Monitoring and Management of Visitor Flows in Recreational and Protected Areas
Conference Proceedings ed by A. Arnberger, C. Brandenburg, A. Muhar 2002, pages 436-438

Estimating Visitor Occasions and Recreational Visits at an Urban Park District

Andrew J. Mowen

Ph.D., Research & Program Evaluation Manager, Cleveland Metroparks
4101 Fulton Parkway, Cleveland, Ohio 44144
Email: ajm@clevelandmetroparks.com

Abstract: The need for a committed system to monitor and track visitation over time is increasingly recognized by agencies that are responsive to staffing, budgeting, and public relations. This paper highlights a process that a metropolitan park agency uses to monitor visitation within its jurisdiction. The importance of a long-term and regular counting effort is highlighted as well as a brief discussion of trade-offs made between validity and reliability in the formative years of establishing a new use estimation system. The paper concludes by identifying some of the advantages and limitations inherent when estimating urban park visitation with inductive loop counters.

INTRODUCTION

Park and recreation agencies frequently concern themselves with the amount of visitation that their facilities receive. There is a growing body of literature concerning park visitor estimation methods and counting equipment. Accurate and reliable visitation estimates can aid an agencies decision-making related to new exhibits, facilities, and maintenance schedules. Accurate user data can also communicate to funding organizations and citizens the extent that parks are used and valued. Many private and public funding sources request that use statistics be provided as part of a grant proposal.

Even though numerous counting resources and systems have been created, many agencies still express a need for reliable and sustained visitation counts. Often, existing park use estimates are generated based upon best guesses or through limited visual observations covering a few days per year. However, there can be significant changes in visitation patterns across a season, month, week, or even within a single day (Gregoire & Buhyoff, 1999; Hornback & Eagles, 1999). Park districts would benefit from feasible counting systems that account for the majority of park visitors and track use over a sustained period of time. For today's information-driven organizations, it is no longer sufficient to conduct a major visitor counting initiative every 10 - 15 years in conjunction with master planning processes. Creating and providing resources for committed counting procedures (either within an agency or through contracting with a research firm), is needed to track recreation use over time and provide a regular account of park use. There is considerable variation in the level of resources that park agencies can commit to counting and estimating visitation. This paper discusses a continuous effort that a metropolitan park district has undertaken in order to establish a use estimation system which tracks the extent of and changes in use at regular intervals.

A DEDICATED USE ESTIMATION SYSTEM

In 1993, Cleveland Metroparks sought to improve its visitation counting effort by creating a systematic process, which combined visual counts with inductive loop traffic counts to generate use estimates for all of its fourteen parks. Previously, the Park District had relied on extrapolations from survey data to estimate visitation (i.e., percentage of people who said they visited a park and how many times they said that they visited). This information was combined with limited traffic count data to estimate visitors who drove through the park district but did not stop for recreational purposes. However, Cleveland Metroparks desired a new process to count use from both commuter traffic and recreationists more accurately and regularly. This effort was supervised by Cleveland Metroparks, Manager of Research & Program Evaluation with the assistance of three part-time attendance counters and a data entry specialist.

CLEVELAND METROPARKS USE ESTIMATION PROCESS

There are six basic steps used in generating Cleveland Metroparks' visitation estimates. These steps can be applied at other Park Districts with similar resources and site characteristics:

- Determine park entrance and exit points and their characteristics of use.
- Visually count entrances for the number of people per vehicle and the percentage who enter through each roadway entrance within a particular park.

- Install inductive loop counters at strategic and representative park entrances.
- Check and maintain mechanical counters on a monthly basis (i.e., take counts and reset the meter, adjust for sensitivity, change batteries, and ensure that the box is secure and/or undamaged).
- Create use estimates by combining mechanical counter data with vehicle multipliers and entrance weights in computer spreadsheets.

(For example a park containing one mechanical counter with a reading of 10,000 vehicles, with an entrance weight of .25, and a vehicle multiplier of 1.5 people/vehicle would yield a visitation estimate of 60,000 people for that park).

- Tabulate these estimates by park, by type of parking lot, and across time.

Cleveland Metroparks uses this counting procedure to estimate the following types of use:

- Visitor Occasions - people who enter the park district for any reason (i.e., includes commuters, other non-recreational use)
- Recreational Visits - People who enter the Park District and visit parking lot and recreation areas

Recreational Visits is considered a sub-set of Visitor Occasions, although it is possible that some parking lots can get used as a turn-around for parkway commuters.

Given that walk-on traffic may represent a considerable sub-group (and that they cannot be counted with inductive loop counters), an upward adjustment of 3% - 5% is currently added to this Recreational Visit statistic. However, this arbitrary adjustment is subjective so Cleveland Metroparks is making efforts to conduct surveys within a sample of parks to determine the percentage of visitors who access the park by walking, bicycling, etc. The Park District is also exploring options for infra-red counters at specific walking path access points connecting neighborhoods to parks.

Visitation Data for Cleveland Metroparks is presented in Table 1. The reader is cautioned that while visitation estimates have increase each year, most of this increase is likely due to adjustments made in the counting methodology at specific parks within the Park District. It took approximately four years to generate visual estimates and to install counters at all of the fourteen reservations within the Cleveland Metroparks' system. Agencies who have multiple parks under their jurisdiction, should also expect a similar start-up period unless they: 1) only have a few parks with easily defined entrances, or 2) have extensive staffing to conduct visual counts throughout the year. At Cleveland Metroparks, visual re-counts were also needed at some of the parks due to dramatic changes in traffic patterns and facility construction. When these improved use estimates were integrated into this fledgling system, there were instances where some parks would have their estimates increased by 50% based upon a new entrance weight and vehicle multiplier.

After five years of counting with the same multipliers and entrance weights, visitation showed much slower growth or, in some years, decline. The lesson here is to take time and effort to generate valid visual estimates and provide counting coverage at the on-set of a counting initiative. The first years of a counting effort should focus on the validity of the estimates without trying to place too much emphasis on changes over time. It is likely that changes in visitation will be due to refinements made in the counting methodology, rather than any real increase/decrease in visitation. However, once the methodology is established and used consistently, subsequent estimates are more likely to be useful in tracking visitation trends over time.

Changes in the character and type of park use over time will necessitate that re-counts be taken. Therefore, the problems associated with validity can never fully removed, only minimized. However, once a counting system is established, slight adjustments should be all that is required to maintain accuracy. Minor changes made after the counting system is established will have a smaller impact on final estimates than changes made during the early years of forming a system (when early estimates are based more on guess work until more accurate counts can be integrated into the estimates).

Year	Visitor Occasions	Recreational Visits
1993	34,238,948	9,792,339
1994	34,793,894	9,950,228
1995	40,068,920	11,977,726
1996	49,778,861	13,749,994
1997	50,391,541	14,005,832
1998	48,516,922	15,740,462
1999	51,948,608	15,865,587
2000	53,018,261	15,884,991

Table 1. Cleveland Metroparks Attendance (1993–2000)

ADVANTAGES/DISADVANTAGES OF INDUCTIVE LOOP COUNTERS

Inductive loop counters are appropriate for park districts whose visitors enter through multiple vehicular entrances. These mechanical counters are economical in terms of their unit cost ($300 to $500 USD, depending on the model/features available). Their solid state design makes them more resistant to vandalism and varying climates than other counters. However, inductive loop counters are not without their limitations. They require personnel resources to install, continually monitor, and adjust for sensitivity. Moreover, unless a census is provided (by placing counters at each park entrance), their use requires visual counts to generate entrance weights and vehicle multiplier

estimates. Another limitation is that these counters do not count non-motorized traffic into a park (i.e., walking, in-line skating). Park areas that receive substantial non-vehicular visitation (i.e., 40% or more), should be counted with visual counts and/or infra-red counters.

Future visitation counts at Cleveland Metroparks will refine the methodology outlined in this paper by conducting visual re-counts and by conducting visitor surveys to estimate the percentage of non-motorized traffic. Recreation use within specific park areas (i.e., pavilions, swimming areas) will also be counted to help managers understand visitor flows at a more site-specific level. Creating both an accurate and a reliable visitor attendance tracking method takes dedicated resources, time, and commitment on the part of an organization's leadership and constituents. The reward for such an effort will be accurate information that can be used for multiple purposes. More detailed information on Cleveland Metroparks' park visitation methodology and the *2001 Park District Visitation Report* may be obtained from Cleveland Metroparks, Research & Program Evaluation Division.

REFERENCES

Gregoire, T. G. & Buhyoff, G. J. (1999). Sampling and estimating recreational use. PNW-GTR-456. Portland, OR: USDA Forest Service, Pacific Northwest Research Station, 39 p.

Hornback, K. E., & Eagles, P. J. (1999). Guidelines for public use measurement and reporting at parks and protected area. IUCN, Gland, Switzerland and Cambridge, UK. iv + 90 p.