How to Achieve “Availability Certainty” Using Connected Parking Systems and Real-time Data

ALL TRAFFIC SOLUTIONS™

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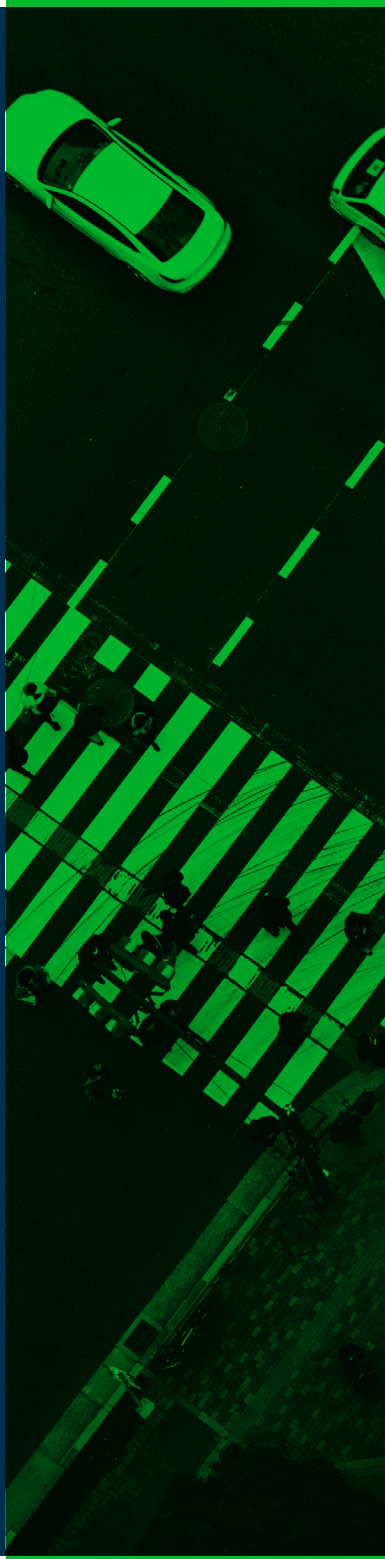


Introduction

Traditionally, parking availability data used for guidance, pricing, planning and reporting has been based on estimates and anecdotal information, but today that’s no longer an option. If you’re a parking manager, understanding real-time availability is central to providing efficient wayfinding and better customer service. Real-time data allows you to maximize revenue by implementing dynamic pricing based on current demand. Real-time availability data gives you insight into how your parking organization is currently functioning and changing, and what the latest trends look like.

In this paper we’ll look at the current transformation into the next stage of parking, mobility and technology and how the Cloud and the IoT (Internet of Things) is helping parking managers gain efficiencies, save money and deliver a better parking experience.

We’ll look at why real-time data and analytics are two cornerstones of a successful parking system implementation and operation, and how the right parking guidance solution contributes to your success. Then, we’ll discuss strategies you can implement at your organization, as well as some tips you can use when evaluating and implementing a system of your own.

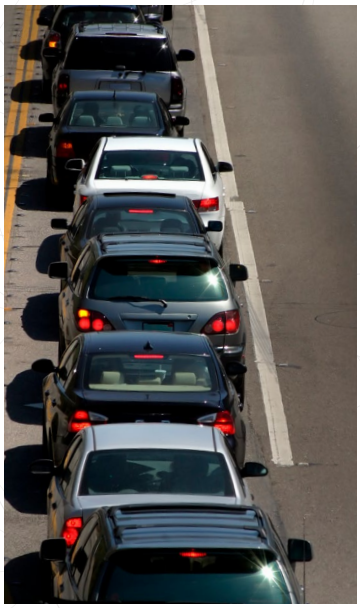
What Would Your Perfect Parking System Look Like?

How would your current parking operation be impacted if you had immediate access to real-time parking availability data? Think of each component of your end-to-end parking process and how you could optimize it with real-time data. For example, if you're a municipality and you want to guide eventgoers through your town to convenient, available parking, how would guidance be enhanced with access to up-to-the-minute occupancy data? You could provide the latest availability information via continuously updated signage on major roads or through your app or website. In the garage, you could tell parkers where they could find parking by level, row, space and in nested areas.

Add real-time traffic data to the mix and your parking system becomes even better. Let's say you're running an airport and you want to provide accurate, efficient traffic routing from downtown out to the airport. At the airport you want to route people away from a construction area to the nearest available parking in time for them to make their flights. At exits, you want to tell parkers the most efficient way to leave the parking garage or lot to avoid congested routes to major roadways. You can accomplish all this by leveraging real-time availability and traffic data.

Limitations of Old School Solutions

Parking is more than just the physical structures; it's part of the bigger vision that positively or negatively impacts an entire city and the infrastructure around it. Parking is a vital factor in mobility and guidance, and it's as much about navigating through a city as it is navigating through a garage. Your city is adversely affected when you don't have real-time availability data. Other limitations of existing, or "old school" parking solutions include:



- Can't Route Parkers

Efficient, accurate routing is really critical to sustaining optimal traffic flow, but many existing guidance solutions are woefully inadequate. They often route people to facilities that are full, causing would-be parkers to circle garages, lots and city streets—leading to traffic jams and agitating everyone. When signage is present, it's not always designed to be helpful—legacy signage can actually cause congestion by forcing drivers to slow down to read because information is presented in a way that isn't highly visible or legible.

People today expect more than physical parking locations and availability numbers. They're looking for specific zone and even space-specific information for their immediate parking need, be it for shopping, a special event, or a business meeting.

• Insufficient Availability Data

The methods you used in the past to understand availability don't really work anymore because they don't tell you everything that's happening within your premises. You may have an idea based on past experience, but you don't necessarily know what's going on at any given time.

For example, do you really know how your parking areas are being utilized? If some parkers are leaving their cars for eight or nine hours at a time at a shopping center, it could mean they're not actually shopping—they're commuting—but you won't know this unless you have occupancy data or unless you were to watch and manually record each vehicle. It's not practical to assign a person to stand in the corner with a clicker; it's far more efficient and helpful to count occupancy and occupancy duration in a sensor-based environment that drives that data in real time.

• Flow, Safety and Productivity are Impacted

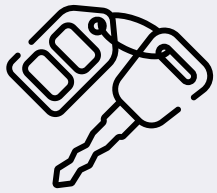
Everybody would love to accurately forecast availability, but it's almost impossible if you don't have accurate real-time data. Public safety is often addressed piecemeal in the parking world. Some garages still have somebody periodically counting vehicles manually to get an idea of capacity throughout the day and actually build their safety policy around that information.

Many parking facilities still use loops, which can be not only unreliable, but tear up infrastructure, take days or even weeks to install and can disrupt the facility during installation, calibration and setup. We consider that old school.

The industry has relied on "good enough" solutions long enough. It's time for more exact parking solutions that drive real change.

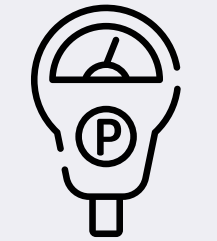
How Data Transforms Parking Operations

Parking operations generally fall into one of four segments, and regardless of which segment you’re in, you can achieve “availability certainty.”



COMMERCIAL OPERATORS

Commercial operators can reduce cost and increase profitability using real-time parking data. If you’re a commercial operator, you want to get the most out of every space you have available, and you can maximize yield with dynamic pricing that’s driven by real-time data. If your facility has an app or reservation feature, with real-time data you can drive revenue.



MUNICIPALITIES

Many factors impact municipal parking. Increase in headcount, office changes, consolidation, and construction can all affect where people park. Local events, weather and time of year also play a part in parking demand.

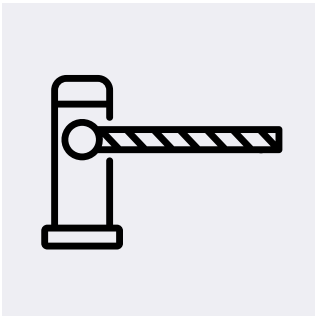
Many municipalities prefer to manage parking based on known factors, such as how much they can charge to accommodate current and potential growth. They want to consider impacts of growth, for example, if a large company sets up headquarters in their town. With accurate availability data they can plan for that and be able to manage it when it happens.

Municipalities also want to consider the residents and anchor businesses, those who help build the community and keep it stable. With real-time data, parking can be leveraged to aid economic development and enhance quality of life for residents.

UNIVERSITIES

Universities face similar problems as student enrollment increases, especially at commuter schools. In many cases, they rely on a security or facilities team to go out and perform manual counts across surface and garage lots. They’d like to increase student and staff satisfaction with real, accurate guidance, making it easier to find parking and get to class on time.

They can do this by understanding their true parking availability. By having real-time availability data, they can make smart, money-saving decisions based on facts and not guesswork when it comes to building, renovating, or expanding parking.



CORPORATE

Productivity, morale and stress levels are affected when employees are spending 25 minutes looking for a parking space. Corporations want to get employees out of their cars and into their seats faster. They can do this, while leveraging technology they’ve already implemented and future-proofing their next investment. For example, if your company already has a gate system, you may want to put in a counting system but without having to tear up the gates.

Companies can use parking data to drive additional mobility and workplace transformation initiatives as well. If you are at capacity and don’t have anywhere to build, you can use a parking availability system to drive rideshare programs or flextime and develop policies around how much parking you have now and how much you would like to have in the future.

Companies also must consider the communities in which they’re located. If your parking garage is situated off of a public road, you don’t want your employees tying up traffic in the morning or the afternoon when they’re arriving or leaving work.

> Organizations should focus on certainty, not probability....

Solutions: Best vs. Best Fit

There's a lot of debate in the industry about the best technology, and it sometimes leaves the industry at odds. Organizations are tired of trying to manage more and more complex systems, and complexity does not always equal the best fit. They want a solution that solves their problems.

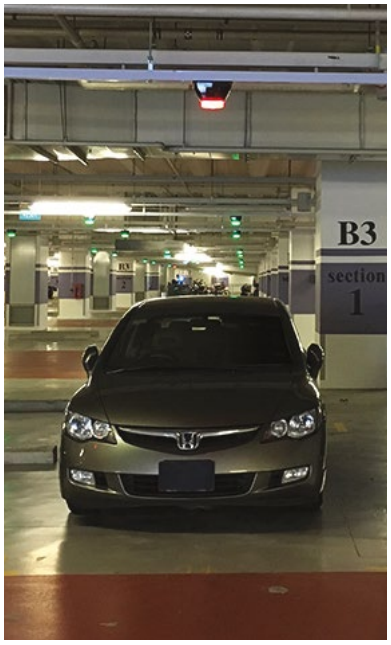
You hear a lot about the Internet of Things (IoT), real-time data, predictive analytics—but the technology you choose has to be something you can actually use. If you're the parking administrator at a company or university, you want it to be simple. You want to be able to grab the data simply and leverage the data in a meaningful way. If you're a parker, you also need technology to be simple, not something that completely twists your brain when you're trying to park your car.

Parking has become a bigger and bigger problem for everyone. It takes a lot of time and energy for people to circle trying to find parking, and it takes lots of money and resources for organizations to manage those environments, only to find out the solution they were offered and implemented hasn't solved the problems. If you have legacy investments already in place on your campus today, you want to figure out a way to integrate them into the new technology that's coming down the line and some of the platforms that are available.

Organizations should focus on certainty, not probability. Look at accuracy versus estimates, and know your availability down to the last car. Take the information that you may have captured in an Excel spreadsheet and start to do some comparisons to see how close you were to what the real numbers are. Look at parking data for more exact data sets to inform infrastructure development.

True Data in the Cloud

Whether you are looking to make a profit or planning for growth, you need true data in order to develop a roadmap of how to get there. At All Traffic Solutions, we believe that the best path to true data is a cloud-based system. You don’t want servers, manual updates or manual field service—you want a system that delivers true data quickly and remotely and gives you the ability to tie in other systems for greater benefits. If you have ALPR and a permitting system but you want to install a counting system, you should be able to tie them in and have them all on your cloud-based platform.



What Data and Technology Can Do for You

What do you want your data and technology to do for you? Do you want to monitor and manage your pay-to-park spots so you can set rates and pricing? Do you want to simply capture the number of people who park on your campus? Do too many employees park in the visitor lot or in handicapped or expectant mother spaces? Not only can you manage it all with the proper mix of sensors and wayfinding, you can actually help develop policies that have a positive impact on your organization.

How to Assess Your Parking Needs

Here are some questions to ask when figuring out the right system for you.

1. What does the physical infrastructure look like?

Do you have a mix, or is it all garages or surface lots? Do you have defined entries or open access? Do you have designated entrances and exits, or is there an enter/exit opportunity with a single lane of road? Do you use lane delineators? Do you separate things off using a delineator system?

Do you have design restrictions? This is a big one. You may want high-tech equipment and sensors and the latest signage, only to discover there are design restrictions. Do your homework and find out before you make selections.

2. Do you need to count both spaces and zones?

If you have huge corporate parking garages where you enter on one side, exit at the other and park somewhere in between, do you want to track which zones are experiencing the most traffic, or do you want to know where most people choose to park? Do you want counts at the zone level, by individual space, or do you need to count them both?

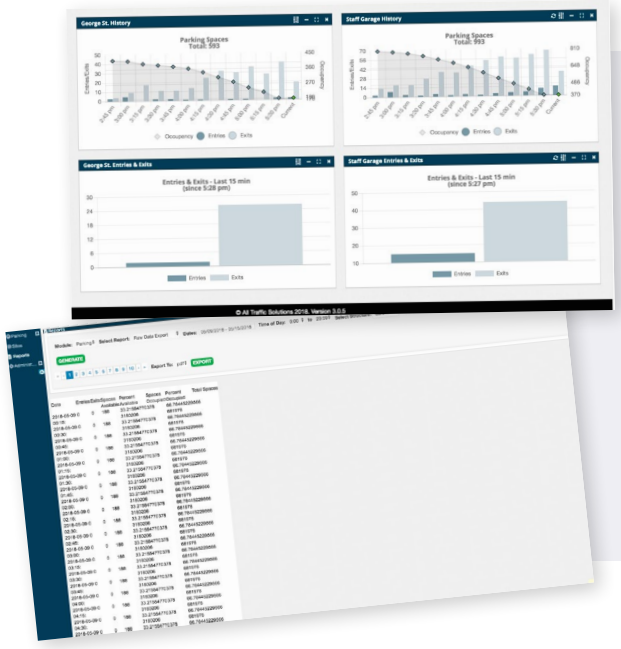
There are many good systems available that will not only help you count spaces, but will also provide information on which spaces are open and which are closed.

3. What are your signage requirements?

There are many excellent options available in terms of signage. Do you need standard count availability signage, or do you need a monument board that tells you the availability on each level? Do you need signage that not only provides parking counts but corporate messaging as well?

4. Do you need signage at all?

Could you provide availability with a simple red/green bollard system that shows parkers exactly where they can park?



5. Do you have existing counting equipment?

Do you already have something in place that counts people coming in and out, but you're just not getting data from it? You should be able to integrate your existing counting system into your platform.

6. What kind of reports do you need?

When asked, many organizations will respond, "I want all the data," but what they don't realize is that ALL the data is like a big fire hose. It's best to think strategically. Determine what you want initially and what matters to you the most today. Then start to build out your data, based on your reporting needs, from that point and you'll develop a healthy number of reports as you move through the process. Collect three to six months of data so you can start to drive your business through forecasting based on accurate data.

Building Your “Right-Fit, Right-Technology” Parking System

Look at your parking system as a total solution and not as a “one-size-fits-all” device or piece of software. You don’t have to commit to one sensor, which is great because you may find your solution requires multiple sensors. Outdoor lots, garages, single paid spaces, space-by-space—if you have a combination of a few or all of these, you should look at your sensors as part of an overall solution. Sensors with accuracy levels that you need to dynamically route traffic and parkers to the right place are very helpful. That could be something as simple as a puck in the pavement, a laser counter, or ALPR for all of your access control and counting.

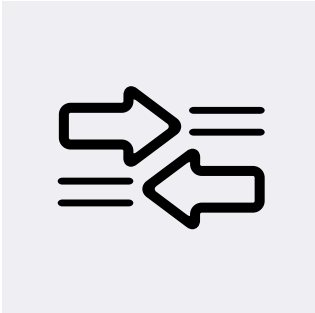
Newer technologies are probably less intrusive on infrastructure. For example, you can install an optical laser system using existing power in the garage ceiling and have your entire garage outfitted and calibrated in a day or two. The ParkTrak from All Traffic Solutions is a plug-and-play parking counting system that uses laser technology and directional logic. It installs in under one day without cutting into your infrastructure or disrupting your operations. It is easy to configure and delivers greater than 98% accuracy.

Guidance

Guidance systems come in many forms. To find the right one for you, you first want to understand what guidance and wayfinding should look like based on your needs.

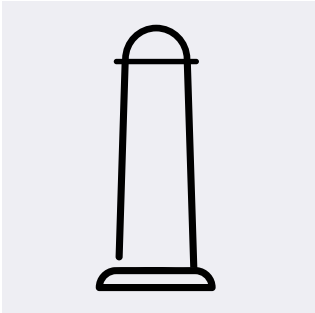
PERMANENT SIGNAGE

Signage should conveniently and succinctly tell people where the available parking is, without them having to take their eyes off the road, slow down or stop. Signage should be thoughtfully placed, easy to understand and keep traffic moving.



PORTABLE VMS

While some need permanent signs, others only need to deploy signage occasionally, such as when their visitor log shows that exiting traffic will be heavy. Others may only require a sign to direct people to visitor parking during special events, such as a conference, college graduation or sporting event.



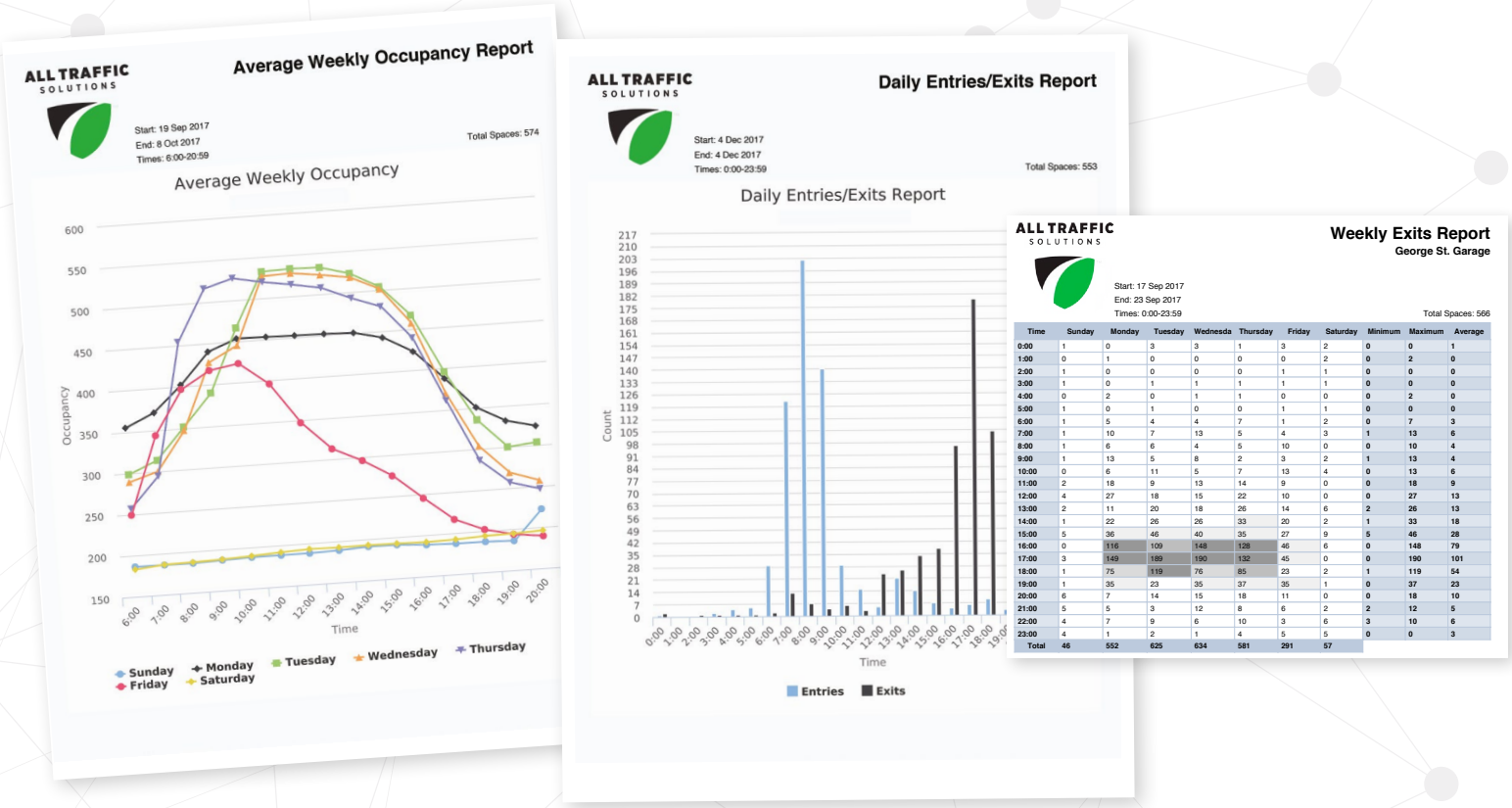
LOT, ZONE, AISLE OR SPACE INDICATORS

Many parking managers wonder if they need to have signs or if they can simply provide wayfinding with red and green lights. It’s all about the right solution for the right needs, and indicators often fit the bill.

APPS, WEBSITES AND SOCIAL MEDIA

These versatile guidance tools let people know instantly when a parking area or zone is crowded. You can use a traditional parking app, a corporate app or intranet, social networks like Twitter and Facebook, or opt-in text messaging. These tools provide empowerment and offer users a variety of information choices.

Data and Reporting

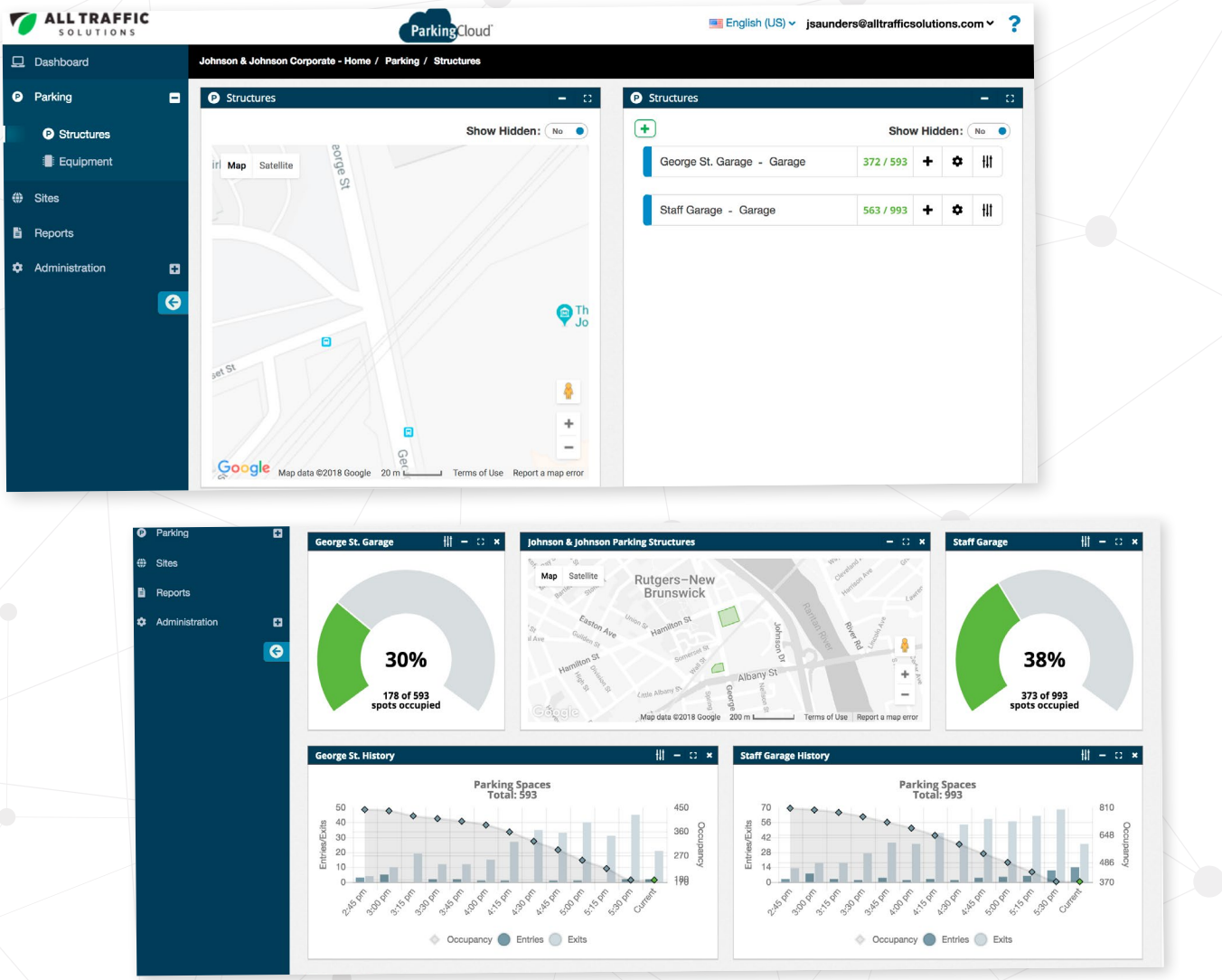


Time	Sunday	Monday	Tuesday	Wednesda	Thursday	Friday	Saturday	Minimum	Maximum	Average
0:00	1	0	3	3	1	3	2	0	0	1
1:00	0	1	0	0	0	0	2	0	2	0
2:00	1	0	0	0	0	1	1	0	0	0
3:00	1	0	1	1	1	1	1	0	0	0
4:00	0	2	0	1	1	0	0	0	2	0
5:00	1	0	1	0	0	1	1	0	0	0
6:00	1	5	4	4	7	1	2	0	7	3
7:00	1	10	7	13	5	4	3	1	13	6
8:00	1	6	6	4	5	10	0	0	10	4
9:00	1	13	5	8	2	3	2	1	13	4
10:00	0	6	11	5	7	13	4	0	13	6
11:00	2	18	9	13	14	9	0	0	18	9
12:00	4	27	18	15	22	10	0	0	27	13
13:00	2	11	20	18	26	14	6	2	26	13
14:00	1	22	26	26	33	20	2	1	33	18
15:00	5	36	46	40	35	27	9	5	46	28
16:00	0	116	109	148	128	46	6	0	148	79
17:00	3	149	189	190	132	45	0	0	190	101
18:00	1	75	119	76	85	23	2	1	119	54
19:00	1	35	23	35	37	35	1	0	37	23
20:00	6	7	14	15	18	11	0	0	18	10
21:00	5	5	3	12	8	6	2	2	12	5
22:00	4	7	9	6	10	3	6	3	10	6
23:00	4	1	2	1	4	5	5	0	0	3
Total	46	552	625	634	581	291	57			

Data and reporting are relatively new to the parking industry. Data shouldn’t just live in your forecasting tool; you should be able to present data to your customers in the form of availability and be able to prepare for what parking may look like in days ahead, based on data trends. If you have a telecommuting policy, there may be a group of people to whom you could give a work-from-home option on heavy parking days. Data is very powerful, but only if you harness it.

You need to have goals for how to use your data. What’s your counting availability goal? Do you want to know how many vehicles enter or exit and when, or what the peak parking periods and days are? Do you want to be able to see your existing entries and exits before you consolidate regional offices into your corporate headquarters or before you build a new parking facility? We’ve seen corporate HQs that close down regional offices and bring everybody on to the corporate campus, only to discover that parking is untenable.

ABOVE: Several of the ParkingCloud reports: Daily Entries/Exits report, Average Weekly Occupancy report, Weekly Exit report



Analytics is also part of the data and reporting structure. Analytics help to break through anecdotal conversations by providing you with the facts. When you're doing parking analysis, being able to forecast availability is kind of the holy grail, but you can get awfully close. You can make infrastructure and parking planning a priority. You can make better decisions about where to place your headcount by knowing where employees, visitors and shoppers can park. In retail, if you're able to see that you're losing 100 potential customers a day because parking is too difficult, you can assign a cost to that.

You have to be able to understand the data, so the data interpretation that comes with your reporting tool is critical. You also want to partner with a provider who not only gives you the data and the reporting, but provides a simple process for interpreting it.

PARKERS

Save time, energy and effort by finding, reserving, paying for and accessing the spot they need when they need it

COMPANIES & FACILITIES

Get employees and tenants into their seats, quickly, easily and without stress, regardless of parking environment

OPERATIONS

Take control over their parking operation and maximize their revenue and profits while reducing costs and expanding revenue sources

IT

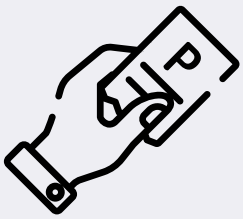
Leverage any device or data set with open standards services platform, ensuring that operations are futureproofed for the next technology decision

CITIES

Reduce congestion, emissions and unhappy motorists with advanced User Experience

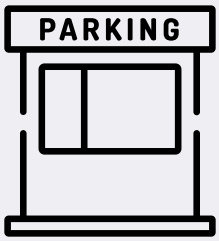
Summary

Real-time Parking Data and Connected Systems Benefit Everyone



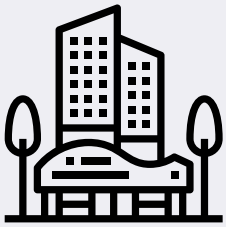
PARKERS

Real-time data and reporting can save parkers time, energy and effort and alleviate stress over where they are going to park because now they're able to reserve it, pay for it and access it in real time.



OPERATORS

Operators can take their garages and their revenue back, increase profits and reduce costs. They can get the best price for their spaces by driving folks to their own apps and driving more revenue for themselves, rather than paying an aggregator.



CITIES

Data helps cities ease the congestion nightmare. Real-time data improves traffic flow by directing people to available parking in real time. Cities that focus on reducing congestion and traffic density have a much happier driving public and a healthier city through reduced emissions.

COMPANIES AND FACILITIES

Real-time parking data makes it easy for employees to find available parking quickly, reducing stress and improving productivity.

DECISION MAKERS AND PLANNERS

Leveraging data for proactive decision-making is what we all want to do. The exciting thing about real-time parking availability and real-time data that tells you what's going on in your facilities is that when machine learning and predictive analytics come into play, you can come pretty close to achieving "availability certainty." You can look at your data in six months to a year, see the trends and be able to accurately forecast. Your tools can be set to do some of that forecasting for you so you never have to guess what parking will look like from year to year. You will know what to expect and can plan for it.

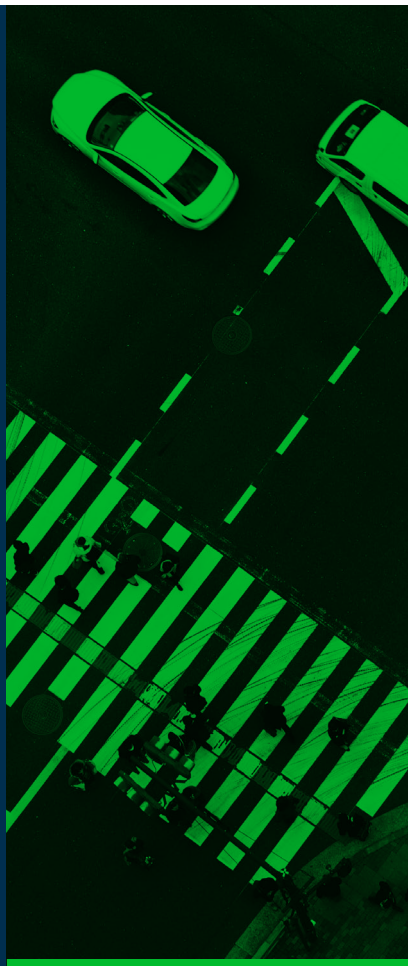
IT

IT has a stake in parking because of its ability to interface with things like the employee ID, campus security and parking gate systems. IT appreciates a parking system that is future-proofed and works well, both from an integration standpoint and an information security standpoint.

ParkingCloud

ATS' ParkingCloud™ is the only cloud-based IoT platform purpose-built for the parking, transportation and traffic industries that integrates all your devices, data and output in one place. ParkingCloud works with just about any third-party data, sensors, legacy devices and publicly available data sets. It has a machine learning engine, provides analytics and reporting, and can combine data sets so that you can see how everything works together and how traffic data potentially impacts parking data and vice versa. ParkingCloud incorporates our (or your existing) guidance and wayfinding system, your reservation system and mobile payments, and PARCS systems.

ParkingCloud removes the burden of having to build out your own system or having to use locally-based systems which require you to continually upgrade or service. We handle all this in real time in the Cloud, making it as maintenance-free and hands-off for you as possible. It's the true easily customizable solution versus a "one-size-fits-all" that really doesn't fit anybody.



Call 866.366.6602 or

email us at sales@alltrafficsolutions.com

All Traffic Solutions is a leader in innovative connected parking technologies that leverage the Cloud, platform and the Internet of Things to provide the most accurate, cost effective and turnkey solutions to meet your parking availability and guidance solutions. By providing an open and interoperable platform to colleges and universities, private companies, commercial operators, municipalities and others needing to understand their parking occupancy and availability and route parkers to spaces quickly and effectively, our mission is to provide a seamless flow for vehicles, helping to create an easier, faster, less complex parking ecosystem. For more information, visit AllTrafficSolutions.com.

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