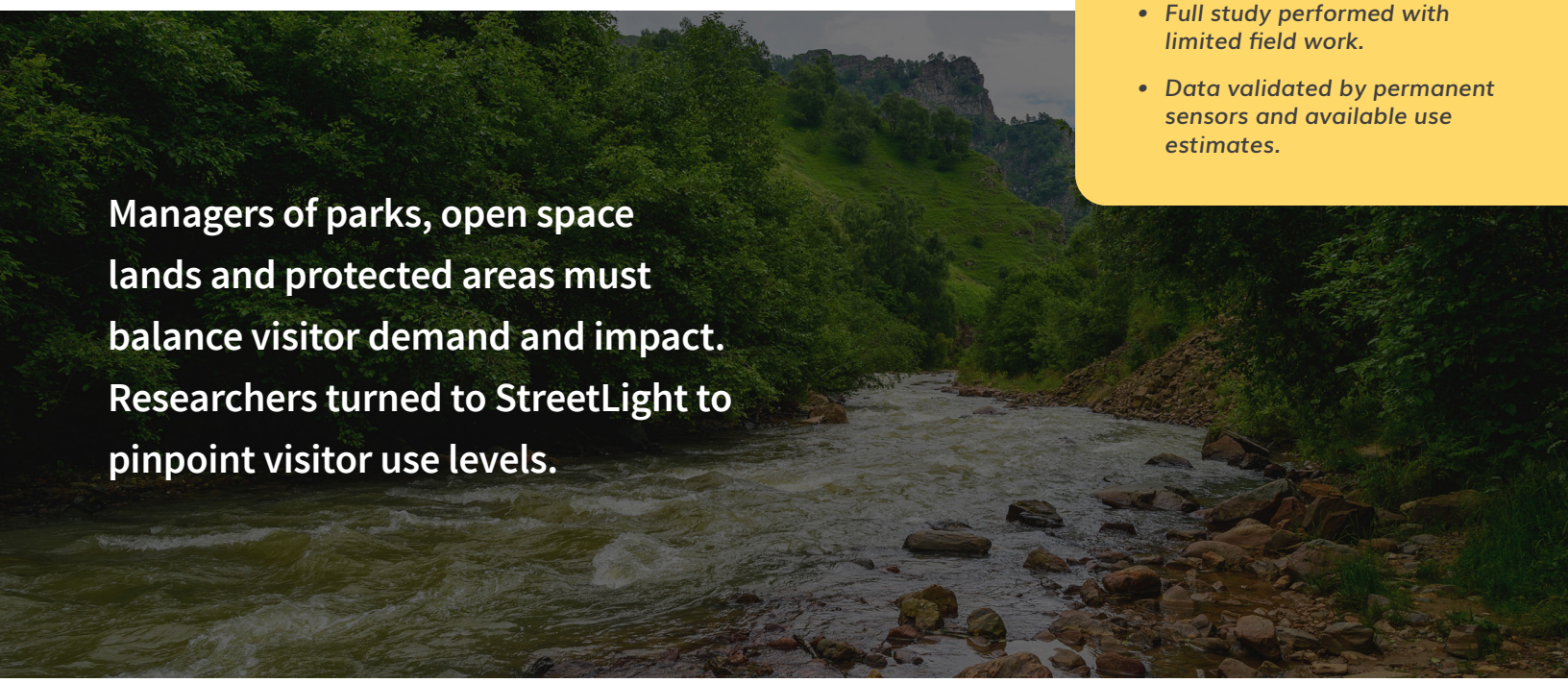
Pinpointing Visitor Volume at California Park System

EXECUTIVE SUMMARY

- *Nature Reserve needed accurate visitor counts, including "informal" entries.*
- *Analysis revealed up to 137% visitor growth in some locations over four years.*
- *Full study performed with limited field work.*
- *Data validated by permanent sensors and available use estimates.*



Managers of parks, open space lands and protected areas must balance visitor demand and impact. Researchers turned to StreetLight to pinpoint visitor use levels.

Mission: Understand Visitor Volume

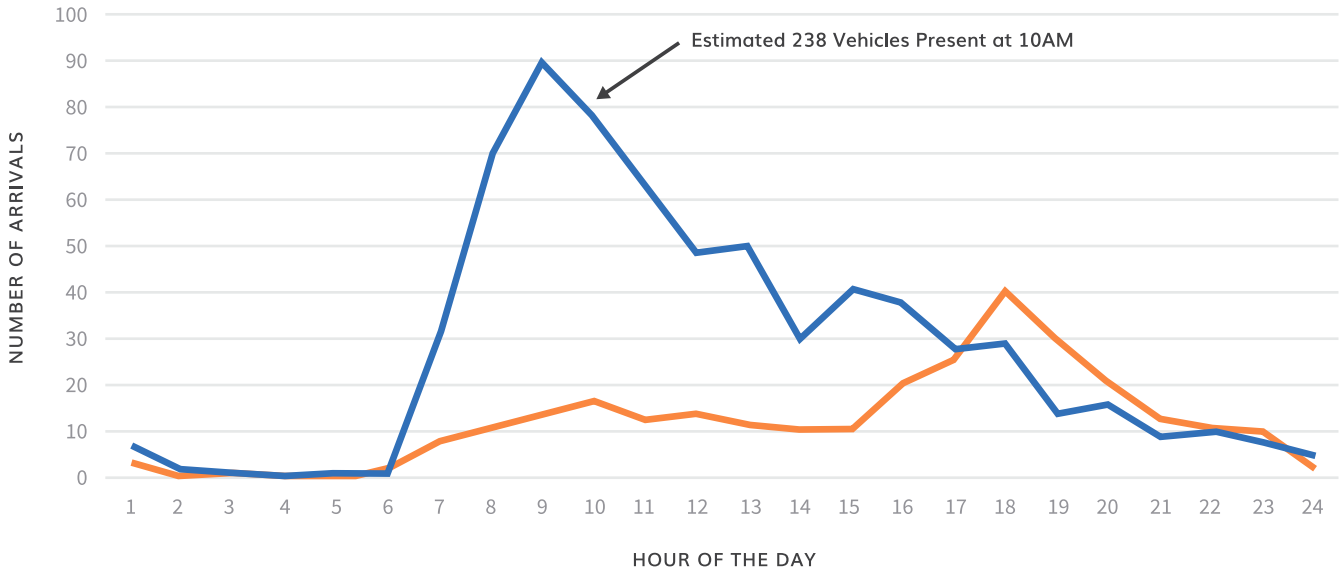
The Nature Reserve at Orange County offers a variety of outdoor recreation opportunities, including hiking, running, mountain biking, beach recreation, and nature appreciation for over 3.1 million nearby residents. But overuse from park visitors can disturb the natural soil, vegetation, wildlife, water, and increase noise levels. Managers aimed to mitigate these unwanted effects while also maintaining park access.

Managers needed to collect and monitor visitor volume over time. That data often offers an early indicator of potential social or ecological management issues.

The Natural Communities Coalition (NCC), which assists managers in implementing conservation plans at the Reserve, turned to StreetLight for accurate visitor data.

> **"Mobile device data is complex to process and rife with legal and technological issues. StreetLight makes that data accessible."**
>
> MILAN MITROVICH
> Natural Communities Coalition

Estimated Daily Arrivals at Ridge Park by Hour



Total Vehicle Daily Arrivals: Weekend - 671 Weekday - 294

Estimated daily arrivals to the Reserve, averaged over a one-year period.

Analysis: Track Visits Via a Porous Boundary

A collaborative research effort between Dr. Milan Mitrovich (NCC) and Dr. Christopher Monz at Utah State University identified 24 formal and informal park entrance locations across the 11 selected park and open space areas.

Many park systems use automated counters because they are relatively inexpensive and easy to use and maintain. But counters don't effectively cover parks that have more "porous" boundaries and unspecified access points.

Visitor questionnaires ask for additional detail including visitor use patterns, characteristics, motivations, behavior, and home locations. But surveys require significant time from both visitors and researchers. They are also susceptible to reporting and recall inaccuracy.

Instead, NCC and Utah State used StreetLight InSight®. Running an Origin-Destination analysis (O-D) including traveler attributes provided information about visitor entry volume at specific access points, travel routes, and visitor home locations.

Results: Data Pinpoints Visitor Growth Over Time

StreetLight InSight provided past data sets from years when field-based data were never collected. As a result, researchers were able to estimate average daily visitation across all 24 entrances over a four-year period. Three of the entrance locations decreased in visitorship during that time, but the other 21 increased in use over the four years, ranging from 19% to 137%. Total visitorship over the four years increased.

In addition, the StreetLight InSight data were validated by comparing it favorably to study areas that had available usage numbers from standard counting techniques. Researchers also studied the date of a known park closure to determine if erroneous data were being collected, and again found satisfactory results - StreetLight's metrics mirrored the drop in visit rates during the closure.

The final win: Visitor use estimates were determined using StreetLight InSight entirely via desktop analysis, without costly and time-consuming fieldwork.

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