10 Uses for Parking Data

Read on to learn 10 unique ways that analyzing and extrapolating the parking data you already collect can provide solutions for your business and your customers.

By this point, most parking management software has realized the importance of collecting data about virtually every aspect of operations. I mean, it's 2017, people! (We're still in shock about this too, FYI.) Information is collected about everything from turnover rates, peak times, and duration of stay to more individual information like frequency of system use and average spend per session (and a ton more data points that aren't listed). The process usually looks something like this:

Step 1: Implement technology like cameras, smart meters, and licence plate recognition
Step 2: Capture, sort, secure and store hundreds of thousands of data points
Step 3: Ignore all the data and continue operating as usual

As you can imagine, with all the work you put into steps 1 and 2, it would be much more desirable to improve upon step 3. To help you with that process, below are 10 examples of how we're using our data here in Calgary to improve our operations – which has resulted in better customer service, strengthened partnerships with other city agencies, and increased revenue. So let's dive into the details!

1. Track Travellers

See how often app users access their account, how much they spend annually, what increments they replenish the balance at, all via anonymous, aggregated data. Another important use is to review the data for trends; for example, this could show people from a specific suburb all parking in one area. This information could be used to add transit options through that community, send marketing material, establish a carpool program, etc.

2. Identify and Predict Demand

Gathering information about number of transactions per hour, and mapping this out over the course of a week, month and year (based on historical data), tells us when

10 Uses for Parking Data

to expect the most volume of traffic. This in turn lets us provide adequate staffing at peak use times, ensure maintenance has the lowest disruptive impact, and run promotions during slow periods.

3. Wayfinding

Incorporating locations of our parking lots into a map of the major city arteries and showing real-time traffic conditions allows our customers to avoid unexpected delays – an invaluable offering which can be provided with or without login or restricted access. These wayfinding benefits impact the amount of fuel used to arrive at the parking spot, which leads to our next use of the data, reducing emissions.

4. Reduced Emissions

Using historical payment data, we track which zones are being used (and when), then map this over time. We use predictive analytics to extrapolate what the likelihood of finding a parking space in that zone is, based on the exact day and time you're looking. Below is a clip of what that looks like to a user (turns out there's lots of parking downtown Calgary at 8am on Monday mornings). This enables people to plan ahead and know where the best place to find a parking spot is, and drive directly to that block – rather than creating emissions driving in circles looking for an open spot in a crowded area.

5. Demand Based Pricing

As with the above uses, building an annual calendar out by the hour with volume of transactions by time can help us to predict what zones or neighbourhoods will be busy on what day and time. We can then charge more when demand is high, and charge less when demand is low. A couple of examples of how this is implement in Calgary include free parking after 6pm on weekdays and on Sundays in the downtown core; and the recent addition of charging for parking between 7am-9am on weekdays in the downtown core.

6. Transportation Planning

Hoarding isn't cool, so we share the data and analysis with the City of Calgary Transportation Planning department. They use parking patterns and timing to

10 Uses for Parking Data

enhance transportation offerings, with the goal of shifting our commuting modal split to 60% transit/walking/biking/other – and away from the dependence on solo driving into our downtown core. As mentioned under tracking travellers, it also allows them to enhance transit options where commuters need it the most (as evidenced by their parking habits).

7. Asset Maintenance

After reviewing the frequency of use of our parking facilities, we can come up with a timeline for scheduled maintenance. This means that for more well-used parkades, more frequent preventative checks can be performed, and for lots that have lower usage volumes, meter emptying and other tasks can be scheduled more sparingly. This results in a dual ended cost savings approach with both preventative maintenance scheduling as well as minimizing unnecessary use of resources.

8. Policy Design

Policies and bylaws go hand in hand in Calgary, and City Council supports demand based pricing by increasing and decreasing rates as warranted by the data we provide. Another policy based on parking data that we're using in Calgary and we've seen popping up in other cities is a cash in lieu program for developers. This type of policy allows residential and commercial developers to reduce previous parking stall construction requirements by paying the municipality a lump sum of cash (which is less than the cost of building the parking); the data on parking demand fuels the specific neighbourhoods where this policy can be applied.

9. Improving Resource Utilization

Let's take the example of a parkade where the primary source of parkers is monthly contract holders in a scramble format. By using the information collected about stall usage rates, it's possible to over-sell the lot without negatively impacting the monthly contract holders. This is done by taking the historically empty number of spaces during low usage times and offering that number (or slightly fewer) of stalls for daily or hourly parking at those exact times/days. This maximizes the amount of revenue obtained from the resource at any given moment.

10 Uses for Parking Data

10. Optimizing Enforcement

By gathering the average number of parking transactions by location, it's easy to determine where the busiest, most well trafficked areas are. This information would logically suggest that the most potential citations will be found here (based solely on an average percentage of parkers who are in violation at any given time), and enforcement officers can be scheduled and dispatched accordingly, thus maximizing efficiency of this important resource.

This gives you a pretty broad set of examples on what can be done with parking data. It may not be quite as easy as we're making it out to be, as a robust combination of hardware and software is important to be able to collect and interpret the data you have access to. But once you have that in place (and if you don't, ParkPlus can definitely help you with a free assessment and platform agnostic software – just give us a call), you're in a great place to start implementing small changes and reaping the rewards.

With all of this being said, let's go back and revise the data collection process from the beginning of the article.

Step 1: Implement technology like cameras, smart meters, and licence plate recognition
Step 2: Capture, sort, secure and store hundreds of thousands of data points
Step 3: Analyze the data and highlight patterns, spikes, trends, and other inconsistencies
Step 4: Interpret the information in meaningful ways, creating actionable learnings; review with your leadership team for confirmation and to create an action plan
Step 5: Implement your plan and be sure to track and monitor progress/changes
Step 6: Evaluate your successes and loop back to see what new information the data might be providing
Step 7: Repeat – consistently!

We're not suggesting that every parking operation is going to benefit from every use of data – it's about picking and choosing what's relevant to you. And there are lots of uses that we didn't mention either – and we'd love to hear from you about your ideas on how data could be used, as well as what your operation has implemented and how it's going. And that's a wrap, folks!