Outdoor Recreation Facilities Guide

A GUIDE FOR ILLINOIS COMMUNITIES

Illinois Department of Natural Resources

Rod Blagojevich, Governor

Sam Flood, Acting Director

February 2006
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# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Baseball/Softball Field</td>
<td>4</td>
</tr>
<tr>
<td>Soccer Field</td>
<td>14</td>
</tr>
<tr>
<td>Touch/Flag Football Field</td>
<td>19</td>
</tr>
<tr>
<td>Multi-Use Fields</td>
<td>23</td>
</tr>
<tr>
<td>Basketball Court</td>
<td>24</td>
</tr>
<tr>
<td>Shuffle Board Court</td>
<td>27</td>
</tr>
<tr>
<td>Bocce Ball Court</td>
<td>29</td>
</tr>
<tr>
<td>Horseshoe Pitch</td>
<td>31</td>
</tr>
<tr>
<td>Sand and Hard Surface Volleyball Court</td>
<td>34</td>
</tr>
<tr>
<td>Tennis Court</td>
<td>37</td>
</tr>
<tr>
<td>Platform Tennis</td>
<td>41</td>
</tr>
<tr>
<td>Disc/Frisbee Golf</td>
<td>43</td>
</tr>
<tr>
<td>In-Line Skating/In-Line Hockey Rink</td>
<td>45</td>
</tr>
<tr>
<td>Ice Skating/Ice Hockey Rink</td>
<td>48</td>
</tr>
<tr>
<td>Skate Park</td>
<td>51</td>
</tr>
<tr>
<td>Safety Town</td>
<td>53</td>
</tr>
<tr>
<td>Splash Pad</td>
<td>55</td>
</tr>
<tr>
<td>Rock Climbing Wall</td>
<td>56</td>
</tr>
<tr>
<td>Walks/Paths</td>
<td>57</td>
</tr>
<tr>
<td>Appendix 1: Additional Information on Surfaces, Lighting, Fencing, Irrigation and Parking</td>
<td>61</td>
</tr>
<tr>
<td>Appendix 2: Specialty Garden Plant Lists</td>
<td>62</td>
</tr>
<tr>
<td>Appendix 3: Special Illinois Parks and Recreation Facilities</td>
<td>64</td>
</tr>
<tr>
<td>Appendix 4: References</td>
<td>66</td>
</tr>
</tbody>
</table>
# Table of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regulation Full-Size Baseball Field Dimensions</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Height of the Pitching Mound &amp; Overall Infield Slope</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>Softball Field Dimensions</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>Dugout Configuration</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>Baseball/Softball Field Drainage Options</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>Six Light Pole Ball Field Configuration</td>
<td>11</td>
</tr>
<tr>
<td>7</td>
<td>Four Corner Ball Field Configuration</td>
<td>12</td>
</tr>
<tr>
<td>8</td>
<td>Clover Leaf Ball Field Configuration with Possible Inclusion of Athletic Field</td>
<td>13</td>
</tr>
<tr>
<td>9</td>
<td>Boys Soccer Field Dimensions</td>
<td>15</td>
</tr>
<tr>
<td>10</td>
<td>Soccer Field Drainage Options</td>
<td>16</td>
</tr>
<tr>
<td>11</td>
<td>Soccer Light Pole Configurations</td>
<td>17</td>
</tr>
<tr>
<td>12</td>
<td>Touch/Flag Football Field Dimensions</td>
<td>20</td>
</tr>
<tr>
<td>13</td>
<td>Touch/Flag Football Light Pole Configuration</td>
<td>21</td>
</tr>
<tr>
<td>14</td>
<td>Full Court Basketball Dimensions</td>
<td>25</td>
</tr>
<tr>
<td>15</td>
<td>Circular Basketball</td>
<td>26</td>
</tr>
<tr>
<td>16</td>
<td>Half-court Basketball Option</td>
<td>26</td>
</tr>
<tr>
<td>17</td>
<td>Shuffle Board Court Dimensions</td>
<td>27</td>
</tr>
<tr>
<td>18</td>
<td>Bocce Ball Court Dimensions</td>
<td>29</td>
</tr>
<tr>
<td>19</td>
<td>Horseshoe Pitch Dimensions</td>
<td>31</td>
</tr>
<tr>
<td>20</td>
<td>Cross Section of Horseshoe Peg</td>
<td>32</td>
</tr>
<tr>
<td>21</td>
<td>Volleyball Court Dimensions</td>
<td>34</td>
</tr>
<tr>
<td>22</td>
<td>Tennis Court Dimensions</td>
<td>37</td>
</tr>
<tr>
<td>23</td>
<td>Tennis Court Light Pole Configuration</td>
<td>38</td>
</tr>
<tr>
<td>24</td>
<td>Tennis Court Net Anchor Detail</td>
<td>39</td>
</tr>
<tr>
<td>25</td>
<td>Four &amp; Six Tennis Court Configurations</td>
<td>40</td>
</tr>
<tr>
<td>26</td>
<td>Platform Tennis Court Dimensions</td>
<td>42</td>
</tr>
<tr>
<td>27</td>
<td>Disc Golf Layout</td>
<td>44</td>
</tr>
<tr>
<td>28</td>
<td>In-Line Hockey Rink Dimensions</td>
<td>46</td>
</tr>
<tr>
<td>29</td>
<td>Ice Hockey Rink Dimensions</td>
<td>49</td>
</tr>
<tr>
<td>30</td>
<td>Ice Hockey Rink Lighting</td>
<td>50</td>
</tr>
<tr>
<td>31</td>
<td>Asphalt Path</td>
<td>57</td>
</tr>
<tr>
<td>32</td>
<td>Decomposed Granite Path</td>
<td>58</td>
</tr>
<tr>
<td>33</td>
<td>Limestone Screenings Path</td>
<td>58</td>
</tr>
<tr>
<td>34</td>
<td>Mulch Path</td>
<td>58</td>
</tr>
<tr>
<td>35</td>
<td>Sample Butterfly Garden Plan</td>
<td>62</td>
</tr>
<tr>
<td>36</td>
<td>Sample Rain Garden Plan</td>
<td>63</td>
</tr>
</tbody>
</table>
Introduction

The intention of this publication is to provide background information, identify standards, and share recommendations for communities considering the construction or rehabilitation of outdoor recreation facilities. While this publication is primarily a technical manual, it also provides information on site development issues. Please note the following qualifying statements for each category.

**Recommended Area**
- includes the court or field surface area plus additional support space

**Dimensions**
- court or field dimensions with possible range of lengths and widths if appropriate

**Orientation**
- when feasible, play courts and fields should be oriented to minimize sun interference for players during late afternoon hours (i.e., the primary line of play for any game should be away from the setting sun). If such orientation is not feasible because of surface gradients or other site factors, then tall growing trees should be planted to serve as a barrier (unless such trees, tall buildings or surrounding hills already exist to screen the setting sun).

**Surfaces**
- a range of surfaces may be acceptable
  - Appendix 1 includes a comparison of surface materials

**Drainage**
- improves the quality of the turf
- reduces the likelihood a player will slip
- improves drying time
- generally, underdrainage tile should be located on 30’ centers although this is highly dependent upon soil type and condition

**Anticipated Costs**
- reflect approximate contractor installed costs using union labor in the Chicagoland area as of fall 2005
- anticipated costs for lighting, grading, topsoil removal and replacement, and surface drainage structures have not generally been included due to site variability

**Irrigation**
- irrigation anticipated costs assume a water source is relatively near
- local plumbing codes must be consulted to determine appropriate equipment requirements
Lighting
- guidelines reflect the 1988 recommendations of the Illuminating Engineering Society of North America
- horizontal footcandles (HFC) is “a measure of luminous flux density (lumens per square foot) reaching a horizontal surface, normally taken on the ground or three feet above ground.” (IES RP6-1988)
- vertical footcandles (VFC) is more difficult to calculate as it is a measure of light at a point in space. This measure is important for sports that involve playing a target in the air, such as tennis. VFC measures have not been included in this publication.
- initial footcandles is the amount of light on the court/field when the lighting system is first installed
- maintained footcandles is the amount of light on the court/field over the extended life of the lighting system
- Effective Projected Area (EPA) is a measure of the surface area of a given fixture and/or structure resisting wind force. EPA is a value normally supplied by a fixture manufacturer. The amount of EPA is used to determine the class of pole for the wind zone where installed (projected area x appropriate drag coefficient).
- pole strength is determined by the area (EPA) of the components being mounted to the pole. With a few exceptions, most areas within Illinois require light poles with a wind loading capability of 80 miles/hour
- a comparison of light pole materials is discussed in the lighting section of Appendix 1

Fencing
- when the phrase ‘context specific’ appears, it implies that fencing is not a required part of the recreation facility but may be desirable for screening purposes or as a barrier depending upon the site’s characteristics and adjacent uses
- more specific information on fencing is contained in Appendix 1

Landscaping
- the phrase ‘context specific’ implies that specific landscaping treatments are not required but may be used to provide desirable shade or screening

Parking
- parking guidelines are based upon a review of local zoning ordinances and experience
- detailed information on parking is contained in Appendix 1

Maintenance
- all recreation facilities, including accessible features and surfaces, require maintenance and on-going efforts to comply with evolving accessibility and safety standards
Accessibility
• includes proposed or recommended guidelines for new recreation and sport facilities or areas published by the US Access Board (www.access-board.gov)
• access must be included in all new recreation facilities
• when renovations occur, access must be incorporated into the addition or alteration
• an accessible pathway must be provided from the designated handicapped accessible parking stall(s) to the recreation facilities and restroom facilities, if any
• an accessible surface for pathways is defined as a firm, stable, and slip resistant surface, e.g., concrete, asphalt, compacted crushed limestone (ag. lime) or materials of a similar character
• guidelines are consistent with requirements of the Illinois Accessibility Code or Americans with Disabilities Accessibility Guidelines (ADAG), whichever is more stringent

Design Considerations
Standards shown within this book have been compiled from a variety of sources and some modifications and recommendations have been made based on experience. In general, to assure consistency of recreational experience for the user, size standards should be adhered to whenever possible. Local sports clubs and other user groups should be consulted to determine the ideal standard for a particular recreation facility in a given location. However, it may be necessary to make adjustments to accommodate site specific conditions such as spatial limitations, drainage conditions, or topography. Ultimately, the decision of whether to use a particular standard may be financially driven.

Caution!
Recommendations contained in this publication are general in nature and may not apply to all situations. It is important for the user to apply good judgment based on local conditions and check local codes and the other legal requirements of public agencies that may have jurisdiction before proceeding.
Baseball/Softball Fields

Recommended Area
• Baseball Field: 2-2.5 acres for each field
• Softball Field: 1.7 acres for each field

Dimensions
• see Figures 1, 2, 3, & 4 on pages 6-8

Special Field Dimension Considerations
• many local and regional baseball/softball organizations have their own design standards to accommodate different age and physical abilities of the players. Invite baseball/softball organizations to join in the planning process so the final field satisfies the intended users’ needs.
• temporary (removable) fences increase the usefulness of these fields for other baseball types or different recreation activities.
• in the design stage, if removable fencing is to be used, consider that some removable fencing systems have in-ground post sleeves and in-ground sleeves should be located during this phase
• softball fields may be used for youth baseball leagues
• the following tables show typical field dimensions for youth baseball and softball

Youth Baseball Field Dimensions*
(* Field dimensions for specific youth baseball organizations/associations should be referenced when considering regulation fields

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Baseline Length</th>
<th>Pitching Distance (front of pitching rubber to back point of home plate)</th>
<th>Recommended Distance From Homeplate to Backstop</th>
<th>Recommended Outfield Fence Distance</th>
<th>Radius Distance (from pitching rubber to outfield turf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little League (9 - 12 yr olds)</td>
<td>60’</td>
<td>46’</td>
<td>25’</td>
<td>200’ (4’ high fence)</td>
<td>50’</td>
</tr>
<tr>
<td>Pony League (9-10 yr olds)</td>
<td>60’</td>
<td>44’</td>
<td>20’</td>
<td>foul lines - 175’ center field - 225’</td>
<td>50’</td>
</tr>
<tr>
<td>Pony League (11-12 yr olds)</td>
<td>70’</td>
<td>48’</td>
<td>30’</td>
<td>foul lines - 225’ center field - 275’</td>
<td>65’</td>
</tr>
<tr>
<td>Pony League (13-14 yr olds)</td>
<td>80’</td>
<td>54’</td>
<td>40’</td>
<td>foul lines - 265’ center field - 315’</td>
<td>80’</td>
</tr>
</tbody>
</table>
Youth & Slow-Pitch Baseball Field Dimensions* (Amateur Softball Association - ASA)
(*) Field dimensions for specific youth softball organizations/associations should be referenced when considering regulation fields

<table>
<thead>
<tr>
<th>Youth Fast Pitch</th>
<th>Baseline Length</th>
<th>Pitching Distance (front of pitching rubber to back point of home plate)</th>
<th>Home Plate to Backstop Distance</th>
<th>Minimum/Maximum Outfield Fence Distance (recommended)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 &amp; U</td>
<td>55'</td>
<td>35'</td>
<td>25'</td>
<td>150'-175'</td>
</tr>
<tr>
<td>12 &amp; U</td>
<td>60'</td>
<td>35'</td>
<td>25'</td>
<td>175'-200'</td>
</tr>
<tr>
<td>14 &amp; U</td>
<td>60'</td>
<td>40'</td>
<td>25'</td>
<td>175'-200'</td>
</tr>
<tr>
<td>Adult 12” Slow Pitch</td>
<td>65'</td>
<td>50'</td>
<td>25'</td>
<td>265'-300'</td>
</tr>
<tr>
<td>Adult 16” Slow Pitch</td>
<td>55'</td>
<td>38'</td>
<td>25'</td>
<td>200'-250'</td>
</tr>
</tbody>
</table>

Orientation
- to minimize sun interference for the players, especially the batter and the pitcher, the field should be oriented so that the setting sun is generally at a right angle to the imaginary line between home plate, the pitching rubber, and second base (ie. S-SW to N-NE alignment or vise versa)

Surfaces
Baseball fields are typically composed of:
- skinned and turf infield
- turf outfield

Softball fields are typically composed of:
- skinned infield
- turf outfield
Figure 1: Regulation Full-Size Baseball Field Dimensions

A warning track, 10'-15' wide, is recommended in front of the outfield fence, the dugouts, and backstop. The surface of the warning track should contrast in texture with turf (e.g. crushed stone etc.).
Catcher’s Box and Batter’s Box

Home Plate Dimensions

Base Locations Relative to Base Lines

Notes:
1. All field measurements start from apex of home plate
2. Second base is centered on intersection of base lines

Pitching Mound Dimensions

The Pitching Mound has a diameter of 18’. The Pitching Rubber is set within a 5’ X 34” level area located 18 inches behind the center point of the Pitching Mound. From a point 6” in front of the Pitching Rubber, the ground slopes at a rate of 1” per 1’.

Figure 2: Height of the Pitching Mound & Overall Infield Slope

Regulation - 10”
Pony League - 8”
Little League - 6”

Note:
Baseball fields intended for Youth Baseball Leagues do not necessarily require a pitching mound
Figure 3: Softball Field Dimensions

Recommended Outfield Fence Distances:
225'-250'

Turf Outfield

Foul Line

Foul Line

Pitcher’s Rubber

24” X 6”

Coach’s Box

15’

Batter’s Circle/On Deck Circle

5’ Diameter

Skinned Infield

Figure 4: Dugout Configuration
(Plan View)

For Accessibility provide:
1) 60” diameter turning area
2) 30”x48” parking space for assistive device
3) 36” accessible path from dugout to coach’s box
4) appropriate accessible surfacing within dugout

Backstop

Recommended Fencing Behind Team Bench

6’ Chain Link Fence
Infield Mixture
- skinned infields are typically composed of a mixture of sand (30-40%) and clay (60-70%)
- sand specifications: 80% or greater must be 16 to 64 mesh screened sand, 6-8% must be mason sand, no more than 8% should be 12 to 16 mesh screened sand, and no more than 4% should be 64 to 80 mesh screened sand
- the infield mixture should be pulverized during the mixing process to reduce clumping
- commercially prepared infield top dressings (vitrified and/or calcined clay particles can also be added to the infield mixture to greatly enhance its water absorbing capabilities and playability after rains)
- some Illinois communities opt to use crushed limestone fines in place of infield mix. Crushed limestone fines, rougher in texture, increase the water infiltration rate but is more abrasive for players. Crushed limestone fines may be appropriate for dugouts, coaches box, and warning track areas
- infield turf requires a high degree of maintenance
- new dugouts and coach’s boxes must have an accessible surface

Drainage
- surface gradients should ideally range between 1-2% and not exceed a 2.5% slope
- an underdrainage system uses tile beneath the field to increase water infiltration
- generally the distance between tiles should not exceed 30’, but this is highly dependent on soil type and condition

Figure 5: Baseball/Softball Field Drainage Options

Note: Arrows Indicate Direction of Water Movement
Anticipated Costs

- **turf**
  - seed: (Baseball) 80,000 square feet @ $.10/square foot = $8,000
  - seed: (Softball) 72,000 square feet @ $.10/square foot = $7,200

  Desired Seed Mixture:
  
<table>
<thead>
<tr>
<th>Seed Type</th>
<th>lbs./acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kentucky Bluegrass</td>
<td>50 lbs./acre</td>
</tr>
<tr>
<td>Perennial Ryegrass</td>
<td>30 lbs./acre</td>
</tr>
<tr>
<td>Creeping Fescue</td>
<td>20 lbs./acre</td>
</tr>
</tbody>
</table>

  OR
  
  sod: (Baseball) 80,000 square feet @ $.40/square foot = $32,000
  sod: (Softball) 72,000 square feet @ $.40/square foot = $28,800

- **infield mix:**
  - 2” infield top dressing (if desired) 10 tons @ $150/ton = $1,500
    - (Baseball) 200 tons @ $45 per ton = $9,000
    - (Softball) 260 tons @ $45 per ton = $11,700

- 3 bases and home plate = $410
- 6 benches ($780 per bench) = $4,680
- infield underdrainage = $6,000

- **irrigation**
  - waterbox/quick coupler system = $5,000
  - automated system for all turf areas = $25,000

- **backstop and side wing chainlink fencing** = $20,000-$25,000
- **sideline and outfield fencing**
  - 4’ galvanized chain link @ $27.50 linear foot
- **outfield fence protective cap** @ $3.00 per foot

Lighting

- for amateur and high school leagues, infield illumination should measure 50 HFC and outfield illumination should measure 30 HFC (maintained light level)
- for recreational and social play, infield illumination should measure 30 HFC and outfield illumination should measure 20 HFC (maintained light level)
- while many fields use 1,500 watt metal halide lights on 70’ poles, the height of the poles is dependent upon the number of poles and the size and number of fixtures necessary to obtain the desired level of illumination and setback from field
- electrically configure athletic field lights within isolated zone circuits so field lights may be switched off seasonally and after hours
- lighting should always be installed by an experienced, licensed electrician and comply with current Illinois and municipal electrical codes
- research all local codes and requirements early in the process. Many municipalities have stringent height and glare spill limitations.
Team Bench and Fencing

- locate team benches at grade on either side of home plate
- 6’ high safety fence in front of team benches is recommended to protect players from being struck by foul or thrown balls
- locate the side wing fence opening to protect players on the bench from foul balls
- some communities erect fencing behind team benches to protect the possessions of the players and limit fan interference
- backstops should be a minimum of 14’ high
- use 6 gauge galvanized steel fence directly behind home plate for greater durability
- use 9 gauge galvanized steel fencing elsewhere
- it is recommended that outfield and side wing fencing be fitted with special fence tops (polyethylene caps) to help prevent player injury
- netting may be added to the backstop and side wing fencing if there is a potential for foul balls harming surrounding structures or spectators
- consider mower width when designing gate openings
- use of crushed stone under fencing reduces grass trimming
- see Figure 4 on page 8 for one dugout configuration

Figure 6: Six Light Pole Ball Field Configuration
**Landscaping**

- provide a shaded area for spectators

**Irrigation**

- irrigation systems may consist of quick couplers, an automatic system, or a combination of the two systems
- quick couplers are in-ground hose attachments that provide access to a main water supply
- generally located behind second base as well as along field perimeter so maximum distance between quick couplers is 200’
- see Appendix 1 for more information on quick couplers and automated irrigation systems

**Water Box**

- provide a quick coupler for dampening the infield skinned area to reduce dust
- locate quick coupler either behind the pitching rubber or second base
- provide connection to a minimum 2” water line

**Figure 7: Four Corner Ball Field Configuration**

Notes:
1) if all of the corner fields are adult softball fields, the interior soccer/touch football field may be centered
2) the outfield/play field turf will require extensive maintenance
3) this configuration is more successful if the sports occur in different seasons
4) requires 5 acres
Figure 8: Clover Leaf Ball Field Configuration with Possible Inclusion of Athletic Field:

Notes:
1) this configuration may be altered to include five baseball/softball fields
2) a concession booth may be located in the center
3) this configuration provides more flexibility for outfield fences
4) in the event that the turf repair/replacements requires suspension of play in the shared field, baseball/softball play could continue at three diamonds
5) this configuration may require more extensive back-screening to prevent injury/damage from foul balls
6) requires a minimum 9 acres

Parking
- athletic fields/baseball fields: 10-15 parking spaces per acre of playing field

Maintenance
- skinned areas require frequent raking, dragging, and top dressing
- turf infield requires rolling, watering, and fertilizing
- turf maintenance may require slit seeding or selective resodding
- while irrigation improves the quality of the turf grass, it increases frequency of mowing and requires winterization
Recommended Area

- unlike most sport fields, soccer fields may vary in size, within certain limits
  - Mens: $360' \times 225' = 81,000$ square feet (1.9 acres)
  - Boys: $300' \times 165' = 49,500$ square feet (1.14 acres)
  - Womens: $300' \times 180' = 54,000$ square feet (1.24 acres)
  - Girls: $240' \times 120' = 28,800$ square feet (.66 acres)
- maintain 30’ of unobstructed space around the field’s perimeter for a safety zone

Dimensions

<table>
<thead>
<tr>
<th>Category: Ages:</th>
<th>U13 - U19 13 years thru Adult</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>300’-390’</td>
</tr>
<tr>
<td>Goal Size (height x width)</td>
<td>8’ x 24’</td>
</tr>
<tr>
<td>Goal Area (width x depth)</td>
<td>18’ from each post x 18’ deep</td>
</tr>
<tr>
<td>Center Circle Radius</td>
<td>30’</td>
</tr>
<tr>
<td>Corner Arch Radius</td>
<td></td>
</tr>
<tr>
<td>Penalty Arch Radius (center point 12’ in from center of goal line)</td>
<td>30’</td>
</tr>
<tr>
<td>Penalty Mark</td>
<td>36’ front and center of goal</td>
</tr>
<tr>
<td>Penalty Area</td>
<td>36’ from each goal post x 54’ deep</td>
</tr>
</tbody>
</table>

Field dimensions for U6 to U12 small sided games, refer to the Illinois Youth Soccer Association website, [www.Illinoisyouthsoccer.org](http://www.Illinoisyouthsoccer.org), or call the Illinois Youth Soccer Association (847-290-1577).

Surface:

- flat, level surface with grass cut to no more than 2.5 inches high, and with no dangerous defects such as exposed sprinkler heads.

Goals:

- Posts and cross bars should be five inches wide, and the net should be secured to the posts and cross bar. For information on how to properly anchor a soccer goal, review the Guidelines and Movable Soccer Goal Safety, which are available from the U.S. Consumer Safety Commission website, [www.cpsc.gov/cpscpub/pubs/soccer.pdf](http://www.cpsc.gov/cpscpub/pubs/soccer.pdf)

Markings:

- Five-inch-wide white lines delineating regulation field, including restraint lines for spectators. The restraint lines should be painted a different color and a minimum of 5 feet from the edge of the touchline. Spectators and players should be on opposite sides of the field. The corner arc should be a one-yard radius.
**Orientation**
- If soccer play occurs in spring, summer, and fall, orient the length of the soccer field along a north-south axis.
- If soccer play primarily occurs in fall, orient the length of the soccer field along a northwest-southeast axis.

**Figure 9: Boys Soccer Field Dimensions**
Goal Posts and Nets
- goal dimensions are 8’ high x 24’ wide
- width of goal posts should be greater than 4’ but not exceed 5’
- goal may be portable or permanent
- portable goals facilitate field shifting to reduce turf damage
- top of the net should extend 2’ behind crossbar
- net attaches to the crossbar, posts, and ground behind the goal
- allow level net area behind goal line

Surfacing
- turf grass

Drainage
- surface gradients should ideally range between 1-3% with a 2% optimal slope
- an underdrainage systems using pvc perforated pipe tile increases water infiltration
- generally, the distance between tiles should not exceed 30’, although this is highly dependent on soil type and condition

Fig. 10 Soccer Field Drainage Options

Note: Arrows represent the direction of water movement
**Anticipated Costs**

- **turf grass**
  - seed: (300’ X 180’) 54,000 square feet @ $.10/square foot = $5,400

<table>
<thead>
<tr>
<th>Desired Seed Mixture</th>
<th>lbs./acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kentucky Bluegrass</td>
<td>50 lbs./acre</td>
</tr>
<tr>
<td>Perennial Ryegrass</td>
<td>30 lbs./acre</td>
</tr>
<tr>
<td>Creeping Fescue</td>
<td>20 lbs./acre</td>
</tr>
</tbody>
</table>

  OR

  sod: (300’ X 180’) 54,000 square feet @ $.40/square foot = $21,600

- 2 goals and 4 flags = $4,200
- grading, topsoil amendment, drainage, and irrigation expenses are highly site specific

**Lighting**

- for amateur or high school league play, soccer field illumination should measure 30 HFC (maintained light level)
- for recreational or social play, soccer field illumination should measure 20 HFC (maintained light level)
- light poles should be placed along the length of the field
- 4 or 6 light pole configurations are common

**Figure 11: Soccer Light Pole Configurations**

- 6 Pole Configuration
- 4 Pole Configuration

Do not place light standards in this area as lights blind goal keeper during corner kicks
**Fencing**
- fencing can be used to restrict soccer balls from entering undesirable areas

**Landscaping**
- a thick hedge may serve as a fencing alternative
- consider providing a shaded area for observers

**Irrigation**
- irrigation systems may consist of quick couplers, an automatic system, or a combination of the two systems
- quick couplers are in-ground hose attachments that provide access to a main water supply
- see Appendix 1 for more information on quick couplers and automated irrigation systems

**Maintenance**
- consider allowing sufficient space on either side of the field so that the field may be shifted during the season to reduce the typical pattern of wear in front of the goal areas and at center circle
- movable goals facilitate field shifting
- slit seeding helps maintain turf quality

**Parking**
- 10-20 parking spaces
- see Appendix 1 for more information on parking
Touch/Flag Football Field

Recommended Area
• 1 acre

Dimensions
• touch football field: 300’ X 120’
• add minimum width of 20’ of unobstructed open space around field perimeter for safety zone
• see Figure 14 on page 27

Orientation
• if the majority of play occurs in the fall, the length of the field should be oriented northwest-southeast
• if a significant amount of play occurs in the spring, the length of the field should be oriented north-south

Surfaces
• turf grass

Drainage
• grade the field to create a crown along the center of the touch football field from goal to goal
• field should slope downward between 1% and 3% with a 2% optimal slope
• underdrainage systems use perforated plastic pipe surrounded in aggregate stone laid out in a serpentine shape to increase water infiltration

Anticipated Costs
• turf grass
  seed: (300’ X 120’) 36,000 square feet @ $.10/square foot = $3,600

<table>
<thead>
<tr>
<th>Desired Seed Mixture</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Kentucky Bluegrass</td>
<td>50 lbs./acre</td>
</tr>
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<td>Perennial Ryegrass</td>
<td>30 lbs./acre</td>
</tr>
<tr>
<td>Creeping Fescue</td>
<td>20 lbs./acre</td>
</tr>
</tbody>
</table>

OR
sod: (300’ X 120’) 36, 000 square feet @ $.40/square foot= $14,400

• 2 goals and 4 pylons= $4,000
• underdrainage = $18,000
Goal Posts and Pylons
• goal posts may be permanently fixed at the ends of the field or temporarily set within in-ground using post sleeves thus increasing field flexibility
• red or orange pylons, constructed of soft flexible material, mark the corners of the touch/flag football field
Lighting
• football fields must be uniformly illuminated
• for amateur or high school leagues, football field illumination should measure 30 HFC or higher (maintained light level)
• for recreational or social play, football field illumination should measure 20 HFC or higher (maintained light level)
• locate light poles longitudinally along the length of the field
• configurations of 4 or 6 light poles are common
• typically football field light poles are 50’ or higher

Fencing
• context specific

Figure 13: Touch/Flag Football Light Pole Configurations

Note:
While the number of poles decrease with the distance from the field, the height of the poles and the number of fixtures mounted on each pole increases.
Landscaping
• provide shade for observers

Parking
• athletic fields/baseball fields: 10-15 parking spaces per acre of playing field
• see Appendix 1 for more information on parking

Irrigation
• irrigation systems may consist of quick couplers, an automatic system, or a combination of the two systems
• quick couplers are in-ground hose attachments that provide access to a main water supply
• see Appendix 1 for more information on quick couplers and automated irrigation systems

Maintenance
• slit seeding helps maintain turf quality
• irrigation increases turf durability
Multi-Use Fields

General
• multi-use fields may efficiently share infrastructure facilities such as lighting, irrigation, and nearby parking and washroom facilities
• soccer fields, touch football fields, and baseball outfields are often combined
• disadvantages of multi-use fields include increased wear on turf and scheduling conflicts

Recommended Area
• dependent upon number and type of fields

Orientation
• desirable orientation is consistent with previous description of individual athletic fields
• combining athletic fields may reduce the ability to position each athletic field for optimal orientation

Lighting
• use illumination guidelines for the individual athletic fields

Parking
• athletic fields/baseball fields: 10-15 parking spaces per acre of playing field
• see Appendix 1 for more information on parking

Maintenance
• multi-use field will require frequent turf replacement or slit seeding
• irrigation increases turf durability

Special Considerations
• by staggering start times, traffic congestion and parking difficulties at multi-use fields may be substantially reduced
• accommodating certain field overlap scenarios may require removable fencing and portable goals
• it’s preferable to maintain large open turf areas to accommodate changing field dimensions that may reflect shifting demographic character of surrounding neighborhood
Basketball Court

Recommended Area
• 5,040 square feet including 3’ safety zone around the perimeter for junior play
• 7,280 square feet including 10’ safety zone around the perimeter for high school, college, and professional play

Dimensions
• full court basketball: 84’ x 50’
• half court basketball: 42’ x 50’
• mini court basketball: 40’ x 60’
• circular basketball: 64’ x 64’

Orientation
• orient the length of the full basketball court along a north - south axis
• the goal of a half basketball court should face north

Surfacing
• asphalt or concrete
• a colored, resilient acrylic surfacing may be applied to an asphalt surface

Drainage
• slope the court .8 - 1.2% from end to end

Anticipated Costs
• asphalt: 560 square yards of asphalt @ $25.00/sq. yard = $14,000
• resilient acrylic surfacing
  560 square yards @ $7.50/square yard = $4,200
• 2 goal standards and nets @ 1,250 each = $2,500

Lighting
• for amateur or high school leagues basketball court illumination should measure 20 HFC (maintained light level)
• for recreational or social play basketball court illumination should measure 10 HFC (maintained light level)

Fencing
• context specific

Landscaping
• context specific
Parking
- 5-10 spaces per court
- see Appendix 1 for more information on parking

Location of Basketball Standard
- basketball standard has a minimum 6’ offset from post to hoop
- locate standard 2’ behind the baseline so the face of the backboard projects 4’ in front of the baseline

Figure 14: Full Court Basketball Dimensions

Backboard Configuration and Net
- rim of the hoop is exactly 10’ from the ground
- if more than 2 hoops exist, consider having one hoop 8’ from the ground, for multi-age accessibility
- rectangular or fan shaped backboards are available
- backboard should either be white or transparent
- transparent backboards must be marked with a 3” border around the edge and a 18”x24” target area behind the hoop
• fiberglass backboards produce less noise than metal backboards
• despite the need for regular replacement, string nets are preferable to chain nets
• nylon strap nets are more durable than string and produce a sound similar to string nets

Circular Basketball
• circular basketball contains ‘pie shaped’ courts with 3 nets
• the circle measures 64’ in diameter with additional 3’ safety zone beyond baseline

Maintenance
• remove sand, soil or debris from the play surface on a regular basis

Accessibility
• if parking is provided, connect the parking area to the basketball court with a 36” wide walk which is firm, smooth, and slip resistant (maximum 5% slope, maximum 2% cross slope)

Figure 15: Circular Basketball  Figure 16: Half-court Basketball Option
Shuffle Board Court

Recommended Area
• 10’ X 52’ (520 square feet) single shuffle board court

Figure 17: Shuffle Board Court Dimensions

```
52'

1'-6'', 3', 3', 3', 3', 12', 13'-6'', 6'-6''

Lines width measures 1 1/2'' to 3/4''

Note: Adjacent shuffleboard courts must be spaced 4' apart.
```

Orientation
• orient the length of the shuffle board court along a north-south axis

Surfacing
• smooth terrazzo or burnished concrete surface without expansion joints
• saw-cut necessary concrete joints
• broom finish concrete in out-of-bounds areas

Drainage
• shuffle board court slopes .8-1.2%
• side alley may be depressed and contain drains to remove surface run-off

Anticipated Costs
• concrete 784 square feet @ $4.75 square foot = $3,724

Lighting
• shuffle board court illumination should measure 5-10 footcandles (maintained light level)

Fencing
• context specific
**Landscaping**
- context specific

**Parking**
- no specific parking guidelines exist
- see Appendix 1 for more information on parking

**Court Markings**
- lines and numbers should be marked with either black acrylic paint or black shoe dye
- line width may vary from 3/4” to 1 1/2”

**Maintenance**
- remove sand, soil, debris, and water from the play surface on a regular basis

**Accessibility**
- if parking is provided, connect the parking area to the shuffle board court with a 36” wide walk which is firm, smooth, and slip resistant (maximum 5% slope, maximum 2% cross slope)
Bocce Ball Court

Recommended Area
- 1,134 square feet (14’ X 80’)

Figure 18: Bocce Ball Court Dimensions

- bocce ball court: 14’ X 80’
- ditches, measuring 2’ wide and 6” deep, trap overthrown balls on each end of the court
- u-shaped backstops are located behind ditches
- minimum 2’ separation between bocce ball courts

Orientation
- orient the length of the bocce ball court along a north-south axis

Surfacing
- clay, crushed fines, or artificial surfacing

Drainage
- surface should be smooth
- provide underdrainage

Anticipated Costs
- clay
- aggregate stone
- filter fabric
- backstops = $3,000 total
Backstops
• wooden backstops should extend from the bottom of the ditch to a height of 48” above the bocce ball court
• drill holes through the base of the wooden backstops to permit subsurface water movement

Lighting
• bocce ball court illumination should measure 5-10 HFC (maintained light level)

Fencing
• context specific

Landscaping
• context specific

Parking
• no specific guidelines exist
• see Appendix 1 for more information on parking

Maintenance
• clay court must be regularly raked
• clay must be periodically added

Accessibility
• if nearby parking is provided, connect the parking area to the bocce ball court with a 36” wide walk which is firm, smooth, and slip resistant (maximum 5% slope, maximum 2% cross slope)

Special Considerations
• locate a storage box nearby for extra clay
• consider fixing a lectern style score card holder adjacent to the court
Horseshoe Pitch

Recommended Area
• 20’ X 70’ includes safety zone

Figure 19: Horseshoe Pitch Dimensions

• 12’ X 50’
• adjacent horseshoe pitches should be spaced a minimum of 10’ apart

Orientation
• orient the length of the horseshoe court along a north-south axis

Surfacing
• turf grass in the center
• potter’s or blue clay surrounding pegs

Drainage
• to keep pegs at an equal elevation and accomplish water movement, create a ridge along the center line with a 2% slope on each side

Anticipated Costs
• turf grass
  sod: 1,000 square feet @ $.40/square foot = $400
• concrete: 245 square feet = $1,700
• clay: = $150
• 2 wooden backstops = $700
• 2 steel pegs = $40
• 2 oak blocks = $150
**Wooden Backstops**
- 2’ high, 6’ wide, located 2’ behind each peg
- backstops should be made of pressure treated lumber

**Pegs**
- steel pegs measure 2’-3’ long and 1” in diameter
- each peg is slanted 2”-3” forward toward the center of the court and project 14” above the clay surface
- pegs are anchored within oak blocks buried 8” beneath the clay
- oak blocks are preferable to concrete because wood can absorb force without crumbling

**Figure 20: Cross Section of Horseshoe Peg**

**Lighting**
- horseshoe court illumination should measure 5 HFC (maintained light level)
Fencing
• if horseshoe courts are close to other activity areas such as playgrounds or seating areas, consider erecting a 42” chainlink fence. Fencing adds another layer of containment for poorly thrown horseshoes and reduces the potential danger from the protruding steel pegs.

Parking
• no specific guidelines exist
• see Appendix 1 for more information on parking

Accessibility
• if nearby parking is provided, connect the parking area to the horseshoe pitch with a 36” wide walk which is firm, smooth, and slip resistant (maximum 5% slope, maximum 2% cross slope)

Maintenance
• clay in peg area requires frequent raking and the regular addition of new clay
• keep moist for tournament play
• periodic replacement of wooden block required
Sand and Hard Surface Volleyball Court

Recommended Area
• 5,000 square feet including safety zone

Dimensions
• volleyball court dimensions with safety zones: 80’ x 50’
• minimum 10’ safety zones along sides
• adjacent courts should be spaced 12’ apart

Figure 21: Volleyball Court Dimensions

Orientation
• orient the length of the volleyball court along a north-south axis

Net
• net height varies by category:

<table>
<thead>
<tr>
<th>Category</th>
<th>Net Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>men</td>
<td>8’</td>
</tr>
<tr>
<td>co. rec</td>
<td>8’</td>
</tr>
<tr>
<td>women</td>
<td>7’4”</td>
</tr>
<tr>
<td>high school</td>
<td>7’4”</td>
</tr>
<tr>
<td>elementary school</td>
<td>6’6”</td>
</tr>
</tbody>
</table>

• while nets with cable at the top are recommended, strong rope is an acceptable alternative
• secure net with a winch and eyebolts at the top and bottom of the net
• padding of the winch or a removable winch reduces injury potential
• angle net posts outward 2” for tightening

Lighting
• for amateur or high school leagues, outdoor volleyball court illumination should measure 20 HFC (maintained light levels)
• for recreational or social play, outdoor volleyball court illumination should measure 10 HFC (maintained light levels)

Sand Volleyball Surfacing
• 12”-20” depth of high quality, clean sand
• sand should not be coarse or contain small pebbles
• sand should not be too fine as it turns mud-like in consistency when wet and will blow away when dry
• while washed mason sand is recommended, obtain sand samples prior to delivery and allow representatives of user groups to select desired sand texture

Sand Volleyball Drainage
• sand volleyball court located on well-drained soils with no rocks may not require installation of an underdrainage system
• most permanent sand volleyball courts incorporate an under drainage system with plastic perforated tile encased in washed, non-compacting aggregate stone to enhance infiltration
• synthetic landscape textile surrounds the layer of aggregate stone and soil and prevents sand and soil layers from mixing

Sand Volleyball Court Markings
• court boundaries must be marked with a material that will not hurt players: wooden boards and railroad ties are not appropriate materials
• rope (3/4” or greater) or webbing (1 1/5”) are suitable markers
• markers may be tied to deadman anchors and buried in the sand

Water Spigot
• locating a drinking fountain with hose bib near the sand volleyball court provides water to cool hot sand and players
• water spigot provides a source of water for ice rink flooding

Conversion of Sand Volleyball Court into Ice Rink
• secure plastic membrane to the surface of the sand volleyball court to stop water from flowing off the court
• suitable white plastic membranes are commercially available
• net posts must be removable
• rink conversion is most successful if double or triple court design

Sand Volleyball Anticipated Costs
• sand: 231 square yards (6,250 square feet) @ $44.00/square yard = $10,164.00
• volleyball standards: $850
• markers and anchors: $250

Hard Court Volleyball Surfacing
• asphalt or concrete surface
• asphalt may be painted with a colored acrylic surface

Hard Court Volleyball Drainage
• slope the court from side to side with a minimum 1% slope

Hard Court Volleyball Anticipated Costs
• asphalt: 556 square yards (5,000 square feet) @ $25.00/square yard = $13,900
• resilient acrylic surfacing 556 square yards @ $7.50/square yard = $4,170.00
• volleyball standards = $850

Fencing
• context specific

Landscaping
• consider creating 2’ earth berm adjacent to sand volleyball court

Parking
• 5 spaces per court
• see Appendix 1 for more information on parking

Accessibility
• if nearby parking is provided, connect the parking area to the volleyball court with a 36” wide walk which is firm, smooth, and slip resistant (maximum 5% slope, maximum 2% cross slope)

Maintenance
• rake sand
• remove sand, soil, water, and debris from hard volleyball court surface
Tennis Court

Recommended Area
• 7,200 square feet including surrounding safety zone per court

Figure 22: Tennis Court Dimensions

Orientation
• orient the length of the tennis court along a north-south axis

Surfacing
• asphalt, concrete, turf, or clay
• clay and turf courts are less frequently constructed due to their increased maintenance demands
• colored acrylic surfacing may be painted on concrete or asphalt surface courts to define the court markings
• commercially prepared surfacing adds cushioning to court surface
Drainage
- asphalt or concrete courts require surface drainage
- grade the court to provide a 1% slope
- slope the surface downward from side to side, end to end, or from corner to corner
- high elevation point of the tennis court should not run along the net
- clay or turf courts require both surface drainage and an under drainage system
- consider running tile around the perimeter of the courts

Anticipated Costs
- asphalt paving: 800 square yards @ $25.00/square yard = $20,000
- acrylic surfacing: 7,200 square feet @ $2.25 /square foot = $16,200
- fencing: 360 feet @ $49.00 /linear foot = $17,640
- gates = $800 each
- net and footings = $950

Lighting
- for amateur or high school leagues, outdoor tennis court illumination should measure 30-40 HFC (maintained light levels)
- for recreational or social play, outdoor tennis court illumination should measure 20-30 HFC (maintained light levels)
- tennis court lights should be mounted 20’ above the court surface
- lights may be coin operated or motion activated

Figure 23: Tennis Court Light Pole Configuration
Fencing
- height of the surrounding fence must be 10’ - 12’ at each end of the court
- surround court with 9 gauge chain-link with 1 3/4” mesh
- behind service areas, reinforce fence with wire to prevent distortion over time
- if wind screening is to be used, fence and footings should be designed to accommodate wind-loading
- aluminum fencing is preferred to galvanized steel as galvanized steel tends to have burrs
- wire fencing may be coated with colored polyvinyl chloride or acrylic powder coat

Parking
- 2 spaces per court
- see Appendix 1 for more information on parking

Accessibility
- if nearby parking is provided, connect the parking area to the tennis court with a 36” wide walk which is firm, smooth, and slip resistant (maximum 5% slope, maximum 2% cross slope)

Maintenance
- re-painting court surface will be required over time
- occasional removal of surface water with squeegee
Figure 25: Four and Six Tennis Court Configurations

Multi-Court Configurations
- allow 12’ between side boundary lines of adjacent tennis courts
- when laying out a row of adjacent tennis courts consider partitioning every two courts with fencing to reduce interference from other courts

Special Considerations
- angling the fence corners reduces likelihood tennis balls will collect in the corners
- center of the court requires net tie-down so net is six inches lower in center versus the sides
Platform Tennis Court

Recommended Area
• 1,800 square feet including surrounding safety zone per court

Orientation
• orient the length of the platform tennis court along a north-south axis

Surfacing
• raised level wood or aluminum platform, 1/4” spacing between 6” decks

Drainage
• wood or aluminum platforms require surface drainage
• grade the court to provide a 1% slope
• slope the surface downward from side to side, end to end, or from corner to corner
• high elevation point of the platform tennis court should not run along the net
• many courts have a heating system installed beneath the deck to allow play in all weather conditions

Anticipated Costs
• aluminum decking: 1800 square feet @ $15.00/square foot = $27,000
• fencing: 180 feet @ $55.00/linear foot = $9900
• gates = $800 each
• net and footings = $950

Lighting
• platform tennis court lights should be mounted 20’ above the court surface
• lights may be coin operated or motion activated

Fencing
• the court is surrounded by a 12’ high superstructure with taut, 16-gauge “chicken wire” fencing

Parking Guideline
• 2 spaces per court
• see Appendix 1 for more information on parking
**Accessibility**
- if nearby parking is provided, connect the parking area to the tennis court with a 36” wide walk which is firm, smooth, and slip resistant (maximum 5% slope, maximum 2% cross slope)

**Maintenance**
- occasional removal of surface water with squeegee

**Figure 26: Platform Tennis Court Dimensions**
Disc/Frisbee Golf

Recommended Area
• Most courses are either 9 or 18 holes and can fit 2-3 holes per acre depending on terrain.

Dimensions
• The average length per hole is 200-240 feet.
• Tee Pads are 6’ wide by 12’ feet long

Surfacing
• Tee Pads are hard surface, textured 4” thick concrete or asphalt
• Targets need to be a well marked object, such as a post or basket

Anticipated Costs
• 9-hole course:
  • Pro Targets: $3000
  • Tee Signs: $450
  • Rules Sign: $100
  • Practice Target: $600
  • Concrete Tees: $2800

Landscaping
• context specific

Parking
• The tee for the first hole should be closest to the regular parking area, as well as the target for the last hole
• see Appendix 1 for more information on parking

Maintenance
• turf maintenance may require slit seeding or selective resodding
Figure 27: Disc Golf Layout

Disc Golf Detail

- Tee
- Basket
- Dogleg
- Throwing Line
In-Line Skating/In-Line Hockey Rink

**Recommended Area**
- 28,000 square feet including 5,000 square feet for support area

**Dimensions**
- full size in-line hockey dimensions: 180’ X 90’
- junior hockey rink dimensions: 100’ X 50’
- see Figure 28 on page 46

**Orientation**
- orient the length of the rink along a north-south axis

**Surfacing**
- asphalt or concrete surface with acrylic surfacing

**Drainage**
- crown the court with sides sloping .8-1.2% downward from the center
- if concrete curb is used around perimeter, allow for water drainage

**Anticipated Costs**
- asphalt: 1,800 square yards (16,200 square feet) @ $25.00/square yard = $45,000
- acrylic surfacing: 16,200 square feet @ $2.25/square foot = $36,450
- dasher board options:
  - 6” concrete curbing
  - 1’ high portable dasher boards 180’ X 90’ = $5,000
  - 22” high portable dasher boards 180’ X 90’ = $16,000
  - 42” high permanent outdoor dasher boards with fencing 180’ X 90’ = $25-35,000
  - inflatable dasher boards 108’ X 60’ = $27,000
- 7 benches @ $780 each = $5,460
- 2 goals @ $360 each = $720

**Lighting**
- while the Illuminating Engineering Society of North America has no formal recommendation for lighting standards for in-line skating/in-line hockey, outdoor ice hockey standards may serve as a guide: for amateur league ice hockey, illumination should measure 20-30 HFC (maintained light level), for recreational or social play, illumination should measure 10-20 HFC (maintained light level)
**Dasher Boards**
- dasher boards range in height between 8” to 48” with 42” recommended
- dasher boards may be portable or permanent
- doors in dasher boards must swing away from playing surface
- curbing is an alternative to dasher boards

**Figure 28: In-Line Hockey Rink Dimensions**
• USA Hockey In-Line recommends encircling the entire in-line hockey rink with safety glass, 6 gauge galvanized steel fencing, or protective screening

**Landscaping**
• context specific

**Parking**
• see Appendix 1 for more information on parking

**Accessibility**
• if parking is provided, connect the parking area to the in-line hockey/skating rink with a 36” wide walk which is firm, smooth, and slip resistant (maximum 5% slope, maximum 2% cross slope)

**Maintenance**
• remove sand, debris or soil from surface
Ice Skating/Ice Hockey Rink

Recommended Area
• 22,000 square feet including 5,000 square feet for supporting activity area

Dimensions
• ice hockey dimensions: 180’-210’ X 80-100’
• see Figure 29 on page 49

Orientation
• orient the length of the rink along a north-south axis

Surfacing
• 4,000 psi concrete surface (one pour)

Drainage
• consider drainage needs for thaw period

Anticipated Costs
• concrete (4,000 psi): 16,200 square feet @ $4.75 square foot = $76,950
• 7 benches @ $780 each = $5,460
• 2 goals @ $420 each = $840

Lighting
• for amateur league ice hockey illumination should measure 20-30 horizontal footcandles (maintained light levels)
• for recreational or social play ice hockey illumination should measure horizontal 10-20 footcandles (maintained light levels)
• see Figure 31 on page 60

Dasher Boards
• dasher boards range in height between 8”-48” with 42” recommended
• dasher boards may be portable or permanent
• access doors in the dasher boards should swing open away from the ice rink surface
• for the safety of spectators, ice hockey rinks should be encircled by safety glass, 6 gauge galvanized steel fencing, or protective screening

Landscaping
• context specific

Parking
• 45 spaces
• see Appendix 1 for more information on parking
Accessibility
• if parking is provided, connect the parking area to the ice rink with a 36” wide walk that is firm, smooth, and slip resistant (maximum 5% slope, maximum 2% cross slope)

Maintenance
• ice grooming equipment is required

Figure 29: Ice Hockey Rink Dimensions
Cooling Strategies Overview

- cooled liquid circulated through pipes embedded in the concrete surface helps slow ice loss when temperature rise above freezing.
- ice rink measuring 180’ x 90’ contains 52,000’ - 60,000’ L.F. of pipe
- pipes are made of either steel or polyethylene
- most systems circulate brine or ethylene glycol solutions
- solution is cooled in chiller barrel
- Two cooling solutions:
  1. Brine Solution:
     - highly corrosive
     - excellent heat conductivity
     - requires lower horsepower to pump than ethylene glycol
  2. Ethylene Glycol:
     - lower cooled temperature
     - less corrosive
     - poorer heat conductivity
     - higher solution cost
     - requires more horsepower to pump ethylene glycol

Special Considerations

- the rink location should be near a water source and consider adjacent drainage patterns
- if artificial ice, consider a covering to prevent melting by sun
Skate Park

Recommended Area
• 7,000 - 12,000 square feet

Orientation
• orient elements north-south to minimize sun interference

Surfacing
• concrete or metal plate over plywood structure
• surface drains may be necessary to prevent pooling water

Drainage
• underdrainage reduces hydrostatic pressure

Anticipated Costs
• freeform concrete: $12/square foot
• shotcrete (for the bowl): $7.15/square foot
• railing: $87.50/linear foot
• pipe coping: $54.00/linear foot

Lighting
• Illuminating Engineering Society of North America does not provide lighting recommendations for skate parks. Recommended lighting levels for recreational or social play ice hockey may provide guidance. Ice hockey illumination should measure horizontal 10-20 footcandles (maintained light levels).

Fencing
• skate parks should be fenced

Landscaping
• screening the facility may be desirable depending upon the context

Parking
• 5-10 parking spaces
• see Appendix 1 for more information on parking

Accessibility
• if parking is provided, connect the parking area to the skate park with a 36” wide walk
that is firm, smooth, and slip resistant (maximum 5% slope, maximum 2% cross slope)

**Maintenance**
- inspect the facility and structures daily
- regular sweeping and washing required
- due to the harsh nature of the sport, elements will require replacement
- consider the replacement of elements during design development

**Signage**
- explicitly state park rules and regulations
- encourage or require safety equipment such as helmets, wrist, elbow, and knee pads

**Special Considerations**
- incorporate minimum 4-5 runs/routes in the skate park design
- offer areas suitable for beginners as well as intermediates and experts
- include free-style elements, such as bowls, and street course elements, such as fun boxes and grinding rails
- allow an adequate fall zone between elements
- incorporate opportunities for skaters to rest and watch
- use local skaters to serve as experts in the design process
Safety Town

Recommended Area
• 1-3 acres

Surfacing
• concrete
• brick pavers
• asphalt paving

Drainage
• surface gradients should ideally range between 1-3% with a 1% optimal slope

Anticipated Costs
• concrete: $4.75/square foot
• brick pavers: $13.00/square foot
• overall development $12,000-$15,000
• asphalt paving: $25.00/square yard
• ornamental fencing: $55.00/linear foot
• directional signage: $275/each

Lighting
• not recommended for this application

Fencing
• Safety Towns should be fenced for the safety of the patrons

Landscaping
• consider creating a realistic town atmosphere

Parking
• see Appendix 1 for more information on parking

Accessibility
• if parking is provided, connect the parking area to the safety town with a 36” wide walk that is firm, smooth, and slip resistant (maximum 5% slope, maximum 2% cross slope)

Maintenance
• inspect the facility and structures daily
• regular sweeping and washing required
Signage

- Safety Town size street signs, rules signs
Splash Pads

Recommended Area
• Wide range from as small as 1600sf

Surfacing
• poured-in-place concrete
• cast-in-place rubber surface

Drainage
• area should be sloped to the drain fittings

Anticipated Costs
• overall development $50,000-$100,000
• water to waste system
• recirculation system

Lighting
• not recommended for this application
• power to run pump

Fencing
• context specific

Landscaping
• context specific
• provide shade for spectators

Parking
• see Appendix 1 for more information on parking

Accessibility
• if parking is provided, connect the parking area to the splash pad with a 36” wide walk that is firm, smooth, and slip resistant (maximum 5% slope, maximum 2% cross slope)

Maintenance
• inspect the facility and structures daily
• winter shut-down

Signage
• rules signs should be posted
Rock Climbing Walls

**Recommended Area**
- Wide range from as small as 2000sf

**Surfacing**
- wood chip surface
- cast-in-place rubber surface

**Drainage**
- area should be sloped to the drain fittings

**Anticipated Costs**
- overall development $18,000-$35,000

**Lighting**
- not recommended for this application

**Fencing**
- context specific

**Landscaping**
- context specific
- provide shade for spectators

**Parking**
- see Appendix 1 for more information on parking

**Accessibility**
- if parking is provided, connect the parking area to the splash pad with a 36” wide walk that is firm, smooth, and slip resistant (maximum 5% slope, maximum 2% cross slope)

**Maintenance**
- rake wood chip surface weekly

**Signage**
- age appropriate signage required
Walks/Paths

Surfacing
• asphalt
• limestone screenings
• decomposed granite
• hardwood mulch

Drainage
• surface gradients should ideally range between 1-3% with a 1% optimal slope

Anticipated Costs
• asphalt: $22.00/square yard
• limestone screenings: $2.75/square foot
• decomposed granite: $265.00/cubic yard
• hardwood mulch: $3.50/square foot

Accessibility
• maximum 8% slope, maximum 2% cross slope

Maintenance
• yearly re-sealing of asphalt path

Figure 31: Asphalt Path Detail
**Figure 32: Decomposed Granite Path Detail**

- 6" topsoil layer
- 3" deep decomposed granite
- soil separator or geo-textile fabric
- 90% compacted subgrade

**Figure 33: Limestone Screenings Path Detail**

- 6" topsoil layer
- 3" crushed limestone screening, wet & mechanically compacted in place
- compacted subgrade

**Figure 34: Mulch Path Detail**

- 6" topsoil layer
- 4" woodchip path (after consolidation)
- compacted subgrade
Appendix 1

Surfaces
- hard court surfacing may be either asphalt or concrete
- asphalt surfaces have been popular as asphalt is a ‘softer’ hard surface. Asphalt tends to be slightly less expensive, readily accepts color coating, and the results of cracking are less severe
- as color coated surfacing does not adhere to concrete, concrete court boundaries must be painted

<table>
<thead>
<tr>
<th>Material Type</th>
<th>Relative Expense</th>
<th>Durability</th>
<th>Maintenance</th>
<th>ADA Compliance</th>
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<tbody>
<tr>
<td>Asphalt</td>
<td>Moderate</td>
<td>Durable</td>
<td>Low</td>
<td>Compliant</td>
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<tr>
<td>Concrete</td>
<td>Expensive</td>
<td>Very Durable</td>
<td>Low</td>
<td>Compliant</td>
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<tr>
<td>Cinder*</td>
<td>Inexpensive</td>
<td>Moderately Durable</td>
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<td>Not Compliant</td>
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<tr>
<td>Bound Gravel/ Crushed Stone</td>
<td>Moderate</td>
<td>Durable</td>
<td>Replenish over time</td>
<td>Compliant</td>
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<tr>
<td>Mulch**</td>
<td>Inexpensive</td>
<td>Moderately Durable</td>
<td>Replenish over time</td>
<td>Not Compliant</td>
</tr>
</tbody>
</table>

* Cinder may be acidic and damage surrounding plant material
** Some double shredded mulch products do meet ADA requirements

Lighting
- wood poles are normally the least expensive pole material. Wood poles may warp and twist over time, causing a shifting of the aim of the sport light fixtures. Wood poles generally rot from the inside out, making it difficult to assess the structural integrity of the wood over a period of time. Other shortcomings include low aesthetic value and external mounting of electrical components
- concrete poles are more expensive than wood and sometimes less expensive than baseplate steel. Concrete poles may be direct buried. In Illinois, where corrosion from salt water spray is not a problem, concrete poles are less popular. Heavy weight for shipping and handling generally limit their use to areas within reasonable shipping distance to plants
- steel poles are the most common method of supporting sports lighting fixtures. Galvanizing is the most common finish on steel poles. Paint is available but typically does not have as long a life as galvanizing. Baseplate steel poles are secured to a concrete foundation with embedded anchor bolts. Direct buried concrete bases are also available. Depending on type of concrete foundation, curing time is 1 - 28 days. Steel
poles are available in mounting heights up to 140’; for most athletic field lighting needs poles range from 150’ mounting height to 90’ mounting height
• aluminum poles and fiberglass poles normally are not available for more than 40’ mounting height. These poles have less EPA capability than similarly priced steel poles.
• due to various soil conditions throughout Illinois, all poles should be installed according to a foundation design created and stamped by a registered professional engineer
• example- in a wind zone of 80 mph, an EPA of 17 (6 fixtures) could be attached to a class “A” pole while an EPA of 29 (10 fixtures) would be attached to a class “B” pole. The class of pole will vary depending on the building code in use and the wind zone.
• prior to determining an appropriate foundation design for a sports lighting pole, a 25’ boring (unless rock is struck) is necessary. A qualified engineer must perform the following tests on the soil sample including USCS standard penetration, unconfined compression, soil density, rock quality designation (if applicable), rock class (if applicable), sulfate concentration, ground water, plastic limit, and plastic index.
• most anticipated costs in this publications do not include light poles and fixtures due to the high degree of variability of sport and site requirements
• 6 - 60’ steel pole with anchor base 8 fixtures and a 26 epa rating @$12,000 each = $96,000

Fencing
• chain link fences are made from different materials such as galvanized steel, aluminum coated steel, and aluminum
• chain link fences maybe be coated with colored PVC
• PVC coating further decreases the likelihood of rusting
• if chain link fencing is intended as a barrier, the mesh size should not exceed 1 1/4”
• install slats in chain link fencing if the fence is intended as a barrier but mesh size exceeds 1 1/4”
• fences and gates should have no more than 2” clearance from the bottom to the ground
• depth of fence footing is dependent upon frostline and local code requirements
• deeper footings may be required if the site experiences heavy winds, erosion conditions or expansive soils

Irrigation
• irrigation systems may consist of quick couplers, an automatic system, or a combination of the two systems
1. Quick Couplers
   • less expensive irrigation option
Outdoor Recreation Facilities Guide

- locate quick couplers flush with the ground plane and use coupler heads designed for athletic fields
- quick couplers require manual operation and this approach to irrigation requires constant supervision

2. Automated Irrigation System
- more expensive upfront cost
- use pop-up heads designed for an athletic field
- recommended water pressure is 55 pounds per square inch
- this automated system reduces the need for constant supervision

Parking
- the Illinois Accessibility Code requires 1 handicap accessible stall for every 25 stalls and 2 more handicap accessible spaces for every additional 50 spaces
- parking guidelines vary greatly by the type of recreation facility, the size of the park, and the age and type of community
- some communities choose to allow the zoning administrator or other municipal authority to determine the amount of parking required on a case by case basis
- in circumstances where the municipal ordinance requires substantially more parking spaces than are required to serve a new recreational facility, a text amendment to the zoning ordinance may save dollars that would otherwise be spent on unneeded parking and help maintain open space
- as a guideline, parking spaces should measure 9’ wide X 18’ long with a 26’ aisle behind the space
Appendix 2

Specialty Garden Plant Lists

Butterfly Garden:

These species of wildflowers attract butterflies with their colorful showy blooms. These flowers hold the promise of life-sustaining nectar for butterflies, some of which will fly several miles to find this valuable food:

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asclepias incarnata (Ai)</td>
<td>Marsh Milkweed</td>
</tr>
<tr>
<td>Aster novae-angliae (An)</td>
<td>New England Aster</td>
</tr>
<tr>
<td>Boltonia latisquama (Bl)</td>
<td>False Aster</td>
</tr>
<tr>
<td>Cassia hebecarpa (Ch)</td>
<td>Wild Senna</td>
</tr>
<tr>
<td>Echinacea pallida (Ep)</td>
<td>Pale Purple Coneflower</td>
</tr>
<tr>
<td>Eupatorium maculatum (Em)</td>
<td>Spotted Joe-Pye Weed</td>
</tr>
<tr>
<td>Helianthus spp (He)</td>
<td>Sunflowers</td>
</tr>
<tr>
<td>Liatris spicata (Ls)</td>
<td>Dense Blazing Star</td>
</tr>
<tr>
<td>Monarda fistulosa (Mf)</td>
<td>Bergamot</td>
</tr>
<tr>
<td>Silphium laciniatum (Sl)</td>
<td>Compass Plant</td>
</tr>
<tr>
<td>Solidago rigida (Sr)</td>
<td>Stiff Goldenrod</td>
</tr>
<tr>
<td>Vernonia fasciculata (Vf)</td>
<td>Smooth Ironweed</td>
</tr>
</tbody>
</table>

Figure 35: Sample Butterfly Garden Plan
Specialty Garden Plant Lists

Rain Garden:

Rain Gardens are developing across Illinois as a low-cost method of improving water quality and making good use of rainwater runoff while creating habitat for native birds and butterflies. Rain gardens are landscaped areas at a low point in the site or by creating a shallow depression. By holding back the rainwater runoff from entering the storm sewers you are creating your own personal water quality system thus recharging the groundwater.

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
</tr>
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<tbody>
<tr>
<td>Aster novae-angliae (An)</td>
<td>New England Aster</td>
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<tr>
<td>Eupatorium maculatum (Em)</td>
<td>Spotted Joe-Pye Weed</td>
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<tr>
<td>Heliumum autumnale (Ha)</td>
<td>Sneezeweed</td>
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<tr>
<td>Juncus torreyi (Jt)</td>
<td>Torrey’s Rush</td>
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<td>Liatris pycnostachya (Lp)</td>
<td>Prairie Blazing Star</td>
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<td>Lobelia cardinalis (Lc)</td>
<td>Cardinal Flower</td>
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<tr>
<td>Monarda fistulosa (Mf)</td>
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<tr>
<td>Phlox glaberrima (Pg)</td>
<td>Marsh Phlox</td>
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<tr>
<td>Veronicastrum virginicum (Vm)</td>
<td>Culver’s Root</td>
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<tr>
<td>Zizia aurea (Za)</td>
<td>Golden Alexander</td>
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</table>

Figure 36: Sample Rain Garden Plan
## Appendix 3

### Special Illinois Parks and Recreational Facilities

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Location</th>
<th>Local Contact</th>
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<tbody>
<tr>
<td>Community Garden</td>
<td>Buffalo Grove</td>
<td>Buffalo Grove Park District 530 Bernard Drive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Buffalo Grove, 60089.3351 847.850.2100</td>
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<tr>
<td></td>
<td>Collinsville</td>
<td>Collinsville Area Recreation 10 Gateway Drive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Collinsville, 62234.6106 618.346.7529</td>
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<tr>
<td>Cross Country Skiing</td>
<td>Rockford</td>
<td>Rockford Park District 1401 N. 2nd Street</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rockford, 61107.3086 815.987.8850</td>
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<tr>
<td>Environmental Center</td>
<td>Glenview</td>
<td>Glenview Park District The Grove 1930 Prairie St.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Glenview, 60025.2800 847.657.3215</td>
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<tr>
<td>Equestrian Trails</td>
<td>Cook County Forest Preserve</td>
<td>Cook County Forest Preserve 536 N. Harlem River Forest, 60304 800.870.3666</td>
</tr>
<tr>
<td></td>
<td>Lake County Forest Preserve</td>
<td>Lake County Forest Preserve 2000 N. Milwaukee Avenue Libertyville, 60048 847.367.6640</td>
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<tr>
<td>Ice Hockey</td>
<td>Winnetka</td>
<td>Winnetka Park District 520 Glendale Avenue Suite 100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Winnetka, 60093.2135 847.501.2040</td>
</tr>
<tr>
<td>Indoor Tennis Facility</td>
<td>Champaign</td>
<td>Champaign Park District 706 Kenwood Road</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Champaign, 61821-4100 217.398.2550</td>
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<tr>
<td>Activity</td>
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<tr>
<td>-------------------</td>
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<td>Inline Hockey/Skating</td>
<td>Morton Grove</td>
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<td>6834 Dempster Street</td>
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<td></td>
<td></td>
<td>Morton Grove, 60053.2631</td>
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<td>Nature Center</td>
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<td>Urbana, 61801-1746</td>
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<td>Rollerblading</td>
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<td>Glendale Heights</td>
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<td>Skateboard</td>
<td>Deerfield</td>
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<td>Hoffman Estates</td>
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<td>Hoffman Estates, 60195.2998</td>
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<td>Sledding Hill</td>
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<td>Waterpark</td>
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<td></td>
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<td>666 S Main St.</td>
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<tr>
<td></td>
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<td>Wheaton, 60187.5283</td>
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<tr>
<td></td>
<td></td>
<td>630.665.4710</td>
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</tbody>
</table>
Appendix 4

References
Title: Time-Saver Standards for Site Planning
Authors: Joseph DeChiara and Lee E. Koppelman
Publisher: McGraw-Hill Book Company
Place: New York
Date: 1984

Title: Time-Saver Standards for Landscape Architecture
Editors: Charles W. Harris and Nicholas T. Dines
Second Edition
Publisher: McGraw-Hill Publishing Company
Place: New York
Date: 1998

Title: The Sports Rules Book
Author: Thomas Hanlon
Publisher: Human Kinetics
Place: Champaign, IL
Date: 1998

Title: Anatomy of a Park
Authors: Donald J. Molnar and Albert J. Rutledge
Publisher: McGraw-Hill Book Company
Place: New York
Date: 1986, Second Edition

Title: Wilson Athletic Field & Court Manual
Author: Wilson Sporting Goods Co.
8700 W. Bryn Mawr Avenue
Chicago, IL  60631
http://www.wilsonsports.com
Date: 1996

Title: Outdoor Sport Fields & Courts Guide
Author: Wisconsin Department of Natural Resources
Publisher: State of Wisconsin
Place: Madison, Wisconsin
Date: 1996

Author: Spence Restoration Nursery
P.O. Box 546
2220 E. Fuson Road
Muncie, Indiana 47308
Date: 2004
Sport Specific References

Baseball
  Pony Baseball/Softball
  PO Box 225
  Washington, PA 15301
  http://www.pony.org

American Softball Association
  2801 NE 30th Street
  Oklahoma City, OK 73111
  405-424-5266

Fencing
  Article: Fencing Specs: Perimeter Choices for Landscape Architects
  Author: Valerie Buxton
  Date: January 1999
  Publication: Landscape Architect and Specifier News
  pp. 20-22

Grass Seed Mixture
  Title: Standard Specifications for Road and Bridge Construction
  Author: Illinois Department of Transportation
  Date: January 1997
  Publisher: Printed by Authority of the State of Illinois (6465-25,000-1-97)

Ice Hockey/In-line Hockey Dasher Boards
  In-Line Sport Systems, Inc.
  4814 Park Glen Road
  Minneapolis, MN 55416
  http://www.borderpatrol.com

Ice Hockey Cooling Systems
  Cooling Systems for Outdoor Ice Rinks
  http://www.thermax/ice.com
  Cimco Recreational Refrigeration
  http://www.cimcorefrigeration.com

In-Line Hockey
  Title: Official Rules of In-Line Hockey
  Author: USA Hockey In-Line
  Date: 1997
  Publisher: Triumph Books
  Place: Chicago
Lighting Guidelines
Title: Recommended Practice for Sports & Recreational Area Lighting
Author: Illuminating Engineering Society of North America
Date: 1988
Publication Number: IES PR6-1988
(Note: This is the most current version of this publication but it does not reflect current lighting technology)

Sand Volleyball
US Youth Volleyball Leagues
12501 S. Isis Avenue
Hawthorne, CA 90250-4149
1.888.988.7985
http://www.volleyball.org

Skate Parks
Article Title: Designing “Totally Awesome” Skate Parks
Magazine: Illinois Parks and Recreation
Author: R. Gordon Leedy, Jr.
Date: January/February 1998
pp: 15-17

Soccer
American Youth Soccer Organization
12501 South Iaia Avenue
Hawthorne, CA 90250
800.872.2976
http://www.soccer.org/

Tennis
Title: USTC & TBA Tennis Court and Track Construction Guide Specifications
Author: U.S. Tennis Court and Track Builders Association
Date: 1988

Disc/Frisbee Golf
Professional Disc Golf Association
3841 Dogwood Lane
Appling, GA 30802
http://www.pdga.com

Disc Golf Association, Inc.
16 Maher Road
Watsonville, CA 95076