CLOUD-BASED PARKING SOLUTIONS FOR TODAY'S ENTERPRISES

ALL TRAFFIC SOLUTIONS™

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Introduction

Whether your organization is an airport, hospital, corporate enterprise or warehouse facility, no doubt you are challenged with providing ample, safe, efficient parking facilities for employees and visitors alike.

The good news is that there are practical steps you can take now that will help you to:

- Monitor and track parking availability and traffic speeds 24/7
- Display parking availability notifications in facilities and on adjacent roadways in near real time
- Notify parkers and pedestrians about where to park and how much it costs, impending delays, upcoming events and more
- Calm traffic and increase safety in and around your facilities
- Integrate traffic and parking devices
- Leverage data reports and analytics for near real-time decision making and as proof of program success

This paper explores fundamental parking challenges and provides best practice technology-driven solutions you can implement to overcome your parking dilemmas now and in the future.

We'll also look at two case studies to demonstrate how organizations can benefit from cloud-based IoT* solutions to manage their most challenging parking scenarios.

*Internet of Things

The Situation

Many elements contribute to the fact that parking management, notification and safety issues have become even more challenging in recent years.

Parking Expansion—Not Always an Option

With both urban and suburban areas becoming more congested and commercial real estate rates continuing to climb, the need for optimized parking facilities has grown in importance. As organizations expand, they often find themselves hard-pressed to accommodate the accompanying increased need for parking spaces within the constraints of their existing available square footage. Even when additional square footage is available, it is often cost-prohibitive to build more parking lots and facilities.

Need for Round-the-clock Parking Availability, Safety and Data Collection

For airports and hospitals that operate 24/7, shopping malls that have expanded their operational hours to attract more business and logistics centers with day and night shiftwork, parking facilities management, optimization and safety is a round-the-clock priority, driving up parking and security personnel costs for organizations.

Parking Availability Not Optimized

The challenges for operations and parking security management are many. First, there's the issue of optimizing existing parking availability so parkers can avoid circling and locate open spaces faster to cut down on lot congestion. Even existing parking "count-based" systems don't account for premium space availability, such as expectant mother and handicapped parking. As a result, too much time is spent circling and searching, which results in traffic congestion blocking exits and spilling out onto the roadway, increased pollution and time lost for activities parkers are there to engage in (work, shopping, sporting events). This can negatively impact customer satisfaction.

Reduced Customer Satisfaction Due to Inadequate Signage

When parking entrances and other areas are not marked with clear directional signage, parkers may become confused as to where they are expected to go; they pause to consider their options, causing delays. During peak parking hours, this can result in lines forming at entrances and gates and, again, reduce customer satisfaction.

Insufficient Safety Due to Speeders

Speeding is always a significant issue for parking security, particularly in places like employee and airport parking, shopping malls during the holiday rush, or at any facility where people are hurrying to arrive at a destination, especially when pedestrians are present. Just as on the open road, motorists are not always cognizant of their travel speeds and need to be swiftly reminded before it's too late.

The more crowded the parking area, the more likely the incidence of vehicle and pedestrian accidents. According to the Independent Insurance Agents and Brokers Association (IIABA), it's estimated that one out of every five motor vehicle accidents takes place in a parking lot or facility. (That total does not include all the small nicks and dents that usually go unreported). The IIABA report also states that fourteen percent of all auto damage claims involve collisions in parking premises. One major reason behind the collisions, injuries and fatalities that happen in parking facilities is the mistaken belief that traffic tends to move slower in parking areas, causing a false sense of security in both drivers and pedestrians. Sadly, hundreds are killed each year in parking lot accidents.

For employers, the inability for staff to locate parking in a timely fashion results in lost productivity (which equates to increased overhead and lost revenue), employee frustration, and issues with municipalities as backups from parking facilities create traffic congestion for residents.

What You Can Do: Adopting a "Smart Cities" Approach to Parking Challenges

Just as municipalities are leveraging technology to solve their most pressing parking challenges, smart organizations can do the same.

By leveraging the right technologies like cloud-based control of devices and data and sensor connectivity, and by utilizing analytics to track important metrics such as peak parking hours, availability and number of speeding incidents, you can successfully optimize your parking facilities, increase productivity and keep parkers and pedestrians safer. These tools also provide valuable data and analytics for reporting the success of your initiatives to management.

Best Practice #1 Manage your parking availability to reduce circling, improve parking space "findability" and increase safety in your facility.

Most parkers want to find their spots quickly and easily. Whether you're a hospital, a corporate campus, a sports venue or a mall, guiding parkers to the spot they are looking for is critical to customer satisfaction. It also reduces circling, resulting in a safer, less congested facility and lowering emissions.

Your best bet is to track availability and provide notifications to your parkers in the manner most convenient to them at the point that they need it, via message signs, apps or other vehicles.

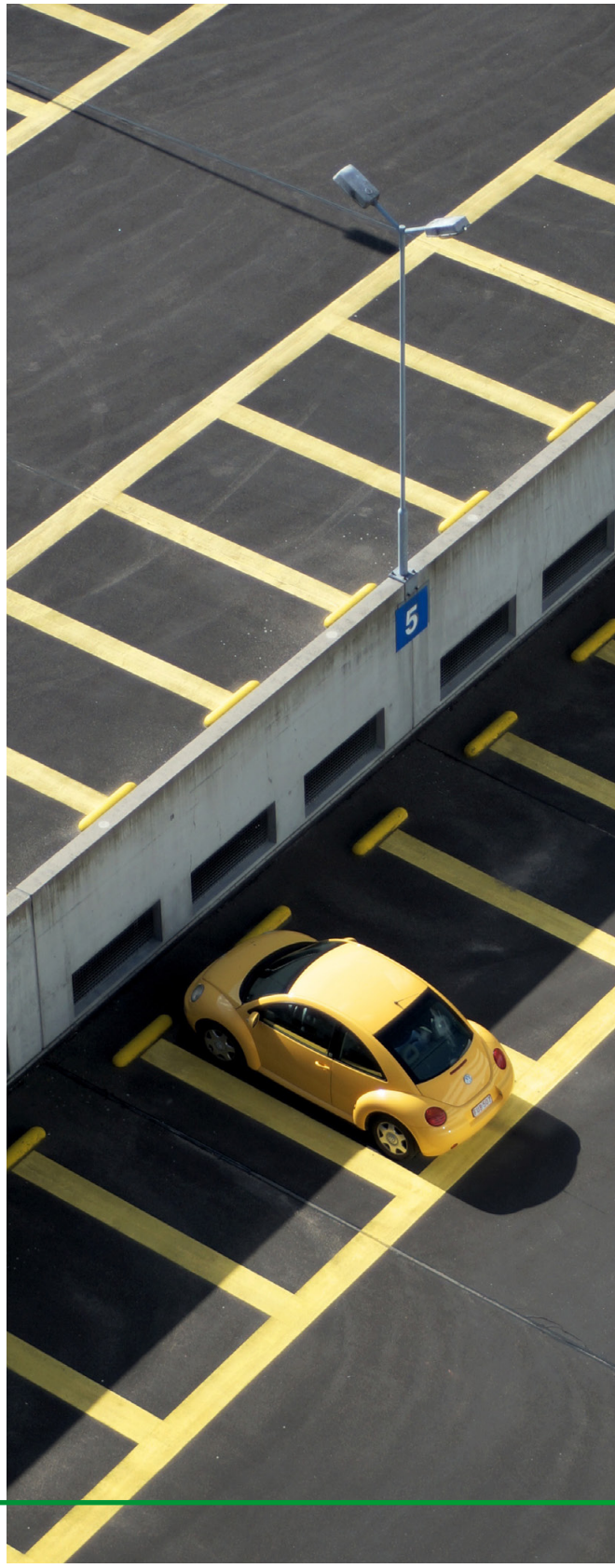
Best Practice #2 Calm speeders using smart traffic calming techniques to provide a safe facility.

Speeding accounts for over 27% of traffic deaths in the US. The interaction between parkers and pedestrians has the potential for negative outcomes, so ensure that you are doing everything in your power to constrain speeds to a safe level. Understand where and when you have speeding issues, and implement best practice traffic calming initiatives to ensure that your pedestrians, as well as other parkers, are provided a safe and secure experience.

Best Practice #3 Leverage onsite messaging to pass along important communications to visitors.

Variable messaging, which provides messages based on input ("Slow down, too fast") or availability information ("14 handicapped spaces available") can help parkers quickly and easily get to the parking they need and contributes to the safest environment possible.

Pre-programmed message signs ("Stairway 6 not in use, go → to Stairway 7") can be extremely effective in helping parkers have the best experience. Message signs can also be used for other communications ("Health fair in the cafeteria today").



> Speeding accounts for over 27% of traffic deaths in the US.

Best Practice #4 Using the Cloud, automate conditional messages to manage your parking and safety 24/7.

Conditional messaging is extremely useful in providing important information to parkers even when you're not there. Information regarding current driving conditions ("Ramp to 6th floor parking icy, proceed with caution"), traffic issues ("Highway 51 experiencing heavy traffic"), and services using pre-set conditional messages, including Time to Destination maps, all work to increase safety and efficiency for parkers.

Best Practice #5 Leverage data to understand what your true parking needs are.

Understanding when it's time to add capacity can be a truly perplexing decision. By understanding your true parking availability, you can better anticipate parkers' needs and have all the information necessary to make smarter decisions about capacity, pricing and access. Real data, rather than extrapolated, is key as you determine go-forward plans.

Why Cloud-based is Key

Unlike separate systems and devices that operate independently and must be accessed and monitored individually, the right cloud-based parking solution should provide centralization of all your traffic devices, signs and sensors, as well as traffic and parking data, from a single platform with an intuitive interface. In addition, it should integrate with your existing solutions and devices, regardless of manufacturer, ensuring that you can leverage your existing investment.

All Traffic Solutions patented TraffiCloud™ is an online traffic management solution that lets you manage and communicate parking availability, optimize resource utilization, improve safety and increase customer satisfaction. TraffiCloud gives you immediate access to data, reports and analytics, as well as remote management from any Internet-connected device.

TraffiCloud

INTEGRATED, DATA-DRIVEN SOLUTIONS FOR BETTER PARKING OUTCOMES

1. **Real-time availability** to maximize yields and usage
2. **All your data** in one secure cloud-based parking solution
3. **Remote access to equipment** reduces time; all connected devices and dynamic messages managed from one central location
4. **Open, flexible, scalable architecture** that integrates with your existing solutions
5. **Easy-to-use dashboards and reports** of all collected data, allowing you to make more insightful decisions based on data analytics from all your program components

TraffiCloud™

CASE STUDY:
PARKING SOLUTIONS

Nationwide Children's Hospital

Hospital improves safety in and around high-traffic parking facilities with web-enabled traffic signs.

Ranked as one of America's Best Children's Hospitals by US News and World Report, Nationwide Children's Hospital is a primary pediatric hospital in Columbus, Ohio, with more than 1,280 medical staff members and over 10,000 total employees.

With staff and visitors arriving at the main hospital campus around the clock, often in a hurry, maintaining the safety of parkers is a prime concern for Dan Yaross, Director of Security. Yaross needed an effective way to slow vehicles as they approached the parking facilities from the hospital's main road. After hearing of Cincinnati Children's Hospital's success with radar display signs from All Traffic Solutions (ATS), he knew he had found the solution he was looking for.

Nationwide Children's purchased the ATS Shield 12 radar display sign. The sign was first deployed in the staff garage where vehicles often entered and circled, traveling over the speed limit. It was programmed to flash when drivers approached at unsafe speeds.

"The results were very good," says Yaross. "The flashing lights really grab people's attention. People hit the garage gate and step on the gas. Once they see those strobe lights flashing, they hit the brakes."

The Shield 12 worked so well to calm traffic in the staff parking garage that the hospital purchased another ATS sign, this time a portable InstAlert 24 variable message display.

"We move the signs around the campus or on the roadway that we own right next to the hospital. You can see people slow down when they see signs. The signs are easy to program and are very intelligent. They have performed well for what we wanted them to do, which is to slow people down."

Signs Instruct Parkers Where to Go

In addition to enlisting the signs to calm traffic, Yaross programs the InstAlert 24 to display instructions to parkers as they approach the parking facility.

"When entering the two-lane garage, everyone played follow the leader—no one was using the second lane, which caused traffic to back up. We programed the sign to read 'Please use both lanes' along with an arrow, and it was very effective."

Because InstAlert 24 is portable, Yaross often deploys it inside the visitors' garage, as well, to instruct parkers to go straight rather than turn right, which used to cause backups and parking delays. The sign is hung from a ceiling beam so parkers can see it on the entry ramp and respond accordingly.

Using Data to Report on Parking Outcomes

Yaross also likes the ease with which he can access data to run reports. His team recently used the data for a briefing with the hospital's management committee to report on unsafe driving by employees. Reports furnished via TraffiCloud, the ATS cloud-based traffic management ecosystem, enabled the committee to review average traveling speeds, the number of vehicles traveling over the speed limit, and the hours where each garage experienced the greatest and fewest speeders.

By utilizing the ATS Shield 12 radar speed display and InstAlert 24 variable message sign, together with TraffiCloud's robust remote functionality, Nationwide Children's Hospital can more effectively manage its high-traffic parking facilities, improving both garage and road safety and reducing the time it takes for staff and visitors to park.

CASE STUDY:
PARKING SOLUTIONS

Cleveland State University

University directs parkers with portable, web-enabled variable message displays.

Directing parkers at a bustling university can be challenging, especially when you want to relay updated information to parkers as space availability changes. The operations team at Cleveland State University, with an enrollment of over 17,000 students, required a parking notification solution that was flexible so they could revise message signs quickly and easily.

"Our garages fill up fast, and we needed a way to notify drivers of the latest availability," said Christmas Mensah, the university's operations manager of parking.

The university's chosen solution was to purchase four of the ATS InstAlert 24 variable speed message signs, along with the TraffiCloud web-based transportation management system. TraffiCloud allows Mensah's team to change sign messages as needed and to download data and reports.

Currently, there are two signs mounted at the entrances of two main garages, each one programmed to display the current percentage of parking spaces that are full. This allows drivers to decide whether to enter the garage or to drive to another parking location. The signs work so well to inform drivers of current parking conditions that the operations team may mount a third at another garage entrance.

The fourth InstAlert 24 variable message sign is transported to various locations around campus including graduations, sporting events and other happenings. The sign is used to notify visitors, students and faculty where to park, and tells them the parking rate for that event. When the sign is moved to another event, they simply reprogram the display with the new parking rate.

"The signs are very bright and all look fantastic. We can use text, numbers and graphics or arrows for the messages," Mensah told us.

Parking Availability and Notification Solutions

SCENARIO

A busy commuter college implements a parking availability notification system in two of their campus garages. It lets parkers know how many spaces are available in each garage—including handicapped and reserved—is updated in near real time using TraffiCloud, and is displayed on variable message signs.

They also install Time to Destination displays that notify parkers of travel times to each major highway so they can choose the best route home.

RESULTS

1. The parking operations team minimizes the need for parkers to circle the garage in search of spaces. This results in less road congestion due to backups at garage entrances and exits, reduced emissions and happier students, staff and visitors.
2. As a result of the Time to Destination displays, major roadways leading from the college are less congested, and staff and students are happier with their decision to commute to campus.

SCENARIO

A Fortune 100 company employs sensor technology in its staff parking lots and garages. These sensors identify parking availability and notify parkers of the number of open spaces (including premium spaces for expectant mothers and the physically challenged) via message displays at each entrance and garage level. The displays update throughout the day in near real time via remote messages programmed in the user-friendly TraffiCloud interface.

Operations staff runs day and time analysis to share with company management. Data shows capacity statistics by time and day of the week, supporting inquiry into whether staggered work hours will alleviate parking congestion.

RESULTS

1. Employees can decide whether to enter the garage and park or to drive on to the next facility.
2. The company succeeds in facilitating increased productivity. Engineers, executives and other highly compensated employees are at their desks ready to work in less time.
3. Frustration associated with circling for parking among various lots is reduced.

SCENARIO

To maximize availability in all its parking areas, a regional airport installs LCD indicators at the end of each aisle in their parking lots. The indicators turn green for available parking, red for full.

The sensors can integrate with apps and other systems to notify drivers where available spaces are located. Mapping software aggregates sensor data and calculates availability at row, section and facility level for on-premises display and remote site management.

They install radar speed displays on the roads leading to each garage entrance to calm traffic and increase pedestrian safety in and around parking areas.

RESULTS

1. Backups at each parking area are drastically reduced, and when combined with apps or remote and radial indicators throughout the airport, they alleviate traffic associated with idling trucks and carts at busy cargo and baggage areas.
2. The number of road incidents, fender benders and parking area accidents involving pedestrians decreases significantly, reducing the number of police patrols at the airport.

SCENARIO

Parking security staff at a major hospital utilizes LCD indicators to track availability of parking spaces. Utilizing TraffiCloud maps and charts, they keep tabs on parking availability, including premium spaces, in near real time.

Using aggregated historical capacity and availability data in TraffiCloud, the hospital drives proactive planning of the additional parking facility required to support their newly expanded programs.

RESULTS

1. Hospital staff and visitors can locate available regular and premium parking spots faster and more efficiently.
2. With analytical reports in hand, the hospital planning team has the data intelligence necessary to calculate the number of additional parking spaces required, based on current occupancy rates.

SCENARIO

A military base requires a fail-proof method to enforce tighter access control by utilizing sensor-driven gate management that counts vehicles as they enter and exit.

RESULTS

1. The base achieves tighter access control and can proactively notify parkers of restrictions and availability.

Conclusion

By leveraging cloud-based parking solutions and products, your organization can maximize parking availability, keep staff and visitors safe and better informed, and calm traffic in and around parking areas, as well as utilize parking data and analytics for more informed decision making.

ATS Solutions

Parking Availability

- Variable message signs on roads leading to parking facilities direct parkers to open spaces.
- Mapping software visually shows availability at row, section and lot levels to inform parkers and parking management.
- Historical data on capacity and availability drives proactive planning.
- Multi-color signs at garage entrances allow facilities to maximize usage and pricing.
- Premium parking space management communicates availability to expectant mothers and those who require handicapped spaces.
- Gating management tracks vehicles as they enter and exit for tighter access control.

Parking Notification

- Near real-time messaging signs provide information on events, weather, traffic delays, etc.
- Remote equipment is managed from any Internet-connected device.
- Conditional messaging based on sensor-driven variables ("Icy Ramps Ahead") or programmed messages ("Don't forget to pre-pay on Level 3") inform parkers and improve safety.
- Integration with mass notification systems can alert parkers to important updates.

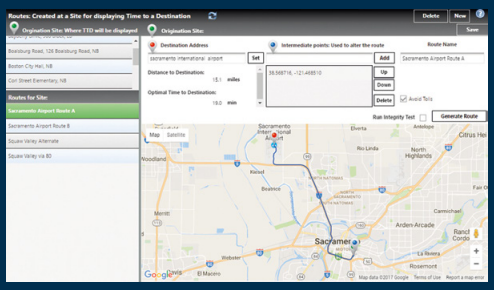
Travel Time Notification

- Time to Destination feature lets parkers choose the best route home, with virtual drive time displays that map and update each route before they even reach their vehicles.
- Message board notifications let drivers choose the best route as they leave your facility.

Traffic Calming for Safer Facilities

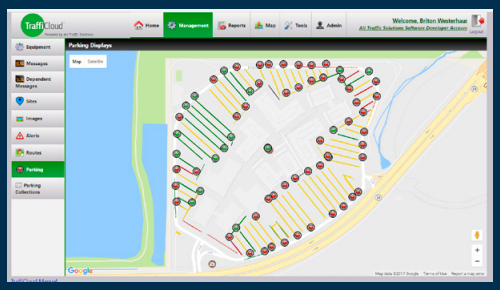
- Leverage data to make safer traffic safety decisions.
- Calm traffic in and around parking areas.
- Enhance staff, visitor, shopper, student and traveler satisfaction through better safety and smoother parking experiences.
- Alert parkers to slow down in heavy pedestrian areas.
- Report on the impact of your traffic safety program.

Products



VIRTUAL DRIVE TIMES

Displays that map and update each route before parkers even get into their vehicles



MAPPING AND CHARTS

Mapping software that visually shows availability at row, section and lot levels for management or parker use

INDICATOR BOLLARDS

LED indicator bollards that display parking availability with a simple red or green light indicator

PARKING NOTIFICATION

Guides drivers to available parking with dynamic VMS messages that update as availability changes

All Traffic Solutions delivers cloud-based traffic management and parking solutions, including radar speed and variable message displays, as well as imaging products and intelligent transportation systems for law enforcement, transportation, smart cities and municipalities. Our solutions let you optimize resources, and our technical support team works with you to maximize the utilization of your equipment. All Traffic Solutions helps you achieve optimal traffic safety outcomes.

- Time to Destination
- Wrong Way Detection
- Smart Work Zones
- Handheld Lidar
- Data Collection
- Parking Notification
- Virtual Drive Times
- Variable Messaging Systems
- Conditional Messaging
- Counter Classifiers
- Radar Speed Displays

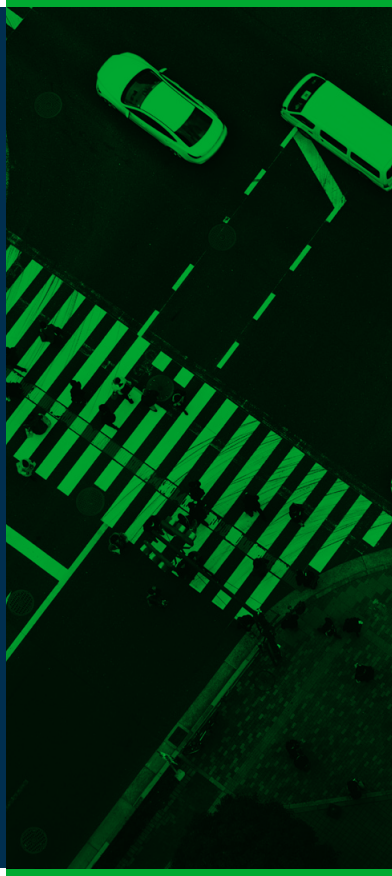
All managed with TraffiCloud.

Learn More

Ask us for a personal demo of TraffiCloud™, the traffic management solution that lets you control your traffic devices and data from any Internet-ready device 24/7, providing a new level of awareness while reducing the amount of time needed to manage your traffic devices and information.

For information on All Traffic Solutions Shield 12 and Shield 15 radar speed displays, our SpeedAlert radar sign with variable message display and our versatile InstAlert variable message displays, contact us today.

Call 866.366.6602 or email us at sales@alltrafficsolutions.com



TraffiCloud leverages our patented technology (US Patents 8,417,442; 8,755,990; 9,070,287; 9,411,893) to deliver unique cloud-based management, features and functionality.

All Traffic Solutions delivers cloud-based traffic management solutions, including radar speed and variable message displays, imaging products and intelligent transportation systems for law enforcement, transportation and communities.

Our innovative TraffiCloud™ traffic management platform is changing the way communities solve their most complex traffic, transportation and parking challenges by allowing them to manage all their traffic equipment remotely, as well as leverage data to increase traffic safety, streamline their operations and achieve lasting results.

ALL TRAFFIC SOLUTIONS™