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A Survey of the Utilization of the U.S. Consumer Product Safety Commission's Guidelines for Playgrounds in Tennessee

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A SURVEY OF THE UTILIZATION OF THE U.S. CONSUMER PRODUCT SAFETY COMMISSION'S GUIDELINES FOR PLAYGROUNDS IN TENNESSEE

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Michael A. Alsup

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A SURVEY OF THE UTILIZATION
OF THE U.S. CONSUMER PRODUCT SAFETY
COMMISSION'S GUIDELINES FOR
PLAYGROUNDS IN TENNESSEE

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A SURVEY OF THE UTILIZATION OF THE U.S. CONSUMER PRODUCT SAFETY COMMISSION'S GUIDELINES FOR PLAYGROUNDS IN TENNESSEE

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The U.S. Consumer Product Safety Commission's A Handbook For Public Playground Safety was published in 1981 in response to a petition to develop a mandatory set of safety standards. The National Recreation and Park Association and the National Bureau of Standards were selected to work on the project. As the study developed, the Commission realized that a set of standards was needed instead of mandatory requirements.

Because there has not been any improvement in injury statistics nation-wide to date, the purpose of this study was to determine the degree of utilization of the guidelines in Tennessee. This was seen as being important to public agencies due to the liability of operating playgrounds and the rising expense of judgements against agencies in lawsuits.

A survey instrument was developed, with the aid of a jury of experts, to serve as the data gathering tool. It

was mailed to ninety-four city and county departments in Tennessee. The survey included questions concerning the possession of the Handbook, inspections and maintenance, playground design, ground surfaces, and playground equipment. It was analyzed by tabulating percentages, simple frequencies, and numerical ranking.

Surveys were completed and returned by sixty-four departments; only half responded that they had copies of the Handbook. The tabulations indicated that all of those who were familiar with the Handbook reported that they believed utilizing them would reduce injuries. The majority of those responding to the survey indicated that the guidelines were being followed and that inspections and maintenance were being conducted regularly. Moreover, the tabulations indicated that the types and placement of equipment were usually within the guidelines.

The researcher, based on the findings of the study, recommended: all departments should obtain a copy of the Handbook and use it as a guide for any aspect of their playgrounds; documentation and inspection of playgrounds should be carried out at least weekly by employees who are assigned to the task and trained; any playgrounds that do not conform to the guidelines should be renovated or removed; and ground surfaces should be used in recommended depths to aid in cushioning falls.

CHAPTER 1

INTRODUCTION

The U. S. Consumer Product Safety Commission's Handbook For Public Playground Safety was developed "...in an attempt to reduce playground injuries."[1] In 1974 the Commission was petitioned to develop a set of "...mandatory safety standards for public playground equipment."[2] As the study was developed, the Commission concluded that standards were needed instead of mandatory guidelines due to the diverse factors related to playground injuries.[3] The National Recreation and Park Association was selected to work on the guidelines, and in 1976 the National Bureau of Standards (N.B.S.) was contracted to assist in the development of the guidelines.[4] The N.B.S., during the time the guidelines were being written, also developed methods for testing ground surfaces which were seen to contribute to the severity of injuries.[5]

The guidelines were issued in two volumes in 1981 for agencies to use in an attempt to reduce the number and severity of injuries on playgrounds. Volume 1 contains the "General Guidelines for New and Existing Playgrounds" which includes information about the playground injuries, planning new playgrounds, making existing playgrounds safer, and

playground safety checklists.[6] Volume 2 contains the "Technical Guidelines for Equipment and Surfacing" which includes information on installation, maintenance, materials, strength of equipment, sharp points, pinch points, hazards, ground surfaces, and falls from equipment.

It would seem logical that the number and severity of accidents would be less if these guidelines were followed by playground officials. However, nationally accidents have not been reduced, and lawsuits have risen.[7] This study was undertaken to determine how departments in Tennessee either do or do not utilize these guidelines and the resulting condition of the playgrounds.

Statement of the Problem

The problem was to determine to what extent the U.S. Consumer Product Safety Commission's Guidelines for playgrounds were used by municipal and county parks and recreation departments in Tennessee in planning and operating their playgrounds.

Definition of Terms

The following terms will be applicable to this study:

1) Ground surfaces - any type of natural or man-made surface under playground equipment.
2) Liability - responsibility when one is found to be negligent.

3) Negligence - failure to exercise the care that a prudent person usually exercises.[8] Ignoring a foreseeable harm and failing to take adequate precautions against it.

4) Playground - a piece of land used for and usually equipped with facilities for recreation especially by children.[9] Playgrounds usually contain equipment such as slides and swings.

5) Commission - U.S. Consumer Product Safety Commission.

6) Survey - descriptive research in which meaningful data are gathered about a contemporary topic from respondents at a given time to draw conclusions about the topic and information for making decisions.

7) Jury of Experts - A jury of experts as used here is a body of recreation professionals working in the field who, through their experience and reputation, have been chosen to advise, critique, and comment on the study itself and the survey instrument with the intention of adding validity and reliability to the study.

8) Guidelines - Volumes 1 and 2 of the A Handbook For Public Playground Safety.

9) NRPA - National Recreation and Park Association.

10) NBS - National Bureau of Standards.

11) NEISS - National Electronic Injury Surveillance System, a system that has given the Commission access to hospital emergency room information concerning injuries.

12) Resilient - capable of withstanding shock without permanent deformation or rupture, elastic.[10]

Delimitations

The study was delimited:

1) to departments whose directors are members of the Tennessee Recreation and Parks Association.
2) to the ninety-four municipal and county parks and recreation departments in Tennessee which had a full time director in 1990.
3) to the areas of ground cover, types of equipment, maintenance of equipment, and placement of equipment.

Limitations

The study was limited due:

1) to the responses of the selected departments.
2) to a specified time table.

Questions in Lieu of a Hypothesis

1) Do departments in Tennessee know of and use the guidelines?
2) Is the use of the guidelines viewed as being beneficial in reducing playground injuries?

3) Are equipment and ground surfaces adequately inspected and maintained?
4) What types of ground cover are used most frequently?
5) What types of equipment are used most frequently?
6) Is equipment placed at recommended distances from borders and other equipment?

NOTES

CHAPTER 1

[1]U.S. Consumer Product Safety Commission, A Handbook For Public Playground Safety, Volume 1: General Guidelines for New and Existing Playgrounds (Washington, D.C.: GPO, 1986), 4.

[2]Ibid., 2.

[3]Ibid.

[4]Ibid.

[5]Ibid.

[6]Ibid., i.

[7]Frances Wallach, "Playground Safety Update," Parks & Recreation, 25 August 1990, 46.

[8]Webster's Ninth New Collegiate Dictionary, rev. ed. (1988), s.v. "Negligence."

[9]Webster's Ninth New Collegiate Dictionary, rev. ed. (1938), s.v. "Playground."

[10]Webster's Ninth New Collegiate Dictionary, rev. ed. (1988), s.v. "Resilient."

CHAPTER 2

REVIEW OF RELATED LITERATURE

Playground Injuries

"Accidental injury is the leading cause of death for American children over one year old."[11] Bill Hoover, Superintendent of Parks and School Grounds for Charlottesville, Virginia, makes clear the relationship between playground equipment and accidents when he reveals that playground equipment is rated as the fifth most hazardous consumer product.[12]

These facts may have been instrumental in prompting the Commission's study of playground safety. During the study among the Commission's findings for 1975 were: approximately 93,000 people were admitted to hospitals and treated for injuries on public playgrounds, four out of five injuries occurred to children under eleven years of age, and seventy percent of all injuries were the result of falls.[13] These later statistics were compiled after the Commission's study and injuries have not declined during the decade that followed the initial study. Playground injuries requiring hospital care in the United States totaled over 189,000 in 1984.[14]

Tinsworth and Kramer of the Commission found through

the National Electronic Injury Surveillance System (NEISS) that 170,000 injuries were reported in 1988 and that approximately 280 deaths have occurred during the last 16 years.[15] Of these injuries in 1988, 119,600 or seventy percent occurred on public playgrounds.[16] A breakdown of injuries related to the type of ground cover is given in the following data from NEISS:

TABLE 1

INJURIES AND GROUND COVER

Natural:	Dirt/grass	52%
Protective:	Sand	19%
	Gravel	11%
	Rubber	4%
	Bark	2%
Paved:		12% [17]

More accidents were reported on climbers and swings than any other pieces of equipment with slides, merry-go-rounds and see-saws also being mentioned.[18]

An example of these types of injuries occurred in Chicago when Frankie Nelson fell from an eleven foot high slide resulting in several serious injuries including brain damage and partial paralysis.[19] His family was awarded $9.5 million out of court.[20]

Ground Surfaces

While climbing apparatus may be involved in many injury cases, the severity of the accident is affected by the

ground surface. Hard surfaces such as concrete or asphalt cause more severe injuries than do pea gravel or wood chips.[21] At one time hard surfaces were used due to their low maintenance. However, the Commission's study showed that resilient surface materials like bark, wood chips, or shredded tires appear to give more protection to children when they fall as compared to the very practical dirt or paved surfaces.[22]

Safe ground surfaces, therefore, are essential in designing and maintaining playgrounds. The Consumer Products Commission report says that "a surface should not impart a peak acceleration in excess of 200 g's...."[23] A "g" is a "unit of force equal to the force exerted by gravity on a body at rest...."[24] Only surfaces that are resilient and can absorb this amount of force should be used. Surfaces such as asphalt, concrete, or packed ground are not resilient and are never recommended. Organic materials such as pine bark and shredded hardwood and inorganic materials such as pea gravel, sand, and shredded tires provide some cushioning and are recommended although they require regular maintenance. Most surfaces require regular maintenance to retain the resilience and must be replaced periodically, especially in high traffic areas.[25] Some synthetic surfaces exceed the standards and are highly recommended.[26] The best surfaces are resilient and vary in depth according to the height of the equipment.

Most playground equipment companies stress the importance of resilient surfaces under the equipment. One company, RCM International, advertises that their "Fall Saver" safety cushion "...meets and exceeds all safety guidelines set by the Consumer Product Safety Commission NBSIR-79-17-07; American Standard of Testing Materials ASTMF-355-78 for surfaces used under playground apparatus."[27]

The American Society of Testing Materials has also studied various ground covers and has developed the following outline of surfaces with advantages and disadvantages for each.

TABLE 2

ADVANTAGES AND DISADVANTAGES
OF GROUND COVERS

SURFACE	ADVANTAGES	DISADVANTAGES
Sand	Resilient Children play in it	Can freeze when moist Cat and dog feces
Rubber chips	Resilient Long lasting	Expensive
Bark chips Tan bark Oak chips	Resilient	Decompose in 1 to 2 years Weed Growth Fungus growth when moist
Pea gravel	Inexpensive Easy to maintain	Not as resilient
Dirt	Inexpensive Easy to obtain	Can get packed/hard Can become muddy
Foam rubber	Most resilient Somewhat permanent	Can be sliced or melted Expensive [28]

Playground Design

The layout of a playground is also important in order to provide separation of age groups and good traffic flow. Each piece of playground equipment must be integrated into the playground setting before it can be considered safe.[29] Special consideration should be given to certain populations such as preschool (ages six and under) and handicapped. Approximately 30% of all injuries which occur to preschool children are due to their playing on equipment designed for older children. This problem is important enough to merit different play areas being established for each age group.[30]

Handicapped children have different problems with ground surfaces that are too soft and equipment that does not have ramps. This makes playgrounds inaccessible to many handicapped children. The Civil Rights Restoration Act of 1987 may put pressure on public agencies to make these areas accessible to this group.[31]

Spacing around and between each piece of equipment is important in order to provide adequate room for play and for movement from one piece to another. Swings require more space than climbers; therefore, consideration must be given to the type of equipment in determining space requirements.[32] When purchasing equipment, buyers should check for areas of possible entrapment such as exercise rings with openings too large. Sharp points on corners and

edges, pinch points, protrusions, and projections are other problems to be checked.[33] Each piece of equipment has its own areas that are potential hazards and should be inspected for problems before a purchase is made.

Playground Liability

Since many serious accidents occur each year, a number of lawsuits are filed. Because of a pattern that has been established, many of these cases are won or settled out of court. A study in New Jersey revealed that lawsuits concerning playground accidents were won in regard to the following criteria: improper supervision (24%), faulty equipment construction (35%), and improper equipment maintenance (26%).[34] "Thirty years ago, when a youngster was injured at play, the injury was considered part of the growing up process."[35] Today, however, the question of who was responsible for the accident is often answered in a court of law. The guidelines established by the Commission are now being used by plaintiffs to support their cases; moreover, some large awards have been given by juries.[36]

The Advisory Commission on Intergovernmental Relations reported that American cities are confronted with serious financial problems due to legal judgements.[37] A jury awarded $33.3 million to a boy from New York who became quadriplegic when he fell onto some bricks and rubble. New York City pays between $2 and $3 million per year for recreation accidents.[38] Government agencies are being held

accountable for their actions or inactions and, they have lost the immunity that they once had. This loss of immunity has resulted in an increase in the recreation professional's awareness of potential risks in programs being offered.[39] While agencies grapple with the new interpretations of the law, the end results should be better and safer playgrounds.

Risk Management

Risk management involves the control of foreseeable accidents and the severity of accidents. Administering due care is a part of the solution to the liability problem.[40] Some risk management practices are to abate inherent hazards, conform to accepted standards, comply with codes and regulations, provide emergency facilities, and train staff in the care and maintenance of the equipment.[41] Meeting standards such as the height of side rails on slides or the type and amount of ground surface under the equipment are attainable standards. Maintaining equipment by inspecting "S hooks" and joints for wear or replacing broken swing seats are also reasonable maintenance expectations.[42]

Documentation of inspections, maintenance, and accidents is also essential.[43] Due care, "...that care which is due under the circumstances," is a question to be answered in a liability case.[44] The care that a reasonable person should take in a situation is viewed in determining negligence.[45] The public's perception that the agency is striving toward a safe environment will lessen the

likelihood of the agency being sued.[46]

Foreseeability is also a factor in these cases. The knowledge and understanding of professionals should allow them to make decisions to prevent accidents.[47] Warning the public of potential dangers is necessary. If a duty to warn has been established and no warning was given, the agency may be found to be negligent.[48]

Injuries from falls to hard surfaces would be questioned under both due care and foreseeability.

Playground Improvements

"Safety experts say that most playground fatalities could be prevented."[49] Some of the problems that may be prevented include: 1) a lack of pathways and zones around equipment, 2) equipment being placed in pathways, 3) hard ground surfaces, 4) a lack of planning for the various age groups who will use the equipment, and 5) spacing between equipment.[50]

New modular type playgrounds are designed to create safer playgrounds by providing a self-contained play environment, as well as to promote "...physical development, mental enhancement, and creative stimulation...." They are also designed with safety in mind.[51] They consist of several interconnected slides, nets, ladders, ramps, and platforms.[52]

Some playground improvements suggested by safety experts have been to widen slide platforms and bed ways,

have less incline on slides, have wider monkey bars, and have better traffic flows.[53] Coatings are being added to metal products to reduce the possibility of slipping and being burned by hot equipment. Spaces have been tightened to eliminate entrapment.[54]

Some other suggestions to create a safer playground follow. Borders should be eight to ten feet away from equipment and good drainage should be provided.[55] Slide rails should be a minimum of two and a half inches high, and they should have a protective barrier and platform at the top.[56] Sharp edges, pinch points, and protruding bolts should be avoided. Installations should be according to manufacturer's directions.[57] Fences with barbed ends should not be used in the playground.[58]

Different levels of the structure should be readily accessible and different age groups should be challenged. However, structurally sound designs with strong durable materials are needed for quality construction.[59] Maintenance and inspections of the equipment are vitally important. Scheduled inspections and repairs should be documented and repairs should be made immediately if equipment is "...damaged, worn, abused, vandalized or otherwise unsafe...."[60]

Updating The Guidelines

Due to concern that the number and severity of accidents on playgrounds have not been curtailed since the

original guidelines were published, new research has been conducted and more extensive data have been collected. As a result, a new report called Development of Human Factors Criteria for Playground Safety is being written by the Commission and will be added to the guidelines.[61] The report includes information on "...surfacing, general hazards, layout and design, assembly, installation and maintenance, and materials and construction."[62] The technical recommendations are divided into the following categories: age, layout and design, play value versus safety, and surfacing.[63]

The new report is expected in early 1991. In 1988 Manufacturers, as a branch of the National School Supply Equipment Association, petitioned the American Society of Testing and Material (ASTM) to develop safety standards for public playground equipment.[64] Great Britain, Saudi Arabia, Australia and Germany are the only countries that have established national standards for safety on playgrounds.[65] The United States and Canada are currently working on national standards. Following the United States' standards will not be mandatory.[66]

NOTES

CHAPTER 2

[11]Joseph Davis, "Playground Safety," American School and University, 61 October 1988, 43.

[12]Bill Hoover, "Playground Design And Maintenance," Park Maintenance and Grounds Management, 40 January 1987, 14.

[13]U.S. Consumer Products Safety Commission, 3.

[14]Davis, 43.

[15]"Playground Safety, New Playground Study Focuses On Falls," Dateline: NRPA, June 1990, 6.

[16]Ibid.

[17]"Playground Safety, New Playground Study Focuses On Falls," Dateline: NRPA, June 1990, 6.

[18]U.S. Consumer Products Safety Commission, 3.

[19]James P. Donovan, "Playground Surfacing. What Are Your Choices?," Parks & Recreation, 22 September 1987, 35.

[20]Ibid.

[21]Kenneth A. Penman, "Children At Play," American School and University, 58 August 1986, 17.

[22]U.S. Consumer Product Safety Commission, 4-5.

[23]U.S. Consumer Product Safety Commission, A Handbook For Public Playground Safety, Volume 2: Technical Guidelines for Equipment and Surfacing (Washington D.C.: GPO, 1986), 22.

[24]Webster's Ninth New Collegiate Dictionary, rev. ed. (1988), s.v. "g."

[25]Dr. Frances Wallach and Robert Heath, "Answers To Your Playground Surface Questions," Parks & Recreation, 24 March 1989, 36.

[26]Donovan, 35.

[27]Fall-Saver Safety Cushioning, RCM International, P.O. Box 604, Anoda, MN 55303.

[28]"Playground Surfacing: A Vital component Of Safety," Dateline: NRPA, May 1990, 4.

[29]"Playground Safety," Dateline:NRPA, July 1990, 4.

[30]Ibid.

[31]Wallach, 48.

[32]U.S. Consumer Products Safety Commission, 5-6.

[33]Ibid., 7.

[34]Penman, 16.

[35]Frances Wallach, "Accidents, Liability Confront Park Staffs," American City & County, 58 October 1985, 36.

[36]Wallach and Heath, Parks & Recreation, 48.

[37]Wallach, American City & County, 36.

[38]Wallach and Heath, Parks & Recreation, 48.

[39]Seymour M. Gold, "Risk Management In Public Playgrounds," Journal of Park and Recreation Administration, 1 (July 1983): 1.

[40]Monty L. Christiansen, "Safety Is No Accident," Parks & Recreation, 20 May 1985, 56.

[41]Ibid., 53-54.

[42]Amanda Tiffany, "How To Tame The Liability Monster," Parks & Recreation, 22 January 1987, 66.

[43]Gold, 2.

[44]James C. Kozlowski,J.D.,PhD., "A Common Sense View Of Liability," Parks & Recreation, 23 September 1988, 58.

[45]Ibid.

[46]Ibid.

[47]Ibid.

[48]Davis, 43.

[49]Michael DeCourcy Hinds, "A New Effort To Make Child's Play Less Deadly," The New York Times, 13 May 1989, 50.

[50]William J. Burke, "Designing Safer Playgrounds," Parks & Recreation, 22 September 1987, 39 and 42.

[51] Nan Booth Simpson, "Playgrounds, Safety And Fun By Design," Parks & Recreation, 23 October 1988, 31.

[52] Amy Ward, "Are Playground Injuries Inevitable?," The Physician and Sports Medicine, 15 April 1987, 164 and 165.

[53] "Game Plan. Careful Design And Maintenance Will Improve Your Playground And Decrease The Potential For Accidents And Lawsuits," American School and University, 57 September 1984, 32.

[54] Roger Morton, "Updating Playground Safety," School and College, September 1989, 20.

[55] Hoover, 15.

[56] "Too Many Playgrounds Are Unsafe," Changing Times, 35 May 1981, 72.

[57] William Burke, "Preventing Playground Injuries," Park Maintenance and Grounds Management, 40 June 1987, 6.

[58] William J. Burke, "Planning Safer Playgrounds," American School and University, 52 March 1980, 42.

[59] Louis E. Bowyers, "Children Need Playgrounds But Playgrounds Need Help," Journal of Physical Education, Recreation, and Dance, 59(September 1988): 51.

[60] Hoover, 16.

[61] "Playground Safety," 4.

[62] Ibid.

[63] Ibid.

[64] Wallach, Parks & Recreation, 49.

[65] "Playground Safety: Examining The Risks In Play," Dateline: NRPA, April 1990, 6.

[66] Ibid.

CHAPTER 3

PROCEDURES

In conducting this study the following procedures were followed:

1) It was decided that a mail out survey would be the most effective way of conducting this study. All municipal and county departments in Tennessee were eligible to participate as survey respondents. The survey was constructed to collect information in the following areas:
   a) The degree of knowledge and use of the guidelines in Tennessee.
   b) The degree to which the guidelines are seen to be beneficial in reducing playground injuries.
   c) The types of equipment being used.
   d) The types of ground surfaces being used.
   e) Inspection and maintenance of playgrounds.
   f) Placement of borders and equipment.
2) A jury of experts was selected in an attempt to validate and build reliability into the survey instrument. The comments and suggestions of the recreation professionals were incorporated into the survey. A list of the jury of experts may be found in

Appendix D.

3) Corrections were made on the survey as deemed necessary by the jury of experts and thesis committee (Appendix A).

4) A list of departments meeting the criteria was compiled through the Tennessee Recreation and Parks Association membership directory and Executive Director, Kathleen Williams. The list contained the department's name, director and addresses.

5) Explanatory cover letters and surveys were then distributed through the mail to all of the municipal and county parks and recreation departments (Appendix B). Stamped, self addressed envelopes were also included in the mailing. Recipients were requested to return the surveys within a two week period. A follow up letter was sent a week after the initial mailing (Appendix C).

6) At the completion of the survey period, responses were tabulated and analyzed.

7) Analysis of the data was accomplished through frequency distributions, numerical ranking, and percentages.

8) The findings were published based upon the analysis of the data; conclusions were drawn based upon the findings; and recommendations were made based upon the conclusions.

CHAPTER 4

ANALYSIS OF DATA

Sixty-four responses were collected from a population of ninety-four or a return of 68 percent. Fifty-four city, four city/county, and six county departments participated in the survey. The data collected in the survey were analyzed independently as a question. In some cases they were analyzed collectively with other questions of similar nature.

There were twenty-seven questions on the survey divided into six sections (Appendix A). The statistical procedures used in analyzing the data were percentages, simple frequencies, and numerical ranking based on the type of information asked in the question.

Section 1, General Information (Questions 1 - 5)

Question 1: What population does your department serve?

The sixty-four departments participating in this survey were divided into five population sizes (Table 3). The most responses came from the 10,000 - 25,000 category with twenty-two responses and the fewest from the 100,000 and over category with six. All four of the major cities in Tennessee responded (Nashville, Memphis, Knoxville, and Chattanooga).

TABLE 3

POPULATION

Size	Number of Respondents	Percentage of Total
10,000 and under	16	25
10,000 - 25,000	22	34
25,000 - 50,000	12	19
50,000 - 100,000	8	13
100,000 and over	6	9
Totals	64	100

Question 2: What is your department's current annual budget?

All of the participants answered this question. The most answers were received from the $250,000 or less category and the fewest answers came from the $1,000,000 and over category.

TABLE 4

BUDGET

Size	Number of Respondents	Percentage of Total
$250,000 and under	21	33
$250,000 - $500,000	19	30
$500,000 - $1,000,000	13	20
$1,000,000 and over	11	17
Total	64	100

From this question forward, sixty-three respondents participated in the survey instrument. One did not maintain any park facilities and did not answer any more questions.

Question 3: How long has your department been an official part of your City/County government?

Sixty-two departments responded to this question with a wide range of service evidenced by a high of ninety years and a low of one half year. The average number of years

served was over twenty-two with a total of 1,383.5 years served (Appendix E).

TABLE 5

LENGTH OF TIME THE DEPARTMENT HAS BEEN AN OFFICIAL PART OF THE CITY/COUNTY GOVERNMENT

Years of Service	Number of Responses
0 to 5	7
5 to 10	7
10 to 15	14
15 to 20	11
20 to 30	10
30 to 40	7
40 to 90	6

N = 62

Question 4: How many playgrounds does your department oversee?

The number of playgrounds supervised by the departments

ranged from zero to 120. The most frequent response, three playgrounds, was given by thirteen departments. This was followed by eleven responses by departments with two playgrounds and ten by departments with five playgrounds. The average number of playgrounds per department was just under nine with a total of 548 playgrounds reported from sixty-three departments (Appendix F).

TABLE 6

PLAYGROUNDS

Number of Playgrounds	Number of Responses
0 to 5	48
6 to 15	8
16 to 120	7

N = 63

Question 5: Does your department supply supervision at the playgrounds?

Most departments do not supply supervision. There were twenty-four yes responses and fifteen of them stated that supervision was provided only during peak periods such as in the summer and winter.

Two responded that they did not have funding for supervision, and four said they are planning to begin a playground supervision camp or program next summer (1991).

TABLE 7

PROVIDE SUPERVISION AT PLAYGROUNDS

	Yes	No	Total
Number	24	39	63
Percentage	38	62	100

Section 2: U.S. Consumer Product Safety commission's Handbook: (Questions 6 - 13)

Question 6: Are you familiar with the U.S. consumer Product Safety Commission's "A Handbook for Public Playground Safety" Volumes 1 and 2?

There were sixty-three responses to this question with forty-three reporting familiarity with the Handbook. This represented 68 percent of the responses (Table 8).

TABLE 8

FAMILIAR WITH THE HANDBOOK

	Yes	No	Total
Number	43	20	63
Percentage	68	32	100

Those who answered no to this question were instructed to proceed to question thirteen. If "yes" was the answer, they were to proceed with answering all of the questions.

Question 7: Do you have copies of the Handbook within your department?

The forty-three who answered "yes" to question six answered questions seven through twelve. Those who did not proceeded on to question thirteen.

A majority of those who answered "yes" to question six answered "yes" to this question also. Moreover, thirty-four out of forty-three or 79 percent responded that they had copies of the Handbook (Table 9).

TABLE 9

HAD COPIES OF THE HANDBOOK

	Yes	No	Total
Number	34	9	43
Percentage	79	21	100

Question 8: Is the Handbook a useful tool for you?

The Handbook was a useful tool to 86 percent of the forty-two who answered this question. Two of those surveyed answered yes to this question although they answered that they do not have copies of the Handbook.

TABLE 10

IS THE HANDBOOK USEFUL

	Yes	No	Total
Number	36	6	42
Percentage	86	14	100

Question 9: Do you believe that following the Handbook will reduce the number and severity of playground accidents?

There were no negative responses to this question. All forty-two respondents believed the number and severity of accidents could be reduced by following the Handbook.

TABLE 11

ACCIDENTS

	Yes	No	Total
Number	42	0	42
Percentage	100	0	100

Question 10: Do you believe that the Handbook should be used in court as the industry standard?

Of those who answered this question, 76 percent indicated that they believed the Handbook should be used as the industry standard.

Of the nine who said no to this question, six had responded that they have copies of the Handbook. Four of those that do not have copies answered yes to this question (Table 12).

TABLE 12

INDUSTRY STANDARD

	Yes	No	Total
Number	29	9	38
Percentage	76	24	100

Question 11: In making decisions about the following areas concerning playgrounds, do you (A) always, (S) sometimes, or (N) never use the Handbook?

Of those answering this question, 95 percent answered that they always or sometimes used the Handbook in making decisions concerning the areas questioned. Two said that they purchase from national manufacturers whose equipment conforms to the Handbook (Table 13).

TABLE 13

USE OF HANDBOOK

Uses	Always	Sometimes	Never	Total
Purchasing	16	17	5	38
Installation	18	18	2	38
Renovation	17	22	1	40
Maintenance	21	18	1	40
Inspection	22	16	1	39
Totals	90	91	10	191
Percentages of Totals	47	48	5	100

Question 12: Did you know that the U.S. Consumer Product Safety Commission is writing a new report on playground safety, entitled "Development of Human Playground Factors Criteria for Playground Safety?"

Most of those answering this question, twenty-seven out

of forty-two or 64 percent, did not know that a new report was being written.

TABLE 14

NEW REPORT
DEVELOPMENT OF HUMAN PLAYGROUND FACTORS
CRITERIA FOR PLAYGROUND SAFETY

	Yes	No	Total
Number	15	27	42
Percentage	36	64	100

Question 13: Where do you obtain information on playground safety, maintenance and other topics?

The highest concentration of answers came from three areas: 1) Parks and Recreation, a magazine, 2) Seminars, and 3) Manufacturer's manuals and information. Moreover, forty- six respondents or 72 percent of the total number of participants answered that they use all three of these sources.

The Tennessee Municipal League (TML), an insurance pool for local and county government agencies received seven responses. Other sources were Tennessee Occupational Safety and Health Administration (TOSHA), videos and other training material from the Municipal Technical Advisory Service

(MTAS), a Park And Recreation Technical Advisory Service (PARTAS), and from other departments.

The average number of responses was thirty-five per question.

TABLE 15
PLAYGROUND INFORMATION

Source	Number of Responses	Percentage of Responses
Handbooks, Vol. 1 & 2	31	15
Parks & Rec. Magazine	56	27
Seminars	57	27
Manufacturer's Man.	52	25
Grist Series	2	1
Other	11	5
Total	209	100

Section 3: Inspections and Maintenance:

Question 14: Does your department have an employee(s) assigned to inspect the playground(s)?

The majority of those who responded to this question indicated that they have an employee assigned to this task (Table 16).

Of those who have copies of the Handbook, thirty-one out of thirty-four or 91 percent answered "yes" to this question.

TABLE 16

EMPLOYEE ASSIGNED TO INSPECT

	Yes	No	Total
Number	58	5	63
Percentage	92	8	100

Question 15: Does your department have an employee(s) trained to inspect the playground(s)?

Of the fifty-eight departments that had an employee assigned to inspect, only forty-three, or 68 percent, trained these employees in inspection procedures. That leaves fifteen departments that did not train this personnel (Table 17).

Of the thirty-four who had copies of the Handbook, twenty-six trained their personnel; eight did not train them.

TABLE 17

EMPLOYEE TRAINED TO INSPECT

	Yes	No	Total
Number	43	20	63
Percentage	68	32	100

Question 16: Does the same employee(s) who inspects the playground(s) also maintain the playground(s)?

Most departments use the same personnel for inspections and maintenance. However, ten of those who answered "yes" to question fourteen indicated that they used different employees to maintain and inspect playgrounds (Table 18).

Of the thirty-four who have copies of the Handbook, twenty-eight, 82 percent, answered "yes" to this question.

TABLE 18

MAINTENANCE OF PLAYGROUNDS

	Yes	No	Total
Number	48	14	62
Percentage	77	23	100

N = 62.

Question 17: How frequently are your playgrounds inspected: daily, weekly, monthly, quarterly, annually, or never?

Weekly or monthly inspections received 75 percent of the responses. No one indicated that their playgrounds were never inspected (Table 19).

Of the thirty-four who had copies of the handbook, twenty-five or 74 percent reported inspecting playgrounds either weekly or monthly.

TABLE 19

FREQUENCY OF INSPECTIONS

Frequency	Number of Responses	Percentages
Daily	6	9
Weekly	22	35
Monthly	25	40
Quarterly	8	13
Annually	2	3
Never	0	0
Totals	63	100

Question 18: Do you document inspections by: date, location, name, or form?

The answers indicated that most of those who document their inspections document all four areas questioned. A maximum number of responses of forty-nine were received for the location of the playground. The date of inspection

received forty-five responses. A minimum of forty responses were received for the name of the inspector and documenting the inspection with a set form.

Of the thirty-four who had copies of the Handbook, twenty-three or 68 percent documented all four items, and two did not document any of the items.

TABLE 20

DOCUMENTATION OF INSPECTIONS

Item	Number of Responses	Percentages
Date	45	26
Location	49	28
Name	40	23
Form	40	23
Total	174	100

Question 19: Do you inspect for the following problems?: cracks, hooks, chains, swings, footings, bolts, or wood?

Of the sixty-one departments responding to this

question, 67 percent indicated that they inspected all of the items listed in Table 21. One department indicated that they do not inspect any of the items. The inspection of footings received fewer responses than any of the other items with fifty-seven. The average number of responses per question was almost sixty (Table 21).

Of those with Handbooks, 94 percent inspect all of the items, and one did not inspect any of the items.

TABLE 21

INSPECTION OF PROBLEMS

	Number of Responses	Percentages
Cracks	60	14
Hooks	59	14
Chains	61	15
Swings	61	15
Footings	57	13
Bolts	61	15
Wood	60	14
Total	419	100

N = 61

Section 4: Playground Design:

Question 20: Are your playgrounds designed for specific age groups (toddlers, elementary, etc.)?

Most departments answering this question, 76 percent, reported having some or all of their playgrounds designed for specific age groups. Most of those who explained their answer had areas for either toddlers or elementary age children.

TABLE 22

PLAYGROUND DESIGNED FOR SPECIFIC GROUPS

	Yes	No	Some	Total
Number	27	21	15	63
Percentage	43	33	24	100

Question 21: Are your playgrounds divided into areas for different age groups?

Of the sixty-three who responded to this question, 59 percent indicated that their playgrounds were not divided for different age groups. Playgrounds being divided for different age groups received 25 percent of the sixty-three responses, and 16 percent responded that some of their playgrounds were divided (Table 23).

TABLE 23

PLAYGROUNDS DIVIDED FOR AGE GROUPS

	Yes	No	Some	Total
Number	16	37	10	63
Percentage	25	59	16	100

Question 22: Are your playgrounds designed to provide traffic lanes of at least 8 feet between each piece of equipment?

Most of the respondents, 78 percent, said that their playgrounds were designed with traffic lanes of at least eight feet between each piece of equipment.

Several comments were made that this width was not adhered to due to space limitations or that the playgrounds were old and had not been designed with that width (Table 24).

TABLE 24

TRAFFIC LANES

	Yes	No	Total
Number	49	14	63
Percentage	78	22	100

Question 23: Do you use borders (concrete or asphalt curbing, cross ties, etc.) around the playground equipment?

The majority, 63 percent, of the responses obtained indicated that borders were used. Of those who indicated the type of border they used, cross ties received ten responses, and landscape timbers received six responses. Other responses were that utility poles and concrete curbs were used.

Two respondents said that they believed borders were a hazard, and one said that the Tennessee Municipal League inspector told them to remove their borders (Table 25).

TABLE 25

USE OF BORDERS

	Yes	No	Total
Number	40	23	63
Percentage	63	37	100

If yes, at what distance are the borders from the equipment?

The majority of those who had borders had them placed at least the recommended distance of eight feet or more from the equipment. The standard minimum for one department was ten feet (Table 26).

A majority, 68 percent, of those who had the Handbook had borders eight feet or more from equipment, and seven indicated that they did not have borders.

TABLE 26

DISTANCE OF BORDERS

	Under 8 feet	8 feet or more	Total
Number	7	33	40
Percentage	18	82	100

Section 5: Ground Surfaces:

Question 24: What type of ground surface(s) does your department use?

According to forty-four responses, sand was the most frequently used surface, followed by gravel and dirt. Four of those surveyed reported using asphalt or concrete which is discouraged by the Handbook, and there were no responses that indicated usage of the highly recommended new synthetic materials or foam (Table 27).

TABLE 27

TYPES OF GROUND SURFACES

	Number of Responses	Percentages
Sand	44	39
Gravel	27	23
Bark	14	12
Rubber	14	12
Dirt	23	20
Asphalt	3	3
Concrete	1	1
Foam	0	0
Total	114	100

Question 25: What depth of ground surfaces do you try to maintain?

Of the fifty-nine respondents, 27 percent said that they tried to maintain the recommended level of a minimum of six inches of ground surfaces. Those indicating that they did not try to keep the recommended depth was 73 percent.

TABLE 28

DEPTH OF GROUND SURFACES

	Number of Responses	Percentages
Under 2"	1	2
2" to less than 4"	20	34
4" to less than 6"	22	37
6" and more	16	27
Total	59	100

Section 6: Playground Equipment:

Question 26: What type(s) of equipment does your department use?

It was decided to divide the responses of this question between types of equipment and types of building material.

Traditional playground equipment such as swings, slides, climbers, and merry-go-rounds were by far the most used with 57 percent of the sixty-two responses. One department indicated that they used all three types of equipment (home-made, traditional, and modular), twenty-nine indicated that they used traditional and modular, and one indicated that they used home-made and traditional.

Metal equipment was used more than wood although not by a great margin. Twenty-five or 40 percent of those who answered this question indicated that they used both metal and wood structures (Table 29).

TABLE 29

TYPES OF EQUIPMENT

Type	Number of Responses	Percentages
Home made	7	7
Traditional	55	57
Modular	35	36
Total	97	100
Metal	39	56
Wood	31	44
Total	70	100

Question 27: How tall is your department's tallest piece of playground equipment?

Most of the sixty-three respondents, 46 percent, indicated that their tallest piece of playground equipment was between seven and one half feet and under ten feet tall.

Those who responded that their tallest equipment was five to under seven and a half feet tall totalled 25 percent, and 25 percent responded to ten feet and over. Only 3 percent indicated that their tallest equipment was less than five feet tall.

TABLE 30

HEIGHT OF EQUIPMENT

	Number of Responses	Percentages
Under 5'	2	3
5' to under 7 1/2'	16	25
7 1/2' to under 10'	29	46
10' and over	16	25
Total	63	99

A comparison of responses on the height of equipment and depth of ground surface was conducted using those who responded to questions twenty-five and twenty-seven. An important factor that had been established by the guidelines

was that the higher the equipment the more surface needed to cushion a fall from it.

Those who indicated that they had less than six inches of surface, 73 percent, were not considered to be in the safe range. This is especially significant with those who have equipment in the seven and a half and over ranges.

TABLE 31

COMPARISON OF HEIGHT AND GROUND SURFACE

	Under 2	2 to under 4	4 to under 6	6 & over	Total
Under 5	0	1	1	0	2
5 to under 7.5	1	4	5	5	15
7.5 to under 10	0	8	11	7	26
10 & over	0	7	5	2	14
Total	1	20	22	14	57

CHAPTER 5

FINDINGS

The findings of this study were divided into six groups according to the questions in lieu of a hypothesis. The general information section of the survey was used to obtain facts about the population being studied, parks and recreation departments whose directors were members of the Tennessee Recreation and Parks Association. A good array of responses from each size and budget allotment was secured. A wide range of years of service and number of playgrounds overseen was also obtained. As expected the majority of the departments did not provide supervision at their playgrounds, and those that did and explained their answer only provide the service during peak seasons such as summer and winter.

Question 1: Do departments in Tennessee know of and use the guidelines?

Section two of the survey was used to answer this question. Of the sixty-three responding to question six of the survey, forty-three or 68 percent said that they were familiar with the guidelines or Handbook. Of those who were familiar with them, thirty-four or 79 percent responded to

question seven that they had copies within their departments. The percentage of those who have copies and the total number of those responding to the survey was 53 percent.

Of those who were familiar with the Handbook, 86 percent said that it was a useful tool for them. In question eleven, 95 percent of those responding indicated that they always or sometimes use the handbook in making decisions concerning purchasing, installing, renovating, maintaining and inspecting playgrounds.

The majority, 79 percent, of those answering question thirteen indicated that they received information concerning playgrounds from Parks and Recreation magazine (27 percent), seminars (27 percent), and manufacturers' manuals (25 percent). The Handbooks received 15 percent of the total responses.

Question 2: Is the use of the guidelines viewed as being beneficial in reducing playground injuries?

Questions nine, ten, and twelve of section one of the survey were used to answer this question. All of those responding to question nine indicated that they believed that following the Handbook would reduce the number and severity of playground accidents.

However, only 76 percent responded that they believed the Handbook should be used in court as the industry

standard. One of those surveyed explained that he would not be in favor of this unless the Handbook was updated; he also responded that he was familiar with the new report being written by the Commission.

Fifteen of the forty-two or 36 percent said that they were familiar with the new report.

Question 3: Are equipment and ground surfaces adequately inspected and maintained?

Section three, questions fourteen to nineteen, was used to answer this question. Those indicating that their playgrounds were inspected either weekly or monthly totaled 75 percent. All respondents indicated that they conducted inspections. Those who indicated that they inspected quarterly or annually totaled 16 percent. Of those who had copies of the Handbook, 74 percent inspected either weekly or monthly.

Most of those who responded, 94 percent, checked all seven items (cracks, hooks, chains, swings, footings, bolts, and wood). In documenting inspections, most of those responding indicated that they documented all four areas (date, location, name, form). Of those who have the Handbook, 68 percent documented all of the items, and two did not document by any of them.

Questions fourteen and fifteen asked if an employee(s) was assigned to inspect their playground(s) and if they were

trained to inspect them. Most, 92 percent, said that they had an employee(s) assigned, but only 68 percent said that the employee(s) was trained for this duty. Those who have the Handbook indicated that thirty-one of thirty-four had an employee(s) assigned and twenty-six of thirty-four had them trained. Most who had an employee(s) assigned had the same employee(s) to maintain the equipment.

Question 4: What types of ground cover are used most frequently?

Section five, questions twenty-four and twenty-five, was used to answer this question. The three most used ground covers were reportedly sand (39 percent), pea gravel (23 percent) and dirt (20 percent). Concrete and asphalt received 4 percent of the responses, and foam or synthetic materials received 0 percent.

The depth at which ground surfaces or cover were maintained was also seen as being important. Those who tried to maintain six inches or more totaled 27 percent, and 73 percent indicated using less than six inches.

In considering the type and depth of ground surface, it was also important to consider the type and height of playground equipment. The 73 percent who maintain less than six inches of ground cover were not maintaining the recommended depth of surface material. This was especially significant with those who have equipment over seven and one

half feet tall.

Question 5: What types of equipment are used most frequently?

Section four, questions twenty and twenty-one, and section six, questions twenty-six and twenty-seven, were used in answering this question. Traditional equipment (swings, slides, climbers, merry-go-rounds, etc.) was most frequently used (57 percent) and was followed by commercial modular units -- a series of interconnected slides, nets, ladders, ramps, platforms, etc. -- (36 percent), and home-made equipment (7 percent). Both traditional and modular units were used by twenty-nine respondents.

Respondents' preference for metal or wood equipment was also requested. Metal was preferred by 56 percent and wood was chosen by 44. Of those answering this question, twenty-five indicated that they used both metal and wood.

Many, 46 percent, answered that their tallest equipment was seven and a half to under ten feet. Two response categories, ten feet and over and five feet to under seven and a half feet, both received 25 percent each.

Having different types of equipment for different age groups was seen as being an important factor in playground safety. Most departments, 76 percent, indicated that they have designed some or all of their playgrounds for specific age groups, primarily for toddlers or elementary school age

children. When asked if their playgrounds were divided into areas for particular age groups; most, 59 percent, responded that they were not.

Question 6: Is equipment placed at recommended distances from borders and each other?

Section four, items twenty-two and twenty-three, were used to answer this question. A majority (78 percent) said that they have a distance of at least eight feet between each piece of equipment and borders. Comments made as to why this standard was not met were that space limitations prohibited it and that old playgrounds were built without this distance.

Most (63 percent) indicated that they use borders, and 82 percent of those who had borders place them eight feet or more from the equipment. Cross ties and landscape timbers were used the most. Of those surveyed, two said they thought borders were dangerous, and one said that the Tennessee Municipal League insurance inspector made them remove their borders. Of those that had the Handbook, 68 percent had borders and seven did not use borders.

CONCLUSIONS

Based upon the findings of the study, the following conclusions can be drawn:

1) Slightly more than half, 53 percent, of those who responded to the survey had copies of the Handbook.
2) Most of those who had the Handbook indicated that it was a useful tool, and most use it in making decisions concerning purchasing, installing, renovating, maintaining and inspecting their playgrounds.
3) Of those who were familiar with the Handbook, thirty-four of the forty-three indicated that it is a source of information for them on playground safety and maintenance.
4) Those who are familiar with the Handbook, whether or not they had it, believed that following it would reduce the number and severity of accidents.
5) Those who indicated that their playground(s) were inspected either weekly or monthly totaled 75 percent.
6) Most who answered question 19 (94 percent) said that they inspect all of the areas questioned in the survey (cracks, hooks, chains, swings, footings, bolts, and wood).
7) Most of those surveyed, 65 percent, documented inspections by date, location, name, and form.
8) Most of those surveyed (92 percent) have an

employee(s) assigned to inspect, but only 68 percent said that they trained them to inspect the playground equipment.

9) Of the thirty-four respondents with the Handbook, 92 percent have an employee(s) assigned, and 77 percent train their employee(s).

10) Ground surfaces, in most cases (76 percent), were accepted materials (sand, pea gravel, bark chips, and rubber chips). The depth of the surface, in most cases (64 percent), was four inches or more.

11) The types of equipment used were traditional (57 percent) and modular (36 percent). Only 7 percent used home-made equipment.

12) A majority of respondents (78 percent) indicated that equipment is placed at the recommended eight feet minimum distance from other equipment. Of those respondents who had equipment with borders, 82 percent indicated that their borders were the recommended eight feet or more distance from the equipment.

RECOMMENDATIONS

Based upon the conclusions, certain recommendations can be suggested:

1) All departments should obtain copies of both volumes of the Handbook and use it in making decisions concerning playgrounds. Many of the respondents indicated that they believed following the recommendations of the Commission would reduce the number and severity of injuries.
2) Departments should begin a program of documenting inspections and maintenance of all playgrounds based on procedures outlined in the Handbook.
3) Inspections should be conducted at least weekly, and maintenance of any problems should be done immediately.
4) Any playgrounds that do not conform to the Handbook's recommendations should be renovated and made to comply. In the event of a law suit, it is likely that the Handbook will be used as the standard for the recreation industry.
5) An employee(s) should be assigned and trained to inspect and maintain all playgrounds. The job will be done better if someone is assigned this responsibility.
6) Recommended ground surfaces should be used in suggested depths to aid in cushioning falls as most

playground accidents involve falls in some manner.

7) Minimum distances between pieces of equipment and borders should be eight feet.

8) Only equipment that complies with the guidelines should be used.

9) Future studies should measure the use of the Handbook in relation to lawsuits, injuries, and safety.

APPENDICES

APPENDIX A

PLAYGROUND SAFETY SURVEY

A playground is defined as a piece of land equipped with facilities for children's recreation usually containing slides, swings, and other play apparatus.

General Information:

1. What population does your department serve?
   _____ 10,000 and under
   _____ 10,000 to 25,000
   _____ 25,000 to 50,000
   _____ 50,000 to 100,000
   _____ 100,000 and over

2. What is your department's current annual budget?
   _____ $250,000 and under
   _____ $250,000 to $500,000
   _____ $500,000 to $1,000,000
   _____ $1,000,000 and over

3. How long has your department been an official part of your City/County government?
   _____

4. How many playgrounds does your department oversee?
   _____

5. Does your department supply supervision at any of its playgrounds?
   _____ Yes
   _____ No
   Explain: _____

U.S. Consumer Product Safety Commission's Handbook:

6. Are you familiar with the U.S. Consumer Product Safety Commission's "A Handbook for Public Playground Safety" Volumes 1 and 2?
   _____ Yes
   _____ No
   If you answered "no" to this question, please go to question 13.

7. Do you have copies of the Handbook within your department?
   _____ Yes
   _____ No

8. Is the Handbook a useful tool for you?
   _____ Yes
   _____ No

9. Do you believe that following the Handbook's recommendations will reduce the number and severity of playground accidents?
   _____ Yes
   _____ No

10. Do you believe that the Handbook should be used in court as the industry standard?
    _____ Yes
    _____ No

11. In making decisions about the following areas concerning playgrounds, do you (A) always, (S) sometimes, or (N) never use the Handbook?
    a. _____ Purchasing
    b. _____ Installation
    c. _____ Renovation
    d. _____ Maintenance
    e. _____ Inspection
    If you marked never on any of the above, why? _____
    _____
    _____

12. Did you know that The U.S. Consumer Product Safety Commission is writing a new report on playground safety, entitled "Development of Human Playground Factors Criteria for Playground Safety?"
    _____ Yes
    _____ No

13. Where do you obtain information on playground safety, maintenance and other topics? (check all that apply)
    a. _____ A Handbook For Public Playground Safety, Volumes 1 and 2.
    b. _____ Parks and Recreation magazine
    c. _____ Seminars
    d. _____ Manufacturer's manuals and information
    e. _____ Grist series
    f. _____ Other _____

Inspections and Maintenance:

14. Does your department have an employee(s) assigned to inspect the playground(s)?
    _____ Yes
    _____ No

15. Does your department have an employee(s) trained to inspect the playground(s)?
    _____ Yes
    _____ No

16. Does the same employee(s) who inspects the playground(s) also maintain the playground(s)?
    _____ Yes
    _____ No

17. How frequently are your playgrounds inspected:
    _____ Daily
    _____ Weekly
    _____ Monthly
    _____ Quarterly
    _____ Annually
    _____ Never

18. Do you document inspections by: (check all that apply)
    a. _____ Date
    b. _____ Location
    c. _____ Inspector's name
    d. _____ A set form

19. Do you inspect for the following problems?:
    (check all that apply)
    a. _____ Visible cracks, bending, rusting or breakage
    b. _____ Deformation of open hooks or rings
    c. _____ Worn swing hangers and chains
    d. _____ Damaged or loose swings
    e. _____ Exposed or cracked footings
    f. _____ Loose bolts
    g. _____ Splintered, cracked, or deteriorated wood

Playground Design:

20. Are your playgrounds designed for specific age groups (toddlers, elementary, etc.)?
_____ Yes
_____ No
_____ Some
Explain: _____

21. Are your playgrounds divided into areas for different age groups?
_____ Yes
_____ No
_____ Some
Explain: _____

22. Are your playgrounds designed to provide traffic lanes of at least 8 feet between each piece of equipment?
_____ Yes
_____ No
Explain: _____

23. Do you use borders (concrete or asphalt curbing, cross ties, etc.) around the playground equipment?
_____ Yes
_____ No
Explain: _____

If yes, at what distance are the borders from the equipment?
a. _____ 8 feet or less
b. _____ 8 feet and more
Explain: _____

Ground Surfaces:

24. What type of ground surface(s) does your department use? (check all that apply)
    a. _____ Sand
    b. _____ Pea gravel
    c. _____ Bark chips
    d. _____ Rubber chips
    e. _____ Dirt
    f. _____ Asphalt
    g. _____ Concrete
    h. _____ Foam or synthetic material

25. What depth of ground surfaces do you try to maintain?
    a. _____ 2 inches or less
    b. _____ 2 to 4 inches
    c. _____ 4 to 6 inches
    d. _____ 6 inches or more

Playground Equipment:

26. What type(s) of equipment does your department use? (check all that apply)
    a. _____ Home made
    b. _____ Traditional, commercially purchased (swings, slides, climbers, merry-go-rounds, etc.)
    c. _____ Modular, commercially purchased (a series of interconnected slides, nets, ladders, ramps, platforms, etc.)
    d. _____ Metal
    e. _____ Wood

27. How tall is your department's tallest piece of playground equipment? (select 1)
    a. _____ 5 feet and under
    b. _____ 5 feet to 7.5 feet
    c. _____ 7.5 feet to 10 feet
    d. _____ 10 feet and over

Please return within 2 weeks.

APPENDIX B

COVER LETTER FOR SURVEY

Dear Fellow Recreation Professional,

Please take a few minutes to fill out the enclosed survey or forward it to the person responsible for your department's playgrounds to complete. It should only take ten to fifteen minutes to complete. Also, please return it within two weeks in the self addressed stamped envelope.

The survey is for a thesis I am writing to complete my Master's in Recreation at Western Kentucky University. The thesis is concerned with the utilization in Tennessee of the U.S. Consumer Product Safety Commission's guidelines for playgrounds.

Please include a copy of your playground inspection form if your department has one.

_____ Check here if you would like to receive a copy of the survey results.

Your prompt response is needed so I can complete my thesis this semester.

Thanks for your assistance,

Mike Alsup, Parks & Rec.
Director
Goodlettsville, TN

APPENDIX C

FOLLOW UP LETTER, SENT ONE WEEK LATER

Dear Parks and Recreation Director,

I am writing a thesis on the utilization in Tennessee of the U.S. Consumer Product Safety Commission's guidelines for playgrounds. This is the last requirement in fulfilling my Master's degree in Recreation Administration at Western Kentucky University.

You should have received a survey from me last week. If you have not filled it out, please do and send it to me soon.

I look forward to seeing you at the Conference in Gatlinburg.

Sincerely,

Mike Alsup, Parks & Rec. Director
City of Goodlettsville

APPENDIX D

JURY OF EXPERTS

1. Rick Burchfield, Director
   Hendersonville Parks and Recreation
   Hendersonville, TN 37075

2. David Brown, Director
   Gallatin Parks and Recreation
   Gallatin, TN 37066

3. Dan Housley, Director
   Knox County Recreation Department
   Knoxville, TN 37901

4. Lallie Richter
   Metro Nashville Parks and Recreation
   Nashville, TN 37201

5. Dennis Lanier, Director
   Murfreesboro Parks and Recreation
   Murfreesboro, TN 37130

6. Leslie Dean, Director
   Springfield Parks and Recreation
   Springfield, TN 37172

7. Deborah Paschall, Director
   Smyrna Parks and Recreation
   Smyrna, TN 37167

APPENDIX E

TABLE 32

YEARS OF SERVICE

Years of Service	Number of Responses
.5	1
1.0	2
1.5	1
3.5	1
4.0	1
5.0	1
6.0	2
7.0	2
10.0	3
12.0	2
13.0	2
14.0	1
15.0	9
16.0	2
17.0	3
18.0	3
20.0	3
22.0	1
25.0	2
26.0	1
28.0	1
30.0	5
31.0	1
36.0	2
38.0	2
40.0	2
43.0	1
44.0	1
50.0	1
75.0	1
78.0	1
90.0	1
1,383.5	63

APPENDIX F

TABLE 33

NUMBER OF PLAYGROUNDS

Number of Playgrounds	Number of Responses
0	1
1	6
2	11
3	13
4	7
5	10
6	1
7	2
8	1
9	1
10	1
12	2
16	1
17	1
30	1
40	1
44	1
60	1
120	1
548	63

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