

Outdoor Recreation Grant Programs Administered by the WDNR

All Terrain Vehicle Trails

Section 23.33, Wis. Stats.; Ch. NR 64, Wis. Admin. Code

Counties, cities, villages, and towns are eligible for up to 100% (including \$ per mile caps) of the costs of maintenance, development, rehabilitation, insurance, and acquisition of ATV trails and intensive use areas. Applications are due to the DNR by April 15 each year. For the 2010-11 fiscal year, over \$3.4 million was available for eligible projects through ATV registration funds and motor fuel tax funds.

ATV Enforcement Patrol

Section 23.33 (9), Wis. Stats.; s. NR 64.15, Wis. Admin. Code

County Sheriff Departments are eligible for up to 100% of their net costs (salaries, fringe benefits, travel, materials, supplies, etc.) associated with all-terrain vehicle patrols and enforcement. A county must file a Notice of Intent to Patrol form with the DNR on or before July 1 of each year. Claim forms shall be filed with the DNR on or before September 1. For the 2010-11 fiscal year, \$500,000 was available.

County Conservation Aids

Section 23.09 (12), Wis. Stats.; Ch. NR 50, Wis. Admin. Code

Counties or recognized Indian tribes are eligible for 50% of the costs of carrying out fish or wildlife management projects that enhance fish and wildlife habitat or relate to hunter/angler facilities. Applications are submitted throughout the year until funding is depleted. For the 2012-13 fiscal year, \$297,000 is available.

Federal Aid in Sport Fish Restoration

16 U.S.C. 777-777k, 64 Stat. 430 (also known as Federal Aid in Sport Fish Restoration Act)

The DNR prioritizes fisheries related projects (sport fish restoration, boating access, fishing piers) to identify projects eligible for a 75% cost share; the DNR sometimes negotiates contracts and develops use agreements with counties, villages, and towns for use of this funding for construction of boat landings and fishing piers. The amount of funding available varies depending upon excise tax revenue from fishing equipment sales and the federal gas tax.

Knowles-Nelson Stewardship Local Assistance Programs: Acquisition and Development of Local Parks

Section 23.09(20), Wis. Stats.; Ch. NR 51, subchapter XII, Wis. Admin. Code

Qualified towns, villages, cities, counties, Indian tribes, and nonprofit conservation organizations as defined under s. 23.096, Wis. Stats., are eligible for up to 50% of the costs of acquisition of land or conservation easements and development of facilities for public park and recreation areas used for nature-based outdoor recreation purposes. Applications are due to the DNR by May 1 of each year. For the 2011-12 fiscal year, \$8.0 million was available for eligible projects.

Knowles-Nelson Stewardship Local Assistance Programs: Acquisition of Development Rights

Section 23.09(20m), Wis. Stats.; Ch. NR 51, subchapter XV, Wis. Admin. Code

Qualified towns, villages, cities, counties, Indian tribes, and nonprofit conservation organizations as defined under s. 23.096, Wis. Stats., are eligible for up to 50% of the costs to acquire development rights (conservation easements) in areas where restrictions on residential, industrial, or commercial development would provide or enhance nature-based outdoor recreation. Applications are due to the DNR by May 1 of each year. For the 2012-13 fiscal year, \$800,000 is available for eligible projects.

Knowles-Nelson Stewardship Local Assistance Programs: Urban Green Space

Section 23.09(19), Wis. Stats.; Ch. NR 51, subchapter XIII, Wis. Admin. Code

Qualified towns, villages, cities, counties, Indian tribes, and nonprofit conservation organizations as defined under s. 23.096, Wis. Stats., are eligible for up to 50% of the costs of acquisition of land and conservation easements for nature-based outdoor recreation purposes that will protect open natural space and land with scenic, ecological, or natural values in urban areas. Applications are due to the DNR by May 1 of each year. For the 2011-12 fiscal year, \$1.6 million was available for eligible projects.

Knowles-Nelson Stewardship Local Assistance Programs: Urban Rivers

Section 30.277, Wis. Stats.; Ch. NR 51, subchapter XIV, Wis. Admin. Code

Qualified towns, villages, cities, counties, Indian tribes, and nonprofit conservation organizations as defined under s. 23.096, Wis. Stats., are eligible for up to 50% of the costs of acquisition of land or conservation easements and development of facilities for public park and recreation areas, including shoreline enhancements, for nature-based outdoor recreation purposes along urban waterways and riverfronts. Applications are due to the DNR by May 1 of each year. For the 2011-12 fiscal year, \$1.6 million was available for eligible projects.

Land and Water Conservation Fund (LWCF)

LWCF Act of 1965, Public Law 88-578, 78 Stat. 897; 36 CFR Ch 1, Part 59

Qualified towns, villages, cities, counties, Indian tribes, and school districts are eligible for up to 50% of the costs of acquisition of land and development of facilities for public park and recreation areas. Applications are due to the DNR by May 1 of each year. The amount of funding available varies depending upon the amount appropriated by Congress to the program within the Department of Interior's budget each year.

Municipal Water Safety Patrols State Assistance

Section 30.79, Wis. Stats.

Municipalities, tribes, inland lake rehabilitation and protection districts, and sanitary districts are eligible to receive up to 75% of the costs (salaries, supplies, and equipment) of operating a Boating Law Enforcement program, including conducting boating education programs, providing professional enforcement of boating laws and local regulations, and providing search and rescue for live persons. Applicants must file an Intent to Patrol form with the DNR on or before March 1 of each year. Claim forms shall be filed with the DNR on or before January 31. For the 2010-11 fiscal year, \$1.4 million was available.

Recreational Boating Facilities

Section 30.92, Wis. Stats.

Counties, cities, villages, towns, sanitary districts, public inland lake protection and rehabilitation districts, and qualified lake associations are eligible for up to 50% of the costs of feasibility studies and the construction of capital improvements related to the development of safe recreational boating facilities, purchase of aquatic weed harvesting equipment, purchase of navigation aids, dredging of

channels of waterways, and chemical treatment of Eurasian watermilfoil. An additional 10% may be available if a municipality conducts a boating safety enforcement and education program approved by the DNR. Projects of statewide or regional significance may be eligible for additional 30% cost-sharing assistance. Applications are due to the DNR and are reviewed and recommended quarterly by the governor-appointed Wisconsin Waterways Commission. For the 2010-11 fiscal year, over \$2.5 million was available for eligible projects.

Recreational Trails Program

The Safe, Accountable, Flexible, Efficient Transportation Equity Act - Title 23 United States Code (23 U.S.C.).

Towns, villages, cities, counties, tribal governing bodies, school districts, state agencies, federal agencies, and incorporated organizations are eligible to receive up to 50% of the costs of maintenance and restoration of existing trails, development and rehabilitation of trailside and trailhead facilities and trail linkages, construction of new trails (with certain restrictions on federal lands), and acquisition of easements or property for trails. Funds are available for both motorized and non-motorized trails. Applications are due to the DNR by May 1 of each year. The amount of funding available varies depending upon federal gas excise taxes paid on fuel used by off-highway vehicles.

Snowmobile Trail Aids

Section 23.09(26) and Ch. 350, Wis. Stats.

Counties are eligible for 100% (including \$ per mile caps) of the cost of approved trail maintenance, development, major bridge rehabilitation, and trail rehabilitation. Applications are due to the DNR by April 15 of each year. For the 2010-11 fiscal year, over \$7.3 million was available for eligible projects through snowmobile registration, motor fuel tax, and nonresident trail pass funds.

County Snowmobile Enforcement Patrols

Sections 350.12(4)(a)(4) and 20.370(4)(ft), Wis. Stats.; s. NR 50.12, Wis. Admin. Code

County sheriff departments are eligible for up to 100% of their net costs (salaries, fringe benefits, travel, materials, supplies, etc.) associated with snowmobile patrols and enforcement. A county must file a Notice of Intent to Patrol form with the DNR on or before June 1 of each year. Claim forms shall be filed with the DNR on or before June 1. For the 2010-11 fiscal year, \$396,000 was available.

Outdoor Recreation Demand Survey Methodology

This appendix describes the methods and results of the 1994-2009 National Survey on Recreation and the Environment (NSRE) which has been conducted on a continuing basis since 1994.

The National Survey on Recreation and the Environment (NSRE)

The NSRE, was conducted to discover and describe: (1) participation by Americans in outdoor recreation activities, (2) opinions concerning management of both public and private forests and grasslands, (3) the importance and value of our natural environment, (3) uses and values of wildlife and wilderness, (4) people's lifestyles, and (5) recreational trips people take away from home. The NSRE data is be used by a variety of public and private organizations for both management and research purposes.

History of the NSRE

The 1999-2004 National Survey on Recreation and the Environment (NSRE) is the latest in a series of national surveys started in 1960 by the Outdoor Recreation Resources Review Commission (ORRRC). The federal government (through ORRRC) initiated this National Recreation Survey (NRS) to assess outdoor recreation participation in the United States. Since the first survey in 1960, six additional NRSs have been conducted: 1965, 1970, 1972, 1977, 1982-83 and 1994-95. Over the years, NRS surveys have changed in their methodology, composition, funding, and sponsorship.

In the 1960 NRS, interviews were conducted in person over the four seasons of the year. In 1965, interviewing was done only in the early fall. The 1970 survey instrument was a brief supplement attached to the mailed National Fishing and Hunting Survey. The 1982 survey was conducted in person in cooperation with the National Crime Survey, and the 1977, 1994, and 1999-2002 surveys were conducted by telephone.

In 1994 the NRS was renamed the National Survey on Recreation and the Environment (NSRE). This new

name was introduced to reflect the growing societal interest and emphasis on the natural environment. Accordingly, the NSRE was expanded to include questions concerning peoples' wildlife and wilderness uses, environmental values, and attitudes regarding management issues. Additional information pertaining to the recreational needs of people with disabling conditions was also included.

The NSRE is the eighth in a continuing series of U. S. National Recreation Surveys. Although similar to previous national surveys, NSRE explores the outdoor recreational needs and environmental interests of the American people in greater depth than any previous study. The growth of the NSRE reflects the continuing interest in outdoor recreation and the natural environment.

NSRE was conducted as an in-home phone survey of over 90,000 households across all ethnic groups throughout the United States. Questions from the NSRE broadly address such issues as outdoor recreation participation, demographics, household structure, lifestyles, environmental attitudes, natural resource values, constraints to recreation participation, and public attitudes toward management policies.

The funding and responsibility of the NRS have also changed quite considerably over the years. Initially, the Outdoor Recreation Resources Review Commission, the organization which completed the first survey in 1960, recommended that subsequent surveys be completed at five-year intervals. Consistent funding and responsibility, however, were not created. From 1965 through 1977, research for the survey was done by the Bureau of Outdoor Recreation and its successor, the Heritage Conservation and Recreation Service. When both of these agencies were abolished in 1981, responsi-

bility fell to the National Park Service in the U.S. Department of the Interior (USDI). The National Park Service coordinated the development of a consortium that included itself, the Forest Service in the U.S. Department of Agriculture (USDA), the Department of Health and Human Service's Administration on Aging, and the USDI's Bureau of Land Management.

By the late 1980's, it was clear that the National Park Service could no longer assume the financial and organizational demands of such a large survey. Park Service officials therefore asked the Forest Service to assume its coordinating role for the next National Recreation Survey. The Outdoor Recreation and Wilderness Assessment Group, a part of the research branch of the Forest Service, assumed this role jointly with the National Oceanic and Atmospheric Administration (NOAA). This partnership between the Forest Service Outdoor Recreation and Wilderness Assessment Group in Athens, Georgia and NOAA has continued to the present day with the organizations holding joint responsibility for the current NSRE survey.

The present list of sponsoring agencies for the 1999-2004 NSRE effort includes the USDA Forest Service, NOAA, the USDA's Economic Research Service, the U.S. Environmental Protection Agency, USDI Bureau of Land Management, the National Park Service, the University of Georgia, and the University of Tennessee. In addition, valuable assistance and resources were also provided by the American Horse Council, the American Motorcyclist Association, the American Recreation Coalition, B.A.S.S., Inc., the Carhart Wilderness Training Center, the Corps of Engineers, the Forest Service (specifically the Carhart Wilderness Training Center, Ecosystem Management Coordination, recreation staff, the Rocky Mountain Research Station, and Wildlife staff), the Motorcycle Industry Council, the National Association of Recreation Resource Planners, the National Association of State Outdoor Recreation Liaison Officers, the National Environmental Education & Training Foundation, the Natural Resources Conservation Service, the Outdoor Recreation Coalition of America, the Rails-to-Trails Conservancy, the Recreation Vehicle Industry Association, the Snow Sports Industries of America, the U.S. Orienteering Federation, and the Wilderness Society.

Instrumentation

The NSRE is not one survey but several smaller versions of surveys combined. For instance, each version of the NSRE consists of approximately five modules of questions. In each version of the NSRE, one module of questions always pertains to people's participation in recreation activities and a second module always pertains to their social-demographic characteristics (i.e., age, income, education level, etc). The three remaining modules of questions in each version could pertain to a myriad of topics from wilderness use, environmental opinions, attitudes to land management policies, wildfires, private lands, etc. Each version of the NSRE has a target of 5,000 completed interviews. Once these interviews have been collected, a new version of the NSRE (with a recreation participation, demographic, and three other modules) is constructed and conducted. Please see appendices for Version 18 of the NSRE (the Wisconsin survey).

Survey Methods

Computer-Aided Telephone Interviewing System (CATI):

The CATI system has two primary functions: (1) it facilitates the dialing and interviewing process of the NRSE; and (2) it manages the administrative functions associated with interviewing. For each interview, the CATI system randomly selects numbers for an interviewer, who then instructs the computer to dial that number.

The phone numbers for the NSRE survey were obtained from Survey Sampling, Inc (SSI). SSI updates and validates their inventory of phone numbers regularly, ensuring that all interviews are currently valid. SSI provided the NSRE with a random-digit-dial (RDD) sample using a database of "working blocks." A block is a set of 100 contiguous numbers identified by the first two digits of the last four numbers (e.g., in number 559-4200, "42" is the block). A block is termed to be working if one or more listed telephone numbers are found in that block. Numbers are generated from all eligible blocks in proportion to their density of listed telephone households. As numbers are pulled, they are marked as used and are not available again during a nine-month period. Once numbers are selected, they are entered into the computer-aided telephone interviewing system (CATI).

Once the CATI system has randomly selected and dialed a telephone number, the interviewer explains the survey, its main purpose, and the name of the research laboratory conducting the survey (Presser, Blair, &

Triplett, 1992). The interviewer then inquires how many people in the household are 16 years or older, and asks to speak to the person 16 or older who had the most recent birthday (Link & Oldendick, 1998; Oldendick, Bishop, Sorenson, & Tuchfarber, 1988). Upon reaching an appropriate person and receiving agreement to an interview, the interviewer reads the survey questions as they appear on the computer screen. Using a computer to control the survey, skip patterns are executed as intended, responses are within range, there are no missing data, and data entry occurs as the survey is administered. As responses are fed through the programmed data entry and management system, they are reviewed to assure they are within the permissible range of values and missing data problems are resolved. If no person is contacted or an answering machine is obtained, the interviewer enters a code (e.g., busy or no answer). If the timing of the call is inconvenient, a call back is scheduled for another date and time (Presser et al., 1992).

Sampling

Sampling was designed to sample across the country's populations and regions, providing a minimum number of interviews for each state so that individual state reports on participation across all activities could be generated and so that reliable estimates of activity participation could be computed for activities with less than a 10% national participation rate. To achieve these objectives, an initial sampling strategy for a national sample of 50,000 completed interviews was developed. The strategy combined proportional nationwide population sampling aiming for 29,400 completed interviews and a quota sample (i.e., 65% urban, 25% near urban, and 10% rural). 400 interviews were distributed to each state, totaling 20,600 completed interviews. The remaining 40,000 completed interviews were obtained using a national sampling strategy. Sampling occurred throughout the year(s) during which the NSRE was being conducted to minimize seasonal recall bias to the extent possible. For the 1,400 additional completed interviews collected in version 18 (i.e., the Wisconsin survey), a random statewide sampling strategy was employed.

General Overview of Methods Used to Maximize Response Rates and Control for Non-Response Bias

Carefully Design, Test, and Revise the Survey Contents

In order to maximize response rates, the NSRE phone survey was carefully designed and refined through careful attention to input from experienced phone interviewers at the University of Tennessee. Wording and ordering of questions was designed to ease flow, maximize interest in the questionnaire subject matter and maintain consistency over time.

Scheduling Callbacks

In order to maximize the opportunity of interviewing an eligible member of an eligible household, each eligible number was attempted a minimum of 15-20 times at various time intervals of the day and on different days of the week. To minimize respondent burden and encourage full involvement in the survey, each person was asked, "Is this a good time to answer a few questions or would another time be better for you?" The Computer Aided Telephone System (CATI) facilitated the scheduling of callbacks at a specific time if requested by the respondent. The computer managed the database of telephone numbers so that scheduled callbacks were distributed to the first available interviewer at the designated time and date.

Training

Interviewer training was a vital part of achieving maximum response rates. All interviewers underwent intensive and detailed training to ensure a high level of familiarity and practice with the survey. Each interviewer was monitored regularly for quality control purposes and additional training was provided as needed.

Minimize Language Barriers

In order to maximize response rates, the NSRE was also administered in Spanish.

Interviewers screened for Spanish-speaking people at the beginning of the survey and transferred them to a Spanish-speaking interviewer as needed.

Meet AAPOR Quality Standards

Similar surveys repeated over a five-year period at the Human Dimensions Research Lab used the same methods as the NSRE and have been shown to produce very reliable results. (See Table B-1 for the contact, cooperation, and response rates for the NSRE 2000 survey).

Response rates were calculated using the definitions of response rates established by the American Association of Public Opinion Research. The Lab followed the code of ethics set by the American Association of Public Opinion Research and upheld AAPOR quality standards. Adherence to ethics and quality standards were crucial to maintaining interviewee confidence and achieving adequate response rates.

Attempt to Convert Refusers

To help deal with non-response, a random sample of immediate (“soft refusals,” including those who hung up immediately) and a sample of those not ever contacted were selected at the end of each version. These samples of refusals and non-contacts were limited to those for which an address could be obtained. Residents of these households were sent an explanatory letter indicating the nature of the survey and its importance. The letter notified the household that a further callback would be made to solicit their participation. Their numbers were then attempted again, and the results of completed surveys from converted refusers were compared with the results from those who accepted the survey during the first round of calling. Any significant differences between acceptor and refuser/non-contact responses to the primary variables of this study, i.e., recreation participation rates, were compared. If there were sufficient sample sizes for developing independent estimates of refuser/non-contact activity participation rates, weighting ratios were also calculated. These weights were used to adjust estimates of acceptor activity participation rates for analysis and reporting.

Weight to Correct for Over or Under Representation of Population Strata

Survey respondents were weighted so that their distribution across socio-demographic strata mirrored the distribution of the U. S. population across the same strata. This is a widely accepted, non-controversial and necessary method for addressing non-response issues. The weights computed and applied to the NSRE 2000-04 survey were small, indicating good sample distribution from the 19-20% response rates attained (see response rates in Table B-1 and a comparison of sample and population distributions in Table B-2). In addition, NSRE 2000-04 estimates of participation rates were generally in the same range of the estimates obtained from the 1994-95 NSRE. In neither survey did non-response bias seem to be significant. A sizeable number of referred journal articles have been published using both the 1995

and 2000-04 NSRE surveys and in all cases peer reviews were favorable and the articles accepted.

The U.S. Census Bureau advised that the civilian non-institutionalized population was the best estimated population distribution for validating telephone-sampling frames. Table B-3 compares the percentage distributions of the civilian non-institutionalized population aged 16 and older based on Census Bureau estimates with the NSRE sample distributions for Versions 1 through 6. Strata included sex, race/ethnicity, age, education level, and urban/rural residence. Response rates were higher for females, non-Hispanic whites, and for those ages 25-34, 45-54, and 55-64. Response rates were slightly lower for those aged 35-44. Response rates were generally higher among those with higher levels of education. Differences between urban/rural strata were more related to intentional over-sampling (to meet different research needs) than to differences in response rates.

Weighting Based on Multiple Regression Estimates of Coefficients

The primary approach to weighting and adjusting estimated marine recreation participation was development of multivariate models where estimated coefficients were used as weights for sex, race/ethnicity, and age strata. Results are summarized in Table B-3. Since the survey was designed so that, for some applications (modules), a version could be a stand-alone survey, there were constraints on how many cells could implement using multivariate weighting. For education level and urban/rural residence, multiplicative weights were utilized.

Table B-4 shows the effects of sample weighting of marine recreation activities. Comparison of the unweighted and weighted sample estimates of participation rates shows the potential extent of over- or under-representation of samples on estimated participation rates. Of the 19 activities/settings shown, 11 were corrected for over-representation, 7 were corrected for under-representation, and one remained uncorrected because sample and population percentages were the same. Given the small differences between weighted and unweighted estimates, it was concluded that the sample distribution generally represents the distribution of the population. However, weighting was undertaken as one means for adjusting for potential non-response bias. The large sample sizes of the NSRE help make this approach to sample weighting more reliable.

Table B-1: Types of Response Rates for NSRE 2000–04

Type		ALL – Version 1 thru Version 13
Response Rate 1	$I/(I+P) + (R+NC+O) + (UH+UO)$	0.191868
Response Rate 2	$(I+P)/(I+P) + (R+NC+O) + (UH+UO)$	0.200296
Response Rate 3	$I/((I+P) + (R+NC+O) + e(UH+UO))$	0.192627
Response Rate 4	$(I+P)/((I+P) + (R+NC+O) + e(UH+UO))$	0.201088
Cooperation Rate 1	$I/(I+P)+R+O)$	0.210388
Cooperation Rate 2	$(I+P)/((I+P)+R+O))$	0.219629
Cooperation Rate 3	$I/((I+P)+R)$	0.215806
Cooperation Rate 4	$(I+P)/((I+P)+R))$	0.225286
Refusal Rate 1	$R/((I+P)+(R+NC+O) + UH + UO))$	0.688781
Refusal Rate 2	$R/((I+P)+(R+NC+O) + e(UH + UO))$	0.691505
Refusal Rate 3	$R/((I+P)+(R+NC+O))$	0.697108
Contact Rate 1	$(I+P)+R+O / (I+P)+R+O+NC+ (UH + UO)$	0.911975
Contact Rate 2	$(I+P)+R+O / (I+P)+R+O+NC + e(UH+UO)$	0.915582
Contact Rate 3	$(I+P)+R+O / (I+P)+R+O+NC$	0.923001

An Additional Step for Identifying and Comparing Refusers

An additional step taken with regard to non-response effects was to include a follow-up to refusals to ask a very limited number of questions (e.g., age, sex and participation in any outdoor recreation). One could then analyze this information to suggest something about the extent of non-response bias on estimates of participation. This approach was also attempted in the 1994-95 NSRE not as a way to address non-response bias, but to reduce the burden on people that did not participate in outdoor recreation through the use of a screening question. A sample of 1,000 participants was chosen and the screening question was used. A significantly smaller proportion of people participated in outdoor recreation when the screening question was used. People did not understand the definition of outdoor recreation unless the entire list of activities was explained. Any attempt to analyze non-response bias from a sample of refusals that employs a screening question would be therefore be invalid. Significantly lower participation rates would also be expected amongst those receiving a screening question regarding outdoor recreation participation.

A similar experiment was used in NSRE 2000-04. Attempts were made to use various screening questions for different groups of activities as an alternative to going through each separate activity with every participant.

Again, the objective was to reduce burden and costs by shortening survey time. The screening question worked for boating activities (i.e., no significant differences in estimates of participation in boating), but it did not work for wildlife viewing activities (i.e., there were significant differences in participation rates for wildlife viewing using a screening question). The screening question was therefore used for boating activities, but not for wildlife viewing activities.

Our approach for addressing refusals was to ask for age and sex (recorded according to interviewer’s judgement). Analysis with respect to participation was then accomplished by relating age and sex, along with other factors, to participation. If there were different response rates by age and sex for the soft refusals sample versus the sample of complete surveys, and there was a significant relationship between age, sex, and participation in outdoor recreation, one might infer some level of non-response bias. However, the question addressed extent of the bias, a number that, as previous analysis has demonstrated, was relatively small and could be adjusted for by sample weighting. To further analyze non-response bias, two additional activity questions were used to ascertain some indication of recreation participation by soft refusals.

Table B-2: **Population and Sample Comparisons—Demographics for Weighting**

Demographic Characteristic	Census ¹	NSRE
Sex		
Male	47.8	43.6
Female	52.2	56.4
Race/Ethnicity		
White, Non-Hispanic	74.2	83.0
Hispanic	10.2	6.6
Black, Non-Hispanic	11.2	7.5
Other, Non-Hispanic	4.3	2.9
Age		
16 – 24	16.1	14.0
25 – 34	17.9	18.5
35 – 44	21.4	21.0
45 – 54	17.4	19.6
55 – 64	11.3	12.8
65 +	15.9	14.1
Education Level		
8th Grade or less	7.56	2.22
9th – 11th Grade	14.71	8.26
High School Graduate or GED	31.49	26.50
Some College or Technical School	18.17	22.80
Associate's Degree or Technical School	6.64	7.70
Bachelor's Degree	14.35	19.83
Master's Degree	4.41	8.92
Professional Degree	1.23	1.54
Doctorate Degree	0.89	1.67
Other	0.56	0.56
Urban/Rural Residence		
Urban	80.04	65.68
Rural	19.96	34.32
Total Population/Sample	206,171,709	27,854

¹ U.S. Department of Commerce, Bureau of the Census, Civilian noninstitutionalized population 16 years of older, Sept. 1999, (<http://www.census.gov>) for multivariate on sex, age and race/ethnicity.

Sample Proportionate to the Geographic and Demographic Distributions of the Population

RDD sampling was conducted proportionate to the distribution of the national population both geographically and demographically. Data was collected from a random sample of the population of individuals 16 years of age or older residing in the United States and the District of Columbia at the time of survey implementation. Sample households were selected by means of a Random Digit Dialing (RDD) technique, permitting a natural stratification of the sample by state, county, and area code (Frey, 1989; Groves and Kahn, 1979). RDD samples theoretically provided an equal probability sample of all households in the nation with a telephone access line (i.e., a unique telephone number that rings in that household only). This equal-probability sample included all households with telephones regardless of whether a phone number was published or unlisted (Lavrakas, 1987).

Response Rates

A necessary but not sufficient condition for non-response bias was that there is (are) a (some) factor(s) for which response rates in the sample were not proportional to their representation in the population surveyed. The U.S. Census Bureau advised that the civilian non-institutionalized population best represents telephone-sampling frames. Table B-2 compares the civilian non-institutionalized population years 16 and older with the NSRE 2000-04 sample for Versions 1 through 6 for sex, race/ethnicity, age, education level, and urban/rural residence. Response rates were higher for females; those who were White, not Hispanic; and those aged 25-34, 45-54, and 55-64. Response rates were slightly lower for those aged 35-44. Response rates were generally higher for higher levels of education. Differences for urban/rural were probably more related to intentional rural over-sampling than differences in response rates.

Relationship Between Sample Characteristics and Participation in Marine Recreation

Response rates for selected sample characteristics established a difference in survey response rates for several important characteristics. Table B-3 shows that these factors were also important in explaining participation in marine recreation. Table B-3 shows a summary of probit and logit equations estimated for all 19 activities/settings for which this study estimated marine recreation participation rates. Estimates of participation in marine recreation were dependent on factors for which there were biases in response rates. This finding provided suf-

cient conditions to conclude that potential for non-response bias exists.

Sample Weighting to Correct for Non Response Bias

Sample weights were constructed by first developing multivariate weights for sex, race/ethnicity and age. Since the survey was designed to allow some applications (modules), to be a stand-alone survey, some constraints were present on how many cells could be implemented using multivariate weighting. For education level and urban/rural residence, multiplicative weights were used.

For Table B-3, the following definitions apply:

AGE = Age of respondent

AGESQ = Age of respondent squared

MALE = Dummy variable for sex, 1=male 0=female

BLACK = Dummy variable for Race/Ethnicity,
1 = Black/African American, non-Hispanic (White, non-Hispanic is base or excluded category)

ASIAN = Dummy variable for Race/Ethnicity,
1 = Asian or Pacific Islander, non-Hispanic (White, non-Hispanic is base or excluded category)

NATIVE = Dummy variable for Race/Ethnicity,
1 = Native American or Native Hawaiian, non-Hispanic (White, non-Hispanic is base or excluded category)

HISPANIC = Dummy variable for Race/Ethnicity,
1 = Hispanic (White, non-Hispanic is base or reference category).

URBAN = Dummy variable for Urban/Rural residence,
1 = Urban residence and 0=Rural residence

EDUCHS = Dummy variable for Education Level,
1 = High School Graduate (those with less than a High School Graduate level of education and other in base or excluded category)

EDUCOL = Dummy variable for Education Level,
1 = Some College or College Graduate (those with less than High School Graduate level of education and other in base or excluded category)

Table B-3: Results for Selected Participation Equations for Marine Recreation

Activity	AGE	AGE SQ	MALE	URBAN	BLACK	ASIAN	NATIVE	HISPANIC	EDU CHS	EDU COL	EDU GRAD
Visit Saltwater Beaches	-*	+	-*	+	-*	-*	-*	-*	+	+	+
Visit Saltwater Watersides Besides Beaches	-*	+	+	+	-*	-*	-	-*	+	+	+
Swimming in Saltwater	-*	+	-*	+	-*	-*	-*	-*	+	+	+
Snorkeling in Saltwater	-*	-**	+	+	-*	-*	-*	-*	+	+	+
Scuba Diving in Saltwater	-*	-	+	+	-*	-*	-	-*	-	+	+
Surfing in Saltwater	-*	+	+	+	-*	+	-	-*	+	+	+
Wind Surfing in Saltwater	-	-	+	+	-	+	+	-	-*	-	+
Fishing in Saltwater	-	-*	+	-	-*	-	+	-*	+	+	-*
Motorboating in Saltwater	-	-	+	+	-*	-*	-	-*	+	+	+
Sailing in Saltwater	-*	+	-**	+	-*	-*	-	-*	-	+	+
Personal Watercraft Use in Saltwater	-*	+	+	+	-*	-	+	-**	+	+	+
Canoeing in Saltwater	-*	+	+	+	-*	+	+	-*	-*	-	+
Kayaking in Saltwater	-**	-	+	+	-*	-*	-	-*	-	+	+
Rowing in Saltwater	-*	+	+	-	-	-	+	-	-**	+	+
Water Skiing in Saltwater	-*	+	+	+	-*	-*	-	-**	+	+	+
Birdwatching in Saltwater Surroundings	+	-*	-*	+	-*	-*	-	-*	+	+	+
Viewing Other Wildlife in Saltwater Surroundings	+	-*	-*	+	-*	-*	-	-*	+	+	+
Viewing or Photographing Scenery in Saltwater Surroundings	+	-*	-*	+	-*	-*	-	-*	+	+	+
Hunting Waterfowl in Saltwater Surroundings	-*	+	+	-	-*	-*	+	-*	+	-	-

B

APPENDIX B: Outdoor Recreation Demand Survey Methodology

EDUCGRAD = Dummy variable for Education Level, 1 = Masters, Doctorate or Professional degree (those with less than High School Graduate level of education and other in base or excluded category).

‘-’ means factor is negatively related to participation.

‘+’ means factor is positively related to participation.

‘**’ means factor is statistically significant at 0.05 level of significance.

‘***’ means factor is statistically significant at 0.10 level of significance.

NOTE: *Other factors, such as household income and residence in a coastal county were other factors included in estimation equations. Those factors are not included here, but were significant in explaining participation for several marine recreation activities/settings.*

Table B-4 shows the effects of sample weighting. Comparison of the unweighted and weighted sample estimates of participation shows the potential extent of non-response bias on estimated participation rates in marine recreation. Of the 19 activities/settings, 11 would have been over-estimated using unweighted data; 7 would have been under estimated using unweighted data; and one would have been the same with weighted and unweighted data.

Table B-4: **Participation in Coastal/Marine Recreation**

Activity or Setting	Participation Rate (%) Unweighted	Participation Rate (%) Weighted ²	Over or Under Estimate ³
Visit Saltwater Beaches	31.99	30.03	+
Visit Saltwater Watersides Besides Beaches	4.50	4.50	same
Swimming in Saltwater	27.97	25.53	+
Snorkeling in Saltwater	5.80	5.07	+
Scuba Diving in Saltwater	1.46	1.35	+
Surfing in Saltwater	1.43	1.59	-
Wind Surfing in Saltwater	0.38	0.39	-
Fishing in Saltwater	10.13	10.32	-
Motorboating in Saltwater	7.93	7.11	+
Sailing in Saltwater	3.49	2.98	+
Personal Watercraft Use in Saltwater	2.39	2.57	-
Canoeing in Saltwater	0.98	1.05	-
Kayaking in Saltwater	1.51	1.33	+
Rowing in Saltwater	0.55	0.53	+
Water Skiing in Saltwater	1.03	1.15	-
Birdwatching in Saltwater Surroundings	9.13	7.17	+
Viewing Other Wildlife in Saltwater Surroundings	7.68	6.45	+
Viewing or Photographing Scenery in Saltwater Surroundings	11.01	9.19	+
Hunting Waterfowl in Saltwater Surroundings	0.32	0.33	-
Any Coastal/Marine Recreation	45.33	43.30	+

¹ Civilian Non Institutionalized Population 16 years and Older, Sept. 1999 - NSRE 2000, Versions 1-6, Sample of 27,854 Households.

² Weights included multivariate weights for Age, Race/Ethnicity and Sex and multiplicative weights for Education Level and Urban/Rural place of residence.

³ + means unweighted sample estimate of participation greater than weighted estimate and - means unweighted sample estimate of participation is less than weighted estimate.

Specific Methods Used to Maximize Response Rates and Control for Non-Response Bias

Change Introduction

- Identify Survey Sponsor

Response rates for government-sponsored surveys were reportedly higher (49% or more) than the response rates being achieved by the NSRE. The current introduction being used by the Human Dimensions Research Lab did not identify the survey as being government sponsored. Therefore, the opening statement was changed to the following:

“Hello. My name is _____ and we are calling on behalf of the United States Forest Service.”

- Increase Motivation for Survey Participation

The next statement in the introduction was shortened to spark the respondent’s interest in completing the survey. Removing the word “outdoor” encouraged those who did not participate in outdoor recreation to continue with the survey versus not completing the survey due to lack of interest. The next statement in the introduction was therefore changed to the following:

“We are asking a select sample of the public about recreation opportunities in the U.S.”

Increase Level of Detail for Recording Call Dispositions

By keeping more detailed records regarding residential household status of non-contacted phone listings, the HD Lab was able to estimate the value of e , the estimated proportion of non-contacted cases which were eligible as household residents to be respondents to the survey. This parameter was used to calculate AAPOR’s Response Rate 3. All attempts coded as no answers and busy signals for the NSRE were recorded in the past as “Non-contact” in the AAPOR response rate calculations, with no distinction of potential eligibility. Therefore, all no answer and busy signal attempts were reviewed to determine whether the number was likely a residential listing. This review enabled researchers to estimate likely residency rate for non-contacted phone listings of unknown eligibility for use in computing survey response rates (see separate spreadsheet for response rates).

Pre-notification Using Advance Letters

- Experimental Design and Sampling

Some studies have shown increases in response rates resulting from sending an advance letter notifying potential respondents that a phone contact will be attempted. Advance letters were therefore used to improve NSRE response rates. For the RDD sample drawn for the Wisconsin survey, a reverse appended was conducted that provided the names and addresses for all numbers listed in the sample. There is no way to know exactly what percent of the sample had listed addresses. An average 40% match rate of names, addresses, and numbers has been reported in other studies which, for the Wisconsin survey meant sending approximately 14,000 letters. For the approximately 40% of listings with names and addresses, response rates were calculated and compared (see separate spreadsheet).

- Advance Letter Specifications:

- Official U.S. Forest Service stationery was used to identify the survey as government sponsored. The letter was from Dr. Ken Cordell, Project Leader and Senior Scientist with the USDA Forest Service, and emphasized the importance of the study.
- Since the survey selected participants randomly from a household, the advance letter was addressed to the “John Smith Household” and the salutation greeted the “residents at the John Smith household.” The person that was randomly selected in the household to be interviewed may or may not have seen the letter.

Reducing Survey Length

The Human Dimensions Research Lab at The University of Tennessee has shown that response rates improve with shorter interviews. The Wisconsin survey was therefore limited to an average 15-minute interview time. All versions of the NSRE were submitted to extensive testing and refinement before application.

Strengthen Refusal Conversion Efforts

- Training**
 The supervisory staff of the Human Dimensions Research Lab at the University of Tennessee reviewed interviewer training materials and searched for ways to improve overall interviewer training. The highest priority was given to more intensive refusal aversion and refusal conversion training.
- Extend Data Collection Period**
 Based on the time frame for overall data collection and in order to meet agency data needs for resource planning, management and policy, extending the data collection period was difficult. However, to the maximum extent possible, extra time was budgeted near the end of the data collection period to allow a crew of interviewers to work specifically on refusal conversions. At the end of these extended time periods, improvements in response rates and costs were evaluated and approaches refined in accordance with this evaluation.
- Send Follow-up Letter to Refusals**
 For those households for which addresses were obtained, a sample of those who refused were sent a letter on Forest Service letterhead prior to re-contact. In cases where a name was obtained, the letter was also personally addressed. The letter again stressed the importance of the survey. Selection of this sample occurred at the end of each week's interviewing.

Weighting Procedures

As blocks of interviews were completed and compiled, they were examined to identify differences in demographic profiles between those surveyed and the overall population of the country as described in Bureau of Census website reports. Indeed, sufficient differences are typically found to require weighting adjustments for over- or under-sampling. Weighting was achieved using a composite of multivariate and multiplicative weights to account for age, race, gender, education, and urban/rural differences. This composite weighting helped adjust estimates of recreation participation and other NSRE estimates to better represent what those estimates would have been had the sample been truly proportionately distributed across all social strata.

This type of weighting procedure, referred to as *post-stratification* (Holt & Smith, 1979), is the most widely accepted method for adjusting sample proportions to mirror population distributions (Zhang, 2000). Post-stratification has been successfully applied in similar national surveys in the United States and other coun-

tries (Thomsen & Halmoy, 1998). For NSRE, a total of 60 strata (6 age x 2 gender x 5 race) were identified to match identical strata in the U.S. Census. Each individual strata weight, S_{wi} , is the ratio of the Census population proportion to the NSRE sample proportion:

$$S_{wi} = P_i / p_i$$

where P_i = U.S. Census proportion for strata i

p_i = NSRE 2000 sample proportion for strata i

A weight $S_{wi} > 1.0$ indicated that the particular strata was a smaller proportion of the sample than of the U.S. population based on Census estimates. Likewise, weights with a value less than 1.0 indicated that the stratum was randomly sampled in greater numbers than its proportion of the U.S. population age 16 and over. A unitary weight (i.e., no adjustment) means the sample strata was sampled at the same rate as its proportion of the population. Each individual respondent was assigned to one and only one of the 60 age-gender-race strata and thus assigned a S_{wi} for that stratum.

An additional step accounted for the sampling proportions of two other socioeconomic strata: educational attainment and place of residence (rural/urban). Weights for each of these were calculated separately in a similar fashion to the age-gender-race weight. The education weight, E_{wi} , is the ratio of Census sample proportions for nine different levels of educational attainment, ranging from "8th grade or less" to "Doctorate Degree." The residence weight, R_{wi} , is simply the ratio of the percentage of the U.S. population living either in metropolitan statistical areas or not living in these areas divided by their counterparts in the NSRE data. This weight was adjusted for the fact that urban or metropolitan residents were slightly under-sampled in the survey. A single weight, W_i , for each individual survey respondent was then calculated as the product of the three intermediate weights:

$$W_i = S_{wi} \cdot E_{wi} \cdot R_{wi}$$

The largest composite weights, therefore, were applied to respondents whose numbers were under-represented in the total sample. The smallest weights were applied to strata which were over-represented. The sample had a potential total of 1,080 (60 x 9 x 2) unique weights, with each individual assigned a weight, W_i , depending on his or her combination of the three intermediate weights.

Sources of Error

There are many potential sources of error or bias in a large survey of human subjects. The principal sources of bias for the NSRE include recall and digit preference among the response biases, and refusal, avidity, and incomplete listings among the non-response biases. As with any survey, regardless of scope or complexity, bias is a reality to be recognized and accounted for to the extent affordable through design of the sample and survey content. Brief descriptions of principal anticipated sources of bias in the NSRE are presented below.

Recall Bias

Recall bias is simply an inability of a respondent to recall accurately or to recall at all whether they participated in recreational activities, the number of activities undertaken, or the places where these activities were undertaken. There is no conclusive evidence regarding optimum recall period (one week, one month, six months, etc.) or methods of correcting recall bias. Digit preference bias is related to recall bias, but more specifically is a participation rounding bias. For example, for activities of frequent participation, such as walking or running/jogging, respondents often round to the nearest five or ten, such as 25, 30, or 40, rather than accurately reporting actual number of occasions.

Nonresponse Bias

Principal sources of nonresponse bias include avidity and incomplete phone listings. Avidity bias is the tendency of persons who do not participate or who participate only infrequently in outdoor leisure activities to refuse participation in the survey. Left unaccounted for, avidity bias can result in seriously inflated estimates of population participation rates and biased estimates of participation differences by social group. Incomplete phone listings, like any other incomplete sampling frame, can occur for many reasons. More frequently encountered reasons include institutionalization, persons not having a phone, and persons having access only to pay phones or other non-individualistic arrangements. For the NSRE, an attempt to estimate avidity and listing bias was made by asking two key questions of persons who refused the survey. Those questions were age and whether or not the respondent participated in outdoor recreation in the last twelve months. Additionally, the sex of the respondent was recorded when recognizable. The estimated proportions of non-respondents, relative to respondents, was combined with weights derived from the 2000 U.S. Census of Population to weight each observation and correct for

over- or under-representation by social group characteristics in the sample.

The NSRE included a more comprehensive listing of outdoor recreation activities than any of the previous national surveys. The activities list for the NSRE included 70 explicitly named activities. Some of these listed activities such as sightseeing and walking for pleasure have always been relatively vague. Other activities such as snorkeling and rock climbing are much more specific and have relatively precise technical definitions. Respondents were left to determine, by their own definition of the activities listed, whether or not they had participated in a given activity. For the NSRE, several new activities were listed, largely driven by newly available or improved technologies such as personal water craft, rock climbing, and orienteering. To the extent that respondents understood the activities they were being asked about, valid responses were recorded. Little guidance exists in the literature to control for this potential source of error in collecting participation data.

Sources of bias were addressed through data weighting and other approaches as necessary. For example, equally distributing a quota of 400 respondents across each of the 50 states would result in over-sampling of rural areas (e.g., 65% Urban, 25% Near Urban, and 10% Rural). This survey therefore used a sampling strategy that combined the quota of 400 per state with a proportional nationwide sample (e.g., 64.6% Urban, 27.4% Near Urban, and 8.0% Rural). Another source of potential bias is random digit dialing, which reaches a random sample of telephone numbers, rather than of people. Affluent families almost always have a telephone number (97%) while many low-income households do not have a telephone (ranging from 8 to 23% depending on geographic area). As a result, affluent people are likely to be somewhat over represented in survey samples (Bowen, 1994; Groves, 1990; Tucker, Lepkowski, Casady, & Groves, 1992). To compensate for these types of sampling biases, the NSRE data set was weighted based on comparisons with 2000 Census data.

Language barriers can also introduce bias through the exclusion of people who cannot speak either English or Spanish. According to the 2000 Census, 12.5 % of the U.S. population is Hispanic. For the non-English speaking segment of the Hispanic population, the NSRE was conducted in Spanish. The most difficult part of this process was making translation generic enough for overall comprehension by all the various Hispanic dialects. Other non-English speaking U.S. residents were excluded from the survey. The complexity of the translation and interviewing processes made interviewing in all languages prohibitively costly.

APPENDIX B: Outdoor Recreation Demand Survey Methodology

All results provided within this study are based upon the number of NSRE surveys completed at the time the analysis for this report was conducted. As of the writing of this report, data collection for the NSRE was still on-going. Obviously, as more data are collected final estimates of the percentages and numbers of people participating in different activities may change slightly from those reported in this report.

In analyzing the results presented in this report, it is important to remember that individuals were asked about their personal participation in specific recreation activities. To date, versions 1-12 of the NSRE have been completed, meaning participants have answered questions pertaining to approximately 80 outdoor recreation activities. For analysis and description of results, it was

useful to place these activities into 12 groups. For simplicity, each activity was placed in only one category although in many cases, activities could have been placed in more than one category. Hiking, for example, was classed as an individual activity, which it is for many people. For others, however, hiking might best be classed as a backpacking and camping activity.

It is also important to note that with a maximum sample of approximately 3,000 respondents in Wisconsin alone, not all combinations of social characteristics may be present in the analyses investigated in this study. Weighting of data will help compensate for this by correcting for over- or under-representation by the respondent's social group in the sample.

Activities Covered:

<p>Individual Activities: Bicycling Mountain biking Walking for exercise or pleasure Horseback riding Day hiking Running or jogging Golf Tennis outdoors Gardening or landscaping Inline skating or rollerblading Orienteering</p> <p>Snow and Ice Activities: Ice skating outdoors Sledding Snowshoeing Downhill skiing Snowboarding Cross-country skiing Snowmobiling</p> <p>Water Activities: Swimming Swimming in streams, lakes, or the ocean Swimming in an outdoor pool Snorkeling Scuba diving Visiting a beach Visiting a waterside</p> <p>Driving for Pleasure: Sightseeing Driving for pleasure on country roads or in a park 4-wheel drive, ATV or motorcycle driving off-road</p>	<p>Viewing or Photographing: Viewing, identifying, or photographing birds Viewing, identifying, or photographing fish Viewing, identifying, or photographing other wildlife Viewing, identifying, or photographing wildflowers, trees or other natural vegetation Viewing or photographing natural scenery</p> <p>Hunting: Big game Small game</p> <p>Fishing: Fishing in coldwater such as mountain rivers or streams Fishing in warm rivers and lakes Ice fishing</p> <p>Visiting Educational Sites: Visiting a nature center, nature trail, visitor center, or zoo Attending outdoor concerts, plays, or other outdoor performances Visiting prehistoric structures or archaeological sites Visiting historic sites, buildings, or monuments Visiting a farm or other rural land setting</p> <p>Traditional Activities: Gathering of family/friends Picnicking</p> <p>Outdoor Team Sports: Soccer outdoors Handball, racquetball, or squash outdoors Yard games—horseshoes, badminton, croquet, frisbee Attending outdoor sporting events as a spectator</p>	<p>Boating/Floating/Sailing: Sailing Canoeing Kayaking Rowing Motor boating Water skiing Personal water craft such as jet skis and wave runners Rafting, tubing, or other floating activities Surfing</p> <p>Outdoor Adventure Activities: Exploring caves Backpack camping on trails Camping at developed sites Camping at primitive sites Visiting a wilderness or other primitive roadless area Gathering mushrooms, berries, firewood, or other natural products Mountain climbing Rock climbing</p> <p>Activities Particular to the Wisconsin Survey Hunting upland birds Fishing in a Great Lake</p>
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Recreation Activity Intensities

Calculations for caloric expenditures are based on a 30-minute duration and three different body weights: 160lbs (73kg), 180lbs (82kg), and 200lbs (91kg). These weights were chosen based on a standard BMI table and are the weights at which an individual is con-

sidered obese given heights of 5'1", 5'5", and 5'8" respectively. Since one goal of the 2011-2016 Wisconsin SCORP is to improve public health by increasing physical activity, obesity weights are important to include in these calculations.

Table C-1: Recreation Activity Intensities, Caloric Expenditures by Body Weight, Appropriate Location, and Participation Rates

Recreation Activity	METs		Calories Burned			Location			Available Year-Round	Participation		
	MET Code	Vigorous (>6) Moderate (3-6) Light (<3)	160 lbs. 30 min. duration	180 lbs. 30 min. duration	200 lbs. 30 min. duration	Nature-Based	Urban-Based	Both		Participation % 1994-1995	Participation % 2005-2009	% Change in Participation 1994-2009
Inline skating (rollerblading)	15591	12.5	455	511	568		X			N/A	2.50	N/A
Rock climbing, ascending rock	15535	11.0	400	450	500	X				2.5	3.8	78.0
Orienteering	15480	9.0	327	368	409	X			X	1.4	1.6	31.7
Running, cross-country, jogging	12140	9.0	327	368	409	X			X	20.7	32.1	80
Mountain biking or BMX	01009	8.5	309	348	386	X				N/A	30.7	N/A
Handball, general	15330	8.0	291	327	364		X			2.5	23.5	993.3
Rock climbing, rappelling	15540	8.0	291	327	364	X				2.5	3.8	78
Mountain climbing	17120	8.0	291	327	364	X				1.4	2.7	130.6
Bicycling, general	01015	8.0	291	327	364			X	X	38.3	48.7	47.4
Skiing, cross-country	19090	8.0	291	327	364	X				9.2	8.8	11.3
Snowshoeing	19190	8.0	291	327	364	X				N/A	6.1	N/A
Ice hockey outdoors	15360	8.0	291	327	364		X			N/A	N/A	N/A
Volleyball outdoors, beach	15725	8.0	291	327	364			X		16.5	23	60.7
Football, touch, flag, general	15230	8.0	291	327	364		X			7.3	18.9	201.7
Backpacking	17010	7.0	255	286	318	X				4.8	7.4	79.1
Canoeing, moderate effort	18050	7.0	255	286	318	X				13.1	17.9	58.5
Rowing, moderate effort	18050	7.0	255	286	318	X				6.1	7.2	36.6
Scuba diving	18200	7.0	255	286	318	X				N/A	1.1	N/A
Sledding	19180	7.0	255	286	318			X		18.3	28.2	78.3
Ice skating outdoors	19030	7.0	255	286	318		X			12.9	13.5	21.6
Dog sledding	19180	7.0	255	286	318	X				1.1 ¹	N/A	N/A
Tennis outdoors	15675	7.0	255	286	318		X			10.5	8.5	-6.6
Racquetball, casual, general	15530	7.0	255	286	318		X			2.5	23.5	993.3
Soccer, casual, general	15610	7.0	255	286	318		X			4.6	32.4	715.2

¹ Participation based on 1999-2004 NSRE



APPENDIX C: Recreation Activity Intensities

Table C-1: Recreation Activity Intensities, Caloric Expenditures by Body Weight, Appropriate Location, and Participation Rates

Recreation Activity	METs		Calories Burned			Location			Available Year-Round	Participation		
	MET Code	Vigorous (>6) Moderate (3-6) Light (<3)	160 lbs. 30 min. duration	180 lbs. 30 min. duration	200 lbs. 30 min. duration	Nature-Based	Urban-Based	Both		Participation % 1994–1995	Participation % 2005–2009	% Change in Participation 1994–2009
Hiking, general	17080	6.0	218	245	273	X			X	24.4	36.7	74.2
Hunting, big game	04080	6.0	218	245	273	X			X	16.6	18	25.8
Hunting, migratory bird	04110	6.0	218	245	273	X			X	2.7	4.1	72.1
Paintball	12010	6.0	218	245	273	X				6.6 ¹	N/A	N/A
Swimming in lakes, streams, etc.	18300	6.0	218	245	273			X		42.7	41.7	13.3
Waterskiing	18150	6.0	218	245	273			X		9.3	13	53.5
Skiing, downhill	19160	6.0	218	245	273	X				10.2	7	-20.7
Snowboarding	19160	6.0	218	245	273	X				2	3.7	111.6
Basketball, general	15050	6.0	218	245	273		X			9.2	16.1	102.2
Hunting, small game	04120	5.0	182	205	227	X			X	11.3	11.3	16.5
Rafting	18370	5.0	182	205	227	X				10	9.2	6.4
Snorkeling	18210	5.0	182	205	227	X				5	6.3	44.8
Kayaking	18100	5.0	182	205	227	X				1.2	7.3	604.7
Skateboarding	15580	5.0	182	205	227		X			2.6 ¹	N/A	N/A
Baseball	15620	5.0	182	205	227		X			8.9	3.1	-59.5
Softball	15620	5.0	182	205	227		X			14.4	7.1	-42.9
Golf	15255	4.5	164	184	205		X			22.9	41.8	111.8
Gardening, general	08245	4.0	145	164	182		X			N/A	65.4	N/A
Horseback riding, general	15370	4.0	145	164	182	X				3.6	8.7	179.9
Swimming, moderate effort, pool	18350	4.0	145	164	182			X		43.3	34.5	-7.6
Walking for pleasure	17160	3.5	127	143	159			X	X	76.9	87.7	32.1
Snowmobiling	19200	3.5	127	143	159	X				10.2	18.3	108.5
Geocaching	17190	3.3	0	0	0			X	X	2.0 ¹	N/A	N/A
Visit a dog park to walk a pet	17165	3.0	109	123	136		X		X	12.4 ¹	N/A	N/A
Fishing, general, warm water	04001	3.0	109	123	136			X	X	33.3	33.2	15.4
Sailing	18120	3.0	109	123	136			X		4	3.9	12.7
Windsurfing	18220	3.0	109	123	136			X		1.3	1.1	-8
Surfing	18220	3.0	109	123	136	X				0.3	1	332
Disc golf, Frisbee, general	15240	3.0	109	123	136		X			8.8 ¹	N/A	N/A
Camping – moderate effort	09100	2.5	91	102	114	X				25	25.4	17.9
Off-road motorcycling	16030	2.5	91	102	114	X				5.9 ¹	N/A	N/A
Off-road driving with an ATV	16030	2.5	91	102	114	X			X	23.4 ¹	N/A	N/A
Yard games	15160	2.5	91	102	114		X			43.4	44.7	19.3
Target shooting	04130	2.5	91	102	114	X			X	20.2 ¹	N/A	N/A
Boating, power boat	18010	2.5	91	102	114			X		32.8	36	26.8
View/photograph birds	17085	2.5	91	102	114			X	X	32.5	41.7	48.8
Visit a wilderness or primitive area	09105	2.0	73	82	91	X			X	N/A	33.7	N/A
Visit a farm or agricultural setting	09105	2.0	73	82	91	X			X	N/A	35.3	N/A

¹ Participation based on 1999-2004 NSRE



Table C-1: Recreation Activity Intensities, Caloric Expenditures by Body Weight, Appropriate Location, and Participation Rates

Recreation Activity	METs		Calories Burned			Location			Available Year-Round	Participation		
	MET Code	Vigorous (>6) Moderate (3-6) Light (<3)	160 lbs. 30 min. duration	180 lbs. 30 min. duration	200 lbs. 30 min. duration	Nature-Based	Urban-Based	Both		Participation % 1994–1995	Participation % 2005–2009	% Change in Participation 1994–2009
Off-highway vehicle driving	16010	2.0	73	82	91			X	X	13.1	19.8	75.2
Driving for pleasure	16010	2.0	73	82	91			X	X	N/A	52.8	N/A
Visit outdoor theme/water park	09105	2.0	73	82	91		X			37.6 ¹	N/A	N/A
Ice fishing	04060	2.0	73	82	91			X		12.8	13.1	18.9
View/photograph natural scenery	09105	2.0	73	82	91	X			X	N/A	65.3	N/A
Visit nature centers, etc.	09105	2.0	73	82	91	X			X	64.9	63.5	13.4
Visiting a waterside	09105	2.0	73	82	91	X	X		X	N/A	22.6	N/A
View/photograph other wildlife	09105	2.0	73	82	91	X			X	40.7	57.9	64.6
Sightseeing	09105	2.0	73	82	91			X	X	61.7	50.6	-5
View/photograph wildflowers	09105	2.0	73	82	91	X			X	N/A	52.4	N/A
Visit historic sites	09105	2.0	73	82	91			X	X	44.1	46.7	22.7
Gather mushrooms, berries, etc.	09105	2.0	73	82	91	X			X	N/A	42.8	N/A
View/photograph fish	09105	2.0	73	82	91	X			X	16	26.7	93.8
Visit prehistoric/archeological sites	09105	2.0	73	82	91	X			X	15	15.5	19.4
Nature-based educational programs	09105	2.0	73	82	91	X			X	16.3 ¹	N/A	N/A
Boat tours or excursions	09105	2.0	73	82	91			X		N/A	13.9	N/A
Visiting a cave	09105	2.0	73	82	91	X			X	4.3	2.6	-28.9
Family gathering	09100	1.5	55	61	68			X	X	70.4	63.5	4.5
Picnicking	13030	1.5	55	61	68			X		55	47	-1
Attend outdoor concerts, plays, etc.	09115	1.5	55	61	68		X			35	32.8	8.5
Attend outdoor sports events	09115	1.5	55	61	68		X		X	51.4	65	46.5

¹ Participation based on 1999-2004 NSRE



The 2011–2016 Wisconsin Statewide Comprehensive Outdoor Recreation Plan

SCORP

Health and Outdoor Recreation Summary Descriptive Statistics

Table D-1: **Variables Used in the Models and their Names, Descriptions, and Sources**

Variable Name	Abbreviation	Description	Source
Premature Death	PD	Age-adjusted years of productive life lost before the age of 75 (YPLL-75) rate per 100,000 persons	National Vital Statistics System, 2005-2007
Adult Obesity	AO	Percentage of population reporting a body mass index ≥ 30	Behavioral Risk Factor Surveillance System, 2008
Mental Health	MH	Average number of reported mentally unhealthy days per month (age adjusted)	National Center for Health Statistics, using Behavioral Risk Factor Surveillance System data from 2003-2009
Bachelor Degree	BS	Percentage of population with a bachelor degree	Census 2000
High School Diploma	HS	Percentage of population without a high school diploma	Census 2000
Income	INC	Median household income	Census 2000
Black or Hispanic	BOH	Percentage of population identified as Black or Hispanic	Census 2000
% Senior	SEN	Percentage of population aged 65 or older	Census 2000
# Parks	PARK	Total number of public parks	Wisconsin SCORP Inventory, 2005
Miles of Trails	TRAIL	Total mileage of non-winter recreation trails	Wisconsin SCORP Inventory, 2006
% Walking access	WALK	Percentage of population living within 1/2-mile walk of a public park	Author calculation (Outhavong 2011)

Table D-2: **Summary Descriptive Statistics for Variables in the Dataset (72 Wisconsin Counties)**

Variable	Mean	Median	Mode	SD	Range	Minimum	Maximum	Morans I
PD	6354.17	6131.10	0.00	1259.41	7704.30	4200.10	11904.40	0.16***
AO	27.71	28.05	28.10	1.24	6.40	23.90	30.30	-0.04
MH	2.94	2.85	2.68	0.72	3.85	1.49	5.34	0.14***
BS	11.98	10.90	9.40	4.01	19.10	6.50	25.60	0.24***
HS	16.15	16.15	15.90	3.67	16.80	7.80	24.60	0.12**
INC	40420.90	38783.00	0.00	7101.58	33399.00	29440.00	62839.00	0.56***
BOH	2.79	1.30	1.10	4.58	32.70	0.40	33.10	0.34***
SEN	0.15	0.15	0.16	0.03	0.15	0.09	0.23	0.39***
PARK	71.01	40.50	33.00	84.84	606.00	1.00	607.00	0.24***
TRAIL	93.92	85.50	66.00	76.10	381.00	0.00	381.00	0.124**
WALK	11.43	6.80	0.00	14.74	60.10	0.00	60.10	0.403***

*** significant at the $p < .01$ level

** significant at the $p < .05$ level

D

APPENDIX D: Health and Outdoor Recreation Summary Descriptive Statistics

Table D-3: Explanatory Models Using Public Health and Wellness as Dependent Variable

	OLS			Spatial Lag		
	PD	AO	MH	PD	AO	MH
AO	186*		-0.023	210**		-0.012
BS		-0.26***			-0.25***	
HS	69*		0.07**	76**		0.06*
INC	-0.11***		0	-0.10***		0
BOH	59*	0.052*		60**	0.051*	
SEN	-7149	-5.7	1.35	-8464**	-5.1	0.97
PARK	0.62		0.001	0.61		0
TRAIL	-0.05		0	-0.03		0.002
WALK		0.005			0.002	
Adj R ²	0.56	0.50	0.02	0.61	0.53	0.12

*** significance at the p<.01 level

** significance at the p<.05 level

* significance at the p<.10 level

Table D-4: Explanatory Models Using Recreation Supply as Dependent Variable

	OLS		Spatial Lag	
	PARK	TRAIL	PARK	TRAIL
PD	-0.002	0.0029	0.01	0.0025
AO				
MH				
BS				
HS	-8.57**	-7.94***	-8.56**	-7.94**
INC	0.001	0.001	0.003	0
BOH	10.01***	4.61**	10.47***	4.68**
SEN	-95	-110	-67	-103
Adj R ²	0.48	0.24	0.52	0.30

*** significance at the p<.01 level

** significance at the p<.05 level

* significance at the p<.10 level

Park & Recreational Designs, and Recreation Supply Levels (by Urban Peer Groups)

Classification of Parks and Recreation Areas (on the basis of their service areas):

Mini Park

1. Definition Summary:

A play lot or playground provides space for parental supervised recreation of toddlers and young children within a neighborhood, or as part of a larger neighborhood or community park and urban center, including retail shopping areas.

2. Size Objectives:

0.5 to 1.5 acres.

3. Service Area Objectives:

Generally within a neighborhood of a half mile radius or population of 2,000-3,000. Mini parks may be included in parks that serve a larger population or service area.

4. Location Objectives:

Located in protected areas with separation from street traffic and high visibility; serving local neighborhoods and adjoining schools, libraries, or police and fire facilities.

- *Population Ratio to Acreage:* .25 to 0.5 acre per 1,000 population to achieve a park unit size that serves 2,000 to 3,000 people.

5. Space, Design, and Service Area:

The size of a play lot or playground may range from as small as 2,500 sq. ft. to 1.5 acres.* Amenities offered by these facilities generally include sand play areas, play apparatus, play equipment, and other special child-oriented features. The service radius for these parks in terms of distance from population served is limited to less than a quarter mile, or within a super block space, unless the playground is incorporated into a larger park.

6. Orientation:

Small geographic areas, sub-neighborhoods, or neighborhoods, when combined with a larger park unit.

Serves youth ranging in age from toddler to 12 years, with adult supervision. Playgrounds also serve important needs in city business districts and inner city areas where a mix of commercial and recreation activity is desired.

7. Function:

Provides outdoor play experiences for youth under parental supervision. Generates neighborhood communication and provides diversion from work and domestic chores. Promotes neighborhood solidarity.

Neighborhood Park

1. Definition Summary:

A neighborhood park, by size, program, and location, provides space and recreation activities for the immediate neighborhood in which it is located. It is considered an extension of neighborhood residents' "out-of-yard" and outdoor use area.

2. Size Objectives:

5 to 25 acres.

3. Service Area Objectives:

Generally a one mile radius, but actually defined by collector street patterns which form the limits of a neighborhood or recreation service area. Population served may range from 2,000 up to 5,000.

4. Location Objectives:

Centrally located for equitable pedestrian access within a definable neighborhood service area. Adjoining or adjacent to an elementary, middle school or high school, fire station, or library, if possible.

5. Program Objectives:

Compatible with the neighborhood setting and park site constraints. Generally includes the following facilities, which are determined with public input as to use and activities:

- a. Parking for 10 to 20 vehicles.
 - 1) On-street parking is acceptable if negative impact to residential units can be mitigated. On-site parking is preferable as a planning objective.
 - 2) Bike racks with Class II trail connections where possible.
- b. Restrooms
 - 1) Men's restroom with 2 water closets, 2 urinals, 2 lavatories.
 - 2) Women's restroom with 3 water closets and 2 lavatories.
 - 3) Utility and minimum park janitorial storage space.
- c. Tot lot/children's play area
- d. Family event/group picnic facility
- e. Informal family picnic area with benches and tables
- f. Unstructured turf grass play area/play or practice field for children, young adults, and families.
- g. Sport facilities—compatible with neighborhood setting and park site constraints.
 - 1) Basketball—half court, full court, or tri-court configuration
 - 2) Volleyball area
 - 3) Softball field/soccer practice or game overlay
 - 4) Other features as needs or site conditions allow

6. Orientation:

Serves all age groups, with an emphasis on youth and families in neighborhood settings.

7. Function:

To provide a combination of active recreation and passive activities, both outdoor and indoor facilities, and special features as required or needed.

8. Space, Design, and Service Area:

A minimum size of 5 to 25 acres with amenities including sports facilities, picnic areas, swim facilities, cultural activities, arts, crafts, and individual passive activities. The park should primarily serve a defined neighborhood area population of 2,000-5,000. Distance from this neighborhood will vary depending on urban development pattern, zoning, and densities in the respective neighborhoods being served. Efforts should be made to allow easy pedestrian access to the park.

Community Park

1. Definition Summary:

A community park, by size, program, and location, provides space and recreation activities for a defined service area, the entire city, or significant geographic segment of the city's population.

2. Size Objectives:

Usually more than 25 acres.

3. Service Area Objectives:

Generally a 2 to 5 mile radius within the city and adjacent neighborhoods outside of city limits.

4. Location Objectives:

Centrally located if planned to serve a particular geographic segment of the city. Located adjoining or immediately adjacent to a collector street providing community-wide vehicular access, thereby reducing neighborhood traffic impacts. Connected with Class II on-street and/or off-street community trail and bike lane system. Adjoining or adjacent to an elementary, middle, or high school if possible.

5. Program Objectives:

Elements that fulfill the service area, park facilities and recreation program demands. The following facilities may be compatible with community setting and park site constraints:

- a. Off-street parking calculated to satisfy demand of park and recreation activities provided. Includes bike racks and a public transit station at the site as well as both on-site and street parking.
- b. Restrooms designed to accommodate the level of park and recreation activities provided and the number of people served. Restrooms should be located within a reasonable walking distance from children's play equipment and other high-use areas.
- c. Community recreation center
- d. Park maintenance and equipment storage building
- e. Tot lot/children's play area
- f. Group picnic shelters
- g. Family picnic facilities
- h. Sport/recreation facility fulfilling the overall city demand

Appropriate program elements include:

- 1) Community pool/water feature
- 2) Soccer fields
- 3) Softball, little league baseball, junior pony league baseball

- 4) Football
- 5) Roller hockey/skateboard area
- 6) Tennis courts
- 7) Basketball courts
- 8) Amphitheater/performing arts center
- 9) Volleyball (indoor and outdoor)
- 10) Jogging trails
- 11) Other facilities as desired and as permitted under park site plan
- 12) Concessions (food and beverage)

6. Orientation:

Multi-purpose service area or community-wide recreation resource serving most or all of the population.

7. Function:

Provides opportunities for a diverse mix of indoor and outdoor recreation, including walking and bicycling, outdoor performances, various programmed and non-programmed field sports, swimming, and special events.

8. Space, Design, and Service Area:

The minimum space for a community park is 15 acres. Facilities typically provide for some sports activities, though emphasis is on passive cultural and community centers with recreational programming and organized activities. The community park may serve populations within a 2 to 5 mile radius, a scope that would allow residents of other communities to use the park as well.

Special Use Park

1. Definition Summary:

A special use park is often designed as a revenue-generating enterprise created to satisfy demand for a particular sport, recreational activity, or special event. A special use park may also be a sports park combined with enterprise activities and administered as a community recreation resource.

2. Size Objective:

The actual size of a special use park is determined by land availability and facility/market demand for special uses or recreation programs.

3. Service Area Objectives:

Community or area-wide and determined by the type of recreation program, special events or use activities.

4. Location Objectives:

Determined by the property opportunity, service area and size objectives.

5. Program Objectives:

Special use parks require facility programming that is user- or market-driven and based on community needs or economic and service principles for public and private partnerships. The magnitude and type of special use facilities may include:

- a. Water play park
- b. Amphitheater
- c. Festival/swap meet/farmers market
- d. League/individual sports complex
- e. Fitness/entertainment center
- f. Skateboard/in-line hockey park
- g. Recreation programs and classes

6. Orientation:

Provides recreation programming, sports and special event attractions and activities for all age groups.

7. Function:

Special events, fairs, festivals, expositions, symposiums, sports, community gatherings, ethnic/cultural celebrations, plays and numerous other recreational programs and activities.

8. Space, Design, and Service Area:

The minimum size for special parks varies depending on intended use and programming.

School Park

1. Definition Summary:

By combining the resources of two public agencies, the school park classification allows for expanding the recreational, social, and educational opportunities available to the community in an efficient and cost-effective manner.

Depending on the circumstances, school park sites often complement other community recreation or open lands. As an example, an elementary/middle school site could also serve as a neighborhood park. Likewise, middle or high school sports facilities could do double duty as a community park or as youth athletic fields. Depending on its size, one school park site may serve in a number of capacities, such as a neighborhood park, youth athletic fields, and a location for recreation classes. Given the inherent variability of type, size and location, determining how a school park site is integrated into a larger park system will depend on case-by-case circumstances. The important outcome in the joint-use relationship is that both the school district and park system benefit from shared use of facilities and land area.

2. Size Objective:

The optimum size of a school park site depends on its intended use. The size criteria established for neighborhood park and community park classifications may apply.

3. Service Area Objectives:

Neighborhood park and community park classifications criteria should be used to determine school park functions and area served. For planning purposes, the degree to which school lands, including buildings or facilities, meet community needs depends on the specific inter-local agreements formed.

4. Location Objectives:

The location of a school park site will be determined by the school district based on district policy. Coordinated city and school district planning allows for siting, acquisition, and facility development to be responsive to community needs. Service areas for school park sites will depend on the type of use and facilities provided.

5. Program Objectives:

The criteria established for neighborhood parks and community parks should be used to determine how a school park site is developed and programmed. If athletic fields are developed at a school park site, they should, where feasible, be oriented toward youth rather than adult programs. Establishing a clearly defined joint-use agreement between involved agencies is critical to making school park relationships workable. This is particularly important with respect to acquisition, development, maintenance, liability, use, and programming of facility issues.

The orientation of school park projects is typically for neighborhood and community recreation services. The functions may include sports, recreation classes, passive recreation activities, and other recreation programs suitable to an elementary or secondary education school.

County Park

1. Definition Summary:

A county park provides sufficient park and recreation area to meet the needs of county residents. County parks consist of land that is specifically set aside for active and passive recreation uses, and that accommodates large gatherings, special events, and individual users. County parks offer a wide variety of compatible outdoor recreation activities, and may provide areas that do not primarily serve a recreational purpose such as protected natural areas, historic areas, and special use areas.

2. Size Objectives:

The size of recreation parks varies greatly from park to park, but with the exception of those parks that serve a special use or are trail corridors, a recreation park should consist of a minimum of 100 acres of land. Each park should be of sufficient size to accommodate the estimated use and to allow for the operation and maintenance of planned recreational facilities.

3. Service Area Objectives:

County parks provide for a regional user group and serve primarily county residents. Special facilities like camping and trails are also used by tourists and visitors to the county.

4. Location Objectives:

The land should have high recreational potential and be able to withstand intensive and extensive recreational activities. Land should have potential to accommodate large groups of people. Land for corridors should be located so as to connect to communities, parks, and open spaces. The potential for future land acquisition should be taken into account.

5. Program Objectives:

Development should be appropriate for intended use and should accommodate moderate to high use. Development and planning should consider the physical condition and characteristics of the land and recognize potential environmental or structural limitations that might require intensive maintenance. County parks may include the following facilities:

- a. Camping/group camping
- b. Picnic areas
- c. Recreational trails (hiking, bicycling, mountain biking, equestrian, cross-country ski, snowmobile, etc.)
- d. Play areas
- e. Swimming beaches
- f. Water access
- g. Fishing access
- h. Shelters
- i. Restrooms
- j. Shower facilities
- k. Sport fields (basketball, volleyball, softball, etc.)
- l. Pet exercise area

6. Orientation:

Multi-purpose service area and regional recreation resource serving a significant portion of a county or multi-county population.



7. Function:

To provide sufficient parks and recreation areas to meet the needs of the people of the county.

8. Space, Design, and Service Area:

The size of a county park should be a minimum of 100 acres. Facilities vary by park; some parks offer active recreation (camping, recreational trails, etc.), while others provide passive recreation (scenic look-outs, picnic areas, beaches, etc.). Most parks provide both active and passive recreation. County parks provide for a regional user group and serve primarily county residents, though special facilities also serve tourists and visitors to the county.

State Forest

1. Definition Summary:

A state forest consists of well blocked areas of state-owned lands which are managed to benefit present and future generations of residents, recognizing that forests contribute to local and statewide economies and to a healthy natural environment. State forests practice sustainable forestry. The management of state forests is consistent with the ecological capability of state forest land and with the long-term goal of maintaining sustainable forest communities and ecosystems. Benefits of maintaining these ecosystems include soil protection, public hunting, protection of water quality, production of recurring forest products, outdoor recreation, native biological diversity, aquatic and terrestrial wildlife, and aesthetic value. The range of benefits provided in each state forest reflect its unique character and position in the regional landscape.

2. Size Objectives:

Typically between 1,000 and 250,000 acres, but can be larger or smaller.

3. Service Area Objectives:

Generally a 100 mile radius. State forests typically provide close-to-home recreational areas. Day users typically travel approximately 50 miles one-way to reach state forests, while overnight users tend to travel further, approximately 100-150 miles one-way. Travel to state forests can, however, exceed 160 miles for longer vacation stays and travel to “destination areas.”

4. Location Objectives:

Areas with large blocks of land.

5. Program Objectives:

State forests must meet ecological, economic, social, and cultural needs. Elements are compatible with the natural resource setting and park site constraints. Facilities may include the following:

Current Level of Supply:

Hiking trails	1,256 acres per linear mile of trail
Cross-country ski trails	2,551 acres per linear mile of trail
Snowmobile trails	639 acres per linear mile of trail
Equestrian trails	559 acres per linear mile of trail
ATV trails	1,795 acres per linear mile of trail
Camping sites	1 campsite per 265 acres

6. Orientation:

Multi-purpose service area and regional recreation resource serving a significant portion of a state or regional population.

7. Function:

To provide for nature conservation, provide income to forest owners, supply raw materials to the wood processing industry, and provide public recreation.

8. Space, Design, and Service Area:

The size of a state forest is determined by the extent of the area’s natural resources and recreation capabilities. There is no minimum or maximum size for a state forest. Facilities are not universal and vary by forest. The geographic location of the forest and the natural resources present dictate recreation available at the site. State forests serve large geographic areas of a state or region.

State Park

1. Definition Summary:

A state park, by size, program, and location, provides space for outdoor recreation and education about nature and conservation. These parks serve a significant geographic segment of a state or regional population. State parks aim to preserve, protect, interpret and enhance the scenic and cultural resources of the state.

2. Size Objectives:

Parks must be large enough to accommodate a reasonable mix of outdoor recreational activities. Typically, parks are between 500 and 3000 acres, but can be smaller (<20 acres) or larger (>10,000 acres).

3. Service Area Objectives:

Generally a 100-mile radius. State parks typically provide close-to-home recreational areas. Day users generally travel approximately 50 miles one-way to reach

state parks, while overnight users tend to travel further, approximately 100-150 miles one-way. Travel distances to state parks can often exceed 160 miles for longer vacation stays and trips to “destination areas.”

4. Location Objectives:

Siting of Wisconsin State Parks is typically based on five criteria developed by John Nolen. These criteria are: 1) large size to serve a large number of citizens, 2) accessibility to major population areas, 3) a healthful, natural setting, 4) reasonable cost for land acquisition, 5) land possessing “decidedly uncommon charm and beauty.” All, or a combination of these criteria are used to determine where to site a state park.

5. Program Objectives:

Elements that fulfill the service area, park facilities and recreation program demands. Elements are compatible with the natural resource setting and park site constraints. Developments may include the following facilities:

Current Level of Supply:

Hiking trails	196 acres per linear mile of trail
Surfaced bicycle trails	860 acres per linear mile of trail
Mountain bike trails	549 acres per linear mile of trail
Nature trails	1,871 acres per linear mile of trail
Cross-country ski trails	430 acres per linear mile of trail
Snowmobile trails	426 acres per linear mile of trail
Equestrian trails	400 acres per linear mile of trail
Picnic sites	0.05 acres per picnic table
Camping sites	1 campsite per 29 acres
Parking stalls	Year-Round = 1 stall for every 3 visitors
Swimming beaches	17 linear feet per 1,000 users

5. Orientation:

Multi-purpose service area and regional recreation resource serving a significant portion of a state or regional population.

6. Function:

To provide for public recreation and education of conservation and nature study. To preserve, protect, interpret and enhance the scenic and cultural resources of the state.

7. Space, Design, and Service Area:

The size of a state park is determined by the extent of the area’s natural resources and recreation capabilities. There is no minimum or maximum size for a state park. Facilities are not universal and vary by park. Some parks offer active recreation (camping, boating, mountain biking trails, hunting etc.), while others offer passive recreation (scenic lookouts, picnic areas, beaches, etc.). Most provide both active and passive recreation. The geographic area and the natural resources present dictate recreation uses and facilities present in the park. State parks serve large geographic areas of a state or region.



Recreation Supply Data by Peer Group

Using population thresholds defined in Table 4-2 as the criteria, Wisconsin cities and villages were divided into four peer groups with at least 10 municipalities in each group. Through comparisons between like-sized com-

munities with similar recreation demand, an indexed level of recreation supply by peer group can be used to assess the distribution of recreation supply within each group.

Table E-1: Peer Groups by Population Threshold of Municipalities Found in Select Wisconsin Counties Defined as Urban

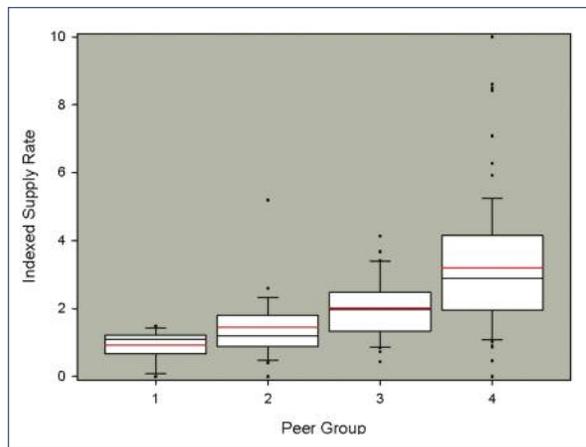
Peer Group 1 (45,000–150,000)	Peer Group 2 (20,000–45,000)	Peer Group 3 (10,000–20,000)	Peer Group 4 (1,000 to 10,000)		
City of Appleton	City of Beloit	Village of Allouez	City of Altoona	Village of Kimberly	City of Ripon
City of Eau Claire	City of Brookfield	Village of Ashwaubenon	Village of Bayside	Village of Kohler	Village of River Hills
City of Green Bay	City of De Pere	City of Baraboo	Village of Big Bend	Village of Lake Delton	Village of Rothschild
City of Janesville	City of Fitchburg	Village of Brown Deer	City of Brillion	City of Lake Mills	Village of Sauk City
City of Kenosha	City of Fond du Lac	City of Cedarburg	City of Burlington	Village of Lannon	Village of Saukville
City of La Crosse	City of Franklin	City of Fort Atkinson	Village of Butler	Village of Maple Bluff	City of Schofield
City of Oshkosh	City of Greenfield	Village of Germantown	City of Chilton	Village of Marshall	City of Seymour
City of Racine	City of Manitowoc	Village of Grafton	Village of Combined Locks	Village of McFarland	City of Sheboygan Falls
City of Sheboygan	Village of Menomonee Falls	City of Hartford	Village of Cottage Grove	City of Milton	Village of Shorewood Hills
City of Waukesha	City of Mequon	Village of Howard	Village of Cross Plains	City of Monona	Village of Silver Lake
City of Wauwatosa	City of Muskego	City of Kaukauna	Village of Darien	City of Mosinee	Village of Slinger
City of West Allis	City of Neenah	Village of Little Chute	Village of DeForest	Village of Mount Horeb	City of St. Francis
	City of New Berlin	City of Marshfield	City of Delafield	Village of Mukwonago	Village of Sturtevant
	City of Oak Creek	City of Menasha	City of Delavan	Village of Nashotah	Village of Sussex
	City of Stevens Point	City of Middleton	Village of Dousman	City of Nekoosa	Village of Thiensville
	City of Sun Prairie	City of Oconomowoc	Village of East Troy	City of New Holstein	Village of Twin Lakes
	City of Superior	City of Onalaska	City of Edgerton	City of New London	Village of Union Grove
	City of Wausau	City of Pewaukee	City of Elkhorn	Village of N. Fond du Lac	City of Verona
	City of West Bend	Village of Pleasant Prairie	Village of Elm Grove	Village of North Prairie	Village of Wales
		Village of Plover	City of Evansville	City of Omro	Village of Walworth
		City of Port Washington	Village of Fontana-on-Geneva Lake	Village of Oostburg	Village of Waterford
		Village of Shorewood	Village of Fox Point	Village of Oregon	City of Waterloo
		City of Stoughton	Village of Hales Corners	Village of Paddock Lake	Village of Waunakee
		City of Two Rivers	Village of Hartland	Village of Pewaukee	City of Waupun
		City of Watertown	Village of Holmen	City of Plymouth	Village of West Salem
		Village of Weston	Village of Howards Grove	Village of Port Edwards	Village of Whiting
		City of Whitewater	City of Jefferson	Village of Prairie du Sac	Village of Williams Bay
		City of Wisconsin Rapids	Village of Kewaskum	Village of Pulaski	Village of Wind Point
			City of Kiel	City of Reedsburg	

Findings from Urban Peer Group Comparisons of Recreation Supply

Results of the Peer Group Comparisons of Recreation Supply assessment have been summarized using box and whisker plots below. These graphics present a variety of summary statistics that capture the variability of the data within and between peer groups. In all figures, indexed values are represented by dots. The red line represents each peer group’s mean (average) value, the black line represents the peer group’s median value, the bottom and top of each box represent each peer group’s 25th and 75th percentile, respectively, and the whisker ends represent each peer group’s 10th and 90th percentile.

Figure E-1 shows an index of non-school equipped playground facilities by peer group.

Figure E-1: **Urban Wisconsin Peer Group Summary Statistics for Non-School Equipped Playground Facilities per 1,000 Residents**

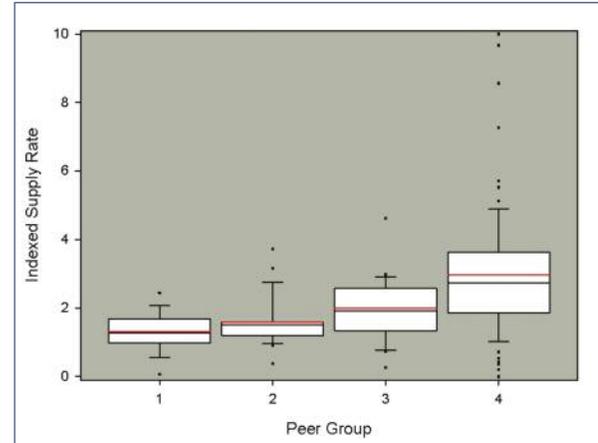


(DNR data for 145 municipalities of population greater than 1,000 within the 24 counties classified as being more than 50 percent urban; red line indicates peer group mean, black line is median, box edges represent 25th and 75th percentiles, and whisker ends indicate 10th and 90th percentiles.)

This data shows the indices for non-school equipped playground facilities varied widely, with clear peer group differences. Results suggest that smaller population centers (peer group 4) had generally higher indexed levels of playground facilities on a per capita basis, while larger population centers (peer group 1) had lower levels of playground facilities on a per capita basis.

Data describing the number of parks within community boundaries shows similar trends. These summary statistics are shown in Figure E-2.

Figure E-2: **Urban Wisconsin Peer Group Summary Statistics for Number of Parks per 1,000 Residents**

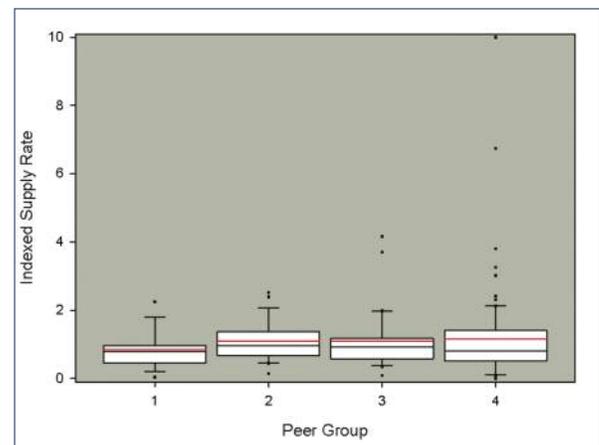


(DNR data for 145 municipalities of population greater than 1,000 within the 24 counties classified as being more than 50 percent urban; red line indicates peer group mean, black line is median, box edges represent 25th and 75th percentiles, and whisker ends indicate 10th and 90th percentiles.)

Again, peer group comparisons on a per capita basis suggest important differences. In general, smaller communities (peer groups 3 and 4) tend to have a higher number of parks per capita when compared to larger communities (peer groups 1 and 2).

The total acreage of urban parks on a per capita basis is outlined in Figure E-3. While not as dramatic as data presented in Figures E-1 and E-2, per capita data for urban park acreage does suggest that smaller population centers have higher park acreages. However, mean park acreages between peer groups do not suggest significant differences.

Figure E-3: **Urban Wisconsin Peer Group Summaries for the Acreage of Parks per 1,000 Residents**



(DNR data for 145 municipalities of population greater than 1,000 within the 24 counties classified as being more than 50 percent urban; red line indicates peer group mean, black line is median, box edges represent 25th and 75th percentiles, and whisker ends indicate 10th and 90th percentiles.)



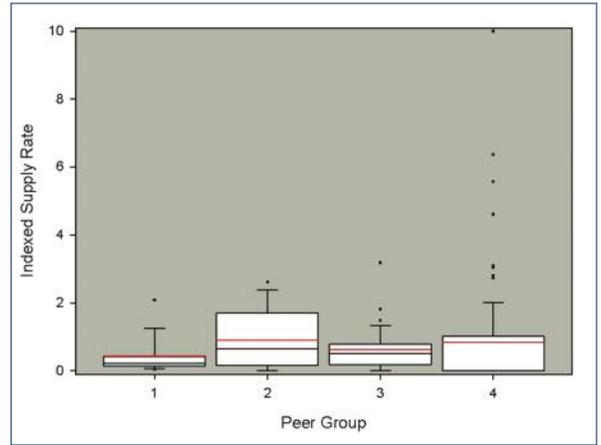
Trails, a central element of community recreation plans, are found in communities across the state. Trails serve as important connections between green spaces and public parks, as well as transportation corridors that encourage non-motorized travel. This analysis looked only at bike and hiking trails, but further research is needed on this topic, particularly for walking trails. Sidewalks are an important outdoor recreation component not captured in this analysis.

Sidewalks in many locations can also serve as local bicycle paths, particularly for young children. Bicycle trail length on a per capita basis is presented in Figure E-4.

Note from Figure E-4 that while variation exists in the maximum indexed level of bike trails across peer groups, few significant differences are shown between peer groups in mean or median values.

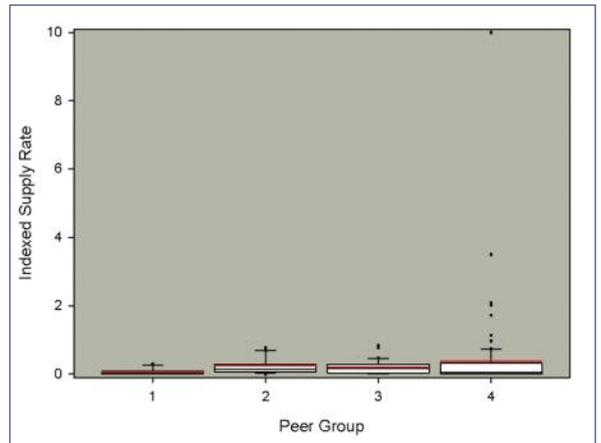
Very similar results for hiking trails are suggested by the summary statistics presented in Figure E-5. Based on this data, there are no significant differences in per capita hiking trails across peer groups.

Figure E-4: Urban Wisconsin Peer Group Summaries for Bicycle Trail Length per 1,000 Residents



(DNR data for 145 municipalities of population greater than 1,000 within the 24 counties classified as being more than 50 percent urban; red line indicates peer group mean, black line is median, box edges represent 25th and 75th percentiles, and whisker ends indicate 10th and 90th percentiles.)

Figure E-5: Urban Wisconsin Peer Group Summaries for Hiking Trail Length per 1,000 Residents



(DNR data for 145 municipalities of population greater than 1,000 within the 24 counties classified as being more than 50 percent urban; red line indicates peer group mean, black line is median, box edges represent 25th and 75th percentiles, and whisker ends indicate 10th and 90th percentiles.)



APPENDIX E: Park & Recreation Designs, and Recreation Supply Levels (by Urban Peer Groups)

The 2011–2016 Wisconsin Statewide Comprehensive Outdoor Recreation Plan



Guidelines for the Development of Local Comprehensive Outdoor Recreation Plans

Introduction

A prerequisite to participation in outdoor recreation grant programs is the adoption and subsequent DNR acceptance of a local comprehensive outdoor recreation plan. This requirement can be found in Chapter NR 50, Wisconsin administrative code for the following programs: Federal Land and Water Conservation Fund Program (LWCF), Aids for the Acquisition and Development of Local Parks (ADLP), Urban Green Space Program (UGS), and Urban Rivers Grant Program (URGP).

This document was prepared to help local units of government develop comprehensive park and recreation plans that will do the following: 1) guide them in acquiring and developing public outdoor parks and recreation facilities, and 2) insure that plans meet the minimum requirements for participation in both state and federal programs.

Planning occurs at several different levels. Comprehensive planning is an overall survey of the existing facilities within a given jurisdiction, and it gives rec-

ommendations for future improvements. A comprehensive outdoor recreation plan (CORP) is only the first step in the development of a recreational park site or system.

Being aware of other planning efforts from other agencies, municipalities, and non-profit organizations during the comprehensive outdoor recreation planning process enables your community to consolidate recreation, resource management, and development efforts for an area, region, or state. Communities may find it easier and more economical to implement the CORP recommendations when coordinated with other plans.

Master planning, which follows the recommendations of the comprehensive plan, is an overall view and analysis of an existing or proposed park area. The purpose is to guide the orderly development of a park or recreational facility.

Site planning is the detailed plan of how an area within a park or recreation area will be developed. Site plans supply the construction details needed to develop a facility recommended in the master plan.



Local Comprehensive Outdoor Recreation Plans

What Are Plans?

Local comprehensive outdoor recreation plans will vary in complexity depending on the size and population density of the municipality. It is unrealistic to expect a small township in northern Wisconsin to complete a plan as complex as one done by a densely populated municipality in southeastern Wisconsin. However, no matter how complex a plan is, it must contain a few basic elements if it is to be effective as a planning tool. The following outline includes the minimum requirements for all plans to gain eligibility to participate in funding programs.

Non-profit conservation organizations (NCOs) are eligible to participate in the Knowles–Nelson Stewardship Program under the Urban Green Space and Aids for the Acquisition and Development of Local Parks programs. NCOs may adopt or carry

APPENDIX F: Guidelines for the Development of Local Comprehensive Outdoor Recreation Plans

out recommendations from a comprehensive outdoor recreation plan of the local unit of government in which the NCO project is located or use their land management plans that are required for participation in the stewardship programs.

What Does A Plan Consist Of?

The following outline lists the required components needed for an approved plan. There is no order or format required for a plan; in fact, communities are encouraged to improvise and develop their own unique plan.



- | | | |
|---|---|--|
| <ul style="list-style-type: none"> I. Copy of the adopted resolution or minutes approving the comprehensive outdoor recreation plan II. Table of contents III. Statement of need and parameters that the plan will establish IV. Goals and objectives V. Definitions <ul style="list-style-type: none"> A. Terms B. Classifications VI. Planning process <ul style="list-style-type: none"> A. Description of process B. Amending the plan VII. Summary of past comprehensive outdoor recreation plans VIII. Description of the planning region <ul style="list-style-type: none"> A. Social characteristics of municipality/planning region <ul style="list-style-type: none"> 1. Size 2. Population trends and projections 3. Ethnic background 4. Employment/unemployment 5. Age 6. Economy | <ul style="list-style-type: none"> B. Physical characteristics of the region <ul style="list-style-type: none"> 1. Topography 2. Water Resources 3. Climate 4. Soils 5. Flora and fauna IX. Outdoor recreation supply inventory <ul style="list-style-type: none"> A. Natural resources available for outdoor recreation <ul style="list-style-type: none"> 1. Developed 2. Undeveloped B. Outdoor recreation facility inventory <ul style="list-style-type: none"> 1. Number of sites 2. Types of park/recreation areas 3. Facilities available at sites 4. Current condition of park/recreation areas and facilities on sites C. Accessibility for persons with disabilities X. Outdoor recreation needs assessment <ul style="list-style-type: none"> A. Public input assessment <ul style="list-style-type: none"> 1. Informal 2. Citizen committees 3. Public meetings and workshops 4. Needs assessment surveys | <ul style="list-style-type: none"> B. Needs standards <ul style="list-style-type: none"> 1. Recreation open space 2. Recreation facilities C. Statewide Comprehensive Outdoor Recreation Plan (SCORP) XI. Recommendations for outdoor recreation provision <ul style="list-style-type: none"> A. Action program—capital improvement schedule (CIS) B. Operation and maintenance <ul style="list-style-type: none"> 1. Existing operation and maintenance responsibilities 2. Implications of CIS on operation and maintenance capabilities C. Funding programs <ul style="list-style-type: none"> 1. Local funds 2. Available grant funding programs XII. Appendix: supporting data, tabular data, graphs, maps, tables |
|---|---|--|

In-depth Look at Plan Components

I. Formal Plan Approval

Obtain approval for your local comprehensive outdoor recreation plan from the local governing body. Each local government must include a copy of the resolution of adoption or minutes from the meeting adopting the plan. Communities included in the county outdoor recreation plan must also submit documentation indicating that they have adopted the county comprehensive outdoor recreation plan.

II. Table of Contents

Include this section to give the reader a sense of how the plan was developed and show where the major points of information are located by chapter and page.

III. Introduction

Provide a general statement that briefly discusses the reason for a comprehensive outdoor recreation plan and what your community will accomplish with the plan. This statement could include the major points of what your plan will accomplish.

IV. Goals and Objectives

List the goals and objectives you expect your plan to produce or write a mission statement to cover the goals and objectives of your plan and state the philosophy of your park and recreation program.

V. Definitions

A. TERMS:

Define the terms used to describe programs, facilities, and recommended actions proposed by the plan.

B. CLASSIFICATIONS:

Define the list of standards used to describe facilities recommended by your plan. These classifications usually correspond to the National Recreation and Park Association's recreation, park, and open space standards guidelines.

VI. Planning Process

A. DESCRIPTION OF PROCESS:

Give a brief description of the sequence of events that took place during the development of the comprehensive outdoor recreation plan. Include landmark dates (e.g., public meetings, inventory gathering periods, draft plan presentation dates, etc.).

B. AMENDING THE PLAN:

Plan amendments are common and should be considered part of the planning process. They fre-

quently represent good implementation or plan usage and should be acceptable for consideration by local decision-makers. Amendments must follow the same process as the original plan and should be outlined in this section. Amendments generally prolong the effectiveness of the parent plan.

VII. Summary of Past Comprehensive Outdoor Recreation Plans

Review the history of outdoor recreation planning in your jurisdiction to help the reader comprehend the present outdoor recreation situation and to support the recommendations for action made in the plan.

VIII. Description of the Planning Region

A. SOCIAL:

Discuss social factors that are important to understanding your community and its recreation needs and potential. These may include but are not limited to the following: the size of the population; its geographic, age, sex, racial, and ethnic distribution; location of concentrations of minorities or senior citizens; number of disabled residents; and socioeconomic levels including employment and unemployment. Discuss population trends and projections over the planning period. Include tables that provide information on population trends and age characteristics.

Note: Population projections for all municipalities are done each year by the following state agencies: Department of Administration, Department of Revenue, and Department of Development. In addition, population projections and other technical services are provided by county or regional planning commissions serving your area.

B. PHYSICAL:

Provide a discussion of the physical factors in the community and region that are important to understanding your community and its recreation needs and potentials. These may include topography, water resources, climate, soils, environmental problems and concerns, and transportation systems. Maps displaying these features should be provided when available. A good inventory will point out environmentally sensitive areas, which may be targeted for protection or avoided for construction sites.

By recognizing trends in social and physical characteristics in your planning area, recreation facilities can be designed for maximum use. For exam-

ple, a playground should be sited in any area with a large concentration of children as well as appropriate soils for construction. Remember, major features such as rivers or traffic arteries will influence the distances needed to travel in order to use recreational facilities.

IX. Outdoor Recreation Supply Inventory

A. NATURAL RESOURCES AVAILABLE FOR OUTDOOR RECREATION USES:

Include a list of all areas available to the residents of a municipality for recreation purposes. List open space areas that have the potential to provide recreation opportunities whether they are currently available for public use or not. This inventory should include information on the size of the parcel, name of the park if so dedicated, current ownership, public access points, present use, and future options.

B. OUTDOOR RECREATION FACILITY INVENTORY:

Provide a detailed listing of all the facilities available to the residents of the municipality or planning region, including number of sites, types of park/recreation areas, facilities available at sites, current condition of park/recreation areas, and facilities on sites. This inventory can be general in nature, concentrating on major facilities such as softball diamonds, tennis courts, shelter buildings, restrooms, etc., or it can be a detailed listing of general as well as specific facilities such as picnic tables, grills, bike racks, etc.

C. ACCESSIBILITY GUIDELINES:

Assess the existing recreational facilities for accessibility to persons with disabilities. Communities that seek grant funds have an extra incentive to conduct an accessibility evaluation because the priority ranking system provides additional credit to sponsors who include the process in their planning program. Persons with training in accessibility issues (including a good understanding of the Americans with Disabilities Act and Barrier Free Design Standards) should be consulted when conducting an evaluation of a community.

In addition to a survey of what is available, the community should include a program of compliance for facilities that do not comply with accessibility requirements. For example, if five restroom buildings in the community need improvements to make them barrier free, the plan should include a remodeling schedule. A second example would be to make accommodations so that a hearing

impaired child could attend a playground storytelling event.

Include definitions and guidelines in an appendix to give a better understanding of what is needed to implement the barrier free facility plan.

X. Outdoor Recreation Needs Assessment

Do a needs assessment to discover your community's most crucial recreational opportunities. En route to discovering the exact needs of the community, many other things can be accomplished by conducting a needs assessment, such as the following:

- Citizens' opinions of how recreation services are being delivered.
- Types of programs and facilities wanted, programs and facilities currently being used, and programs being avoided.
- Support levels for new facility and program proposals as well as for proposals on user fees, operating hours, and recreation marketing programs.

Generally, there are two basic methods for conducting a needs assessment: public input and recreation standards. Often both are used in varying degrees to gain the most accurate picture of community needs. Following is a description of each method:

A. PUBLIC INPUT METHODS FOR CONDUCTING NEEDS ASSESSMENTS:

Public participation is an important element when planning your community's park and recreation system. After all, the public will be using the parks. What better way to learn local demands than by involving the general public in the planning process? How to elicit your community's needs is really up to you. What you are looking for is guidance from the people who will be using your recreational facilities. The following four public input methods are often used to assess needs within a community. Choosing the one, or combination, that best suits your community's needs will be based on available staff, time constraints, and financial resources.

1. INFORMAL:

Rather than ask for citizen input, this system records questions and suggestions as they arise. As can be expected, the more vocal citizens and special interest groups will dominate in this type of assessment. Still, this approach has merit because it is important to consider the needs and demands of special interest groups.

2. **CITIZEN COMMITTEES:**

Citizen committees act as a liaison between the public and the decision makers. In many communities, prevailing park and recreation boards serve as the citizen committee as well. Boards representing constituents reflect a number of opinions concerning recreation policies and issues. When developing brief surveys, this type of committee helps to gain general impressions of the public's need.

It is important to establish a committee that represents the entire population of the municipality. Such a committee may include senior citizens, minority groups, disabled persons, community leaders, etc. An ideal committee consists of both citizens and elected officials. Citizens can provide needed public input and opinion while the elected officials can help muster political support in the latter stages of plan adoption and implementation.

3. **PUBLIC MEETINGS AND WORKSHOPS:**

Public meetings and workshops are the most common method for measuring citizen needs. They offer the advantages of being relatively inexpensive and they allow for important dialogue between the public and the decision makers of the municipality. A major drawback of this method is that it can be extremely time consuming and therefore not as helpful when working under a strict time deadline.

One very simple, yet productive technique for gathering opinions from public meetings is known as the modified nominal group process. In this process the public workshop is divided into small discussion groups. Each participant of the group is asked to answer a general question regarding park and recreation issues such as, "In your opinion what problems or issues must be solved to provide adequate recreation for this community in the next five years?" After allowing approximately 15 minutes for thought, the participants are asked to list their answers. Each answer is recorded on a large sheet of paper by a designated group leader. Once all the issues have been recorded, they are ranked by the group in order of importance. After all groups have completed their discussions, they reconvene and present their findings to each other. The final task is to establish the top ten issues of the whole group.

This process effectively generates many ideas from just one workshop. Also, it has the advantage of representing a cross-section of residents from the municipality or planning region.

4. **NEEDS ASSESSMENT SURVEYS:**

These can be the most valuable methods for obtaining citizen opinion on recreation needs, problems, and issues within a municipality or planning region. Unfortunately, if not done properly, needs assessment surveys can produce misleading or useless data.

Using any one or a combination of the methods listed above will help a municipality gain insight to the recreation needs and demands of the general public. Needs are then prioritized as high, medium, or low priority. It becomes important to compare projected needs against existing facilities. It is possible that needs established by the general public may not represent real deficiencies in recreation provisions for a municipality. Often, public issues and concerns stem from nothing more than a lack of information on the subject. For this reason it is important to compare existing open space areas and facility developments against a set of standards set up to help measure a park system's adequacy.

B. RECREATION NEEDS STANDARDS:

The standards system is another method of assessing a community's recreation needs. The National Recreation and Park Association (NRPA) developed standards to provide a scale against which the existing recreation system can be measured. Standards can be used to create guidelines for future needs.

Typically, standards link acreage to the community's population or link the number of facilities to the population. In addition, service area standards are also used to determine recreation needs.

1. **STANDARDS FOR RECREATION OPEN SPACE:**

A community's open space needs are generally assessed using space standards. Space standards are the most widely used and common measure of a recreation system's adequacy. Total park and recreation space is normally expressed as a ratio of acres per population. Standards based on population can be helpful in assessing current and future open space needs and demand for the community. However, because a community may meet open space standards and still be deficient in park facilities, it is important to look at facility standards as well.

2. **STANDARDS FOR RECREATION FACILITIES:** Facility standards are similar to space standards because they are expressed in facility units per population ratio. The purpose of evaluating a recreation system from a facility viewpoint, in addition to an open space viewpoint, is to determine the amount of needed facility development in each recreation area.

Problems related to using facilities standards can be seen in the assumption of desired opportunities by the resident population. For example, a tennis court is needed based on the municipality's population. In reality, it is possible that very few people in the community enjoy playing tennis, which eliminates the need for this type of facility.

In addition to the population-based standards discussed above, it can be useful to analyze a community's recreation needs according to service areas. This can be done for both open space needs and for facility needs. Each park and facility type will serve a geographical area of a certain radius. A drawback to this type of standard is that it does not take into account citizen preferences and barriers resulting from the natural and man-made physical landscape.

In general, it should be noted that population and service area standards assume that the needs and wants of individuals are similar in all areas to which the standards are applied. Service area standards assume upon reaching some threshold, an increase in the quantity of facilities results. Age, income, and education all contribute to people's recreational preferences, yet standards ignore these variables. Another problem with using standards is that they have been developed primarily for urban communities and have limited application to rural areas.

Despite these problems, standards have a place in recreation planning. Community leaders can use them to approximate of the adequacy of their park systems. The best advice is to use them cautiously and they should not be the only criteria used to develop a needs assessment. The public input methods described earlier can be used to determine priorities and perceived needs within the community. Standards can then be applied to the prioritized needs. By combining these two methods, it should be possible for a community to determine their most important

recreation needs during the planning period. The next step will be to develop recommendations that highlight the community's plan for meeting the needs.

XI. RECOMMENDATIONS FOR OUTDOOR RECREATION PROVISION

Base local government recommendations for the implementation of outdoor recreation on the results of the supply inventory, needs assessment, and SCORP findings. These recommendations should address two elements: 1) an action plan for future park acquisition and development and 2) a program for future operation and maintenance of the community's park system.

A. ACTION PROGRAM:

Provide an action plan that solves or reduces deficiencies in a community's recreation system. A good plan will identify the actions needed to be taken, where, by whom, and in what time frame. These actions can be identified by formulating a capital improvement schedule (CIS).

A CIS details anticipated acquisition and development for at least a five year period based upon the needs assessment. For each item listed in the CIS, indicate which year(s) in which the improvement will take place and its location within the park system. Clearly describe the improvement, estimate its cost, and provide a cost breakdown per anticipated funding source.

B. OPERATION AND MAINTENANCE:

1. Examine the operation and maintenance responsibilities of the existing park system and review the implications of the capital improvement schedule (CIS) on your community's future operation and maintenance capabilities. Many communities jump head-first into ambitious recreation developments with little, if any, attention to operation and maintenance expenses. Communities often construct excellent facilities, only to have serious problems keeping them open for public use.
2. A municipality's park system operation and maintenance costs should be organized in a schedule or calendar form. List all work required on a property for each year, by season. Break the list down to individual work items and, below each work item, list the tasks required to complete the work item. The next step is to estimate how much time is required between each task. A final step is to indicate

cost estimates for each task, including staffing costs to operate and maintain the park system.

Most successful communities will prioritize major maintenance projects for their facilities and incorporate the projects into a five year CIS. It would be wise to look beyond a five year project planning calendar and anticipate major facility needs, which usually occur beyond the five year period.

C. FUNDING PROGRAMS:

1. Identify existing and potential funding sources for the comprehensive outdoor recreation plan in order to show how implementation of the plan will impact the community and to show what level of investment is required to satisfy the community's needs.
2. A wide base of financial support can be built into the comprehensive outdoor recreation plan through the identification and pursuit of potential funding sources. Funding sources can come in a variety of forms (local bonds, donations, and state and federal grants and loans). Information for finding funding sources can be obtained from the regional DNR community service specialist.

XII. APPENDIX

Use this section to display your supporting data, tabular data, graphs, maps, and tables.

DNR Acceptance

After a local government adopts the plan, it is then submitted to the appropriate regional community service specialist (CSS) for acceptance. The community service specialist evaluates the plan and if it meets specifications, a letter granting five years of eligibility is mailed to the local government. Communities are encouraged to send a draft plan to their regional community service specialist for review before submitting the final plan. If a plan does not meet DNR specifications, the CSS will document the deficiencies in a letter to the local unit of government. A revised plan can then be resubmitted.



The 2011–2016 Wisconsin Statewide Comprehensive Outdoor Recreation Plan



Lands Managed by the State of Wisconsin

Table G-1: **State of Wisconsin Managed Lands in Acres**

County	State Forests	Wild and Scenic Rivers	Natural Areas	State Parks	State Fishery Areas	State Wildlife Areas	Other	Total
Adams	—	—	7,609	492	1,511	7,471	640	17,723
Ashland	756	—	324	5,958	409	7,523	122	15,092
Barron	60	—	—	343	1,185	6,183	47	7,818
Bayfield	49	—	11,755	—	11,212	952	214	24,182
Brown	—	—	170	517	143	2,413	95	3,339
Buffalo	—	—	417	399	22	13,166	—	14,004
Burnett	15,256	—	—	251	3,941	51,802	222	71,472
Calumet	—	—	42	1,277	14	10,569	18	11,920
Chippewa	—	—	177	6,879	1,897	3,136	45	12,134
Clark	224	—	—	—	163	495	1	883
Columbia	—	116	648	531	1,776	19,872	22	22,966
Crawford	—	8,012	3,897	—	1015	7,113	275	20,313
Dane	—	4,662	1,130	2,670	5,241	10,369	264	24,335
Dodge	—	—	—	223	654	24,505	292	25,673
Door	—	—	3,883	9,399	166	3,508	119	17,075
Douglas	47,266	126	223	4,102	6,865	994	532	60,108
Dunn	—	—	2,377	1,278	891	11,999	—	16,545
Eau Claire	—	—	429	145	475	2,103	50	3,202
Florence	36,323	11,495	8,482	177	123	40	45	56,685
Fond du Lac	10,700	—	99	408	51	17,211	112	28,581
Forest	24,870	—	120	635	269	3,769	2	29,665
Grant	623	13,886	632	3,410	1,590	—	308	20,449
Green	—	—	230	1,324	127	4,022	—	5,703
Green Lake	—	—	429	—	753	17,567	—	18,749
Iowa	85	10,511	720	6,601	2,569	2,037	146	22,669
Iron	33,323	35,523	6,190	63	1	10,775	172	86,047
Jackson	68,084	—	525	113	4,740	3,254	166	76,881
Jefferson	3,580	—	102	462	173	16,271	4	20,592
Juneau	—	—	1,484	5,427	536	5,140	53	12,639
Kenosha	—	—	477	4,537	192	2,034	26	7,266
Kewaunee	—	—	—	480	26	2,729	—	3,235
La Crosse	2,972	127	61	372	625	3,692	—	7,849
Lafayette	8096	—	226	1,418	725	4,048	—	14,513
Langlade	18,515	—	406	304	13,871	2,831	212	36,138
Lincoln	20,149	2,360	80	2,833	2,975	4,641	233	33,271



APPENDIX G: Managed Lands Table

Table G-1: **State of Wisconsin Managed Lands in Acres** (continued)

County	State Forests	Wild and Scenic Rivers	Natural Areas	State Parks	State Fishery Areas	State Wildlife Areas	Other	Total
Manitowoc	2,943	—	296	335	11	6,568	946	11,099
Marathon	1,724	—	—	2,694	2,508	23,017	9	29,952
Marinette	27,214	4,686	1,956	7,408	1,722	8,878	1,016	52,880
Marquette	—	—	1,746	—	4,498	7,137	2	13,383
Menominee ¹	—	—	—	—	—	—	16	16
Milwaukee	304	—	—	107	—	3	76	490
Monroe	—	—	100	1,607	4,079	361	98	6,244
Oconto	632	—	270	772	1,117	4,443	204	7,437
Oneida	68,545	29,294	8,275	574	714	7,770	196	115,369
Outagamie	—	—	1,503	325	328	9,442	57	11,655
Ozaukee	—	—	1,720	701	84	1,388	50	3,944
Pepin	—	—	1,946	—	17	3,798	—	5,761
Pierce	—	—	410	1,445	562	1,227	883	4,527
Polk	5,399	—	878	3,791	1,924	13,261	104	25,357
Portage	—	—	365	838	5,289	27,581	205	34,278
Price	9,304	—	—	263	321	9,805	20	19,713
Racine	—	—	10	99	531	3,254	37	3,932
Richland	—	6,960	53	—	2,350	3,083	—	12,446
Rock	—	—	529	1	339	7,601	112	8,582
Rusk	15,289	—	40	—	446	2,989	148	18,912
St. Croix	—	—	138	2,953	1,123	7,164	713	12,091
Sauk	—	5,805	5,566	15,369	1,423	3,887	1,143	33,193
Sawyer	65,274	14,181	344	658	2,536	6,684	345	90,022
Shawano	—	—	231	957	328	14,012	87	15,615
Sheboygan	16,114	—	53	964	2,038	3,438	59	22,666
Taylor	—	—	249	17	275	8,602	81	9,223
Trempealeau	58	—	—	1,618	1,140	4,357	43	7,216
Vernon	52	—	453	3,766	2,124	221	877	7,493
Vilas	141,585	—	3,829	—	369	7,188	82	153,053
Walworth	7,454	—	1,939	522	662	5,675	105	16,357
Washburn	155	1,988	442	501	3,575	2,537	158	9,356
Washington	5,120	—	—	759	378	7,284	82	13,623
Waukesha	12,377	—	282	357	291	5,229	323	18,860
Waupaca	—	—	645	1,274	5,534	3,530	286	11,270
Waushara	—	—	630	846	12,598	5,432	259	19,764
Winnebago	—	—	402	2	198	13,536	126	14,264
Wood	173	—	14	—	513	15,268	44	16,011
STATE	670,647	149,732	88,658	114,551	128,871	539,884	13,429	1,705,770

¹ Land in Menominee County that is not privately owned is held by the Menominee Nation.

Sources: U.S. Forest Service, "Land Areas as of September 30, 2008," March 2009; Wisconsin Department of Natural Resources, departmental data, March 2009; Wisconsin Bluebook 2011

Wisconsin Wetlands Summary

Wisconsin has a wealth of wonderful wetland sites that are accessible to citizens interested in exploring the state's tremendous diversity of wetland types, which include marshes, swamps, bogs, fens, and sedge meadows. These ecosystems provide habitat for a wide diversity of plant and animal species, some of which are rare and unique to wetland systems.

With the wide diversity of life they support, wetlands are natural recreation areas for birders, hunters, fisherman, boaters, and wildflower enthusiasts. Nationally, 90% of the fish that recreational anglers catch have spent some part of their life in wetlands (EPA843-F-06-004). In Wisconsin, sport fishing generates \$2.7 billion in business and provides \$200 million in tax revenues for local and state government. In addition to fish, half of all North American bird species nest or feed in wetlands (EPA843-06-004). In Wisconsin, bird-watchers and wildlife watchers spend \$271 million waiting for a glimpse of their favorite animals.

Beyond their value as habitat, wetlands perform many important functional processes. They act as buffers for excess stormwater. Wetlands reduce flooding peaks by as much as 60%, and the EPA estimates that an acre of wetlands can store 1-1.5 million gallons of floodwater (EPA843-F-06-001). Wetlands also protect water quality by filtering out contaminants. The filtering capability of wetlands cuts the cost of treating drinking water. Some wetlands can remove a quantity of pollutants from the watershed equivalent to that removed from a \$5 million treatment plant (Source: EPA832-R-93-005). This filtering also helps maintain the water quality of Wisconsin's lakes and rivers, which are integral components of the state's lucrative tourism industry.

When first declared a state in 1848, Wisconsin had approximately 10 million acres of wetland. Today only 53% (about 5.3 million acres) of this habitat remains. Historically, wetlands have been drained for farmland and filled for roads and development. As drainage technology has improved and suburban development increases, many wetlands have fallen victim to encroaching human presence. Other threats such as invasive species and contamination by pollutants have also increased and though they do not destroy wetlands directly, these threats weaken wetland systems, making them more vulnerable to other threats. Wetland tracking efforts in 2007 and 2008 by the Wisconsin Department of Natural Resources sug-



gest that efforts to curb wetland loss have met with some success. Figures suggest that Wisconsin has recently seen small wetland acreage increases. The observed gains only account for wetland quantity, not wetland quality, and these annual impacts are miniscule relative to historic loss (less than 0.01% of 4.7 million acres lost since 1848).

Continuing to reverse the loss of Wisconsin wetlands will require further vigilance. The Wisconsin Wetland Team, which represents a coalition of state entities, federal agencies, and interest groups, has outlined eight strategic goals for furthering the protection, restoration, and exploration of wetlands. These goals are elaborated upon in their 2008 publication, *Reversing the Loss*. These goals are presented below:

1. Strengthen and establish partnerships to maximize wetland stewardship and conservation opportunities.

- Strengthen the Wisconsin Wetland Team partnership to ensure state, federal, and local partnership and informed advocacy for wetland protection and restoration. For example, recent collaboration between the Wisconsin Department of Natural Resources with the Wisconsin Waterfowl Association, the U.S. Fish & Wildlife Service, and the Natural Resources Conservation Service allowed the development of administrative stream-

lining to allow quicker and easier permit granting for wetland restoration and enhancement.

2. Strengthen and develop incentives for wetland conservation on private lands.

- As 75% of wetlands in Wisconsin (over four million acres) are privately owned, policymakers should identify and adopt a package of economic incentives for wetland landowners to restore and manage wetlands.

3. Advance public understanding and connection to Wisconsin wetlands.

- Develop and promote a common wetland message.
- Create awareness of wetland laws. Maintain publications like the Wetland Restoration Handbook for Wisconsin Landowners, which was last updated in 2004.
- Increase public awareness of wetlands through public events and outreach, such as the Wisconsin Wetlands Association's Wisconsin Wetland Gems List, which features 100 sites representing all wetland community types and all geographic regions of the state.

4. Avoid and minimize wetland loss and degradation.

- Ensure wetlands are protected at the local, state, and federal level by assuring that standards, policies, and guidance fully address threats to wetlands. Recently, Wisconsin developed state-level protection of isolated wetlands after federal protection standards were changed to exclude these sites, which constitute 20% of Wisconsin's wetlands.
- Take steps to reduce illegal wetland filling and increase permit compliance.
- Develop and implement wetland protection tools for use in local planning and development. Identification of potentially restorable wetland sites could be incorporated into local zoning ordinances.

5. Restore lost wetlands and improve health and functions.

- Restore and maintain wetlands in an efficient manner to maximize limited funding and address identified needs, values, and services that will benefit both the natural resource and Wisconsin residents.
- Develop landscape plans that effectively target wetland restoration activities.

- Position Wisconsin to maximize federal and private investments in wetland conservation.

6. Report and track the status of Wisconsin wetlands.

- Establish and refine an integrated program for tracking wetland quantity and quality, including efforts to develop and promote wetland monitoring programs.
- Increase the production, use, and accessibility of the Wisconsin Wetland Inventory and related data using best available technology. This inventory has not undergone a comprehensive update since its inception in 1985.
- Develop better tools to evaluate wetland function at the watershed scale and site specific tools for assessing wetland function, condition, and restoration success.

7. Develop wetland science and address research needs.

- Develop a mechanism for making wetland research a priority within the Wisconsin Wetland Team and take full advantage of funding opportunities.
- Further develop research and monitoring for invasive species. For example, the Wisconsin Department of Natural Resources has successfully curtailed purple loosestrife encroachment in many wetlands through its release of loosestrife-eating beetles.
- Identify and minimize hydrologic impacts to wetlands from various sources, such as high capacity well pumping and stormwater runoff.

8. Secure stable funding for wetland conservation and stewardship.

- Optimize financial investments for wetland conservation and education.
- Expand resources for public interest work needed to build capacity for education, outreach, and advocacy for wetland stewardship.
- Seek full federal funding allocations for federal wetland conservation and environmental programs.

Through supporting the furtherance of these goals, Wisconsin residents can ensure that future generations will continue to enjoy the ecological and recreational benefits that wetlands offer.

REFERENCES

Chapter Two

Applied Population Laboratory. Summer 2011. *Census 2010: Top Lessons Learned*. Population Notes: A look at the demography and geography of Wisconsin. Madison, Wisconsin: University of Wisconsin-Madison. Department of Community and Environmental Sociology. Newsletter 19: 2 pages. Accessible at <http://www.apl.wisc.edu/newsletters/Population_Notes_Summer2011.pdf>

Wisconsin, State of. 2006. Wisconsin's Statewide Comprehensive Outdoor Recreation Plan 2005-2010. Madison, WI: Wisconsin Department of Natural Resources, Bureau of Parks and Recreation.

Chapter Three

Ainsworth, B.E., W.L. Haskell, A.S. Leon, D.R. Facobs, Jr., H.J. Montoye, J.F.Sallis, and R.S. Paffenberger. 1993. Compendium of physical activities: Classification of energy costs of human physical activities. *Medicine and Science in Sports and Exercise* 25: 71-80.

Ainsworth, B.E., W.L. Haskell, M.C. Whitt, M.L. Irwin, A.M. Swartz, S.J. Strath, W.L. O'Brian, D.R. Bassett, Jr., K.H. Schmitz, P.O. Emplainscourt, D.R. Jacobs, Jr., and A.S. Leon. 2000. Compendium of physical activities: An update of activity codes and MET intensities. *Medicine and Science in Sports and Exercise* 32(9, Suppl): S498-S516.

Anselin, L., A.K.Bera, R.J.G.M. Florax, and M. J. Yoon. 1996. Simple diagnostic tests for spatial dependence. *Regional Science and Urban Economics* 26: 77-104.

Anselin, L. 1990. Spatial dependence and spatial structural instability in applied regression analysis. *Journal of Regional Science* 30(2): 185-207.

Anselin, L. 1988. *Spatial Econometrics: Methods and Models*. Dordrecht, Netherlands: Kluwer Academic Publishers.

Bedimo-Rung, A.J.Mowen, D.Cohen. 2005. The significance of parks to physical activity and public health: A conceptual model. *American Journal of Preventive Medicine* 28 (2): 159-168.

Behavioral Risk Factor Surveillance System data, 2008. Accessed via <<http://www.countyhealthrankings.org/wisconsin/downloads-and-links>>

Bernardinello, M., T. Glodt, T. Maggied, A. Outhavong, and B. Vondra. 2010. Outdoor Recreation, Health, and Wellness: Understanding Key Relationships – Final Workshop Report. Madison, WI: Department of Urban and Regional Planning, University of Wisconsin - Madison.

Birringer, N., M. Parsons, A. Tackaberry, B. Wendt, and S. Yang. 2010. Outdoor Recreation, Health, and Wellness: Enhancing the Relationship through SCORP – Final Workshop Report. Madison, WI: Department of Urban and Regional Planning, University of Wisconsin - Madison.

Bloecher, P.A. and D. Merriam. 2011. *A Review of Statewide Comprehensive Outdoor Recreation Plans: A Public Health Perspective 2011*. Unpublished draft of CDC paper.

Boone-Heinonen J, P. Gordon-Larsen, and L.S. Adair. 2008. Obesogenic clusters: Multidimensional adolescent obesity-related behaviors in the U.S. *Annals of Behavioral Medicine* 36(3): 217-230.

Brown, B.B., C.M. Werner, J.W. Amburgey and Caitlin. 2007. Walkable route perceptions and physical features: Converging evidence for en route walking experiences. *Environment and Behavior* 39(1): 34-61.

Brownson, R.C., E.A. Baker, R.A. Housemann, L.K. Brennan, and S.J. Bacak. 2001. Environmental and policy determinants of physical activity in the United States. *American Journal of Public Health* 91(12): 1995-2003.

Burr, J.F, V.K. Jamnik, and N. Gledhill. 2010. Health-related quality of life of habitual recreational off-road vehicle riders. *Health and Fitness Journal of Canada* 3(1): 4-11.

California State Parks. 2005. *The Health and Social Benefits of Recreation: An Element of the California Outdoor Recreation Planning Program*. Sacramento, CA: California State Parks.

Campbell, C. and C. Cornelissen. 2004. Recreation's role in combating obesity: Current efforts and opportunities for new partnerships. Paper presented at the *Recreation Policy Forum on Obesity*, Washington, D.C., July 29, 2004.

Cervero, R. and M. Duncan. 2003. Walking, bicycling, and urban landscapes: Evidence from the San Francisco Bay area. *American Journal of Public Health* 93(9): 1478-1483.

Cohen, Deborah, J.S. Ashwood, M.M. Scott, A. Overton, K.R. Evenson, L.K. Staten, D. Porter, T.L. McKenzie, and D. Catellier. 2006. Public parks and physical activity among adolescent girls. *Pediatrics* 118(5): e1381-e1389.

Coleman, D., Seppo E., Iso-Ahola. 1993. Leisure and health: The role of social support and self-determination. *Journal of Leisure Research* 25.

References

- Dannenberg, A.L., R. Bhatia, B.L. Cole, S.K. Heaton, J.D. Feldman, and C.D. Rutt. 2008. Use of health impact assessment in the U.S. *American Journal of Preventive Medicine* 34(3): 241-246.
- Donaldson, J., J. Klosterman, R. Kozub, S-C Kuei, and A. Smith. 2010. The Evaluation of Urban Park and Greenway Open Spaces – Final Workshop Report. Madison, WI: Department of Urban and Regional Planning, University of Wisconsin - Madison.
- Foster, T. 2011. The Extent of Vegetable Gardening in Wisconsin: A Masters International Program Professional Writing Project. Madison, WI: Department of Urban and Regional Planning, University of Wisconsin - Madison.
- Frank, L.D., M.A. Andresen, and T.L. Schmid. 2004. Obesity relationships with community design, physical activity, and time spent in cars. *American Journal of Preventive Medicine* 27(2): 87-96.
- Frumkin, H., L. Frank, and R. Jackson. 2004. *Urban Sprawl and Public Health: Designing, Planning, and Building for Healthy Communities*. Washington DC: Island Press.
- Gies, Erica. 2006. *The Health Benefits of Parks: How Parks Help Keep Americans and Their Communities Fit and Healthy*. Trust for Public Land. San Francisco, California. 24 pages.
- Giles-Corti B. and R.J. Donovan. 2003. Relative influences of individual, social environmental, and physical environmental correlates of walking. *American Journal of Public Health* 93(9): 1583-1589.
- Godbey GC, L.L. Caldwell, M. Floyd, L.L. Payne. 2005. Contributions of leisure studies and recreation and park management research to the active living agenda. *American Journal of Preventive Medicine* 28(2):150–158.
- Gordon-Larsen P, McMurray R.G. Popkin B.M. 2000. Determinants of adolescent physical activity and inactivity patterns. *Pediatrics* 105(6): e83, 8 pages.
- Indiana Dept. of Natural Resources. 2007. *Indiana Statewide Outdoor Recreation Plan 2006-2010: Hoosiers Moving Forward*. Indianapolis, IN: IDNR Division of Outdoor Recreation.
- Kahn, E.B.L.T. Ramsey, R.C. Brownson, G.W. Heath, E.H. Howze, K.E. Powell, E.J. Stone, M.W. Rajab, P. Corso and the Task Force on Community Preventive Services. 2002. The effectiveness of interventions to increase physical activity: A systematic review. *American Journal of Preventive Medicine* 22(4S): 73–107.
- Kaczynski, A.T., L.R. Potwarka, and B.E. Saelens. 2008. Association of park size, distance, and features with physical activity in neighborhood parks. *American Journal of Public Health* 98(8): 1451-1456.
- Kaczynski, A.T. and K.A. Henderson. 2007. Environmental correlates of physical activity: A review of evidence about parks and recreation. *Leisure Sciences* 29: 315-354.
- Kelly C.M., M. Schootman, E.A. Baker, E.K. Barnidge, and A. Lemes. 2007. The association of sidewalk walkability and physical disorder with area-level race and poverty. *Journal of Epidemiology and Community Health* 61: 978–983.
- Klusmeier, A., R. Railling, C. Hoesly, and D. Payette. 2010. Findings/Conclusions for the 2011-2016 Wisconsin Statewide Comprehensive Outdoor Recreation Plan's Goals, Actions, and Recommendations – Final Workshop Report. Madison, WI: Department of Urban and Regional Planning, University of Wisconsin - Madison.
- Lovasi G.S., M.A. Hutson, M. Guerra, and K.M. Neckerman. 2009. Built environments and obesity in disadvantaged populations. *Epidemiologic Review* 31: 7-20.
- Marcouiller, D.W., J. Prey, and A. Outhavong. 2011. Outdoor recreation for public health and wellness: A spatial county-level SCORP assessment for Wisconsin. Paper presented to the ISSRM Annual Conference, June 2011, Madison, WI.
- Mowen, A.J. 2010. *Parks, Playgrounds, and Active Living: A Research Synthesis, February 2010*. San Diego, CA: Active Living Research.
- National Vital Statistics System. 2005-2007. Adult Obesity Percentage of population reporting a body mass index ≥ 30 . Accessed 5/2011 via <<http://www.countyhealthrankings.org/wisconsin/downloads-and-links>>
- Outhavong, A. 2011. Peds, Pounds, and Playgrounds: Exploring Pedestrian Accessibility, Public Health, and Public Parks in Wisconsin. Unpublished M.S. Professional Project Report, Dept. of Urban and Regional Planning, University of Wisconsin - Madison.
- Paradiso, R. 2011. Health impact assessment: Improved policy-making or barrier to economic development. *Issue Brief: State Policy Special Series – Graduate Student Authors* 10(1): 5-8. Madison, WI: University of Wisconsin Population Health Institute.
- Peppard, P.E., D.A. Kindig, E. Dranger, A. Jovaag, and P.L. Remington. 2008. Ranking community health status to stimulate discussion of local public health issues: The Wisconsin County health rankings. *American Journal of Public Health* 98(2): 209-212.
- Rosenberger, R.S., Y. Sneh, T.T. Phipps, and R. Gurvitch. 2005. A spatial analysis of linkages between health care expenditures, physical inactivity, obesity and recreation supply. *Journal of Leisure Research* 37(2): 216-235.

- Rosenberger, R.S. 2007. *Health and Recreation Linkages in Oregon: Physical Activity, Overweight and Obesity*. Oregon's SCORP – Corvallis, OR: Oregon State University.
- Rosenberger, R.S., T.R. Bergerson and Jeffery D. Kline. 2009. Macro-linkages between health and outdoor recreation: The role of parks and recreation providers. *Journal of Park and Recreation Administration* 27(3): 8-20.
- Sallis J.F, A. Bauman, and M. Pratt. 1998. Environmental and policy interventions to promote physical activity. *American Journal of Preventive Medicine* 15(4): 379-397.
- Sallis J.F, R.B. Cervero, W. Ascher, K.A. Henderson, M.K. Kraft, and J. Kerr. 2006. An ecological approach to creating active living communities. *Annual Review of Public Health* 27: 297-322.
- U.S. Census Bureau. Census 2000, Summary Files 1 and 3. Accessed 15 February, 2011 at <<http://factfinder.census.gov>>
- Wisconsin SCORP County Supply Datasets. 2006. Accessed at <http://dnr.wi.gov/planning/scorp0510/reports/supply/county_supply_data/index.htm>
- Yañez, E. and W. Muzzy. 2005. *Healthy Parks and Healthy Communities: Addressing Health Disparities and Park Inequities through Public Financing of Parks, Playgrounds, and Other Physical Activity Settings*. San Francisco: The Trust for Public Land.
- Chapter Four**
- Alliance for Biking and Walking. 2012. *Bicycling and Walking in the United States 2012 Benchmarking Report*. Washington, D.C.: Alliance for Biking and Walking.
- Barton, H. 2009. Land use planning and health and well-being. *Land Use Policy* 26S: S115-S123.
- Cohen, D.A., T.L. McKenzie, A. Sehgal, S. Williamson, D. Golinelli, and N. Lurie. 2007. Contribution of public parks to physical activity. *American Journal of Public Health* 97(3): 509-514.
- Cohen, DA, T Marsh, S Williamson, KP Derose, H Martinez, C Setodji, and TL McKenzie, 2010. Parks and Physical Activity: Why Are Some Parks Used More Than Others? *Preventive Medicine*, 50.186731785: S9-S12
- Donaldson, J., J. Klosterman, R. Kozub, S-C Kuei, and A. Smith. 2010. The Evaluation of Urban Park and Greenway Open Spaces. Workshop Group Project, Department of Urban and Regional Planning, University of Wisconsin – Madison.
- Duzenli, T., E. Bayramoglu, and A. Özbilen. 2010. Needs and preferences of adolescents in open urban spaces. *Scientific Research and Essays* 5(2): 201-216.
- Gobster, P. 2002. Managing urban parks for racially and ethnically diverse clientele. *Leisure Sciences* 24(2): 143-159.
- Gobster, P. 2005. Recreation and leisure research from active living perspective: Taking a second look at urban trail use data. *Leisure Sciences* 27: 367-383.
- Gobster, P. H. 2001. Visions of nature: Conflict compatibility in urban park restoration. *Landscape and Urban Planning* 56: 35-61.
- Golicnik, B. and C. W. Thompson. 2010. Emerging relationships between design and use of urban park space. *Landscape and Urban Planning* 94: 38-53.
- Great Communities Collaborative, 2007. Quality Public Parks and Open Space Fact Sheet. Available online: <http://greatcommunities.org/intranet/library/sites-tools/great-communities-toolkit/Parksopenspace.pdf>
- Harnik, Peter. 2003. *The Excellent City Park System: What Makes it Great and How to Get There*. The Trust for Public Land. Accessed at <http://www.8-80cities.org/Articles/Trust_for_Public_Land_The_Excellent_City_Park_System.pdf>
- Kaczynski, A., L. Potwarka, and B. Saelens. 2008. Association of Park Size, Distance, and Features with Physical Activity in Neighborhood Parks. *American Journal of Public Health* 98(8): 1451-1456.
- Marcouiller, D.W., J. Prey, and I. Scott. 2009. The regional supply of outdoor recreation resources: Demonstrating the use of location quotients as a management tool. *Journal of Parks and Recreation Administration* 27(4): 92-107.
- Mertes, J. and J. Hall, 1996. Parks, Recreation, Open Space and Greenway Guidelines. National Recreation and Park Association.
- Outhavong, A. 2011. Peds, Pounds and Playgrounds: Exploring Pedestrian Accessibility, Public Health, and Public Parks Across Wisconsin. Professional Project Report, Department of Urban and Regional Planning, University of Wisconsin – Madison.
- Ribeiro, L. and T. Barão. 2006. Greenways for recreation and maintenance of landscape quality: Five case studies in Portugal. *Landscape and Urban Planning* 76(1-4): 79-97.
- Rosenberger, R.S., Y. Sneh, T.T. Phipps, and R. Gurvitch. 2005. A spatial analysis of linkages between health care expenditures, physical inactivity, obesity and recreation supply. *Journal of Leisure Research* 37(2): 216-235.
- Rosenberger, R.S., T.R. Bergerson and Jeffery D. Kline. 2009. Macro-linkages between health and outdoor recreation: The role of parks and recreation providers. *Journal of Park and Recreation Administration* 27(3): 8-20.
- Schreiber Anderson and Associates, 2009. City of Marshfield Comprehensive Outdoor Recreation Plan.

References

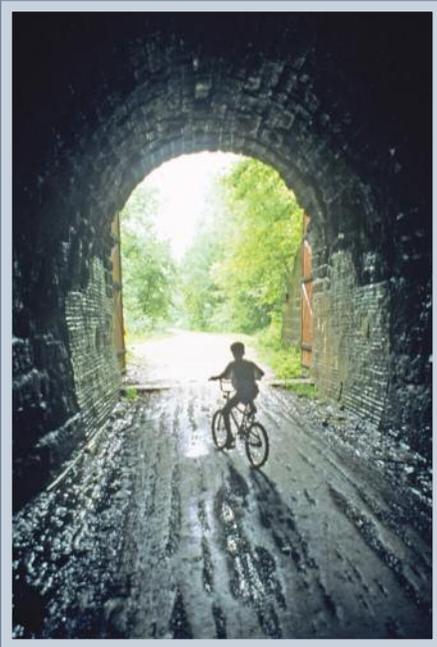
- Sugiyama, Takemi, and Catharine Ward Thompson. 2008. Associations Between Characteristics of Neighbourhood Open Space and Older People's Walking. *Urban Forestry & Urban Greening* 7(1): 41-51.
- Sullivan, J. 2010. Personal Communication, December 2010 (Jerry Sullivan is GIS Project Manager, Wisconsin Department of Natural Resources).
- Thwaites, K., E. Helleur, and I.M. Simkins. 2005. Restorative urban open space: Exploring the spatial configuration of human emotional fulfillment in urban open space. *Landscape Research* 30(4): 525-547.
- United States, Dept. of Health and Human Services. 2011. State Indicator Report on Physical Activity, 2010 Wisconsin Action Guide. US DHHW, Centers for Disease Control and Prevention. Accessed at <<http://www.nspapph.org/slider-information/state-indicator-report-on-physical-activity-2010>> on January 24, 2012.
- Wisconsin, State of. 2006. Wisconsin's Statewide Comprehensive Outdoor Recreation Plan 2005-2010. Madison, WI: Wisconsin Department of Natural Resources, Bureau of Parks and Recreation.
- Wisconsin Department of Natural Resources. Division of Forestry. Accessible at <<http://dnr.wi.gov/forestry/feeds/faqsfull.asp?s1=foresttax&ts2=mfl&inc=ftax>>
- Wisconsin Department of Natural Resources. State Natural Areas Program. February 2010. Accessible at <<http://dnr.wi.gov/org/land/er/sna/>>
- Wisconsin Department of Natural Resources. Stewardship Program. 2012. Accessible at <<http://dnr.wi.gov/topic/stewardship/>>
- Wisconsin Department of Natural Resources. Voluntary Public Access Program. 2011. Accessible at <<http://dnr.wi.gov/org/land/wildlife/vpa.htm>>
- Wisconsin Legislative Reference Bureau. "Public Lands," June 2010. Accessible at <http://legis.wisconsin.gov/lrb/gw/gw_32.pdf>
- Wisconsin, State of. 2006. Wisconsin's Statewide Comprehensive Outdoor Recreation Plan 2005-2010. Madison, WI: Wisconsin Department of Natural Resources, Bureau of Parks and Recreation.

Chapter Five

- Gathering Waters Conservancy. 2011. Accessible at <<http://www.gatheringwaters.org/>>
- Land and Water Conservation Fund. State Assistance Program 2009 Annual Report. Accessible at <http://www.nps.gov/ncrc/programs/lwcf/2009_lwcf_annual%20_rpt.pdf>
- National Association of State Parks Directors: *Statistical Report of State Park Operations 2010-2011*. Accessible at <http://media2.fox11online.com/pdfs/State_Park_Operations_Report_2010_2011.pdf>
- National Conservation Easement Database. State of Wisconsin and All Easements. 2012. Accessible at <http://nced.conservationregistry.org/reports/easements?report_state=Wisconsin&report_type=All>
- Wisconsin County Forests Association. Wisconsin County Forest Acres. 2011. Accessible at <<http://www.wisconsincountyforests.com/wcfa-acr.htm>>
- Wisconsin Department of Natural Resources. 2012. Accessible at <<http://dnr.wi.gov>>
- Wisconsin Department of Natural Resources. Conservation Reserve Program. 2011. Accessible at <<http://dnr.wi.gov/forestry/SmartForestry/toolbox/grants.asp>>
- Wisconsin Department of Natural Resources. County Forests. 2011. Accessible at <<http://dnr.wi.gov/topic/CountyForests>>



*The year 2015 marks the 50th anniversary of the **Land & Water Conservation Fund**. Over \$3 billion in federal grants to states has leveraged more than \$7 billion in matching non-federal dollars to preserve natural areas, culturally and historically significant landmarks, and outdoor recreational opportunities. From state parks to urban areas, the Land & Water Conservation Fund continues to preserve lands and build parks for future generations.*



The 2011–2016 Wisconsin
Statewide Comprehensive
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SCORP