Beyond Location Maps

By Clement Lau

Every parks department knows where its facilities are, and most have published maps identifying the location of their parks for the benefit of visitors. However, not all parks agencies maintain a geographic information system (GIS) to capture, store, manipulate, analyze, manage, and present parks and related data. With limited budgets and other resources, GIS may seem like a luxury or a nice-to-have rather than a necessity. But before quickly dismissing it as a tool only for larger or more well-off agencies, one should seriously consider the benefits that GIS offers and how it can advance park planning, development, and management for a city or county.

Illustration: © Can Stock Photo / Nanchy

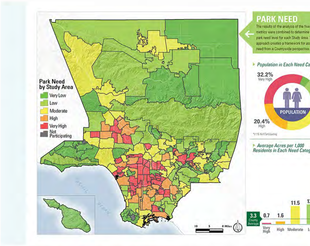
At The Beginning

Let's take a look at the Los Angeles County Department of Parks and Recreation (DPR), for example. It was not that long ago that DPR was mostly using GIS just to produce maps to show where its parks, multi-use trails, and other recreational facilities were located. The department did not have any staff members fully dedicated to GIS, but a handful of planners and landscape architects taught themselves to use the system through trial and error.

Help Wanted

Things changed three years ago with the addition of a full-time GIS analyst in DPR's Planning and Development Agency. For the first time in its history, DPR has a staff person who can represent its interests in countywide efforts concerning spatial analysis and data sharing. There was, however, still a challenge to overcome—the department had a rather limited inventory of parks and trails data.

The Data

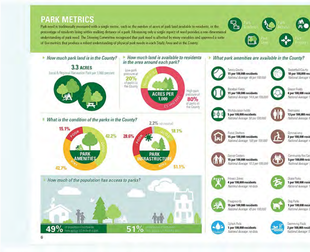


Sources: Los Angeles County Department of Parks and Recreation; PlaceWorks

This database expanded significantly in 2016 when DPR completed the first-ever Los Angeles Countywide Parks and Recreation Needs Assessment (http://lacountyparkneeds.org/), along with various other park and trails master-planning projects. Not only did the department gain more details about its facilities, such as the quantity and condition of amenities at each of its parks, but it also acquired data for recreational facilities operated and maintained by other cities and agencies in the county.

Most importantly, the Parks Needs Assessment was equity-focused and identified the communities with "very high" or "high" park need as measured by population density and a suite of parks metrics, including acreage, access, density, condition, and amenities. Knowing where these underserved areas are helps decision-makers, DPR, cities, funders, and others to focus and prioritize resources in addressing park inequities.

As Kathline J. King, Chief of Planning, explains, "Our department was a little late to the table in terms of establishing an in-house GIS program. But once it was in place, the possibilities for obtaining shapefiles and data, whether it is demographic, health, environmental, economic, educational, made the system come together quite quickly, resulting in a data-rich resource."



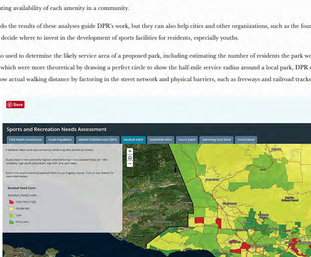
Sources: Los Angeles County Department of Parks and Recreation; PlaceWorks

(For jurisdictions that have not conducted a comprehensive parks-needs assessment and/or lack the resources to do so, my suggestion is to take a look at the Trust for Public Land (TPL)'s ParkServe tool (https://parkserve.tpl.org/) which is web-based and offers parks data for the 100 largest U.S. cities.)

A Tool For All

DPR has also supplemented its geo-database with data that were previously kept in separate repositories and were largely unmapped. These included inventories of historic resources, civic art, memorials, and encroachments on park properties. The department went on to develop an internal web-based mapping and analysis tool, the Park Planning Viewer. This effectively democratized GIS at DPR, enabling any staff member to visualize and analyze parks data in relation to other layers of information and quickly prepare maps.

This tool is cost-effective (i.e., not needing to purchase individual GIS software licenses for all staff members), and encourages staff to think spatially, analytically, and comprehensively by having easy access to a variety of data. It has resulted in a major efficiency as well: with the tool, staff members are able to quickly obtain information that previously could only be provided by John Diaz, GIS Analyst. This frees him up to take on more complicated projects that require the full power and capabilities of desktop GIS software. Diaz is passionate about his work, saying, "It is incredible how in-depth GIS can be used to perform analysis for a park agency. We utilize very complex geoprocessing tools, and some of the most cutting-edge GIS products to perform analysis. We are also relying more on web-mapping tools and map automation techniques to help streamline tasks and ensure good data quality."



Sources: Los Angeles County Department of Parks and Recreation; PlaceWorks

How GIS Helps

While more straightforward inquiries can be addressed using the Park Planning Viewer, there are tougher questions that can only be answered through more sophisticated geospatial analyses. Examples include:

- Where are new parks most needed?
- What types of park amenities does a community need?
- Which sports are most popular in a community or neighborhood?
- How many residents are within a half-mile walk of a park?
- If a new park is built at a certain location, how many more youths would be served?

Thanks to its GIS and access to a wide range of data, DPR can readily respond to these types of questions. "It is so important for parks departments to maintain a dedicated GIS system. DPR is a large organization that has to cover an enormous and varied geographic area. Our field agencies rely on us to maintain a consistent database covering a multitude of data points on property conditions, jurisdictions, improvements, and contracts," says King. "But even more importantly these days, and regardless of the size of the park department, GIS is an essential tool for measuring and highlighting park equity, whether it is tied to health, education, or other indicators."

DPR has recently embarked on what it informally calls "Parks Needs Assessment 2.0." This effort is about furthering the use of data collected from the 2016 Parks Needs Assessment in combination with other layers of information to aid decision-making. Specifically, the department has completed analyses to identify areas with the greatest need for sports facilities, like baseball fields, basketball courts, swimming pools, soccer fields, and tennis courts, based on four key variables:

- The level of park need per the Needs Assessment
- Percentage of youth population
- Market potential index, which is an indicator of a sport's popularity
- Existing availability of each amenity in a community.

Not only do the results of these analyses guide DPR's work, but they can also help cities and other organizations, such as the foundations of professional sports teams, to decide where to invest in the development of sports facilities for residents, especially youths.

GIS is also used to determine the likely service area of a proposed park, including estimating the number of residents the park would serve. Unlike prior analyses, which were more theoretical by drawing a perfect circle to show the half-mile service radius around a local park, DPR employs the Network Analysis tool to show actual walking distance by factoring in the street network and physical barriers, such as freeways and railroad tracks.

Source: Los Angeles County Department of Parks and Recreation

In addition, DPR is using GIS to identify schools in neighborhoods that are not within a half-mile of a county park. This analysis is done to help the department determine which school districts it should approach to discuss potential joint or shared-use arrangements to allow community members to use school facilities for exercise and recreation during non-school hours.

DPR's example demonstrates just how beneficial it is to possess in-house GIS capabilities. But merely having the tool is not enough. An agency must also have the leadership, vision, a comprehensive and robust database, and a dedicated staff to maintain and further its use of GIS. The ultimate goal is not only to produce pretty maps; it is about providing sound analysis that facilitates informed park planning, decision-making, and resource allocation that benefit the communities we serve.

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