

Functional Aspects of Accessible Picnic Elements:

**An Evaluation Report for the
National Center on Accessibility**

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by

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FUNCTIONAL ASPECTS OF ACCESSIBLE PICNIC ELEMENTS

BACKGROUND AND NEED FOR THE STUDY

Public and private providers of picnic facilities in parks and places of tourism have made efforts to provide at least some picnic site elements that are accessible to person with disabilities. This effort accelerated with the 1990 passage of the Americans with Disabilities Act, which requires all public accommodations and services serve as wide a range of ability levels as possible, and in an integrated context. In September of 1999, the U.S. Architectural and Transportation Barriers Compliance Board (Access Board) published a report "Recommendations for Outdoor Developed Areas." Even with these accessibility guidelines, park managers, equipment manufacturers, and accessibility advocates know very little about the visitors' perceptions about the functionality and design of the picnic facilities that meet accessibility guidelines. Thus, the purpose of this study was to ascertain the perceptions of persons with and without disabilities regarding the design and function of certain accessible picnic elements.

Questions addressed included:

- What about the accessible elements (picnic table/fire ring/cooking grill) are useful and well designed?
- What design problems still exist with these elements?
- Are there perception differences between persons with and without disabilities on the design function for these picnic elements?
- What would have to change about the site elements to make them more useable?

METHOD

The specific objective of this study was to gather the opinions of at least 30 persons with disabilities and at least 30 persons without disabilities who were using an accessible picnic site within a Minnesota urban park during the summer of 2000. All persons with disabilities in this study were either adults who use wheeled mobility devices (scooter, power chair, or manual chair), were without a cognitive disability, and able to approach the picnic site independently; or the parent or caregiver of a person with a disability. An effort was made to include subjects from a range of disability type, a range of age, a range of family or group types, and using a range of mobility device type. Persons without disabilities selected for the study included individuals who were using accessible picnic elements, who did not have a visible or apparent disability, and whose group did not include anyone with an obvious disability.

The picnic sites for this research were located along an accessible route and met the current guidelines of accessibility as proposed by the Access Board. An effort was made to include a range of table, fire ring, and cooking grill designs. The participants were approached by a data collector, invited to participate in the study, and queried on a series of fixed-choice and open-ended questions with each response recorded by the data collector. Each single event contact with a participant took approximately 15 minutes.

Selected picnic/camping sites

The designated picnic sites for this study were located in three different park agencies. The 12 picnic areas were located either in a regional park next to a lake, in a residential neighborhood or in a county campground. All picnic sites used were in the Minneapolis/St. Paul metropolitan area.

Hennepin Parks

The Suburban Hennepin Regional Park District is an independent special park district that includes 23 different regional parks, trails, reserves, and special use areas in seven counties. Three of the 23 Hennepin Parks locations were used in this study: Baker Park Reserve, French Regional Park, and Lake Minnetonka Regional Park. These three parks had accessible picnic areas. Baker Park Reserve also has a public campground with two accessible campsites that contained fire rings that met the Access Board guidelines.

Minneapolis Parks

The Minneapolis Parks and Recreation Board manages parkways, lakes, beaches and pools, neighborhood parks and community centers for the residents of Minneapolis, Minnesota. Seven of the 27 city parks were identified as having accessible sites that meet the Access Board guidelines. These seven parks were included in this study: Lake Harriet, Lake Nokomis, Linden Hills, Minnehaha Falls, West River Road, and Rice Park.

Bush Lake

One other park used in this study was Bush Lake of Hyland-Bush-Anderson Lakes Park Reserve managed by the City of Bloomington, Minnesota. This site was included because of the accessible picnic facilities.

How picnic/camping sites were selected

The picnic and campground sites used in this study were chosen if they met the accessibility guidelines for outdoor developed areas proposed by the Architectural and Transportation Barriers Compliance Board (Access Board) as of September 1999. This study specifically targeted accessible picnic tables, fire rings, and pedestal cooking grills (sections 16.5, 16.6, and 16.7 of the Access Board guidelines) (www.access-board.gov/PUBS/recrpt.htm). Once accessible picnic and camping sites were selected in the Minneapolis metropolitan area, permission and cooperation was secured from Hennepin Parks, Minneapolis Parks, and Bloomington Parks management.

TYPES OF ACCESSIBLE PICNIC TABLES

Six styles of accessible picnic tables were identified for this study. Descriptions of each design are as follows:

- Fixed center post 6 ft. table with two 6 ft. benches: Rectangular pedestal tables are 6 ft. long, with two benches. Wheelchairs can be positioned on either end of the table and able to position close to the table with 38 inches of clearance for

the wheelchair between the benches and 33.5 inches of knee clearance. Table height was 31 inches from ground level to the bottom of the tabletop. Each bench is the same length as the tabletop (6 ft.) to retain the proper table seating proportions for people using the seats. The benches attach to the table's 5-3/8 inches square steel center post approximately 12-1/2 inches from the ground by a horizontal 3-1/2 inches diameter steel support member that does not impede knee clearance



Fixed center post 6 ft. table with two 6 ft. benches

- Portable table with 6 ft. benches, 8 ft. tabletop, and 2 ft. extension: This 8-foot table is 30-1/2 inches from ground level. One end of the tabletop extends 2 ft. beyond the 6-foot benches that creates an area for wheelchair use on either side of the table or at the end. Wheelchair users are able to position close to the table with the wheelchair armrests fitting underneath tabletop.



Portable table with 6 ft. benches, 8 ft. tabletop, and 2 ft. extension

- Fixed pedestal square table with one bench removed for wheelchair access: Four foot square top was adapted for wheelchair accessibility by dropping one of the radial arms supporting the benches, opening up one side of the table to meet the regulatory negotiation committee's proposed guidelines for wheelchair accommodation. This 48-inch square top table is 32 inches from the ground

level. This table type allows two wheelchair users to sit side-by-side with 55.5 inches of wheelchair clearance and a depth of 22 inches of knee clearance. The other three benches are attached to the table's 5-3/8 inches square steel center post approximately 12-1/2 inches from the ground by a horizontal 3-1/2 inches diameter steel support member that does not impede knee clearance.



Fixed pedestal square table with one bench removed for wheelchair access

- Portable table with 6ft. benches, 8ft. tabletop, and 19-inch extension on both ends: The 8-foot tabletop is 31 inches from the ground and extends 19 inches beyond the 6 foot benches on both ends of this table. There is 38 inches width of clear space to properly position a wheelchair up to the table and a depth of 19 inches for knee clearance on either end of the table.



Portable table with 6ft. benches, 8ft. tabletop, and 19-inch extension on both ends

- Center of table accessibility: This tabletop is 5 feet 3 inches long and 46 inches wide. The distance between the ground and the top of the table is 30 inches. There are four small seats around this oval tabletop that leaves 34 inches of clearance for a wheelchair to be positioned on either side of the table. There is also a depth of 22 inches for knee space. This design allows the wheel chair user to sit within a group rather than the end as in some of the other designs.



Center of table accessibility

- Tables that did not meet the Access Board's proposed guidelines: There were nine interviews conducted at a picnic table that did not meet the proposed guidelines. The information was collected about this table design, however this data was eliminated from the analysis. These rectangular tables with benches on either side had less than the recommended 19 inches of knee clearance at either end of the picnic table. The data from interviews conducted with users of this table type will be reported separately in the results section of the final report.



Tables that did not meet the Access Board's proposed guidelines

TYPES OF PEDESTAL COOKING GRILLS

- Multilevel cooking grate grill: These park grills provide 300-square inches of cooking surface and 10-inch sidewalls for draft control. Ashes and coals are positioned on the bottom of the grill surface and the cooking grate is adjustable to four levels above the coals by the grill surface. At the lower level, the cooking grate is 32 inches above the ground. At its highest adjustable level, the cooking grate is 38 inches above the ground. Nine pounds of force is needed to adjust the cooking grate to another level. A swivel mechanism that connects the pedestal to the grill base and allows continuous rotation in either direction with five pounds of force to rotate the cooking grill on its pedestal.



Multilevel cooking grate grill

- Adjustable charcoal retainer grill: These park grills provide 270-square inches of cooking surface and 10 in. sidewalls for draft control. The cooking grate is not adjustable and permanently fixed to the sidewalls at a height of 33-1/2 inches. However, this particular model positions the ashes and charcoals on a tray that is adjustable to two levels for heat control while cooking. The spring coil handle grips are at the same level as the charcoal retainer tray. When the tray is positioned at the lower level, the charcoal retainer tray is 27 inches above the ground. When the charcoal retainer tray is positioned at the upper level, it is 30 inches above the ground. Nine pounds of force is needed to adjust the charcoal retainer tray to another level. A swivel mechanism that connects the pedestal to the grill base allows continuous rotation in either direction with five pounds of force to rotate the cooking grill on its pedestal.



Adjustable charcoal retainer grill

TYPES OF WHEELCHAIR ACCESSIBLE FIRE RINGS

- ***Multilevel fire ring:*** This fire ring features a flat panel at the rear of the ring, which allows a wheelchair user to use a side approach to park adjacent to the long side of the cooking grate. The cooking grate has a four level adjustment range above ground level from 18 inches to 24 inches. The grate level is changed via adjustment slots on the side heat panels, which shield the two public use type spring grips from the heat of the fire. The cooking grate can be adjusted with only one hand by "walking" it up or down and adjusting one side at a time. Nine pounds of force is needed to adjust the cooking grate to another level.



Multilevel fire ring

- ***Single level fire ring:*** This fire ring features a single level cooking grate hinged at the rear of the fire ring to allow it to tip back off the ring. This permits use of the fire ring for an open campfire effect when not cooking on the grate. The fire ring is a nominal 18 inches high to bring the cooking grate to a convenient height for use from a wheelchair. Fourteen pounds of force is needed to lift the grill off the fire ring or off the ground. A course granular fill material is used to provide an elevated fire building surface about 9 inches above ground level.



Single level fire ring

Donation of picnic tables and fire rings

R.J. Thomas Mfg. Co. Inc., manufacturer of Pilot Rock Park Equipment of Cherokee, Iowa donated one portable accessible picnic table, two fixed-pedestal accessible picnic tables, and two different wheelchair accessible fire rings. The picnic tables were placed in Hennepin Parks' Clifton French Regional Park and the wheelchair accessible fire rings were installed at Hennepin Parks' Baker Campground. All other accessible picnic tables and cooking grills used in this study existed in the selected parks before collecting information for this study.

Development of interview instrument

Construction of the interview instrument for this study occurred in April of 2000. Initially, the defined accessibility criterion for each of the targeted picnic elements was identified. The interview questions were then developed to rate how well the picnic element functioned under each access guideline for the height, clear space, slope, and ground surface around the element. The format of this interview instrument needed to be compatible with Hennepin Parks current survey design. Finally, the research staff of Hennepin Parks reviewed and evaluated the design of each interview question and their suggestions were implemented. The interview instrument was also reviewed by a University of Minnesota professor in Recreation, Parks and Leisure Studies and by staff at the National Center on Accessibility. (Please see Appendix A for the interview instrument.)

All interviews were conducted by either Kathleen Scholl, a Ph.D. student in Recreation, or by interviewers employed by Hennepin Parks and trained by Ms. Scholl. An interview training session for the Hennepin Parks employees took place at French Lake Regional Park with six volunteer data collectors on May 24, 2000. This 90-minute training session explained the purpose of the study, how to approach people for an interview, and identified the specific picnic and camping sites selected for the study. Each item on the questionnaire was carefully examined for context and meaning. These data collectors received the training information in written form including maps that identified the code number for each picnic site. After reviewing the data collection method, all members of the survey crew went to the selected picnic sites to visually identify the picnic elements that met proposed accessibility guidelines for outdoor developed areas. This research team fit these picnic site interviews into their other data collection responsibilities when they were assigned the areas within the Hennepin Park system that contained the selected picnic sites.

Interview instrument format

A series of fixed-choice and open-ended questions were collected from the users of the picnic elements. Individuals were asked their perceptions of the function of the picnic table, cooking grill, fire ring and/or any combination of these specific types of equipment that they were using at the time of the interview.

Quantitative information

Using a Likert continuum of A, B, C, D, or F (A=excellent; B=very good; C=satisfactory; D=poor; F=failure), individuals were asked to rate each accessible

element they were using based on the proposed accessibility guidelines for outdoor developed areas outlined by the Access Board's Regulatory Negotiation Committee. To make it easier for the individual to remember the appropriate rating response, the participant was given a card with the rating scale on it for him or her to refer to. If an individual responded with a "D or F" rating, the data collector asked why he or she thought that particular design aspect was poor or a failure. Individuals were specifically asked about the following design features:

- Table accessibility guidelines: 1) seating space provided; 2) knee space; 3) clear space surrounding the table; 4) the ground surface; and 5) the ground slope.
- Cooking grill accessibility guidelines: 1) height of the grill, 2) clear space around the grill; 3) the ground surface; and 4) the ground slope.
- Fire ring accessibility guidelines: 1) the clear space around the fire ring; 2) the ground surface; 3) the surface height of the fire ring; 4) the raised edges around the fire ring; and 5) the ground slope.

Individuals also gave a rating to their opinion towards six statements related to the picnic site and park facilities using the following Likert continuum: 5= Strongly Agree; 4=Agree; 3=Neutral; 2=Disagree; 1=Strongly Disagree; and 0=Don't know/Don't use. The six statements were:

- 1) The design of the picnic site fits my needs
- 2) The picnic table/grill/fire ring provided by the park works well
- 3) The needed information about this picnic site is available
- 4) The information provided is accurate
- 5) I feel safe in this site
- 6) This picnic site is conveniently located for me within the park

Finally, individuals were asked to rate their overall satisfaction with the picnic/campground facilities using a five-point Likert continuum of 5=Very satisfied; 4=Satisfied; 3 =Neutral; 2=Dissatisfied; or 1=Very Dissatisfied.

Qualitative information

Open-ended questions were included to get further clarification about desirable or undesirable attributes of the accessible picnic elements. Questions included the following:

- What do you like about the picnic table, cooking grill, and/or fire ring design?
- What don't you like about the picnic table, cooking grill, and/or fire ring design?
- How would you compare this picnic site, picnic table, cooking grill, and/or fire ring to the other picnic site and elements you have used?
- How could the picnic facility/campsite be improved and made more accessible?

Demographic information

Finally, participants were asked background information on the following:

- Previous park visits
- Whether user would return to site
- Group affiliation; Number of adults, teens and children in the group
- Whether anyone in group had a disability
- If one group member had a disability: 1) Type of disability; 2) Date of onset; 3) Date of birth
- Transportation mode to park

Data entry and analysis

Once the interviews were complete, the quantitative data and demographic information was entered into the Statistical Package for the Social Sciences (SPSS) version 10.0.7 for Windows. The following control information was also entered into SPSS: a) Name of park; b) Location of picnic site; c) Time of interview; date of interview; d) Type of picnic table; type of cooking grill, and/or type of fire ring

To prepare the open-ended responses, the descriptive information was entered into a spreadsheet and categorized by its corresponding question. Responses were also classified by whether or not the response came from a wheelchair/scooter user, or a person without a disability.

Frequency distributions, cross tabulations, central tendencies and variances were used to analyze the quantitative data. The qualitative data was developed into a matrix display related to the categories that emerged from the open-ended responses.

RESULTS

Demographic Findings

One hundred and four (104) interviews were conducted from May 21, 2000 to September 9, 2000 on 38 separate days.

Two homogenous groups were sought for this study: a) individuals who used wheeled mobility devices (wheelchairs or scooters), and b) individuals who did not use wheeled mobility devices. The participants in this study included 49 persons with disabilities and 55 persons without disabilities. Only those individuals who had a disability were asked their date of birth. People with disabilities in this study ranged between the ages of 7 and 92 with a mean age of 36 for this group. There were a variety of people with varying disabilities. Spinal cord injury, spina bifida, multiple sclerosis, and cerebral palsy represented 75% of the disabilities in this study.

Table 1: Categories of Disability of Individuals Using Picnic or Camping Site

Disability	Frequency	Percent
Multiple sclerosis	8	7.7%
Spinal cord injury	10	9.6%
Brain injury	3	2.9%
Stroke	1	1.0%
Polio	2	1.9%
Spina bifida	10	9.6%
Other	6	5.8%
Cerebral palsy	8	7.7%
Missing	1	1.0%
Total of individuals w/disability	49	47.2%
Total of individuals w/o disability	55	52.8%
<i>Total</i>	<i>104</i>	<i>100.0</i>

Group affiliation

Participants were asked to identify the category that best describes who they were with on the day of the interview. Over 59% of the individuals interviewed were with family members. Those individuals who responded to “Other” identified a social group (e.g., boy scouts; clubs, church) as their group affiliation; however, many of these individuals also had family members with them.

Table 2: Self-Reported Group Affiliation of Individuals using Picnic or Camping Sites

Describe Your Group	Frequency	Percent	Individual w/ disability	Individual w/o disability
Just me	16	15.4%	15	1
Immediate family	27	26.0%	10	17
Extended family gathering	19	18.3%	6	13
Family and friends	15	14.4%	4	11
Friends only	3	2.9%	0	3
Business related	6	5.8%	1	5
School	1	1.0%	0	1
Other	17	16.3%	13	4
<i>Total</i>	<i>104</i>	<i>100.0%</i>	<i>49</i>	<i>55</i>

Responses for each interview question**Picnic Tables**

Questions #1 & #2 were open-ended and asked the user to identify what they liked and disliked about the design of the picnic table. The general themes of what individuals liked about the tables were: a) the wheel chair could be positioned close to the table for comfortable seating; b) the location of the table was close to general activity-playground, pool, bathroom; c) the height and size of the table; d) shaded; e) sturdy.

The general opinion of what individual users did not like about the picnic tables were: a) it is hard to identify what tables are accessible and what tables are not accessible; b) wheelchair users can't sit close to friends, especially if more than one person in the group uses a wheelchair; c) portable tables are frequently moved so that the clearance around the table is compromised; and, d) many tables were rough, dirty, or worn.

In the tables below, respondents could select "A" (excellent) through "F" (failure). Few respondents gave "D or F" ratings.

Question #3: How would you rate the **seating spaces** provided for everyone at this picnic table?

Even though most picnic table users rated that there was very good or excellent seating space , the primary suggestion would be to design seating for more socialization of the wheelchair user.

<u>The seating space of the table (Q. 3)</u>	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>yes</i>	<i>Total</i>
<i>Response</i>			
Satisfactory (C)	3 5.9%	10 22.2%	13 13.5%
Very Good (B)	21 41.2%	13 28.9%	34 35.4%
Excellent (A)	27 52.9%	22 48.9%	49 51.0%
<i>Total # of responses</i>	51 53.1%	45 46.9%	

Question #4: How would you rate the **amount of knee space** at this picnic table?

Most picnic users commented that there was adequate knee space with the accessible tables, however, tables designed with 22 inches of knee space or more were preferred and received a higher rating by wheelchair users than the minimum guideline of 19 inches of knee clearance. Comments indicated that since the designs of wheelchairs vary depending on the size of the person and their type of disability, knee space was less of an issue if the armrests on the wheelchair did not fit underneath the tabletop. Wheelchair users unanimously responded in a positive manner to tables that were 30 inches high from the ground to the top of the table. Tables that were 31 inches from the ground to the top of the table receive equal number of positive and negative comments rating the height of the picnic table. All wheelchair users rated tables that were 32 inches from the ground to the top of the table as being too high, most notably for children who were wheelchair users. Currently, the Regulatory Negotiation Committee recommends that tables be at least 27 inches from ground to the bottom of the table, however there is not a guideline for a maximum tabletop height.

<u>The knee space of the table (Q. 4)</u>	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>yes</i>	<i>Total</i>
<i>Response</i>			
Poor (D)	1 2%	1 2.2%	2 2.1%
Satisfactory (C)	3 5.9%	7 15.6%	10 10.4%
Very Good (B)	8 15.7%	5 11.1%	13 13.5%
Excellent (A)	39 76.5%	32 71.1%	71 74%
<i>Total # of responses</i>	51 53.1%	45 46.9%	

Question #5: How would you rate the **clear space** surrounding the table?

Most picnic table users felt that there was enough clear space around the table to maneuver. Wheelchair users commented that it was easier to maneuver around other group members when the firm surface extended further than the minimum guideline. If the pad only met the minimum guideline, and there was a change in surface, the border of the pad became difficult to maneuver. Another issue that affected the clear space for wheelchair users was when tables were too close together or too close to a fence or a tree.

<u>The clear space around the table (Q. 5)</u>	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>yes</i>	<i>Total</i>
<i>Response</i>			
Poor (D)		3 6.7%	3 3.1%
Satisfactory (C)	3 5.9%	10 22.2%	13 13.5%
Very Good (B)	10 19.6%	14 31.1%	24 25%
Excellent (A)	38 74.5%	18 40%	56 58.3%
<i>Total # of responses</i>	51 53.1%	45 46.9%	

Question #6: How would you rate the **ground surface?**

Most picnic table users felt that the ground surface was “Very Good or Excellent.” Wheelchair users preferred paved surfaces to grass for more opportunity to independently move themselves and their belongings from the car to the site.

<u>The ground surface around the table (Q. 6)</u>	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>yes</i>	<i>Total</i>
<i>Response</i>			
Poor (D)	1 2%	1 2.2%	2 2.1%
Satisfactory (C)	2 3.9%	5 11.1%	7 7.3%
Very Good (B)	23 45.1%	18 40%	41 42.7%
Excellent (A)	25 49%	21 46.7%	46 47.9%
<i>Total # of responses</i>	51 53.1%	45 46.9%	

Question #7: How would you rate the **ground slope?**

Even though most picnic table users felt that the ground slope was satisfactory or better, there were times when the table location placed the accessible seating in a position so that the wheelchair users were sitting at a slope in their chair. In some cases, they needed to brake the wheelchair so they would not roll away from the table. In other cases, there was too much cross slope and they felt they were leaning too much to the right or the left.

<u>The ground slope around the table (Q. 7)</u>	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>yes</i>	<i>Total</i>
<i>Response</i>			
Poor (D)	2 4%	4 8.9%	6 6.3%
Satisfactory (C)	7 14%	7 15.6%	14 14.7%
Very Good (B)	18 36%	15 33.3%	33 34.7%
Excellent (A)	23 46%	19 42.2%	42 44.2%
<i>Total # of responses</i>	51 53.1%	45 46.9%	

Cooking grills

Questions #8 and #9 were open-ended questions that asked the cooking grill users what they liked and disliked about the cooking grill. The most frequent positive comment about the cooking grill was that for the wheelchair user the concrete pad made the grill easier to maneuver around than firm dirt or grass, which in turned increased the ease of operating the grills.

Some cooking grill users who were in wheelchairs found that the grate or the coal tray was too heavy for them to independently manipulate up or down. Other negative comments about the cooking grills from both people with and without disabilities were that the grills were not large enough, not clean, rusty or too old. Cooking grills not in the shade were also not as desirable.

The movable surfaces on these grills required nine pounds of force to move up and down. This is more than the ADAAG standard (4.27.4) of five pounds for the indoor/built environment. However, the proposed guidelines indicate that compliance with ADAAG 4.27.4 is not realistic in the outdoor environment and therefore ADAAG 4.27.4 is not required. This is an interesting issue because in order to get a grill surface that is resistant to rust, corrosion, vandalism, distortion and heat, the manufacturers are providing a grill surface material and thickness that requires more than five pounds of force to manipulate.

A number of respondents in this study who experienced difficulty in manipulating grill surfaces indicated they would usually be picnicking with others who could manipulate the grill or offer assistance. A recommendation of this study is that manufacturers and park departments explore alternatives to heavy grill surfaces due to difficulty some people have with adjusting grill surfaces.

Question #10: How do you rate the **height** of the grill?

Most respondents indicated no difficulty with the height of the grill. However, a few negative comments were received about the height of the grill, putting the grill out of the reach range for a wheelchair user.

<u>The height of the grill (Q. 10)</u>	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>yes</i>	<i>Total</i>
Poor (D)		4 13.8%	4 6.8%
Satisfactory (C)	4 13.3%	6 20.7%	10 16.9%
Very Good (B)	15 50%	5 17.2%	20 33.9%
Excellent (A)	11 36.7%	14 48.3%	25 42.4%
<i>Total # of responses</i>	30 50.8%	29 49.2%	

Question #11: How would you rate the **clear space** around the grill?

In most accessible picnic sites with cooking grills, there was plenty of space for the user to access the grill. However, when picnic sites had a portable table, and previous users had repositioned the picnic table closer to the grill, access for the wheelchair users was often blocked.

<u>The clear space around the grill (Q. 11)</u> <i>Response</i>	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>yes</i>	<i>Total</i>
Poor (D)		1 3.4%	1 1.7%
Satisfactory (C)		3 10.3%	3 5.1%
Very Good (B)	18 60%	11 37.9%	29 49.2%
Excellent (A)	12 40%	14 48.3	26 44.1%
<i>Total # of responses</i>	30 50.8%	29 49.2%	

Question #12: How would you rate the **ground surface** around the grill?

Most individuals felt that the ground surface was satisfactory or better especially when there was a concrete pad surrounding the grill. The concrete made it easier for the wheelchair user to control and properly position their wheelchair while using the cooking grill than a surface with more resistance. The primary negative comment about the ground surface was large piles of ashes directly below the grill. This occurred when previous cooking grill users scooped out the ashes that fell below the grill causing the next user to have to position on top of the ashes to use the grill.

<u>The ground surface around the grill (Q. 12)</u> <i>Response</i>	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>Yes</i>	<i>Total</i>
Poor (D)	1 3.3%		1 1.7%
Satisfactory (C)	3 10%	1 3.4%	4 6.8%
Very Good (B)	12 40%	7 24.1%	19 32.2%
Excellent (A)	14 46.7%	21 72.4%	35 59.3%
<i>Total # of responses</i>	30 50.8%	29 49.2%	

<u>The ground slope around the grill</u> <u>(Q. 13)</u>	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>Yes</i>	<i>Total</i>
<i>Response</i>			
Poor (D)		1 3.4%	1 1.7%
Satisfactory (C)	2 6.7%	3 10.3%	5 8.5%
Very Good (B)	12 40%	8 27.6%	20 33.9%
Excellent (A)	16 53.5%	17 58.6%	33 55.9%
<i>Total # of responses</i>	30 50.8%	29 49.2%	

Question #13: How would you rate the **ground slope** around the grill?

Most cooking grill users rated the ground slope as satisfactory or better. Occasionally, the ground slope on one side of the grill created a cross slope that made it difficult to get around the grill, or an uneven drop off the concrete created a drop of 2" or more.

Fire rings

Due to the lack of accessible fire rings available in the vicinity of the study, and that the donated fire rings were delivered and installed July 15, 2000 (midway in the study), the information about the fire rings will only be reported in absolute numbers. This is due to the small number of interviews obtained from fire ring users.

Question #14 & #15 were open-end questions. Campground/picnic users were asked what they liked or disliked about the design of the fire ring. Positive comments about the fire rings centered on the simplicity of the design that allowed for easy and independent use by the wheelchair user. What users disliked about the fire ring design was the excessive space between the height of the cooking surface and the base of the fire ring. This space forced a user to use an abundance of coals to cook their food at an appropriate temperature. One fire ring had a design that the cooking grill swung off the fire ring and rested on the ground. For some users, the grill would then be too low and too heavy for them to independently pick up from their wheelchair.

Question #16: How would you rate the **clear space** around the fire ring?

All fire ring users indicated that there was an appropriate amount of clear space around the fire ring.

The clear space around the fire ring (Q. 16)	Does anyone in your group have a disability?		
	<i>no</i>	<i>yes</i>	<i>Total</i>
<i>Response</i> Very Good (B)	1	1	2
Excellent (A)	2	5	7
<i>Total # of responses</i>	3	6	9

Question #17: How would you rate the **ground surface** around the fire ring?

The ground surface around the fire ring was not appropriate for wheelchair users. Gravel surrounded the fire ring. The gravel was too loose to turn or move a wheelchair up to and around the fire ring. Recent precipitation also softened the ground surface, which increased the problem for wheelchair users. Wheelchair users recommend either letting the grass grow up to the fire ring or putting in concrete around the fire ring. All individuals who were not using wheelchairs rated the fire ring design as excellent.

The ground surface around the fire ring (Q. 17)	Does anyone in your group have a disability?		
	<i>no</i>	<i>yes</i>	<i>Total</i>
<i>Response</i> Failure (F)		1	1
Poor (D)		3	3
Satisfactory (C)		2	2
Very Good (B)			
Excellent (A)	3		3
<i>Total # of responses</i>	3	6	9

Question #18: How would you rate the **surface height** of the fire ring?

For the most part, fire ring users felt that the surface height of the fire ring was appropriate. Users would like the grill and the placement of the coals/wood to be up to 10 inches higher.

<u>The surface height of the fire ring (Q. 18)</u>	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>yes</i>	<i>Total</i>
<i>Response</i> Poor (D)	1		1
Satisfactory (C)			
Very Good (B)	1	1	2
Excellent (A)	1	5	6
<i>Total # of responses</i>	3	6	9

Question #19: How would you rate the **raised edges** around the fire ring?

All users rated the raised edges as very good or satisfactory. They did not elaborate on this feature.

<u>The raised edges around the fire ring (Q. 19)</u>	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>yes</i>	<i>Total</i>
<i>Response</i> Very Good (B)		5	5
Excellent (A)	2	1	3
<i>Total # of responses</i>	2	6	8

Question #20: How would you rate the **ground slope** around the fire ring?

All users rated that the ground slope was satisfactory or better surrounding the fire ring.

<u>The ground slope around the fire ring</u> (Q. 20)	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>yes</i>	<i>Total</i>
<i>Response</i> Satisfactory (C)		2	2
Very Good (B)		2	2
Excellent (A)	3	2	5
<i>Total # of responses</i>	3	6	9

Comparison of current use to past

The next four questions were open-ended and asked the user to compare the immediate picnic/campground site (the picnic table, the cooking grill, and/or the fire ring) to what they have used in the past.

Question #21: How would you compare this site to other picnic/campground sites you have used?

The most common comments about each picnic site were: a) it was clean and well maintained; b) it was shaded; c) it was in close proximity to facilities (e.g. restrooms, playground, lake or swimming area that were easy to watch their kids); d) it was easy access from the car; and, e) it had enough room for a wheelchair user when at the site.

Question #22: How would you compare this picnic table to other picnic tables you have used?

The most common comments about the picnic table, compared to other picnic tables, was that: a) the wheelchair user had the choice to stay in their chair versus having to transfer onto the bench; b) when at the table they did not have to sit sideways; c) if the wheelchair user chose to transfer onto the picnic bench there was enough leg space under the table so their feet would not catch on any part of the table; and, d) there was enough clear space around the table for the wheelchair user to get around the entire perimeter of the table. Users varied in their personal preference about the materials used to construct the table. They either like the metal, plastic, concrete or wood the table was made of, or they did not. Most complaints about the table were related to how clean the table was when they arrived or the physical condition of the table. When wooden tables appeared to be rough, old, or rotten, users were concerned about being injured by splinters.

Question #23: How would you compare this cooking grill to other cooking grills you have used?

The most frequent comment was that the cooking grill was just like other grills that they have used in the past. Some users prefer to bring their own grill to the picnic site for size and cleanliness.

Question #24: How would you compare this fire ring to other fire rings you have used?

Comments about the fire rings related to the cooking grill feature. This feature was easy for the wheel chair user to get close enough to manipulate.

Opinions about general characteristics of the picnic/camping site

The next six questions are users' perceptions of the overall characteristics of the picnic/camping site.

Question #25a: The design of the picnic site fits my needs.

The majority of picnic/campground users felt that the site met their needs. Only if a portable accessible picnic table had been moved by a previous user, did it impair the wheelchair user's ability to get around the site independently. Statistical analysis indicates that there is no significant difference between individuals with disabilities and individuals without disabilities regarding their perceptions in the design of the picnic site meeting their needs ($\chi^2(2)= 5.295$, no significance).

<u>The design of the picnic site fits my needs (Q. 25a)</u>	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>yes</i>	<i>Total</i>
<i>Response</i>			
Neutral (3)	2 3.7%	4 8.2%	6 5.8%
Agree (4)	19 35.2%	26 53.1%	45 43.7%
Strongly Agree (5)	33 61.1%	19 38.8%	52 50.5%
<i>Total # of responses</i>	54 52.4%	49 47.6%	

Question #25b: The picnic elements provided by the park work well.

Most users indicated that the picnic elements provided worked and functioned well. If a user disagreed it was primarily related to maintenance of the cooking grills by the park. Wheelchair users who had low arm strength had a difficult time lifting the tray filled with charcoal or ashes. Statistical analysis indicates that there is no significant difference between individuals with disabilities and

individuals without disabilities regarding their perceptions of the functionality of the picnic elements ($\chi^2(4)= 1.168$, no significance).

<u>The picnic elements provided by the park work well (Q. 25b)</u>	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>yes</i>	<i>Total</i>
<i>Response</i>			
Strongly Disagree (1)	1 1.9%	1 2%	2 1.9%
Disagree (2)		1 2%	1 1%
Neutral (3)	4 7.4%	4 8.2%	8 7.8%
Agree (4)	21 38.9%	19 38.8%	40 38.8
Strongly Agree (5)	28 51.9%	24 49%	52 50.5%
<i>Total # of responses</i>	54 52.4%	49 47.6%	

Question #25c: The needed information about this picnic site is available.

Most picnic site users, especially wheelchair users, do not get information about a picnic site beforehand. They knew about the site because they lived in the area, they were just driving by looking for a picnic site and selected what was available, or the site was selected by someone else in their group. Statistical analysis indicates that individuals without disabilities were more likely to gather information about picnic sites than individuals with disabilities ($\chi^2(5)= 22.922$, $p < .01$).

<u>The needed information about this picnic site is available (Q. 25c)</u>	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>yes</i>	<i>Total</i>
<i>Response</i>			
Don't know/Don't Use (0)	19 35.2%	34 69.4%	53 51.5%
Strongly Disagree (1)		4 8.2%	4 3.9%
Disagree (2)	2 3.7%		2 1.9%
Neutral (3)	8 14.8%	4 8.2%	12 11.7%
Agree (4)	7 13%	4 8.2%	11 10.7%
Strongly Agree (5)	18 33.3%	3 6.1%	21 20.4%
<i>Total # of responses</i>	54 52.4%	49 47.6%	

Question #25d: The information provided is accurate. Since most picnic users don't get information before they visit a local park, they didn't know about the accuracy off the information provided.

<u>The information provided is accurate</u> <u>(Q. 25d)</u>	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>yes</i>	<i>Total</i>
<i>Response</i>			
Don't know/Don't Use (0)	22 40.7%	36 73.5%	58 56.3%
Strongly Disagree (1)		1 2%	1 1%
Disagree (2)	1 1.9%		1 1%
Neutral (3)	5 9.3%	5 10.2%	10 9.7%
Agree (4)	9 16.7%	5 10.2%	14 13.6%
Strongly Agree (5)	17 31.5%	2 4.1%	19 18.4%
<i>Total # of responses</i>	54 52.4%	49 47.6%	

Question #25e: I feel safe in this site

The majority of picnic and campground users indicated that they and their children were safe at the site and in the park. If a user had reservations, it would be that they would not come at night. A stranger asking for help unexpectedly approached one user but the request did not seem creditable and made the user feel uneasy. Statistical analysis indicates that there is no significant difference between individuals with disabilities and individuals without disabilities regarding their perceptions on how safe they feel at the site ($\chi^2(3) = 3.017$, no significance).

<u>I feel safe in this site</u> <u>(Q. 25e)</u>	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>yes</i>	<i>Total</i>
<i>Response</i>			
Disagree (2)		1 2%	1 1%
Neutral (3)		1 2%	1 1%
Agree (4)	13 24.1%	15 30.6%	28 27.2%
Strongly Agree (5)	41 75.9%	32 65.3%	73 70.9%
<i>Total # of responses</i>	54 52.4%	49 47.6%	

Question #25f: The picnic site is conveniently located for me

People who had problems with the convenience of the picnic site, said that the problem concerned the parking for their vehicle, it was too far away. Otherwise, most users were happy with the location of the picnic sites. Statistical analysis indicates that there is no significant difference between individuals with disabilities and individuals without disabilities and their perceptions on the convenience of the picnic site location ($\chi^2(5) = 5.531$, no significance).

<u>The picnic site is conveniently located for me (Q. 25f)</u>	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>yes</i>	<i>Total</i>
<i>Response</i> Don't know/Don't Use (0)		1 2%	1 1%
Strongly Disagree (1)	1 1.9%		1 1%
Disagree (2)		3 6.1%	3 2.9%
Neutral (3)	3 5.6%	2 4.1%	5 4.9%
Agree (4)	16 29.6%	13 26.5%	29 28.2%
Strongly Agree (5)	34 63%	30 61.2%	64 62.1%
<i>Total # of responses</i>	54 52.4%	49 47.6%	

Suggestions to improve the picnic/camp site

Users were asked open-end questions about how the picnic or campsite and facilities could be improved or made more accessible. The primary suggestions about the picnic tables were to have more space surrounding the tables for wheelchairs, that the table design consider socialization of the wheelchair user, and that accessible tables are marked with the blue symbol that indicates that the table is suitable for a wheelchair user. Wheelchair users also suggested better access to bathroom, swimming area, and parking by putting in more curb cuts than what currently exists. More printed information about the accessible aspects within the park is also needed.

Why users chose the picnic site and their opinion about the park facilities

Park users were asked an open-ended question as to why they chose the picnic site. Most users pick park locations that are close to their home, are close to attractions (playground, lake, swimming area), and are in an accessible location relative to the parking lot and the bathroom. Most people will also pick the site based on if the table and grill is in the shade or under a shelter.

Question #36: Overall, how satisfied are you with the picnic facilities?

The last question in the interview was to ask the user their overall satisfaction with the picnic facilities. The majority of park users are satisfied with the facilities. One user was not happy with the number of accessible routes into the park nearest her home. Only one wheelchair accessible route is available from her home she has to travel a long distance around a number of buildings just to get into the park when walking users can cut through a green belt into the park.

<u>Overall, how satisfied are you with the picnic facilities? (Q. 36)</u>	<u>Does anyone in your group have a disability?</u>		
	<i>no</i>	<i>yes</i>	<i>Total</i>
<i>Response</i>			
Dissatisfied (1)	1 1.8%	1 2%	2 1.9%
Neutral (2)		1 2%	1 1%
Satisfied (3)	13 23.6%	17 34.7%	30 28.8%
Very Satisfied (4)	41 74.5%	30 61.2%	71 68.3%
<i>Total # of responses</i>	55 52.9%	49 47.1%	

Tables that did not meet the Access Board's proposed guidelines

Nine interviews were conducted at picnic tables that did not meet the Access Board's proposed guidelines and were eliminated from the analysis in this report. However, eight of the nine interviews conducted were with adults who used a wheelchair or scooter. Five out of the eight of these wheelchair users gave these particular tables a low rating for "adequate seating space for everyone in your group" (averaged rating of 2.75 out of 4.00). These tables are described on page 6. They were rectangular tables, benches on each side, and a table extension on each end that was less than 19 inches. These wheelchair users did not like that they had to sit at different tables from other wheelchair users in their group. In addition, three out of the eight wheelchair users commented that there was a lack of adequate knee space (averaged rating or 3.25 out of 4.00). This lack of knee space caused the wheelchair users to either sit a few inches away for the tabletop or they had to sit sideways next to the table end and have the table surface to one side. If the tables were placed too close together, wheelchair users commented that there was not enough clear space to maneuver between and around the tables, especially when with a group of people. The wheelchair user also commented that the picnic site was chosen because of the location underneath a shelter that provided shade, which was an important attribute for these users to avoid exposure to sun. None of the accessible picnic tables that meet the proposed guidelines were located underneath these sheltered picnic facilities.

Summary of Conclusions

What about the accessible elements (picnic table/fire ring/cooking grill) are useful and well designed?

Tables

- Table designs that provide space for more than one wheelchair and/or the wheelchair space(s) are situated for social interaction.
- Enough leg space/knee clearance for sitting close to the table, or nothing blocking a wheelchair user's legs if they choose to transfer from their wheelchair to the bench. One person stated having a table with extra leg space/knee clearance reduces the likelihood of kicking another table user due to the problem of spastic legs.

Cooking Grills

- Paved surfaces (e.g. concrete, asphalt) under grill provides greater ease in maneuvering while using the cooking grill than loose gravel or uneven grass.
- Stair step adjustment of cooking grill was perceived to be easier to manipulate for those wheelchair users with limited arm strength.

What design problems still exist with these elements?

- The amount of firm surface around a picnic table (area that does not have erosion or roots interfering with access). Changes in level around the border of the firm surface also caused maneuvering problems.
- It is difficult to identify what tables are wheelchair accessible due to the lack of clear identification.
- Portable tables are repositioned by previous users. This compromises or blocks access to the accessible picnic site or picnic element.
- Erosion that occurs over time that compromises wheelchair access.
- Elements that are directly in the sun are not usable for wheelchair users with heat sensitivity.
- Fire ring/cooking grills that are difficult for some wheelchair users (adjusting the cooking grill or charcoal tray). Some persons with disabilities consider grills too high.
- Ground surface around fire ring is sometimes not firm enough.

Are there perception differences between persons with and without disabilities on the design function for these picnic elements?

- The quantitative data that measured the responses to the questions indicated that there was little difference between persons with and without disabilities regarding their perceptions of the functional aspects of picnic sites. However, the qualitative data regarding the suggestions and recommendations offered by persons with disabilities indicated that persons with disabilities did find some problems with the functional aspects of these sites that inhibited their use. These problems included: a) independently adjusting the grill surface; b) the firmness of

the ground surface around the picnic elements; c) picnic tables not on accessible routes; and, d) picnic tables located in unattractive spots, either located directly in the sun, or away from main activities or facilities.

- There was a difference in who accesses information about the picnic site. Persons with disabilities need more information about the existence and location of accessible picnic sites.
- Persons with disabilities perceive more problems with grill heights than persons without disabilities.
- There were a number of comments from parents who specified that picnic tables that had tabletops 31 inches or higher from the ground were too high for their elementary aged children.

What would have to change about the site elements to make them more useable?

- More information about location of accessible picnic sites. Perhaps label tables with international symbol of accessibility when they meet accessibility guidelines.
- More curb cuts in various locations by popular attractions.
- More attention paid by managers to the issue of accessible tables being moved to inaccessible locations in a park.
- Provide adjustable grill surfaces that can be more easily moved up and down by a person with a disability.

APPENDIX A: INTERVIEW INSTRUMENT