



PERSPECTIVES ON AUTOMATED COUNTING TECHNOLOGIES IN PARKS AND RECREATION



Cover image: People enjoy a game of tug of war at a summer garden fete.

Photo courtesy of Adobe Stock



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INTRODUCTION



A child plays on a splash pad.

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As monitoring systems become more prevalent in our public spaces, park and recreation agencies eagerly seek information on how data collected from these systems can assist with operations, programming, public safety and other aspects of managing recreation activity and green spaces. The aim of this research was to explore the needs and concerns regarding automated counting technologies — systems that use various technologies for monitoring and counting users in park spaces — among local park and recreation professionals, community members and other stakeholders. Specifically, we sought to identify selection, logistics, usage, maintenance, challenges and privacy concerns associated with these technologies.

Our research included three components. A literature and municipal statutes scan provided background data to guide the development of field research protocols and understanding of general legal perspectives on public monitoring, followed by focus groups with park and recreation professionals to collect perceptions of the state of automated counting technology in the field. We also polled a random, representative sample of 1,000 members of the U.S. public to understand their opinions about park and recreation agencies using these automated counting technologies in park and recreation spaces.

KEY FINDINGS



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Skiers traverse a snow-covered mountain.

- Intended uses for automated counting technologies include collecting visitation numbers and activity, informing planning and design, improving management and operations, measuring economic impact, supporting alternate funding efforts, and supporting equity.
- Many municipal departments adjacent to parks and recreation show interest in using the data collected by park and recreation agencies with these technologies.
- Prominent challenges faced by the agencies when adopting monitoring and counting technologies include the inability to measure what people are doing in the parks, data overwhelm, data inaccuracy and unavailability, and difficulty calculating the return on investment of the technologies.
- Public support of local park and recreation agencies using monitoring systems like cameras, counters and cellphone data is highest for crime prevention and mitigation (62 percent) and in parking lots (69 percent) and parks (59 percent). They also prefer that municipalities post signage for these technologies at each location (65 percent).
- The report includes several guidelines on this topic, including questions to answer when deciding whether to employ these technologies, advice for agencies when preparing to select these technologies and selected topics for future research.

PERCEPTIONS FROM THE FIELD



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NRPA researchers interviewed park and recreation professionals from 14 diverse agencies across the United States who had either employed (n = 9) or were considering (n = 5) automated counting technologies. Focus group participants shared experiences with at least one of the following systems:

- CityData AI
- Numina
- Placer.ai
- RoadSys
- Skyfi
- Strava Metro
- TrafX

Interest in Systems

The factors that led participants to use or consider automated counting technologies varied extensively. On the passive end was an unsolicited benefit of a partnership between one agency in Ohio with a fiber-optic internet provider that offered the internet and data service in exchange for extensive sponsorship in their spaces. On the more deliberate end were efforts by a few agencies to replace worn-out, antiquated, high-maintenance technology to gain more effective data for planning and management. In one instance, an agency that was considering new artificial intelligence (AI) counting technology started reviewing these technologies

after a request from their city council, unfortunately ending in waned interest after discovering the cost to move forward.

Regardless of the reason for exploring the many possibilities, participants provided rich insight into their experiences with these technologies in parks and recreation, starting with an extensive list of intended uses for the data.

Intended Uses for Automated Counting Technology Data

Each technology offers a variety of data for analysis and decision making, but agencies used or intended to use the data in the following ways:

- Collecting visitation numbers and trends
- Collecting demographic data
- Collecting geographic visitor trends (where from; where next)
- Marketing and programming
- Determining community audience for park planning
- Improving understanding of areas of each park and facility served
- Justifying funding to the city council, state legislators, etc.
- Prioritizing new building and capital improvements
- Sharing data with community groups
- Understanding effects of weather, holidays, sunrise/set, etc. on visitation
- Determining peak usage
- Providing more equitable/efficient/principled amenities to the public
- Providing data to support compliance with CAPRA standards
- Measuring the impact of the coronavirus (COVID-19) pandemic
- Monitoring and enforcing traffic and parking compliance
- Planning for necessary signage in open spaces
- Monitoring traffic congestion
- Analyzing data for master planning

Visitation Numbers and Activity

Not surprisingly, the participants most frequently used monitoring and counting technology for measuring park usage. Counting individual visitors and vehicles in park and recreation spaces was a top metric of interest, but users also were drawn to measuring recreational activity, event attendance, foot traffic, and movement through spaces and dwell time in specified areas of parks.

City of Pflugerville, Texas, reviewed data from 5,000 attendees at a five-hour Independence Day special event using Placer.ai. Along with attendance numbers, they also obtained dwell time and income, race and sex of attendees. Aggregating the characteristics of the attendees allowed this agency to highlight cultural diversity and compare it to other areas in the same metropolitan region.

The following year, the agency planned to show potential vendors a rich set of data not only highlighting the previous year's attendee diversity and reach, but also evidence of an increasing average dwell time. They expect that potential vendors likely will pay more to take part in the festival for anticipated added financial success.



Attendees at a community event take photos of a light installation.

PHOTO COURTESY OF ADOBE STOCK

It also can provide information about the numbers of visitors in many different forms, including time of day, trends and year-over-year comparisons. Rather than using sensors that simply register movement through passageways, systems like these can provide a more robust set of data about visitor counts, movements and characteristics.

A benefit of using cellphone data is the potential to perform year-over-year comparisons. With the COVID-19 pandemic mostly behind us, one agency used legacy data from CitiData AI to measure trends before, during and after the pandemic to explore the community benefit of parks during that time.

One promising potential application of trail-use count data came from an agency using Strava Metro. This agency plans to publicly display the number of cyclists who pass a particular sensor on a trail, along with a metric that indicates

the relation between X number of cyclists and a currently undetermined community health impact metric. The agency hopes that attaching the count to a positive community benefit will excite people about the tracking as they watch the number increase over time.

Importantly, visitation data are crucial for advocating for the value of parks in a community. Liberal access to these resources helps to increase the opportunities for park and recreation professionals to maintain a steady flow of evidence to the public to reinforce the mindset that parks and recreation is essential.

Applications of these automated counting technologies varied as much as the types of systems that are available.

One agency plans to demonstrate a somewhat circular application of technology through burgeoning Skyfi technology. The intent is not only to count users and their characteristics through the Wi-Fi registration-based application, but also to leverage the email messaging part of the application to return people to the space by providing offers for future promotional activities.

By upgrading pneumatic tube technology with TrafX sensors to count both vehicular traffic (electromagnetic field of automobiles) in parking lots and pedestrian and bicycle-trail traffic (infrared), another agency hopes to gather better data and eventual cost savings. This new technology vastly benefits operations by eliminating the heavy maintenance and calibration requirements of a mechanical system.

Several agencies are using or considering Placer.ai, a popular artificial intelligence (AI) system that uses aggregate location data from users' mobile-app usage to gain extensive insights in several different ways. Among other things, the powerful tool can be used to review movement in indoor and outdoor spaces and how long they stay in those spaces.

"I think we need to have data that's available to us that says, 'Okay, we've had 20,000 people in Community Park over the course of the year.' ...That helps us validate some of our decisions. It validates to our community, to our elected officials, that parks are [an] important part of the community and community network so to speak."

– S.C., Lee's Summit (Missouri) Parks and Recreation

Planning and Design

For most professionals interviewed, the data from these technologies would have some role in park and/or city planning. For example, when constructing new parks and prioritizing capital improvement projects, these data can help determine areas of a community that lack recreation traffic and to understand regional visitors to local open spaces.

One agency intends to use data from Numina to help plan and monitor the transformation of some of the most dangerous traffic corridors in their state. Ideally, this agency will look at traffic patterns of pedestrians, cyclists and vehicles before and after construction.

Management and Operations

It was clear from the focus group conversations that these data also have the potential to help day-to-day park and recreation operations. Data from these technologies can be used for park management, such as organizing events and developing efficient maintenance schedules and practices through traffic regulation, monitoring staffing levels, and security and crime prevention.

Crime prevention is an important data application to these professionals, and, as will be covered later in this report, it is a top context for public acceptance of these technologies. A RoadSys user will use data to measure parking compliance rates around congested boat launches and beaches. Another, using Numina, uses data to reduce speculation when explaining why crimes are occurring in certain areas. The results help respond to questions that are difficult to answer without data, including: Are crime rates higher when the spaces are more heavily used or when they are less used? Is there a need to activate empty spaces to reduce crime? Is security needed in the area? Eliminating guesswork, they expect, will lead to more effective interventions.

Data also can be used to address community complaints and feedback. One agency was considering using the data to explore and address reports of empty and underused spaces. They will use solid data to support or refute community claims and act, as needed.

Pinellas County Park and Conservation Resources in Clearwater, Florida, was flooded with complaints from community members that at least 50 percent of ebike users were dangerously exceeding the posted speed limits after ebikes were legalized on recreational bike trails by the state. Committed to investigating the grievances, the agency employed its automated trail-counting system, RoadSys, to investigate the travel direction and speed for ebikes. Analyses of the data from ebikes on the suspect trails revealed that fewer than one percent of riders were exceeding speed limits — a group of riders the park rangers recognized who rode a type of cycle not allowed on the trail.

“So we gave it to our marketing and communications people so that they could get the word out that, no...ebikes are not the sole evil, and they’re not out there running down small children and poodles and it’s all okay... So that did take some of the edge off, and it gave our [director and the] county commissioners talking points that they could use that was [sic] supported...to push back...”

– C.D., Pinellas County (Florida) Park and Conservation Board



People enjoy a sporting event.

PHOTO COURTESY OF ADOBE STOCK

to events and other spaces from different neighborhoods, towns, counties, cities or even states. Dollars coming in from outside the municipality drive economic impact.

Finally, using resident data from these technologies was useful for decision making surrounding a proposed local-option sales tax in one community.

“We were going for a local-option sales tax, so we were really interested in the data and how many people were using the facilities and who was actually using them. Were they residents, or [were] they not residents? [This] is an important part of the local option sales tax because a lot of nonresidents pay that sales tax. So for us, it was important to see who was actually using some of our larger enterprise facilities.”

– T.B., Centennial Lakes Park, Edina (Minnesota) Parks and Recreation

Economic Impact

Measuring economic impact can be challenging, and many professionals discussed ways in which they have used data from these technologies for both economic development and impact measurement efforts.

For example, after investing \$1 million in a new trail network, an agency used Strava Metro data it collected before, throughout and after project construction to provide evidence of a \$9 million annual economic impact to the community.

“Measuring the economic impact of [X] is critical for us because we want to continue to be able to invest into [it] and show how it’s igniting a new sector of our economy while at the same time elevating our quality of life.”

– C.L., Smith Outdoor Economic Development Collaborative, West Virginia University

Attracting businesses to the area is an important use of these data for fueling economic development. Some agencies have been using Placer.ai to measure businesses leaving and to bring businesses downtown and to events. Using a geofence¹ to identify an area of interest, one professional learned to identify the interests of those who were inside the area and use those data to encourage complementary services or businesses to locate adjacent to the festival, event or park space.

In addition, using cellphone-based technologies that capture individuals’ travel can help quantify visitors who arrive

Alternate Funding

Data from these monitoring and counting technologies can be used to construct talking points to support grant applications and sponsor agreements. One agency believes using Placer.ai information will help attract sponsors by showing prospectives how providing financial support may be mutually beneficial.

Another participant uses these data for grant applications, often for trail, connectivity, accessibility or park improvements. They include visitation trends, audience demographic data and geographic visitor trends in their applications.

“We can now capture how many visitors came to a tournament...and what zip codes they live in. This is invaluable to sponsor outreach.”

– K.S., City of Henderson, Nevada

¹ A geofence is a virtual geographic boundary around a real-life geographic area that uses RFID, WIFI, GPS, or other technology to measure activity into, out of, and within the designated area.

Equity

Many professionals agreed that park-usage data from these monitoring and counting technologies can assist park and recreation professionals and other municipal leaders to understand and serve communities more fully. They need data to identify under-resourced communities and to support the case for where new parks, programming or services are most needed. These data also can pinpoint overserved communities that perhaps should receive reduced priority in the next round of funding.

Interest From Other Departments

Many municipal departments adjacent to parks and recreation have been, or anticipate they will be, interested in using results from the counting systems used for park and recreation purposes. Some even mentioned potential data-sharing agreements among adjacent towns. This mutual interest would create potential for strong collaboration and cost-sharing opportunities. Some anticipated partners included:

- Police departments
- Transportation
- Economic development/tourism
- Public health
- Planning/Development/Zoning
- Strategic planning
- GIS
- Natural resources
- Programmers/Facility leadership
- Marketing
- Public works
- Board members
- Other local agencies

“I know how I would use it if other agencies have that data. Maybe another agency has a skate park, and we have a gap, a skate park gap. I would be able to look at other agencies in the area and see how well their skate park is attended as an argument for potentially investing in that type of equipment at our parks. It also might be good for economic development.”

– M.T., Lower Makefield Township Parks and Recreation, Lansdale, Pennsylvania

Factors Considered in Selection

Participants considered the following factors when exploring their options for selecting the best automated counting technology for their agencies:

- Cost of system and maintenance
- How well system meshes with existing agency systems
- Existing, tested product — not a startup or custom build
- Local vendor, if possible
- Low burden on IT department
- Aversion to vandalism
- Support with setup and training
- Wide community of existing users
- Hardware vs. no hardware
- How well it works with different types of spaces (e.g., local vs. regional, trails vs. open spaces, indoors, oddly shaped spaces)
- Requirement for Wi-Fi/electricity where needed
- Reliability/Completeness of the data provided
- Ease of use of data for analysis and interpretation (e.g., user-friendly dashboards)
- Security and privacy protection

Challenges

With the multitude of advantages and benefits of monitoring and counting technologies come some challenges. Participants shared obstacles they have faced when adopting these technologies.

Park Activity

The most obvious limitation of any of the automated counting technologies is their current inability to provide informa-



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A family attends a Pride festival.

tion about recreational activities in open spaces — what are visitors doing in the park? While the numbers and areas of high usage are extremely useful, activity information remains a manual data collection process.

Data Application

Using systems that employ cellphone data sometimes overwhelmed users with data and analysis possibilities, especially when they used the system infrequently.

“I feel like ours has a lot of data, and it is very hard...when you don’t go in depth all the time, and you just use it for quick things. I know the system is capable of giving me what I’m looking for, but I’m having a hard time...figuring it out. So it is...very capable of providing tons of different answers. And for somebody like me it’s, ‘Oh, jeez! How the heck do I find that?’ So it’s just overwhelming sometimes.”

*– T.B., Centennial Lakes Park,
Edina (Minnesota) Parks and Recreation*

The concept of “too much data” was on the minds of other professionals, particularly for those using the cellphone data systems. One was concerned that even with all the data available, and all the fun they were having using it, they weren’t certain whether it was helping them to truly make an impact.

“I’m using all this amazing data now and working with the public, but I’m not actually sure...at the end of the day if it is actually improving the designs we do. Have we reinvented clean areas? Have we reinvented tennis courts? No. We’re kind of doing the same thing. We just know more about them, yet there is a diminishing return in terms of the time it takes to collate all of the data sources. So I am really curious: to what degree is there a point of no return in all of this data collection?”

*– M.D., City of Boulder (Colorado) Parks
and Recreation*

The same professional expressed a concern that too much available public data could contribute to misinterpretation and misuse of the data.

Data Accuracy and Availability

Systems that use cellphone data have demographic data accuracy limitations. First, data are unavailable for anyone under the age of 18. Also, according to one professional interviewed, the system algorithms average census tract data to define demographics, hindering accuracy. Therefore, these data generally are believed to be better suited for identifying trends than for pinpointing exact visitation numbers.

Cellphone data also are more effective for counting in open spaces than for counting trail traffic. An individual must be in an area for seven minutes to be included, and geofencing areas that are less than six feet wide is not possible with current systems. Several participants cited frustration with these limitations.

Data minimums also affect the ability of some agencies to vouch for their small spaces, like pocket parks. Minimum numbers of people must be detected for the data to be included. Otherwise, the system will mark the data for the day or week as insufficient. For one system, an area must hit 150 visitors in a day and 500 visitors in a week for data to be available for analysis, which is often not possible for smaller spaces. These data insufficiencies are difficult to interpret when advocating for parks. For example, will local city/county councils stop funding a park improvement because of low visitation or should they pour more money into a park to increase participation? These limitations are frustrating for users.

Magnetic counters are different technologies from those that use cellphone data, but they have similar challenges, especially in more porous trail systems. One agency has trails that pass through long, thin peninsulas that run through multiple regions, with people entering and leaving the trail system closest to where they live. Because the counters are not always placed conveniently to catch every possibility, many trail users remain uncounted. Another agency had installed road counters strategically to avoid counting staff vehicles in the space. Unfortunately, the counters will pick up mowers, law enforcement vehicles, and even live roaming animals, like alligators. While not impossible to adjust the numbers, the situation adds undesirable inconvenience to the process.

A crowd of people gather at an outdoor community event.



PHOTO COURTESY OF ADOBE STOCK

Participants also mentioned an inconvenient lag time in data availability with some technologies. Users of one system indicated that it has a seven-day delay before data are uploaded and ready to use.

Access to Wi-Fi/Electricity/Training

Some systems require Wi-Fi and/or electricity for functionality and/or data transfer, and they are not always guaranteed to be available in the spaces that agencies would like to track. Another technical challenge related to Wi-Fi is delays in set-up in large venues and the need to rely on vendors to fix technical complications. One agency had been dealing with setup issues for a year and a half after the vendor started and was concerned about the time it will take to train other users once it is up and running.

Data Storage/Privacy Concerns

Public misidentification of infrared and electromagnetic sensors as cameras and the destruction of some devices can result in other challenges. One agency was forced to put small signs on the data collection sensors to inform the public that they were not, indeed, cameras, but simply counting devices with no identification functionality. They

also used social media and word of mouth to clarify the misunderstanding.

An additional challenge is ensuring proper legal storage and destruction of data. Consulting with attorneys, establishing processes, and other tasks related to ensuring privacy and security are maintained is often not straightforward. One city recently went through the process of working with city attorneys to resolve a privacy issue with park ranger body cams and believed that the challenges are similar. Those who are not accustomed to dealing with such issues, however, can find these requirements frustrating.

Return on Investment

The last challenge mentioned was the calculation of return on investment. Some wondered if they were using the functionality to its full capacity, and if they were getting enough out of it to justify the cost. Most noted, however, that they are in the early stages of using such technology and learning how it best can be used to meet their needs. One professional was clear that the tremendous perceived benefit of these technologies was the saved staff time and capacity compared to their previous methods of park-use measurement (e.g., surveys, maintaining hardware).

Community Feedback

Remarkably, participants who had employed automated counting technologies did not report receiving notable negative feedback from their communities.

For one municipality, the general assumption is if you are walking 15 minutes downtown, you are likely to show up on about 40 different surveillance cameras. Therefore, they do not employ signage or announce the presence of cameras to the public, but they do report new projects to the board and make updates to security plans. They also include plans to install security cameras as part of announcements about new parks, and people tend to accept it.

In an interesting anecdote, members of a mountain biking group contacted the city to ask for the numbers collected from the monitoring technology, intending to use it to promote their own importance as part of the system and to improve perceptions of their relevance during future park designs and planning.

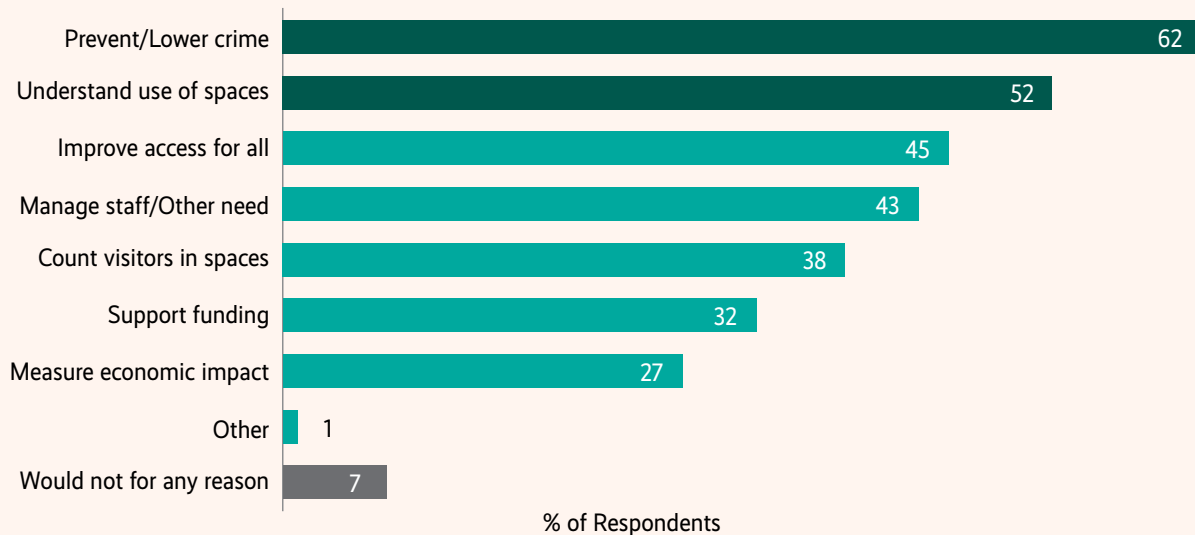
Another municipality has a public transparency policy that makes all data available in a timely manner. Consequently, it

does not make outright announcements about implementing monitoring systems because any community member can access the information. Although this professional had not heard any public complaints to date, he acknowledged at some point there may be a question about whether the public is being watched, and they will need to manage that issue.

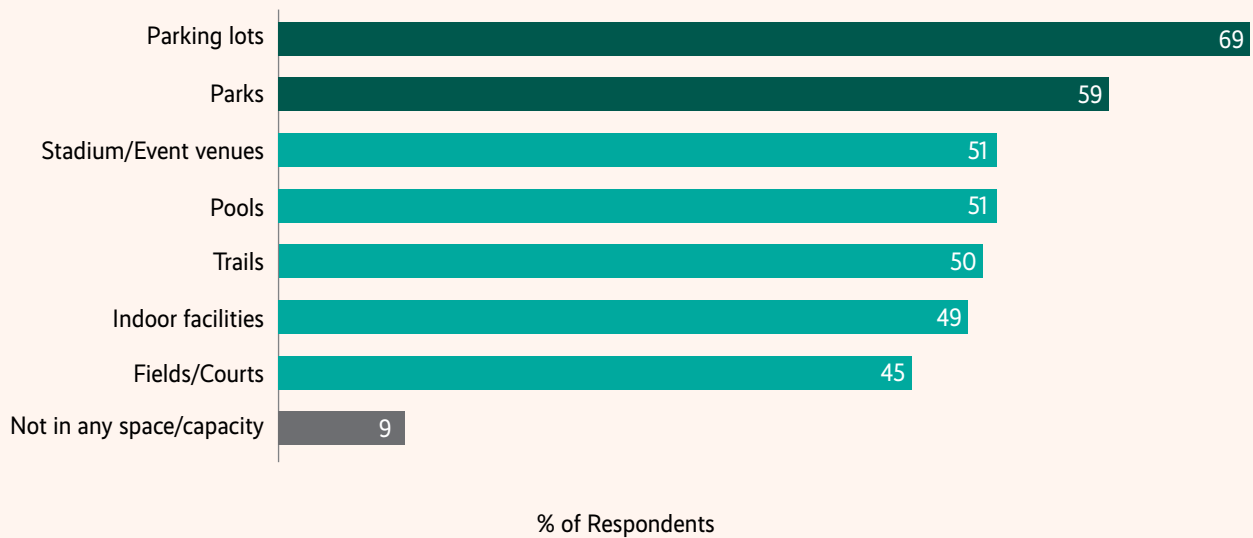
The limited public feedback to focus group participants about monitoring systems may be explained by varying public support for the way in which the data collected will be used and/or lack of awareness of the systems in place. In NRPA's 2024 random representative survey of 1,000 members of the public in the United States, a small number (7 percent) of respondents would not support parks and recreation using data collected from monitoring systems for any reason. The remaining respondents supported using these systems for at least one of the offered purposes, ranging from 27 percent (measuring economic impact) to 62 percent (preventing and lowering crime).

Public comfort also varied regarding the location of monitoring systems implementation, but again, few (9 percent) respondents were fully against these systems in any space or capacity.

Public support of local park and recreation agencies using monitoring systems like cameras, counters and cellphone data was highest for preventing and lowering crime and for understanding the use of spaces. Few fully objected.



Public support of local park and recreation agencies using monitoring systems like cameras, counters and cellphone data was highest in parking lots and parks. Few fully objected.



Communicating With the Public

In the results of the nationwide survey of the public, 59 percent of the public were informed whether their local parks, trails, fields or recreation facilities were or were not using monitoring technologies, meaning a full 41 percent were unsure about the presence of automated technologies in their park and recreation spaces. These findings indicate a possible communication gap between municipalities and communities on this important issue.

When asked how their agencies have communicated, or plan to communicate, with the local community about automated counting technologies, focus group responses varied.

Some took an inclusive and data-focused approach and intended to share all visitation numbers with the public, including trends from prior years. One agency that uses public Wi-Fi as a mechanism intended to post about the availability of the service but not about the data collection efforts because those terms were implicit within the Wi-Fi registration process through the application. A couple of agencies relied on their municipal full-transparency data records policies to serve as public notice. Several participants shared informa-

tion through board meetings or budget meetings with city councils and expressed concerns regarding their methods of public disclosure. Some published the data and information about the systems in year-end public reviews/reports. One agency publicly announced that the technology exists, but not where it is placed. Lastly, one participant was unaware of any policy about transparency with the public, but their agency does employ signage in the spaces where it is used.

One professional shared their great pride in full transparency with the community; they would share what their agency is doing as part of their message about trying to better serve the community through tracking foot counts, along with an explanation of how the data are being collected. Taking this one step further, another agency plans to proactively share and build enthusiasm within the community about the system. It posted little messages on the counters and on social media that emphasized the positive benefits for the community.

Regarding signage, some agencies used signs discriminately (i.e., signage in high-crime areas, none in low-crime areas); others posted signage wherever the technology was in use, while others did not intend to post signs at all because of aesthetic reasons or little expectation of privacy.



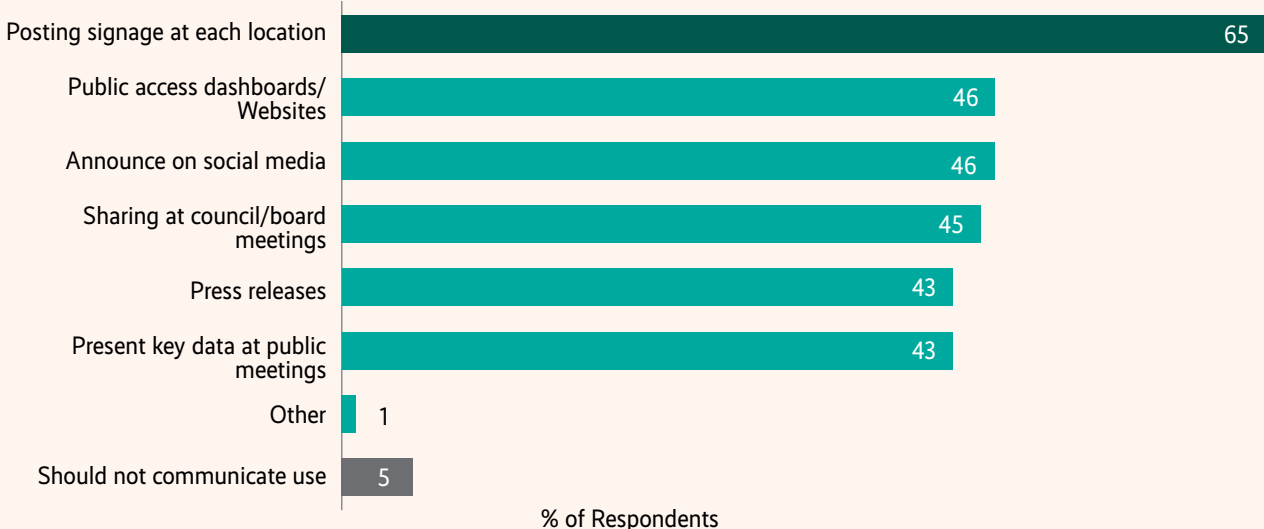
Attendees collect eggs at an Easter egg hunt.

A new effort to standardize the way the public is informed about the use of monitoring technologies is gaining steam and may be useful for park and recreation agencies and municipalities. [Digital Trust for Places and Routines \(DTPR\)](#) is a consistent and informative way to communicate the existence, purpose and other key facts about technology use in public areas.

Clearly, communication plans are highly dependent upon a local community's statutes, culture, and other expectations and capacities. Respondents to the nationwide survey provided some insight on what methods of communication

they preferred about monitoring systems, ranging from presenting key data at public meetings (43 percent) to posting signage at each location using the tools (65 percent).

Community members are most likely to prefer that municipalities post signage to communicate the use of monitoring/counting technologies in local park and recreation spaces, but many also supported additional methods.



GUIDING QUESTIONS FOR LEGAL COMPLIANCE OF AUTOMATED COUNTING TECHNOLOGIES

The literature and statute reviews resulted in the following suggested set of guiding questions related to legal compliance for park and recreation departments that are considering whether to install park user monitoring technology:

- Might the data be useful for undeclared purposes? How will this be disclosed?
- How are data stored? Are data adequately protected? How long are data stored? Can data be exported? How is this controlled?
- Does the technology and its intended use comply with, or is it exempt from, local statutes? Does the park department have the capacity to comply with municipal implementation and data-use reporting requirements?
- Do park users need to opt in, and/or are they able to opt out of the system?
- What safety concerns, if any, does the system seek to address?
- How does installing the system benefit the community? Is the benefit equitable?
- How/What will the park agency communicate with the public about the system?
- What privacy concerns does the technology raise? Will park users be visually identifiable? Even if data are de-identified for typical use, can they be re-identified under subpoena?
- What civil rights concerns does the technology raise? Is deployment equitable in different places?
- Does the technology comply with local surveillance statutes regarding balancing public safety with civil rights concerns? Does the park department have the capacity to comply with municipal civil rights reporting requirements?
- What civil rights complaints have been raised previously about using the selected technology?

ADVICE FOR AGENCIES CONSIDERING AUTOMATED TECHNOLOGIES

Given their varied experiences and perceptions shared in this report, park and recreation professionals shared the following practical advice to agencies considering using automated counting systems:

- **Know your agency's (and other departments') current goals.** Plan as far into the future as possible.
- **Shop around!** Look at as many systems as possible before deciding and be clear that those considered can meet your intended goals for the data. Try to opt for a product that has been well-tested in the field and with a vendor located inside the United States. A wide existing and active community of users of the technology will pay dividends.
- **Explore all the features.** Anticipate future needs and determine the system that will support those plans. Consider whether you prefer a system that is hardware-based or one that requires no hardware, or if you have any required electricity and/or Wi-Fi. Also, ensure the system you select is optimal for the spaces you need to monitor (local vs. regional, trails vs. open spaces, indoors, oddly shaped spaces, etc.)
- **Involve people in the selection process** who can speak to the utility and usefulness of the data collection and available information/analytics to meet your agency's needs. Also seek advice from experts on compatibility with existing agency systems.
- **Obtain buy-in from staff members** who will be running the technology in the field and any other support staff, like IT professionals, if applicable.
- **Start simple and build** on the system, rather than installing all the features at once. Try a pilot program first, if possible, before making the full purchase.
- **Ensure proper training** in best practices for setup and use of the entire system for all who will be involved.
- **Test drive samples of the data** produced by the technology. Ensure its reliability, accuracy and completeness and the ease of analysis and interpretation, including available dashboard functionality.
- **Consider all costs**, including for software, training, upgrades, staffing, maintenance and support, and ensure sustainable funding is available. Read and understand contracts thoroughly. Is there a more cost-effective way to obtain the needed data?
- **Consider sponsorships and partnerships** with other agencies, municipalities and businesses to reduce system costs.
- **Understand** that while some of the options are costly, depending on circumstances and intended use, the trade-off in accuracy and efficiency may pay off.

CONCLUSIONS

With the rapid evolution and increasing use of technology that gathers data from public settings, parks and recreation as a field has an opportunity to take full advantage of more efficient and accurate information to more effectively and equitably serve communities, make better decisions, and more confidently measure impact. No two agencies are exactly alike, and neither are their needs for data. Fortunately, many technological tools are available, and determining best practices for selecting and implementing the best tool for the circumstances will be key for advancing the field.

Through a literature and statute review, a focus group of park and recreation professionals, and a survey of a representative sample of the U.S. public, the information provided in this report offers a solid foundation of knowledge about the current state of automated counting technologies in parks and recreation. It also raises several interesting questions for further research.

The following is a sampling of possible research questions that should be explored in depth.

- How can automated counting technology continue to evolve to track activity beyond counts? What are the top priority data to park and recreation professionals?
- How can these technologies help quantify impacts on equity, health and well-being, and environmental resilience?
- What benefits can these data provide to other partners, like public health, tourism, economic development, etc.?
- How can these technologies better inform barriers to park access and use?
- What are best practices for proactive public communications strategies for informing the public about automated technologies? How can technology providers and other organizations (like NRPA) provide guidance on this?
- What are best practices for determining and conveying the return on investment for these technologies? Are they used to their full potential?

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ABOUT NRPA

The National Recreation and Park Association (NRPA) is the leading not-for-profit organization dedicated to building strong, vibrant and resilient communities through the power of parks and recreation. With more than 60,000 members, NRPA advances this vision by investing in and championing the work of park and recreation professionals and advocates — the catalysts for positive change in service of equity, climate-readiness, and overall health and well-being.

NRPA brings strength to our message by partnering with like-minded organizations, including those in the federal government, nonprofits and commercial enterprises. Funded through dues, grants, registrations and charitable contributions, NRPA produces research, education and policy initiatives for our members that ultimately enrich the communities they serve.

NRPA places immense importance on research and data to raise the status of parks and recreation and conducts research with two goals. First, NRPA creates and analyzes data to help park and recreation agencies make optimal decisions on operations, programming and spending. Second, NRPA develops data and insights that support park and recreation professionals making the case for greater and more stable funding to policymakers, key stakeholders, the media and the public. The NRPA Research team works closely with internal subject matter experts, respected industry consultants and the academic community to develop its reports and data resources. Learn more at nrpa.org/Research.



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