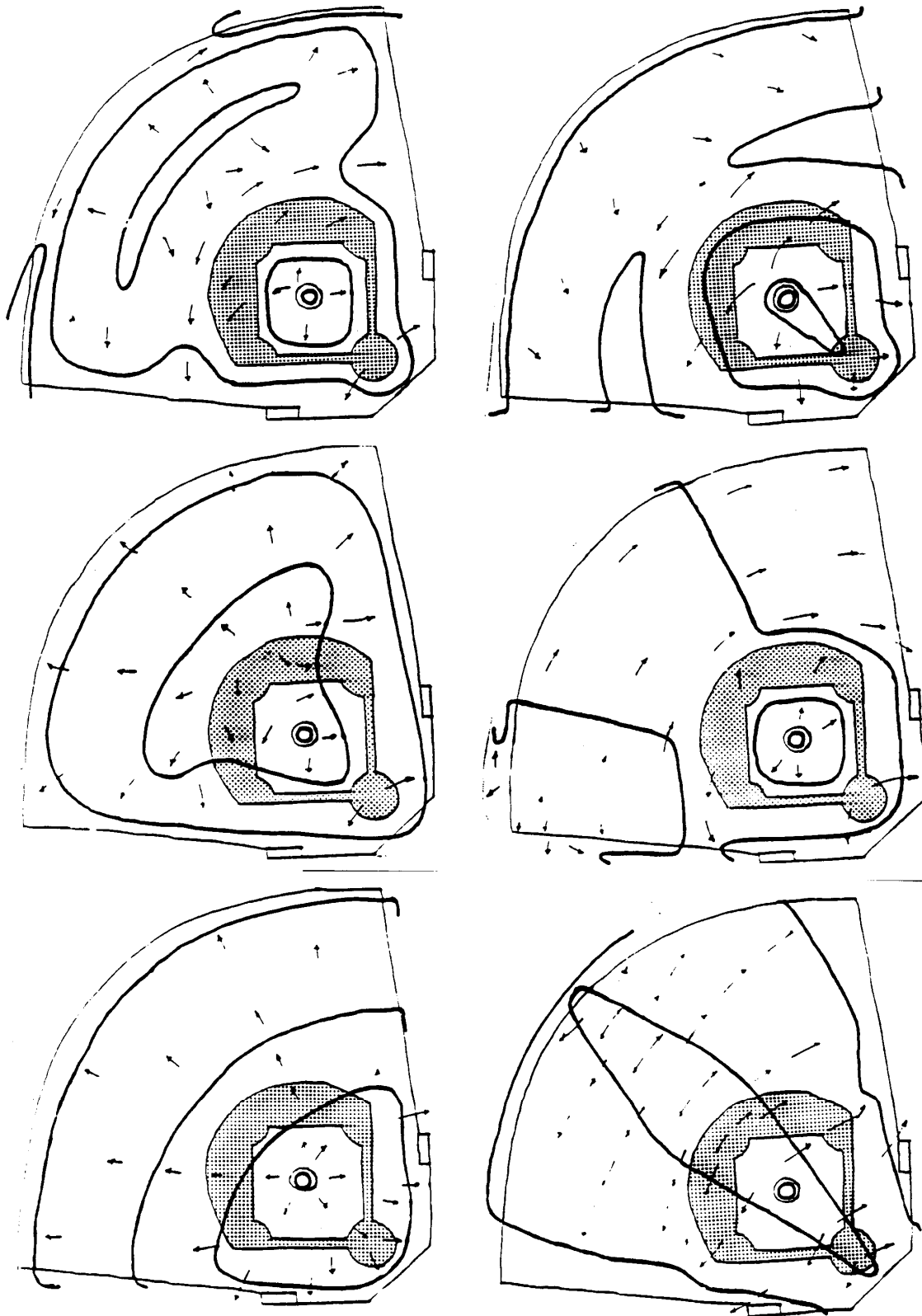


6. BACKSTOP AND SPECTATOR AREA

Accessibility:	An unobstructed area minimum 4 feet wide in front of and on each side of the bleachers, and minimum 6 feet wide at the rear of the bleachers shall be provided for accessibility. Concrete walkways shall be provided for access to the area. The diagram below shows some possible walkway locations.
Backstops:	Backstops and wings shall be 30 feet in height and constructed with 6 gauge chain link. The back of backstop shall be centered behind the home plate and shall be 30 feet in length on 60' and 70' fields and 40 feet in length on 80' and 90' fields. Wings shall extend 90 feet parallel to each foul line, including front of the dugout. Wings for 80' and 90' fields shall have an additional 30-foot extension at a height of 15 feet.
Concrete Pad:	The area behind the backstop and wings, from first base to third base, shall be poured concrete as shown in the diagram below. The minimum width of the concrete pad shall be 24 feet, including the bleachers and the access area.
Drinking Fountain:	A drinking fountain shall be located at each field, on the concrete area behind the home plate or behind each dugout, providing a 15 foot radius to allow space for pedestrian traffic.
Seating:	Spectator seating, when provided, shall consist of tiered concrete structures or portable bleachers containing five (5) rows of seating placed in an area approximately 28 feet with 14 feet. See Section VIII.A for detailed equipment specifications. Bleachers are required on each side of the spectator area. All seating facilities shall conform to California Title 24 Accessibility Regulations.



7. SOFTBALL / BASEBALL DIAMOND DRAINAGE PATTERNS

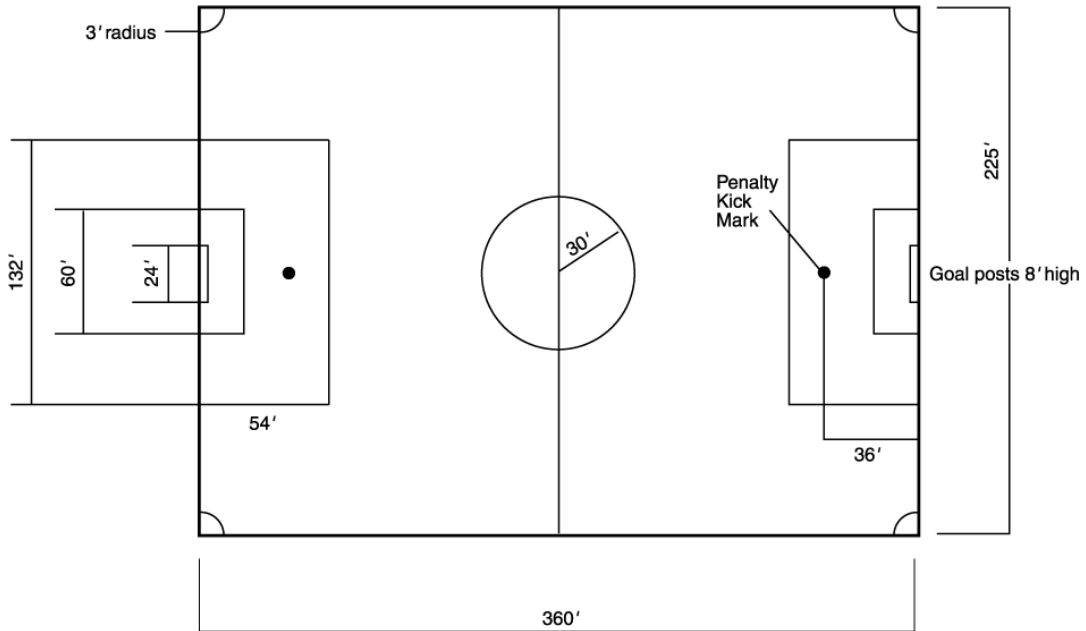


8. SOCCER, FOOTBALL, LACROSSE AND RUGBY FIELDS

Field Orientation:	Typically, the long axis of the fields should extend north/south, at right angles to the late afternoon sun's rays.
Field Placement:	Multiple fields being placed adjacent to one another shall be placed side-by-side. Fields may be "off-set" to facilitate field layout, but may not be end-to-end. The minimum separation between fields shall be 10 feet. Where field orientation places soccer goals adjacent to street or other park amenities, a physical barrier (such as a berm, fencing, or landscaping) shall be designed to assist with safety concerns.
Field Obstructions:	An area, minimum 10 feet wide, will be provided around the field where possible, with no trees, berms, planters, drains, or sidewalks within 10 feet of the sidelines. A minimum of 10 feet from each corner of the field will be level grass with no obstructions.
Turf:	Turf shall be a Bermuda variety determined by Public Works, Landscape Maintenance Superintendent and installed by stolonizing, sodding, or an acceptable alternative. For additional requirements, refer to the City Landscape Manual.
Field Gradient:	The acceptable gradient range for soccer fields is 1.5 to 1.75 percent.
Field Drainage:	Fields should typically use a corner pitch drainage pattern; however, field overlays and site situations may require the use of other patterns (See Soccer/Rugby Field Drainage Patterns, page VII-12). Permanent, dedicated, full time fields will have approved subsurface drains under the penalty and the goalie areas that will remove the water from the field, that meets current NPDES Regulations.
Infield Watering:	All infield watering shall be with reclaimed water. Further requirements for irrigation are provided in the City Landscape Manual, at www.cityofirvine.org/depts/pw/deveng/standards_manuals/landscape_manual.asp .
Perimeter Fencing:	May be required by Community Services Department to mitigate safety concerns. If required, fencing shall be 8 feet high and constructed of wrought iron or black plastic coated chain link. The fence shall be located minimum 10' from the outside limit of the field.
Warm Up Area:	If possible, space will be provided for two teams to warm up. It should be flat and unobstructed. This area should not be provided if there is an impact on other park activities or facilities.
Lighting:	The average minimum maintained lighting level shall be 20 to 30 foot-candles over the entire field area. The number of poles and lamps required shall be determined by field configuration and photometric measurements. See Section VII.D Lighting Standards for Public Facilities. Electrical outlets shall be installed on at least one light pole per field.

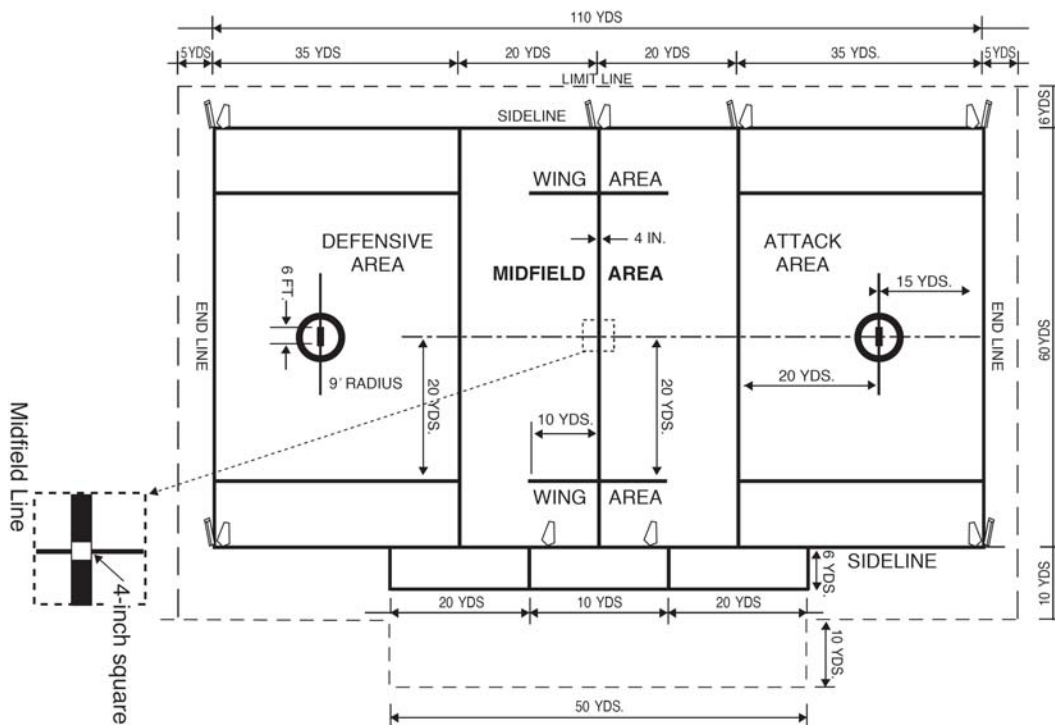
Soccer Field

Field Dimensions: Minimum: 180' x 300' Ideal: 225' x 360'



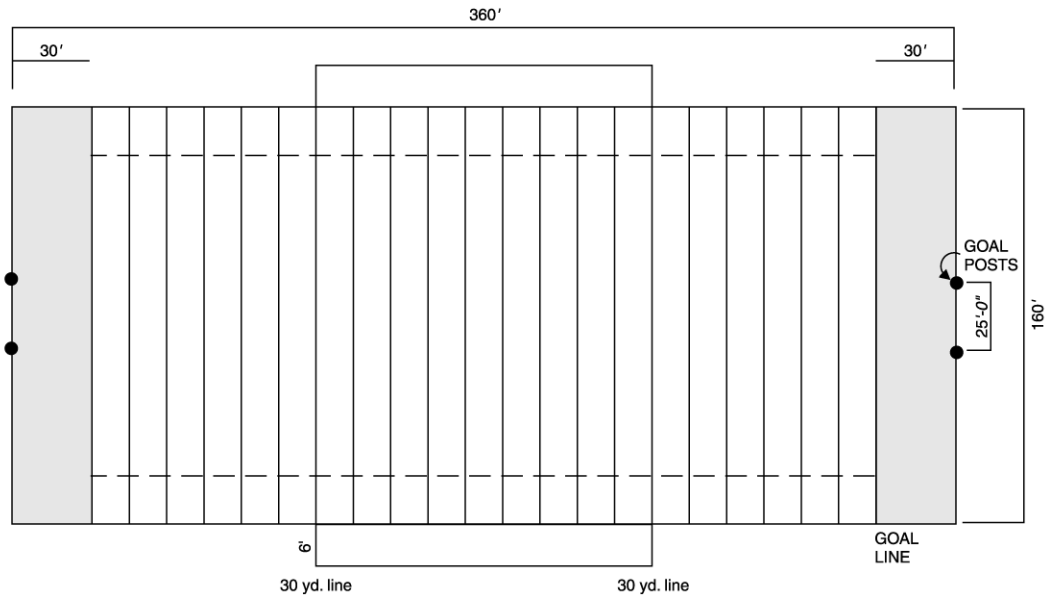
Lacrosse Field

Field Dimensions: Minimum: 110 yards x 60 yards; Ideal: 225' x 360'



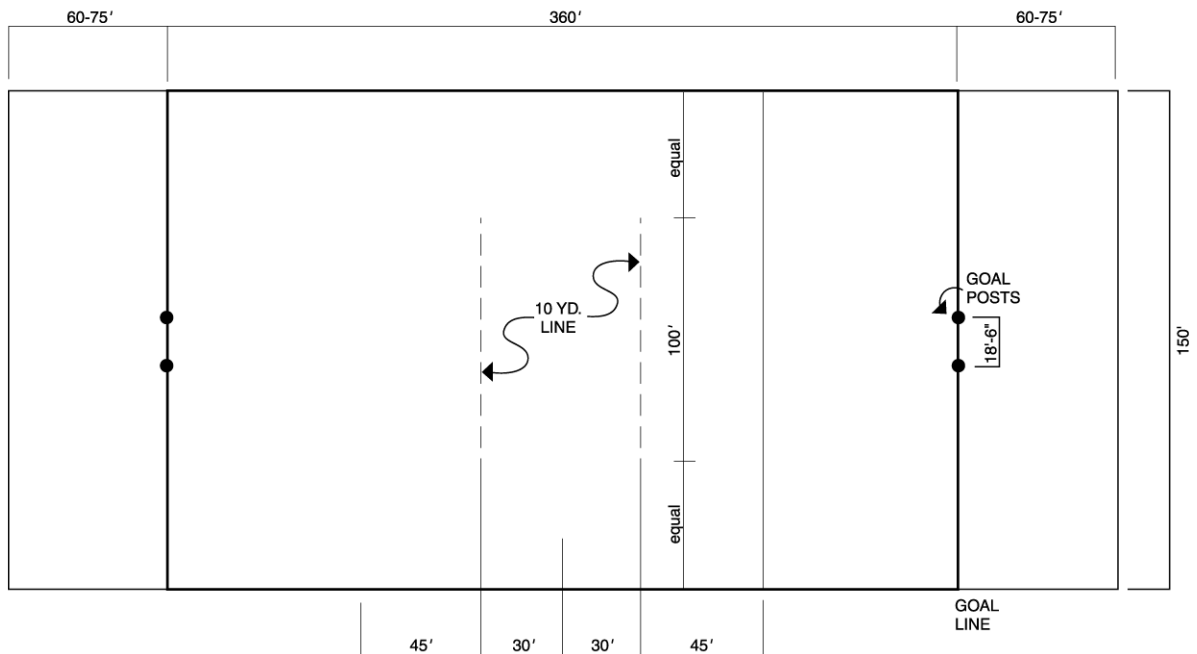
Football Field

Field Dimensions: 160 feet x 360 feet

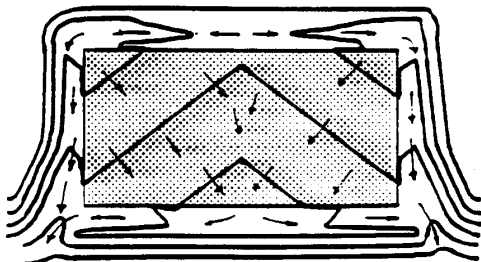
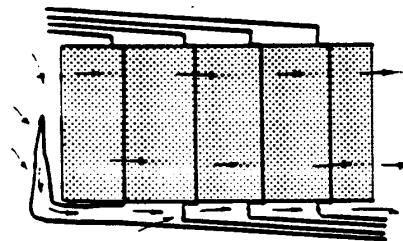
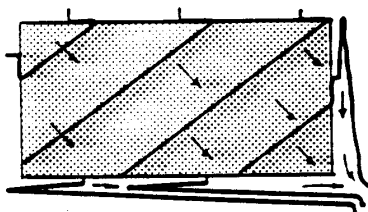
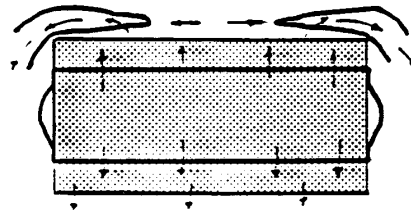
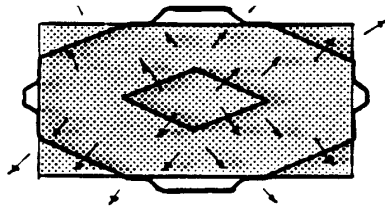
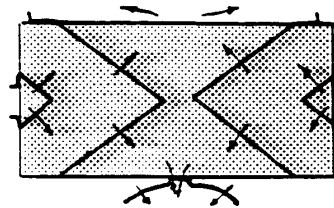
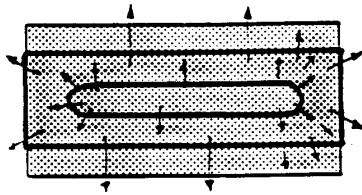
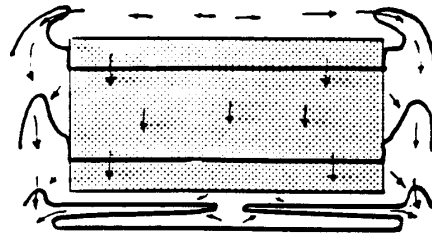
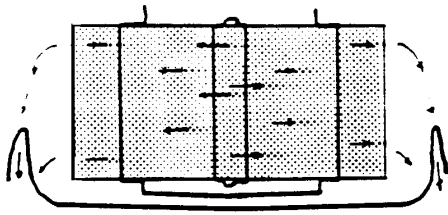


Rugby Field

Field Dimensions: 150 feet x 360 feet

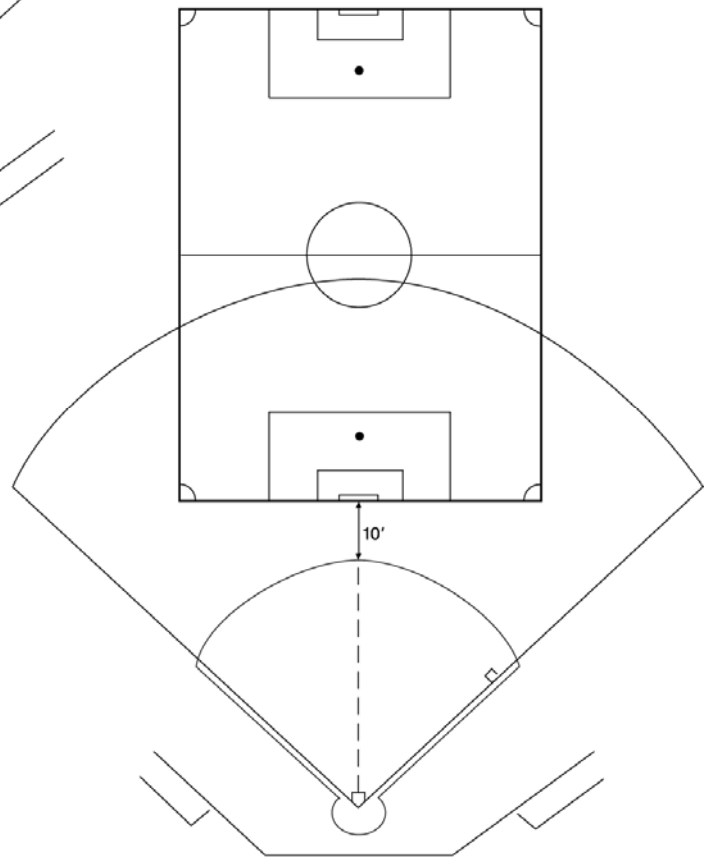
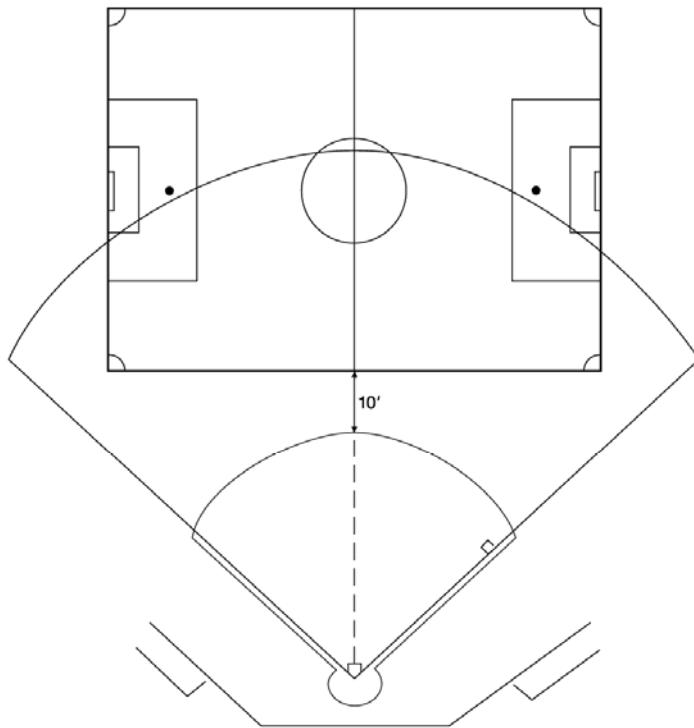


9. SOCCER/RUGBY FIELD DRAINAGE PATTERNS



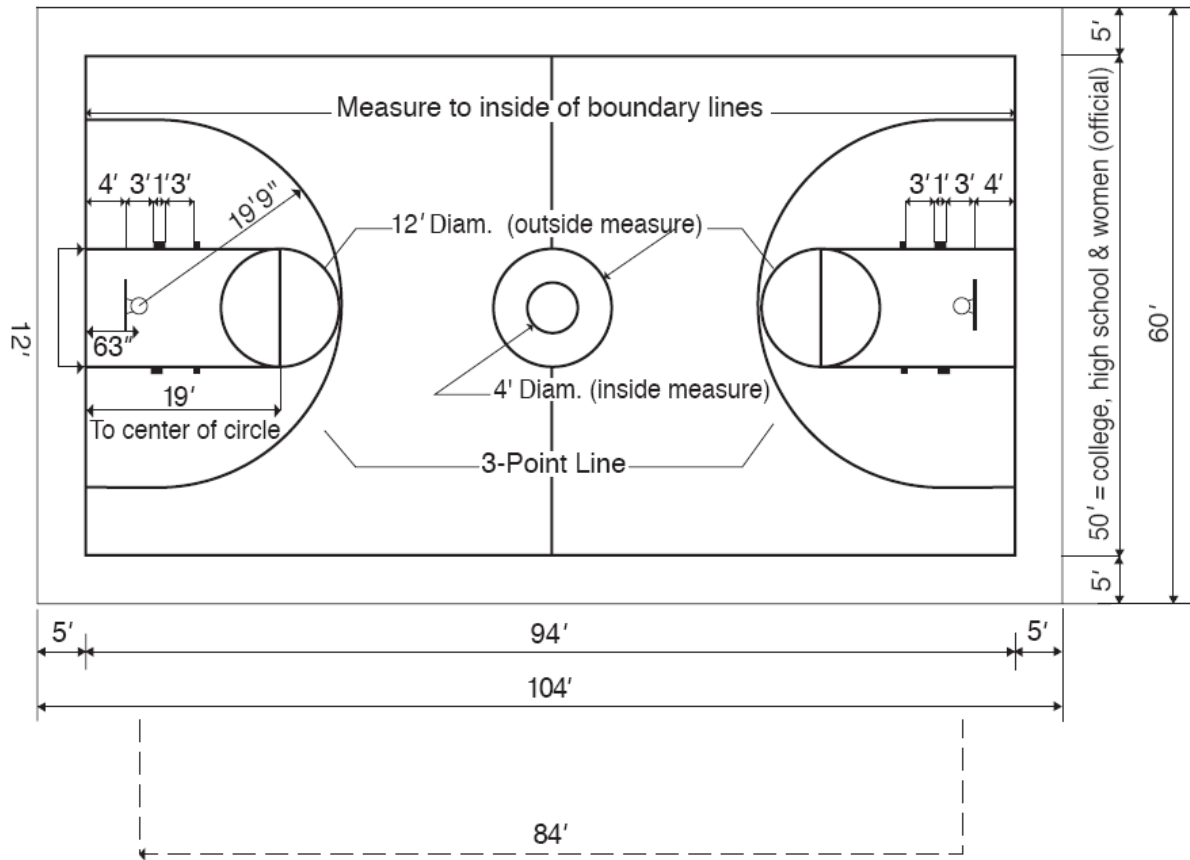
10. FIELD OVERLAY

Field overlay situations shall often occur in order to optimize the recreational opportunities. In case of an overlay, fields shall be placed in one of the arrangements shown below or in an acceptable alternative arrangement. In any field overlay, the edge of the soccer field shall be a minimum 10 feet from the edge of the brickdust on the baseball/softball field.

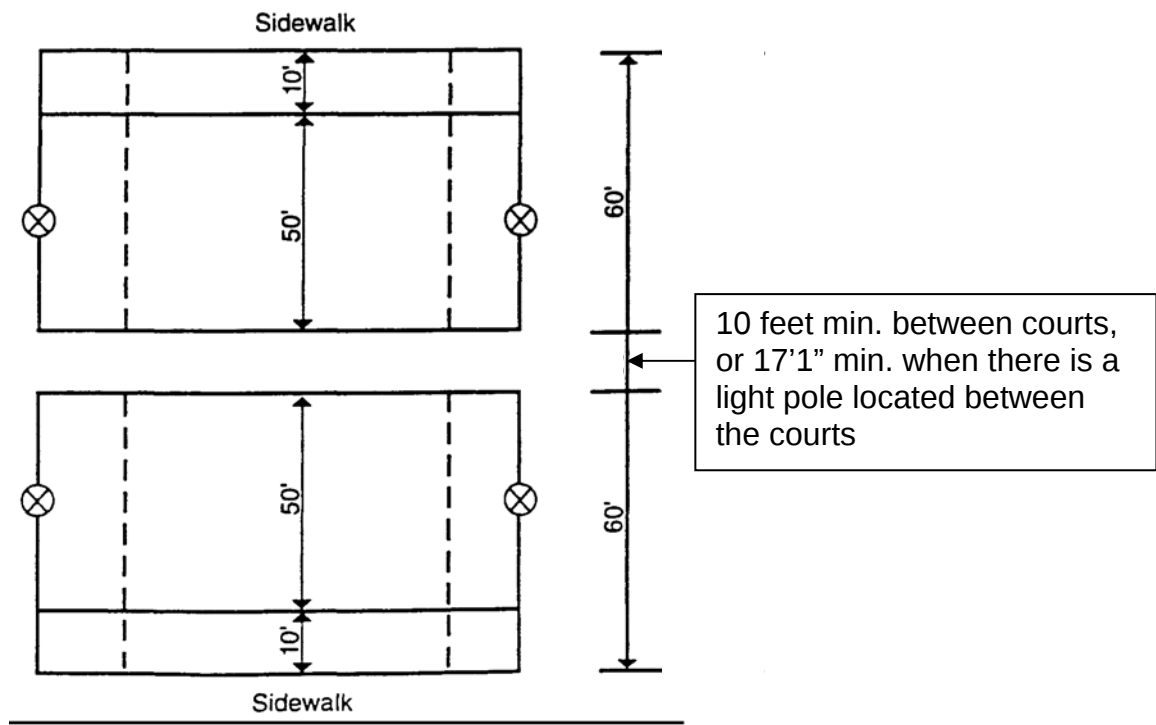
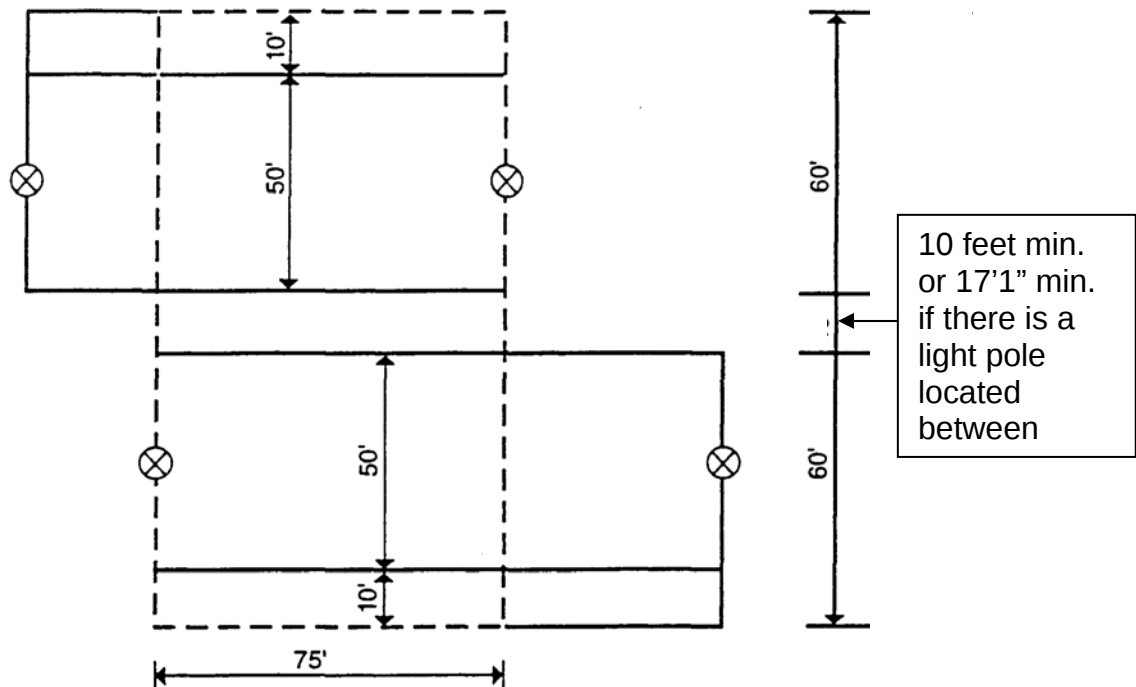


11. OUTDOOR BASKETBALL COURT

Dimensions:	- Playing field: 94 feet by 50 feet for full court; 47 feet by 50 feet for half court. - Court surface shall extend a minimum of 5 feet around the entire playing field and a minimum of 10 feet between 2 courts that are placed side-by-side.
Surface:	Courts (including the 5' safety zone) shall have a poured concrete surface with a medium broom finish to prevent slipping.
Placement:	- A minimum distance of 10 feet shall be provided between courts that are placed side-by-side or end-to-end - When there is a light pole between the courts, minimum distance shall be 17'1" (which includes 13" for the width of the pole and 8' clear on each side between the light pole and the court). - Where two or more courts are provided at one site, the courts should be configured for multi-purpose use, per Basketball Court Placement Diagram on page VII-15.
Court Gradient:	1.0 to 1.5 percent.
Markings:	All markings on the playing surface shall be applied as shown below, using a wear-resistant, colored substance. All lines shall be minimum 2 inches wide unless otherwise noted. The color of the markings shall be determined during the final design. For public courts, the court shall either not be color coated or may be painted dark green only with white markings; the concrete border around the court playing area shall remain uncoated concrete.
Goals:	All goals shall have capped 5 feet $\frac{9}{16}$ inches straight posts with heavy duty adjustable bracing, a $\frac{1}{4}$ inch galvanized steel plate, rectangular 4 feet by 6 feet backboard offset, and breakaway goal. All goals are to have nylon nets and be set to regulation height. All goals are to have 6-foot offsets and a 7-foot pole pad with cable laces and hog rings. The nets provided shall be double headband 3mm polyurethane twin with an extra row of mesh in the net body. See Section VIII.A for detailed equipment specifications.
Electrical Outlets:	Two (2) electrical outlets shall be installed at each court on light poles, one outlet on each of the opposite sides of the court. Each outlet must be 30 amps.
Lighting:	Minimum maintained lighting levels shall be 20 to 30 footcandles over the entire court. The number of poles and lamps needed to maintain the required lighting level shall be determined by photometric measurements. Light posts shall be 13 inches in circumference and located 10 feet clear distance from the edge of the post to the playing area edge. In case of a hardship, a minimum distance of 8 feet from the edge of the light post to the playing edge may be permitted. See Section VII.D Lighting Standards.



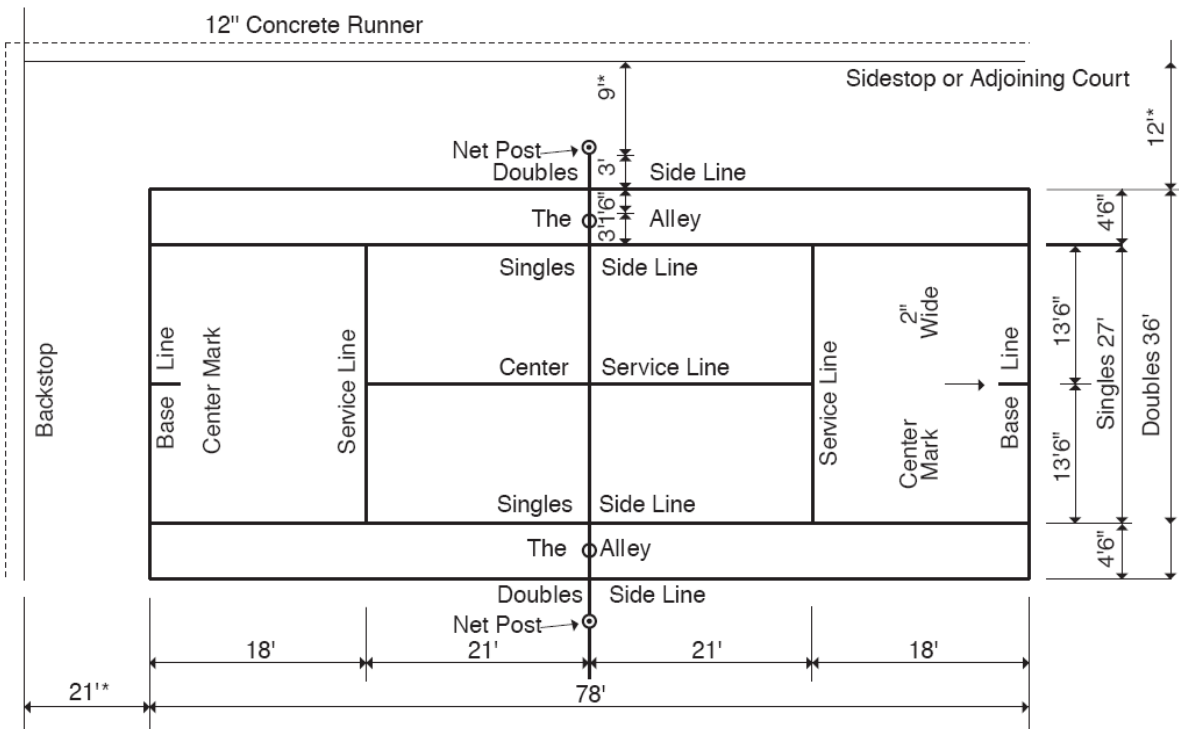
Basketball Court Placement



12. TENNIS COURT

Court Dimension:	36 feet by 78 feet, with 12 foot side clearance on each side and 21 feet between each baseline and the fence. The concrete shall extend 12 inches out beyond the fence around each court (or courts if more than one) to reduce court maintenance.
Orientation:	Courts should be laid out on a north-south axis line.
Court Placement:	When two or more courts are placed side-by-side, the minimum distance between adjacent sidelines of the courts shall be 12 feet. A fence, 42 inches high, shall be placed midway between each two adjacent courts, beginning at a 46-inch gate opening at each end. The minimum distance between the end of each court and the fence shall be 21 feet.
Court Gradient:	The acceptable gradient range for tennis courts is 0.5 to 1.0 percent, with a cross slope.
Court Surface:	Concrete, with a coarse, epoxy-bonded, colored surface. For public tennis courts, colors shall be as follows: dark green play area, maroon border, and white lines.
Markings:	The courts shall have markings for both singles and doubles play. Baseline shall be painted 4 inches wide. All other lines shall be painted 2 inches wide.
Fencing:	12 foot high 6-gauge chain link enclosing the court. The courts shall be shielded with an open mesh windscreen of black seamless polypropylene 9 feet high with center tabs.
Benches:	One bench for players shall be located adjacent to each court.
Trash Cans:	One trash can shall be located adjacent to each court.
Net & Posts:	Posts shall be 4½ inches O.D. and constructed of heavy duty galvanized steel, with heavy duty hardware and external ratchet. Nets shall have a double headband and be constructed of a 3mm polyurethane twine mesh with an extra row of mesh in the body of the net to provide increased durability. See Section VIII.A for detailed equipment specifications.
Drinking Fountain:	A drinking fountain shall be located on the concrete area outside the court. A minimum of one drinking fountain for every 4 (four) courts shall be provided. The placement of water spigots shall be on the high side of the slope.
Hose Bib:	One hose bib shall be provided for each 2 courts. Hose bibs shall be located so that water flows away from the hose bibs when hosing down the courts. Hose bins shall use potable water and be of a larger size with sufficient pressure to allow hosing down the courts.
Electrical Outlets:	Two (2) electrical outlets shall be installed at each court, one at each end. Each outlet must be 20 amps.
Lighting:	All public courts should be lighted for night-time use. Minimum maintained lighting level shall be 30 footcandles at the baseline and 50 footcandles at the net line. The number of poles and lamps needed to maintain the required lighting levels shall be determined by photometric measurements. Lighting shall be controlled by a time clock (preferred brand: Intermatic #ET104C) placed at the main power panel for the park or inside the park building, if available. See Section VII.D Lighting Standards.

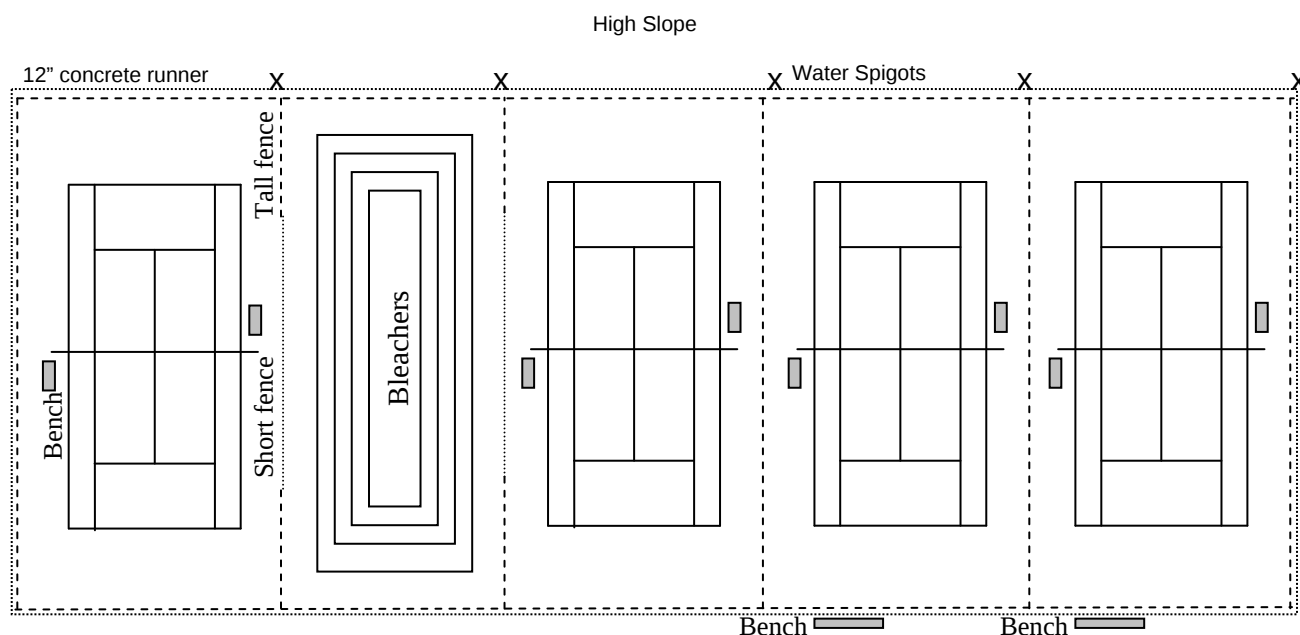
Tennis Court



*Minimum recommended distance

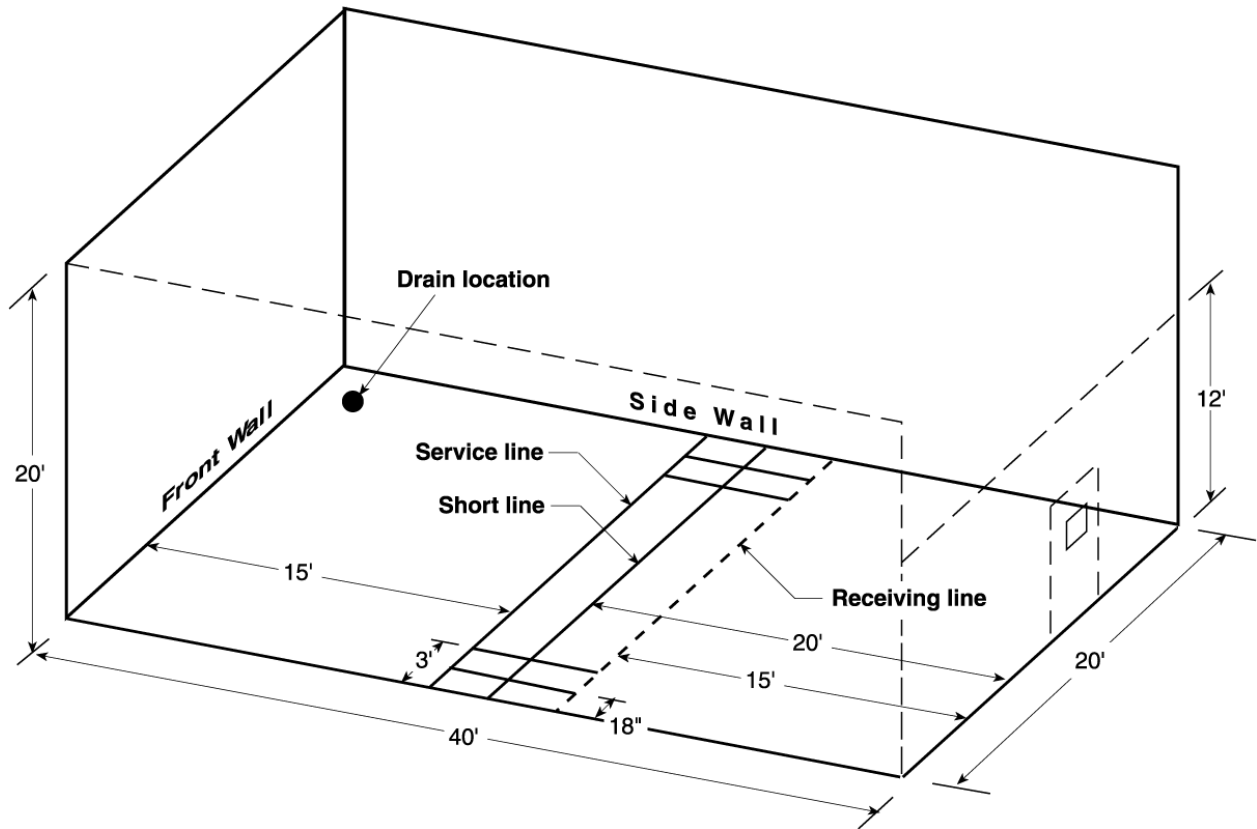
13. TOURNAMENT TENNIS COURTS

Applicability:	If more than 4 tennis courts are at the same location, the courts shall conform to the following standards to allow for tournament tennis
Design:	Except as noted below, the design standards on VII-16 applicable to all tennis courts, shall also be used for tournament tennis.
Seating:	Spectator seating shall be provided by a tiered concrete structure or portable bleachers containing five (5) rows of seating placed in an area approximately 28 feet with 14 feet. See Section VIII.A for detailed equipment specifications. Bleachers are required on each side of the spectator area for viewing at least 2 courts. All seating facilities shall conform to California Title 24 Accessibility Regulations.
Benches:	Two benches for players shall be located adjacent to each court. A bench for patrons waiting to use the courts shall be placed adjacent to the perimeter gate.
Drinking Fountain:	A drinking fountain shall be located on the concrete area outside of the court and in proximity to the bleachers, providing an 8-foot radius to allow space for pedestrian traffic.
Accessibility:	An unobstructed area minimum 4 feet wide in front of and on each side of the bleachers, and minimum 6 feet wide at the rear of the bleachers shall be provided for accessibility. Concrete walkways shall be provided for access to the area.
Lighting:	All tournament level courts shall be lighted for night-time use. Average maintained lighting level shall be 75 to 100 footcandles over the entire court area. The number of poles and lamps needed to maintain the required lighting levels shall be determined by photometric measurements. Lighting shall be controlled by a time clock (preferred brand: Tork) placed at the main power panel for the park or inside the park building, if available. See Section VII.D Lighting Standards.



14. RACQUETBALL/HANDBALL COURT

Court:	20 feet wide, 40 feet long, and 20 feet high.
Back Wall:	Minimum 12 feet high with a door in the center.
Court Gradient:	From 0.5 to 1.0 percent.
Court Surface:	Concrete, with a medium broom finish. Court markings shall be applied using a wear-resistant substance.
Drainage:	Courts shall slope to a single floor drain placed near the front wall corner.
Door:	Metal door with expanded metal window shall be provided. See Section VIII.A.
Electrical Outlets:	Two (2) electrical outlets shall be installed at each court. The outlets shall be placed outside the court, adjacent to the door. Each outlet must be 30 amps.
Lighting:	All courts located at community parks should be lighted for night-time use. The minimum maintained lighting level shall be 20 to 30 footcandles over the entire court area. The number and placement of light fixtures shall be determined by photometric measurements. Lighting shall be controlled by a time clock (preferred brand: Tork) placed at the main power panel for the park or inside the park building, if available. See Section VII.D Lighting Standards for Public Facilities.



15. HANDBALL/RACQUETBALL BALL WALL

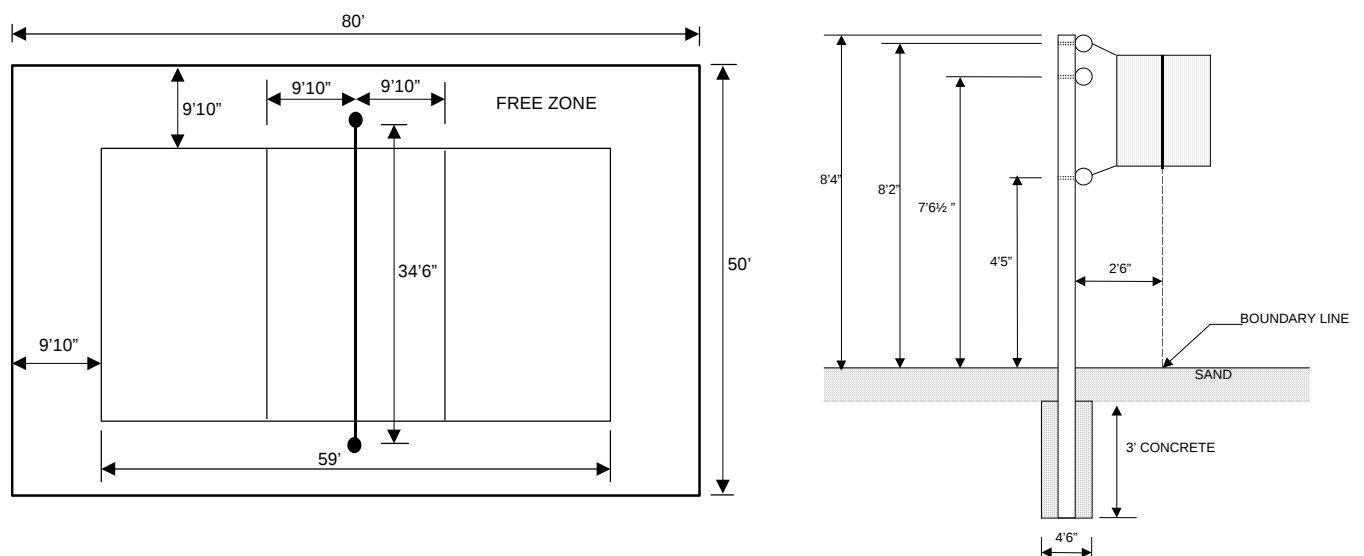
Wall Dimensions:	20' wide, 12 feet high, 8" deep.
Wall Material:	Concrete or another material approved by the Director of Community Services.
Court:	20 feet wide, 40 feet long concrete court in front of the wall.
Court Gradient:	From 0.5 to 1.0 percent.
Court Surface:	Concrete, with a medium broom finish.
Drainage:	No drains required; the court will drain onto adjacent grass.
Lighting:	Not lighted.

Court Dimensions:	Concrete, grass, and sand courts: 42 feet by 80 feet, with a playing area of 30 feet by 60 feet.
Court Placement:	Minimum 10 feet distance between courts placed side-by-side. Minimum 15 feet distance between courts placed end-to-end.
Court Gradient:	1.25 to 1.5 percent for concrete courts; 1.0 percent for turf courts.
Markings:	Markings on concrete courts shall be applied using a wear-resistant substance.
Nets & Posts:	All volleyball standards shall be galvanized. The posts shall be 4 ½ inches O.D. The posts shall have a galvanized wheel and ratchet with a hole drilled in the ratchet for lock. A galvanized pulley for posts shall be used. The net shall have the cable along the top and rope along the bottom. The pole spacing shall accommodate a 32 foot net (approximately 38 feet apart). See Section VIII.A for detailed equipment specifications.
Equipment:	Elastic ropes will be provided for check-out at the park facilities.
Electrical Outlet:	If court is lighted, two (2) electrical outlets shall be provided on a lamp pole, each with 30 amp power.
Lighting:	Courts located at community parks shall be lighted. Minimum maintained lighting level shall be 20 to 30 footcandles over the entire court area. The number of poles and lamps needed to maintain the required lighting levels shall be determined by photometric measurements. Lighting shall be controlled by a time clock (preferred brand: Tork) placed at the main power panel for the park or inside the park building, if available. See Section VII.D Lighting Standards for Public Facilities.



17. SAND VOLLEYBALL COURT

Court Dimensions:	Sand courts: 50 feet by 80 feet, with a playing area of 29 feet 6 inches by 59 feet.
Court Placement:	Minimum 10 feet distance between courts placed side-by-side. Minimum 15 feet distance between courts placed end-to-end.
Mow Strip:	A concrete mow strip 6 inches wide is required surrounding the court.
Sand:	Minimum depth of sand shall be 12 inches. Sand shall be single washed with plaster or equivalent. See Section VIII.A.9 for sand specifications.
Nets & Posts:	All volleyball standards shall be galvanized. The posts shall be 4 ½ inches O.D. The posts shall have a galvanized wheel and ratchet with a hole drilled in the ratchet for lock. A galvanized pulley for posts shall be used. The net shall have the cable along the top and rope along the bottom. The pole spacing shall accommodate a 32 foot net (approximately 38 feet apart). See Section VIII.A.9 for detailed equipment specifications.
Equipment:	Elastic ropes will be provided for check-out at the park facilities.
Electrical Outlet:	If court is lighted, two (2) electrical outlets shall be provided on a lamp pole, each with 30 amp power.
Lighting:	Courts located at community parks shall be lighted. Minimum maintained lighting level shall be 20 to 30 footcandles over the entire court area. The number of poles and lamps needed to maintain the required lighting levels shall be determined by photometric measurements. Lighting shall be controlled by a time clock (preferred brand: Tork) placed at the main power panel for the park or inside the park building, if available. See Section VII.D Lighting Standards for Public Facilities.

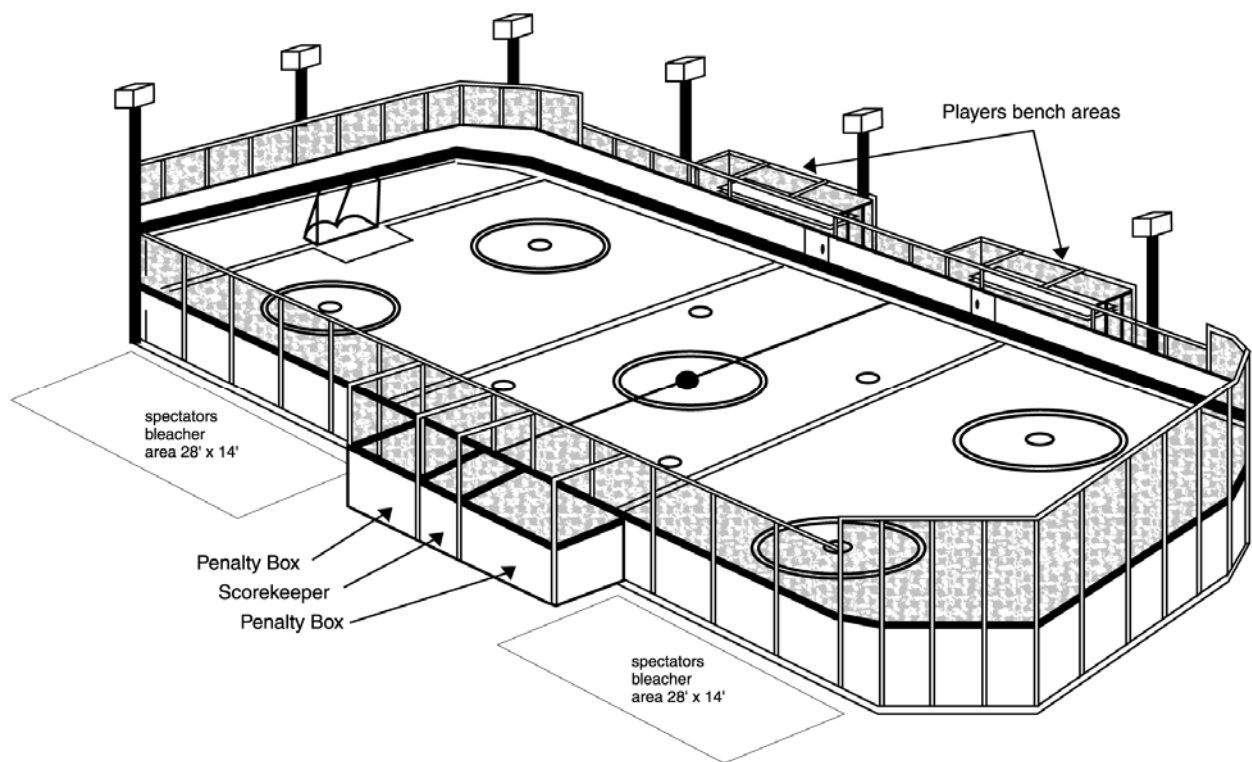


18. YOUTH AND ADULT ROLLER HOCKEY RINKS

Dimensions:	Youth Rink: Ideal: 80 feet x 160 feet; Minimum: 75 feet x 150 feet Adult Rink: Ideal: 85 feet x 180 feet; Minimum: 80 feet x 170 feet
Rink Gradient:	The acceptable gradient range for a roller hockey rink is 1.0 to 1.5 percent.
Rink Surface:	Rink shall be a smooth, poured concrete surface.
Markings:	All markings on the playing surface shall be applied using a wear-resistant substance that is slip-resistant to rollerblades. Center line shall be 12 inches wide and painted red. Trisecting court lines shall be 12 inches wide and painted blue. Dots and goal crease shall be painted blue. All other lines shall be painted black.
Spectator Area:	Spectator areas shall consist of two sets of aluminum bleachers, each with 5 rows, seating 70, on a concrete pad 28 feet by 14 feet. See Section VIII.A for detailed equipment specifications. A minimum of 4 feet of concrete must be provided on all sides of the bleachers for accessibility. Concrete walkways shall be provided to the bleachers for accessibility. Adequate space for forward or rearside access to wheelchair seating must be provided.
Bench Areas:	The penalty box area shall be divided into three portions: 2 separate penalty boxes 6 feet deep and 10 feet wide, separated by a scorekeeper's box 6 feet deep and 6 feet wide, with a total dimension of 6 feet by 26 feet. A 10 foot aluminum bench shall be provided in each penalty box. The players' bench areas and penalty boxes shall be paved with concrete and enclosed by 4 feet high $\frac{3}{4}$ inch plywood walls. The floors in the players' bench areas shall be covered with a raised wood floor, approximately 6 inches higher than the concrete. The players' benches shall be aluminum, 30 feet long. Each players' bench area shall have one gate to the outside and one gate to the rink. The scorekeeper's area shall be fenced in (facing the rink) on each side and on top for safety. The scorekeeper's box shall have a gate to the outside minimum 42 inches wide. The players' bench and penalty box areas shall be covered with fencing on all sides and on top, except where there is a gate to the rink.
Fencing/Walls:	The bottom 4 feet of the rink walls shall be $\frac{3}{4}$ inch plywood, coated with a smooth fiberglass finish, with 3 foot wide gated openings to the 2 players' benches and 2 penalty boxes. The top edge of the plywood wall shall have a protective weather strip cap. The bottom 8 inches of the plywood wall shall have an 8-inch high kickplate made of strips of polyurethane. A 4-foot high chain link fence is required above the plywood walls on the sidelines. An 8-foot high chain link fence is required above the plywood walls at the goal ends, starting at the curve of the corners. Only the plywood walls in front of the players' benches, gates, and penalty boxes shall not have chain-link fencing above. The chain link shall continue behind the players' benches. The chain link shall be 6-gauge, rubber-coated, with horizontal top and bottom rails. Vertical posts shall be placed no less than 8 feet on center. See drawing on next page for an illustration of the fencing.
Electrical Outlets:	Four (4) electrical outlets shall be installed at each court. One outlet shall be on each side of the rink, with one outlet inside the scorekeeper's box. Outlets must be 30 amps.
Lighting:	Minimum maintained lighting levels shall be from 40 to 50 footcandles over the entire rink. The number of poles and lamps needed to maintain the required lighting level shall be determined by photometric measurements. Light posts shall be 13 inches in circumference. See Section VII.D Lighting Standards for Public Facilities.

80' x 160'



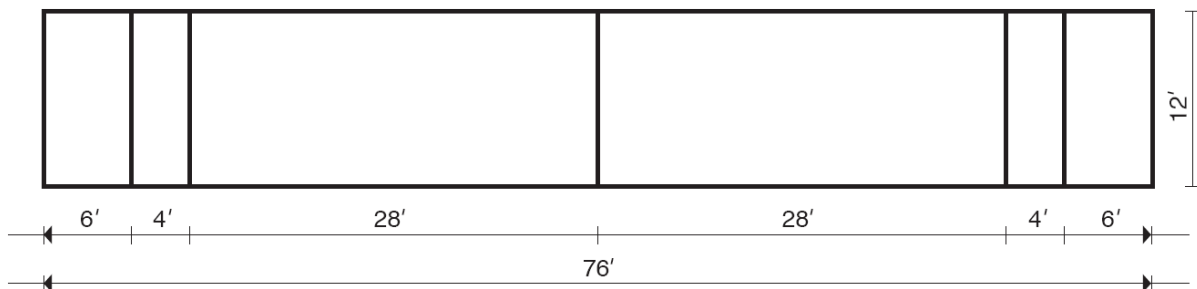


19. PUTTING GREEN

Dimensions:	Minimum 750 square feet; minimum 25 feet width at any point.
Natural Turf:	▪ <u>Subgrade:</u> The slope of the subgrade should conform to the general slope of the finished grade. The subgrade should be established approximately 16 inches below the proposed surface grade - 18 to 20 inches when an intermediate layer is necessary - and should be thoroughly compacted to prevent further settling. Water collecting depressions should be avoided. If the subsoil is unstable, such as with an expanding clay, sand, or muck soil, geotextile fabrics may be used as a barrier between the subsoil and the gravel blanket. ▪ <u>Drainage:</u> The pattern of drainage pipes should be designed so that the main drain(s) is placed along the line of maximum fall, and laterals are installed at an angle across the slope of the subgrade, allowing a natural fall to the main. Lateral drains shall be spaced not more than 15 feet (5 m) apart and extended to the perimeter of the green. Laterals should also be placed in water-collecting depressions if they exist. At the low end of the gradient, where the main drain exits the green, drainage pipe should be placed along the perimeter of the green, extending to the ends of the first set of laterals. Drainage design considerations should be given to disposal of drainage waters away from play areas, and to the laws regulating drainage water disposal. Drainage pipe shall be perforated plastic, conforming to ASTM 2729 or ASTM F 405, with a minimum diameter of 4 inches (100 mm). ▪ <u>Gravel and Intermediate:</u> Grade stakes should be placed at frequent intervals over the subgrade and marked for the gravel drainage blanket layer, intermediate layer (if included), and root zone layer. The entire subgrade should be covered with a layer of clean, washed, crushed stone or pea gravel to a minimum thickness of four inches, conforming to the proposed final surface grade to a tolerance of ± 1 inch. Soft limestones, sandstones, or shales are not acceptable. ▪ <u>Soil:</u> Soil should have a minimum sand content of 60%, and clay content of 5% to 20%. ▪ <u>Turf:</u> Bermuda is the preferred grass for all putting greens, but Bent grass may also be acceptable.
Artificial Turf:	▪ <u>Base Materials:</u> All base materials should be installed per manufacturer specifications. Turf installed directly on concrete or similar surface is not allowed. ▪ <u>Drainage:</u> Drainage should conform to manufacturer specifications and ensure that pooling does not occur on the putting green. ▪ <u>Turf:</u> Artificial turf should be of a quality that ensures movement of the ball that closely mimics natural turf.

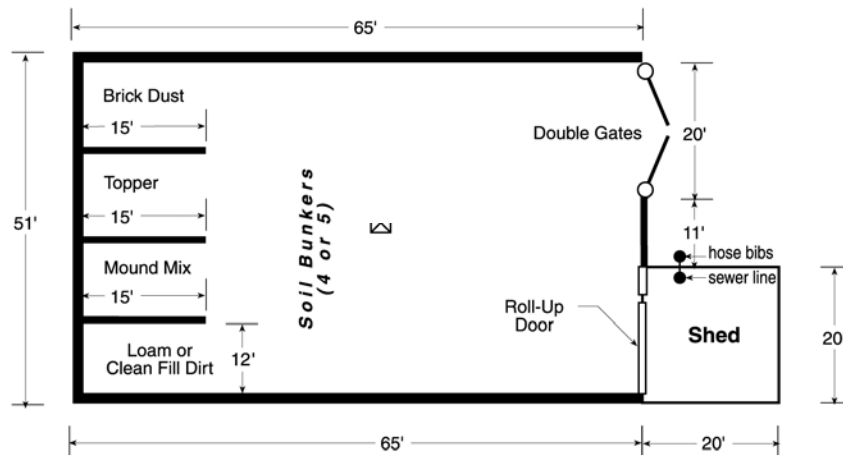
20. BOCCE COURT

Dimensions:	Minimum 76 feet by 12 feet
Court Surfacing:	Similar to clay tennis courts with a minimum 3" base of crushed stone on a compacted sub-base and covered with 2" minimum of clay materials compacted for hard, smooth, level surface. A continuous drainage system must be provided under the clay surface with drain holes to prevent standing water on the court.
Sideboards and Backboards:	Sideboards and backboards shall extend a minimum of 8 inches above the playing surface. Sideboards shall use rigid treated lumber or similar treated material (subject to the satisfaction of the Director of Community Services) a minimum of 3 inches thick. Sideboards and backboards shall be backed by concrete 4 by 4 posts spaced at a maximum of 4 feet apart. The sideboards must be sufficiently supported or have a hard plastic/rubber bumper along sideboards so that a ball hitting the sideboard at an angle greater than 30 degrees will consistently bank off the sideboards.
Markings:	The sideboards and baseboards shall be painted white with 2 inch vertical lines painted on the sideboards to indicate the location of foul lines and the center line. Vertical lines 1 inch wide shall be painted on the sideboards and backboards to indicate the 12 inch lines for the initial pallino throw.



21. MAINTENANCE COMPOUND AND SOIL MATERIAL BUNKER

- Provision:** A maintenance compound is required at community parks where there are 4 or more fields of any type or combination. Two fields that are overlaid so that only one field can be used at any given time, will count as one field. The optimum size of the maintenance compound is shown below.
- Plan:** The typical plan for the maintenance compound/bunker is shown below. Hardship conditions as determined by City staff may allow a modification of this plan.
- Bunker:** The maintenance compound shall have 4 bunker areas for storing soil and material. Each soil bunker shall be 12 feet wide, 15 feet long, and 5 feet high. The maintenance compound walls shall also function as walls for the soil bunkers. Each soil bunker shall be separated by additional internal concrete walls 8 inches to 12 inches thick.
- Flooring/ Surfacing:** Concrete or asphalt.
- Drains:** Should meet National Pollution Elimination Discharge System standards.
- Shed:** A 20 feet by 20 feet metal shed (butler type) shall be placed in the corner of the compound. The shed shall have a 10-foot wide roll-up door opening to the wide part of the compound, and a 3-foot wide pedestrian door adjacent to the roll-up door.
- Fencing:** A 6-foot high fence shall be installed around the soil/material bunkers. Fencing is not required around the shed. The fence shall be constructed of 6-gauge chain link, with a polypropylene fabric windscreen and rails at the top and bottom.
- Gate:** One lockable 20 feet double wide gate, 6 feet high, shall be provided for each compound.
- Water:** There shall be 2 bibs for each compound, 1 exterior and 1 interior. Both shall provide potable water. A sewer line shall be located adjacent to the interior water bib for waste water.
- Electricity:** The shed shall have two 8-foot long double fluorescent light fixtures and four double wall plug units (110 volts). The exterior of the shed shall have a security light (HPS) operated by a photo cell.
- Truck Access:** There shall be clear access from the street or parking lot for light and heavy-duty trucks and equipment. The access surfacing in front of the maintenance compound shall be built to accommodate the weight of a 10 yard truck (4,000 pounds).



Not to Scale

Glossary

Bibs:	A faucet having a downward bent nozzle.
Bunker:	A large concrete enclosure consisting of three walls with three internal walls equally dividing the space within the enclosure walls.
Crown:	The elevation of a field surface at its center above its elevations at its edges to encourage drainage.
Footcandle:	A unit of illumination equivalent to the illumination produced by a source of one candle at a distance of one foot, and equal to one light incident per square foot.
Gradient:	A slope or degree of inclination.
Hardship:	A situation in which irregular shape or topography of the site prohibits adherence to the existing standards.
Photometric Measurement:	A measurement of brightness, luminous flux, light distribution, and/or color.
Stolonizing:	A process by which prostrate stems are planted just below the surface of an area, using a mechanical apparatus.

Bibliography

Athletic Institute and American Alliance for Health, Physical Education, Recreation, and Dance. *Planning Facilities for Athletics, Physical Education and Recreation*. 1982.

Lancaster, Roger, A., editor. *Recreation, Park and Open Space Standards and Guidelines*. National Recreation and Park Association, Alexandria, VA. 1983.

Means, Louis E., and Jack, Harold K. *Physical Education Activities, Sports and Games*. Shalliam C. Brown Co. Publishers, Dubuque, IA. 1968.

United States Tennis Association. *Tennis Court Layout*. P.O. Box 672, White Plains, NY 10602-0672.

White, Jess R., Editor. *Sport Rules Encyclopedia, Second Edition*. Leisure Press, Champaign, IL. 1990.

B. PLAYGROUND DESIGN STANDARDS

1. INTENT

The Community Services Department believes that safety is a high priority for design of children's playgrounds. Although public parks are typical locations for playgrounds, playgrounds can also be installed at schools, churches, day care centers, restaurants, and homeowner associations recreational facilities (private parks). All playgrounds are subject to safety regulations adopted by the state of California, except for certain foster homes and child care providers in private residences.

In addition, the City has developed design standards for playgrounds intended to further increase safety, reduce maintenance costs, and reduce vandalism.

2. GUIDELINES FOR PROVISION OF PLAYGROUNDS

The City has established a goal of providing 1.8 square feet of playground area per person within residential areas. The minimum size of a playground is typically 400 square feet. Playgrounds shall be age-separated when space allows, with playgrounds for ages 2 to 5 years separated from playgrounds for ages 5 to 12 years.

3. REQUIREMENTS FOR PLAYGROUNDS

1. The following conditions shall be placed on development of all new playgrounds:
 - a. Prior to the issuance of building permits, the applicant shall submit to the Director of Community Services for review and approval, a Playground Plan that includes detailed playground specifications for manufactured play equipment. The plan shall depict safety fall zones, safety surfacing materials and construction specifications, manufacturer and model numbers of equipment and equipment deck heights.
 - b. Prior to the issuance of Certificate of Use and Occupancy for the playground, the applicant shall submit to the Chief Building Official a letter stating that the play equipment installation has been inspected by a person authorized by the manufacturer, that the equipment has been installed per manufacturer's specifications, and that it complies with the minimum playground safety regulations adopted by the State of California (California Health Code, Title 22, Division 4, Chapter 22 "Safety Regulations for Playgrounds," Article 1-4).
2. All safety surfacing in playgrounds shall comply with the minimum safety standards in ASTM F 1292- "Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment."
3. Accessible safety surfacing shall comply with the minimum accessibility standards in ASTM F 1951 "Standard Specification for Determination of Accessibility of Surface

Systems Under and Around Playground Equipment.” Testing information may be requested.

4. Specific information included in the Playground Plan submittal shall be:

- To scale diagram of playground layout, no smaller than 1" = 20'.
- Dimensioned safety use zones around each piece of equipment, per manufacturer's specifications.
- Model number of each piece of equipment. Specifications for play equipment may be requested.
- Name, address, and contact phone number of equipment manufacturer(s).
- Name, address, and contact phone number of safety surfacing manufacturer(s).
- Deck, platform and step heights for each component.
- Type of each play component.
- Location of handicapped accessible path of travel and access point to the equipment (transfer platform). Provide a chart comparing the required number of accessible play components and the number of proposed accessible play components. For the minimum number of required play components to be handicap accessible, refer to the U. S. Architectural and Transportation Barriers Compliance Board (Access Board) A Guide to the ADA Accessibility Guidelines for Play Areas (available from <http://www.access-board.gov>).
- Details on installation of safety surfacing, including section view with minimum depth of safety surfacing and type of surfacing.
- Method of drainage of safety surfacing.
- Age group that the play equipment is designed for.

5. All playgrounds. In addition to compliance to state regulations for safety, and federal accessibility guidelines, all newly constructed playgrounds shall be subject to the following City design standards:

- a. No more than 8" between preschool age (2-5 years) steps and platforms.
- b. No more than 12" between school age (5-12 years) steps and platforms.
- c. When two or more playgrounds are provided on one site, there should be distinct separation between preschool age playgrounds (2-5 years) and school age playgrounds (5-12 years) using walkways, seating areas or landscaped buffers to separate the two distinct areas.
- d. No metal slides or merry-go-rounds are allowed.
- e. A variety of play experiences and graduated play challenges should be provided, including crawling, pulling/pushing, balancing, swinging, climbing, spinning, sliding and fantasy/social play opportunities. A matrix showing Body Movement Opportunities is attached as Exhibit 1. It is a goal that as many movement opportunities be provided within the available space as possible.
- f. The edge of the playground safety surfacing should be located a minimum of 50 feet in all directions from any hazards such as streets, parking lots and bike paths, barbecues, and tripping hazards, or be protected by a minimum 3-foot high fence, wall, solid hedge, or other barrier deemed acceptable by City staff.
- g. The playground should be visible from the street or parking lot for surveillance.

- h. Minimum one shaded seating area shall be provided nearby to foster adult supervision of children.
 - i. It is a goal that all tot lots will provide minimum 50% shade over the play equipment. At least one tot lot in each village shall have this shade provided with mature trees or a shade structure prior to the first residents moving into that village. All other parks should have this shade provided with either a shade structure or trees that are designed to provide the shade within 5 years of the park opening.
6. Public Parks Only. In addition to the above design standards for all playground, playgrounds at public parks shall be subject to these additional design standards:
- a. Play equipment shall not be composed of wood materials. Wood-look materials, such as recycled plastic lumber, may be used.
 - b. Engineered wood fiber safety surfacing is not allowed. Poured in place, rubberized safety surfacing (no tiles) shall be used in the portions of the playground intended to be accessible to person with disabilities.
 - c. Poured-in-place rubberized safety surfacing shall meet the following requirements in order to improve the durability and minimize replacement and/or repair costs:
 - Minimum 5 year warranty on material and installation.
 - Binder used for the surfacing shall be aliphatic type or superior.
 - A protective coat/sealant shall be provided as part of the initial installation to help protect the surface from elements.
 - Along the edges adjacent to sand areas, the poured-in-place surfacing shall extend to the same depth as the bottom of the sand.
- The poured-in-place surfaces should be designed to:
- Minimize the amount of poured-in-place surfaces except for areas required by ADA accessibility and safety fall zones compliance.
 - Adjust the depth of the subsurface and softness of the poured-in-place to the needs of the play equipment. Minimize the depth/softness outside of the fall zones in order to minimize wear and tear of the surface.
 - For poured-in-place surface adjacent to sand, avoid narrow areas of sand (under 6 feet wide) and sand areas with angles under 90 degrees, to allow the sand to be roto-tilled on a regular basis without damaging the adjacent poured-in-place.
 - Use a combination of standardized colors (such as 25% black, 25% green, and 50% tan), rather than a single solid color, so that color mixtures can be adjusted to match faded colors in the future for patching and repairs.
 - If the surface has shapes or patterns, use simple geometric shapes that are easy to patch. Avoid any patterns or shapes under high-traffic areas like swings and the base of slides since these areas are patched frequently.

- d. All new public parks shall have swings within the playground. When replacing or rehabilitating existing playgrounds, the goal is to provide swings unless space limitations exist. It is preferred that both belt swings for the 5-12 year age group, and tot swings (swings to be used with adult assistance) for the 4 years and under age group be provided, if space allows.
- e. All drinking fountains shall be located at least 50 feet from the edge of any sand play areas.
- f. All playgrounds shall have nighttime security lighting to prevent vandalism.
- g. All public play equipment shall be of high quality materials designed to be vandal resistant, and shall have a demonstrated record of durability and availability of parts.
- h. A sand area should be provided within the 2-5 year playground, if possible, to allow for unstructured sand play.
- i. Playground sand shall be washed silica type white sand (or equivalent), uniform in grain size and designed for use in children's play areas. Sand shall meet the following ASTM C136-84a test for fine white sand:

Screen Size			#16	#30	#50	#100	#200
Percent	Passing	Through	100%	98%	62%	17%	0 – 1%
Screen							

Contractor shall provide minimum three samples from varied sources that best meet these guidelines for review and approval prior to purchase and placement of any sand in the playground areas as indicated in construction plans.

Body Movement Opportunities Matrix

Activities	Vestibular	Climbing	Balance	Upper Body	Push/ Pull	Crawling/ Bilateral	Fantasy/ Social
Balance Beams			*				
Balance Ropes			*		*		
Binoculars/Telescope							*
Bridge (Moving)	*		*				*
Chinning Bars	*			*	*		
Fire Poles	*	*		*			
Game Panels							*
Horizontal Bars						*	
Jumping Hoards	*		*		*		
Ladders		*	*		*	*	
Nets		*	*	*		*	
Parallel Bars				*	*		
Platforms		*					*
Playhouses, etc.							*
Rings	*			*	*	*	
See Saws	*						
Sensory Gardens							*
Slides	*						
Sound Tubes							*
Spring Riders	*		*	*			
Stairs		*					
Steering Wheels							*
Swings	*				*		
Theme Design							*
Trak Ride	*	*			*		
Tunnels						*	*
Turning Bars	*	*			*		

C. POOLS AND AUXILIARY FACILITIES

1. INTRODUCTION

General Goal:	It is the City's goal to provide a variety of water recreational opportunities for all age groups and to have nearby swimming facilities for all residential developments.
Strategy:	In order to provide recreational swimming opportunities to all residents, private Homeowner's Association pools should provide a minimum square footage of pool amenities based on the population of the residential development. For larger developments, a variety of pool experiences should be provided, such as deep water, competition length (Jr. Olympic), adult lap pools, family pools, wading pools for younger children, zero depth entry pools, and ground level interactive water features. In order to encourage construction of certain types of pool facilities, park credit ranges from 25% to 100%.
Other Standards:	In addition to the standards contained in this Section, all pools and pool areas shall comply with: ▪ California Health and Safety Code ▪ California Administrative Code ▪ California Building Code ▪ Irvine Uniform Security Code, Section 5-9-520, Special Recreational Spaces Provisions ▪ All other applicable City, State, Federal and other standards and requirements

2. POOL WATER SURFACE AND TYPE

The size and number of pools for each development shall be based on the following 3 criteria:

- Required minimum square footage of pool surface per number of units;
- Guidelines for minimum number and type of pools per number of units; and
- Reduced requirements for developments that are a part of a larger village with a Master Association where recreational amenities are shared.

Water Surface Required:	For any development with 100 units or more, minimum pool water surface shall be 5 square feet per unit reduced incrementally by 5% for every 1,000 units. The following formula shall apply: Minimum Pool Water Surface = #Units x 5 s.f. x [1-(#Units/1,000x5%)] ▪ Development, for the purpose of this calculation, shall include all units where all residents have access to all of the pools. ▪ The pool water surface may include: - o all pools and wading pools, - o spas (maximum of 1 spa per 1,500 units for first 2,000 units and 1 additional spa for each additional 3,000 units), and - o interactive water features reviewed on a case-by-case basis. Exceptions for Small Projects: For developments with less than 200 units, an exception may be granted by the appropriate approval body reducing the water surface requirement above based on specific physical characteristics of the property that make it more difficult to provide the required pool surface and/or the project residents having access to another pool facility.
Wading Pool:	One wading pool shall be provided in each development with 500 to 2,000 units, and one additional wading pool shall be provided for each additional 3,000 units. A required wading pool can be substituted with: ▪ A pool with a zero-depth entry or ▪ An interactive water feature providing comparable water play opportunities for children 2 to 5 years old.
Spa:	One spa shall be provided in each development with 500 to 2,000 units, and one additional spa shall be provided for each additional 3,000 units, in order to maximize year-round use of the pool facilities. The spa(s) should be located at the Jr. Olympic pool facility(s) or at the main family pool facility(s) in the project.

New Residential Village:	In each new village or in a new development with 500 units or above, all residents shall have access to at least one (1) Jr. Olympic pool.
Fully Accessible Pool:	Fully accessible pools via an ADA accessible ramp or zero-depth entry are highly desirable and additional park credit will be given for these features per Schedule of Improvement Values, Section IV-2 of this document.
Park Credit Percentage for Pool Support Facilities:	Pool support facilities, including the pool deck, fencing, shade structure, restroom and pool equipment building, will receive the same percentage park improvement credit as the pool. For example, if a lap pool receives 50% park improvement credit, all pool support facilities will also receive 50% park improvement credit.

Guidelines for Minimum Number and Type of Pools:

Within the minimum pool water surface required above, the following minimum number and type of pools are recommended in each development, based on the number of dwelling units (see definitions of pool types, Section 3):

Dwelling Units with Access to all Pools	Min. # of Pools	Minimum size of Pools	Wading Pool	Spa
0 - 99	0	Pool not required	0	0
100 - 199	1	1 small lap pool	0	0
200 - 499	1	1 lap pool	0	0
500 - 749	1	1 Jr. Olympic pool (4-lane)	1	1
750 - 1249	1 or 2	1 Jr. Olympic (4-lane) + 1 lap pool OR 1 Jr. Olympic (6-lane)	1	1
1,250 - 1,999	2 or 3	1 additional lap or family pool	1	1
Over 2,000 units		1 additional pool per 1,000 units, where 1st pool is Jr. Olympic (2,000-3,000 units) 2nd pool is lap pool (3,000-4,000 units) 3rd pool is lap or family pool (4,000-5,000 units) - Continuing in the same pattern thereafter	1 additional / 3,000 additional units	1 additional / 3,000 additional units

3. DESIGN OF POOLS AND SPAS

Each pool shall meet the following requirements in order to meet the pool requirements and/or receive recommended park credit:

Jr. Olympic Pool:	▪ Minimum size: - o 4-lane pool: 75 feet long by 31 feet wide (35 feet wide preferred) - o 5-lane pool: 75 feet long by 38 feet wide (43 feet wide preferred) - o 6-lane pool: 75 feet long by 45 feet wide (51 feet wide preferred) - o 8-lane pool: 75 feet long by 59 feet wide (67 feet wide preferred) ▪ Lap lane width: minimum 7 feet, preferred 8 feet; additional 1.5 feet required on each side lengthwise between the last swim lane and wall. ▪ Depth at the shallow end: minimum 3.5 feet. ▪ Depth at the deep end: minimum 5 feet, 6'9" preferred. Portion with depth from 5' to 6'9" is eligible for higher park credit. ▪ Recommended Park Credit: 100%
Lap Pool	▪ Size: Minimum 1,500 square feet; Minimum 60 feet long by 24 feet wide (3 lap lanes). ▪ Lap lane width: minimum 7 feet, preferred 8 feet, plus 1.5 feet on each side lengthwise between the last swim lane and the wall; Lap lanes shall be marked at the bottom of the pool. ▪ Depth at the shallow end: minimum 3.5 feet ▪ Depth at the deep end: minimum 5 feet, 6'9" feet preferred. Portion with depth from 5' to 6'9" is eligible for higher park credit. ▪ Shape: any shape, as long as it includes the above lap portion. ▪ Recommended Park Credit: 50% in general, except that 100% may be granted for the primary pool in the development.
Small Lap Pool	In a development with less than 200 units, a small lap pool may meet the pool requirements and/or receive park credit if it conforms to the following requirements: ▪ Size: minimum 1,000 square feet; Portion designed for lap swimming minimum 37.5 feet long by 17 feet wide (2 lap lanes) ▪ Lap lane width: minimum 7 feet, preferred 8 feet, plus 1.5 feet on each side lengthwise between the last swim lane and the wall. ▪ Depth at the shallow end: minimum 3.5 feet. ▪ Depth at the deep end: minimum 5 feet. ▪ Shape: any shape, as long as it includes the above lap portion. ▪ Recommended Park Credit: 50% in general, except that 100% may be granted for the primary pool in the development.

Family Pool	▪ Minimum size: 1,500 square feet. ▪ Depth at the shallow end: minimum 3.5 feet. ▪ Depth at the deep end: minimum 5 feet minimum, 6'9" preferred. Portion with depth from 5' to 6'9" is eligible for higher park credit. ▪ Shape: may vary. ▪ Recommended Park Credit: 50%.
Shallow Pool:	▪ Size: minimum 1,000 square feet. ▪ Depth: less than 5 feet. ▪ Recommended Park Credit: 25%.
Wading Pool:	▪ Size: minimum 100 square feet; maximum 200 square feet. ▪ Depth: maximum 18 inches at the deepest point and maximum 12 inches along side walls. ▪ Shape: may vary ▪ Wading pool may be a part of a larger pool as long as the safety requirements are met. ▪ Shade should be provided near the wading pools. ▪ Recommended Park Credit: 100%.
Spa:	▪ Size: The surface water area of a spa shall not exceed 250 square feet, per California Building Code. ▪ Depth: Water depth shall not exceed 4 feet, per California Building Code. ▪ The on and off switch for the spa shall be keyed, per Irvine Uniform Security Code, Section 5-9-520.C.3. ▪ Recommended Park Credit: 100% credit for one spa serving 500 to 2,000 units, and 100% credit for one additional spa for each additional 3,000 units.
Interactive Water Features:	▪ Ground level interactive water features, such as interactive fountains, spray fountains, etc., are encouraged because they serve all age groups and are fully ground accessible. They can be used to meet the water square footage requirement on a case by case basis. ▪ Recommended park Credit: 100%, calculated on a case-by-case basis based on actual contractor's bids for these amenities.
Water Play Elements:	▪ At the main pool facility for the village or at a family pool, consider providing: - o Slides (preferred at a pool that has a lifeguard) - o Diving boards ▪ Recommended park Credit: 100%, calculated on a case-by-case basis based on actual contractor's bids for these amenities.

Deep Water:	▪ Deep water, with minimum 6'9" depth at the deep end", is encouraged at the main pool facility in a village. ▪ The portion of the pool with depth from 5' to 6'9" may receive higher park credit for deep water, instead of the regular pool credit, per Schedule of Recreational Improvements Values in Section IV of this document. ▪ Recommended park Credit: 100% for the portion of the Jr. Olympic, lap, or family pool with depth from 5' to 6'9".
Zero-Depth Entry	▪ Zero-depth entry that is fully ADA accessible is encouraged at the main pool facility for a village. ▪ The portion of the zero-depth pool with depth from zero to 3'6" may receive higher park credit for zero depth entry, instead of the regular pool credit, per Schedule of Recreational Improvements Values in Section IV of this document. ▪ Recommended Park Credit: 100%.
Pool Ramps:	All ramps, when provided, should conform to the following standards: ▪ Width: 36 inches clear width. ▪ Slope: Maximum 1:12 ramp slope. ▪ Surface: Firm stable and slip resistant ramp surface. ▪ Landings: Level Landings must be located at the bottom and top of each ramp and ramp run. At least one level landing must be located between 24 and 30 inches below the stationary water level. Landings must be: - o At least as wide as the ramp run leading to the landing. - o A minimum length of 60 inches clear. - o A minimum size of 60 X 60 inches if the ramp changes direction. ▪ Handrails. Handrails for ramps should include the following: - o A double handrail located on each side of the ramp with a 36-inch clear width (path of travel). - o The top handrail gripping surface should be mounted at 34 to 38 inches above the ramp surface, and the second handrail should be mounted between 26 and 28 inches high. - o Handrail diameter should be 1.25 to 1.5 inches. - o If handrails are mounted adjacent to the pool wall, the space between the wall and the handrail shall be 1.5 inches. - o Rails shall be designed to be elegant, non-obtrusive, and to discourage climbing. ▪ Chair: A manual wheelchair suitable to be taken into the pool, spa and shower should be available for use at each pool or spa that has a ramp or zero depth entry. An enclosed area within the pool facility shall be available for storage of the chair. The chair shall be easily accessible to people with disabilities.

Pool Ramps Continued:	▪ The pool ramp will be eligible for specific pool ramp credit instead of the park credit for the pool, per Schedule of Recreational Improvements Values in Section IV of this document. ▪ Recommended Park Credit: 100%.
Accessible Means of Entry/Exit:	▪ At least one accessible means of water entry/exit (a swimming pool lift, wet ramp, or zero depth entry) shall be provided for each swimming pool, wading pool, and/or spa and shall be located on an accessible route. See Section 3104B of Chapter 31B, Division I of California Building Code.
Steps:	▪ Steps leading into the pool or spa shall be maximum 8 inches high. ▪ Steps leading into the wading pool shall be maximum 5 inches high.
Pool Lifts:	Lifts should be provided at all pools that do not have a ramp. The following Guidelines for pool lifts set forth by the National Center for Accessibility are commonly accepted for the construction and design of new facilities: ▪ Unassisted operation from both the water and deck locations ▪ 17 inches height from the bottom of the lift chair to the pool deck ▪ Minimum lift seat width of 19 inches ▪ Equipped with an attached foot rest ▪ Equipped with bi-lateral arms that swing away for lift transfers ▪ Maximum operation of 5 pounds of pressure with no tight grasping, twisting, or pinching ▪ Lift seat must submerge 18 to 20 inches below the water level for vertical travel ▪ Post informational sign in a public location that provides instruction for use and location of pool lift ▪ Pool lift must perform a minimum 180 degree rotation ▪ Pool lift must accommodate a maximum body weight of 300 pounds ▪ Preferred model numbers are indicated in park standards manual Section VII-28.
Marking:	▪ Numbers marking the depth of the pool shall have adequate contrast for high visibility, such as light letters on a dark background or dark letters on a light background.

4. DESIGN OF POOL AREAS AND ACCESSORY STRUCTURES

Pool deck	▪ The pool deck surface should be at least 3 times, but no more than 4 times the size of the pool water surface without the area of the pool ramp, if any. ▪ A minimum of 6 feet of hardscape area shall be provided between a spa and an adjacent pool (see California Building Code). ▪ A minimum of 15 feet of paved area shall be provided between the pool and any grass area. The most direct access from pool to spa shall be a concrete or other acceptable surface. ▪ A minimum 5 feet wide handicap accessible path of travel, free of any obstructions, shall connect all major pool amenities, including entrance to the pool facility, pool, spa, wading pool, picnic areas, barbeques, bathroom, drinking fountain, and other amenities. It shall extend all around the pool, and around at least 50% of the spa. ▪ Good drainage around the pool is required. Pool deck surface shall be sloped a minimum of ¼ inch per foot, per California Building Code. ▪ Surface of the deck: concrete with standard broom finish is preferred. The surface should not be painted. ▪ Recommended Park Credit: same as percent credit for the pool.
Shade Structures and Trees:	▪ Twenty percent (20%) of the total pool deck should be shaded with permanent shade structure(s) that provide minimum 50% shade coverage. ▪ If wood structure is used for the trellis, the posts should be concrete or installed on top of concrete to ensure durability. ▪ Picnic area within the pool area, if provided, should be entirely shaded. Minimum 50% of the picnic area shall have solid shade. The remaining portion of the picnic area may be shaded by canopy trees or a shade trellis structure providing minimum 50% shade coverage. ▪ Non-deciduous canopy trees should be located to provide shade for the hardscape or softscape. Palm trees are not considered shade trees. Canopy trees should not be located over the pool or the restroom building. ▪ Recommended Park Credit: same as percent credit for the pool.

Restrooms:	▪ A restroom is required within the pool area if the farthest living quarters are over 300 feet in travel distance from the pool edge. ▪ Restrooms, when required, shall meet California Building Code (Swimming Pools) requirements. ▪ All restrooms shall comply to ADA requirements. ▪ Floors shall be designed so that they can be cleaned with hoses and so that they drain well. ▪ Door hardware shall conform to the Irvine Uniform Security Code, Section 5-9-520.C. ▪ At public pools: - o Restroom walls shall be constructed of block wall, not drywall. - o Toilets shall be off the floor. ▪ Recommended Park Credit: same as percent credit for the pool.
Showers:	▪ Showers shall be provided at each pool facility. ▪ Recommended Park Credit: same as percent credit for the pool.
Storage:	▪ A storage room, minimum 100 square feet in size, shall be provided within the pool area to store pool equipment and supplies. ▪ A Jr. Olympic pool facility, except in apartment complexes, shall have a storage room minimum 200 square feet in size, to allow storage for recreational swim programs. ▪ At every pool that has a ramp or zero depth entry, a small room shall be provided for storage of a water-proof wheelchair and a seat and handrails for transfer to a wheelchair. This room shall be locked with access readily provided to disabled residents during the hours that the pool is open. ▪ Recommended Park Credit: same as percent credit for the pool.
Pool Equipment:	▪ The pool equipment room or enclosure shall be secured with a locking device per Irvine Uniform Security Code, Section 5-9-520.C. ▪ Recommended Park Credit: same as percent credit for the pool.
Barbeques:	▪ Barbecues should be provided within the pool facility or adjacent to the pool facility if a picnic area is provided. ▪ Recommended Park Credit: 100%.
Drinking fountain:	▪ At least one drinking fountain shall be provided within the pool area. ▪ The drinking fountain shall be guarded jet and handicap accessible. ▪ Recommended Park Credit: 100%.

Pool Furniture:	▪ It is suggested that at least 25% of lounge chairs are minimum 18 inches high for ease of use by older adults, although no credit will be provided for movable furniture. ▪ At the fully accessible pool, provide at least one handicap accessible picnic table with an umbrella or located under a shade structure. ▪ Recommended Park Credit: 100% for picnic tables that are permanently installed. Movable furniture will not receive park credit.
Fences:	▪ Perimeter fencing shall conform to Irvine Uniform Security Code, Section 5-9-520.C.4 (fencing) and Section 5-9-520.C.5 (emergency access). ▪ Material: aluminum anodized fencing is recommended in order to minimize long term maintenance. ▪ Recommended Park Credit: same as percent credit for the pool.
Gates:	▪ Gates should be easy to operate with one hand and with minimal physical effort. - o Gates should be easy swinging gates with accessible latches, hardware, and switches. - o Access keys: Consider use of access keys that point at a sensor to open the gate - o Door handles: that can be operated with a single hand, with a downward and push movement only. - o Gate Weight: Pool gates and doors should be maximum 5 lbs. ▪ Gates shall conform to Irvine Uniform Security Code, Section 5-9-520.C.
Softscape:	▪ A landscaped area occupying 15% of the pool area is recommended for residential developments with 350 units or more. ▪ The landscaped portions (turf, shrubs, canopy trees) within pool areas should be low maintenance and not pose a hazard to patrons, nor block visual access into the pool area. ▪ Per the California Building Code, landscaped areas shall not be located within 4 feet of a spa or along the most direct path connecting the pool and the spa. ▪ Landscaping should not block view of the recreation area from adjacent homes or patrolling police vehicles. Shrubbery should be kept below 42 inches in height with “deterrent shrubs” used to restrict access to the perimeter fencing. (See Irvine Uniform Security Code, Section 5-9-520.D.)

Parking:	▪ Parking requirements of the Irvine Zoning Code shall apply.
Lighting:	▪ Lighting of the pool area shall meet the Irvine Security Code.
Telephone:	▪ A public pool telephone will be installed in each pool area for possible emergencies, per Irvine Uniform Security Code, Section 5-9-520-C.9.
Signs:	▪ All entries to the pool/spa areas should display a sign conforming to Irvine Uniform Security Code, Section 5-9-520.C.8.

D. LIGHTING STANDARDS FOR PUBLIC FACILITIES

1. ATHLETIC FIELD LIGHTING STANDARDS

Community Services Policy Procedure Section 4.40, Effective 5-18-1989

SUBJECT

LIGHTING STANDARDS FOR THE NEW CONSTRUCTION AND RETROFITTING OF OUTDOOR RECREATIONAL ATHLETIC FIELDS LIGHTS

PURPOSE

To provide standards by which architects, engineers, City staff shall plan the lighting design criteria for recreational athletic fields such as baseball, softball, soccer, and other similar facilities, which may be developed within the City of Irvine. These standards are designed to:

1. Provide a safe lighting system for the welfare of participants and spectators; and
2. Mitigate the environmental impact of recreational athletic field lighting on the community; and
3. Ensure that the standards established continue to be met over the life of the lighting system, as well as during the planning and initial installation.

POLICY

The Director of Community Services or designee shall ensure that the planning and implementation of lighting for recreational athletic fields is in conformance with the following standards as they apply to facilities which may be proposed, developed, retrofitted, or constructed.

I. PLAYER/SPECTATOR SAFETY

To provide for the welfare of participants and spectators, the following guidelines shall apply:

A. Maximum Lighting

The maximum lighting value that shall be used in lighting recreational athletic fields shall be an average maintained 50 footcandles (see Annotation A), as measured in the horizontal plane on the inbound portion of the playing field as defined in the City of Irvine Community Services Athletic Field and Court Standards.

B. Minimum Lighting

The average minimum planned maintained light levels for recreational athletic fields are defined in the City of Irvine Community Services Athletic Field and Court Standards.

C. Guidelines

Ninety-foot baseball fields are recommended to be lighted to a maintained level of 50 footcandles horizontal on the infield and 30 footcandles horizontal on the outfield. Tennis courts are to be lighted at 50 footcandles measured at the net and 30 footcandles measured at the baseline. All other baseball and softball facilities are recommended to be lighted to 30 footcandles maintained horizontal on the infield and 20 footcandles maintained horizontal on the outfield. Other types of recreational athletic fields are recommended to be lighted to 30 footcandles maintained horizontal over the playing surface.

D. On-Field Measurement Criteria

1. Horizontal Footcandles

Determining the method of measuring the horizontal footcandles shall be the maximum footcandle light value which would occur on a light meter held in the horizontal position with the light sensitive surface of the meter located between 3 and 5 feet above the surface to be measured.

2. Maintaining Light Definition

Planning or maintained light levels for the purposes of this policy shall allow for IES light loss factors by using .80 of the rated lumens as the assumed maintained light output of the 1500 or 1000 watt metal halide lamps.

E. Quality of Lighting

Facilities shall be planned with lighting uniformity not to exceed deviation of 3 to 1 when comparing the brightest to the darkest spot on the designated playing area, except that baseball and softball fields shall have a 3 to 1 measurement for the outfield portion, but shall have a measurement of 2 to 1 of uniformity on the infield.

Additionally, smoothness of lighting shall be evaluated to meet a standard not exceeding a 15% deviation in a 10 foot distance, except as the light values reduce at the end of the field (see Annotation C).

F. Spectator Stadium

Specialized applications with large spectator facilities may be granted permission to operate at specially-approved light levels greater than those provided for herein after proper public hearing to determine the appropriate light levels necessary for spectators.

II. ENVIRONMENTAL CONTROL

The luminaries used to provide light on the recreational athletic fields shall include reflectors and application technology designed to protect the environment surrounding the facility and the operations at military and civilian airport from the impact of glare and spill lights.

A. Glare and Spill Criteria

1. Spill Light

The maximum footcandle level on the property line of the facility upon which the planned lighted recreational athletic fields are located shall not exceed 1.5 footcandles.

The maximum footcandle level for the purpose of measuring spill light is defined as the maximum footcandle light value that would occur on a light meter located between 3 and 5 feet above the surface. The light-sensitive surface of the meter should be aimed at the light sources of greater intensity as viewed from that location.

This policy assumes that no playing surface area is closer than 150 feet to the property line. In the event any playing surface is closer than 150 feet to the property line, Procedure #3 shall apply (see Annotation D). Ambient light shall not be included (see Annotation E).

2. Glare Light

When viewed from any location outside the property line of the property on which the fields are to be lighted under the proposed plan, the maximum acceptable glare shall be determined by the following candlepower limitations at the light source:

- Individual Fixtures. For any single fixture, the maximum candlepower shall not exceed 12,000 candlepower.
- Total Fixtures on Pole. When the cumulative total of the candlepower of all the luminaries on any single pole for the luminaries aimed at any one field exceeds 30,000 candlepower, then the average of all the fixtures aimed at measurement point, on the single pole, shall not exceed 4,000 candlepower per fixture.

At any location where the property line is less than 150 feet from the playing surface (see Procedure #3 and Annotation D).

The single value candlepower curve shall be calculated with all the fixtures on the individual field simultaneously illuminated and with all fixtures aligned as they are proposed to be aligned for the final installation.

3. Extended Spill Light Scan

The manufacturer of the lighting equipment shall also submit a numeric simulation of the maximum footcandles as determined for spill light measurement for a distance of 1,000 feet each direction from home base for softball and baseball fields, or from the approximate center of other types of fields with light values shown on 50-foot increments. This light scan shall be run with all the lights operating on the applicable field.

Where applicable, the City of Irvine may request the extended maximum footcandle scans to be provided for purposes of determining spill light, in which all fields are assumed to be simultaneously illuminated to determine the cumulative effect of the spill light of the fields.

4. Extended Glare Light Scan

The manufacturer shall also, upon request, submit with the plan an extended numeric model for each to determine the sufficiency of the equipment to achieve the designed performance of the plan.

B. Equipment Criteria

To assure that the proposed recreation and athletic field lighting is capable of meeting the criteria set out in this policy, the luminaries to be used must meet the following minimum performance criteria:

1. Arc Tube Brightness

No portion of any arc tube shall be visible beyond 12 degrees vertical and 35 degrees horizontal measured from the maximum candlepower point of any fixture.

2. Output of Light Beam

The candlepower from the fixture above the maximum candlepower axis of the fixture shall not exceed the candlepower quantity at the specified degree measured in a vertical plane above the maximum candlepower axis as follows:

<u>Nema Type Reflector for Vertical</u>	<u>Candlepower</u>	<u>Degrees above Maximum Candlepower In Vertical Plan</u>
Nema 2	12,000	18 degrees
Nema 3	12,000	20 degrees
Nema 4	12,000	22 degrees
Nema 5	12,000	28 degrees
Nema 6	12,000	34 degrees

All new construction or retrofitted fields shall have glare and spill controls in the construction of the lighting. Glare control shall include a requirement that no light rays may emanate from the luminaries above horizontal in a direct manner.

C. Application Criteria

The maximum candlepower aiming point of each luminary used in lighting recreational athletic fields shall, as a minimum requirement, be aimed at least 25 degrees down from horizontal. Furthermore, as an additional criteria for the aiming of fixtures, it shall be a requirement that any axis line from the fixture where the output of the fixture is 12,000 candlepower or more, that line shall be aligned down from horizontal a sufficient number of degrees to strike the surface so as to meet the glare criteria of this standard; however, in any event not more than 150 feet outside the boundaries of the playing field (see Annotation D).

D. Submittal Documents

Plans for lighting recreational athletic fields shall include with their submittal for approval a numerical model that shows compliance with these guidelines and shall describe their compliance in the following manner, and shall each be presented on documents using 1 inch equals 200 feet.

1. Glare and Spill Documents

- a. Isocandela Curve of Total Candlepower—To establish a numerical model from which glare and spill control can be evaluated, there shall be provided with the lighting plan the plot of a line showing the total candlepower around the field at a uniform quantity of candlepower determined by multiplying the number of fixtures illuminating the field times the quantity of 2,000 (see Annotation F).

The single value candlepower curve shall be calculated with all the fixtures on the individual field simultaneously illuminated and with all fixtures aligned as they are proposed to be aligned for the final installation.

- b. Extended Spill Light Scans—There shall also be submitted a numeric simulation of the maximum footcandles as determined for spill light measurement for a distance of 1,000 feet each direction, from home base for softball and baseball fields or from the appropriate center of other types of increments. This light scan shall be run with all the lights operating on the applicable field.

Where applicable, the City of Irvine may request the extended maximum footcandle scans to be provided for purposes of determining spill light in which all fields are assumed to be simultaneously illuminated to determine the cumulative effect of the spill light of the fields.

2. Equipment Criteria

There shall be submitted with each proposed recreation and athletic field lighting project a written statement signed by the manufacturer, which provides the information as to degrees above vertical from a MAXIMUM candlepower, at which the candlepower output ceases to exceed 12, 000 candlepower from the vertical plane above the maximum candlepower and in a vertical plane 15 degrees to the right or left of the maximum candlepower, which documentation shall establish that the equipment meets or exceeds the criteria set out above the equipment. The City of Irvine may, at its discretion, require a demonstration of the proposed lighting equipment to confirm the submittal documents.

3. Application Criteria

For proposed recreation and athletic field lighting projects, there shall be submitted a scale drawing showing the following information:

- a. The location and height of each pole.
- b. The number of light fixtures to be located on each pole.
- c. The point on the ground where the max candlepower of each fixture is to be aimed.
- d. The horizontal and vertical aiming angles for each fixture to that max candlepower aiming point.
- e. The point on the ground where each fixture reaches 12,000 candlepower at the greatest angle in which that occurs above the max candlepower aiming point.
- f. The vertical and horizontal degrees from each fixture to that 12,000 candlepower point.

III. EVALUATING GLARE AND SPILL CRITERIA RESULTS

The science of lighting is such that there is a direct fixed relationship between candlepower, glare, and footcandles at any specifically defined point.

The most clearly determined measurement and the most convenient measurement is the footcandle reading at a given point. Accordingly, the primary method of evaluating the glare and spill performance criteria shall be to test the footcandle numbers provided on the extended spill lighting scan against actual readings at the designated location.

To confirm the correlation between the isocandela curve of the candlepower and the extended light scan of footcandle readings, the City may require the specific candlepower calculations and footcandle calculation for a sampling of the locations

around the facility so that it may be determined that the various points are mathematically and scientifically consistent.

The City may additionally, at its discretion, further require additional candlepower information to permit direct testing of candlepower at specific off-site locations through the use of footlambert or candlepower measuring devices.

IV. LONG-TERM PERFORMANCE

The performance guidelines established herein for the lighting of recreational athletic fields need to be adhered to, not only in the planning stage and the initial installation stage, but also during the life of the equipment on the facility. Accordingly, the following standards must be provided for in plans for the lighting of the facility and adhered to upon installation.

A. Reflector Surfaces

Details of the design of the luminaries and the luminary assembly shall be sufficient to show the nature of the materials to be used in the construction of the luminary and that the materials are properly selected and applied that the effect they achieve on glare and spill control on the surfaces of the reflector can be sustained in the environment of wind, heat, air, and ultraviolet sunlight to which the equipment will be subjected.

B. Mechanical Alignment

Sufficient design details of the luminary assembly shall be provided to show that the mechanical alignment of the luminary assembly has sufficient structural strength of materials and connecting methods to provide that the system will remain accurately aligned in winds of 125 miles per hour with a gust factor of 1.3, such that the glare and spill control standards will be maintained over the life of the equipment.

V. PROCEDURES

The following steps shall be followed to ensure that new construction or retrofitted lighting complies with these standards for recreation and athletic uses in City parks:

A. ARCHITECTS

These standards shall be provided to architectural firms who are proposing to provide design for new lighting systems.

1. The following should be carefully considered in the design of parks with lighted recreation athletic fields:
 - a. Pole heights shall be maximized to ease or improve upon the environmental control parameters of these standards.

- b. Pole placement shall be such that each field is illuminated from adjacent poles surrounding that field.
- c. Lights shall be placed on crossarms at the top of poles, rather than spaced vertically along poles. Multiple crossarms, placed immediately below the top arm may be used where warranted by the number of lights.
- d. Park or field boundaries shall have berms and landscaping to minimize the visibility of the illuminated playing field from adjacent streets and residential property lines.

B. LIGHTING CONSULTANT

A lighting consultant with experience in spill and glare control compliance may be required to provide documentation of compliance assurance in the master plan approval process, as well as to ensure proper construction to meet the specifications.

C. EXCEPTIONS TO STANDARDS

In order that the provisions of this policy may be reasonably applied in instances where difficulties exist and unnecessary hardship would result to recreational athletic fields due to an inability to light a facility in an otherwise reasonable location, then an appeal may be made to the Community Services Commission for recommendations to the City Council. Only the City Council shall waive provisions of this policy.

D. ANNOTATION

The annotations included with this policy are intended to describe the technology that is to be utilized in achieving the standards established in this policy.

ANNOTATION A

MAXIMUM HORIZONTAL FOOTCANDLES

The maximum glare and spill light levels have been set, based upon the combination of the available glare and spill technology and the desired light requirements for the facility, as stated in horizontal footcandles. However, since maximum light values are established for environmental protection and since, for purposes of environmental protection, the light values as viewed from the off premise locations are not directly affected by the horizontal footcandles, therefore, only the glare, which is measured in candlepower, and the spill light, which is measured in footcandles at or outside the property line, shall be ultimately determinative of the impact of maximum light values. Accordingly, the maximum horizontal footcandle guidelines for the playing field are advisory only as to glare and spill control. The candlepower limitations for glare and the footcandle limitations for spill light, established elsewhere in this policy are the governing guidelines for environmental control of light.

ANNOTATION B

MAINTAINED LIGHT VALUES

Current manufacturers' lamp catalogue publications list the initial lumen output as 155,000 lumens to 162,000 lumens for the various manufacturers. Test results available, and published manufacturers' charts for depreciation of lamps offer somewhat varying allowances for the amount and rate of depreciation of the lamps.

The dirt factor which will affect light output can only be estimated, as it will vary depending upon weather conditions and the environment in which the lighting is installed. For purposes of testing new installations, the IES and manufacturers' guideline of 100 hours of burning time shall be used. Accordingly, tests to determine initial light values for purposes of pro-rating to maintained light values shall be conducted after the lamps in the lighting system have been operated for 100 hours.

Accordingly, the policy established herein has set .80 of the rated initial lumens as the guideline for the IES standards of light loss factor to be used so that a consistent standard for lighting design can be applied to all new installations.

To assist in determining whether or not the field exceeds the maximum allowable lighting levels, the manufacturer shall supply a numerical computer simulation of the anticipated initial light value after the 100 hours of operations as a guideline for measurement.

ANNOTATION C

LIGHTING SMOOTHNESS

As of the time of the adopting of this policy, no IES guidelines exist for a smoothness of lighting on athletic facilities. It is anticipated that the IES will publish standards at some time as to this issue and at such time as the IES guidelines are established, those guidelines shall govern the issue of smoothness for purposes of this policy. Until such time as the IES establishes such guidelines, these standards, as provided, shall be the applicable standards.

ANNOTATION D

150 FOOT MEASURING DISTANCE

Existing technology for glare and spill control permits these standards to be met under normal circumstances at distances of 150 feet outside the playing area of any field. Accordingly, the guidelines are written to permit the glare and spill standards to be applied at a distance 150 feet from the playing surface wherever that distance occurs on property which is part of the same parcel upon which the playing field is located.

Wherever the distance between the playing field and adjoining properties is less than 150 feet, then it is the intent of this policy that more stringent spill and glare control shall be applied to those lights on the playing field which impact upon adjacent property

located less than 150 feet from the playing surface. In those circumstances, then the standards in this policy shall be met as outlined in Procedure #3.

ANNOTATION E

AMBIENT LIGHT

Ambient light from sources other than the planned playing field lighting shall be excluded in determining the footcandles of spill light. To test the quantity of spill light from the field lighting, there shall first be taken light meter readings at the designated location without the design field light shown in the plan to determine the ambient light. These quantities of light shall be deducted from the light values measured with the field lights operating.

ANNOTATION F

ISOCANDELA CURVE

The purpose of the isocandela curve of total candlepower is to establish a mathematical benchmark against which spill and glare calculations can be confirmed in the event questions arise during the testing proces after installation, or for purposes of determining whether or not equipment proposed to be used has the technical capability, at the proposed aiming angle, of achieving the designed glare and spill standards.

The use of 2,000 times the number of fixtures is based upon the maximum average candlepower of 4,000 per fixture from a pole, and then reduced by one-half on the assumption that one-half of the fixtures will be facing away from any given surrounding point.

2. SECURITY LIGHTING (IRVINE UNIFORM SECURITY CODE)

(Excerpt from the Irvine Uniform Security Code as it pertains to recreational facilities)

Sec. 5-9-520. Special Recreational Spaces Provisions

The provisions of this section shall apply to community buildings, parks, open spaces, trails, community swimming pools, and associated sidewalks and parking lots.

- A. Structures shall comply with all provisions of the Uniform Security Code except Section 5-9-517, Special Non-Residential Building Provisions, and Sub-Section (K) regarding lighting standards.
- B. Exterior Lighting shall conform to the following standards:
 - 1. All types of exterior doors shall be illuminated during the hours of darkness with a minimum maintained one (1) foot-candle of light at ground level, measured within a five (5) foot radius from the center of the door.
 - 2. Recessed areas of buildings or fences, which have a minimum depth of two (2) feet, a minimum height of five (5) feet, and do not exceed six (6) feet in width and are capable of human concealment, shall be illuminated with a minimum maintained twenty-five one-hundredths (0.25) foot-candles of light at ground level during the hours of darkness. This requirement applies to defined recessed areas which are within six (6) feet of the edge of a designated walking surface with an unobstructed pathway to it, not hindered by walls or hedge tow landscaping a minimum of two (2) feet in height.
 - 3. Stairways shall be illuminated with a minimum one (1) foot-candle of light on all landings and stair treads, during the hours of operation, including one hour thereafter.
 - 4. Parking lots and walkways accessing buildings and parking areas shall be illuminated with a minimum maintained one (1) foot-candle of light on the driving or walking surface during the hours of operation and one hour thereafter.
 - 5. Bike trails not incorporated in the roadway shall be illuminated with a minimum maintained twenty-five one-hundredths (0.25) foot-candles of light at ground level during the hours of darkness.
 - 6. Paved walkways in open space areas, not directly serving buildings or parking areas, shall be illuminated with a minimum maintained twenty-five one-hundredths (0.25) foot-candles of light on the walking surface during the hours of operation and one hour thereafter.
 - 7. Swimming pool decks and other hard surface recreation activity areas shall be illuminated with a minimum maintained one (1) foot-candle of light on the walking surface during the hours of operation and one hour thereafter.

8. The light source utilized to comply with this section to meet parking and drive surface lighting shall have a rated average bulb life of not less than 10,000 hours.
9. Luminaires utilized to meet the requirements of this section shall have vandal resistant light fixtures, if accessible, and be not less than eight (8) feet in height from ground level. A luminaire not less than forty-two (42) inches may be utilized to illuminate a walkway if adjacent landscaping is of a variety which does not mature higher than two feet, and it does not interfere with the required light distribution for a distance of sixteen (16) feet along the walkway. Light fixtures shall be deemed accessible if mounted within fifteen (15) feet vertically or six (6) feet horizontally from any accessible surface or any adjoining roof, balcony, landing, stair treads, platform or similar structure.
10. Activation of the required exterior lighting shall be either by a photocell device or a time clock with an astronomic clock feature.
11. A site plan shall be provided showing buildings, parking area, walkways, detailed landscaping and a point-by-point photometric calculation of the required light levels. Foot-candles shall be measured on a horizontal plane and conform to a uniformity ratio of four to one (4:1 average/minimum). Landscaping shall not be planted so as to obscure required light levels.
12. Public recreation facilities and spaces shall utilize light poles and fixtures listed in the Irvine Community Services Department approved products list.

C. Swimming pools shall be secured as follows:

1. Restroom doors and pool gates shall be equipped with automatic closure devices, dead latches, and a latch protector consisting of minimum 0.125-inch-thick steel, two (2) inches wide and six (6) inches long.
2. The pool equipment room or enclosure to be secured with either a deadbolt lock or padlock with a minimum five (5) pin tumbler operation, minimum 3/8" thick shackle, and heel and toe locking.
3. The on and off switch for the spa is to be keyed.
4. Perimeter fencing, using either tubular steel or aluminum, is to be installed at a minimum height of six (6) feet. Vertical fence pickets are to be spaced not more than four (4) inches on-center and be designed to discourage climbing.
5. Emergency access to locked gates is to be provided through installation of a Knox box key vault which shall contain all keys required to enter the pool area at any time. The box is to be installed within eight (8) feet of the gate and placed between four (4) and five (5) feet above ground level.
6. Selection of landscaping is to consider height of plants regarding providing needed visibility into the pool area from adjacent uses, buildings, and streets.

7. Lighting shall conform to Section 5-9-517.K.7 regarding lighting fixtures.
8. All entrances to non-public pools/spas shall have signage indicating it is private property and no trespassing allowed.
9. A public telephone allowing for 911 calls is to be installed and maintained within twenty-five feet (25') of the main entry gate.

D. Landscaping guidelines are as follows:

1. Plant materials utilized shall take into consideration the need for users of the space to easily view their surroundings as well as police patrols to monitor the area from adjacent streets.
2. Trees shall be positioned to avoid interfering with required lighting levels and take into consideration the height of canopies from ground level regarding surveillance opportunities by users of the space and police patrols.
3. Planting of wide hedge rows and narrow vertical plants adjacent to solid fences is encouraged.

Section 5-9-521. (Reserved)

Section 5-9-522. (Reserved)

Section 5-9-523. (Reserved)

Section 5-9-524. (Reserved)

Section 5-9-525. (Reserved)

Section 5-9-526. (Reserved)

Section 5-9-527. (Reserved)

Sec. 5-9-528. Tests.

- A. It shall be the responsibility of the owner, or his designated agent, of a building or structure falling within the provisions of this code to provide the enforcing authority with a written specification performance test report indicating that the materials utilized meet the minimum requirements.
- B. Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that any material or any construction does not conform to the requirements of this code, or in order to substantiate claims for alternate materials or methods of construction, the enforcing authority may require tests as proof of compliance to be made at the expense of the owner or his agent by any agency which is approved by the enforcing authority.
- C. Specimens shall be representative, and the construction shall be verified by assembly drawings and bill of materials. Two (2) complete sets of manufacturer or fabricator installation instructions and full-size or accurate scale templates for all items and hardware shall be included.

E. OPEN SPACE TRAILS AND FACILITIES

1. INTRODUCTION

The primary goal of the open space trails system is to allow for experience of the natural open space and for varied recreational opportunities. Therefore the design of these trails will differ significantly from the design of pedestrian and bicycle paths in the urban environment, where the primary goal is to provide safe and convenient means of connection between facilities. The trails within the open space need to be designed to:

- 1) minimize the disruption to the natural environment;
- 2) provide a natural trail experience;
- 3) embody the purpose of the recreational activity itself, such as hiking, biking, equestrian, or interpretive natural trails; and
- 4) meet a variety of recreational needs and challenges for potential users with a wide range of abilities.

A majority of the City Open Space is located within the Habitat Preserve area of the Natural Community Conservation Plan and Habitat Conservation Plan (NCCP/HCP) areas for the Central and Coastal Subregion of the County of Orange. The primary goal of the NCCP/HCP is “to protect and manage habitat supporting a broad range of plant and animal populations that now are found within the Central and Coastal Subregion”. Facilities within the Preserve have to be “consistent with the Preserve’s primary species habitat protection mission” (Provision 5.8.4). Public access and “passive” recreational uses, such as hiking, equestrian and mountain bike uses on designated and existing truck trails, are permitted (Provision 5.8.3.1 and 2). However, any new recreational facility has to be “located and designed to minimize impacts to sensitive resource” (Policy 5.8.5.3). The use of the trails has to be monitored on an on-going basis to minimize impact on the preserved habitat and can be prohibited if necessary to preserve the habitat.

Trails within the City Open Space Preserve – South may be used for hiking, equestrian use, and/or mountain biking (non-motorized). However, a specific trail may be restricted from some of those uses on a case by case basis based on the specific characteristics of the trail or the environmentally sensitive surroundings, as determined by the Director of Community Services or designee.

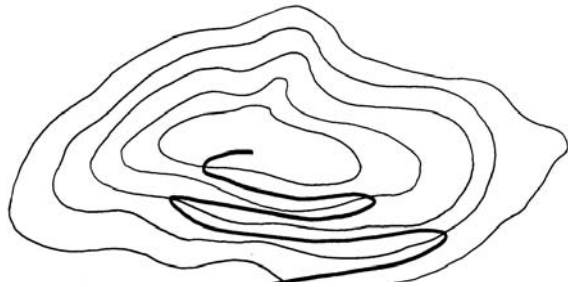
Trails within the Preserve should be developed in accordance with the standards and guidelines contained in this sub-section. Strict standards for Open Space trails or even segments of the same trail are impractical because of the vast differences in topography and other physical characteristics and because of dissimilarities in the kinds and extent of use. Flexibility is necessary. In special locations where physical constraints or trail design elements preclude the practical implementation of a trail or trail feature under the provided standards, the Director of Community Services or designee may approve an exception to the standards if public safety is not jeopardized.

2. TRAIL DESIGN

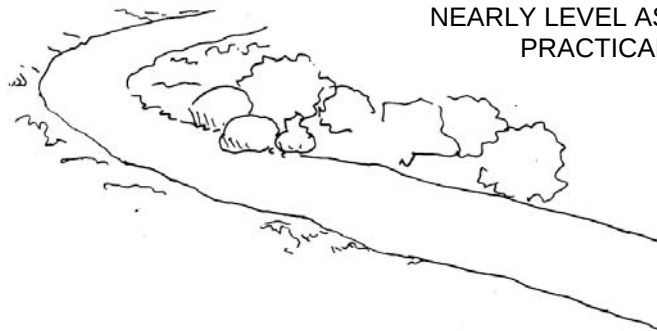
Trail Type	Trail Tread Width	Thinned/Maintained Area Preferred		Vertical Clearance
		Horizontal Upslope	Horizontal Downslope	
Singletrack	min. 2'	1'	1'	min. 7'
Accessible*	min. 3'	1'	1'	min. 7'
Doubletrack	min. 4'	1'	1'	min. 10'
Truck trail	min. 8' max. 10'	2'	2'	min. 10'
Fire/Utility road	max. 12'	2'	2'	min. 13'

*Portions of trails may be accessible.

Cross Slope	- Maximum 2% cross slope preferred; - Cross slopes should not exceed 5%, except for short distances when necessary to provide drainage or to accommodate natural constraints.
Drainage:	- Surface water must be diverted from the trail's surface before it builds up to an erosive force. The method used to drain the trail will depend on the quantity and speed of the water, the type of soil in the area, and the grade of the trail. - The best and simplest drainage is often to slope the trail surface 2%-3%, to allow the water to sheet off rather than run in a stream down the trail. Low grades help prevent drainage problems; steep grades allow the water to flow faster building up an erosive force. - Landscaping next to trails can help to facilitate better drainage. Emphasis should be placed on the importance of maintaining the integrity of the trail as part of the landscape design. - Drainage (i.e. culverts, ditches) should not be located in the pathway of the trail. - Water bars and swales may be used to direct water from the trail surface toward the natural watercourse. These facilities are generally located at the tops and bottoms of slopes to remove water flows from the trail to reduce erosion.

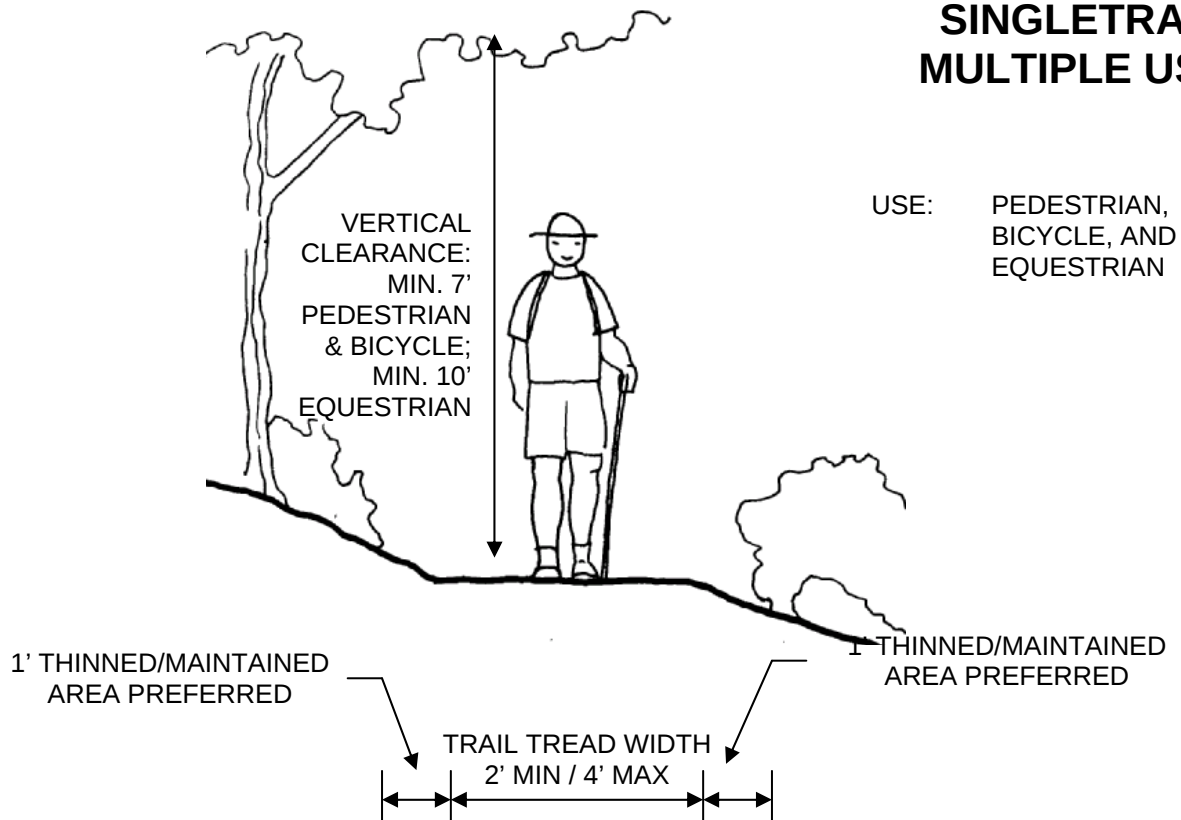


TRAILS SHOULD BE
DESIGNED TO FOLLOW
THE EXISTING CONTOURS
OF THE TERRAIN
WHENEVER POSSIBLE

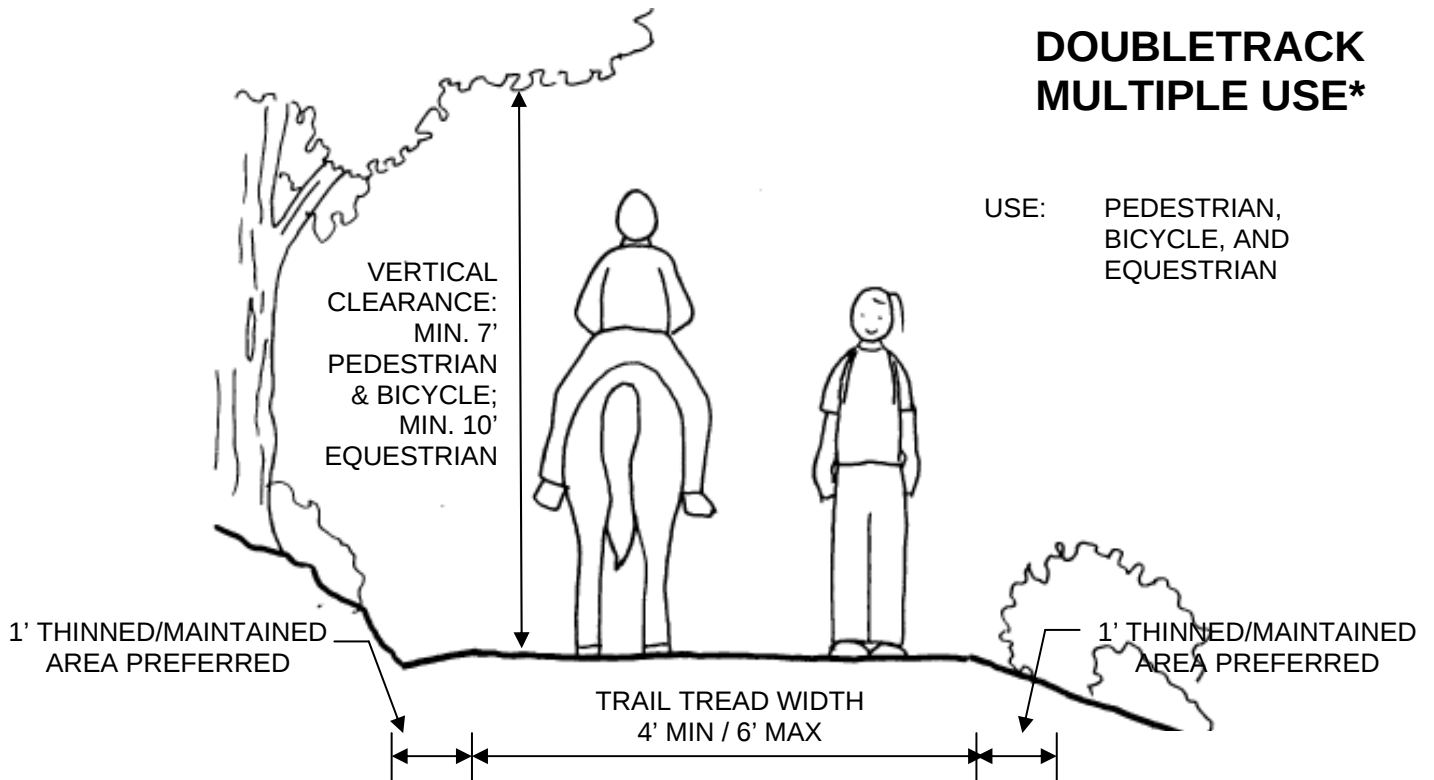


SLOPES SHOULD BE
LESSENEED AT APPROACHES
TO SWITCHBACKS AND THE
TURNS SHOULD BE AS
NEARLY LEVEL AS
PRACTICAL

SINGLETRACK MULTIPLE USE*

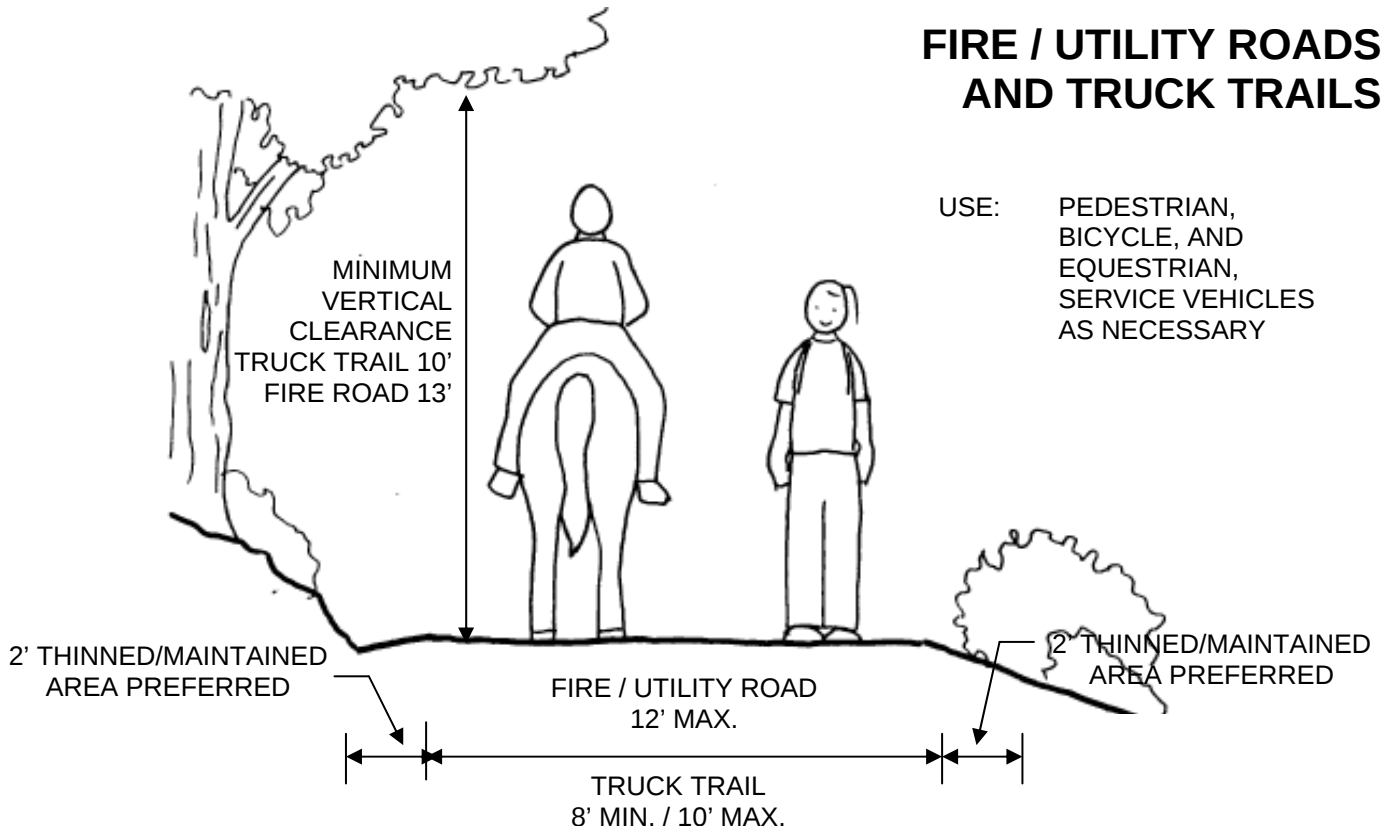


DOUBLETRACK MULTIPLE USE*

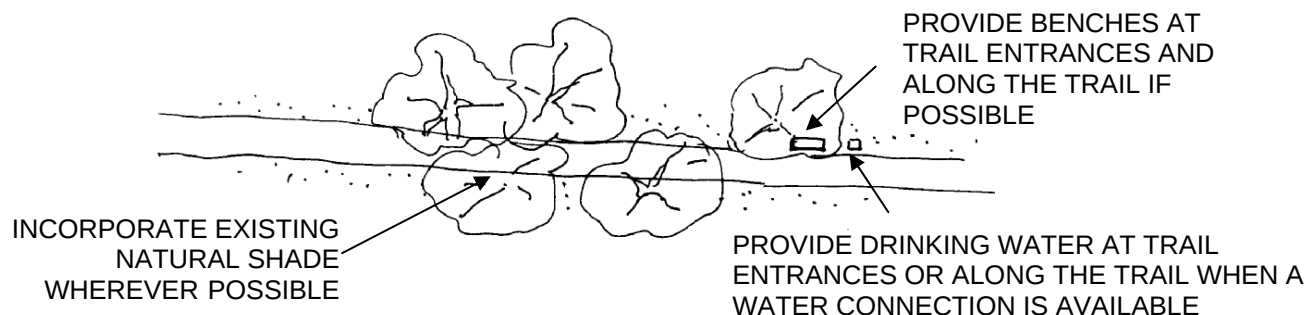


* Some trails may be designated hiking only or single use only

FIRE / UTILITY ROADS AND TRUCK TRAILS



Surfacing Materials:	▪ The trail may be treated or surfaced in areas where: ▫ it is needed to prevent erosion; or ▫ it is needed to improve slick or muddy conditions. ▪ Suggested trail surfacing by trail type: <table> <tr> <th><u>Trail Type*</u></th><th><u>Surfacing Material</u></th></tr> <tr> <td>Hiking-Backcountry</td><td>Natural with gravel added in wet areas</td></tr> <tr> <td>Hiking-Internally within a campground or other facility</td><td>Natural, gravel, wood chips, or a combination of all three</td></tr> <tr> <td>Horses & Mountain Bikes</td><td>Natural if possible, gravel in wet areas</td></tr> </table> * Design requirements for multi-purpose trails will be geared to the most demanding of the planned uses. Soil stabilizers may be used to reduce erosion in appropriate locations.	<u>Trail Type*</u>	<u>Surfacing Material</u>	Hiking-Backcountry	Natural with gravel added in wet areas	Hiking-Internally within a campground or other facility	Natural, gravel, wood chips, or a combination of all three	Horses & Mountain Bikes	Natural if possible, gravel in wet areas
<u>Trail Type*</u>	<u>Surfacing Material</u>								
Hiking-Backcountry	Natural with gravel added in wet areas								
Hiking-Internally within a campground or other facility	Natural, gravel, wood chips, or a combination of all three								
Horses & Mountain Bikes	Natural if possible, gravel in wet areas								
Changes in level:	Abrupt changes in level should be avoided.								
Barriers:	To prevent motorized vehicles from using the trails, barriers such as rocks, gates or bollards, may be placed appropriately at trail entrances. Fixed barriers, such as rocks or bollards, if used, should be at least 3' apart to allow handicap access where appropriate.								
Material:	All benches, trash can enclosures, fences, and other amenities provided along the trail shall be made of sustainable materials, such as wood look recycled plastic, stainless steel, or aluminum.								
Shade:	New trails should incorporate existing shade wherever possible.								
Drinking Water:	Drinking water should be provided at trail entrances or along the trail when water connections are available.								



3. TRAIL ACCESSIBILITY GUIDELINES

The Open Space Preserve - South is comprised of hilly, mountainous areas with sensitive environmental habitats. The majority of the City Open Space is located within the NCCP area, where the primary purpose is to preserve the natural environment. For this reason, the potential for grading and other alterations is severely limited. In most cases, existing trails will be used with minimal alterations.

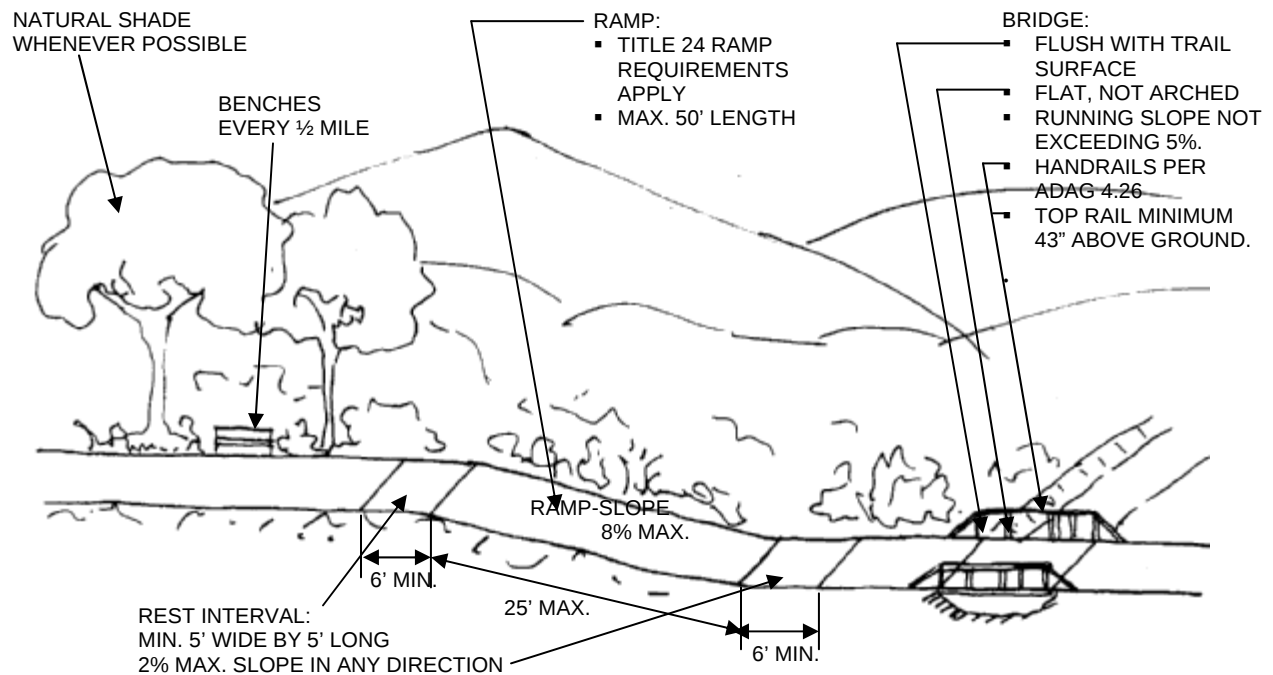
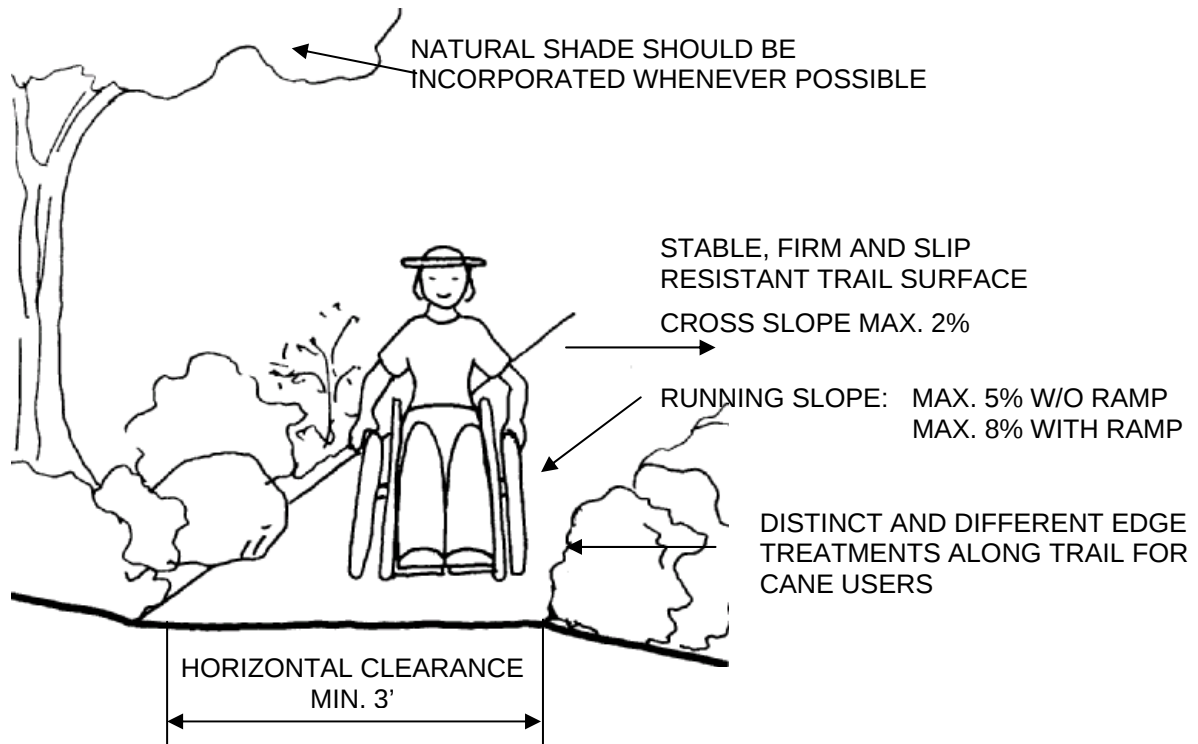
Within the given constraints, the following measures should be taken to allow users to safely access and enjoy the open space:

1. Trails shall be categorized into 4 accessibility levels:
 - a. Accessible trails that comply with Title 24 requirements,
 - b. Easy trails which, although not fully accessible, can still be used by most people, and by some people with disabilities,
 - c. Moderate trails which present more challenge than the easy trails, but can still be used by many, and
 - d. Difficult trails which present special physical challenges.
2. Accessible trails will be provided within designated trail areas where possible. Americans with Disability Act (ADA) accessible trails will be identified with signage. Other accessible trails leading from the trailheads will be provided when such trails can be accommodated without significant alterations to the existing terrain and the protected environment.
3. Each trail will be designed to the highest feasible accessibility level considering the natural constraints and avoiding major alterations to the natural setting. The minor alterations may include removing obstacles on the trail or clearing small portions of the trail to the required width to allow accessibility. All design features, such as bridges and trail crossings, should be designed to the same level of accessibility as the segment of the trail leading to and from the design element.
4. Signs should be provided at the entry to the trail, describing the trail length and terrain of the trail in order to help inform the user of the type of the accessibility level of the trail.

	Accessible	Easy	Moderate	Difficult
Trail Tread Width:	Minimum 3'	Minimum 2'	Minimum 2'	Minimum 2'
Horizontal Clearance: (Width clear of any obstruction)	Minimum 3'	Minimum 2'	Minimum 1'	Minimum 1' preferred, but not required
Running Slope:	Maximum 5% slope permitted without a ramp.	Maximum 5%; except maximum 10% for up to 30' length.	Maximum 10%; slopes over 5% should be minimized.	Slopes may exceed 10%.
Cross Slope • Maximum	2%	2%	5%	No requirement
• Minimum	Minimum needed to provide drainage and protect the existing natural setting.			
Ramp Requirements:	Title 24 ramp requirements apply: ▪ a ramp is required for any slope over 5%, ▪ maximum slope with a ramp shall be 8%, and ▪ maximum length with a ramp shall be 50'.	Exempt from Title 24 ramp requirements.	Exempt from Title 24 ramp requirements.	Exempt from Title 24 ramp requirements.
Rest Intervals – Required:	Required when: ▪ Trail width is less than 6', every 200' and at all changes in the direction of the trail; or ▪ Trail running slope is over 5% for 25' or more, at every 25' of such slope.	Not required	Not required	Not required
Rest Intervals – Design:	▪ Width equal to or greater than the segment leading to or from the rest interval, but not less than 5'. ▪ Minimum length 5'. ▪ Maximum slope 5% in any direction	Not applicable	Not applicable	Not applicable

	Accessible	Easy	Moderate	Difficult
Rest Intervals – Design (cont'd)	▪ Gradual change of slope at the segment connecting the rest interval with trail. ▪ Firm and stable surface.	Not applicable	Not applicable	Not applicable
Changes in Level:	▪ Vertical surface difference shall not exceed ¼”. ▪ Changes in level between ¼” and ½” shall be beveled with a slope no greater than 1:2.	Vertical surface difference shall not exceed 2”.	No requirement	No requirement
Access Points:	Frequent access points should be provided.	Occasional access points may be provided	No requirement	No requirement
Edge Protection:	Distinct and different for cane users.	Not required	Not required	Not required
Trail Surface:	Stable, firm and slip resistant surface; not slippery when damp, collecting surface water, or become soft in very hot or wet weather, i.e. stabilized decomposed granite or other approved surface.	Decomposed granite or natural surface	Natural surface	Natural surface
Maintenance:	Well marked, maintained, cleared, and graded.	Well marked, maintained, cleared, and graded	Well marked, maintained, cleared, graded or mowed	Well marked, maintained, and cleared
Seating	Provided every ½ mile if possible.	Not required	Not required	Not required
Bridges and Trestles	▪ Flat and not arched, with running slope max. 5%. ▪ Handrails should be designed to conform to ADAG 4.26 with the top rail minimum 43” above ground. ▪ Bridges should be flush with the trail surface.	▪ Running slope maximum 8%. ▪ Side railings provided for safety as needed ▪ Flush with trail when possible; max. 2” vertical change in level.	No requirement	No requirement

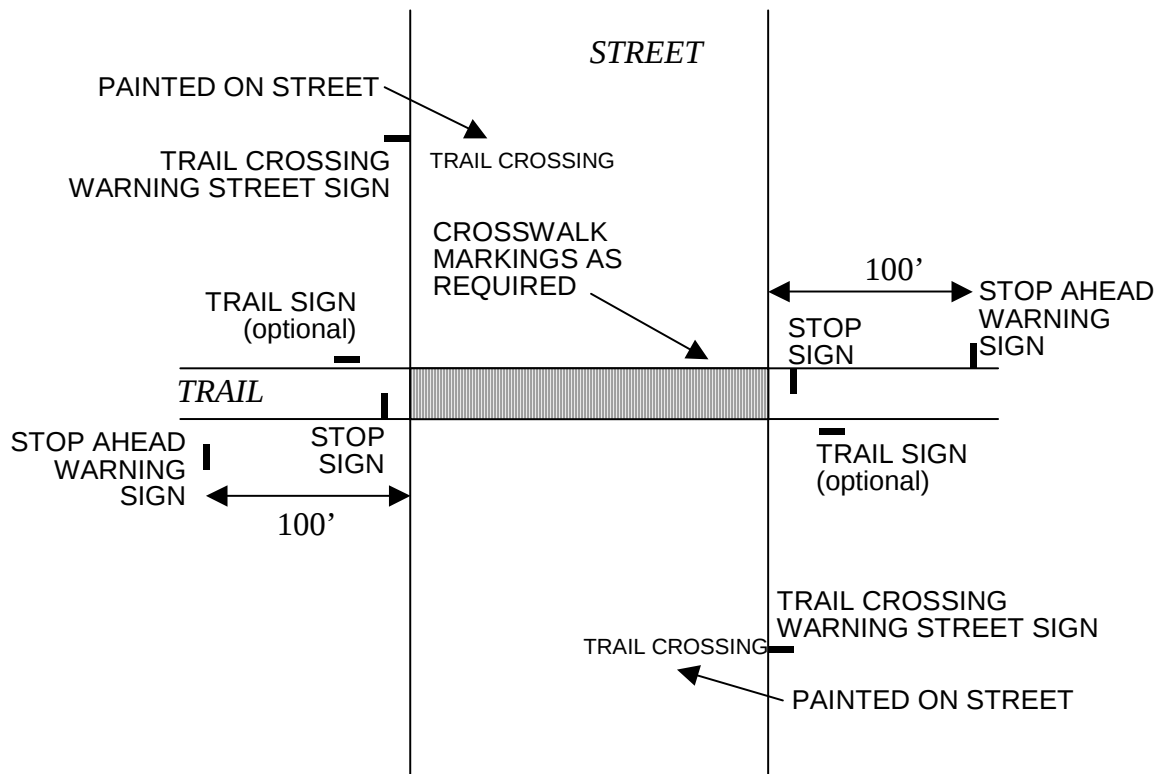
ACCESSIBLE TRAIL



4. TRAIL CROSSINGS

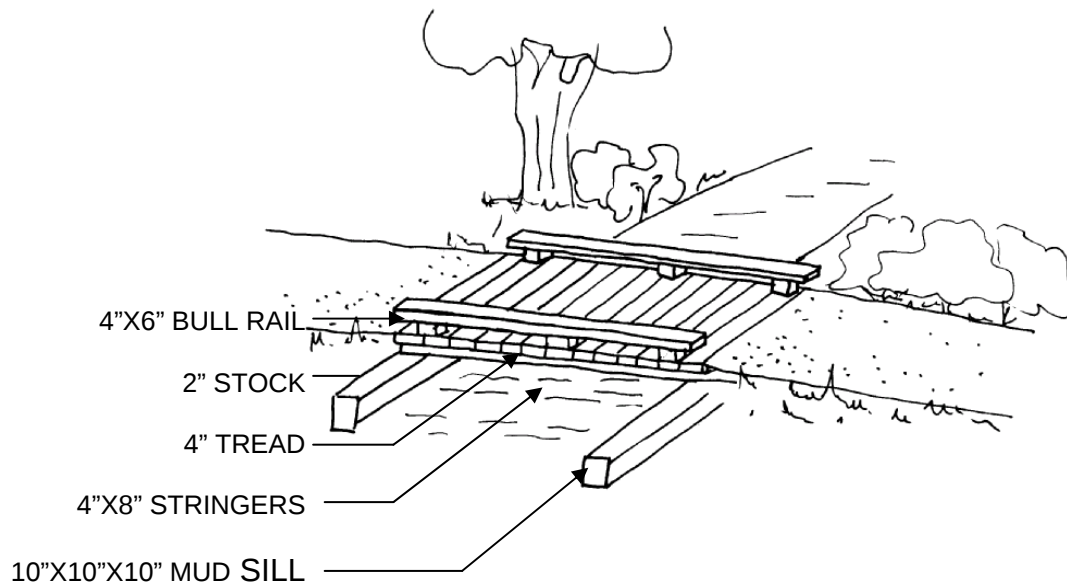
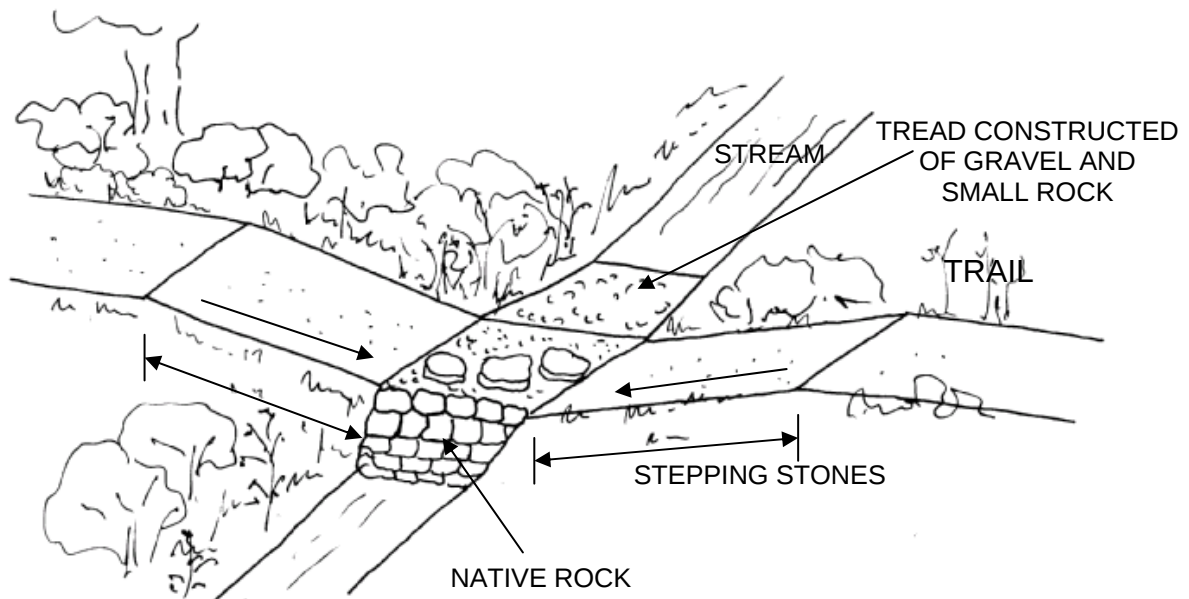
At-Grade Crossing:	▪ When a trail crosses a road at-grade, the following signage/markings should be provided: ▫ Street signage should be located along the street in advance of the trail crossings, to warn motorists of impending trail crossings. Signs should meet City and State standards. ▫ Trail signage should be located along the trail in advance of the road crossing to warn trail users of impending traffic. ▫ Marking for trail crossings should consist of striping on the roadway surface and, where feasible, texturing (sandblasting) of the roadway surface. ▪ Signalized intersections interfacing with equestrian trails should have both raised and regular height push buttons.
---------------------------	--

Typical Signing – Trail Crossing at Mid-Block



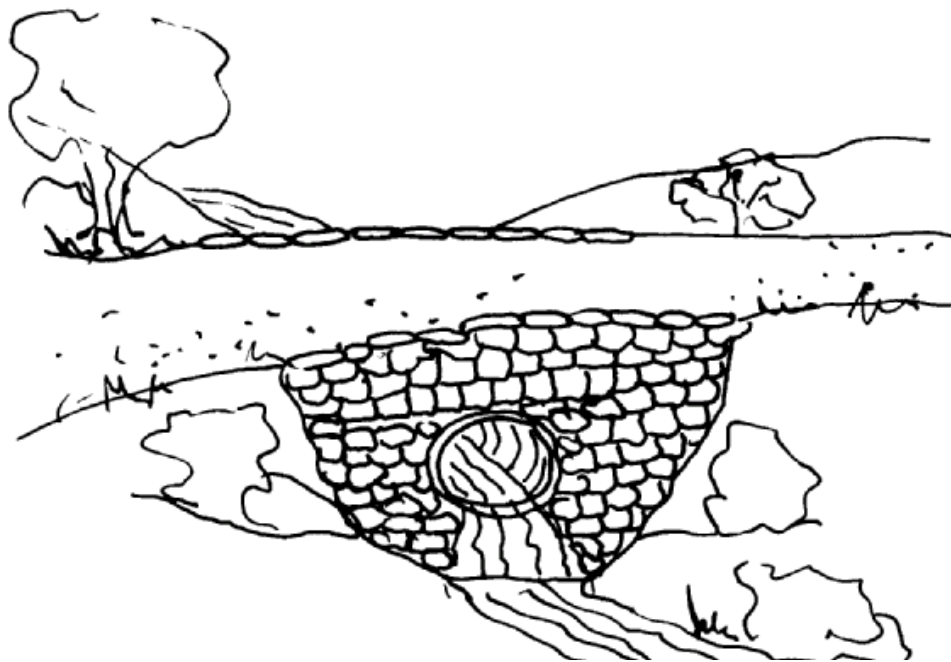
Bridges and Trestles:	Bridges should be: ▪ Designed to conform to the trail type and intended use. ▪ Aligned to provide visibility ▪ Accessibility: Bridges should be at least at the accessibility level of the trail segments that lead to and from the bridge. ▪ Minimum width should be equal to the minimum width of the trail segment leading to and from the bridge. ▪ Material: Sustainable materials, such as sustainable wood, wood look recycled plastic, stainless steel, or aluminum. Other materials may be permitted by the Director of Community Services or designee. ▪ Surface: Non-skid, textured. (i.e. rubber, wood, cement) ▪ Enclosure: Bridges should never be completely enclosed.
Wet Crossings & Puncheons:	▪ These crossings are not handicap accessible. ▪ Wet crossings (such as fords) may be utilized, as needed, to cross creeks, rivers, streams, etc. Generally, bridges are not necessary for crossing water, and they may necessitate an unnecessary expense. ▪ Puncheon structure is a log or timber structure built close to the ground (3 feet or less) with or without hand railings. It may be used to cross small drainages, wet areas at other places. It usually consists of mud sills, stringers and wood decking. ▪ Something as simple as stumps across a low flow creek can be used as a wet crossing for equestrians.

WET CROSSING-ROCK STRUCTURE



PUNCHEON STRUCTURE

Culverts:	When surface flows or subterranean springs are intercepted by a trail, a culvert may be placed perpendicular to the trail in such a manner to redirect the water and divert it to the downhill side of the trail. ▪ All culvert outflows shall be directed into the natural watercourse of the intercepted flow. ▪ The size of the culvert should be sufficient to adequately carry the maximum anticipated peak flow of water and promote self-cleaning. ▪ Culverts should be designed to maintain the accessibility level of the trail. Covered culverts and/or other techniques may be required.
------------------	--



5. TRAIL FENCING, GATES AND HITCHING POSTS

Fence Provision:	Trail fencing may be provided: ▪ where horses need to be firmly confined within the trail width, or ▪ for safety, such as in specific steep slope areas, bridges, and other potential hazard or high-traffic and general public use areas.
Fence Material and Design:	All fences, shall be made of sustainable materials, such as wood look recycled plastic, stainless steel, or aluminum. Plantings such as trees, hedges, or large rocks can also serve as trail fencing or barriers. Barbed wire is prohibited as a trail fencing material.
Fence Height:	Maximum fence height should not exceed 4 feet, except for security fences. The top of the post should not exceed 6 inches above the top rail.
Gates:	Vehicular gates may be located at the entry to the trail, segment of a trail, and/or parking lot area. Design: manual gates (options to allow equestrian, pedestrian and bicycle access where appropriate). Material: sustainable materials, such as wood look recycled plastic, stainless steel, or aluminum.
Hitching Posts:	Hitching posts shall be 6” square or round posts 4’ in height. Rings for tethering horses shall be attached to top of post. Sustainable materials, such as wood look recycled plastic, stainless steel, or aluminum are recommended. Other materials may be permitted by the Director of Community Services.

Existing Wire Strand fencing where applicable

Multi-Padlock Latch Assembly

International Recreational Use / Regulation Symbols

12" x 3" Trail Name and Trail Distance Sign

12" x 18" Protected Wilderness Management and Program Sign

1/4" Steel Plate for Agency Signage

Concrete footings to be installed per gate fabricators requirements

Double Wood Step-Over blocks

Existing Wire Strand fencing where applicable

Multi-Padlock Latch Assembly

International Recreational Use / Regulation Symbols

12" x 3" Trail Name and Trail Distance Sign

12" x 18" Protected Wilderness Management and Program Sign

1/4" Steel Plate for Agency Signage

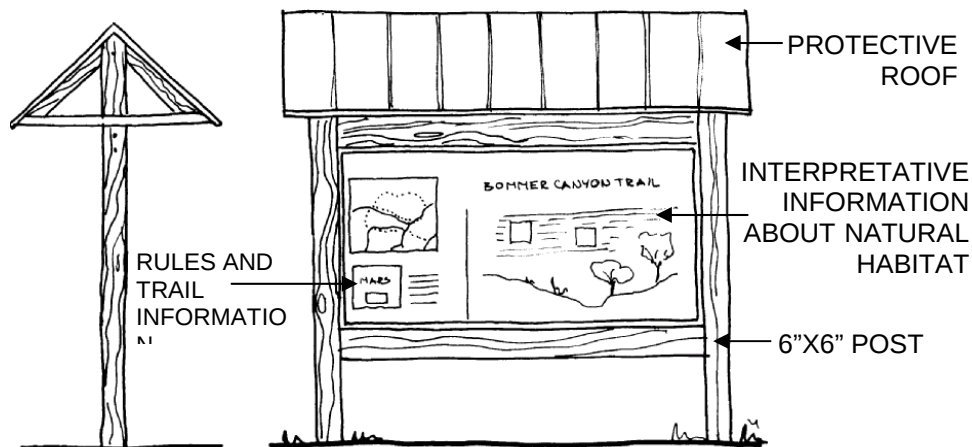
Concrete footings to be installed per gate fabricators requirements

Double Wood Step-Over blocks

6. TRAIL SIGNS

Introduction:	All City trails should have specific and consistent signing that identifies them as City trails and that meets the following standards. Consistency in signing is important to provide an identity to City trails. A separate signing program will be developed and approved by the Director of Community Services or designee. Signage will be kept to a minimum to retain the natural character of the site.
Trailhead Signs:	▪ Trailhead signs should be provided at each Trailhead. ▪ Stand-alone kiosk signs or bulletin board signs mounted on a Trailhead building may be used for Trailhead signs. ▪ Trailhead sign should include: ▫ Information advising trail users of rules and regulations, trail etiquette, potential hazards, permitted trail uses, and emergency information. ▫ Explanation of accessibility in practical clear wording. ▫ A map(s) of the trail and/or trail system, showing: - Each trail, including the trail name, permitted users, and approximate trail length - Location of rest areas, trailheads, and drinking water - Topography, including elevations of the low points, main ridgelines and main hilltops - Trail highlights, such as view points - Creek beds and wetland areas ▫ Information on hazards and seasonal conditions, if applicable (e.g. poison oak, rattlesnakes, animals). ▫ Hours of operation. ▫ Phone number to obtain trail maps and other trail and open space information.

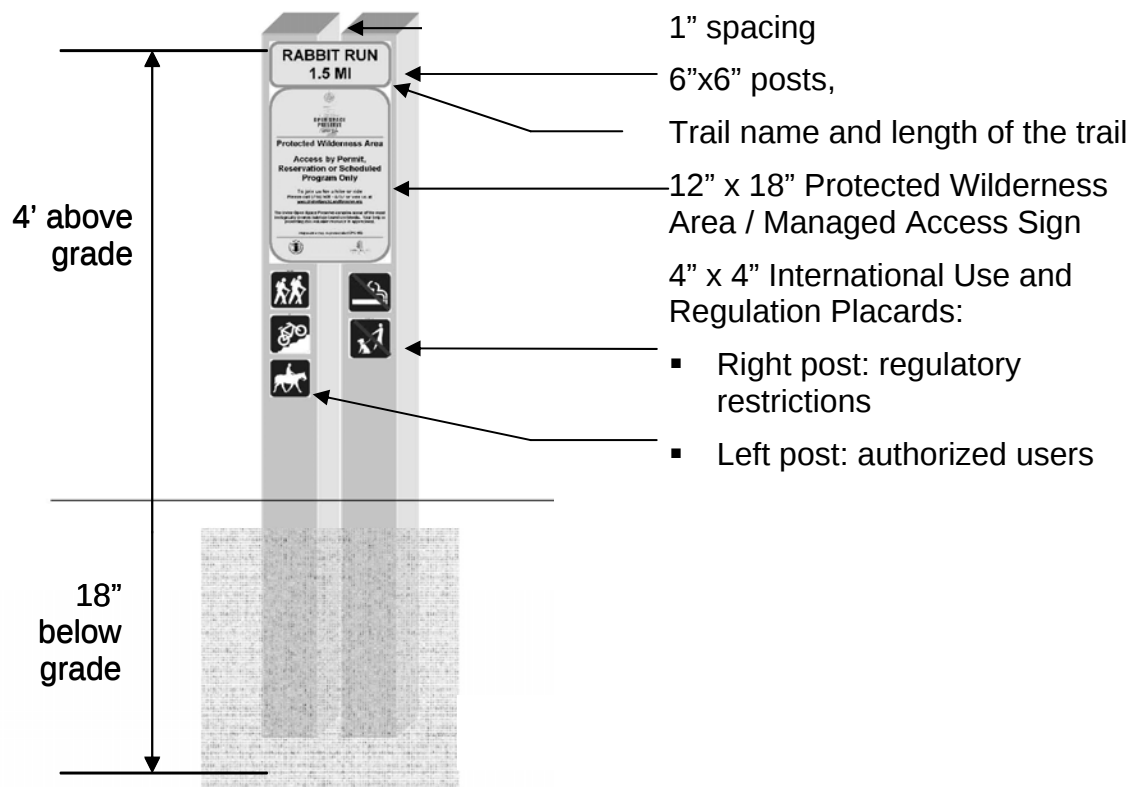
**Typical Kiosk / Bulletin Board Sign
(Conceptual Only, Final Design Will Vary)**



-VII-83-

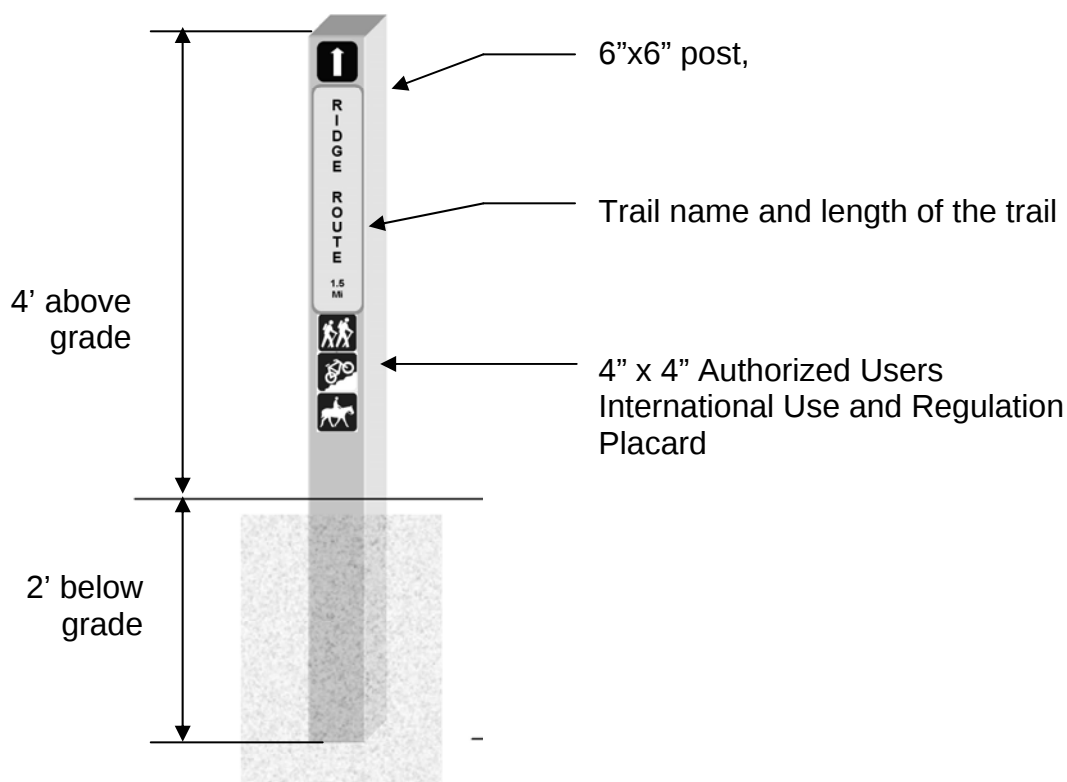
Perimeter Trail Marker:	▪ Should be placed at trail entry points and other points where trail identification is needed, and where the visitor has not had the opportunity to review the managed area status on a Trailhead sign. Example would be along the Serrano Ridge Trail on the portions that are shared with the Laguna Coast Wilderness Park. ▪ Should contain the following information ▫ Trail name, mileage or approximate length of trail ▫ Protected Wilderness Area / Managed Access information ▫ Permitted users and trail user yielding signs ▫ Trail regulations ▫ The sign may also include the City seal and other appropriate information ▪ Should consists of: ▫ Two 6"x6" posts, 4' high above ground, with 1" spacing in between ▫ A 6" X 12" sign with the trail name and length of the trail ▫ 12" x 18" Protected Wilderness Area / Managed Access Sign ▫ 4" x 4" International Use and Regulation Placards. Left post will indicate authorized users and right post will indicate regulatory restrictions
--------------------------------	---

Example:



Interior Trail Marker:	▪ Interior trail markers should be placed at trail entry points and other points where trail identification is needed, where the visitor has already had the opportunity to review the Managed Area information messages on either a perimeter access gate or a Trailhead sign or a perimeter trail marker. ▪ Should contain the following information ▫ Trail name, mileage or approximate length of trail, and directional arrow ▫ Permitted users and trail user yielding signs ▫ The sign may also include the City seal and other appropriate information ▪ Consists of: ▫ A single 6"x6" post, 4' high above ground, ▫ 6" x 18" sign with the name and length of the trail ▫ 4" x 4" International Use Placards
-------------------------------	---

Example:



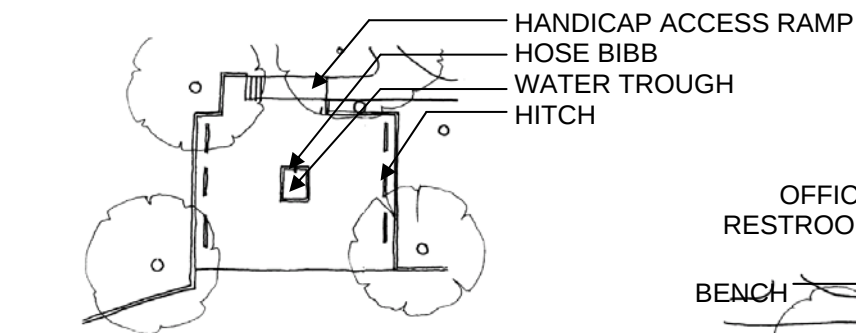
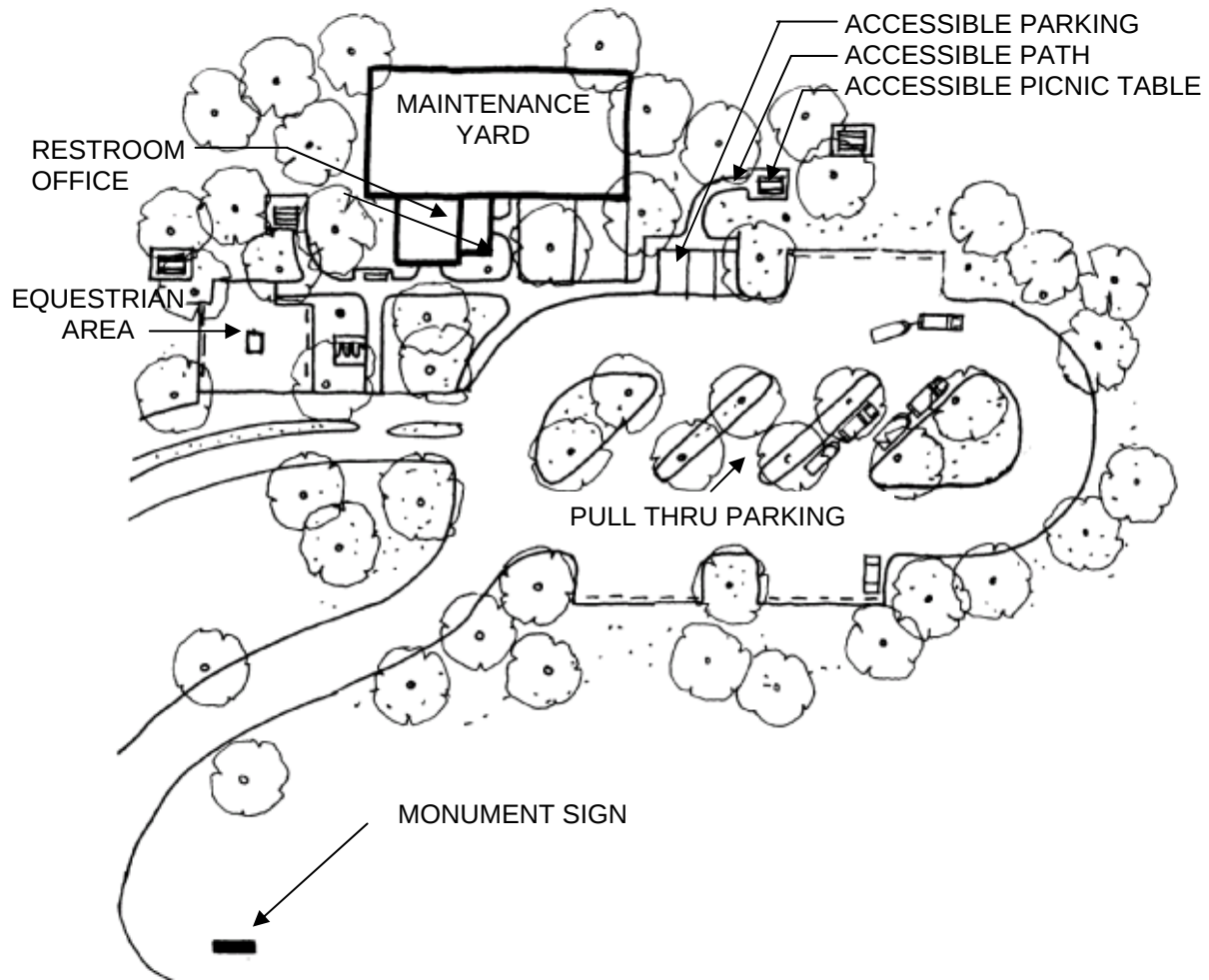
Other Types of Signs:	▪ Destination signs should be placed at appropriate locations to inform trail users of the distance and destination on various routes. These signs should be accompanied by directional arrows where confusion with other routes is possible. ▪ Directional signs should be placed at intersections with roads or other trails, where paths could be confused. Directional signs should be placed, as appropriate, to clarify trail destination and direction to trail users. ▪ Informational signs should be used to provide miscellaneous information about the trail including restroom locations, mileage markers, water, etc. ▪ Intersection signs should be placed at intersections to warn both the trail user and oncoming traffic. ▪ Warning signs should be placed on the trail to warn trail users of hazardous conditions on the trail. Signs should identify hazard points, clearance requirements, or safety precautions, as warranted. ▪ Trail user yielding signs should be placed at all trail heads and posted periodically, especially at trail crossings and along trails that accommodate a variety of users.
Locations:	▪ Signs should offset from the trail edge a minimum of 2 feet. However, exact location for the best visibility can only be done in the field and sensitive areas should be thoroughly considered.
Materials:	▪ Sustainable materials, such as wood look recycled plastic, stainless steel, or aluminum. should be used. ▪ Metal signs should be used where vandalism may be a problem or where signs interface with public roadways where standard metal signs are used.
Lettering and Sign Height:	▪ All trail signs should be located so that they can be easily read from the trail. ▪ The copy should be large enough so that it is easily legible. Typically, letters should be 2 inches in height. ▪ Height of signs should be determined by vegetation and other surroundings. Typically, height of 40 inches from the ground to bottom of a sign is acceptable.
Coloring:	▪ The City may adopt "trail colors" in order to achieve uniformity in the signs; however, there must be enough contrast between the background and the wording to be legible.

7. TRAILHEADS

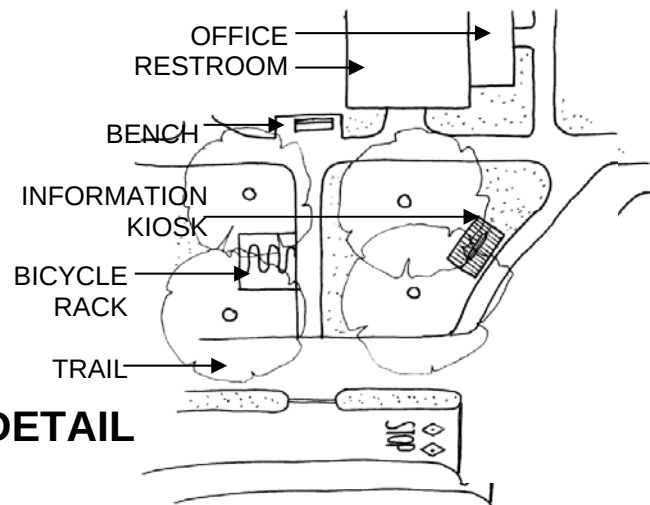
Purpose:	Trailheads provide parking and entrance into the open space. All trailheads will provide vehicle parking, rest areas, entrance to trail system, trail information, picnic areas, and restrooms. They may also include equestrian parking and facilities or other amenities when appropriate.
Location:	Where feasible, should be located: ▪ At key access points to the City open space trail system. ▪ Adjacent to arterial highways or main roadways. ▪ Suitable existing parking may be used to minimize need to build new staging areas.
Amenities:	▪ Building area shall include: ▫ Restroom, size depending on maximum occupancy of the Trailhead area ▫ Office/indoor storage area (when deemed necessary by City) attached to the restrooms, approximately 10 feet by 20 feet. ▫ Outdoor trail maintenance yard (when deemed necessary by City), surrounded by block wall fence, adjacent to building, to include parking/turnaround for 2 trucks and 2 soil bunkers. ▫ Drinking water, including a drinking fountain for people and a hose bib if equestrian staging use is proposed. ▫ Seating, with a companion seating pad ▫ Shade ▫ Trash receptacles (trash cans or dumpsters) ▫ Bicycle rack ▪ Picnic area(s), group or individual, may be provided but are not required. Large trees or solid shade should provide shade to the picnic tables in each picnic area.
Central Accessible Area:	Each Trailhead area shall have one or more handicap accessible central areas that will include: ▪ Handicap accessible parking ▪ Building area with all amenities required above ▪ A portion of picnic tables, if any provided, that offer equal opportunity to enjoy the area, such as views, shade, etc. ▪ Accessible paths of travel connecting the Trailhead amenities with each other and with accessible parking.
Parking Required:	Number of parking spaces should be based on expected use and shall comply with the City of Irvine Zoning Code, but shall be no less than 10 marked regular or pull through trailer spaces, if equestrian use is permitted, unless otherwise determined by the Director of Community Services or designee.

Parking Standards:	▪ Size and design of regular parking spaces shall conform to City Zoning Code. ▪ Pull through trailer parking spaces, if provided, shall conform to the following requirements: ▫ Long enough for a car and horse trailer, but no less than 10 feet wide by 20 feet deep. ▫ Laid out so that straight-ahead entrance and exit is possible. ▫ Drive aisle width shall be sufficient for turning trailers. ▫ Two hose bibs shall be provided within the parking area. ▫ Surface material shall be compressed decomposed granite, or porous paving materials with a natural color.
Horse Staging Area:	Horse staging area, if provided, shall be: ▪ Separate from the parking lot ▪ Shall include: ▫ Hitches ▫ Hose bib ▫ Water through ▫ Trees for shade ▪ Surface shall consist of decomposed granite or natural surface
Signs:	Trailhead area should include, at the minimum: ▪ Monument sign at the entrance to the Trailhead area in conformance to Section VIII-C of the Irvine Park/Public Facilities Standards. Lighted sign is optional. ▪ Trailhead sign within the trailhead area (stand-alone kiosk sign or bulletin board sign mounted on the Trailhead building) ▪ Trail marker signs, located at each trail entrance
Material:	All benches, tables, trash receptacles, kiosks, fences, and other amenities provided along within the staging area shall be made of sustainable materials, such as wood look recycled plastic, stainless steel, or aluminum.
Surfacing:	Well-drained, non- cohesive soils where feasible. Porous paving materials or asphalt.
Lighting:	Lighting of the Trailhead Area shall conform to Section 5-9-520 of the Irvine Uniform Security Code and the Open Space/NCCP amendment.

OPTIMAL TRAIL HEAD AREA DESIGN EXHIBIT



EQUESTRIAN AREA DETAIL



TRAIL HEAD AREA ENTRY DETAIL

8. PARKING AND DROP OFF AREA

Applicability	All parking serving City Open Space shall conform to the Municipal Parking Code and the following standards.
Number of Spaces:	▪ Total number of accessible parking spaces shall conform to the City Zoning Code Section 4-3-6 and State Title 24. ▪ If pull through parking (for equestrian or camping, etc.) is provided, the number of pull-through accessible parking spaces shall be calculated separately per City Zoning Code, based on the total number of pull through parking spaces provided. Width of the accessible pull-through parking space shall be minimum 10' with a minimum 8' wide loading/unloading area. ▪ One out of every 8 accessible spaces, but no less than one, should be served by an 8' wide minimum access aisle on the passenger side and designated as "Van Accessible." (Title 24)
Location:	Accessible spaces should be located as near as possible to a primary entrance so that visitors do not have to travel behind parked cars other than their own.
Accessible Path:	Accessible path shall be provided from each handicap parking spaces to related facilities, including curb cuts or ramps as needed. Ramps shall not encroach on any parking spaces. A bumper curb or appropriate design shall be provided to serve as a tire stop to prevent encroachment of cars onto the required width of walkways.
Slope:	The surface slopes of the handicap parking space and access aisle shall not exceed 2% in either direction.
Surfacing:	▪ Well-drained, non- cohesive soils where feasible. ▪ Accessible spaces shall be located on a firm, hard packed or paved surface that is glare and slip resistant.
Landscaping:	▪ Landscaping of parking lots shall conform to Section 3-15-5 of the Irvine Zoning Code. ▪ Native materials shall be used that blend with the surrounding open space.
Signs:	The loading/unloading area shall have a post mounted accessibility sign on the outside edge of the loading/unloading area and, if paved, shall be blue striped.

Bench:	A 6-foot bench with an accessible companion seating pad 4 feet wide and 5 feet deep, should be located within 15 feet or as close as possible from any designated handicap accessible parking space.
Drop-off Zones:	▪ A drop-off zone may be included and is the area on an accessible route of travel where cars or school buses can safely stop, away from traffic, in order to pick up passengers or let them off. ▪ A drop-off area may have a cover from sun and inclement weather, and a bench with companion seating. ▪ Drop-offs do not replace requirements for accessible parking ▪ If a drop-off area is provided, the maximum distance from the drop-off area to the primary accessible entrance, should be ▫ 150 feet for any buildings or accessible trail ▫ 300 feet for easy and moderate trails

9. SPECIFIC FACILITIES AND AMENITIES

Campgrounds and Picnic Areas:	All campgrounds and picnic areas with vehicular access, shall meet the following requirements: ▪ A fully accessible designated area shall be provided. ▪ Accessible parking space shall be 17' wide x 20' long adjacent to the campsite or within 150' from the picnic area. Slope shall not exceed 2% in either direction. ▪ Minimum 10% plus one of the total number of campsites shall be fully accessible ▪ All campsites: ▫ Shall have cooking and eating areas with a firm paved or unpaved surface. ▫ Tent sites, if provided, should have an 18'x18' firm, but not paved, tent/sleeping pad adjacent to table/cooking area. ▫ Site should drain surface water at ¼" per foot (1:50) away from activity areas. ▪ Accessible campsites: ▫ shall be connected with fully accessible pathways to all support facilities. ▫ should be maximum 250' from accessible restroom and 100 feet from accessible potable water. ▫ Should have both sunny and shaded areas, if possible. ▫ Consider locating accessible sites so that they are representative of the range of sites in the campground (water, view, secluded, etc.) when feasible without causing significant impact on the existing environment.
Restrooms:	Whenever permanent restrooms are provided at the site, they shall be constructed to the Title 24 specifications.
Picnic tables, drinking water, and trash cans	Following amenities shall be handicap accessible within any facility (trailheads and/or trail) that has vehicular access or is accessible by handicapped accessible trails: ▪ 50% of all picnic tables should be handicap accessible. ▪ Water faucets and drinking fountains should be handicap accessible, ▪ Trash receptacles should be handicap accessible. ▪ All benches will have companion seating.
Concrete	All exposed concrete used within the Preserve shall be colored to match existing soils.

Bibliography

Beneficial Designs, Inc., Designing Sidewalks and Trails for Access, Part I of II: Review of Existing Guidelines and Practices. U.S. Department of Recreation, 1999.

Beneficial Designs, Inc., Designing Sidewalks and Trails for Access, Part II of II: Best Practices Design Guide. U.S. Department of Recreation, 2001.

State of California: Access to Parks Guidelines, May 1999.

County of Orange: Regional Riding and Hiking Trails Design Manual, 1991.

East Bay Regional Park District: Trail Manual, 1996.

County of Orange: Natural Community Conservation Plan & Habitat Conservation Plan, 1996.

8. Public Facilities

PUBLIC FACILITIES

User Guide

8.1. USER GUIDE

8.1.1. INTENT

Provisions of this section apply to all public parks and park amenities, including community parks, public neighborhood parks and special facilities that are owned and operated by the City of Irvine (“City”), unless specifically noted otherwise. These provisions do not apply to parks that are owned and operated by private entities such as Homeowners Associations or condominium/apartment complexes.

The Community Services Commission believes that the preservation of the unique character or theme of each publicly-owned park is important and should be maintained whenever possible. This section establishes minimum design, construction and performance expectations for City-owned parks and recreational facilities. The intent of the Standards is to inform and guide park planning, capital improvements and capital maintenance and to sustain life-cycle resource investments in public spaces. The Standards is a reference instrument for selection of materials, fixtures and systems; it integrates City criteria with industry standards and applicable federal, state and City requirements into a primary, single-source document. Anticipated benchmarks for performance/function, safety, environmental impact and anticipated maintenance/life-cycle resource needs are established by each Standard.

Many factors were taken into consideration, including:

- Safety
- Inventory standardization
- Maintainability of equipment
- Product availability and cost
- Initial and replacement costs
- Staff resources
- Maintaining aesthetics and service levels
- Applicable state and county laws
- Recycling
- Environmental concerns
- Green building requirements and goals

The Standards supplement industry standards and federal/state/local requirements, while identifying City park-specific requirements for publicly owned parks and facilities. Information in this manual is not intended to replace or function as

PUBLIC FACILITIES

User Guide

specifications, construction documents or contract documents. Construction plans for public facilities shall include all necessary details and specifications.

8.1.2. APPROVAL AUTHORITY

Approval authority for revisions to this section and departures from provisions of this section shall be as follows:

1. Comprehensive revisions of this section shall be subject to approval by Community Services Commission, except as stated below.
2. The Director of Community Development may approve routine updates to the manufacturer, model numbers and installation details for public parks and facilities contained in Section 8 upon review by both Community Services staff and Public Works Facility Maintenance staff responsible for operation and maintenance of the facility. Manufacturer and model numbers change frequently in response to changes in the industry and detailed installation specifications often undergo minor changes in response to new experiences in the field. Allowing for this information to be routinely updated without a need for a public hearing, ensures that this section is up-to-date and current information is available to architects and engineers who design public parks and facilities.
3. The Director of Community Development may approve departures from the Standards when deemed appropriate, upon review by both Community Services staff and Public Works Facility Maintenance staff responsible for operation and maintenance of the facility.

8.1.3. ORGANIZATION

Public facility standards are organized according to five sections:

1. User Guide.
2. Site Furnishings.
3. Athletic Equipment.
4. Buildings.
5. Electrical.

PUBLIC FACILITIES

Site Furnishings

8.2. SITE FURNISHINGS

8.2.1. BARBECUE

Quantity and Location

Quantity: See Section I.

Location: Barbecues shall be located:

- In proximity to picnic tables
- Based on prevailing winds, in relationship to pavilions or nearest picnic area.
- To minimize impact of odors, noise and fire in relation to adjacent uses.
- A minimum of 50 feet from nearest playground area.
- A minimum of 16 feet from any tree trunk.

Accessibility

All barbecues shall be accessible to persons with disabilities.

Features

Single Barbecue:

- Stove: swivel, attached to the base, with a replaceable ash pan and fabricated of non-corrosive metal.
- Base: permanent/stationary or comparable made of the same material as the stove.
- Cooking area: 270 square inches.

Family Barbecue:

- Base: permanent/stationary or comparable made of the same material as the stove.
- Two separate and adjustable ash pans.
- Cooking area: 560 square inches.

Group Barbecue:

- Base: Permanent/stationary base.
- Fire box: fabricated from 7 gauge steel.
- Cooking grate: anti-theft; fabricated from ½-inch steel bars spaced 1-1/8 inches on center (OC) with 12-inch x 36-inch steel utility shelf; side-mounted
- Cooking area: 1,368 square inches.
- Overall grill dimensions: 43 inches wide, 51 inches long, and 38 inches high.

A metal scoop shall be provided with each grill to dispose of ashes/coals.

Warranty: A one-year minimum warranty is required.

Life Cycle Expectations: Barbecues are anticipated to require replacement after 10 years of normal and ordinary use.

PUBLIC FACILITIES

Site Furnishings

Installation Notes

1. Installation shall follow all manufacturer's specifications for pad size, footings and anchoring.
2. When a concrete pad is used:
 - A permanent base shall be anchored per manufacturer's specifications.
 - A square area of slab around the base shall be constructed to be removable for replacement of base, yet solid while in normal operation. This area

shall be 14 inches by 14 inches. Slab shall be sloped to shed water.

- The barbecue shall be mounted so that the distance between finished grade and the cooking surface is between 1-foot-7-inches and 2 feet.

Preferred Models

Single Barbecue: [Gametime #60](#).

Family Barbecue: [Gametime #49](#).

Group Barbecue: [Iron Mountain Forge #220](#).

Images and Diagrams



Single Barbecue



Family Barbecue



Group Barbecue

PUBLIC FACILITIES

Site Furnishings

8.2.2. PARK BENCH

Quantity and Location

Benches are required:

- Within 15 feet from any parking spaces accessible to persons with disabilities, per Section VI.C.
- At tennis courts, per Section VII.A.12.
- At tot lots per, Section VII.B.3.5.

Accessibility

See Section VI-G, including requirements that all benches are:

- Accessible to persons with disabilities.
- Have backs and armrests.
- Have an adjacent companion seating space, outside of the path of travel.

Features

All benches shall be 6 feet long, with backs and armrests. Benches may include a center rail.

Materials and Finish:

- Steel: Galvanized. Metal finishing shall be of high-quality, permanently affixed powder coating, applied through a heat-finished process. Metal products shall have smooth welds, joints and corners. Joint fasteners shall be imbedded or sealed. Benches shall contain a minimum of 70 percent post-consumer steel.
- Aluminum: Seats, backs and end caps shall be anodized

aluminum with hot dip galvanized frame where holes are drilled prior to galvanizing.

- Recycled Products: Seats and backs shall be wood-look, 100 percent recycled lumber product or 100 percent recycled plastic, where only one type of recycled product is used consistently. Seats and backs shall be ultra-violet (UV) stabilized. Frame shall be aluminum or galvanized steel.
- Concrete and wood are not acceptable materials. Recycled plastic products that look like wood should be used in place of wood.

Warranty: A 10-year minimum warranty is required.

Life Cycle Expectations: Benches are anticipated to require replacement after 20 years of normal and ordinary use.

Installation Notes

1. Pads and Positioning: All park benches shall be placed on a reinforced concrete pad, 4 feet wide, 6½ feet long, and 4 inches thick. All benches shall be centered on the pad with length of the bench parallel to length of the pad. If there is a non-flush obstruction at the front of the bench, bench shall either be placed flush to that obstruction or shall overhang it, so as not to present a safety hazard.

PUBLIC FACILITIES

Site Furnishings

2. Frames: All frames shall be $2\frac{3}{8}$ inches OD galvanized surface mounted type. Comparables may be substituted only with prior approval from the Community Development Director.
3. Mounting: All benches shall be surface mounted, using stainless steel anchor bolts.
4. Labels: All packing labels shall be removed prior to installation in a manner that does not damage the surfaces.
5. Fasteners: All fasteners shall be stainless steel.
 - All bench slats shall be fastened to the frame with stainless steel $\frac{3}{8}$ -inch by 4-inch carriage bolt, $\frac{3}{8}$ -inch flat washer and $\frac{3}{8}$ -inch hex bolt.
 - All frames shall be fastened to concrete slabs by an ITT Red Head SRM-38 stainless steel drop-in anchor, a $\frac{3}{8}$ -inch by 1-inch stainless steel hex head bolt, $\frac{3}{8}$ -inch flat washer and $\frac{3}{8}$ -inch lock washer, both stainless steel.

Preferred Models

Dumor: Any steel, aluminum or recycled plastic with steel frame model if surface mounted.

Images and Diagrams



Dumor #58

PUBLIC FACILITIES

Site Furnishings

8.2.3. BICYCLE RACK

Quantity and Location

Bicycle racks shall be located at each park and at entrances to major buildings. Additional racks may be required for major facilities not in close proximity to buildings.

Accessibility

Not applicable.

Features

Materials and Finish: All bicycle racks shall be galvanized.

Warranty: A ten-year minimum warranty is required.

Life Cycle Expectations: Bicycle racks are anticipated to require replacement after 20 years of normal and ordinary use.

Installation Notes

1. Racks shall be located so that parked bicycles do not impede pedestrians.
2. Racks shall be located a minimum of 3 feet from parallel or perpendicular walls.
3. All bicycle racks shall be surface-mounted only, anchored with ITT Ramset/Redhead SRM-38 stainless steel drop-in anchors with appropriate size stainless steel hex head bolts, lock washer, and $\frac{3}{8}$ -inch flat washer.

Preferred Models

[L.A. Steelcraft](#) series galvanized bike rack.

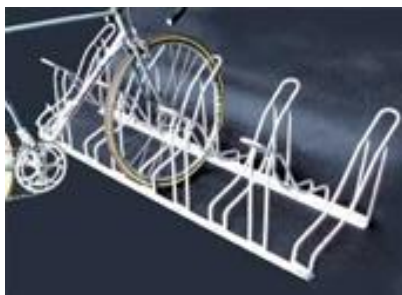
- Single-sided: BAX 5 or BAX 8.
- Double-sided: BA-9 or BA-15.
- Bollard style BBR5-29 (ross).

Cyclops Wave, WLBR Series

Images and Diagrams



L.A. Steelcraft
Single-sided
Bike Rack



L.A. Steelcraft
Double-sided
Bike Rack



Cyclops Wave
Bike Rack

PUBLIC FACILITIES

Site Furnishings

8.2.4. DISPLAY CABINET

Quantity and Location

Not specified.

Accessibility

All display cabinets shall be accessible to persons with disabilities. They shall be located adjacent to a path of travel accessible to persons with disabilities and at a height allowing a person with disability to read the material.

Features

Display cabinets shall consist of an indoor/outdoor letter board, 4 feet by 3 feet, with locking plexiglass doors and cork back.

Unit shall have a headboard with the name of the facility in upper case letters.

Images and Diagrams



Materials and Finish: Unit shall be anodized aluminum or acceptable equal with plexiglass doors and a cork back.

Warranty: A ten-year minimum warranty is required.

Life Cycle Expectations: Display cabinets are anticipated to require replacement after 20 years of normal and ordinary use.

Installation Notes

Display cabinets may be attached to a building or fence or may be freestanding, adjacent to a path of travel.

Preferred Models

Not specified.



PUBLIC FACILITIES

Site Furnishings

8.2.5. DRINKING FOUNTAIN

Quantity and Location

Drinking fountains shall be provided in parks where drinking water supply is desirable, particularly near active park sites and playgrounds. Drinking fountains are required near athletic court areas and restrooms.

Accessibility

See Section VI.G, including requirements that all drinking fountains are accessible to persons with disabilities and placed outside of the path of travel.

Features

All drinking fountains shall be:

- Vandal resistant.
- Dual purpose.
- Activated by a low-weight, five pounds or less, push-button operation mechanism located below the bowl.

Materials and Finish: All drinking fountains shall have exposed aggregate finish.

Warranty: A one-year minimum warranty is required.

Life Cycle Expectations: Drinking fountains are anticipated to require replacement after five years of normal and ordinary use.

Installation Notes

1. Location: All drinking fountains shall be located minimum 50 feet from sand areas.
2. Pads & Positioning: Each fountain shall be set on a concrete slab, 2½ feet long, 2 feet wide and 4 inches thick, and positioned in accordance with manufacturer's specifications and California State Building Code Title 24, Part 5, Section P1507.
3. Fasteners: All anchors and anchoring material (bolts, nuts, washers, etc.) shall be of stainless steel. "J" bolt mounting system is not acceptable.
4. Drains: All fountains shall be connected to sewer lines in accordance with the Uniform Plumbing Code.
5. Valves: The incoming water lines shall have a ball type shut-off valve located off the slab in an approved valve box. The valve body shall be of bronze or stainless steel. The interior parts shall be same type as the body.
6. Strainers: The outgoing waste line shall have a minimum 2-inch "Y" type strainer installed and placed in an approved valve box off the slab. Strainer will be positioned to allow easy access to strainer opening.
7. Backflow Devices: Portable lines shall have a reduced pressure

PUBLIC FACILITIES

Site Furnishings

principal device (RPPD). Backflow prevention device shall be installed and secured immediately after the installation of the meter. Installation will conform to City and Irvine Ranch Water District Standards. Only devices approved by the University of Southern California Cross Connection Institute may be used. Installation will further conform to state regulations and manufacturers' instructions. Should a difference occur between manufacturer and the Cross Connection Institute, The Cross Connection Institute shall prevail.

Preferred Models

[Halsey Taylor model 4595.](#)

Images and Diagrams



Drinking Fountain – Halsey Taylor

PUBLIC FACILITIES

Site Furnishings

8.2.6. PICNIC TABLE

Quantity and Location

See Section I.

Accessibility

See Section VI.G.

Features

Dimensions:

- All tables and seats not accessible to persons with disabilities shall be 8 feet long.
- All tables accessible to persons with disabilities shall have a 2-foot overhang, be minimum 8 feet long including the overhang, and have seats minimum 6 feet long.

Materials and Finish:

- Steel: Acceptable if surface-mounted.
- Aluminum: Tops, seats and end-caps shall be anodized aluminum with hot dipped galvanized frames, holes to be drilled prior to galvanizing.
- Recycled Products: Tables shall be made of wood-look, 100 percent recycled lumber product or 100 percent recycled plastic, where only one type of recycled product is used consistently. Top and seat shall be UV stabilized. Tables shall have minimum 4-inch thick slab and metal frame. Lighter colors should be used for the slab, such as cedar with green or

maroon frame or gray with maroon frame.

- Concrete and wood are not acceptable materials. Recycled plastic products that look like wood should be used in place of wood.
- All frames shall be 2³/₈-inch OD galvanized steel, with holes drilled prior to galvanizing.

Warranty: A 10-year minimum warranty is required.

Life Cycle Expectations: Picnic tables are anticipated to require replacement after 15 years of normal and ordinary use.

Installation Notes

1. Shade: At least 50 percent of all picnic tables shall be located in shaded areas where possible.
2. Pads & Positioning: Each table shall be placed in the center of a reinforced concrete pad, 12 feet long, 9 feet wide and 4 inches thick, with the length of the table parallel to the length of the pad.
3. Positioning of frame to aluminum top and seats shall be per manufacturer's specifications.
4. Mounting: All tables and seats shall be surface mounted, using stainless steel anchor bolts. All frames shall be fastened to concrete slabs with an ITT Red Head SRM 38 stainless steel drop-

PUBLIC FACILITIES

Site Furnishings

in anchor, a $\frac{3}{8}$ -inch by 3-inch stainless steel hex head bolt and a $\frac{3}{8}$ -inch flat stainless steel washer. Frame-to-frame connections shall be made with the appropriate size bolt made of stainless steel. No lag bolts will be accepted.

5. Labels: All packing labels shall be removed prior to installation in a

manner that does not damage the surfaces.

Preferred Models

Any steel or recycled plastic table manufactured by [DuMor](#), with four holes drilled for mounting prior to galvanizing or coating.

[Gametime model #P796](#).

Images and Diagrams



Aluminum Table
[Gametime #P796](#)



Recycled Plastic Table
DuMor

PUBLIC FACILITIES

Site Furnishings

8.2.7. RECYCLING RECEPTACLE

Quantity and Location

Within the park grounds, developers of all public and private parks shall install, or cause to be installed, recycling receptacles for the separate collection of common recyclable materials, including, but not limited to, bottles and cans.

At a minimum, such receptacles shall be in sufficient numbers to serve the users of the park, located within convenient proximity to all picnic areas, playgrounds, and athletic fields and courts. Proposed quantities, locations and designs will be subject to review and approval by the Director of Community Development or designee during Public Facility Review or PARK review process.

At least one recycling receptacle shall be located within convenient proximity of each:

- Park building including community center and/or restroom.
- Picnic area.
- Tot lot.
- Athletic field and court; and
- Entry into the park from the parking area.

Accessibility

All recycling receptacles shall be accessible to persons with disabilities and located immediately adjacent to a path of travel accessible to persons with disabilities.

Features

Each receptacle shall be equipped with locking covers to help prevent pilfering and to minimize contamination of collected recyclables.

Lids shall have labels for beverage container entry holes (one labeled “bottles only” and the other labeled “cans only”), labels for any other specific recyclable materials accepted in the receptacle, and a label stating “no trash.”

Containers shall have a label on the front stating, “Recycling Only.”

Warranty: A minimum two-year limited warranty is required.

Life Cycle Expectations: Recycling receptacles are anticipated to require replacement after 20 years of normal and ordinary use.

Installation Notes

None.

Preferred Models

[Doty and Sons, model RR2C1813](#) or approved equal.

[Big Belly Solar Compactor and Compacting Recycler](#) (solar trash compactor and a recycle compactor) or approved comparable containers equipped with solar-powered compaction mechanisms and sensory capabilities that gauge real-time remaining capacity in each container to prevent overflow and promote efficiency.

PUBLIC FACILITIES

Site Furnishings

Images and Diagrams



Recycling Receptacle
Doty & Sons



Recycling Receptacle
Big Belly

PUBLIC FACILITIES

Site Furnishings

8.2.8. TRASH RECEPTACLE

Quantity and Location

Trash receptacles shall be installed in all private and public parks for collection of trash. Sufficient numbers of receptacles shall be provided to serve the users of the park, but no less than one for each park.

At least one trash receptacle shall be located within convenient proximity of each:

- Park building including community center and/or restroom.
- Picnic area.
- Tot lot.
- Athletic fields and courts.
- Entry into the park from the parking area.

Features

All trash receptacles shall be accessible to persons with disabilities and located immediately adjacent to a path of travel accessible to persons with disabilities.

Warranty: At minimum, a two-year limited warranty is required.

Life Cycle Expectations: Trash receptacles are anticipated to require replacement after 20 years of normal and ordinary use.

Following or substantially similar specifications:

- Size: 26" Dia. X 36" H
- Weight: 610 lbs.
- Capacity: 41-gallon liner
- Material: Reinforced concrete
- Finish: A-1 exposed aggregate, tan with grey matrix
- Reinforcing: ¼-inch diameter steel rebar
- Parts: one model TF 1515 aluminum lid (dark brown), one 41-gallon polyethylene liner, one security cable assembly
- Logo options: inkjet or cast

Installation Notes

1. Receptacles shall be affixed to hard surfaces consistent with manufacturer recommendations.
2. A hard surface of 3 feet 4 inches by 3 feet 4 inches minimum accessible area shall be provided adjacent to accessible paths.
3. Receptacles shall be no taller, or mounted higher, than 4 feet above adjacent grade at the tallest point of the unit.
4. Placement of the receptacles shall not inhibit the monitoring or emptying of the contents.

Preferred Models

[Wasau, model TF 1151](#) or approved equal meeting specified features.

PUBLIC FACILITIES

Site Furnishings

Images and Diagrams



Wasau model TF 1151

PUBLIC FACILITIES

Site Furnishings

8.2.9. MONUMENT SIGN

Quantity and Location

Each public park shall have a monument sign.

Features

Information included shall be listed in the following order:

- Facility name.
- Facility address.
- City name.

Base, at grade level, shall be 12 inches high by 20 inches wide at bottom, tapered to ten inches wide at top and run the full length of the sign. Where possible, signs shall be made in one of three “standard” sizes:

- 3 feet high x 7 feet long x 10 inches wide.
- 3 feet high x 9 feet long x 10 inches wide.
- 4 feet high x 12 feet long x 12 inches wide.

The sign shall not exceed 60 square feet in sign area or 6 feet in height. The ground sign may be located on a berm of 3 feet for a total sign/berm height of 9 feet.

Signs shall be double faced with $\frac{3}{4}$ -inch deep recessed copy. Lettering shall be a minimum 6 inches high for

facility name and a minimum of 4 inches high for facility address and City name. Lettering shall be in Sans Serif font.

Materials and Finish:
Concrete shall be 6-Sack Type V (5) for ground contact installations.

Signs shall have a sandblasted finish with reveal between base and sign face.

Installation Notes

1. The area around the sign shall have mow strip in accordance with City Standards. The mow strip shall abut both ends of the sign base, extend 36 inches out from the bottom of the base to inside of the mow strip face sides and run the full length of the sign.
2. The 36-inch areas on both face sides shall be filled with pea gravel 2-inches deep from $\frac{1}{4}$ -inch below top of mow strip.
3. The 36-inch area on both face sides shall contain sign lights per City electrician’s standards.

8.2.10. PUBLICLY MAINTAINED WALLS AND CONCRETE

Features

Colored concrete surfaces, including, but not limited to, integral color concrete and stamped concrete, are not permitted.

All low walls, planters and raised curbs adjacent to concrete walkways or patios shall have uneven surface to prevent grinding with skateboards.

PUBLIC FACILITIES

Athletic Equipment

8.3. ATHLETIC EQUIPMENT

8.3.1. **BASEBALL/SOFTBALL**

References/Applicable Standards

City of Irvine: Park/Public Facility Standards, Section VII.A.1-6 "Baseball and Softball Fields."

National: National Collegiate Athletic Association standards, Little League International regulations or other governing authority.

PUBLIC FACILITIES

Athletic Equipment

8.3.1.1. BASEBALL/SOFTBALL | BASES, HOME PLATE AND PITCHING RUBBER

Location

Locate base equipment in compliance with field layouts in Section VII.A.1.6. Baseball and Softball Fields.

Features

Dimensions of all base equipment shall comply with National Federation of State High Schools or other governing authority.

Home plate:

- Rubber waffle style interior.
- Waterproof with a non-skid exterior surface.
- 3 inches thick.

Bases:

- 15 inches x 15 inches x 3 feet.
- Three bases provided per field.
- Natural rubber cover.
- Steel stanchion and ground anchor.

Pitching rubber:

- 6 inches x 24 inches.
- Shall be four-way.
- Rubber with aluminum interior tube.

Warranty: A one-year minimum warranty is required.

Life Cycle Expectations:

Bases are anticipated to require replacement after two years of normal and ordinary use, and annually for heavily-programmed fields.

Installation Notes

1. Home plates shall be anchored in-ground.
2. Ground anchors shall be installed for bases and bases shall be removable.

Preferred Models

Bases: [Tomark TB-K10305 Original Hollywood Base](#) with [TB-K10315 steel ground anchors](#).

Home plate: [Tomark TB-K10350 Hollywood Homeplate](#).

Pitching rubber: [Tomark K10380 Hollywood Official 4-Way Pitching Rubber](#).

PUBLIC FACILITIES

Athletic Equipment

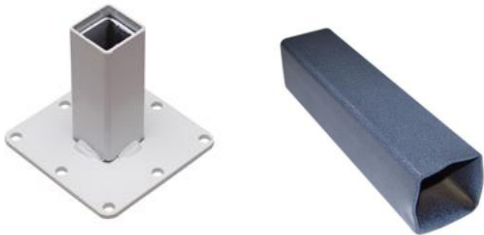
Images and Diagrams



Bases



Home plate



Base ground anchor



Pitching rubber

PUBLIC FACILITIES

Athletic Equipment

8.3.1.2. BASEBALL/SOFTBALL | FIELD COVERS

Features

Pitching mound cover:

- Shall be heavy duty, 14-ounce vinyl-coated polyester material.
- Anchor stakes to be included.
- 18 feet in diameter.

Home plate cover:

- Shall be heavy-duty, 14- to 16-ounce reinforced vinyl.
- Welded seams to prevent leakage.

Warranty: A one-year minimum warranty is required.

Installation Notes

Not specified.

Preferred Models

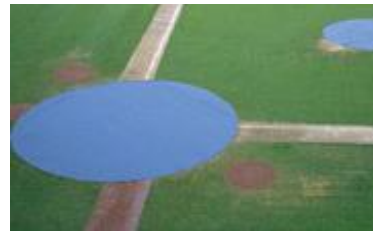
Pitching Mound Cover: [Tomark TB-K15273](#) Enduro Heavy Weight Infield Spot Cover [14 oz. Infield Baseball Tarp](#).

Home plate Cover: [Tomark K15274](#) Enduro Infield Oversize 30' Home Plate Cover.

Images and Diagrams



Pitching mound cover



Home plate cover

PUBLIC FACILITIES

Athletic Equipment

8.3.1.3. BASEBALL/SOFTBALL | FOUL POLE

Location

Locate foul poles in compliance with field layouts in Section VII.A.1.6. Baseball and Softball Fields.

Features

Pole pads are required and shall be:

- 7 feet high.
- With grommet strips on both ends and two sets of four interior belt loops 1 foot from top and bottom.
- Secured by use of stainless steel bandit through interior belt loops, hog rings and/or laces through grommets.
- Yellow in color.

Installation Notes

Not specified.

Preferred Models

Not specified.

Images and Diagrams

Not specified.

8.3.1.4. BASEBALL/SOFTBALL | FIELD SURFACE

Features

Not specified.

Installation Notes

Not specified.

Preferred Models

Infield material: [Gail Materials](#), “Stabilizer Pro Gold Infield Mix.”

Stabilizer: distributed by [Stabilizer Solutions Inc.](#)

Images and Diagrams

Not specified.

PUBLIC FACILITIES

Athletic Equipment

8.3.1.5. BASEBALL/SOFTBALL | WINDSCREEN

Location

Locate windscreen in compliance with field layouts in Section VII.A.1.6. Baseball and Softball Fields.

Features

Baseball dugout windscreen fabric shall be:

- Color: Black.
- Weave: Plain.
- Selvage: Slit off.
- Shade %: 96% Black.
- Tensile Strength: Warp 420 lbs., Fill 225 lbs.
- Tear Strength: Warp 125 lbs., Fill 90 lbs.
- Air Flow: >175 cfm.
- Center tab/tape strip included.

Materials and Finish:

- Fiber Content: 100% polypropylene.
- Weight: 5.6 oz./yd²
- Construction: 30x16.

Installation Notes

Not specified.

Preferred Models

Not specified.

Images and Diagrams

Not specified.

8.3.1.6. BASEBALL/SOFTBALL | BENCHES

Location

Locate bleacher and dugout players' benches in compliance with field layouts in Section VII.A.1.6. Baseball and Softball Fields.

Features

Materials and Finish bleacher and dugout players' benches:

- Seating shall consist of anodized aluminum planks and end caps.
- Frames, posts, brackets and all other parts shall be heavy-duty type, galvanized metal or aluminum depending on tiers.

Installation Notes

1. All benches shall be surface-mounted.

Preferred Models

Not specified.

Images and Diagrams

Not specified.

PUBLIC FACILITIES

Athletic Equipment

8.3.1.7. **BASEBALL/SOFTBALL | BAT RACK**

Location

Bat racks shall be located in the dugout at the end closest to home plate.

Features

Bat racks shall have the following features:

- 35 inches tall, 25.5 inches wide, 6 inches deep.
- Single row, holds ten bats.
- Footing mount.

Materials and Finish: Permanent bat racks shall be welded galvanized steel.

Installation Notes

1. Bat racks shall be permanently mounted to dugout surface (surface mounted).

Preferred Models

[Tomark K14535](#)

Images and Diagrams



PUBLIC FACILITIES

Athletic Equipment

8.3.2. BASKETBALL | GOAL SYSTEM

References/Applicable Standards

City of Irvine: Park/Public Facility Standards, Section VII.A.11. Basketball Court.

National: Post systems shall comply with National Collegiate Athletic Association (NCAA) regulations or other governing authority.

Location

Locate basketball goal system in compliance with field layouts in Section VII.A.11. "Basketball Court," of this document.

Features

Posts:

- Posts shall be 16 feet 6 inches in length; 5-⁹/₁₆ inch OD.
- Post extension arms shall be minimum 4 feet in length; 2-3/8 inch OD.
- Brace sets shall be minimum 1.029 inch OD.
- All basketball posts and extensions shall be standard wall galvanized steel and capped for weather protection.

Goals:

- Single rim 5/8-inch thick with 1/2-inch thick bracer bars.
- Ring shall withstand 1,400 pounds of force before bending.
- Net ties shall withstand 2,000 pounds of force before breaking.

- Nets shall be nylon, set to regulation height.
- Goal shall have nylon net hooks.

Backboard:

- Shall be rectangular shape, four feet high by 6 feet wide.
- Shall include target border 5 feet ⁹/₁₆ inches high, straight, capped, with heavy-duty adjustable bracing.

Pole pads are required and shall be:

- 7 feet high.
- With grommet strips at each end and two sets of four interior belt loops spaced 1 foot from top and 1 foot from bottom.
- Secured with stainless steel Bandit through interior belt loops, hog rings and/or laces through grommet.
- Red in color.

Warranty: A 10-year minimum warranty is required for basketball goal systems.

Life Cycle Expectations:

- Basketball Goal Systems are anticipated to require replacement after 10 years of normal and ordinary use.
- Nets are anticipated to require annual replacement with normal and ordinary use.

PUBLIC FACILITIES

Athletic Equipment

Installation Notes

1. Install posts consistent with manufacturer's recommendations.
2. Position backboard consistent with NCAA standards.
3. Post foundation shall be flush to adjacent grade. Top of footing shall be sloped to shed water.

Preferred Models

Post: LA Steelcraft [1254](#) or [1256](#), depending on offset needs.

Extension: LA Steelcraft [ZE-45](#) or [ZE-65](#).

Rim: LA Steelcraft [SD-4D](#) with nylon net hooks.

Backboard: LA Steelcraft [model 09-fiberglass](#).

Target border: [LA Steelcraft model OTA](#).

Pole pad: LA Steelcraft [PP-756](#).

Images and Diagrams



Straight post, LA Steelcraft



Extension, LA Steelcraft



Backboard, LA Steelcraft

8.3.3. PAR/VITA COURSE

References/Applicable Standards

None.

Features

Acceptable only if:

- Pre-manufactured, general or catalog design and
- Replacement signs and equipment will be available for a minimum of 12 years.

Materials and Finish: All material shall be metal/steel and be galvanized and/or powder coated.

Installation Notes

1. Installed per manufacturer's instructions.

Preferred Models

Not specified.

Images and Diagrams

Not specified.

PUBLIC FACILITIES

Athletic Equipment

8.3.4. RACQUETBALL | DOOR

References/Applicable Standards

City of Irvine: Park/Public Facility Standards, Section VII.A.14.

Location

Locate racquetball court door in compliance with field layout in Section VII.A.14, "Racquetball Court," of this document.

Features

Door to the racquetball court shall be:

- Metal.
- With expanded metal window flush with interior.
- With 4 SOSS Hinges.
- Ring pool shall be flush and magnetic type.
- Door jam shall be filled with grout.
- Door closers shall be mounted on exterior and be heavy-duty type that close the door flush.
- All interior items of door must be flush with the interior wall.

Installation Notes

Not specified.

Preferred Models

Not specified.

Images and Diagrams

Not specified.

8.3.5. ROLLER HOCKEY | GOALS

Location

Locate roller hockey goals in compliance with field layout in Section VII.A.18, "Roller Hockey Rink," of this document.

References/Applicable Standards

City of Irvine: Park/Public Facility Standards, Section VII.A.18.

Location

Locate roller hockey goals in compliance with field layout in Section VII.A.18, "Roller Hockey Rink," of this document.

Features

Dimensions: 4 feet high x 6 feet wide.

Materials and Finish: Constructed of high-quality steel.

Installation Notes

Not specified.

Preferred Models

Not specified.

Images and Diagrams

Not specified.

PUBLIC FACILITIES

Athletic Equipment

8.3.6. SOCCER | GOALS

References/Applicable Standards

City of Irvine: Park/Public Facility Standards, Section VII.A.8.

Goal construction shall comply with the National Federation of State High Schools, National Collegiate Athletic Association regulations, or other governing authority.

Location

Locate soccer field goals in compliance with field layout in Section VII.A.8, "Soccer Fields," of this document.

Features

Full Size Goal:

- 8 feet high x 24 feet wide.
- Shall have wheels and semi-permanent ground anchors.
- At minimum, goals shall be 3 feet deep at the top and 7½ feet deep at the bottom.
- During design phase, staff may request a smaller goal that is 7 feet high and 21 feet wide.

Junior Goal:

- 7 feet high x 21 feet wide.
- 4 feet deep at the top and 6 feet deep at the bottom.

Materials and Finish:

- Goals shall be one piece, reinforced, unitized or welded for stability
- Goals shall be constructed from heavy wall aluminum tubing

with smooth welds, joints and corners. Goal frame tubing shall be four inch outside diameter

- Open tube bottoms shall not be permitted
- Nets shall be 120mm mesh, 3 to 4mm, solid braid, knotless netting. Netting shall be constructed with a heavy-duty high tenacity poly propylene (HTPP) material. .
- Net and goal posts shall be white in color.

Warranty: A five-year minimum warranty is required.

Life Cycle Expectations: Goals are anticipated to require replacement after eight years of normal and ordinary use.

Installation Notes

1. Storage area for soccer goals is required, and shall consist of a concrete pad and I-bolts to lock the equipment in place.
2. Goals shall be installed with tie-down stakes for natural turf fields.

Preferred Models

Full Size Goal: Kwik Goal Evolution EVO 2.1 Goal with wheels, [Model # 2B3406W](#).

Junior r Goal: Kwik Goal 7'x21' Deluxe European Club Goal with wheels, [Model # 2B3005](#). [Wheel Option, Model # 10B410](#).

PUBLIC FACILITIES

Athletic Equipment

Images and Diagrams



Junior Goal



Evolution EVO 2.1 Goal

PUBLIC FACILITIES

Athletic Equipment

8.3.7. TENNIS | EQUIPMENT

References/Applicable Standards

City of Irvine: Park/Public Facility Standards, Section VII.A.12.

National: United States Tennis Association standards or other governing authority.

Location

Locate tennis net in compliance with field layout in Section VII.A.12, "Tennis Court," of this document.

Features

Posts:

- Heavy duty galvanized steel.
- 4½-inch OD.
- Set at height of 42 inches.
- External ratchet, reel, over the top pulley and two fixed and one movable eye (all hot dip galvanized after fabrication) included.
- Center net anchors included.

Ratchet:

- Hot dip galvanized after fabrication.
- Hole drilled in it for lock.

Net Tensioning Reel:

- Vandal resistant.
- Shall be heavy-duty with lubrication impregnated parts and heat pinioned gears.
- Wheel handle shall be concealed or removable.

Net:

- Double headband.
- 3 mm polyurethane twine mesh with an extra row of mesh in the body of the net to provide increased durability.
- Center net strap included.

Windscreen:

- 9 feet high
- Color: Black.
- Weave: Plain.
- Selvage: Slit off.
- Shade %: 96% Black.
- Tensile Strength: Warp 420 lbs., Fill 225 lbs.
- Tear Strength: Warp 125 lbs., Fill 90 lbs.
- Air Flow: >175 cfm.
- Center tab/tape strip included.

Materials and Finish:

- Fiber Content: 100% polypropylene.
- Weight: 5.6 oz./yd²
- Construction: 30x16.

Outside fence:

- 9-gauge chain link.
- 1¾-inch galvanized bottom rail.

Life Cycle Expectations:

- A two-year minimum warranty is required for posts.
- Nets are anticipated to require replacement annually with normal and ordinary use.
- Posts are anticipated to require replacement after 10 years of normal and ordinary use.

PUBLIC FACILITIES

Athletic Equipment

Installation Notes

1. Posts shall be installed in-ground prior to final surface installation and court lining.
2. Top of post foundation shall be flush with final surface. Top of footing shall be sloped to shed water.
3. Concrete net post footers shall be 1-foot-6 inch diameter and 3 feet minimum vertical depth.
4. Center net anchors shall be set in 1-foot by 1-foot horizontal dimensions and 1-foot minimum vertical depth concrete footings.

Preferred Models

Posts: L.A. Steelcraft Traditional Tennis Posts, [Model # TP4-2ZT](#).
Net: Wilson Royale Tennis Net, [Model # 235W](#).

Center net tie-down strap: Wilson Polypropylene Center Strap with Velcro Adjustments, Model # 213W.

Images and Diagrams



Tennis Net



Tie-Down Strap

PUBLIC FACILITIES

Athletic Equipment

8.3.8. VOLLEYBALL | EQUIPMENT

References/Applicable Standards

City of Irvine: Park/Public Facility Standards, Section VII.A.16-17.

National: Net systems shall comply with National Collegiate Athletic Association standards or other governing authority.

Location

Locate volleyball equipment in compliance with field layout in Section VII.A.17, "Sand Volleyball Court," of this document.

Features

Parks that are supervised or where ratchet and pulley is desired:

- Posts shall be 4½-inch OD, capped, all game posts, hot dip galvanized with wheel and ratchet and side pulley.
- Wheel and ratchet shall be for 4½-inch posts, hot dip galvanized with hole drilled in ratchet for lock.
- Side pulley (moveable net tightener) shall be for 4½-inch OD posts, hot dip galvanized.
- Net shall be 32 feet long with cable on top, rope on bottom and two rope end ties on each end.
- Net shall be 13-ounce white vinyl.
- Pole spacing shall accommodate a 32 feet net (approximately 36 to 36½ feet apart).

Parks that are not supervised or where ratchet and pulley is not desired:

- Posts shall be 4½-inch OD galvanized with three fixed eyes and rope clamps.
- Pole length should be sized to accommodate surfacing material.

Sand:

- Composed of fine particles between 0.5 – 1 mm.
- Must be at least 40 centimeters (15 ¾ inches) deep.

Warranty: A two-year warranty is required for posts.

Life Cycle Expectations:

- Posts are anticipated to require replacement after 10 years of normal and ordinary use.
- Nets are anticipated to require replacement annually with normal and ordinary use.

Installation Notes

Not specified.

Preferred Models

Parks that are supervised or where ratchet and pulley is desired:

- Posts: L.A. Steelcraft [model #AGP-4](#).
- Wheel and Ratchet: L.A. Steelcraft [model #NRF-4](#).
- Side Pulley (moveable net tightener): L.A. Steelcraft [model #NRF-4](#).

PUBLIC FACILITIES

Athletic Equipment

- Net: [West Coast #VNCR-32](#).
Parks that are not supervised or where ratchet and pulley is not desired:
 - Posts: L.A. Steelcraft model #VPP-4PEL.

- Net: [West Coast #VNRR-32](#).

Images and Diagrams



Posts



Wheel & Ratchet



Side Pulley



Net

PUBLIC FACILITIES

Buildings

8.4. BUILDINGS

8.4.1. PLANNING AND DESIGN PROCESS

Planning and Design of public buildings in parks includes a three-part process:

Park Plan

A Park Plan application determines whether a park building will be provided in a park and the general size and function of the building. It needs to conform to all requirements of Part 1 (Sections I through V) of this document and is completed typically with the Tentative Tract Map for the surrounding neighborhood.

Park Design

A Park Design shows the location of the building in the park, conceptual layout of the building, including use and size of all rooms, and proposed architecture. Park Design needs to conform to the approved Park Plan and all requirements of Part 2 (Sections VI and VII) of this document.

PARK Review

The PARK review combines the Public Facilities Design Review, applicable to all public facilities, and Plan Check review, applicable to all developments requiring a building permit. The result is approved construction plans and specifications ready for bidding and construction.

This review includes, but is not limited to, review by:

- Various City departments and agencies, as part of the plan check process, including, but not limited to, Community Development, Public Works, Public Safety and Fire.
- Divisions that will operate and maintain the building, including Athletics Division in Community Services Department, and Facility Maintenance and Landscape Maintenance divisions in Public Works Department, to ensure conformance to all standards contained in this document and suitability of proposed design and features to City needs and operations and maintenance practices.

Final PARK plans shall show compliance with applicable provisions in Parts 2 and 3 (Sections VI, VII, and VIII) of these standards. The plans will include all information required in the Public Facility Review information sheet, as well as the following information, even if the same information is included in these standards and in the project specifications:

- IX) Detailed schedules of all proposed park furnishings, plumbing fixtures and lighting

PUBLIC FACILITIES

Buildings

fixtures including, at a minimum, manufacturer, model number, finish, color, quantity and reference to the detailed drawings.

- Detail of each athletic field or court showing compliance to all requirements in sections 1 through 7 of these Standards.
- Dimensioned details of all proposed park furnishings (tables, benches, trash receptacles, drinking fountains, etc.), athletic equipment (basketball hoops, volleyball and tennis nets, etc.), and park and athletic lighting, including installation.
- Specification Book, including but not limited to, site furnishings (benches, picnic tables, bike rack, trash receptacles and recycling receptacles), athletic equipment, kitchen appliances and fixtures, restroom fixtures, electrical fixtures, hardware and locks. Also provide a separate book with manufacturer's sheets and colored photographs of each item.
- Color and Material Board showing all exterior and interior finishes and colors.

PUBLIC FACILITIES

Buildings

8.4.2. RESOURCE EFFICIENT BUILDINGS

Codes and Standards

All buildings shall be designed to meet all applicable codes and regulations, including, but not limited to:

- The California Energy Code 24 CCR §1.
- All LEED prerequisites, unless exemption from LEED requirement is granted as stated below.
- Irvine Ranch Water District (IRWD) policy regarding use of recycled water.
- Irvine Energy Plan.
- Irvine City Council Resolution No. 05-153, adopting Green Building Program.

Some of the main requirements specified in the above codes, regulations and standards in effect at the time of adoption of this draft are summarized in Appendix D. This summary is not intended to exclude any other applicable code requirements or standards.

LEED Certification

All new municipal buildings and major renovations of municipal structures of 5,000 square feet or larger shall be designed, constructed and certified at the minimum at US Green Building Council's LEED Certified level, as required by City Council Resolution No. 05-153, adopting Green Building Program. The City's Energy Plan, adopted in 2008, establishes a goal of LEED Gold for new facilities.

If, after thorough analysis, a specific building is determined to be unsuitable for the LEED rating system it may be declared exempt from achieving LEED certification based on the discretion of the Director of Public Works, if the project incorporates all feasible and cost-effective green building strategies, per Irvine City Council Resolution 05-153.

PUBLIC FACILITIES

Buildings

8.4.3. BUILDING DESIGN

Storage Room

A storage room shall be provided meeting the following requirements:

- The size of the storage room shall be sufficient to accommodate the maximum required number of tables, chairs and storage carts. Contact City staff to obtain current models and dimensions.
- Storage room shall have direct access to the rooms it serves.
- Doors to the storage room shall be wide enough to fit storage carts and have a smooth threshold for rolling carts.

Niche

A niche, minimum of 3 feet 4 inches by 7 feet 4 inches, shall be provided under the roof overhang to accommodate two vending machines. Each niche shall have two electrical outlets, one for each vending machine.

Solar Readiness

Conduit from each building roof and parking structure shall be installed and connect to a location within the building identified as suitable for future installation of a charge controller (regulator) and inverter, so that solar panels can be installed in the future.

Roof Materials

Any public building located within 50 feet from backstop shall have concrete flat tile roof. Ceramic tile roof is not allowed within 50 feet from backstop.

Space Heaters

Space heaters shall be natural gas.

Electrical Outlets

Minimum one exterior electrical outlet shall be provided on each building.

PUBLIC FACILITIES

Buildings

8.4.4. PLUMBING

Plumbing Chase

Each restroom shall include a plumbing chase that shall:

- Provide clear, unobstructed access to all plumbing.
- Provide a clear space, minimum 40 inches wide, for maintenance on plumbing and piping located within a plumbing chase.
- Locate all piping so it does not obstruct entrance openings.
- Provide sufficient interior and exterior lighting for maintenance service personnel to access plumbing equipment.
- Provide at least one 20 amps – GFI-protected duplex receptacle to be accessible within 15 feet of furthest plumbing fixture or piping located within plumbing chase.

Valving.

Provide valving as follows:

- Provide valving so that the systems can be closed down in sections.
- Install approved pipe unions at each valve for ready removal.
- Locate all shut off valves within 48 inches of finished floor level.
- Use ball valves for all piping under 2 inches in diameter. Avoid use of gate valves.
- In lavatories, valve each hot and cold riser.

Protective Sleeve:

Provide a protective sleeve for pipes that pass through walls.

Piping Supports:

Avoid damage to pipes by using anti-friction piping supports on runs over 10 feet in length.

Water Heaters

Water heaters shall be installed in community parks; water heaters are not provided in neighborhood parks.

Features:

- Condensing, natural gas fired; except that water heaters in stand-alone restrooms, if provided, can be electric on-demand if there is no gas line in the proximity of the restroom.
- Secured with UBC approved seismic strapping.

Warranty: one year parts and labor.

Life Cycle Expectations: 10 years.

PUBLIC FACILITIES

Buildings

8.4.5. DRINKING FOUNTAINS, INTERIOR OR MOUNTED ON OUTSIDE OF THE BUILDING

Features:

Water fountains shall be:

- Accessible to persons with disabilities.
- Dual height.
- No. 4 satin finish / stainless steel.
- With complete mounting system.
- With access panel.

Warranty and life expectancy:

- Warranty: one year parts and labor.
- Life Expectancy: 10 years.

Recommended Model:

Non-chilled: Haws model #[1011MS](#).

Chilled, for interior installations only:
Haws model #[H1011.8HPS](#).

Images and Diagrams:



Haws Model # 1011 MS



Haws Model # 1011.8HPS

PUBLIC FACILITIES

Buildings

8.4.6. RESTROOM FIXTURES AND ACCESSORIES

Water Closets (Accessible)

Features:

- Wall-hung.
- Back spud.
- Siphon jet action.
- Elongated bowl.
- White/vitreous china.

Recommended Models:

- Toilet: [FloWise Elongated 1.28 GPF Flushometer Toilet](#).
- Seat: Olsonite [#95](#) open front seat less cover.
- Flush Valve: Sloan Optima 140-1.6, ES-S flush valve (1.28 GPF).

Urinals (Accessible)

Features:

- Wall-hung.
- Back spud.
- Blowout flush action.
- White/vitreous china.

Recommended Models:

- Urinal: American Standard – “Lynbrook” #6605.027.
- Flush Valve: WEUS 1000.1402-0.125 SMO (0.125 GPF).

Lavatories (Accessible)

Features:

- Self-rimming/white.

Recommended Models:

- Lavatory: American Standard - “Aqualyn” [#0476.028](#).
- Faucet for hot and cold application: Chicago Faucet [#3501-8E2805ABCP](#) metering faucet.
- Faucet for single handle applications: Chicago Faucets [#408A-665-CW](#).
- Faucet Stops: Chicago Faucet Angle Stops [#1013](#) with removable shut off key and stainless steel braided supply lines.

Washroom Equipment

Features:

- All anchoring and fastening hardware shall be made of stainless steel.
- Installation shall meet all ADA requirements.

Recommended Models:

- Grab Bars: Bobrick Washroom Equipment, Inc., H/D Handicap [Metal Grab Bars](#) size TBD.
- Electric Hand Dryers: Bobrick Washroom Equipment, Inc., [B-700](#), 115 Volt / single phase.
- Mirrors: [Bobrick Washroom Equipment](#), Inc., size TBD.

PUBLIC FACILITIES

Buildings

- Soap Dispensers: Bobrick Washroom Equipment, Inc., [B-2112](#).
- Seat Cover Dispensers: Bobrick Washroom Equipment, Inc., [B-301](#) or [B-221](#).
- Paper Towel Dispenser: Bobrick Washroom Equipment, Inc., [B-39003](#).
- All other fixtures: [Bobrick Washroom Equipment, Inc.](#), model to be approved by appropriate City staff.

PUBLIC FACILITIES

Buildings

8.4.7. RESTROOM SURFACES | COMMUNITY CENTERS

Floor Material

Unglazed ceramic tile or approved non-skid materials shall be used for the restroom floor.

Tile grout shall be a dark color.

Material samples shall be provided for approval by appropriate City staff.

Wall Material

Glazed ceramic tile shall be used for the wall surface.

Tile grout shall be a dark color.

Material samples shall be provided for approval by appropriate City staff.

Finish

Interior concrete block installations shall be coated with an epoxy finish to provide a more sanitary and maintainable surface.

Paint and Color: Oil base gloss enamel paint shall be of a standard color. Custom mixed colors shall be avoided. Color samples shall be provided for approval by appropriate City staff.

Sealing: All grout/porous materials shall be thoroughly sealed promptly after installation and properly protected during the entire construction phase.

Toilet Compartments and Urinal Screens

Features:

- Floor mounted / overhead-braced.
- Continuous wall brackets & shoes.
- Integral hinge system of solid plastic materials.
- All anchoring and fastening hardware shall be made of stainless steel.
- Standard colors (no custom colors).
- Installation shall meet all California Building Code and ADA requirements.

Recommended Models:

- [SCRANTON PRODUCTS](#) compartments, screens, wall brackets, shoes and hinge system.

Floor Drain

At least one floor drain with trap primers shall be installed for every two toilets/urinals.

Drain shall be located at the lowest point of the floor.

Size of the drain line shall be no less than 3 inches in diameter.

8.4.8. RESTROOM SURFACES | STAND ALONE

Floor Material

Non-colored sealed concrete or approved non-skid materials shall be used for the restroom floor.

Material samples shall be provided for approval by appropriate City staff.

Wall Material

Interior concrete block installations shall be coated with an epoxy finish to provide a more sanitary and maintainable surface.

Paint and Color: Oil base gloss enamel paint shall be a standard color. Custom mixed colors shall be avoided.

Finish

All grout/porous materials shall be thoroughly sealed promptly after installation to provide a more sanitary and maintainable surface.

All surfaces shall be properly protected during the entire construction phase.

Toilet Compartments and Urinal Screens

Features:

- Floor mounted / overhead-braced.
- Continuous wall brackets & shoes.

- Integral hinge system of solid plastic materials.
- All anchoring and fastening hardware shall be made of stainless steel.
- Standard colors (no custom colors).
- Installation shall meet all California Building Code and ADA requirements.

Recommended Models:

- [SCRANTON PRODUCTS](#) compartments, screens, wall brackets, shoes, and hinge system.

Ventilation

Adequate ventilation shall be incorporated into the building design. This may include, but is not limited to, metal entry gates or heavy-duty and vandal resistant screened vents at the upper portion of walls.

Floor Drain

At least one floor drain with trap primers shall be installed for every two toilets/urinals.

Size of the drain line shall be no less than 3 inches in diameter.

Drain shall be located at the lowest point of the floor.

PUBLIC FACILITIES

Buildings

8.4.9. KITCHEN APPLIANCES | COMMUNITY CENTERS

Required Appliances

In community parks, all kitchens within community centers shall include a refrigerator, freezer (separate from the refrigerator), oven and microwave. Community parks with athletic fields shall also include an ice-machine (separate from the freezer). Other appliances may be required as needed.

Features

Refrigerators:

- Minimum 25 cubic feet with top freezer compartment.
- Include factory-installed icemaker.
- No side-by-side units.
- No in-door ice and water dispensers.

Individual Freezers:

- All doors equipped with a tubular/barrel lock
- Four operating keys provided.

The manufacturer's cut sheet shall be provided for each designated appliance for approval by appropriate City staff, if the contractor provides

appliances. All operation manuals are to be provided to Facility Services designee upon acceptance by the City.

Energy Efficiency: Appliances shall be Energy Star rated, or demonstrate energy use reduction of at least 25 percent better than typical standard appliance [EPA Act 2005 Energy Star; FEMP Energy Reducing Appliance Standard].

Materials and Finish: Each specified model shall have a white on white finish (natural gas or electric).

Warranty: Each specified model shall come with a three-year manufacturer's extended warranty for all parts and labor included.

Life Cycle Expectations: Kitchen appliances are anticipated to require replacement after seven years of normal and ordinary use.

Preferred Models

All built-in kitchen grade appliances: General Electric (G. E.)

Ice machine: [Scotsman](#).

8.4.10. KITCHEN APPLIANCES | CONCESSION STANDS

Standard

All commercial-grade appliance applications to be determined by the architect and in consultation with appropriate City staff. If there are athletic fields within the park, a stand-alone ice machine shall be provided.

Features

Concession stands shall conform to all standards specified in Section VI.H of this document.

Appliances shall be Energy Star rated, or demonstrate energy use reduction of at least 25 percent from typical standard appliance. [EPAAct2005 Energy Star; FEMP Energy Reducing Appliance Standard]

Materials and Finish: To be determined by the architect in consultation with appropriate City staff.

Warranty: All commercial appliances shall have one-year manufacturer's warranty for all parts and labor included. This shall include commercial icemakers.

Life Cycle Expectations: Kitchen appliances are anticipated to require replacement after seven years of normal and ordinary use.

Preferred Models

Refrigerator: [Traulsen](#)

Freezer: [Traulsen](#)

Ice machine: [Scotsman](#)

PUBLIC FACILITIES

Buildings

8.4.11. LOCKING HARDWARE | MECHANICAL

General Notes

1. All locking, latching and other door-related finished hardware shall be manufactured by the hardware manufacturing companies listed within this section, unless otherwise specified herein or only with the review and prior approval of the Facilities Services Maintenance Supervisor or his designated alternate. No Exceptions.
2. All key-operated hardware, regardless of type of manufacturer, must be able to accept original Best 7-pin interchangeable core(s).
3. All key-operated locks regardless of type or manufacturer shall be provided with a Best 7-pin Green Construction Core. This applies to all exterior and interior locking hardware.
4. All hardware shall be Grade 1 and conform to or exceed both the ANSI and BHMA testing standards while also being UL-listed.
5. All hardware shall be 2-3/4-inch backset. No Exceptions.
6. All doors regardless of type shall be 1-3/4 inches in thickness. No Exceptions
7. All hollow-metal frames that have concrete fill shall have cups placed in the appropriate locations where any and all hardware, power transfer hinges, etc., will require attachment and/or insertion so as to prevent the concrete from filling these areas and preventing the easy attachment of that hardware specified herein.
8. All 'exterior' entry points to restrooms shall have installed a tube steel gate and will be set into a steel frame as will be used throughout the rest of the project and this will be done by the use of conventional 4.5-inch by 4.5-inch hinges, 5-knuckle, ball bearing hinges. No welding of hinges to gate or frame. See specifications for gates under *Specifications Notes* 4 for further required details.
9. All cabinets and drawers used throughout the project shall have installed by the maker of the cabinetry Olympus cabinet locks. See Cabinet Lock features, under *Features* note 4 below.
10. All hardware functions shall be reviewed by the Facility Maintenance supervisor or his designated alternate prior to any hardware being ordered by the project General Contractor or their sub-contractors for the project.
11. The architectural hardware consultant (A.H.C.) preparing the hardware specifications will use only that nomenclature provided by the original manufacturer for all hardware contained in the specifications. No Exceptions.

PUBLIC FACILITIES

Buildings

12. The architectural firm or the designated A.H.C. representing the City, in addition to all other City required duties, shall submit one complete set of blueprints and a **Section 8 Finished Hardware Schedule** to the Facilities Services supervisor or his designated alternate for review. These shall be submitted to the City at least **30 days prior to the finalization of any hardware selection.** This review will include the hardware functions to make certain that they are suitable for specific City operational needs. The A.H.C. shall also make certain that all finished door-related hardware conforms to all life safety, fire codes, and ADA requirements, as well as any requirements of the authority having final jurisdiction.
13. The General Contractor and/or their sub-contractor(s) providing all locking/latching hardware, as well as all hardware-related products, shall provide to the City of Irvine's Facilities Services supervisor or his designated alternate the source(s) from which the hardware originated as well as any reference numbers needed so the City can confer with these sources. This information shall be provided to the Facilities Services supervisor or his designated alternate no less than 60 days prior to the turnover date of the project
14. All keying planning and the generation of permanent cores and keys shall be performed directly by the City.
15. All perimeter doors with mortise locks shall have for every mortise cylinder 1 each [KeeDex K-24L-62D](#) cylinder guard ring installed to protect the cylinder from physical attack. No Exceptions. These guard rings are readily available through multiple contract hardware dealers.
16. All wood-frame perimeter doors shall have installed an ANSI Grade1 High-Security Strike in order to reinforce the frame against forced attack. Note that this High Security Strike is larger and heavier than typical strike plates, and requires longer and more numerous mounting screws in order to improve frame strength.
17. Any locking, latching or other door-related finished hardware regardless of type or manufacture received on the project not corresponding to the specifications contained herein will be rejected or replaced at the expense of the General Contractor or their designated sub-contractor having supplied the incorrect hardware.

Materials and Finishes Notes

1. Finishes: All locking, latching or other door-related finished hardware regardless of type or manufacture shall be provided in the U.S. 26D / 626 (satin chromium plated) or U.S. 32D / 630 (satin stainless steel) finishes only. Use U.S. 32D / 630 (satin stainless steel) exclusively for all Push/Pull

PUBLIC FACILITIES

Buildings

Plates and Kick Plates and other hardware that will be exposed to higher levels of corrosion. No Exceptions.

2. Mortise Locks: All hardware shall be Best 40H series, Grade 1 mortise locks with Best No: '3' Levers and 'H' Rose Trim designs in 626 finish only. No Exceptions.
3. Mortise Cylinders: All mortise cylinders shall be original Best 1E74 series cylinders in 626 finish only. No Exceptions.
4. Rim Cylinders: All rim cylinders shall be original Best 12E72 series cylinders in 626 finish. No Exceptions.
5. Cabinet Locks: All cabinet locks shall be Olympus Lock Co. See Cabinet Lock features, under *Features* note 4 below, for further details. Do 'NOT' use any spring latching units. Bolt must be both extended and retracted by key only.
6. Tubular Deadbolts: All deadbolts shall be Best 8T series in 626 finish. The 'CS' options shall be specified to provide protection of mounting bolts. No Exceptions. Note that the 'CS' option might add to the lead time required to obtain the product, so actions should be taken to order early in order to prevent delays to the project.
7. Exit Devices: All exit devices shall be manufactured by Von Duprin and shall be CD9949NL-26D units with cylinder dogging in the 626

finish only. If the device is for a wood door, the model number is CD9949WDC NL-26D. No Exceptions. If this device is for an aluminum framed glass door, the stile must be at least 3-¹¹/₁₆ inches; verify with Von Duprin Installation Information.

8. Door Closers: Finish shall be Silver Painted Color. All door closers shall be manufactured by L.C.N. and shall be the 4040XP series units and depending on operational needs may require either a regular parallel arm or a hold-open arm. Application and function needs should first be reviewed and approved by the Facilities Services Maintenance Supervisor or his designated alternate prior to final function selection.

Features

1. Best 40H Series Mortise Locks, features:
 - Available in an extensive array of functions, thus meeting virtually all application needs. Many units are non-handed saving conversion time in the field.
 - Removable interchangeable core greatly reduces re-keying costs and field installation time, thus also saving in labor hours.
 - A one-piece stainless steel anti-friction latch that provides 50 percent more surface contact with the frame strike for superior strength and security.
 - A Non-handed cylinder retainer and stainless steel auxiliary bolt

PUBLIC FACILITIES

Buildings

for each of changing the handing if required in the field.

- A roller bearing hub mechanism that provides a much smoother and far more wear-resistant operation. This roller bearing also increases the operation life of these units, helping reduce long-term replacement and servicing costs.
 - The lever return springs located in the trim for enhanced protection against lever droop, providing a firm, positive return of the lever to the horizontal position.
2. Best Mortise Cylinders, 1E74 series, features:
- Designed to properly work with and properly actuate Best mortise locks.
 - Accept the original Best 7-pin interchangeable core correctly without any issues.
 - Machined from solid brass or bronze and are available in a multitude of finishes.
 - Cams are swage-fitted to the cylinder and afford a much longer attachment life compared with other manufacturers that use screws to attach their cams—a method that is prone to loosening and/or falling out over time.
3. Best Rim Cylinders, 12E72 series, features:
- Designed to properly work with and properly actuate Von Duprin Exit Devices as well as various other hardware types
- that might require a rim cylinder.
- Best rim cylinders accept the original Best 7-pin interchangeable core correctly without any issues.
 - Best rim cylinders are machined from solid brass or bronze and are available in a multitude of finishes.
4. Olympus Cabinet Locks features:
- Built far better than the typical cabinets available in the hardware industry and therefore are far more secure and provide a much longer life expectancy that reduces replacement costs.
 - Can be keyed into the projects' master keying system as generated and maintained by the City and be keyed in a multitude of ways to accommodate not only City personnel but also various user groups that may require and need to secure materials used only by each group.
 - Manufactured from brass or bronze and the bolt is stainless steel whereas most other manufacturer's cabinet/utility locks are made from cast metal which is much weaker and breaks more easily.
 - Best rim cylinders accept the original Olympus 7-pin interchangeable core correctly without any issues.
 - Note: Olympus cabinet locks, if ordered when necessary, should be available without causing any delay to the project.

PUBLIC FACILITIES

Buildings

5. Best Tubular Deadbolts, features:

- Exceed BMHA/ANSI Grade 1 standards.
- Accept original Best 7-pin interchangeable cores correctly without any issues.
- Come with a full 1-inch throw stainless steel bolt that offers not only additional strength but also corrosion resistance.
- Use ¼ -28 inch thread size bolts to secure the key-operated cylinder(s) to the door unlike most manufactures that use only #10-32 machine screws.
- Offer full concealment of the ¼-28 inch thread size bolts and thus are more resistant to physical attacks.
- Have free-turning wrench-resistant, tapered cylinder rings that are machined from solid brass or bronze, which also aid against physical attack.
- Have cylinders that accept the original Best 7-pin interchangeable core correctly without any issues.
- Have cylinders that are machined from extruded-from brass or bronze bar stock.

6. Von Duprin Exit Devices, 9949 series, features:

- Designed and manufactured in accordance to ISO 9001 Quality Management System and meets or exceeds accepted U.S. domestic and International standards.

- UL listed for Panic Hardware or Fire Hardware, and are certified to ANSI A156.3, 2001 Grade 1.
- Furnished with a fluid dampener that decelerates the pushpad on its return stroke and eliminates most noise associated with exit device operations.

7. Door Closers, LCN 4040XP series, features:

- Independently tested to beyond 10 million cycles and counting.
- Arms are produced from forged steel that provides greater strength, better appearance and less bulk.
- Closer bodies are produced from heavy-duty cast iron that is more compatible with high grade steel components and is more resistant to the wear of millions of opening/closing cycles.
- Manufacture its power springs from chrome silicon that have the strength to cycle beyond 10 million cycles. Other manufactures typically use oil-tempered springs that can lose 20 percent of its power within just a few thousand cycles.
- Steel pinions with larger, stronger teeth and are double heat-treated for the greatest possible strength on the shaft. The heat treating makes the pinion harder, better able to resist wear after years of service and results in less stress on the cylinder.
- Use a special formula hydraulic fluid with special lubrication

PUBLIC FACILITIES

Buildings

properties to keep closer components working smoothly. This unique all-weather hydraulic fluid eliminates the need for seasonal adjustments.

- Meet ADA requirements and are tested and certified under ANSI Standard A156.4 Grade 1.
 - UL listed for self-closing doors without hold-open.
 - Non-handed and can be used on doors regardless of the handing of the door.
8. All other hardware not listed in this document, i.e., hinges, push/pull plates and thresholds shall have the nomenclature, features and selection made by the A.H.C. for this project.
- Specifications Notes
- All hardware specified for any project shall be reviewed by the Facilities Services Maintenance Supervisor or his designated alternate, prior to any hardware being ordered.
- The group types reflected below, by manufacture are to be used. No exceptions without prior review and approval by the Facilities Services supervisor or his designated alternate.
1. Offices: [Best 45H7AB3H-626](#)- (Indicate Door Handing).
 2. Storage, Electrical-Mechanical Rooms, I.T./Telco Rooms and Custodial Rooms: [Best 45H7D3H-626](#)-(Indicate Door Handing).
 3. Rest Rooms, Interior Entry from Corridor: [Best 45H7WD3H-626](#)-Non-Handed.
 4. Rest Room, Exterior Entry Gates:
 - Sargent Profile, 70-91-G1-8276-(Specify Handing)-PAL-626.
 - KeeDex, KX-MOR8255F lock boxes shall be fabricated into every tube steel gate to properly accept, house and protect all Sargent Profile units.
 - S.T.I., Model No: [STI-6514-S](#) weather/protection covers shall also be installed with the all Sargent Profile units to help shield the keypad from weather and direct sunlight.
 - McKinney Power Transfer Hinge Model No. [T4A3386](#)-4.5 x 4.5-626-CC18, shall be used for all doors and gates at the center hinge point for electro-mechanical locks that require power.
 - McKinney Hinge Model No. [T4A3386](#)-4.5 x 4.5-626, shall be used for all hinge points that do 'not' require power.
 5. Cabinet Locks: Olympus model [725RD-DW-VH-620](#)
 6. Mortise Locks: [Best 40H](#) series, Grade 1 with Best No: '3' Levers and 'H' Rose Trim
 7. Mortise Cylinders: [Best 1E74](#); for Perimeter doors: [KeeDex K-24L-62D](#)
 8. Rim Cylinders: [Best 12E72](#)

PUBLIC FACILITIES

Buildings

9. Tubular Deadbolts: Best 8T series
'CS' options

10. Exit Devices: Von Duprin
CD9949NL-26D; for wood door
CD9949WDC NL-26D

11. Door Closers: LCN 4040XP series



Properly Installed Gate-Frame Hinge



Gate Cross Bracing

8.4.12. LOCKING HARDWARE – ELECTRO-MECHANICAL

General Notes for Gates

1. All 'exterior' entry points to restrooms shall have installed a fabricated tube steel gate and will be set into a steel frame as will be used throughout the rest of the project and this will be done by the use of conventional 4.5-inch by 4.5-inch hinges, no welding of hinges to gate or frame. The gap between the top, latching, and hinge side of the steel gate in relationship to the frame shall be 1/8" as is the industry standard. The frame shall not be fabricated from tube steel.
2. Sargent Lock Co., Profile Electro-Mechanical Lock Model No: 70-91-G1-8276 -(Specify Handing)-PAL-626. No Exceptions.
3. Sargent Lock Co. Power Supply Model No: 3267 9VDC, One each shall be supplied for every two Sargent electro-mechanical locks.
4. Sargent Lock Co. Gel Cell Model No: 52-0256 12VDC, One each shall be supplied for every 3267 9VDC power supply unit to allow for continuous operation during a power failure.
5. Wiring and Conduit: Wire and Conduit Runs shall complete connection of all power from the power supplies to the lockset. The G.C. and/or their electrician is to make certain the power is run continuously from the power supplies all the way to the locksets and all components are properly connected. Concealed conduit will be run from the frame nearest the center power transfer hinge on each door all the way to the power supply unit located in the IT/Telco room. The power supply should be mounted so that it can be reached without any need to use a ladder. The power supplies should have a dedicated duplex power outlet.
6. Concealment of Wiring: All wiring shall be fully concealed from the electro-mechanical to the power supply. Power transfer hinges by McKinney are to be used at the gate for the center hinge, no exposed door loops.
7. All Sargent electro-mechanical locks must be able to accept original Best 7-pin interchangeable cores.
8. All Sargent electro-mechanical locks shall be provided with a Best 7-pin Construction Core. This applies to all exterior and interior hardware.
9. All electro-mechanical locks shall be Grade 1 and conform to or exceed both the ANSI and BHMA testing standards, while also being UL-listed.
10. All hardware shall be 2-3/4 inch backset. No Exceptions.

PUBLIC FACILITIES

Buildings

11. All doors regardless of type shall be 1-3/4 inch in thickness. No Exceptions.
12. Gate Fabrication Source: Gates should be obtained from the company that the City uses as these hold rigidly to the high quality and close dimensions that the City requires. The company supplies and installs the required KeeDex lock box that matches the Sargent Profile locks. They provide the wire runs through the gate and will supply the required McKinney hinge. The company also installs the gate and can provide the frame as required. The company and contact information is: Whittier Wood Products, Huntington Beach, California.
13. Phone: 714-847-8813, Contact: Mike Ester.

Features Notes

1. Programming: Programming through the use of a PDA device.
2. User Capability: 2000-user capability with real-time lock.
3. Included Options: Code, Prox and Key override capable. Use of Code & ProxCard together for Dual Control entry requirements. Auto Unlock, Relock Time Zone capable. Non-volatile memory is required to safeguard against the loss of user base.

4. Keypad: Six-digit user code capable. Note that even though this option is available, we normally do not choose units with keypad.
5. Wire Raceway: Shall have a wire raceway to help prevent intrusion of moisture from inside of door.
6. Operating Environment: Operating environment: from -40 degrees F to up to 135 degrees F; up to 98 percent humidity non-condensing.

Materials and Finish Notes

1. All electro-mechanical locks shall be provided in the U.S. 26D / 626 (satin chromium plated) finish only. No Exceptions.
2. All tube steel gates shall be Powder Coated to a color that matches the frame color.

Specifications Notes

1. Model Number: Sargent Lock Co., 70-91-G1-8276 Specify Handing)-PAL-626. No Exceptions. Note: This model number defines the function that is to be used for electro-mechanical applications.

Installation Notes

1. The installation of all hardware contained within this document shall conform to the original manufacturer's instructions and standards. No Exceptions.
2. Wiring and Conduit: Wire and Conduit Runs shall complete

PUBLIC FACILITIES

Buildings

connection of all power from the power supplies to the lockset. The G.C. and/or their electrician is to make certain the power is run continuously from the power supplies all the way to the locksets and all components are properly connected. Concealed conduit will be run from the frame nearest the center power transfer hinge on each door all the way to the power supply unit located in the IT/Telco room. The power supply should be mounted so that it can be reached without any need to use a ladder. The power supplies should have a dedicated duplex power outlet.

3. Wire Gauge: The gauge of the wire shall conform to that which is specified by Sargent Lock Company.
4. Conduit: All wiring shall be run in conduit and the installation shall conform to all applicable standards previously listed in this document.
5. Push Plates/Pull Handles: All such items shall be installed in a vertical position so that the edges of the

plates are parallel to the latching edge of any door requiring such items. They shall be installed so that the distance from the floor surface to the horizontal centerline of such items is: Pull Plates = 42 inches, Push Plates = 45 inches.

Life Cycle Expectations

All hardware manufactures listed herein meet or exceed BMHA/ANSI Grade 1 standards, have life cycle testing that also exceeds other brands and therefore offer a much greater life and additional security.

Manufacturer's Warranty:

- L.C.N. Closers: 10 years.
- Von Duprin Exit Devices: Three Years.
- Best Lock Hardware: Three years.
- Sargent Profile Locks: Two years.

All other Hardware: Information by Architect.

PUBLIC FACILITIES

Buildings

8.4.13. COMMUNICATION STANDARDS

Communications Room (for data and voice lines)

On a park where there are multiple buildings that will have computers, or one building where there are computers, there will be a need to have a dedicated communication room. Each main public building other than a restroom shall have a dedicated Communication Room subject to the following requirements:

1. Minimum Size Requirements:
 - No less than 4 feet by 4 feet for one to twenty-four personal computers.
 - No less than 8 feet by 8 feet for buildings housing more than twenty-four personal computers.
2. Equipment: The communication room shall be equipped with the following:
 - Power for the UPS shall be 20-amp, 110v, the power cord plug will be a twist-lock type, and the contractor will provide the matching power socket.
 - Fiber optic closet connector housings.
 - Access to grounding electrode system (chapter 8 NEC).
 - 4-foot x 8-foot backboard on wall.
 - Two dedicated circuits needed – one for voice, one for data.
 - Each of the voice and data drops need one circuit and Category 5 Cable (dual).

Conduits

All conduits shall meet the following requirements:

1. Size: Minimum conduit sizes shall be:
 - All interconnect conduits shall be 3-inch diameter.
 - A 3-inch diameter conduit shall be provided from the side mount or communication cabinet to a #6 pull box.
 - All conduits between the #6 pull boxes and the controller cabinet shall be 3-inch diameter.
 - A minimum of two, 3-inch conduits shall be installed between the communications room and MIS communications cabinet. The conduits shall terminate in the communications room.
2. Installation Depth:
 - All signal conduits located beneath streets shall be installed at a minimum depth of 42 inches below finished surface or 6 inches below the structural section, whichever is deeper but not more than 66 inches.
 - All signal conduits located behind curb and gutter shall be installed at a minimum depth of 30 inches below top of curb.
3. Ground Wire:
 - All interconnect conduits shall contain a #8 green insulated solid copper ground wire.

PUBLIC FACILITIES

Buildings

- All other conduits shall contain a #10 solid bare copper ground wire.
4. Conduit Runs:
 - Schedule 80 PVC conduit and elbows shall be required for cabinet foundations to the adjacent pull boxes.
 - All other conduit runs shall be PVC Schedule 40.
 5. Conduit Fill:
 - Maximum allowable conduit fill is 26 percent for new conduits and 35 percent for existing conduits.
 - New conduits shall be provided if the maximum allowable fill is exceeded.
 6. Conduit Ends:
 - All ends of conduits shall be capped with conduit sealing compound to prevent dirt and rock from entering the conduit.
 7. Pull Rope:
 - All conduits shall have a pull rope installed.
3. Placement: Pull boxes shall not be placed:
 - In raised or painted medians.
 - In paved shoulder.
 - In travel way.
 - Within 1 foot of a handicap ramp.
 4. Spacing: Pull boxes shall not be spaced at intervals greater than 400 feet.
 5. Fiber-Optic: The City will pull the Fiber-Optic Cable.

MIS Communication Cabinet

1. Supplied by: MIS Communication cabinets shall be supplied by the City.
2. Location: During the Public Facility Design Review process the City's Traffic or City Engineer shall approve the location of the MIS Communication cabinet.
3. Foundation: The MIS Communications cabinet foundation shall contain three 4-inch conduits.
 - The two, 4-inch conduits inside the signal cabinet shall extend to a #6 signal wire pull box in front of the controller cabinet.
 - The one, 4-inch conduit from the communications cabinet shall extend to a #6 signal interconnect pull box adjacent to the cabinet.
 - There shall be one, 4-inch conduit connecting the signal wire pull box to the signal interconnect pull box.

Pull Boxes

All pull boxes shall meet the following requirements:

1. Size: Pull boxes shall be #6 unless otherwise noted.
2. Cover: All #6 pull box covers shall be Fiberlite FL 36T by Christy Products, or approved equal.

PUBLIC FACILITIES

Buildings

Edison Service

1. The City's standard Edison service shall be a Type II, attached to the side of the MIS Communications cabinet.
2. Breakers:
 - The service main breakers shall have the capacity of 100 Amps.
 - There shall be breakers for all functions of the service, including communication equipment, two spare 15-Amp breakers.
4. Test Switch: The Edison service shall have a test switch located inside the City's access door area of the service.
5. Location: The manufacturer shall pre-mount service to the side of the MIS Communications cabinet.
6. Service Equipment: Service equipment shall be U. L. listed or equal. Grounding electrode (ground rod) shall have a minimum 8 feet in contact with the earth. If the end of the rod is to be exposed in the cabinet then a minimum of a 10-foot rod shall be used.
7. Network Equipment: The exact network equipment will be determined and supplied by the City's Information Technology Administrator.

Underground Telephone Specifications

1. All conduit bends to have minimum radius in feet equal to diameter of conduit in inches. 2-inch diameter = 24-inch radius.
2. No conduit run is to have over two 90 degree bends. If necessary to have over two, 90 degree bends, insert accessible pull box in run. Contact telephone engineer for pull box sizing.
3. All conduit shall be left clean, dry and free of debris or other obstructions. A pull box equivalent to No. 14 AWG-3/16 polypropylene or conduit measuring tape.
4. Approved plastic is specified in underground construction. Conduits, plumber's fitting, water and gas pipes must not be used.
5. Conduit terminated on a pole must be turned up 1 inch above finish grade, in the opposite quadrant from any power services.
6. Conduit placed in same trench with power conduit must be separated by not less than 12 inches of well packed dirt or 3 inches of concrete, and have not less than 30 inches of cover.

PUBLIC FACILITIES

Buildings

9. Approved Plastic conduit:
 - Private Property:
 - P.V.C. SCH. 4PTS 66
 - A.B.S. "D.B." P&C DUCT
 - Public Street:
 - PTS 66 2"
 - PTS 77 4"
10. The telephone company reserves the right to refuse to use conduit that deviated from plans and specifications.
11. In runs of 400 feet or more, bends having radii of 80 feet or less must be encased in concrete.

PUBLIC FACILITIES

Electrical

8.5. ELECTRICAL

8.5.1. MEGGER TEST

All wiring shall be installed in a method to assure that upon completion, the system is free from short-circuits and grounds (other than required grounds).

The Contractor shall provide a "megger" insulation test (in the presence of the City Representative) which applies a minimum of 500 volts direct current. Each wiring system installed by the Contractor shall meet the minimum requirements for insulation resistance. The test shall be performed after wiring has been installed into the conduit, is a continuous run from pull box to pull box and has been properly spliced (but, prior to splicing wires from fuse holders and light fixtures).

Low and high voltage wiring systems shall comply with the following minimum requirements specified for insulation resistance:

- Circuits of #12 or smaller wires - 1,000,000 OHMS.
- Circuits of No. 10 or larger wires - a minimum resistance based on the allowable current-carrying capacity of conductors.
- 25 to 50 AMPS inclusive - 250,000 MEG. OHMS.

The Contractor shall be responsible for correcting all systems not meeting these minimum requirements and re-testing the system. All systems shall meet the minimum requirements for insulation resistance prior to acceptance of work.

8.5.2. POLE AND FIXTURE FOR TRAIL AND PATHWAY LIGHTING

References to Standards

See Section VII.D.2. Security Lighting, citing Municipal Code Section 5-9-520 (Irvine Uniform Security Code), specifying minimum lighting levels for paved walkways and trails.

Specifications

Fixture to be Echo Lighting VRLG series in Dark Bronze finish or City-approved equal (see XIII-68). Light source, wattage, and voltage shall be on a per-project basis.

Pole to be Ameron City of Irvine Standard 1C614 pole w/Tenon in black and white exposed aggregate finish w/anti-graffiti sealer or City-approved equal (see XIII-69 through XIII-73).

Pole locations and proximity to dwellings will dictate whether 360 degree or cutoff illumination is required.

Installation Notes

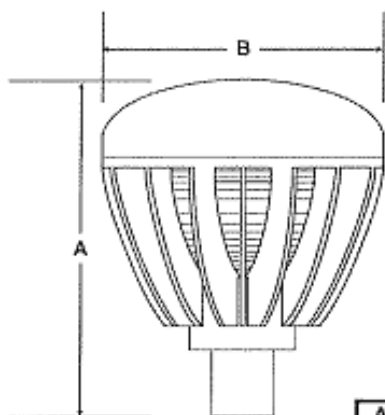
1. Installation of pole and fixture assembly shall be located a minimum of 18 inches from edge of walking surface to edge of footing. Footing to be 6 inches above grade in landscape areas and thirty inches above grade in all parking areas.
2. All light assemblies to be fused with fuse holders installed in hand hole of pole unless otherwise directed.
3. All in-ground wiring to be megger tested and witnessed by City electrician pursuant to guidelines attached.
4. All wiring to be Copper THHN/THWN stranded only – no solid wire to be used.
5. All wiring #6 AWG and smaller to be color-coded pursuant to NEC and local codes.
6. All wiring to be labeled with circuit # at every junction box.
7. All wiring larger than #6 AWG shall be identified with correct color phasing tape.
8. Installation shall be pursuant to City of Irvine Post-light detail included herein.

PUBLIC FACILITIES

Electrical

Made in U.S.A.

VR SERIES



SIZES

	A	B
Large	18"	20½"
Small	13½"	13½"

SPECIFICATIONS

LUMINAIRE: Construction shall be of corrosion resistant, heavy duty cast aluminum housing with (12) fins and spun aluminum hood.

DIFFUSER: High impact resistant, clear prismatic polycarbonate, or acrylic lens. Type III or type V light distribution.

BALLAST: H.P.F./C.W.A., ____V Multi-tap (specify voltage). Also available in compact fluorescent.

LAMP HOLDER: Medium or mogul base porcelain socket

ELECTRICAL: All components are UL recognized.

Luminaire is shipped complete and ready to install.
LABELS: Luminaire is designed for operation in wet locations.

All exposed hardware shall be stainless steel.

Ordering Example: EL-VR-LG-150-HPS-208V-PA-III-PT-DBZ

FIXTURE	WATTAGE	SOURCE	VOLTAGE	LENS	OPTICS	MOUNTING	COLOR	OPTIONS
Large VR Series =VRLG 400W max.	50W,	Pulse Start Metal Halide= PSMH	120V,	Prismatic acrylic =PA	Type III	Post top=PT	Black =BLK	Button photo electric control=PC
	70W,		208V,		Type V	Single=(1)	White =WHT	
Small VR Series=VRSM 150W max.	100W,	High Pressure Sodium =HPS	240V,	Prismatic polycarbonate =PP		Twins @180=(2)@180	Green =GRN	
	150W,	Compact Fluorescent =PL	277V,			Twins @90=(2)@90	Dark bronze =DBZ	
	175W,		480V			Triple @90=(3)@90	Silver =SLVR	
	250W,	Phillips self ballast induction				Triple @120=(3)@120	Custom color =CC	
	320W,					Quad=(4)		
	400W,					Wall mount =WM		
	26WPL							
	32WPL							
	42WPL							



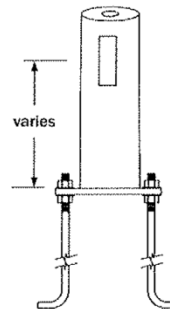
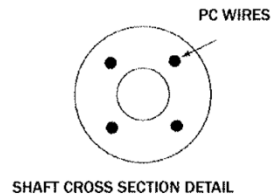
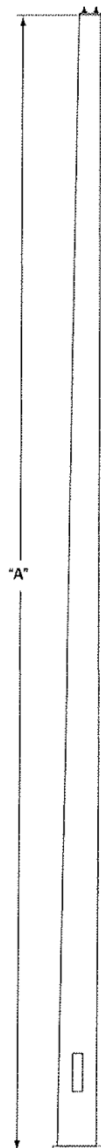
ECHO LIGHTING INC.
5618 E. Washington Blvd.
Commerce, CA 90040
PH: (323) 890-9008 • FAX (323) 890-1981
Email: www.echolightingla.com



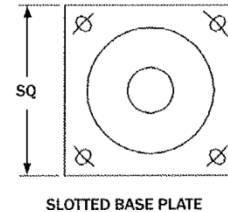
Contemporary Series 1C6 - Round Pole - Base Plate

NOV
Ameron

4-9/16" TOP O.D. - 1C6-12
4-3/8" TOP O.D. - 1C6-13
4-1/4" TOP O.D. - 1C6-14, 1C6-28
4" TOP O.D. - 1C6-16 - 1C6-23



ELEVATION
See recommended
"capping details"



BASE PLATE STYLE - INFORMATION

CATALOG NUMBER	POLE HEIGHT "A"	BASE O.D.	ANCHOR BOLT	BOLT CIRCLE	BASE PLATE (SQ)	ULTIMATE G.L. MOMENT (FT. LBS.)	WEIGHT (LBS.)	MAXIMUM EPA/MPH (SQ FT)*		
1C6-12	12'-1"	6-3/16"	3/4" x 18" x 4"	9-3/4"	10"	8,800	270	7.0	6.0	5.0
1C6-13	13'-1"	6-3/16"	3/4" x 18" x 4"	9-3/4"	10"	8,800	295	7.0	6.0	5.0
1C6-14	14'-1"	6-3/16"	3/4" x 18" x 4"	9-3/4"	10"	8,800	320	7.0	6.0	5.0
1C6-16	16'-1"	6-3/16"	3/4" x 18" x 4"	9-3/4"	10"	8,800	340	7.0	6.0	5.0
1C6-18	18'-1"	6-1/2"	3/4" x 18" x 4"	9-3/4"	10"	10,000	390	7.0	6.0	4.5
1C6-20	20'-1"	6-3/4"	3/4" x 18" x 4"	9-3/4"	10"	11,200	460	7.0	6.0	4.5
1C6-23	23'-1"	7-3/16"	1" x 36" x 4"	12-1/2"	12"	13,000	560	7.0	6.0	4.0
1C6-28	28'-2"	8-1/8"	1" x 36" x 4"	12-1/2"	12"	17,400	740	7.0	6.0	4.0

*EPA based on post top mounting. Consult your representative for other attachment methods and increased load capacity requirements.

Notes

SPECIFICATIONS
Use Contemporary Specifications.

LUMINAIRE MOUNTING
See Technical-Mounting Options
Section for more information.

COLORS & FINISHES
See Color Selection Guide.

ANTI-GRAFFITI & SEALER
Optional Coatings available for
added protection.

Manufacturer reserves the right to alter the product design without prior notice. Consult Ameron or authorized representative for additional information.

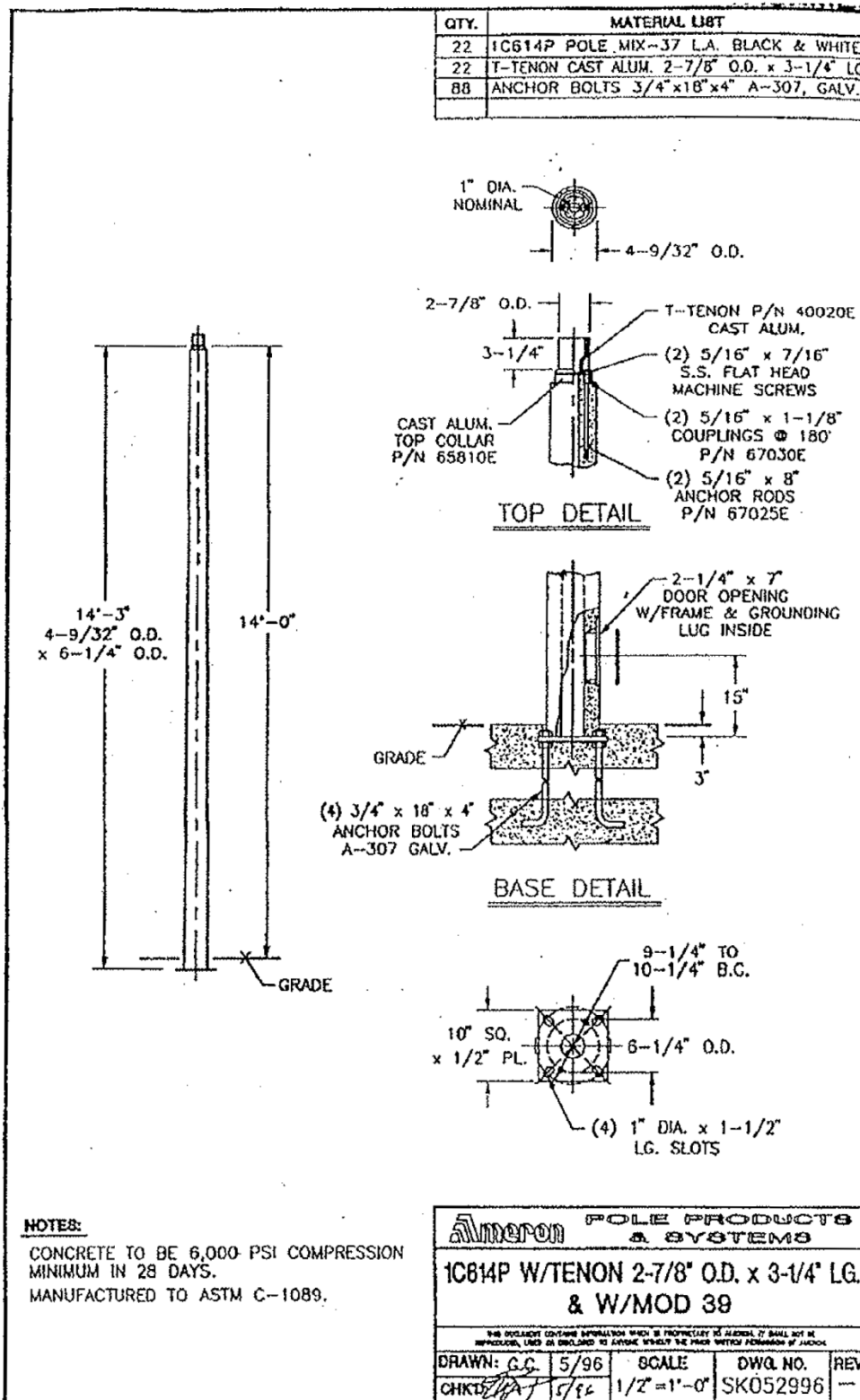
Electrical



PUBLIC FACILITIES

Electrical

ATTACHMENT B



PUBLIC FACILITIES

Electrical

ATTACHMENT G

TRON

TEN

HEB-AA

In-the-Line
WATERPROOF
FUSEHOLDERS

For Trouble-Free Fuse Protection in Wet Locations
On Circuits of 600 Volts or less

Bussmann
Cooper Industries
St. Louis, MO. 63178

MADE IN U.S.A.

TO ORDER: Give Fuseholder Symbol (HEB or HEH) followed by Symbol for LOAD SIDE terminal—
Then give Symbol for LINE-SIDE TERMINAL (example HEB-AB).

Fuseholder Symbol	Terminal Symbol	Inside Dia. Ins.	AWG COPPER Wire Size Terminal will take
HEB for 1 1/2" x 1 1/2" fuses	A	.162	One #14, 12, 10 or 8 solid or stranded wire Two #14 or 12 solid or stranded wires
	B	.220	One #8 or 4 solid wire One #6 or 4 stranded wire
	C	.275	Two #10 solid or stranded wires
HEH for 1 1/2" x 1 1/2" fuses	D	.375	Two #8 solid or stranded wires
	E	.437	Two #6 solid or stranded wires
	W		Two #4 solid or stranded wires

TRON Fuseholders can readily be adapted to take Aluminum wire or cable—write for details.

INSULATING SLEEVE OVER TERMINAL

FUSE ALWAYS RETAINED IN LOAD SIDE SECTION

INSULATING SLEEVE OVER TERMINAL

Eliminate costly Line connection with a TRON fuseholder that has terminal that takes two line-side wires.

HEX-AA

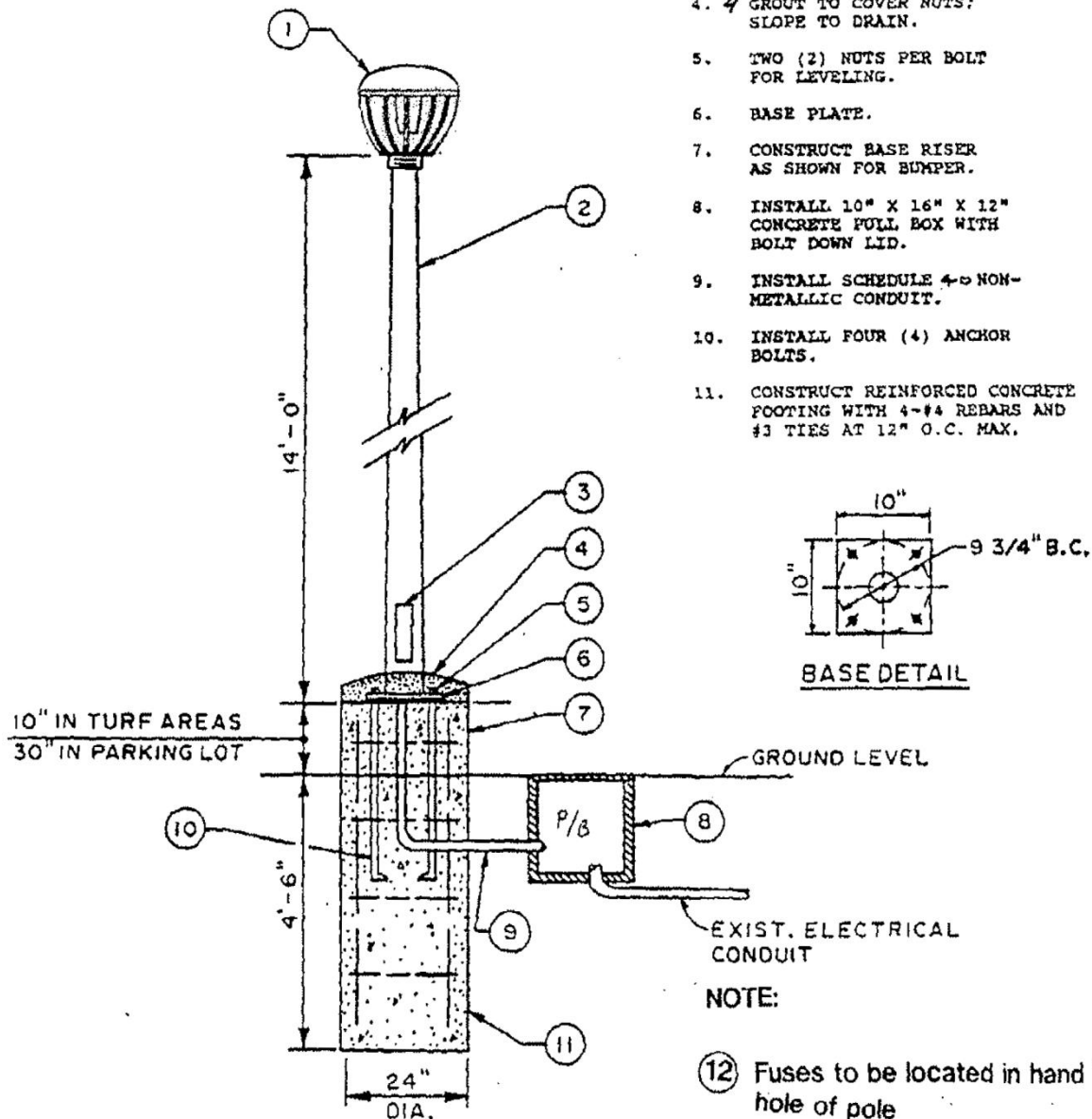
10 - Double Pole

Fuseholder

Electrical

NOTES:

1. LIGHT FIXTURE.
2. PRESTRESSED CONCRETE POLE.
3. EXISTING WIRING SLOT WITH COVER.
4. 4" GROUT TO COVER NUTS; SLOPE TO DRAIN.
5. TWO (2) NUTS PER BOLT FOR LEVELING.
6. BASE PLATE.
7. CONSTRUCT BASE RISER AS SHOWN FOR BUMPER.
8. INSTALL 10" X 16" X 12" CONCRETE FULL BOX WITH BOLT DOWN LID.
9. INSTALL SCHEDULE 40 NON-METALLIC CONDUIT.
10. INSTALL FOUR (4) ANCHOR BOLTS.
11. CONSTRUCT REINFORCED CONCRETE FOOTING WITH 4-#4 REBARS AND #3 TIES AT 12" O.C. MAX.



NO SCALE

PUBLIC FACILITIES

Electrical

8.5.3. BOLLARD LIGHT

References to Standards

See Section VII.D.2. Security Lighting, citing Municipal Code Section 5-9-520 (Irvine Uniform Security Code), specifying minimum lighting levels for paved walkways and trails.

Specifications

Fixture to be Echo Lighting EBHW series in Dark Bronze finish or City-approved equal (see next page). Light source, wattage, and voltage shall be on a per-project basis.

Fixture locations and proximity to dwellings and/or roadways will dictate whether 360 degree or cutoff illumination is required.

Installation Notes

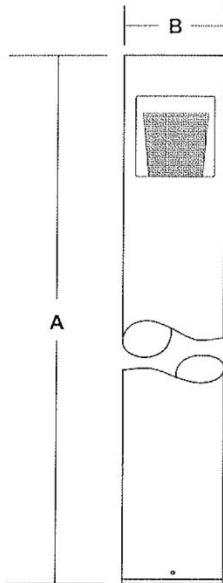
1. Fixture shall be located a minimum of 18 inches from the edge of walking surface to the edge of the footing. Footing to be 6 inches above grade in landscape areas and slightly sloped to drain.
2. Footing to be 3 inches above grade in landscape areas and slightly sloped to drain.
3. All fixtures to be fused in pull box located at base of each fixture.
4. All in ground wiring to be megger tested and witnessed by City electrician pursuant to guidelines attached.
5. All wiring to be Copper THHN/THWN stranded only – no solid wire to be used.
6. All wiring #6 AWG and smaller to be color-coded pursuant to NEC and local codes.
7. All wiring to be labeled with circuit # at every junction box.
8. All wiring larger than #6 AWG shall be identified with correct color phasing tape.

PUBLIC FACILITIES

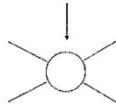
Electrical



EBHW SERIES



(2) window option
at 180°



SPECIFICATIONS

LUMINAIRE: Heavy gauge 1/4" thk. extruded aluminum shaft with flush mounting base.

LENS: 1/4" thk. high impact resistant clear acrylic lens, sealed with G.E. silicone to housing.

BASE: Cast aluminum with (4) 1/2 x 12" galvanized anchor bolts with double nuts and double washers.

ELECTRICAL: All components are UL recognized. Luminaire is shipped complete and ready to install.

LABELS: Bollard is designed for operation in wet locations.

All exposed hardware shall be stainless steel.

SIZE

A	B
42"	10"

Ordering Example: EL-EBHW-100W-PSMH-120V-CP-BLK

BOLLARD	WATTAGE	SOURCE	VOLTAGE	TOP	LENS	OPTICS	COLOR	OPTIONS
EBHW Series= EBHW	50W,	Pulse Start Metal Halide=PSMH	120V,		Clear acrylic =CA	Type III glass refractor =GRIII	Black =BLK	Tampered Proof Screws =TPS
	70W,	High Pressure Sodium=HPS	208V,		Clear polycarbonate =CP	Type V glass refractor =GRV	White =WHT	Custom Height =CH (specify)
	100W,	Compact Fluorescent =PL	240V,			Paracrine =PR	Green =GRN	Double Window =DO
	26WPL,		277V			Louvers =LVR	Dark bronze =DBZ	
	32WPL,		480V			Paracrine/ louvers =PRLV	Silver =SLVR	
	42WPL						Custom color =CC	



ECHO LIGHTING INC.
5618 E. Washington Blvd.
Commerce, CA 90040
PH: (323) 890-9008 • FAX (323) 890-1981
Website: www.echolightingla.com

PUBLIC FACILITIES

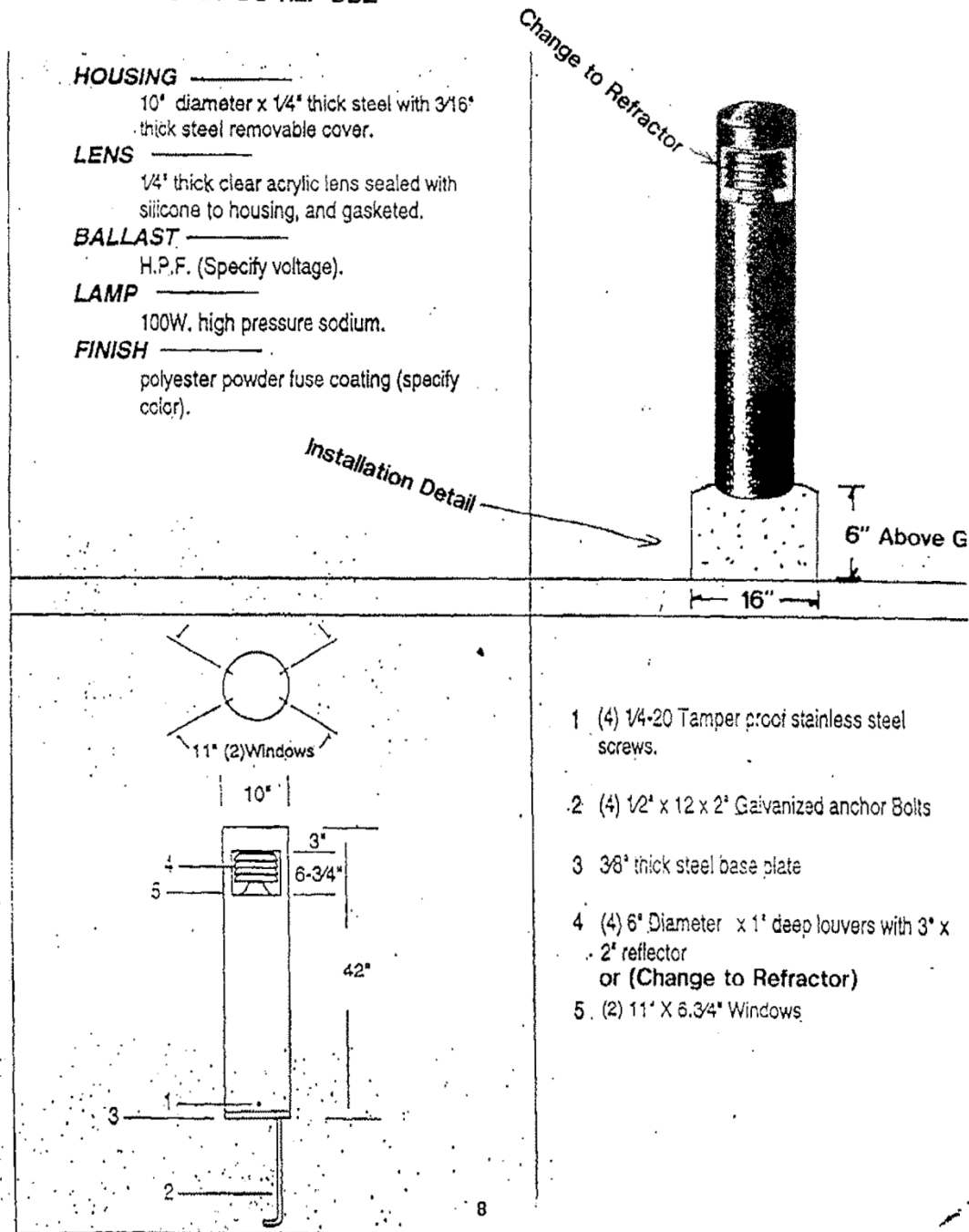
Electrical

ATTACHMENT D

BOLLARD LIGHTS:

Manufacturer - ECHO LIGHTING

#EBHW-100-HPS-MT-DO-REF-DBZ



8.5.4. ELECTRICAL PEDESTALS

Specifications

All pedestals to be constructed of Stainless steel only.

All pedestals to be NEMA 3 and waterproofed for exterior installation.

All pedestals to have vandal-resistant locking device on exterior panel door.

Where irrigation controller and electrical pedestals are adjacent, they may be installed on the same concrete pad.

Installation Notes

1. All electrical necessary for lighting shall be fed through lighting contactors housed in the pedestal.
2. Lighting fed from exterior pedestals shall be controlled by photocell housed in pedestal.
3. Photocells used to control lighting shall only be INTERMATIC #K4021C photocell (see XIII-79).
4. All lighting controls to have maintenance bypass switch.
5. All pedestals to have four, 1-inch schedule 80 PVC conduits stubbed out to closest concrete pull box for future use.
6. All installations shall conform to local and state codes, ordinances, and SCE specifications and require a separate electrical permit and inspection.
7. Footing to be 3 inches above grade and sloped to drain per attached drawing.

PUBLIC FACILITIES

Electrical

ATTACHMENT H

STAINLESS PANEL

SEE NOTE 2

36" MIN.

8" MIN.

ELECTRICAL CONDUIT

CONCRETE PAD
2% SLOPE TO DRAIN

8" MIN.

3"

6"

NOTES:

1. ALL ELECTRICAL INSTALLATIONS SHALL CONFORM TO CITY CODES, ORDINANCES, SOUTHERN CALIFORNIA EDISON COMPANY SPECIFICATIONS, AND REQUIRE SEPARATE ELECTRICAL PERMIT AND INSPECTION. ALL ELECTRICAL EQUIPMENT SHALL BE NEMA, TYPE 3, WATERPROOFED FOR EXTERIOR INSTALLATION.
2. THE ENCLOSING COVER SHALL BE HINGED OR REMOVABLE FOR METER TESTING AND INSPECTION AND SHALL HAVE A READING WINDOW. FOR SINGLE PHASE SERVICES, THE MINIMUM METER RECESS IS NINE INCHES, AND FOR THREE PHASE SERVICES, ELEVEN INCHES.
3. WHERE IRRIGATION CONTROLLER AND ELECTRIC METER PEDESTAL ARE ADJACENT, THEY MAY BE INSTALLED ON SAME CONCRETE PAD.
4. ELECTRICAL CONDUITS MUST BE INSTALLED THROUGH THE BOTTOM OF CONCRETE PAD.

101

REVISIONS	CITY OF IRVINE	STANDARD PLAN No.
	ELECTRIC METER PEDESTAL	840
	Approved by: <i>Mark L. Carroll</i> Mark L. Carroll R.C.E. 31313 City Engineer	6-2-92 Date
	13	Sheet 1 of 1



K4000 Series Photo Controls

K4000 Series Fixed Position Mounting

The K4000 Series Fixed Position Mounting Photo Controls are thermal-type photo controls that fit into a standard outlet box, post lamp, or wall pack. The photo controls provide dusk-to-dawn lighting control along with a delay action, which eliminates loads switching OFF due to car headlights and lightning. The thermal-type controls feature a cadmium sulfide photocell and a sonic-welded polycarbonate case and lens to seal out moisture. The design utilizes a dual temperature compensating bimetal and composite resistor for reliable long life operation over ambient temperature extremes.

Features

- Cadmium sulfide photocell
- Sonic-welded polycarbonate housing and lens to seal out moisture
- Delay action eliminates load switching OFF due to car head lights and lightning
- 9" leads
- K4321 includes a weatherproof wall plate with a neoprene gasket
- Most models equipped with a $\frac{5}{8}$ " - 18" threaded side mounting, locking nut and washer gasket

Ratings

Size: Plate (Model K4321C)
4 $\frac{1}{2}$ " (11.4 cm) H x 2 $\frac{3}{4}$ " (7.0 cm) W
Mechanism
1 $\frac{5}{16}$ " (3.3 cm) W x 1 $\frac{13}{16}$ " (4.6 cm) L x
1 $\frac{5}{16}$ " (4 cm) D

Color: Gray

Electrical Rating: See table

Activation: 1-5 FC ON; 3-15 FC OFF

Power Consumption: Averages under 1 Watt

Operating Temperature: -40°F to 158°F (-40°C to 70°C)

Shipping Weight: $\frac{1}{4}$ lb. (.11 kg); K4321C - $\frac{3}{8}$ lb. (.17 kg)

Agency Listing: See table

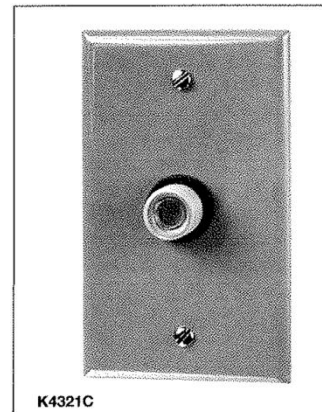
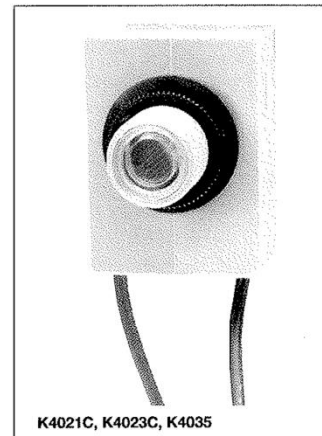
Project: _____

Location: _____

Product Type: _____

Contact/Phone: _____

Model #: _____



Model Number	Tungsten (Watts)	Ballast (VA)	Tungsten (Amps)	Ballast (Amps)	Volts	Agency Listing
K4021C	1800	1000	15	8.3	120	UL, CSA
K4023C	3100-4150	1700-2300	15	8.3	208-277	UL, CSA
K4027	5205	2880	15	8.3	347	CAS, C/US
K4035	7200	4000	15	8.3	480	None
K4321C	1800	1000	15	8.3	120	CSA, C/US



Energy Controls

PUBLIC FACILITIES

Electrical

8.5.5. PARKING POLE AND FIXTURE

References to Standards

See Section VII.D.2. Security Lighting, citing Municipal Code Section 5-9-520 (Irvine Uniform Security Code), specifying minimum lighting levels for paved walkways and trails.

Specifications

Pole to be ECHO round tapered steel pole in Dark Bronze color or City-approved equal (see next page). Pole not to exceed 28 feet in height.

Fixture to be ECHO El Cajon series in Dark Bronze color or City-approved equal (see XIII-82). Light source, wattage, and voltage shall be on a per project basis.

Fixture locations and proximity to dwellings and/or roadways will dictate whether 360 degree or cutoff illumination is required.

Installation Notes

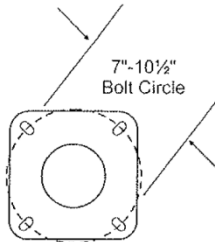
1. Installation of fixture shall be located a minimum of 18 inches from the edge of walking surface to the edge of the footing.
2. Footing to be 30 inches above grade at pole base mounting height for poles located in paved areas and 6 inches above grade in landscape areas at least 30 inches from the curb-face.
3. Footings to be constructed according to pole manufacture specs and local regulations.
4. All fixtures to be fused in hand hole of pole.
5. All in-ground wiring to be megger tested and witnessed by City electrician pursuant to guidelines attached.
6. All wiring to be Copper THHN/THWN stranded only – no solid wire to be used.
7. All wiring #6 AWG and smaller to be color-coded pursuant to NEC and local codes.
8. All wiring to be labeled with circuit # at every junction box.
9. All wiring larger than #6 AWG shall be identified with correct color phasing tape.

PUBLIC FACILITIES

Electrical

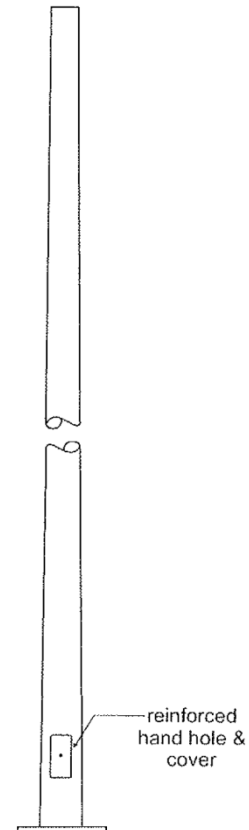


ROUND TAPERED STEEL POLE



Ordering Example: SRSP5-25'-0"-7GA.-AB10-BLK

POLE	HEIGHT	GAUGE	OPTION	BASE COVER	COLOR
SRAP3	8'-0"	11GA.	Custom pole cap= CPC Tenon size (specify) Standard 2-PC base cover For other base covers contact factory.		Black =BLK
SRAP3	10'-0"	11GA.			
SRAP4	12'-0"	11GA.			White =WHT
SRAP4	14'-0"	11GA.			
SRAP4	16'-0"	11GA.			Green =GRN
SRAP4	18'-0"	11GA.			
SRAP4	20'-0"	7GA.			Dark bronze =DBZ
SRAP4	25'-0"	7GA.			
SRAP5	18'-0"	7GA.			Custom color =CC
SRAP5	20'-0"	7GA.			
SRAP5	25'-0"	7GA.			
SRAP5	30'-0"	7GA.			



CONSTRUCTION: Round aluminum poles are fabricated from a 6063 T6 alloy aluminum tubing. The complete pole shall include a 3/4" thick anchor base, base cover, removable cap, reinforced hand hole with cover, grounding lug, and (4) galvanized anchor bolts. All poles are manufactured with provisions for side arm mounting fixtures or with a standard 2 3/4" O.D X 5" tenon.

FINISH: Powder coat.

All exposed hardware shall be stainless steel.



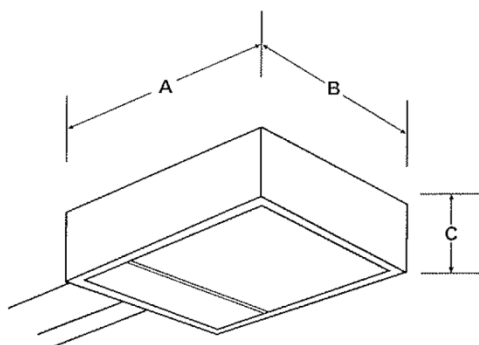
ECHO LIGHTING INC.
5618 E. Washington Blvd.
Commerce, CA 90040
PH: (323) 890-9008 • FAX (323) 890-1981
Website: www.echolightingla.com

PUBLIC FACILITIES

Electrical



EL CAJON SERIES



SPECIFICATIONS

LUMINAIRE: Heavy gauge die-formed welded aluminum.

LENS: High impact resistant, clear tempered glass, on a fully gasketed lens frame.

BALLAST: H.P.F./C.W.A., ___V Multi-tap (specify voltage). Also available in compact fluorescent.

LAMP: Max. 1000/400 Watts Pulse Start Metal Halide or High Pressure Sodium. Available in **LED** (consult factory).

LAMP HOLDER: Medium or mogul base porcelain socket.

ELECTRICAL: All components are UL recognized.

Luminaire is shipped complete and ready to install.

Luminaire is designed for operation in wet locations.

All exposed hardware shall be stainless steel.

SIZES

A	B	C
30"	23"	10"
20"	15"	7"

El Cajon-1000

El Cajon-400

Ordering Example: EL-EC-400-PSMH-120V-FG-V(1)-BLK

FIXTURE	WATTAGE	SOURCE	VOLTAGE	LENS	OPTICS	MOUNTING	COLOR	OPTIONS
El Cajon 1000 Series =EC1000 1000W max.	50W,	Pulse Start Metal Halide= PSMH	120V,	Clear Flat Glass =FG	Specular Aluminum Reflector	Single=(1)	Black =BLK	Button photo electric control =BPC
	70W,	High Pressure Sodium =HPS	208V,			Twins @180= (2)@180	White =WHT	
El Cajon 400 Series =EC400 400W max.	100W,		240V,	Clear Convex Glass =CXG	Type III= III	Twins @90= (2)@90	Green =GRN	Aluminum side bars= SIDERIBS
	150W,	Compact Fluorescent =PL	277V,		Type V= V	Triple @90= (3)@90	Dark bronze =DBZ	Bird Spikes =BSX
	175W,		480V			Triple @120= (3)@120	Silver =SLVR	House Side Shield =HSS
	250W,					Quad=(4)	Custom color =CC	
	400W,							
	1000W,							
	26WPL							
	32WPL							
	42WPL							



ECHO LIGHTING INC.
5618 E. Washington Blvd.
Commerce, CA 90040
PH: (323) 890-9008 • FAX (323) 890-1981
Website: www.echolightingla.com

8.5.6. ATHLETIC FIELD LIGHTING

References to Standards

See Sections:

- VII.A, Athletic Fields and Courts Standards, specifying lighting requirements for each field or court, and
- VII.D.1. Lighting Standards for Public Facilities, specifying lighting requirements for athletic fields and courts.

Specifications

1. Field lighting systems shall be designed and provided as a complete system by [MUSCO LIGHTING](#).
2. The standard system is the MUSCO Green program or a City-approved equal. All lighting levels shall provide safe play for the designated sports.
3. Light system shall include a remote monitoring system to track performance.
4. Lighting system shall include a web based system to control remotely.
5. Lighting system shall be programmable up to one year in advance and be able to accept a seven day schedule.
6. Lighting system shall include a selector switch for each zone in one location for overrides and manual testing purposes.
7. All light fixtures shall be 1500 watt Metal Halide Phillips Z lamps with

external visors to minimize light glare and spill.

8. All pole and fixture assemblies shall be of galvanized steel and shall meet all wind load requirement set forth for this region.

Installation Notes

1. Pole footings shall be installed according to manufacture specifications and designed by a professional engineer licensed by the state of California.
2. The mounting height of all fixtures shall be 60 to 80 feet above the playing surface unless otherwise stated by the City of Irvine.
3. All wiring shall be contained in the cross arms and pole assemblies.
4. All in-ground wiring shall be megger tested and witnessed by City electrician pursuant to guidelines attached.
5. All wiring shall be Copper THHN/THWN stranded only – no solid wire to be used.
6. All wiring #6 AWG and smaller shall be color-coded pursuant to NEC and local codes.
7. All wiring shall be labeled with circuit # at every junction box.
8. All wiring larger than #6 AWG shall be identified with correct color phasing tape.

PUBLIC FACILITIES

Electrical

8.5.6.1. BASKETBALL LIGHTING

References to Standards

See sections:

- VII.A.11, specifying lighting requirements for basketball courts; and
- VII.D.1. Lighting Standards for Public Facilities, specifying lighting requirements for athletic fields and courts.

Specifications

1. Court lighting systems to be designed and provided as a complete system by [MUSCO LIGHTING](#).
2. The standard system is the MUSCO Green program or a City-approved equal. All lighting levels shall provide safe play for the designated sports.
3. Light system shall include a remote monitoring system to track performance.
4. Lighting system to include a web based system to control remotely.
5. Lighting system shall be programmable up to one year in advance and be able to accept a seven day schedule.
6. Lighting system to include a selector switch for each zone in one location for overrides and manual testing purposes.
7. All pole and fixture assemblies to be of galvanized steel and shall meet all

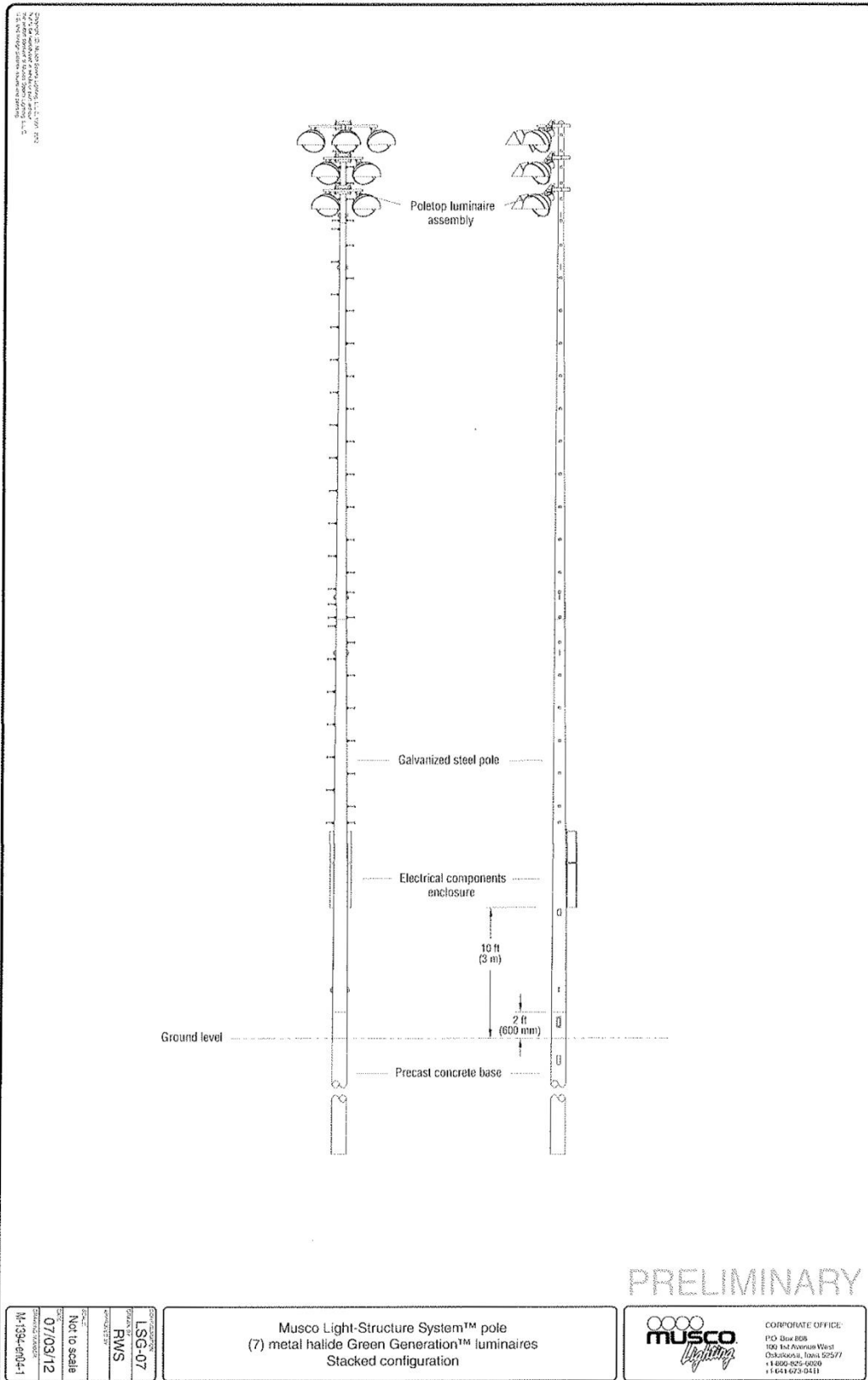
wind load requirement set forth for this region.

Installation Notes

8. Pole footings shall be installed according to manufacturer specifications and designed by a professional engineer licensed by the state of California.
9. The mounting height of all fixtures shall be 20 to 30 feet above the playing surface unless otherwise stated by the City of Irvine.
10. All wiring shall be contained in the cross arms and pole assemblies.
11. All light fixtures to be 1000 watt Metal Halide Phillips Z lamps with external visors to minimize light glare and spill.
12. All in-ground wiring to be megger tested and witnessed by City electrician pursuant to guidelines attached.
13. All wiring to be Copper THHN/THWN stranded only – no solid wire to be used.
14. All wiring #6 AWG and smaller to be color-coded pursuant to NEC and local codes.
15. All wiring to be labeled with circuit # at every junction box.
16. All wiring larger than #6 AWG shall be identified with correct color phasing tape.

PUBLIC FACILITIES

Electrical



PUBLIC FACILITIES

Electrical

8.5.6.2. PLAYING COURT LIGHTING (HANDBALL, RACQUETBALL, AND VOLLEYBALL COURTS)

References to Standards

See sections:

- VII.A. 14, 15, 16, and 17, specifying lighting requirements for racquetball, handball, and volleyball courts.
- VII.D.1. Lighting Standards for Public Facilities, specifying lighting requirements for athletic fields and courts.

Specifications

1. Court lighting systems to be designed and provided as a complete system.
2. The standard system is the [MUSCO Control-Link](#) or a City-approved equal. All lighting levels shall provide safe play for the designated sports.
3. Light system shall include a remote monitoring system to track performance.
4. Lighting system to include a web-based system to control remotely.
5. Lighting system shall be programmable up to one year in advance and be able to accept a seven day schedule.
6. Lighting system to include a selector switch for each zone in one location for overrides and manual testing purposes.
7. All poles, when required, to be [ECHO Round Tapered Steel Poles](#) in Dark Bronze finish and shall meet

all wind load requirements set forth for this region.

8. All light fixtures to be ENERTRON 23" LARGE METAL INDUCTION FLOODLIGHT (see next page). Wattage to be determined by required photometrics.

Installation Notes

1. Pole footings shall be installed according to manufacturer specifications and designed by a professional engineer licensed by the state of California.
2. The mounting height of all pole mounted fixtures shall be 20 to 30 feet above the playing surface unless otherwise stated by the City of Irvine.
3. All wiring shall be contained in the cross arms and pole assemblies.
4. All in-ground wiring to be megger tested and witnessed by City electrician pursuant to guidelines attached.
5. All wiring to be Copper THHN/THWN stranded only – no solid wire to be used.
6. All wiring #6 AWG and smaller to be color-coded pursuant to NEC and local codes.
7. All wiring to be labeled with circuit # at every junction box.
8. All wiring larger than #6 AWG shall be identified with correct color phasing tape.

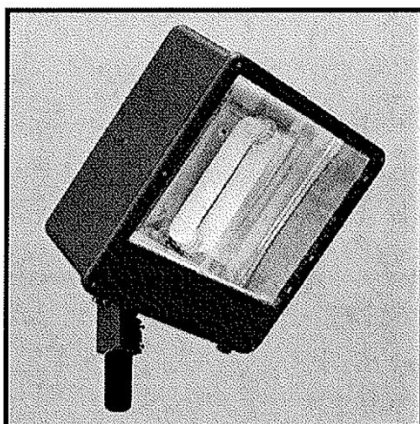
PUBLIC FACILITIES

Electrical

ENERTRON™

INDUCTION 23" LARGE METAL FLOODLIGHT

LEADING THE INDUSTRY WITH QUALITY YOU CAN DEPEND ON



**Induction 650 Series
23" Large Metal Floodlight**

Induction Defined:
Inductively Coupled Electrode-Less Lamp
Uses Magnetic Induction Technology Instead
of an Electrode at Each End of a Fluorescent
Tube or Metal Halide Lamp to Generate Light.
The Absence of Electrodes Allows for Much
Longer Lamp Life.

*****NEW INDUCTION*****

- **Ultra Long Lamp Life—**
100,000 Hours or 11+ Years if in Use
24hrs/7day. If Use on Average is
10hrs/day, Life = 20 Years
- **Induction Uses Half the Wattage of Metal
Halide, But Produces Equivalent Lumens
(VEL)**
- Osram Ictetron 5000K Lamp Included, Superior Lumen
Maintenance, Consistent Color—80+ CRI
- Mercury is a Solid Amalgam for Easy Disposal, No
Mercury Liquids
- **70 Watt Will Replace Applications of a 100
Watt to a 175 Watt Metal Halide**
- **100 Watt Will Replace Applications of a 175
Watt to a 250 Watt Metal Halide**
- **150 Watt Will Replace Applications of a 250
Watt to a 300 Watt Metal Halide**
- Osram Quicktronic Electronic Ballast,
Multi-Voltage 120V-277V, Ballast Power Factor Minimum
.95, THD Maximum 10%, Minimum Start Temperature -
25° F on 70 Watt System, Minimum Start Temperature -
40° F for 100, 150 Watt Systems
- UL Wet Location, Die Cast Aluminum Housing, Bronze
Powdercoat finish over Chromate Conversion Coating,
Hinged Top Frame, Safety Cable Restraint, Coin Plugs
with O Rings for Conduit and Photo Cell, Flat Tempered
Clear Glass Lens
- **All Mounting Options Available are Adders:** Stamped
Steel Yoke, Swivel Wall Bracket, External Slip-
fitter(shown) or Direct Pole Mount Pole Arm, Available
Options include Glare Shield (-GS) and Wire Guard (-WG)

Model	Lamp Type	Ballast Type	Watts	Ballast Voltage	Initial Lumens Metered	Initial Lumens VEL/PL	Rated Average Lamp Life	Height	Width	Depth
650100IN-L	100 Watt	Electronic	100	120-277	7600	14896	100,000 Hrs.	24.5"	24"	10.25"
650150IN-L	150 Watt	Electronic	150	120-277	11650	22834	100,000 Hrs.	24.5"	24"	10.25"

VEL/PL Lumens are Based on 1.96 x Sylvania Metered Lumens @ 50K



**Vertically Integrated Manufacturer
Made In USA**

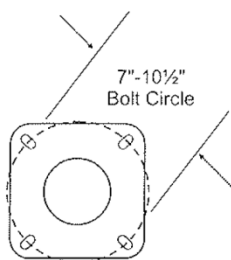
ENERTRON™
2611-A Commerce Way
Vista, CA 92081
800-537-7649
Fax 877-708-7777
www.enertron.com

PUBLIC FACILITIES

Electrical

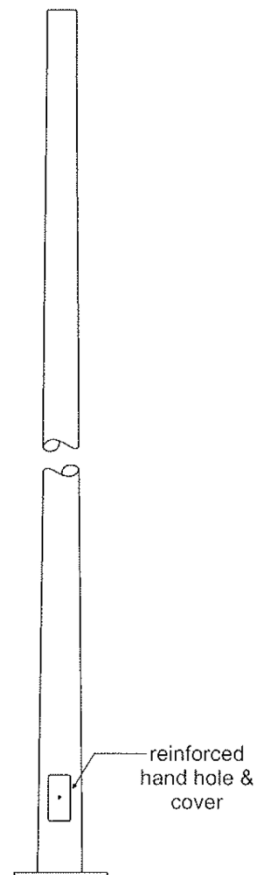


ROUND TAPERED STEEL POLE



Ordering Example: SRSP5-25'-0"-7GA.-AB10-BLK

POLE	HEIGHT	GAUGE	OPTION	BASE COVER	COLOR
SRAP3	8'-0"	11GA.	Custom pole cap= CPC Tenon size (specify)	 Standard 2-PC base cover For other base covers contact factory.	Black =BLK
SRAP3	10'-0"	11GA.			White =WHT
SRAP4	12'-0"	11GA.			Green =GRN
SRAP4	14'-0"	11GA.			Dark bronze =DBZ
SRAP4	16'-0"	11GA.			Custom color =CC
SRAP4	18'-0"	11GA.			
SRAP4	20'-0"	7GA.			
SRAP4	25'-0"	7GA.			
SRAP5	18'-0"	7GA.			
SRAP5	20'-0"	7GA.			
SRAP5	25'-0"	7GA.			
SRAP5	30'-0"	7GA.			



CONSTRUCTION: Round aluminum poles are fabricated from a 6063 T6 alloy aluminum tubing. The complete pole shall include a 3/4" thick anchor base, base cover, removable cap, reinforced hand hole with cover, grounding lug, and (4) galvanized anchor bolts. All poles are manufactured with provisions for side arm mounting fixtures or with a standard 2 3/8" O.D X 5" tenon.

FINISH: Powder coat.

All exposed hardware shall be stainless steel.



ECHO LIGHTING INC.
5618 E. Washington Blvd.
Commerce, CA 90040
PH: (323) 890-9008 • FAX (323) 890-1981
Website: www.echolightingla.com

8.5.6.3. TENNIS COURT LIGHTING

References to Standards

See sections:

- VII.A.12 and 13, specifying lighting requirements for tennis courts.
- VII.D.1. Lighting Standards for Public Facilities, specifying lighting requirements for athletic fields and courts.

Specifications

1. Court lighting systems to be designed and provided as a complete system.
2. The standard system is the MUSCO Control-Link or a City-approved equal. All lighting levels shall provide safe play for the designated sports.
3. Light system shall include a remote monitoring system to track performance.
4. Lighting system to include a web-based system to control remotely.
5. Lighting system shall be programmable up to one year in advance and be able to accept a seven day schedule.
6. Lighting system to include a selector switch for each zone in one location for overrides and manual testing purposes.
7. All poles to be ECHO Round Tapered Steel Poles in Dark Bronze finish and shall meet all wind load requirements set forth for this region.

8. All light fixtures to be VISIONAIRE LIGHTING Advantage series fixtures in Dark Bronze finish (see next pages). Wattage to be determined by required photometrics.

Installation Notes

1. Pole footings shall be installed according to manufacturer specifications and designed by a professional engineer licensed by the state of California.
2. The mounting height of all pole mounted fixtures shall be 20 to 30 feet above the playing surface unless otherwise stated by the City of Irvine.
3. All wiring shall be contained in the cross arms and pole assemblies.
4. All in-ground wiring to be megger tested and witnessed by City electrician pursuant to guidelines attached.
5. All wiring to be Copper THHN/THWN stranded only – no solid wire to be used.
6. All wiring #6 AWG and smaller to be color-coded pursuant to NEC and local codes.
7. All wiring to be labeled with circuit # at every junction box.
8. All wiring larger than #6 AWG shall be identified with correct color phasing tape.

PUBLIC FACILITIES

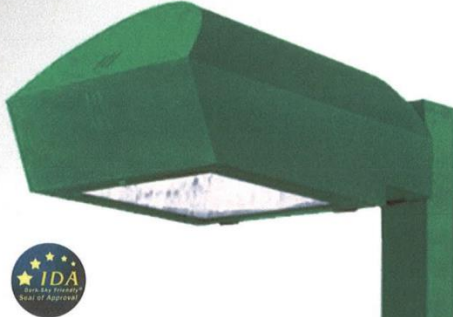
Electrical



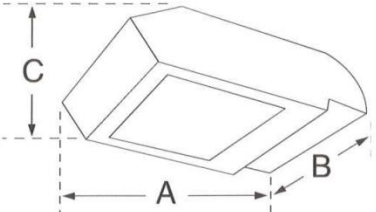
VISIONAIRE LIGHTING

Performance In A Whole New Light

Advantage




Dimensional Drawings



*approx lbs based on heaviest configuration w/packaging

Fixture	EPA	A	B	C	Max. Watt	Lbs
ADV-2	2.8	30"	20.5"	11"	1000w	57

The **Advantage** luminaire features a unique contemporary design inspired by the sleek styling of a European sports car. The new patent-pending Vision™ Tennis Court Reflector System is unlike any other, providing more light per watt than ever before. The **flat lens, vertical lamp, IES full cutoff** luminaire is Dark Sky certified to restrict light trespass, glare and light pollution for neighborhood friendly outdoor lighting.

The low profile, aerodynamic-shaped housing is available with several different, unique, mounting arms for tennis applications. A durable polyester powder coat finish in a variety of colors will compliment any sports facility. Computerized precision machinery, quality materials, and silicone gasketing ensure manufacturing to the highest industry standards.

The **Advantage** fixture's unique, patent-pending Tennis Court reflector is designed specifically for today's levels of play and is the ideal fixture for tennis clubs, public parks, universities, schools, and residential courts. With the option of higher light levels or lower energy costs this industry-leading fixture offers substantial advantages over traditional lighting systems.

The Advantage is available with the new Pulse Start Metal Halide lamp in 1000 or 875 watts; as well as the latest energy saving 750, 450, and 400 watt lamps. Utilizing the latest in technology Pulse Start Metal Halide lamps provide more light per watt over a longer period of time, better color consistency, and smooth, even light for any court facility.

Ordering Guide

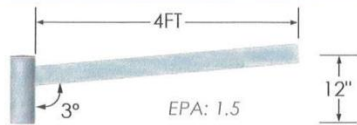
Model No.	Optics	Wattage	Source	Voltage	Mounting	Finish	Options
ADV							
Model	Optics	Wattage	Source	Voltage	Mounting	Finish	Options
☐ ADV-2 Flat Glass	☐ Tennis (T4T)	☐ 400 (400) ☐ 450 (450) ☐ 750 (750) ☐ 875 (875) ☐ 1000 (1000) *Reduced Envelope Lamp on 1000w	MH, PS (M), (P) ☐ ☐ MH - Metal Halide PS - Pulse Start Metal Halide	☐ 480 (5) ☐ M.Tap (6)	☐ Slip Fit Arm (SFA) *Consult factory for bolt-on and davit arms	☐ Bronze (BZ) ☐ Black (BK) ☐ White (WH) ☐ Green (GN)	☐ Back Shield (BS) ☐ 4-Sided Shield (4SS)

For more detailed information on mounting, wiring, or installation instructions, please consult factory. Note that if Poles are not ordered with fixtures, please specify the mounting requirements. This document contains proprietary information of Visionaire Lighting, LLC. Any use of this information requires the written approval of Visionaire Lighting, LLC. In keeping with our TQM policy of continuous improvement, Visionaire reserves the right to change any specifications contained herein without prior notice.

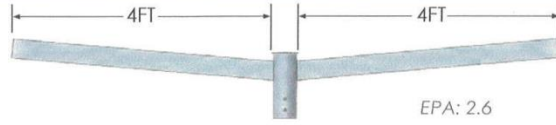
19645 Rancho Way • Rancho Dominguez, CA • 90220
 Tel: 310.512.6480 • Fax: 310.512.6486
www.visionairelighting.com

TNS100

Tennis Arms



TNS100-S1



TNS100-D2

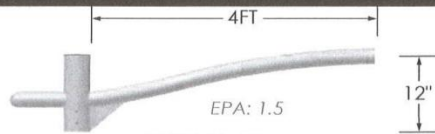
Specifications

TNS100 Tennis Court mounting arm is constructed of 1½" x 3" rectangular steel tubing. This arm can be made to slip over the following tenon (or pole) sizes: 3½"Ø, 4"Ø, & 4½"Ø. TNS100 is available in the following pole mounting configurations: Single, Double 180°, Triple 90°, Triple 120°, and Quad.

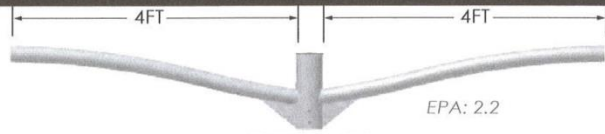
Ordering

Model No.	Configuration	Pole or Tenon Size	Finish
TNS100	Single (S1)	3-½" dia. (3.5)	Bronze (BZ)
	Double (D2)	4" dia. (4)	Black (BK)
	Triple 90° (T9)	4-½" dia. (4.5)	White (WH)
	Triple 120° (T1)		Green (GN)
	Quad (QD)		Custom (CC)

TNS101



TNS101-S1



TNS101-D2

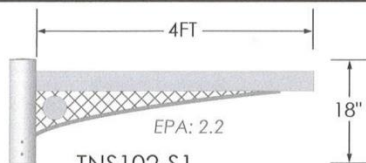
Specifications

TNS101 Architectural Tennis Court mounting arm is constructed of 2⅜" curved steel tubing. This arm can be made to slip over the following tenon (or pole) sizes: 3"Ø, 3½"Ø, 4"Ø, & 4½"Ø. TNS101 is available in the following pole mounting configurations: Single, Double 180°, Triple 90°, Triple 120°, and Quad.

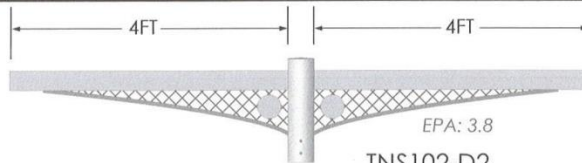
Ordering

Model No.	Configuration	Pole or Tenon Size	Finish
TNS101	Single (S1)	3" dia. (3)	Bronze (BZ)
	Double (D2)	3-½" dia. (3.5)	Black (BK)
	Triple 90° (T9)	4" dia. (4)	White (WH)
	Triple 120° (T1)	4-½" dia. (4.5)	Green (GN)
	Quad (QD)		Custom (CC)

TNS102



TNS102-S1



TNS102-D2

Specifications

TNS102 Tennis Court Theme mounting arm is constructed of 1½" x 3" rectangular steel tubing and features a unique mesh tennis court net and ball design. This arm can be made to slip over the following tenon (or pole) sizes: 3½"Ø, 4"Ø, & 4½"Ø. TNS102 is available in the following pole mounting configurations: Single, Double 180°, Triple 90°, Triple 120°, and Quad.

Ordering

Model No.	Configuration	Pole or Tenon Size	Finish
TNS102	Single (S1)	3-½" dia. (3.5)	Bronze (BZ)
	Double (D2)	4" dia. (4)	Black (BK)
	Triple 90° (T9)	4-½" dia. (4.5)	White (WH)
	Triple 120° (T1)		Green (GN)
	Quad (QD)		Custom (CC)

Typical Tennis Mounting Configurations



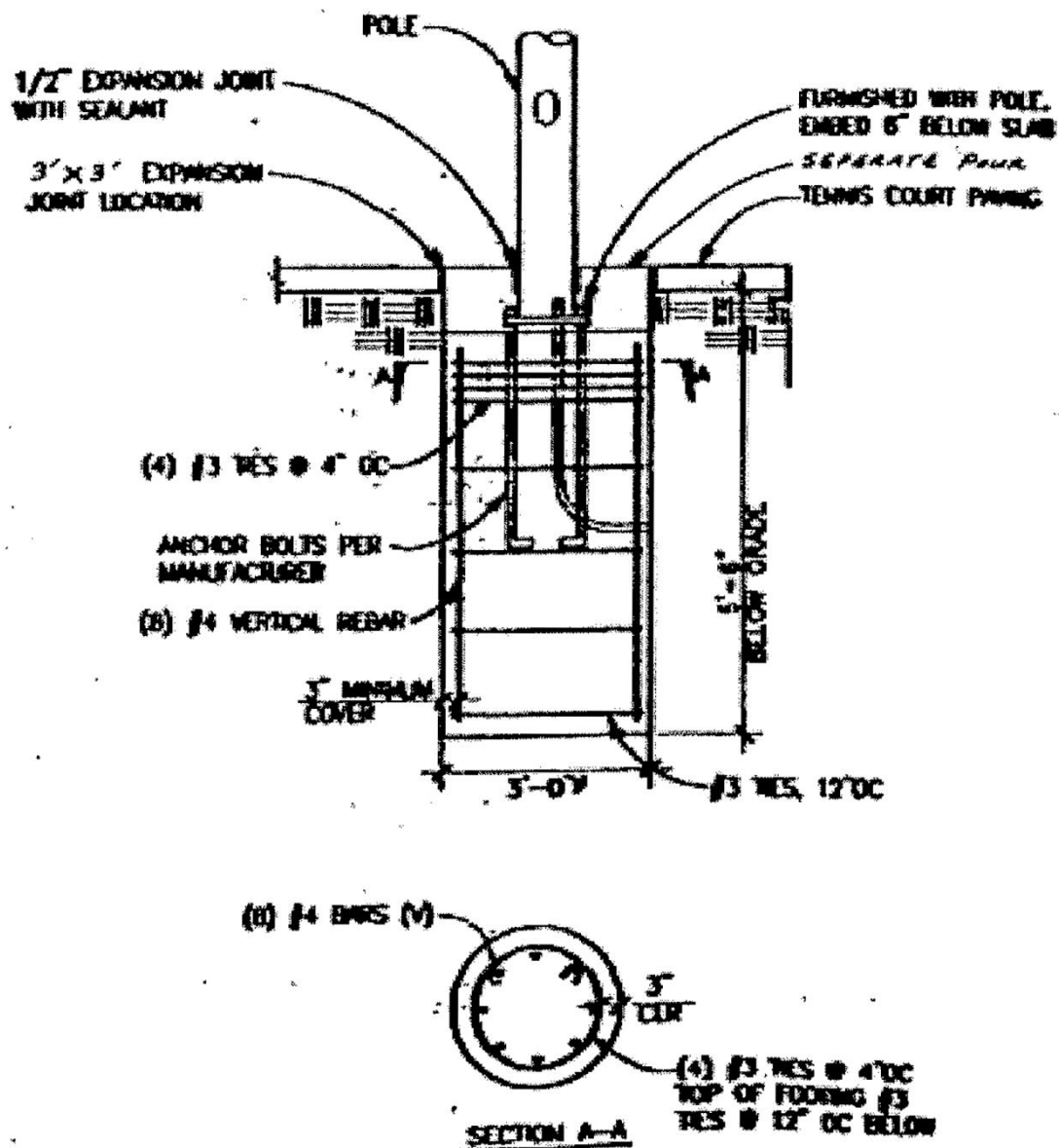
19645 Rancho Way • Rancho Dominguez, CA • 90220
Tel: 310.512.6480 • Fax: 310.512.6486
www.visionairelighting.com

PUBLIC FACILITIES

Electrical

ATTACHMENT J

TENNIS COURT POLE FOOTING DETAIL



8.5.7. CANOPY LIGHTING (PICNIC SHELTERS AND GAZEBOS)

References to Standards

See Section VII.D.2. Security Lighting, citing Municipal Code Section 5-9-520 (Irvine Uniform Security Code), specifying minimum lighting levels for paved walkways and trails.

All ceiling mounted light fixtures shall be recessed and all wall mounted light fixtures shall be shielded, so that all outdoor lighting is “designed and installed so that direct rays are confined to the site and adjacent properties are protected from glare,” per Zoning Ordinance Section 3-16-1.

Specifications

1. Fixtures to be ENERTRON 300 series induction canopy lights.
2. Color of finish dependent on structure color.
3. Wattage of fixture to be determined by required photometrics. Voltage of fixture to be determined by available power.
4. Induction technology shall be used for extended lamp life and drastic reduction in energy costs.

Installation Notes

1. All fixtures to be installed per manufacturer specifications in accordance with all state and local codes.

PUBLIC FACILITIES

Electrical

8.5.8. EXTERIOR BUILDING LIGHTING

References to Standards

See Section VII.D.2. Security Lighting, citing Municipal Code Section 5-9-520 (Irvine Uniform Security Code), specifying minimum lighting levels for exterior door areas, recessed areas, and stairways.

All ceiling mounted light fixtures shall be recessed and all wall mounted light fixtures shall be shielded, so that all outdoor lighting is “designed and installed so that direct rays are confined to the site and adjacent properties are protected from glare,” per Zoning Ordinance Section 3-16-1.

Specifications

1. Fixtures shall be ENERTRON 400 series induction wall packs in Dark Bronze finish (see next page).

2. Wattage and size of fixture shall be determined by required photometrics. Voltage of fixture shall be determined by available power.
3. Fixture size shall be determined dependent on application.
4. Illumination cutoffs and dark sky compliance options shall be used dependent on application.
5. Induction technology shall be used for extended lamp life and drastic reduction in energy costs.

Installation Notes

1. All fixtures to be installed per manufacturer specifications in accordance with all state and local codes.

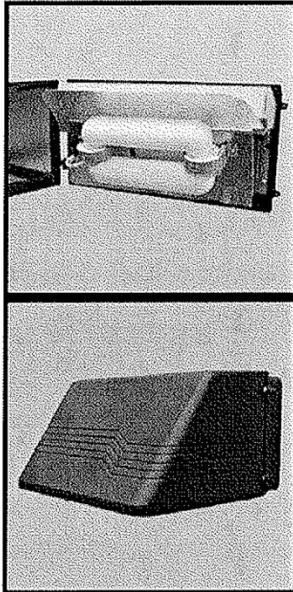
PUBLIC FACILITIES

Electrical

ENERTRON™

INDUCTION LARGE DARK SKY WALL PACK

LEADING THE INDUSTRY WITH QUALITY YOU CAN DEPEND ON



**Induction 493 Series
Large Full Cutoff
Wall Pack**

Induction Defined:
Inductively Coupled Electrode-Less Lamp
Uses Magnetic Induction Technology Instead
of an Electrode at Each End of a Fluorescent
Tube or Metal Halide Lamp to Generate Light.
The Absence of Electrodes Allows for Much
Longer Lamp Life.

*****NEW INDUCTION*****

- Ultra Long Lamp Life—
100,000 Hours or 11+ Years if in Use
24hrs/7day. If Use on Average is
10hrs/day, Life = 20 Years
- Induction Uses Half the Wattage of
Metal Halide, But Produces Equivalent
Lumens (VEL)
- Osram Icteron 5000K Lamp Included, Superior
Lumen Maintenance, Consistent Color—80+ CRI
- Mercury is a Solid Amalgam for Easy Disposal,
No Mercury Liquids
- 70 Watt Will Replace Applications of a
100 Watt to a 175 Watt Metal Halide
- 100 Watt Will Replace Applications of a
175 Watt to a 250 Watt Metal Halide
- Osram Quicktronic Electronic Ballast,
Multi-Voltage 120V-277V, Ballast Power Factor
Minimum .95, THD Maximum 10%, Minimum Start
Temperature -25° F for 70 Watt Systems,
Minimum Start Temperature -40° F for 100 Watt
System
- UL Wet Location, Silicone Gasket Standard
- Die Cast Aluminum Housing and Hinged Front
with Coin Plugs on Sides and Back For Conduit,
Textured Bronze Powdercoat Finish Over
Chromate Conversion Coating, Aluminum
Reflector and Tempered Clear Glass Lens
- White Finish Housing Available, (-W)
- Dark Sky Compliant—Full Cut-Off Wall Pack

Model	Lamp Type	Ballast Type	Watts	Ballast Voltage	Initial Lumens Metered	Initial Lumens VEL/PL	Rated Average Lamp Life	Height	Length	Depth
49370IN-L	70 Watt	Electronic	70	120-277	5950	11,662	100,000 Hrs.	9.125"	18.25"	13.75"
493100IN-L	100 Watt	Electronic	100	120-277	7600	14,896	100,000 Hrs.	9.125"	18.25"	13.75"

VEL/PL Lumens are Based on 1.96 x Sylvania Metered Lumens @ 50K



**Vertically Integrated Manufacturer
Made In USA**

ENERTRON™

2611-A Commerce Way
Vista, CA 92081
800-537-7649
Fax 877-708-7777
www.enertron.com

PUBLIC FACILITIES

Electrical

8.5.9. EXTERIOR BUILDING FLOOD LIGHTING FOR FLAGS OR SIGNAGE

Specifications

When lighting of exterior flags or signage is necessary at City-owned facilities, flood lighting shall conform to following standards:

1. Fixtures to be COOPER Lighting Vision Flood series in LED (see next pages). Color of finish dependent on structure color. Wattage of fixture to be determined by required photometrics. Voltage of fixture to be determined by available power.
2. LED technology for extended lamp life and drastic reduction in energy costs.

Installation Notes

1. All fixtures to be installed per manufacturer specifications in accordance with all state and local codes.

PUBLIC FACILITIES

Electrical

INVUE®

DESCRIPTION

The cylindrical form of the Vision Flood blends effortlessly to architectural and landscape environments. Now available in performance-driven LED technology, VISION FLOOD LED offers optical, energy and maintenance solutions for the full breadth of floodlighting applications.

Catalog #	Type
Project	
Comments	Date
Prepared by	

SPECIFICATION FEATURES

Construction

HOUSING: One-piece, die-cast aluminum housing maintains a nominal .125" thickness to endure the toughest environments while maintaining precise tolerance control. **DOOR:** Die-cast aluminum door maintains a nominal .125" thickness and features concealed hinging to the housing. Door is secured with four (4) tamper-resistant recessed stainless steel allen head fasteners. Door frame features an integral accessory channel for the mounting of optional light control accessories. Doorframe seals to housing with a continuous extruded silicone gasket. Lens is impact-resistant 0.180" thick tempered clear flat glass, sealed to the door with a one-piece silicone gasket. IP66 rated.

Optics

DISTRIBUTION: Cooper Lighting's proprietary state of the art optical designs offer the choice of high efficiency floodlighting optical distributions including symmetric round, symmetric rectangular, asymmetric rectangular and tight spot beam patterns. Optic module is injection molded thermo plastic with highly reflective, metalized specular finish. **LEDs:** High output LEDs, 50,000+ hours life at >70% lumen maintenance, offered standard in 4000K (+/- 275K) and nominal 70 CRI.

Electrical

DRIVER: LED drivers feature electronic universal voltage (120-277V/50-60Hz), > 0.9 power factor, < 20% harmonic distortion and features ambient temperature rating range of +40°C (104°F) down to minimum starting temperature of -30°C (-22°F). Shipped standard with Cooper Lighting proprietary circuit module designed to withstand 10kV of transient line surge. LEDs and drivers mounted to assembly trays and equipped with quick disconnects for ease of maintenance.

Mounting

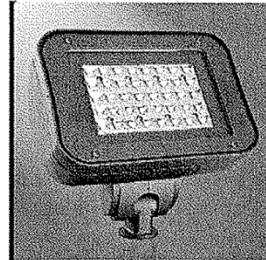
KNUCKLE: Heavy-duty die-cast aluminum knuckle utilizes a taper-lock adjustment mechanism for both solid engagement and infinite aiming adjustment. Knuckle adjustment is made via one (1) captive stainless steel allen head fastener consistent with doorframe fasteners. Tested to sustain 3G of vibration without losing aiming position. VFS knuckle features a 3/4" NPT nipple on bottom surface for rigid attachment to available mounting accessories. Optional slipfitter mount available for VFS.

Finish

Housing is finished in 5-stage, super premium TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available. Consult Outdoor Architectural Colors brochure for a complete selection.

Warranty

VFS LED features a 5-year limited warranty.

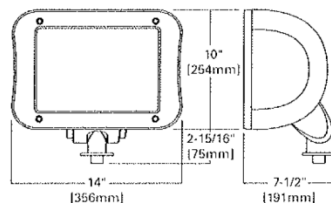


VFS
VISION FLOOD
SMALL LED

ARCHITECTURAL FLOOD
LUMINAIRE

SustainableLEDesign

DIMENSIONS



COOPER Lighting
www.cooperlighting.com

CERTIFICATION DATA

40°C Ambient Temperature Rating
UL and cUL Listed
ISO 9001
IP66 Luminaire
ARRA Compliant
LM79 / LM80 Compliant
3G Vibration Tested

ENERGY DATA

Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120-277V/50 & 60hz, 347V/60hz
-30°C Minimum Temperature

EPA

Effective Projected Area:
1.19 Sq. Ft.

SHIPPING DATA

Approximate Net Weight:
18 lbs. (8 kgs)

AVU101240 pc
2011-09-26 14:40:24

PUBLIC FACILITIES

Electrical

VFS
VISION FLOOD SMALL LED

ORDERING INFORMATION

Sample Number: VFS-K-A40-5-LED-E1-MST-WH

Product Family	# of LEDs/Drive Current ¹	Lamp Type	Distribution	Options ⁹	Accessories ¹²
VFS=Vision Flood Small	A20-3 = 20 LEDs @ 350mA A20-5 = 20 LEDs @ 525mA A20-7 = 20 LEDs @ 700mA A40-3 = 40 LEDs @ 350mA A40-5 = 40 LEDs @ 525mA A40-7 = 40 LEDs @ 700mA ^{2, 3}	LED =Light-Emitting Diodes Voltage E1=Electronic (120-277V) D1=Electronic Dimming ⁴ (120-277V) 347 = 347V 480 = 480V ⁵	TS = Tight Spot TSB = Tight Spot ^{3, 6, 7} Baffle WST = Wide Symmetric Rectangular MST = Medium Symmetric Rectangular VAT = Vertical Asymmetric Rectangular NSR = Narrow Symmetric Round MSR = Medium Symmetric Round Finish ⁸ BK =Black AP = Grey BZ = Bronze WH = White DP = Dark Platinum GM = Graphite Metallic	PC=Button Photocell (Specify voltage) 2L= Bi-Level ^{3, 6, 10} Switching SG = Softening Glass ¹¹	JB-XX = Architectural J-Box with two 3/4" NPT Entries SM-XX = Stanchion Mount ST-XX = Stanchion Mount Tenon WM-XX = Wall Mount WMA-XX = Wall Mount Arm WMT-XX = Wall Mount Arm Tenon Mount TMA-XX = Twin Mount Arm - EPA 0.35 TMT-XX = Twin Mount Arm Tenon Mount - EPA 0.42 SMT-XX = Surface Mount Tenon SF-XX = Splitter PM1-XX = Post Mount Extension Single - EPA 0.12 PM2-XX = Post Mount Extension Double - EPA 0.12 VFS-CFR-XX = Color Filter Adapter with Red Gel VFS-CFB-XX = Color Filter Adapter with Bright Blue Gel VFS-CFG-XX = Color Filter Adapter with Deep Green Gel VFS-CFO-XX = Color Filter Adapter with Warm Orange Gel VFS-BD-XX = Barn Doors - EPA 1.01 VFS-TV-XX = Top Visor - EPA 0.6 VA6174 = Tamper-proof driver bit CPR cap screw

Notes:

- Standard 4000K CCT, nominal 70 CRI.
- 40 LEDs @ 700mA (A40-7) limited to 25° C ambient conditions.
- Not available with color filters or external shielding.
- Only available with 20 LEDs at 350 or 525 (A20-3 or A20-5). Provides 0-10V DC low voltage leads used in dimming control.
- Only available with normal power factor and <30 THD
- Not available with 347/480V.
- Available with 20 or 40 LEDs at 350mA (A20-3 or A40-3) only.
- Custom and RAL color matching available upon request. Consult customer service representative for further information.
- Add as suffix in order shown.
- Only available with 40 LEDs at 350 or 525 (A40-3 or A40-5).
- Standard on WST Distribution.
- Order separately. Replace XX w/selected color finish.

DELIVERED LUMENS BY DISTRIBUTION, LED QUANTITY AND DRIVE CURRENT

DISTRIBUTION	Drive Current / LED Quantity						IES NEMA Type (HxV)
	350mA		525mA		700mA		
	20 LED	40 LEDs	20 LED	40 LEDs	20 LEDs	40 LEDs	
TS (Tight Spot)	1,599	2,976	2,207	4,161	2,608	4,659	2X2
TSB (Tight Spot Baffle)	1,117	2,079	-	-	-	-	1x1
WST (Wide Symmetric Rectangular)	1,887	3,367	2,607	4,884	3,081	5,500	7x6
MST (Medium Symmetric Rectangular)	1,801	3,354	2,489	4,689	2,942	5,254	6x5
VAT (Vertical Asymmetric Rectangular)	1,849	3,443	2,555	4,881	3,020	5,391	6x6
NSR (Narrow Symmetric Round)	1,622	3,021	2,241	4,223	2,649	4,729	3x3
MSR (Medium Symmetric Round)	1,673	3,116	2,312	4,356	2,732	4,876	4x4

* Lumen values based upon 4000K CCT and 25° C ambient operating temperatures.

INPUT WATTS BY VOLTAGE, LED QUANTITY AND DRIVE CURRENT

Voltage	Input by Drive Current / LED Quantity					
	350mA		525mA		700mA	
	20 LEDs	40 LEDs	20 LEDs	40 LED	20 LEDs	40 LEDs
Input watts @ 120-277V	24W	46W	35W	67W	49W	94W
Input watts @ 347V	27W	48W	38W	70W	52W	97W
Input watts @ 480V	31W	52W	42W	73W	55W	100W

8.5.10. EXIT SIGN/LIGHTING

References to Standards

See Section VII.D.2. Security Lighting, citing Municipal Code Section 5-9-520 (Irvine Uniform Security Code), including requirements for emergency egress lighting.

Specifications

1. Standard fixture to be NORA LIGHTING NEX-709 LED Exit combination w/MR16 adjustable heads (see next page).
2. Unit to be white with green illuminated lettering and equipped with two adjustable LED heads.
3. Units to feature dual input voltage in 120/277VAC.
4. Units to feature LED lighting for maximum life without maintenance.

Installation Notes

1. Units to be properly installed above all exit doors in accordance with all state and local regulations.

PUBLIC FACILITIES

Electrical

NEX-709

Halogen Emergency/LED Exit Combination with MR16 Adjustable Heads



LAMP WATTAGE

(2)5MR16

DESCRIPTION

Exit sign with dual emergency fixtures feature full vertical adjustment allowing MR16 heads to be positioned to the top, corners, or side of the exit sign. Exit sign is powered by LED source for maximum life without maintenance; emergency fixtures utilize high performance MR16 halogen sources. In the event of power loss, both sign and heads will operate for a minimum of 90 minutes. Additional battery may be added to allow operation of two 5VA remote fixtures.

BODY

- Dimensions: See table
- Injection-molded dual housing with 1/2" replaceable knockouts for power conduit feed.

FACE

Exit

- Single or dual configuration. Optional solid face panel is included.
- 6" high text with color diffusion
- Knockout directional chevrons

Emergency

- Two adjustable arms with round heads holding self-protected, covered MR16 halogen lamps

MOUNTING

- Wall or ceiling
- Mounting hardware included

ELECTRICAL

Voltage

- Dual 120V/277V Input

Power Consumption

- 3.8 Watts, normal operation
- 15 Watts, emergency operation, with capacity for 10 additional watts if using remote fixtures and additional battery.

Light Source

- Exit: LED Strip for normal operation
- Emergency: 2 X 5W 6V MR16 Halogen Lamps

Battery

- 6V 4.5 Replaceable lead-calcium battery operates integral heads and exit LED sources. Additional battery may be added to operate two 5W remote fixtures
- 90 minute emergency operation
- Internal solid state charging circuit

Testing

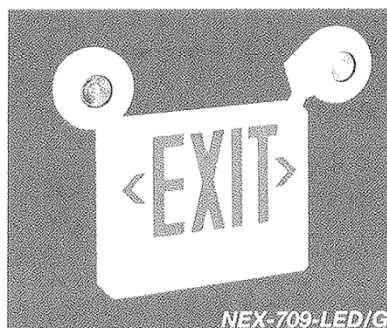
- High-charge/ready operation indicator light
- Test button

Circuitry protection

- Isolated surge/short circuit protection

LIFE EXPECTANCY

- LED and PC circuitry are rated for a minimum of 25 years with no change in illumination level.
- Emergency lamps and lead calcium battery require standard maintenance.



NEX-709-LED/G



NEX-709-LED/R

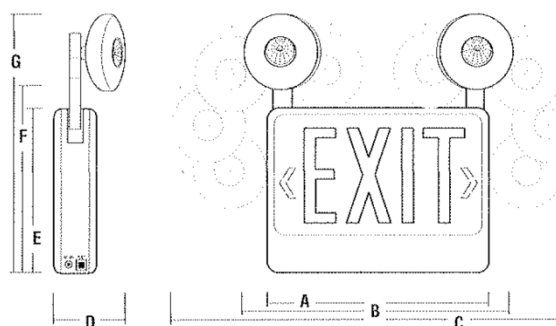
PRODUCT MATRIX

NEX-709-LED/G MR16 Style Emergency Fixture with Full Adjustability, Green Lettering

NEX-709-LED/R MR16 Style Emergency Fixture with Full Adjustability, Red Lettering

DIMENSIONS

A	13"
B	16-1/4"
C	21-13/16"
D	5"
E	10-1/8"
F	12-5/8"
G	17"



APPROVALS

- UL 924 Listed, Damp Locations • NEC
- NFPA • State & Municipal

ACCESSORIES

- NE-839 5W MR16 Halogen Emergency Remote Fixture
- NEXS-P1 Clear Plastic Shield*
- NEXS-M3 Metal Shield
- NEXL-S Solid Face
- * Use of Plastic Shield will limit adjustability of emergency heads

NORALIGHTING

6505 Gayhart St., Commerce, CA 90040 • Phone 800-686-6672 • Fax 800-590-9955
Website: <http://www.NoraLighting.com> • E-mail: Nora@NoraLighting.com
NORA LIGHTING RESERVES THE RIGHT TO MAKE CHANGES WITHOUT NOTICE. © 2000

E.02.12

8.5.11. SIGN LIGHTING

References to Standards

See Section VII.D.2. Security Lighting, citing Municipal Code Section 5-9-520 (Irvine Uniform Security Code).

Specifications

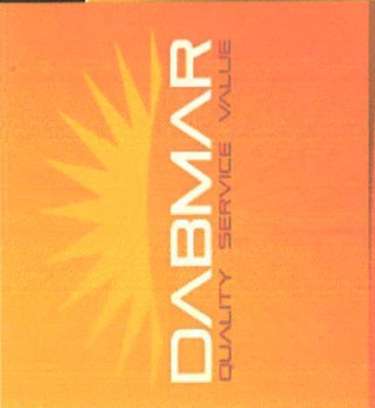
1. Standard fixture to be DABMAR Led Liner Flood DF-LED9412 (see next pages).
2. Unit to be Dark Bronze in color.
3. Units to feature input voltage in 120VAC.
4. Units to feature LED lighting for maximum life without maintenance.

Installation Notes

1. Units to be properly installed with KIM lighting JB1-DB-E Junction boxes according to attached drawing.

PUBLIC FACILITIES

Electrical



[Home](#) [About Us](#) [Products](#) [Specials](#) [Rep Locator](#) [Contact Us](#)

 DISTRIBUTOR LOGIN

User Name:

Password:

Login

 SEARCH

Search

 ONLINE CATALOG

 [New Products Catalog 2012](#)

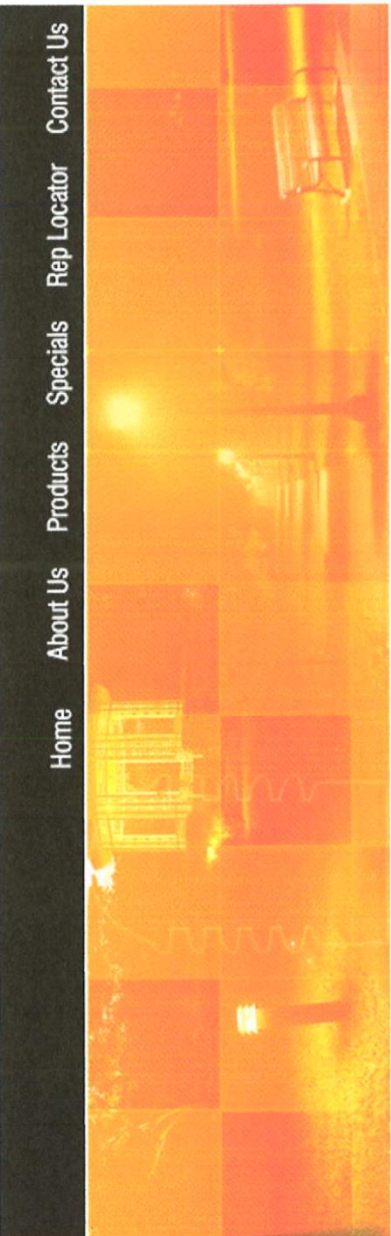
 [Architectural Landscape Catalog](#)

 [Architectural Outdoor Lighting](#)

[Landscape Lighting](#)

[Bollards](#)

[Decorative Post & Wall Lighting](#)





DF-LED9412

LED LINEAR FLOOD and SIGN LIGHT

Material: Powder Coated Cast Aluminum
Lens: Clear, Heat Resistant, Tempered Glass
Lamps: See Chart

Two adjustable knuckles with 1/2" NPT

See Product Notes: *04, *07



Ordering Information

Model	Lamp Type	Watts	Voltage	Lamp(s) Incl?	See Lamp Notes:
DF-LED9412	LED	36 x 1W	120V	Yes	

AVAILABLE FINISH:

Product Notes:
*07 - LV-S6 Ground Mounting Spike(s) sold separately
*04 - ETL Approved for wet locations

VIII-100

Updated by CSC May 20, 2015

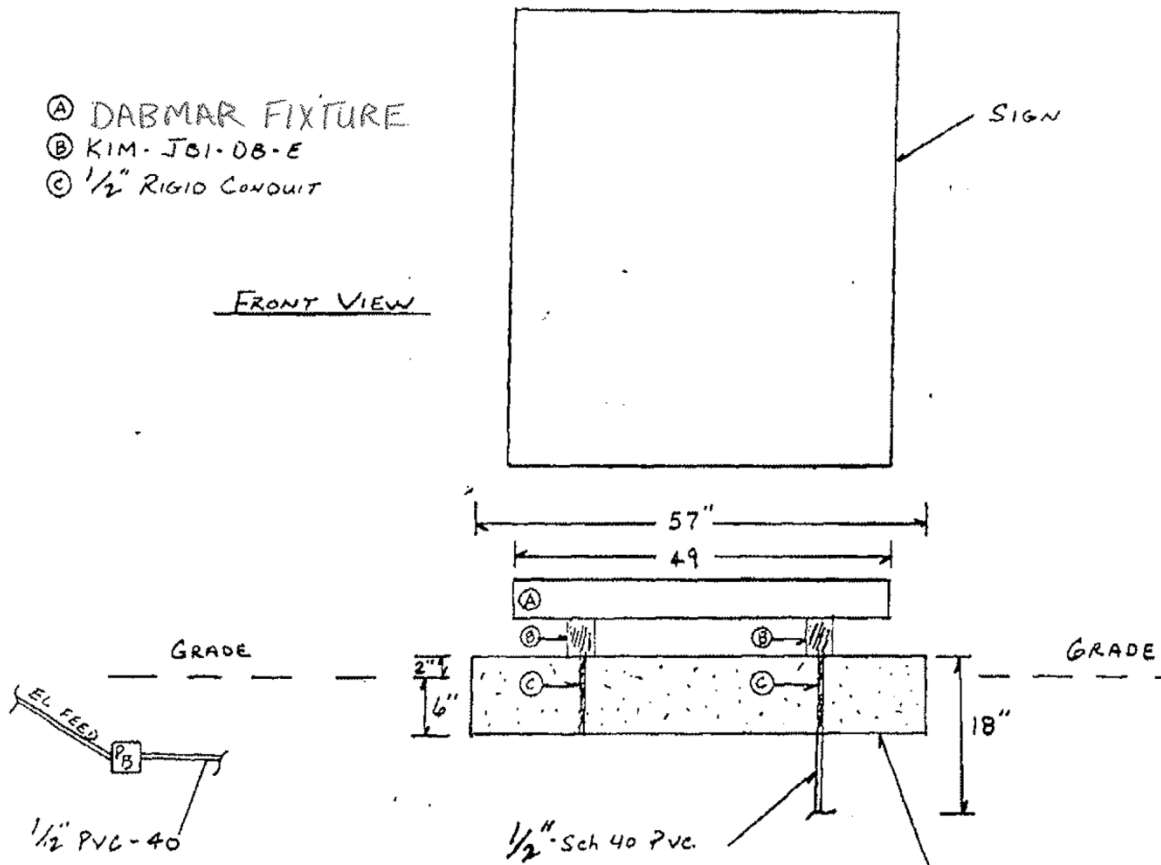
PUBLIC FACILITIES

Electrical

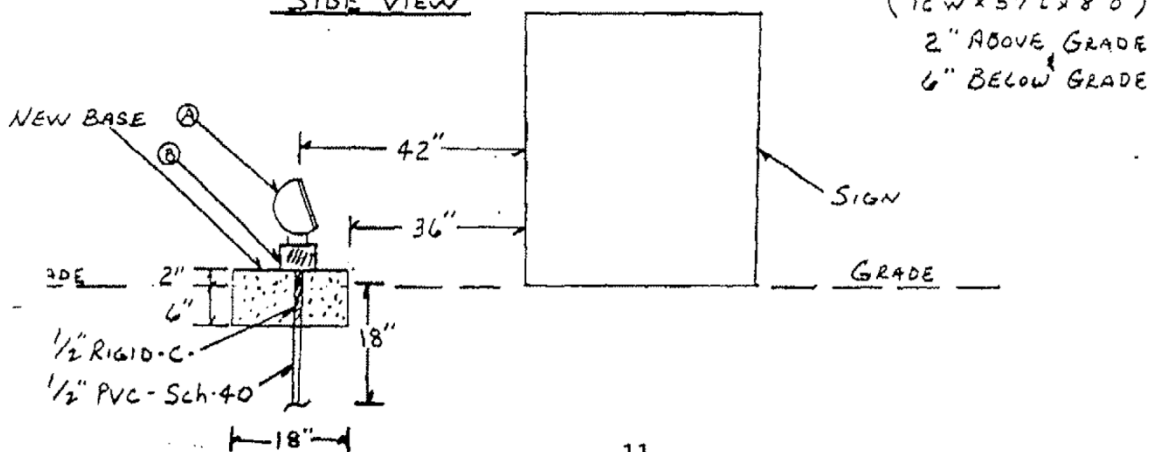
SIGN LIGHT INSTALLATION DETAILS : SIGN LIGHT

- (A) DABMAR FIXTURE
- (B) KIM-JOI-DB-E
- (C) 1/2" RIGID CONDUIT

FRONT VIEW



SIDE VIEW



PUBLIC FACILITIES

Appendix D

APPENDIX D. GREEN BUILDING REQUIREMENTS SUMMARY

This appendix summarizes main requirements for green buildings in effect as of the date of preparation of this document (April 20, 2015) from the following documents:

- California Energy Code 24 California Code of Regulations (CCR) §11.
- All Leadership in Energy and Environmental Design (LEED) prerequisites, unless exemption from LEED requirement is granted as stated below.
- Irvine Ranch Water District (IRWD) policies regarding use of recycled water.
- Irvine Energy Plan.
- Irvine City Council Resolution No. 05-153, adopting Green Building Program.

This summary is not intended to exclude any other applicable code requirements or standards.

D.1. PROJECT DESIGN

Project Team

For new buildings and major renovations:

- An architect and/or engineer who has significant green building and renewable energy system experience shall be utilized, per Irvine Energy Plan Sec. 7.2.1.b and c.
- At least one principal participant of the project team shall be a LEED Accredited Professional (AP).
- A design review of the project and appropriate specifications shall be performed by an energy expert to provide a high quality of energy performance per Irvine Energy Plan Sec. 7.2.1.b.

Commissioning

Building commissioning is required for new buildings, additions, or major renovations of 5,000 square feet and over per 24 CCR §11.5.410.2 and LEED Energy and Atmosphere (EA) prerequisite requirements. Building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements.

Utility Assistance Programs

Utility assistance programs, such as 'Savings by Design' that provide design assistance and owner and design team incentives, shall be maximized in designing new municipal construction projects. Representatives from utility companies Southern California Gas Company and Southern California Edison shall be involved

PUBLIC FACILITIES

Appendix D

to ensure the City is taking full advantage of their many technical and financial energy efficiency rebates and resources per Irvine Energy Plan Sec. 7.2.1.d.

D.2. LOCATION AND SITE DESIGN

Stormwater Pollution Prevention Plan

Stormwater pollution prevention devices and practices shall be installed and/or instituted as necessary to ensure compliance with the City of Irvine Storm Water/Urban Runoff provisions contained in Irvine Municipal Code Title 6, Division 8, Chapter 3, and shall follow [Standard Stormwater Pollution Prevention Notes for Construction Projects](#).

Grading and Paving

Construction plans shall indicate how site grading or a drainage system will manage all surface water flows to keep water from entering building. Strategies may include swales, water collection and disposal systems, French drains, water retention gardens and other water measures that keep water away from buildings and aid in groundwater recharge. [24 CCR §11.5.106.10]

Designated Vehicle Parking

Designated parking for low-emitting, fuel-efficient, and carpool/vanpool vehicles shall be provided in a preferred location closest to building main entry per 24 CCR §11.5.106.5.2 and Irvine Energy Plan Sec. 7.3.f.

Handicap accessible parking shall be provided and conform to Irvine Zoning Code Section 4-3-6, and to all other City, State, and Federal requirements.

Designated parking spaces shall count toward fulfilling automobile parking requirements, unless otherwise provided by City regulations.

Bicycle Parking

Provide permanently anchored bicycle racks within 200 feet of the visitor's entrance, readily visible to passers-by, for five percent of visitor vehicle parking capacity with a minimum of one, two-bike capacity rack. [24 CCR §11.5.106.4.1]

For buildings with more than ten employees, secure bicycle parking is required per 24 CCR §11.5.106.4.2.

PUBLIC FACILITIES

Appendix D

Irrigation and Landscaping

Reclaimed water shall be used for 100 percent of irrigation water and/or plant materials shall be used so that no permanent irrigation is needed after an initial one-year establishment period per IRWD Rules and Regulations Section 4.12, 24 CCR §11.5.304.1.

All outdoor water use shall conform to 24 CCR §11.5.304.1 through 5.304.3 requirements for water budget, metering, and irrigation controllers, and all other applicable codes and regulations. All irrigation shall be controlled by weather or soil moisture-based controllers per 24 CCR §11.5.304.3.1.

D.3. BUILDING LAYOUT

Solar Orientation

Consider orienting the building to allow for more efficient heating and cooling. On elevations facing south, consider roof overhang, built in shading elements and/or other features to minimize direct sunlight into the building.

Recycling Area

Readily accessible areas for recyclables that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics and metals shall be provided per 24 CCR §11.5.410.1 and LEED Materials and Resources prerequisite.

D.4. ENERGY EFFICIENCY

Energy Use Reduction

Building energy use and energy cost shall be reduced per 24 CCR §11.5.201 and LEED EA prerequisite through a combination of energy efficiency, energy demand reduction, and renewable generation on-site.

On-site Renewable Generation

On-site renewable energy sources shall be used for a minimum of 40 percent of building energy costs per Irvine Energy Plan, Sec. 5.2. Consider use of solar panels, solar water heating, small wind turbines, and/or other on-site renewable energy generation options as appropriate for each project, to achieve the required percentage per Irvine Energy Plan, Sec. 5.2.

Green Power

Consider purchasing renewable energy generated elsewhere to bridge the gap between a building's energy needs and the energy provided through on-site renewable energy generation per Irvine Energy Plan, Sec. 7.2.2.b.

D.5. LIGHTING AND DAYLIGHTING

Daylighting Optimization

Use of day lighting shall be maximized in the design of all new municipal facilities per Irvine Energy Plan Sec. 7.2.1.e.

Glare control devices should be provided at all openings where high levels of daylight may cause visual discomfort.

Interior Lighting

All interior lighting shall comply with lighting power requirements in the California Energy Code [24 CCR §6]. High efficacy lighting, such as compact fluorescent lamps or fluorescent tubes and electronic ballasts with proper protective fixtures, shall be used [24 CCR §6].

Exterior Lighting

All exterior lighting shall comply with all applicable regulations, including 24 CCR §11.5.106.8 and 24 CCR §6.

D.6. HEATING, VENTILATION AND AIR QUALITY

Passive Heating and Cooling and Natural Ventilation

Consider incorporating passive heating and cooling and natural ventilation to extent possible [Irvine Energy Plan page 16].

Indoor Air Quality:

Meet the requirements of 24 CCR §11.5.506.1 for all mechanically or naturally ventilated spaces.

PUBLIC FACILITIES

Appendix D

Smoking shall be prohibited in the building and within 25 feet of all operable windows, doors, and air intakes and signs shall be placed at building entries stating this policy per 24 CCR §11.5.504.7.

Outside Air Quality:

New HVAC, refrigeration and fire suppression equipment shall not contain chlorofluorocarbon (CFC)-based refrigerants or Halons. For existing systems, all CFC-based refrigerants shall be phased out per 24 CCR §11.5.508.1.1, 5.508.1.2; and LEED EA prerequisite].

Space Heaters

Installation of new heaters shall comply with minimum prescriptive requirements for efficiency [24 CCR §6].

D.7. INDOOR WATER CONSERVATION

Wastewater Reduction

Each building shall reduce wastewater by 20 percent by one of the following methods:

- Water conserving fixtures and fittings.
- Utilizing non-potable water systems (24 CCR §11.5.303.4).

Recycled water, if available, shall be used for all state-approved applications, including, but not limited to: irrigation, toilet or urinal flushing, and cooling water tower makeup, as long as it is at a reasonable cost to the customer, per IRWD policies. If the cost is unreasonable, documentation to that effect shall be provided to IRWD for review and approval.

Fixtures and Fittings – Potable Water Reduction

Provide a plumbing schedule of fixtures and fittings (water closets, urinals, faucets and showerheads) that will:

- Reduce the overall use of potable water within the building (excluding irrigation) by at least 20 percent from California Building Standards Code. (24 CCR §11.5.303.2 and LEED Water Efficiency (WE) prerequisite).
- Meet standards in CSGBC Table 5.303.6. (24 CCR §11.5.303.6) .

Flow restrictors and/or reduced flow aerators on lavatory, sink and shower fixtures, automatic faucet sensors and metering controls, and low consumption flush fixtures

PUBLIC FACILITIES

Appendix D

(high efficiency water closets and urinals) shall be installed as appropriate per LEED WE prerequisite.

Applicable standards for fixtures include, but are not limited to:

- Water Closets: Maximum 1.28 gallons per flush [EPA WaterSense; 24 CCR §11.5.303.6; LEED Water Efficiency (WE) prerequisite].
- Urinals: Maximum 0.25 gallons per flush or waterless [City Energy Plan Sec. 7.2.1.g, also meets EPA WaterSense; 24 CCR §11.5.303.6; and LEED Water Efficiency (WE) prerequisite].
- Lavatories: Public metering self-closing faucets: Maximum 0.25 gallons per minute [24 CCR §11.5.303.2.3; LEED Water Efficiency (WE) prerequisite].

Hot Water Heaters

All new public swimming pools, gymnasias and related community facilities shall have water heating provided (at least in part) by renewable energy sources, especially by solar hot water systems, and/or by cogeneration, per Irvine Energy Plan Sec. 7.2.2.c.

Installations of new heaters shall comply with minimum prescriptive requirements for efficiency [24 CCR §6].

D.8. ROOF LAYOUT AND MATERIALS

New buildings and shade structures shall be designed to address energy efficiency, reduce heat island effect, and be solar ready. Materials for new and replacement roofs shall be selected to accommodate these three standards.

Solar Readiness

All new buildings and shade structures should be designed to be solar ready by incorporating the following features:

- “Solar zone” on the roof should be maximized:
 - Roof orientation between 110 degrees and 270 degrees, or flat roof.
 - Roof is free of obstructions that may shade panels or collectors.
 - Sufficient structural strength to support weight of solar panels.
- Conduits should be provided to the roof and to the parking structure to allow for installation of solar panels in the future.

PUBLIC FACILITIES

Appendix D

Insulation

Increased insulation and an air barrier shall be provided as part of the envelope system to prevent excessive heat loss or gain per 24 CCR §6.

D.9. MATERIALS AND FINISHES

Flooring Materials

All flooring installed in the building interior shall comply with the following standards for low emitting materials, per 24 CCR §11.5.504.4:

- Carpet systems: Carpet and Rug Institute Green Label Plus program requirements.
- Carpet cushion: Carpet and Rug Institute Green Label program.
- Hard surface flooring: FloorScore standard.
- Composite wood: California Air Resources Board (CARB) Air Toxic Control Measures and no added urea-formaldehyde resins.
- Concrete, wood, bamboo and cork floor finishes: South Coast Air Quality Management District (SCAQMD) Rule 1113.
- Adhesives and grout: SCAQMD Rule 1168.

Interior Finishes:

Low volatile organic compounds (VOC) paints, coatings, adhesives, sealants, sealant primers and caulks installed in building interior shall be used and comply with SCAQMD Rule 1168 [24 CCR §11.5.504.4; Irvine Green/Recycled Product Purchasing Policy, 2006].

Composite wood and agrifiber products in building interior and laminate adhesives shall conform to CARB Air Toxic Control Measures and contain no added urea-formaldehyde resins [24 CCR §11.5.504.4].

The following interior finishes should comply with the specified standards:

- Aerosol adhesives: Green Seal Standard for Commercial Adhesives GS-36.
- Architectural paints and coatings: Green Seal standard GS-11.
- Anti-corrosives and antirust paint: Green Seal Standard GS-3.
- Clear wood finishes, floor coatings, stains, primers, and shellacs: SCAQMD Rule 1113.

D.10.CONSTRUCTION

PUBLIC FACILITIES

Appendix D

Stormwater Pollution Prevention Plan (SWPPP)

A Storm Water Pollution Prevention Plan (SWPPP) shall be developed for new construction projects and conform to State Stormwater National Pollutant Discharge Elimination System Construction Permit or local ordinance, whichever is stricter [24 CCR §11.5.106.1; LEED Sustainable Sites prerequisite].

Construction Waste Reduction, Disposal, and Recycling

A Construction Waste Management Plan shall be prepared and conform to all requirements of Irvine Municipal Code Sec. 6-7-9 and 24 CCR §11.5.408, including but not limited to deconstruction activities, diverting minimum percentage of construction and demolition debris, and reporting.

Indoor Air Quality Pollutant Control: During Construction

An Indoor Air Quality Management Plan shall be developed and implemented for construction and preoccupancy phases that include the following:

- Covering of duct openings and protection of mechanical equipment during construction. [24 CCR §11.5.504.3].
- Filters in mechanically ventilated buildings shall be at least Minimum Efficiency Reporting Value 8 and shall be replaced with new filters prior to occupancy. [24 CCR §11.5.504.5.3].
- Meet or exceed the requirements for indoor moisture control provisions of 24 CCR §2.1203 and 14. [24 CCR §11.5.505.1].