

The Parking Professional

THE INTERNATIONAL PARKING INSTITUTE

ADVANCING TRANSPORTATION AND MOBILITY

JANUARY 2018



20 ROOM FOR A CITY TO COME TO LIFE

Denmark's massive new automated garage

THE SHAPE PROGRAM

An innovative program to police ADA parking spaces. **26**

AN URBAN PARKING REVOLUTION

Charlotte's Park It! Program changes with the times. **30**

IPi'S YEAR IN REVIEW

It was a great year to advance the parking profession. **37**

GOING AUTONOMOUS, MAYBE

How long until we're really ready for a driverless future? **40**



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20 Room for a City to Come to Life

With a capacity of up to 1,000 cars, Dokk1 Parking in Aarhus, Denmark, is the largest fully automated parking system in Europe and an example for big-city parking of the future.

By Peter Fangel Poulsen



26 The SHAPE of Disabled Parking Enforcement

An innovative parking enforcement program deputizes volunteers to police parking spaces reserved for the disabled, and they take it very seriously.

By Bill Smith, APR



30 The Evolution of Urban Parking

Charlotte's Park It! Program has grown and changed with transportation trends to serve city residents and guests beautifully.

By Clement Gibson, CAPP, and Randy Jones



35 2017 IPI Year in Review

2017 was an amazing year in IPI's mission to advance the parking profession. Celebrate IPI and its members with highlights from the year.



40 Going Autonomous... or Not

There's a lot of talk about driverless vehicles taking over transportation, but how long until we're really ready?

By Thomas Curtis, CAPP

Departments

- 4 **ENTRANCE**
Nous Sommes une Famille!
By Tope Longe
- 6 **FIVE THINGS**
Five Books to Read in 2018
- 8 **MOBILITY & TECH**
**A New Generation of LPR:
Application as the Core
Technology**
By Christopher Perry and Kevin
Woznicki
- 10 **THE GREEN STANDARD**
To Share or Not to Share
By Josh Naramore
- 12 **THE BUSINESS OF PARKING**
Your 2018 Marketing Checklist
By Bill Smith, APR
- 14 **ON THE FRONTLINE**
**Prepared Confidence Speaks
Volumes**
By Cindy Campbell
- 16 **PARKING SPOTLIGHT**
**The Springfield Town Center
Garage Renovation**
By Greg Neiderer, PE
- 18 **ASK THE EXPERTS**
- 44 **IPI IN ACTION**
Your New Magazine
By Kim Fernandez
- 46 **STATE AND REGIONAL
SPOTLIGHT**
**Texas Parking & Transportation
Association**
By Mary Mabry, CAPP
- 48 **AROUND THE INDUSTRY**
- 56 **PARKING CONSULTANTS**
- 58 **ADVERTISER INDEX**
- 58 **PARKING BREAK**
- 59 **CALENDAR**

Happy New Year!

HAPPY 2018! It's a time of resolutions and new beginnings, and we're taking that to heart; you probably already noticed this issue of *The Parking Professional* looks different. That's thanks to our new design. Read more about it on p. 44 and enjoy paging through our refreshed magazine, on paper or online.

There was a new beginning celebrated in Aarhus, Denmark, last year with the opening of Dokk1, the largest, fully automated garage in Europe. This 1,000-car, underground garage gives new meaning to "valet parking" for patrons of the library, shops, and other features of the city's beautiful harbor. Drivers pull up, pay a machine, let a robot pick up and park their cars, and enjoy an easy retrieval process when it's time to go home. Lots has been said about the future of robotic parking, and we love seeing it put into action in the real world. Check out the story on p. 20.

Another big conversation in our industry is around the use and abuse of parking placards for the disabled. Studies show a huge percentage of the permits are misused, either by people other than their owners or when they're obtained fraudulently. When we heard about the sheriff of Onondaga County in upstate New York deputizing regular citizens to enforce Americans with Disabilities Act parking relations and educate the public to reduce fraud, we had to learn more. So far, the program has met great success and is a model for other municipalities. Read about it on p. 26.

My desk is sporting a fresh yearly planner (yes, still on paper), my office is enjoying the results of my annual end-of-year clean-out, and I have lots of resolutions and goals for 2018. I hope your holiday season was warm and bright and that your new year brings success and happiness. As always, please reach out to me anytime.

Until next month...

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IPI INTERNATIONAL PARKING INSTITUTE

Advancing the parking profession



ENTRANCE

Nous Sommes une Famille

By Tope Longe

**“For I have promises to keep and miles to go before I sleep.”
—Robert Frost**

THE YEAR STARTS WITH A REFRESHING BREEZE. We made it! It's 2018! We are blessed or perhaps lucky. We are here! I felt somewhat special when I realized my Entrance would be featured in this issue. What a way to start the year. But the truth is, I would have felt great writing for any issue. The pleasure is in being part of this parking network group and being able to contribute to the advancement of our industry.

I first volunteered to facilitate a session at the 2014 IPI Conference in Dallas, Texas. I had free time between my presentation and the Expo, so why not? I facilitated a presentation by Gary Means, CAPP, who mentioned volunteering as a committee member for IPI. I didn't need convincing and responded to the call for volunteers. Two years after volunteering on the Conference Program Committee and Award of Excellence Committee, I was elected to serve as a member of IPI's Board of Directors. What an honor!

The strength of the IPI network became fully evident to me at the Leadership Summit in October. A close-knit family of industry experts united for a common focus: to advance the industry, carry each other along, and have fun. I was like the newly placed foster child, relishing the warmth that engulfed. Nous sommes une famille—we are a family.

We face challenges such as global warming, progression to autonomous vehicles, and much more. A recent *Guardian* article mentioned that the sale of diesel and gasoline-powered cars in the U.K. is to be outlawed by 2040. Oxford City announced that it is

set to be the first British city to ban all gas and diesel vehicles from some central streets by 2020. The change is in favor of ownership and usage of greener, environmentally friendly vehicles.

Parking professionals need to move with the tides and advance ourselves and the industry. We can do so by being a part and volunteering to move the industry along, to embed mobility nicely into our parking experience. I encourage industry members to join the bandwagon by volunteering or contributing to the industry through effective networking. Thanks to technology advancement, location is not a hindrance. I connect with IPI committees from my base in Abu Dhabi. After all, we are international!

Happy New Year you all! It's time for a New Year's resolution. Mine includes participating in the advancement of the industry through paid or unpaid ventures, inclusion of mobility services, and attracting newer foster children to our vibrant network. 📍



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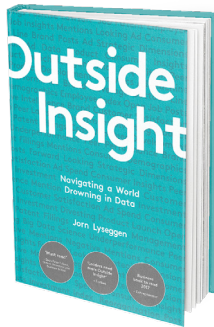
5 THINGS TO KNOW

Five Books to Read in 2018

ENTREPRENEUR RECENTLY PICKED the top 28 business books it said were essential reading to get ahead in the new year. We see a lot of similarities between parking industry managers and entrepreneurs (creative, out-of-the-box thinking, quick on their feet, energetic, we could go on) and while we loved the whole list, we present here the five we think our readers should check out first.

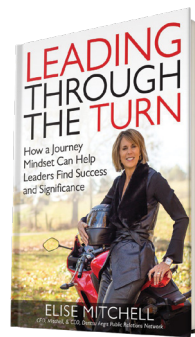
1

“Outside Insight: Navigating a World Drowning in Data” by Jørn Lyseggen. Parking, transportation, and mobility go with data like peanut butter and jelly, only it can be tough to know how to corral all the numbers and turn them into something really useful. This book promises to teach company leaders to shift from numbers to actionable information and make forward-thinking decisions based on that.



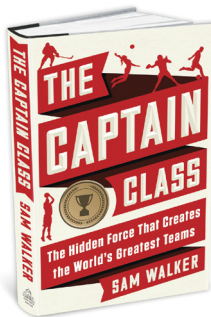
2

“Leading Through the Turn: How a Journey Mindset Can Help Leaders Find Success and Significance” by Elise Mitchell. Change industry? Check. Lots to learn? Check again. Read this pick to master the “journey mindset,” and reach goals and success despite unexpected interruptors.



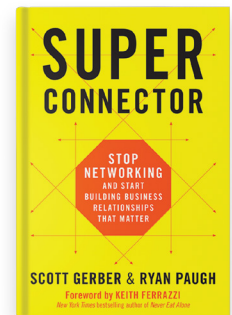
3

“The Captain Class: The Hidden Force that Creates the World’s Greatest Teams” by Sam Walker. Not everybody is destined for leadership. Learn the author’s formula to identify and develop leaders and team members—he says it’s worked for Olympic and NBA teams and it’ll work for your organization too.



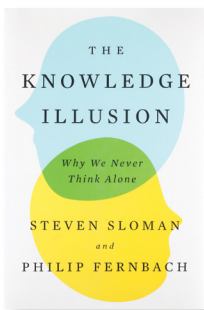
4

“Superconnector: Stop Networking and Start Building Business Relationships that Matter” by Scott Gerber and Ryan Paugh. Tired of grip-and-grin events that leave you with a pocket full of business cards and not much else? Superconnectors focus their energies instead on building relationships and pulling people together to find innovative new ideas.



5

“The Knowledge Illusion: Why We Never Think Alone” by Steven Sloman and Philip Fernbach. Got collaboration? Read this book to learn why it’s so important to consider other perspectives beyond our own and how to create true genius by collecting knowledge all around us.



Want to see all 28 books to read in 2018? Visit bit.ly/2018books to see the whole list.



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A New Generation of LPR: Application as the Core Technology

By Christopher Perry and Kevin Woznicki

THE RENAISSANCE OF URBANIZATION brings with it side effects and challenges. An increasing number of vehicles is one of its side effects and brings with it new demands to existing infrastructure, particularly those that rely on license plate recognition (LPR) systems such as parking, tolling, and intelligent transportation systems (ITS). As the number of service providers increases, so does the pressure on integrators to deliver smart traffic and parking systems faster and more efficiently.

Unfortunately, LPR technology and hardware do not always mix and therefore cannot always provide the support integrators seek when providing easy-to-integrate, scalable, and cost-effective LPR solutions.

As far as technology providers are concerned, the winners will be those companies who are willing to take a more customer-oriented stance, listen to the actual needs of integrators, and develop products and services implementing best practices from other industries that are still alien to the LPR scene. When defining a new approach toward supplying LPR technology to integrators, it is essential to know what they need.


A recent case of an integrator operating a parking facility in Europe describes this scenario. The parking facility struggled to reach its desired daily occupancy volume and often had many unused parking spaces, leading the operator to rent them out for daily and weekly time periods. This created a need for increased security, resulting in the purchase of a CCTV-PTZ (pan-tilt-zoom) system. The parking facility also wanted a system to automate the entrance and exit of cars in the facility using an LPR system to monitor the inbound and outbound traffic. They already had CCTV cameras installed and were hesitant to purchase additional and potentially redundant equipment. Of course, the facility also needed the new system up and running in a few weeks and on a tight budget. They needed to implement an LPR system that used the existing hardware infrastructure.

The solution was simple: Provide an LPR application that connects to an image source by defining the URL of the stream, reads and analyzes the data stream, optimizes the recognition rate, and provides validated results in a database format that fits the integrator's requirements. This solution reduced the implementation costs while simultaneously providing recognition rates of 97 to 99 percent.

There is a rising market demand to create a truly hardware- and platform-independent analytic, data collection, and parking management system based on LPR technology.

The Future: LPR as SaaS

There is a rising market demand to create a truly hardware- and platform-independent analytic, data collection, and parking management system based on LPR technology. When software is the backbone of these platforms, the development and deployment of video analytics, data collection systems, and business intelligence systems will be accelerated.

What does the future hold for the industry? The push for cost-effective, easy-to-implement LPR solutions that are hardware independent will pave the way for software as a solution (SaaS) and other cloud-based solutions. The successful suppliers will be those who listen to the needs of the customer and are able to adapt and deliver. Technology providers need to turn away from industry norms and deliver future-proof solutions. LPR applications combined with strict service-level agreements will guarantee continuous high-level output—a must for the present and future integrator as this model motivates the provider to deliver continuous outstanding performance and reliability. 



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To Share or Not to Share

By Josh Naramore

TECHNOLOGICAL INNOVATION AND CULTURAL CHANGE as the sharing economy continues to grow are forcing parking operators to adapt. New services are challenging local government regulatory approaches, making it difficult to differentiate between public and private, personal and business, and creating a chaotic, but positive, disruption.

Transportation is the second-highest household expense after housing. Having limited mobility options affects residents and employees, restricting the economy and quality of life. Transportation and mobility need to adapt to more rapidly advance improvements to transit, biking, walking, and increased mobility options.

Shared-use mobility services include public transit, bike- and car-sharing, taxis, ride-sharing (carpool and van-pool), and ride-sourcing (Lyft and Uber). Combined in a community, these services create a comprehensive mobility system to meet equitable transportation challenges. They provide greater mobility choices, reduced transportation costs, and choices to individuals who cannot afford to purchase and maintain a vehicle. When it functions well, transit can be an important tool for equity. Key is actively bringing transit agencies, private mobility companies, and communities together to ensure that equity considerations are included within all forms of mobility. Car-sharing is a key component of the sharing economy and should be carefully considered by local governments, institutional partners, and the private sector.

What Is Car-Share?

Car-sharing offers access to a vehicle or fleet of vehicles for short-term use and is priced by the hour or minute,

located throughout the community, and offers a bundled rate to cover most if not all costs. The two primary types of car-sharing are point-to-point model (trips can start and end in different locations) and the reserved-space model (trips start and end in the same location). It provides many of the benefits of a personal vehicle, but without the costs of ownership. There also has been a rise in peer-to-peer car-sharing programs that allow individuals to share underutilized personal vehicles.

Car sharing expands mobility options, leading to reduced household car ownership rates and vehicle miles traveled. It also facilitates more careful consideration of the necessity, duration, and distance of car trips and can boost transit use, bike trips, and walking.

Reduced parking demand requires less space to park cars at employer sites, residential locations, and transit stations. The construction of new structured parking can be delayed or mitigated and parking costs for residents can fall.

There are also clear environmental benefits. Car-sharing reduces car ownership and vehicle miles traveled while increasing walking, biking, and connections to public transit, contributing to reduced greenhouse gases and particulate emissions. Many car-share companies are trying to deploy electric fleets, also lowering emissions.

Resources

The Shared-Use Mobility Center (sharedusemobilitycenter.org) is a nonprofit providing research and pilot projects to support innovation and collaboration in new mobility. It offers toolkits, research on best practices, and a network of programs.

For car-sharing to be a realistic transportation option, it needs to reach a wide geographic area and a broad range of residents and users. Cities may need to consider a distribution requirement to ensure companies locate vehicles in all areas and those most in need, including households with limited access to transportation and low rates of car ownership. Cities can partner with companies to ensure that program costs are within reach of most individuals.

Improving access across jurisdictional boundaries where most transit services do not cross can help provide greater access to jobs. On- and off-street parking policies also need to be examined. Depending on the different types of car-share operations, cities need to adopt policies to standardize signage and the types of permitting or licensing to allow operators to ensure available parking. Parking and charging station availability provide opportunities for private businesses and parking operators wanting to offer car-share. [P](#)



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Your 2018 Marketing Checklist

By Bill Smith, APR

THE NEW YEAR IS ABOUT GETTING A FRESH START, RIGHT? Well, that certainly goes for marketing. The beginning of a new year is a great time for reviewing your organization's marketing to determine what's working and what isn't.

Strategy

As hard as it may be to believe, many parking organizations still take a haphazard approach to marketing. Many are stuck in the past, still pursuing the same strategies and tactics they were implementing back in the '70s and '80s. Parking is a vastly different industry than it was back then—heck, it's nearly unrecognizable from just a decade ago. If your marketing revolves just around responding to RFPs and meeting up with friends at conferences, you're living in the past. These are important components, but they are only a couple of the tactics you need to be pursuing.

Evaluate whether your marketing strategies still align with your organization's business strategies. Where do you want to be as an organization in three, five, even 10 years? Where will new business opportunities lie in those periods of time? Is your strategy geared toward taking advantage of those opportunities? Remember, when you set a marketing strategy, you aren't just planning for your current customers and prospects, you are planning for reaching future customers too. In many cases, those future customers won't even be known to you because the industry is changing so rapidly. As you might imagine, being ready to reach customers who may not even exist yet can take some creativity.

Traditional Approaches

Most parking organizations still aren't pursuing the most important marketing approach—public relations. I have to admit up front that I'm biased here. But in spite of my personal biases, I honestly think public relations can be a powerful marketing tool for most parking organizations and non-parking businesses that

The question isn't what type of parking organizations should be doing PR, because they all should. The question is, what type of PR program should be implemented to help your organization meet its business goals.

serve the parking industry. PR programs, particularly those that revolve around publicity, allow organizations to reach hundreds of thousands—even millions—of people who may have an interest in your organization's product or service.

The question isn't what type of parking organizations should be doing PR, because they all should. The question is, what type of PR program should be implemented to help your organization meet its business goals. Where should you be publicizing your organization and its products or services? What messages should you be conveying through your program? What types of publicity will best serve your purposes? Which additional PR tactics will provide value (such as speaking at conferences or going


after industry awards)? These are the questions you should be seeking to answer when deciding how to best use PR.

In with the New

By now everyone knows how important it is to have a social media strategy, but it's not always easy for established parking organizations to implement one. There's not room here to offer a comprehensive list of suggestions—I've written entire columns on that in the past. But I do want to reiterate the basics of social media.

First, don't be afraid. Social media doesn't have to be scary. Just remember that it requires a full-time commitment. Rely on dedicated, trained staff or consultants to implement your strategy, and give them sole access to your platforms, including Facebook, LinkedIn, Twitter, and Instagram. The last thing you need is for everyone in your organization to have unfettered access to your channels.

Use social media to convey who you are as an organization and what type of values you have. Of course, social media is also a great way to keep your followers informed about your organization and what's going on with you.

This is a great time for getting a fresh start with your marketing. By reassessing your goals and strategies and implementing a marketing plan that combines both tried-and-true and new marketing approaches you can be off and running! 



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Prepared Confidence Speaks Volumes

By Cindy Campbell

AM A PUBLIC SPEAKER. Honestly, it was never one of my original career goals. Having said that, it's now what I do for a living and I love it. If someone would have told me 20 years ago that this would be my next professional endeavor, I most certainly would have laughed and thrown the delusional soul out of the confines of my safe little office. Fast forward to 2018 and here I am, relishing every single forward-facing moment of this truly rewarding career.

Perhaps like the old me, you don't aspire to become a public-speaking road warrior, and that's fine, but wouldn't it be wonderful to feel more confident about the presentations and speaking opportunities required of you in your current role? Let me answer that one: Sure it would. Having confidence in anything we do can greatly improve the outcome. So, what's a nervous parking professional to do? How do we overcome the fear factor associated with public speaking? Is that even possible?



Setting Goals

It's best to start with realistic goals. Fact is, it's likely that you will never completely get over feeling nervous about public speaking, and that's a good thing. A small amount of discomfort with public speaking can actually help you stay focused and on topic. The fear of public speaking can motivate you to be better prepared.

Here are a few key points to consider if you're someone who feels anxious or overwhelmed when called upon to present in public:

- **Change your mindset.** Use the fear you're feeling to your advantage. I'll admit it—I still have nerves every time I present. I know the feeling of adrenaline when I wake up knowing I'll be presenting that day. Over time, I've learned to change my view of that rush from anxiety to one of excitement. I am genuinely excited to be presenting because I've decided that's my reality. It was a difficult pivot for me at first, but

I'm now programmed to feel excitement and enthusiasm. It's become automatic and authentic, and audiences generally prefer energetic, positive speakers.

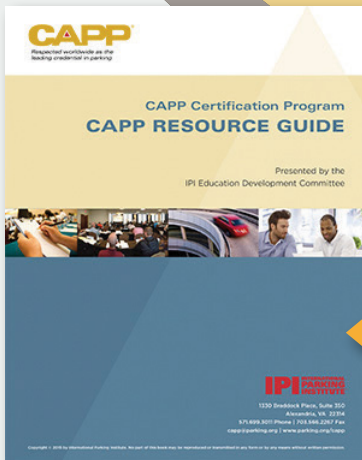
- **Prepare and rehearse.** Preparation includes rehearsing your presentation. Don't allow yourself to be lulled into a false sense of confidence. Never just wing it. Knowing your subject matter is different than being prepared to provide a timed presentation on a topic. We've all experienced that rambling speaker who somehow lost their way on a subject they knew well. One of the main reasons this happens is complacency. When we fail to practice due to complacency or being over-confident, we may not represent ourselves in a credible way. You will be a more effective speaker if you can use that anxiety as a motivation to rehearse your material, no matter how well you know it.
- **Anticipate.** Consider what the physical setting will be. What kind of lighting will be in the room during your presentation? Will it be very bright or very dark? Do you have detailed slides that won't be visible from parts of the room? The seating layout and lighting levels in a room can significantly affect your effectiveness. If you're using visuals (such as PowerPoint), slides with a dark background in a brightly lit room can render the presentation useless. Consider the size of the detail included on each slide. Be prepared to provide handouts if detail is necessary. Have you anticipated the likely follow-up questions from the audience? Are you prepared with those answers or resources? Benjamin Franklin once said, "By failing to prepare, we prepare to fail." Let me encourage you to invest a little extra time on preparing your next presentation. Make the time to be your best representative. [P](#)



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The Springfield Town Center Garage Renovation

By Greg Neiderer, PE

THE REDEVELOPMENT OF SPRINGFIELD TOWN CENTER, Springfield, Va., posed multiple challenges: Not only did the mall need to stay open during an extensive renovation, but its aging parking garages needed to do the same. Property owner Vornado Realty Trust worked with Walker Consultants to achieve a 10-year life extension for the garages, which can house 4,050 cars, on a budget of \$3.5 million—a fraction of the more-than \$50 million estimated replacement cost.



The garages serve mall customers and employees and a nearby commuter rail station and were needed for construction vehicle parking during the mall's renovation. A phasing system was implemented to allow 80 percent of spaces to remain operational while the garages underwent rehab; it also provided for emergency egress even when stairwells were closed for replacement.

The Challenges

The mall's owner wanted to spend most of its construction budget on the mall itself but needed to extend the life of its parking structures, which needed some major repairs. The mall's size was being slightly reduced and several surface lots were considered for redevelopment,

which would push more demand to its garages in time. Several goals were established at the start of the project:

- Maintaining adequate parking.
- Maintaining adequate egress.
- Cost-effectively addressing some heavily damaged areas of the structures.
- Strategically renovating failed waterproofing systems.

The phasing system implemented to allow the garages to stay open meant contractors could work on about 800 spaces at a time.

Stairs

Stairwells posed unique challenges. The garages had two sets of primary stairs shoppers used to reach the mall and four

The Project Team

OWNER: Vornado Realty Trust
RESTORATION ENGINEER: Walker Consultants
CONTRACTOR: Consolidated Waterproofing Contractors
CONSTRUCTION MANAGER: Whiting-Turner

sets that served as emergency egress routes. Those emergency stairs had received less maintenance than the primary sets during a number of years and were exposed to more rain and snow, and their treads, landings, and railings had deteriorated to the point that it didn't make financial sense to repair them.

The egress stairs were replaced within their existing steel frames, and the new stairs were waterproofed. In several phases, temporary, fire-rated egress stairs were installed to ensure emergency access while the permanent staircases were replaced.

Decks

Springfield Town Center's garages had relatively flat decks that collected water in bad-weather events. To combat that, drains were installed where water tended to pond; this reduced both slipping hazards and future deterioration.

Bearing pads between tees and beams and between beams and columns had deteriorated to the point of failure due to the age of the structure. Expansion joint slide bearings also needed replacement due to age. A strategic replacement of the pads and bearings in high-displacement cycle locations was found to economically address the condition.

Structural concrete repairs were primarily focused on the vulnerable welded



steel connections along the double tees' 60-foot edges and the deteriorated wash concrete. A long-term replacement of these failing carbon-steel welded connections with a stainless-steel alternative was chosen. The deteriorated wash concrete was replaced with a more durable concrete and supplemented by a passive anode system to reduce the risk of adjacent corrosion activity and damage.

Along the Way


There were a few surprises during the repair, the largest of which was that

at several expansion joints, the rubber-like glands did not travel within the corresponding structural gap. At these locations modifications were made to align glands and gaps to ensure long-term performance.

Another surprise was the need for extensive signage for rail commuter parking as those drivers often arrived in haste and quickly became frustrated when their travel path was circuitous. Installing additional temporary signage was found to be the cost-effective solution for these commuters' needs for fast access to parking spots.

There were sustainable benefits to this project. Repairing the garages saved not just millions of dollars, but at least 40,000 tons of concrete debris that would have resulted in a replacement project. This also resulted in reduction of more than 10,000 tons of CO2 emissions that would have been required for a new garage.

A Project Success

The renovation of the garages at Springfield Town Center was a unique project that required some creative thinking to stay on time and budget and reach all of the owner's goals. The repairs permitted shoppers to continue to patronize their favorite stores, using convenient parking within each construction phase. New, similar, stand-alone parking garages currently cost between \$15,000 and \$20,000 per parking space; these garages were renovated at a cost near \$900 per parking space, or 5 to 6 percent of replacement cost. 



GREG NEIDERER, PE, is a principal with Walker Consultants. He can be reached at gneiderer@walkerconsultants.com.

ASK THE EXPERTS

What goal have you set for 2018?



Mark Lyons, CAPP
General Manager,
Parking Division
City of Sarasota, Fla.

Increase life experiences by traveling abroad. Give more. Lastly, to work with more purpose, using technology and sharing data in a collaborative effort to improve our mobility efforts and broaden my sphere of influence in the areas that affect my community.



Jennifer Tougas, CAPP, PhD
Director, Parking
and Transportation
Services
Western Kentucky
University

Adapt to campus construction. Improve operational efficiency to adapt to looming budget cuts without losing effectiveness. And help our commuting students find parking easily.



Josh Cantor
Director, Parking
and Transportation
George Mason
University

I am looking forward to really setting the stage for the parking technology we use that will steer our operations during the next five to 10 years, as well as better integrating into our TDM programs.



Brian Shaw, CAPP
Executive Director,
Parking and
Transportation
Stanford University

We are focused on digitizing our program and services. By the end of 2018, we should have moved to virtual permits via LPR enforcement, online transit benefits, and real-time parking utilization data. We want to move from the 20th to the 21st century during 2018.



Debbie Hoffmann, CAPP, MS
Associate Director,
Transportation
Services
Texas A&M
University

My goal for 2018 is to make progress toward defining and in some cases implementing, solutions to move closer toward using license plate recognition for a permitless operation.


||| HAVE A QUESTION? Send it to editor@parking.org and watch this space for answers from the experts.

The opinions and thoughts expressed by the contributors do not necessarily reflect the opinions and viewpoints of the International Parking Institute or official policies of IPI.

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Room for a City

Cars are a natural part of the city's heartbeat, and many people are dependent on having personal vehicles. However, cars also take up space in the city that could be used for other purposes to improve the lives of the people who live and work there.

In the past almost-10 years, Aarhus, the second largest city in Denmark, has transformed its inner harbor area—close to the historical center of the city, the cathedral, and the Aarhus River—into a city space full of life and activity, a new link between the center of the city and the harbor.

An important element in this project is that cars

and the old, open car parks on the waterfront were moved to make room for three new waterfront spaces on staggered levels, unfolding down to the water at the harbor. The new spaces are multi-functional and have room for large-scale concerts and everyday activities such as soccer. From these spaces, people can enjoy views of the harbor and the sea—views framed by two



With a capacity of up to 1,000 cars, Dokk1 Parking in Aarhus, Denmark, is the largest fully automated parking system in Europe and an example for big-city parking of the future.

By Peter Fangel Poulsen

to Come to Life

very striking new buildings: Navitas and Dokk1. Here, you will find room for all recreational aspects of city life in a setting that links the various elements together, including the city's past.

In order to realize the idea of removing cars from the surface, Realdania By & Byg developed a fully automated underground parking system that has made a huge contribution to the area's transformation. The new garage is the largest automated parking facility in Europe, with room for almost 1,000 cars on three underground levels beneath Dokk1.

The firm wanted to provide an innovative example of the future of big-city parking and came up with a parking solution that will set new standards of parking comfort by rethinking the process from the user angle, and which, by the rational use of space, will make more room for the life of the city.

Safe and Easy Parking

Users no longer need to drive through the murky, twisty underground car parks of times past, instead delivering their car in a transfer cabin at street level and



Dokk1, Europe's largest fully automated parking garage, brings to life the inner harbor of Aarhus, Denmark.

Below: A robotic system makes it easy and quick for drivers to drop their cars off for parking and be on their way.



identifying themselves at a terminal. This only takes a minute and then the system takes over. When the car has been delivered, a hoist moves it down to the desired level, and it is guided to its bay by a transfer vehicle specially designed for this facility.

The delivery area offers views over the harbor and inward toward the city. Good lighting and subdued acoustics make parking the car a pleasant experience. On returning, it usually takes two minutes to retrieve a car from its underground bay and have it delivered in



one of the transfer cabins; it's turned out to be a short time in which to stand and admire the qualities of the place.

Use of Space

The new automated parking system under Dokk1 is the result of several years of development involving the municipality of Aarhus, Realdania By & Byg, and German partner Lödige Industries. A system was developed that moves cars around faster than other automated parking systems have to date.

Other parking systems employ pallets on which the cars are placed and moved around, but the Dokk1 system works differently. Lödige designed a small, self-propelled unit called a shifter that slides in under the car and gets a grip under each tire, enabling the car to be moved without the use of pallets.

When the car has been moved, the shifter can immediately move on to the next task so the only thing taking up space in the parking bay is the car itself. The fact that no pallet is needed is a real space saver. The shifter is only 8.6 centimeters (about 3.25 inches) high, so it can get in under most cars. The shifter technology means that cars can quickly be moved around within the system and less parking space is needed.

This is why it is possible to park nearly 1,000 cars in an underground facility measuring 82 by 100 meters. Parking starts with the user parking the car in one of the transfer cabins at street level. The hoist then

descends with the car to the appropriate level where the shifter goes into action. Two shifters are used to move a car—one for each set of wheels. The shifter moves in under the car, folds out to catch the tires, and moves the car to a large transfer vehicle. The transport vehicle moves the car and its shifters to an empty bay, where the shifters put it in place.

The car is centered in the hoist on the way down. An advanced weighing system using 16 weighing points determines the exact position of the wheels in the hoist. If the car is askew, four shifting plates—one for each wheel—align it properly as the hoist moves down. This ensures that the car is properly centered so the shifters can just glide in under it and move it on.

How Dokk1 Works

1. The car is driven into a parking cabin, which is also a hoist.
2. The hoist moves down to one of the three levels in the underground parking system.
3. The car is picked up by two small shifters—small transporters that slide in under the car and grip the tires.
4. The shifters move the car onto a large transfer vehicle.
5. The transfer vehicle moves the car to an empty parking bay.
6. The shifters move the car into the parking bay.
7. Four bays are wider to allow for better access.
8. Touch panels and terminal navigation were tested by several groups of users to make the system as user-friendly as possible.





Modern, Sustainable Parking

The automated parking facility under Dokk1 realizes a new vision of modern, sustainable parking using a minimum of space. In a traditional multi-story car park, drivers have to drive around the building to find a space. This is unnecessary in Dokk1 because the computer that manages the facility always knows where the empty spaces are. The facility has 20 transfer cabins so drivers will nearly always be able to deliver their car without waiting. If only one of the almost 1,000 places is free, a driver can get it right away.

This is also an advantage in terms of the general traffic situation in the city. Research has shown that up to 30 percent of car movement in the city center is made up by drivers looking for parking spaces. A large-capacity car park may considerably reduce this traffic.

Another advantage of moving the cars fully automatically is that it is possible to park cars much closer to each other, making room for 30 percent more cars than in a traditional multi-story car park. This makes good sense in a city like Aarhus, where there is considerable need for parking in the city center but where parking spaces are very limited in number and also expensive.

Comfort and Safety

One advantage of the parking system being underground is that there is a constant temperature of 15–16 degrees Celsius (about 59–60 degrees Fahrenheit), so drivers can retrieve a car that is not like a deep freezer in winter or an oven in summer. And as the human element has been removed from the parking process, garage-related dents and scratches are a thing of the past. Users also appreciate the fact that there is little

Just the Facts

- Capacity: 972 parking bays and a little short-stay parking at street level.
- Size: 82 x 100 x 5 meters/270 x 328 x 17 feet.
- Levels: 3.
- Vehicles: Vehicles up to 2 meters/6.5 feet high, weight maximum 2.5 tons.
- Parking cabins: 20.
- Time to park a car: 40–60 seconds per vehicle.
- Retrieval time: 210 seconds maximum per car.
- Investment: 550 million DKK/\$87.5 million.

chance of theft from a locked underground facility where there are only cars. The sense of safety is further being strengthened by the presence of guards in the facility 24/7. In addition, users are very pleased with all the technology that makes parking a simple, user-friendly experience and that frees up space for other activities in the city.

The system has been adopted by another project in Copenhagen, the capital of Denmark, named BLOX, which is a multifunctional house on the harbor front that will be home to the Danish Centre of Architecture and a hub for companies, researchers, and organizations working with architecture, design, construction, and digitization.

While the technology used in BLOX is the same, the capacity is approximately a third of the capacity in Dokk1. [P](#)



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The **SHAPE** of Disabled



Parking Enforcement

By Bill Smith, APR



An innovative parking enforcement program deputizes volunteers to police parking spaces reserved for the disabled, and they take it very seriously.



Anyone who has a disability or loves someone with a disability has experienced the frustration of not being able to find parking because the designated parking for the disabled is being abused or misused. People with disabilities typically have mobility challenges that make access to disabled parking essential, and abuse of those spaces can cause serious economic and social hardship to the people who rely on them.

The Onondaga County Sheriff's Office in upstate New York operates a creative program designed to address this common problem. The Sheriff's Accessible Parking Enforcement (SHAPE) program was created in 1989 to educate the public about parking for the disabled and how that parking should be used while enhancing enforcement at the same time.

No Plate?....No Permit?



No Parking!

It's the law. Disabled parking spaces are not for everyone.

ONONDAGA COUNTY SHERIFF'S ACCESIBLE PARKING ENFORCEMENT

The SHAPE program uses volunteers from the community, some with disabilities and some without, as deputized enforcement officers. After undergoing rigorous background checks, the volunteers receive extensive training; upon completing the training, they are made accessible parking enforcement specialists who have the authority to write tickets for parking violations in disabled spaces and for blocking curb cuts and fire lanes. The program currently has 17 active specialists, each of whom is expected to volunteer at least four hours of time each month.

In the summer of 2016, the SHAPE program was expanded to include security officers from Destiny USA, the local shopping mall. Last year, the mall's enforcement officers began to participate in the SHAPE training, and they can now write parking tickets on mall property when spaces for the disabled are misused or curb cuts and fire lanes are blocked.

The Program

Listening to Program Administrator John Fedkiw share experiences about the program, you realize that the job is seldom boring for him and his team of volunteer deputies, and the days can be filled with the unexpected.

"One day I was writing a ticket on a vehicle parked in a disabled space without a disabled parking placard," says Fedkiw. "I was approached by two very rough-looking individuals that were the epitome of Hell's Angels bikers. I figured that the vehicle belonged to one of them and steeled myself for what was to come. One of the men asked me how often I patrolled this particular parking lot, and I told him as often as I was able. The gentleman gave me a high-five and

told me it was about time that somebody was doing something about these able-bodied people taking these parking spaces from people who needed them."

As important as enforcement is, it's not the only mission of the SHAPE program. According to Fedkiw, the program's primary mission is actually education.

"It's not just the driving public that needs to be educated," says Fedkiw. "Seniors and people with disabilities often don't know their responsibilities as disabled permit users. For instance, many placard users don't know that even permanent permits expire and need to be renewed every few years."

Fedkiw says that rather than give disabled and older drivers tickets for using expired placards, his officers are trained to let the users know that they need to renew their placards. Fedkiw himself often presents at local senior centers and assisted-living residences, explaining how the SHAPE program works and providing information about how often disabled placards must be renewed and how drivers can do so.

Another common problem is family members using placards inappropriately. "A lot of people believe that the disabled placard is registered to the car rather than the person," says Fedkiw. "They assume it's OK to park in disabled parking and use dad's placard when they are driving dad's car. When we see an obviously able-bodied person parked inappropriately we explain the rules to them and get them to move to an appropriate parking space."

ADA Education

In addition to educating users about the rules governing parking for the disabled, Fedkiw and his staff also work closely with local business owners to educate them on their responsibilities as set by the Americans with Disabilities Act (ADA).

"Local businesses don't always know what their legal responsibilities are when it comes to disabled parking," says Fedkiw. "Rather than fining businesses for coming up short, we prefer to educate them and help them get up to code as quickly as possible."

Sergeant Jon Seeber, the Onondaga County Sheriff's Office's public information officer and the program's director, agrees that the education mission is essential. "People don't always understand how disabled parking works, and it's our job to educate them," he says. "For instance, many people don't realize that the striped area next to HP van spaces must be kept clear for vans' wheelchair ramps. When drivers park in

these areas, people who use wheelchairs can't get back into their vehicles and are essentially stranded."

Fedkiw offers an example to demonstrate the importance of educating businesses about how disabled parking works—and how education can be more beneficial than writing a ticket: "I received a complaint that a grocery store belonging to a large chain had set up their shopping cart return cages in the access aisles" says Fedkiw. "These aisles have yellow or blue strips painted in spaces between disabled spaces as well as a sign that states "No Parking at Any Time," and they are intended to accommodate vans that are equipped with wheelchair lifts and ramps or just to have room to set up a wheelchair and help a disabled person out of the car into the chair. I went out to investigate the complaint and found the situation was as presented. I located the store's general manager and informed him that his store had a parking code violation. When he saw the violation, he explained to me that he had no idea what the strips between the parking spaces were for. He also told me that he thought that they were doing well for not blocking the parking spaces. He had the cages moved by the next day."

Rather than just writing a ticket and moving on, the deputy—Fedkiw in this case—was able to initiate a change that would provide ongoing benefit to drivers with disabilities. Of course, not all efforts to educate the public go as planned.

The Unexpected

"I, along with two of my special deputies and a cameraman, went to a local shopping area to obtain footage on SHAPE deputies patrolling a parking lot," says Fedkiw. "We came across a vehicle parked in front of a restaurant blocking a curb cut, which of course are illegal to block. Our intent was to get footage of one of the deputies writing a ticket. The ticket would be voided and the driver would receive a warning ticket not to block the curb cut.

"While the deputy was writing the ticket the driver, who was a delivery person for the restaurant, came out, saw what was going on, and went off on the deputies. She wouldn't let my guys get a word in edgewise. The deputies tried to tell her that they were going to void the ticket and that she could park in front of the curb cut or behind it, but not block it. While this was happening, the restaurant manager, who was returning from the parking lot, saw what was going on and jumped right in telling my guys that they had no right

doing what they were doing. She, too, would not listen long enough to find out what was going on. Needless to say due to this barrage, the ticket went through. All these two had to do was listen for one minute."

But for every unpleasant encounter, there seem to be plenty of agreeable—even amusing—ones.


"I once received a call from one of my deputies telling me about a school bus parked in the fire lane in front of a large grocery store," says Fedkiw. "He was asking me what to do and explained that there was no one on the bus, the door was closed, and the driver was nowhere to be seen. I told the deputy to write the

"A lot of people believe that the disabled placard is registered to the car rather than the person. They assume it's OK to park in disabled parking and use dad's placard when they are driving dad's car."

ticket, and he asked where he should put the ticket for the driver since the windshield was out of reach. I told him to put it in the door, but he called me a little later and told me he wrote the ticket and placed it under the windshield wiper. He wouldn't tell me how he got it up there, but he did state that the people at the store found it very entertaining. My deputy is 5 feet, 5 inches tall."

The Bigger Story

Seeber says the SHAPE program has been extraordinarily successful at both of its missions. The combination of education and enforcement has dramatically reduced misuse of disabled parking spaces across Onondaga County. He also thinks that the SHAPE model could work well in other communities.

"This is a great way for the public to get involved with managing disabled parking spaces," says Seeber. "It's a very effective and cost-effective approach that provides significant benefits to the community, particularly seniors and people with disabilities." 



BILL SMITH, APR, is principal of Smith-Phillips Strategic Communications and contributing editor of *The Parking Professional*. He can be reached at bsmith@smith-phillips.com or 603.491.4280.



Charlotte's Park It! Program has grown and changed with transportation trends to serve city residents and guests beautifully.

Charlotte, N.C., is a captivating, colorful, and cosmopolitan city. Center city has three professional sports teams, world-class exhibits at numerous museums, and many nightspots through its two-square-mile area. Several Fortune 500 companies are headquartered in Charlotte's center city and the city boasts the third most banking assets in the U.S. after New York City and San Francisco, Calif. The University of North Carolina, Charlotte, and Johnson and Wales University have campuses in center city, which also has more than 18,000 residents and 100,000 workers. Charlotte is home to the NASCAR Hall of Fame and enjoys a new 5.4-acre public park.

Charlotte is a dynamic, vibrant exciting city full of growth and potential, but it wasn't always like this. Come with us on a brief flashback.

The Evolution of Urban Parking

By Clement Gibson, CAPP, and Randy Jones

We Don't Need Parking Management

In 1974, when Randy Jones (co-author of this article) began working for the city, Charlotte was much smaller and less active. One of my first responsibilities was to remove all of the remaining parking meters, which were installed in the 1950s, from center city. At that time, Charlotte had a population of about 235,000, (it now has an estimated 842,000 residents). Due to the number of projects planned for center city, the city's





Charlotte's Park It! program has revolutionized parking in the city center.

PHOTO CREDIT: CHARLOTTE CENTER CITY PARTNERS

traffic engineers felt it was necessary to remove all on-street parking to handle the anticipated volumes of traffic. Although freeways had been built circling center city, expanding streets within the central core was not possible. One of my first assignments was to remove the remaining 75 meters. Some of them were still penny meters!

By removing the last meters, Charlotte was

essentially left with no parking program. The city had little on-street parking, and the only garage it owned was a facility for employees at city hall. Any new growth was expected to develop parking sufficient for its own needs.

In the 1970s and 1980s, this philosophy worked. There were vacant lots adjacent to center city and new garages being built as part of the new buildings, and this was sufficient to meet the central area's parking needs.



PHOTO CREDIT: CHARLOTTE CITY CENTER PARTNERS

Perhaps We Misspoke

By the late 1980s, it became evident that parking needs were not being met. New buildings, many of which were for banking headquarters, provided sufficient parking for their employees and direct customers, but parking was becoming scarce for transient customers for the area's small businesses, restaurants, and shops. As the center city population grew, parking on peripheral lots began to disappear.

Planners began to look to the future to try to create a center city that had more than just a daytime population. Center city housing was planned, and nightlife with restaurants and clubs was desired. Removing the meters and on-street parking worked well in a sense; it got the center city workers to their jobs in the morning and made it easy for them to get back to their homes

in the suburbs at 5 o'clock every day. Center city was left empty when the workday ended.

To handle the deficit in transient parking for city visitors, planners recommended that four 500-car garages be built in each quadrant of center city, at a cost of \$20 million. Transportation planners suggested an alternative that could kill two birds with one stone. Instead of spending \$20 million, spend only about \$500,000 to reinstall about 1,200 on-street parking meters and enact enforced, peak-period parking restrictions on key streets. This would satisfy transient parking needs.

Placing parking back on the street also satisfied the planners' objective of making the center city look more urban, like New York City, instead of just a bunch of 30-story glass boxes filled with workers from 9 a.m. to 5 p.m. Except for peak rush periods

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when parking restrictions were in place, the traffic seemed to move slower and be part of the center city fabric.

Soon after, Park It! was born.

Park It!

In the mid-1990s when it became evident that Charlotte had to develop a parking program to manage its new meters, many cities across the country were experiencing financial difficulties. The city was reluctant to add the 10 to 15 new employees the parking program would require; it would also bring a long-term effect of pension and benefit requirements. The decision was made to outsource the management of the new program—it would be one of the first in the U.S. to operate in that manner.

City management and staff were at first skeptical this would

work. How would a contractor be controlled? In the public arena where customer service is so important—probably even more so than revenue—how could a private contractor provide the expected and necessary level of customer service?

As it turns out, a private contractor probably managed things better than city employees could have. The private contractor was not encumbered with local government rules and regulations and had technical parking expertise the city did not. And there was less red tape to manage in this situation. The first project manager, for example, was replaced after several months when city staff felt he didn't provide adequate service levels. This could never have happened if the manager of Park It! had been a city employee.

In addition to buying equipment, hiring, and training, a \$40,000 public information campaign was developed. Although



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this seemed very unusual to city staff, the campaign developed the needed look and feel of the program. This is where the name and logo of the program were developed, along with the theme, “Taking It to the Street,” which was a take-off of the Doobie Brothers’ popular hit.

Smashing Success

The program was called a “smashing success” 15 months after the meters were installed. While the program was not intended to be a money maker, it did earn a little extra revenue that was invested back into transportation safety projects.

Businesses found that shoppers and other visitors preferred the dash-in and dash-out convenience of the on-street parking meters. Not only did center city look more alive, it actually was more alive.

Program Milestones

During the next 20 years of on-street parking, the Park It! program continued to stay on the cutting-edge. In 1998, Charlotte was one of the first cities in the country to accept parking ticket payments via the internet. This was an effort to make local government more accessible to the public.

The Charlotte Coin, a \$1 token accepted at the meters, was part of the program’s validation program. Businesses that participated in the program displayed a Park It! symbol and gave the token to their patrons for short-term parking. Charlotte’s Park It! Program received IPI’s prestigious Award of Excellence at the 2000 IPI Conference & Expo. The plans were to mint a new token each year to reflect the rich history of the city. The city also minted a .999 fine silver coin with the same designs. As might be expected, Queen Charlotte adorned the first coins.

In 2006, it became obvious that fewer people were carrying coins with them out of habit. Technology had advanced, and there were new products on the market that took credit cards, and the city decided to purchase pay stations. The kiosk-like meters allowed credit card payments and were user-friendly. While there was a learning curve, the public liked that they no longer had to worry about carrying coins with them. Another plus was that the pay stations were energy-efficient because they were solar-powered. The pay stations were installed in the high usage areas of center city and along the main artery to improve the look of the city streetscapes.

In 2012, Charlotte contracted with a consultant to do a curb-lane management study. The purpose of the study was to improve motorists’ understanding about where and when parking was allowed, as this was closely tied to street sign messages. There were many demands for on-street spaces in center city for deliveries, along with taxi cab stands, bus stops, crosswalks, construction, space to park for building repair needs, and emergency closures. The city recognized how important it was to manage its right of way in a manner that served all users, and it won another Award of Excellence in 2013.

That year, Charlotte entered into a contract with a company to allow motorists to pay for parking using their cell phones at more than 1,200 metered, on-street parking spaces throughout the city. To add more time, customers didn’t need to walk back to their vehicles but could push a button when they got the 15-minute reminder that their time had expired. This made it even easier for the parking public to pay for their parking.


In 2016, the city and the pay-by-cell phone company launched a custom parking app for mobile payments—Park It! Charlotte. Motorists can use either the pay-by-cell phone application or the new labeled mobile payment solution. This was a way that the city could refresh the existing program and promote Charlotte at the same time.

In 2014, Charlotte found the funding to purchase new single-head meters as the existing single-head meters were more than 15 years old and needed replacing. The technology had advanced such that the city was able to purchase smart meters that accepted credit cards. Revenue increased by 35 percent.

Continued Growth

Center city and the surrounding areas continue to grow in leaps and bounds, and the on-street parking program is keeping up with this growth. SouthEnd is an area that is not in the center city loop but has been included on many occasions due to its close proximity. In 2015, after having the businesses in South-End request meters be installed on one of their main streets, Park It! installed smart meters. Two years later, the need for more on-street parking has grown, and there are discussions of adding more meters.

Another area that has grown is NoDa (North Davidson), a popular arts and entertainment district located about a mile from center city. NoDa is a village unto itself with special on-street parking needs. A lot is going on in a very small land area. There may be a need to test increased parking enforcement in this area in the coming year.

As the city continues to grow, the on-street parking program will continue to respond. 

Special thanks to Charlotte Center City Partners for providing data and photos.



CLEMENT GIBSON, CAPP, is special programs manager with the City of Charlotte Department of Transportation. She can be reached at cgibson@ci.charlotte.nc.us.



RANDY JONES is senior vice president for Municipal Citation Solutions, LLC. He can be reached at rjones@municipalcitationsolutions.com.

2017 IPI INTERNATIONAL PARKING INSTITUTE Year in Review

2017 IS OVER,

but the International Parking Institute (IPI) is just ramping up. As the largest association of parking, transportation, and mobility professionals, IPI is focused on supporting the industry's growth and the critical role it plays around the world. Driven by tremendous member involvement, 2017 was an important year in IPI's mission to advance the parking profession.

From dynamic trainings to meaningful networking events, IPI offered more opportunities than ever to connect with colleagues and resources. Celebrate IPI and its members with these highlights from the past year.

From the Board of Directors

"We can say with certainty that 2017 has been a year of many accomplishments because of the work and collaborative effort of every volunteer and staff member. We have delivered a number of initiatives that will help the industry set new standards in years to come. Enjoy our year-end review!"

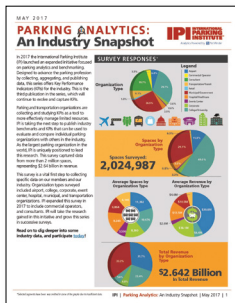
Roamy R. Valera, CAPP
Chair, IPI Board of Directors
CEO, NewTown Advisors, LLC



Hot Off the Press

IPI Data Exchange

IPI is setting the industry standard—quite literally. The first sections of the new standard for Parking Location and Rates & Occupancy launched this year, with a very public push for industry feedback. Look for the next sections of the IPI-DataEx standard to follow in 2018 as we move the market to greater efficiency and innovation.

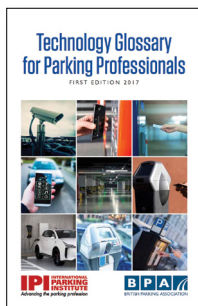


Industry Snapshot

“Parking Analytics: An Industry Snapshot” is a report that collects and analyzes specific data on IPI members to enhance our understanding of the fast-changing parking industry. The latest version expands the responses to include commercial operators and consultants. The next update is planned for spring 2018—take the survey at parking.org/KPIs.

Parking, from A to Z

IPI and the British Parking Association released the “Technology Glossary for Parking Professionals.” The resource defines parking technology terms to help industry professionals better communicate with their peers, those in related industries, suppliers, and the public. Download it from the resource center at parking.org.



Accessible Parking Coalition

A major, multi-year IPI initiative under the *Parking Matters*® umbrella will address accessible parking and disabled placard abuse. The new IPI-led Accessible Parking Coalition (APC) is the first time this issue has been looked at on a national level by a unified group of parking, transportation, and mobility experts; government agencies such as the National Highway Traffic Safety Administration and Health & Human Services; advocacy groups for people with disabilities; civil rights advocates; and those in the independent living movement, among others. The coalition first gathered at an IPI-U.S. Access Board Stakeholders’ Forum in Washington, D.C., in December to hear a preliminary report on a national study among people with disabilities developed by IPI and distributed by APC partners. Look for updates on planned APC activities and outreach including an online resource center and media and public awareness campaign.



The Value of CAPP

A new video educates and encourages those who are considering CAPP certification. “CAPPs on What the Certification Means for Them” features IPI members who have earned the credential explaining how CAPP furthers their careers. Watch the video for some familiar faces and advice about pursuing CAPP at parking.org/cappvideo.



Certiably Credentialed

CAPP

The association elected two new members to the CAPP Certification Board in its second election. Isaiah Mouw, CAPP, and Teresa Trussell, CAPP, join the incumbent five members of the board to set programming and direction for the CAPP program.



APO

The Accredited Parking Organization (APO) designation sets the standard for industry excellence. Seven parking organizations earned accreditation or accreditation with distinction in 2017. Numerous members became APO Site Reviewers at IPI trainings throughout the year. The next APO Pre-Applicant Workshop will take place in June at the 2018 IPI Conference & Expo in Orlando, Fla.



Parksmart

Become a Parksmart Advisor without leaving home. Parksmart Advisor training is now offered as an online, instructor-led class in addition to in-person offerings. Parksmart Advisors lead clients through the certification process for sustainable parking structures. Join IPI for online instructor-led trainings throughout the year at parking.org/parksmart-advisor.



Digital Solutions

Treasure Trove



IPI's robust Resource Center is a highly searchable, regularly updated database of information on topics such as finance, operations, human resources, design, construction, sustainability, technology, transportation, mobility, and more. Access articles from *The Parking Professional* magazine, *Parking Matters* Blog posts, IPI and related publications and research, case studies, events, and educational and networking opportunities.

Career-Minded

IPI's enhanced CareerHQ connects employers and job seekers. And now, all new job listings are automatically shared to IPI's Facebook and Twitter pages. Upload your resume to careers.parking.org and find your next big opportunity.



Make Your Inbox Smile

IPI members contributed *Parking Matters* Blog posts throughout the year, covering key industry issues, future trends, and the lighter side of parking. Claim your free daily subscription at parking.org/blog.

Conference Connections

IPI Conference & Expo

The 2017 IPI Conference & Expo in New Orleans, La., was another phenomenal event packed with career insights, new friendships, and deep dives into the most pressing industry issues. More than 3,500 professionals and 235 exhibitors from 35 countries came together for an action-packed four days of education, networking, technology, and trends. Thousands of parking products and solutions filled the Expo hall, including a unique virtual-reality peek into the garage of the future. The inaugural IPI Parking Solutions Competition closed out the Conference but opened the door to the next big idea in parking—Adam Rosenfield of Access MIT won for his presentation on rethinking campus parking. Encourage students to participate in the 2018 Parking Solutions Competition at parking.org/parkingsolutions.



International Parking Conference

Participants from nine countries joined IPI in Bogotá, Colombia, in October for the seventh International Parking & Mobility Conference. Some of the world's leading parking, transportation,

and mobility experts came together to rethink parking design, operations, and management.

Leadership Summit

IPI's inaugural Leadership Summit in Atlantic Beach, Fla., delivered an engaging, retreat-style professional development experience. Limited to 100 industry leaders and rising stars in the parking, transportation, and mobility world, the two-day intensive event included presentations, networking, and even a session of sunrise yoga. Plan on reserving your spot at the 2018 Leadership Summit at parking.org/100.



Engaging Leaders. Inspiring Success.

GPALs Summit

The fifth annual Global Parking Association Leaders (GPALs) Summit met in Rotterdam, Netherlands, during the European Parking Association Congress. Parking association executives from 16 countries discussed data, mobility, and parking management. IPI



parking.org/GPALs

established GPALs in 2012 to foster collaboration among the global parking community. The next meeting will be at the 2018 IPI Conference & Expo in Orlando, Fla.

Professional Development for Every Need

Online and On Your Time

IPI added seven new courses to its suite of 14 online learning opportunities:



- Sustainability in Parking and Transportation.
- On-Street Parking.
- Parksmart: An Introduction to Certifying Parking Structures.
- Online Article/Quiz Course: Parking and Sustainability, Innovations, and Case Studies.
- First Observer Plus.
- Federal Emergency Management Agency—Emergency Management Institute.
- Transportation Demand Management: Parking Strategies.

Taking an IPI online course is the easiest and best way to enter, advance, and excel in the rapidly evolving parking profession. These courses provide essential information in an easily digested format and offer valuable CAPP points and CEUs.

OnSite and On Topic

IPI's onsite training program continues to grow. Cindy Campbell, IPI's senior training and development specialist, trained thousands of professionals from the municipal, academic, airport, commercial operator, hospital, vendor, supplier, and consultant sectors. Topics include conflict resolution, customer service, tactical communications, and parking industry fundamentals. Intended for everyone from frontline staff to seasoned managers, the classes are an effective way to invest in your organization's most valuable asset—its employees. Contact campbell@parking.org to learn more and schedule a session.



LOOKING FORWARD

The Future Belongs to You

2018 promises many exciting developments and opportunities—starting with the January issue of *The Parking Professional* magazine, which is debuting a fresh new look and feel. IPI will field a new Emerging Trends in Parking Survey for parking professionals that probes issues related to accessible parking and mobility and re-asks several previous questions from past surveys to identify shifts and trends. Plan on discussing the latest industry news and pose questions of your own in the Circle, IPI's state-of-the-art online community just for members. Look for more about this in the March issue of *The Parking Professional*.

The Sun Is Shining on #IPI2018

Save the date for the 2018 IPI Conference & Expo, June 3–6, in Orlando, Fla. IPI will bring the education, expertise, technology, networking, and more—you bring the sunscreen! Save \$300 when you register before Feb. 11, 2018. Visit IPIConference.parking.org for details.



With Gratitude

IPI thanks its members and the parking community for your dedication, leadership, and support for the association this year. IPI's greatest resource is truly its numerous and talented volunteers. Visit parking.org for more ways to show *Parking Matters*.



One Gift.



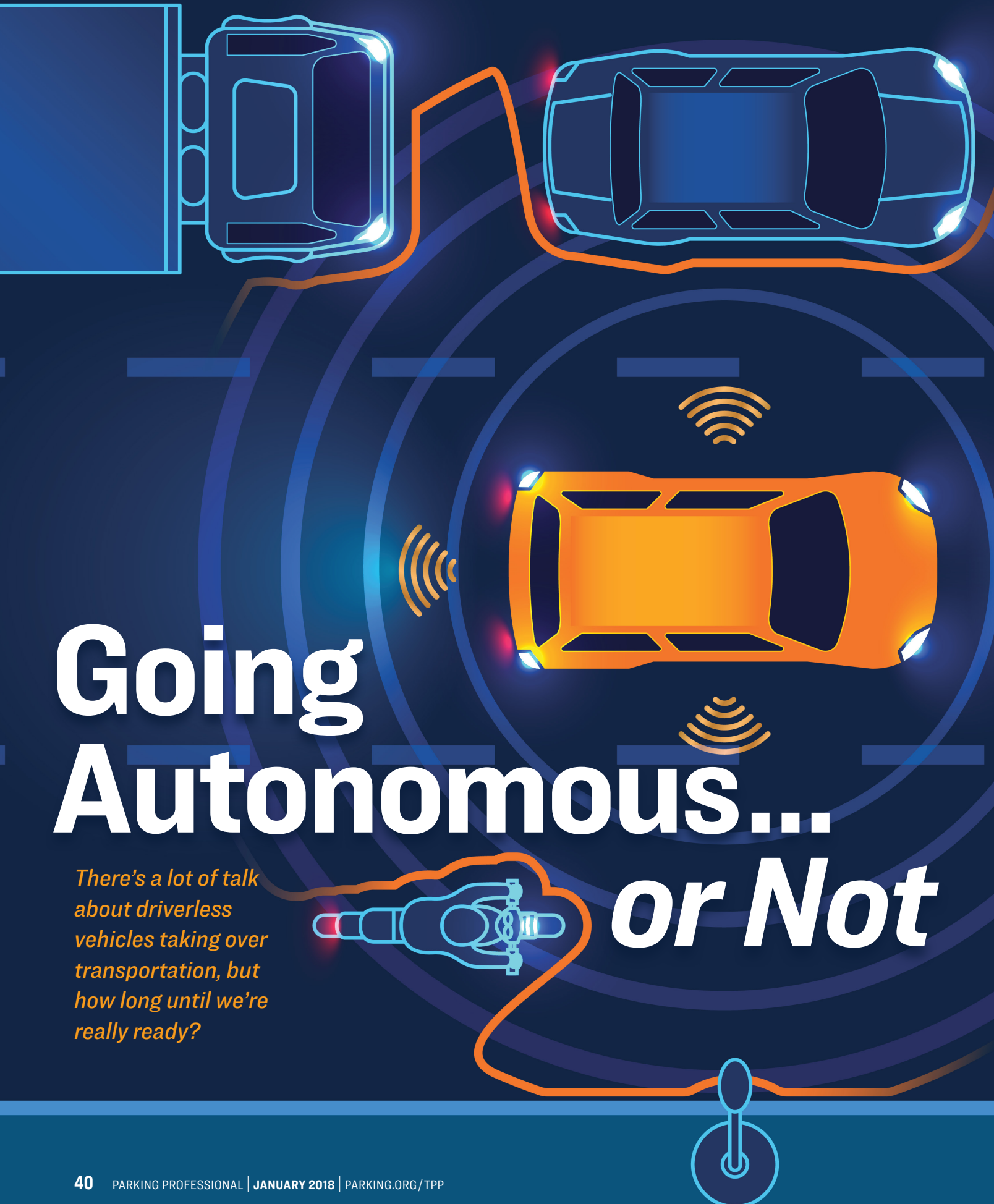
12 Times the Thanks.

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**The
Parking Professional**



Going Autonomous... or Not

There's a lot of talk about driverless vehicles taking over transportation, but how long until we're really ready?



By Thomas Curtis, CAPP

It has been more than two years since I last wrote about autonomous vehicle acceptance—where I thought it was heading and how long it would take to get there. Technologically, two years is an extremely long time so I wanted to revisit the subject.

To truly understand where the technology is I felt it would be necessary to drive one of the most highly automated vehicles available to the public. Arguably, that is the Tesla. The local Tesla gallery provided me with what they call an owner adviser to detail the unique qualities of the vehicle and co-pilot the experience. The experience was truly amazing. Even so, when I got back from the future, I started to think about the realities of our progress toward an autonomous world.

How far have we come in two years? In its September 2016 Federal Automated Vehicle Policy, the National Highway Traffic Safety Administration (NHTSA) adopted the Society of Automotive Engineers (SAE) autonomous vehicle classification standard. One year later, it released an updated automated driving system guidance. Issuing policies and assuming a single standard is a considerable leap forward and should be considered significant in the progress of autonomous vehicles. It should be noted that NHTSA's policy is a guidance document and does not contain official regulations. Federal acknowledgement and direction is a good start, but an autonomous future requires more.

Many automakers continue to predict autonomous vehicles by 2021. These will be for geo-fenced ride-hailing or private vehicle highway-only applications with minimal effect on the parking industry. When will our industry feel the effects of truly autonomous vehicles?

Technology

We are still many years away from the necessary technology to go fully autonomous. The International Organization for Standardization (ISO) standard for functional safety of electrical and electronic systems in automobiles states that systems can be regarded as safe when there is no unreasonable risk. Compliance with the standard applies to almost everyone involved in the automotive supply chain. High definition 3-D mapping, sensor arrays, software algorithms, cybersecurity, vehicle-to-vehicle (V2V), and vehicle-to-infrastructure wireless connections (V2I) would all possibly fall under the standard.

ISTOCK / ANDREY SUSLOV

More than 40 different corporations are developing highly automated vehicles (HAVs) or HAV technology. Autonomous vehicles will have to interact in a predictable manner with pedestrians, human-driven vehicles, and other HAVs. Without standards, there will be a tremendous variance in how different HAVs behave in the same situation. Standards will be a challenge.

In December 2016, the U.S. Department of Transportation proposed a rule to mandate vehicle-to-vehicle communications on light vehicles, allowing cars to talk to each other. By April 2017, the proposed rule was already in trouble with automakers, trade groups, and the current administration for a host of reasons.

Consider vehicles that don't talk to each other, that react differently to the same situations, and that travel the same roads with human drivers. Our highways are going to be dangerous for quite some time and give consumers considerable reason to slow overall HAV acceptance. In January 2017, Gill Pratt, Toyota Research Institute CEO, put it this way: Even though the automotive industry "has made great strides over the last five years, we are a long way from the finish line of fully automated cars. [The current] systems can only handle certain speed ranges, certain weather conditions, certain street complexity, or certain traffic."

Cost

Would we even be able to afford an autonomous vehicle? The average price of a new car or light truck today is about \$33,000. Adding driverless technology to a car can easily add more than \$10,000 to the cost. The Victoria Transport Policy Institute estimates that "when the technology is mature, self-driving capability will probably add several thousand dollars to vehicle purchase prices, plus a few hundred dollars in annual service costs, adding \$1,000 to \$3,000 to annual vehicle costs." How many consumers are going to pay an extra \$10,000 when offered the choice between a base human-driven model or upgrading to a car that can drive itself? Even if we can assume that costs will come down, a car affordability study by Bankrate.com shows that a median-income household in the U.S. today cannot afford the average new vehicle.

Infrastructure

Even if consumers eventually can afford HAVs, progress is largely dependent on the quality of the roads

they use. According to the DOT there are 4.12 million miles of road in the U.S. More than one-third are unpaved gravel or dirt, and almost 50 percent are in poor condition. Funding, based mainly on fuel taxes, for maintenance of paved roads is diminishing due to vehicle fuel efficiency and hybrid and electric vehicles.

Smart roadways that provide information to HAVs can help. One of the toughest challenges in developing smart roadways, as noted previously, is getting telecom operators, infrastructure suppliers, and hardware and software suppliers on the same page. Many companies are developing vehicles that won't rely

on roadway upkeep. However, infrastructure, including vehicle communication and roadway maintenance, will be a key element in moving from perfect weather, geo-fenced, or highway-only vehicles to truly autonomous.

Regulation

The Federal Automated Vehicle Policy states: "Today, a motorist can drive across state lines without a worry more complicated than, 'did the speed limit change?' The integration of HAVs should not change that ability." NHTSA's policies urge states to coordinate legislation so as not to hinder the advancement of driverless cars. The National

Conference of State Legislatures indicates that since 2012, 41 states and the District of Columbia (D.C.) have considered legislation related to autonomous vehicles. Only 21 states and D.C. have passed legislation related to autonomous vehicles. Governors in Arizona, Delaware, Massachusetts, Washington, and Wisconsin issued executive orders related to autonomous vehicles.

Many legislative bills are extremely restrictive and require a human driver prepared to take control in these vehicles. Many of them permit HAVs only for testing purposes. Michigan and Nevada currently have the most extensive enacted legislation defining autonomous vehicles, testing, and liability. Current law regarding autonomous vehicles varies drastically between states. Legislation may not be the challenge originally thought as states appear to be moving forward quickly in the legislative process; guidance from the federal government has helped.

Liability

I won't go into any detail about liability here as there was a very good article detailing the issues by Leonard



T. Bier, CAPP, JD, in the March 2017 issue of *The Parking Professional*. To quote the closing statement from the article, "I pose an issue that doesn't have a clear solution but requires further thought, debate, and deliberation to reach a conclusion that needs to be codified into uniform federal law." Well said.

Cybersecurity

There are currently somewhere around 100 million lines of code in a typical new car. Experts constantly warn that the more connected vehicles get, the more vulnerable they are to attack. Computer systems that have been hacked seem to be in the news almost daily. Vulnerable vehicle access points for hackers continue to grow with embedded modems, Wi-Fi internet routers, Bluetooth modules, USB ports, and more. To date there have been no major cybersecurity incidents involving autonomous vehicles. It should also be noted that there are redundant systems guiding the vehicle—cameras, sensors, and communications. Hacking and disabling them all would be a major undertaking. Even with redundant systems, the current state of cybersecurity should provide pause for consumers and may slow autonomous vehicle acceptance.



Other Vehicles

If we get past all the hurdles and have a truly autonomous vehicle that's capable of navigating from point A to point B without human input, what then? The public must accept and purchase them. Elon Musk, or "Uncle Elon" as my Tesla owner adviser called him, has stated that "the point at which we see autonomy appear will not be the point at which there is a massive societal impact on people because it will take a lot of time to make enough autonomous vehicles to disrupt."

According to consulting firm IHS Automotive, the combined average age of all light vehicles on the road in the U.S. is 11.6 years. There are more than 263 million light vehicles on the road in U.S., and 17 million new ones sold each year. At a rate of only about 11 million cars scrapped per year, turning over the U.S. car fleet could take more than two decades. Fleetcarma has projected that it would take 18 years for 50 percent of all new vehicles to comply with a newly mandated requirement if a law was passed today.

What It All Means

Where does all this leave the parking industry? That depends. It's not clear how people will choose to travel as HAVs become more prevalent in our society. There are many directions in which the technology can move; private vehicles, ride-hailing, public transit, and most likely a combination of the three. Truly autonomous vehicles will work on a dedicated transit lane before they will work in general traffic. We will most likely see earliest acceptance by public transportation. This adoption should have little effect on parking. Mobility as a service is the model that most automakers are currently focusing on. Early on many of these will be limited, geo-fenced applications. Most likely, early adoption will be within urban areas and for short trips. This should again have minimal effect on parking.

The most immediate concern of autonomous vehicle acceptance will be with parking structures. Garages generally have lifespans exceeding 40 years. Deciding now on appropriate design and construction features for future changes in use would be prudent.

Parking management will see a more unhurried change and have time to adapt. Even so, we cannot ignore that the future of parking is going to change. IPI is already taking steps to ensure that operators can keep up during these changing times. Their Data Exchange Standard will be vital to aiding in the adoption of services such as ride-sharing, dynamic pricing, and remote management. As the fiduciary of landowners, parking professionals must maintain close watch on developments and the direction of mobility. I have no doubt that we will continue to need parking spaces in the future, just not in the same way or places that we do currently.

Technologically, two years is a long time, but my position has not changed. I still believe any disrupting effect of highly autonomous vehicles on parking management will be measured over the next couple of decades. As I see it, the actual progress toward autonomous vehicles is not nearly as exhilarating as the feeling one gets during a Tesla test drive on autopilot.



THOMAS CURTIS, CAPP, is division manager of Platinum Parking. He can be reached at thomascurtis@platinumparking.us.

Your New Magazine

By Kim Fernandez

Welcome to the redesigned *The Parking Professional*! By now you've noticed a different look and feel around here. Change can be unsettling, but we're very excited about this one and hope you love it as much as we do. Some highlights:

<p>20 Room for a City to Come to Life With a capacity of up to 1,000 cars, Dokki Parking in Aarhus, Denmark, is the largest fully automated parking system in Europe and an example for big-city parking of the future. By Peter Fangel Poulsen</p>	<p>40 Going Autonomous... or Not? There's a lot of talk about driverless vehicles taking our transportation, but how long will we really need? By Thomas Curtis, CAPP</p>
<p>20 The SHAPE of Disabled Parking Enforcement An innovative parking enforcement program deploys detectors to police parking spaces reserved for the disabled, and they take it very seriously. By Bill Smith, IPI</p>	<p>30 The Evolution of Urban Parking Charlotte's Park 'N' Ride Program has grown and changed with transportation trends to serve city residents and guests beautifully. By Clement Gibson, CAPP and Randy Jones</p>
<p>35 2017 IPI Year in Review 2017 was an amazing year in IPI's mission to advance the parking profession. Celebrate IPI's 40th anniversary with highlights from the year.</p>	<p>44 IPI IN ACTION Your New Magazine By Kim Fernandez</p>
<p>30 The GREEN STANDARD To Share or Not to Share By Josh Newman</p>	<p>46 STATE AND REGIONAL SPOTLIGHT Texas Parking & Transportation Association By Mary Wilco, CAPP</p>
<p>30 ON THE FRONTLINE Prepared Conference Speaks Volumes By Chuck Connolly</p>	<p>48 ADJACENT USE INDUSTRY 56 PARKING CONSULTANTS 58 ADVERTISER INDEX 58 PARKING BREAK 58 CALENDAR</p>



Readability

The new look was designed to be easy to read and digest. Fonts are clearer and slightly larger than before, and the new column format means fewer hyphenated words and a faster read. Colors are bright, and in some cases, articles are shorter and more to-the-point than before.

Room for a City to Come to Life

With a capacity of up to 1,000 cars, Dokki Parking in Aarhus, Denmark, is the largest fully automated parking system in Europe and an example for big-city parking of the future.

By Peter Fangel Poulsen

Cars are a natural part of the city's heartbeat, and many people are dependent on having personal vehicles. However, cars also take up space in the city that could be used for other purposes to improve the lives of the people who live and work there.

In the past almost 20 years, Aarhus, the second largest city in Denmark, has transformed its inner harbor area—close to the historical center of the city, the cathedral, and the Aarhus River—into a city space full of life and activity: a new link between the center of the city and the harbor.

An important element in this project is that cars and the city open up space on the waterfront were needed to make room for three new waterfront spaces on staggered levels, unfolding down to the water at the harbor. The new spaces are multi-directional and have room for large-scale concerts and evening activities such as soccer. From these spaces, people can enjoy views of the harbor and the sea—views framed by two very striking new buildings, Norrhis and Dokki. Here, you will find spaces for all recreational aspects of city life in a setting that links the recreational aspects of city life to the harbor.

In order to realize the idea of creating cars from the surface, Nordhis by IPI developed a fully automated underground parking system (that has made a huge contribution to the area's transformation). The new garage is the largest automated parking facility in Europe, with room for almost 1,000 cars on three underground levels beneath Dokki.

The firm wanted to provide an innovative example of the future of big-city parking and make up with a parking solution that will set new standards of parking needed for linking the green space from the river and, which, by the rational use of space, will make more room for life in the city.

Safe and Easy Parking
Since no longer need to drive through the multi-level underground car parks of future cars, instead of leaving their car in a transfer cabin at street level and

ASK THE EXPERTS

What goal have you set for 2018?

Mark Wilco, CAPP
General Manager, Parking Division City of Sarasota, Fla.
Increase his experience by traveling abroad. Give me, Lately, to work with more people, using technology and sharing data in a collaborative effort to improve our mobility efforts and broaden my sphere of influence in the areas that affect my community.

Jennifer Tougas, CAPP, PhD
Director, Parking and Transportation Services, Western Kentucky University
I am looking forward to really setting the stage for the parking technology we use that will cover our operations during the next five to 10 years, as well as better integrating into our TDM programs.

Josh Carter, Director, Parking and Transportation Services, Stanford University
I'm focused on digitizing our program and services. As the end of 2018, we should have moved to virtual permits via IPI enforcement, and real-time parking utilization data. We want to move from the 20th to the 21st century during 2018.

Brian Shaw, CAPP
Executive Director, Parking and Transportation Services, Texas A&M University
My goal for 2018 is to make progress toward defining and in some cases implementing solutions to more clearly based using license plate recognition for a permitless operation.

Dasha Hoffmann, CAPP, MS
Associate Director, Transportation Services, Stanford University
My goal for 2018 is to make progress toward defining and in some cases implementing solutions to more clearly based using license plate recognition for a permitless operation.

III HAVE A QUESTION? Send it to editor@parking.org and watch this space for answers from the experts.

To Do

Now that you've seen the new magazine, we'd love to see more of you in it!

- ❑ Submit a story idea! Contact me at the email below with your article idea for 2018 and beyond.
- ❑ Become an expert! Let me know if you'd like to be added to our Ask the Experts roster—available to IPI members only.
- ❑ Share it! Did you know everyone in your organization has access to the digital version of The Parking Professional? Read it online, download it for later, and share it with your colleagues. Just log in to parking.org and click the grey The Parking Professional tab at the top, right-hand corner of your member dashboard.
- ❑ Let me know what you think! Email me anytime. I'm all ears.

New Departments

The *Parking Professional* introduces several new departments with this issue. **Mobility & Tech** (p. 8) will focus on all you need to know in those two areas—new trends, developments on the horizon, and things to keep an eye on as the industry evolves, from the experts who know it best. **In Case You Missed It** on the last page of every issue will spotlight resources, stories, and news from parking.org and beyond. A new table of contents, Ask the Experts section, calendar of events, and wider-focused Around the Industry (formerly Community Digest) round it all out.

III MOBILITY & TECH

A New Generation of LPR: Application as the Core Technology

By Christopher Perry and Kevin Wozniak

THE RENAISSANCE OF URBANIZATION brings with it side effects and challenges. An increasing number of vehicles is out of side effects and brings with it new demands to existing infrastructure, particularly those that rely on license plate recognition (LPR) systems such as parking, tolling, and intelligent transportation systems (ITS). As the number of service providers increases, so does the pressure on integrators to deliver smart traffic and parking systems faster and more efficiently.

Unfortunately, LPR technology and hardware do not always mix and therefore cannot always provide the support integrators seek when providing easy-to-integrate, scalable, and cost-effective LPR solutions.

As far as technology providers are concerned, the winners will be those companies who are willing to take a more customer-centric stance, listen to the actual needs of integrators, and develop products and services implementing best practices from other industries that are still alien to the LPR space. When defining a new approach toward applying LPR technology to integrators, it is essential to know what they need.

A recent case of an integrator operating a parking facility in Europe describes this scenario. The parking facility struggled to reach its desired daily occupancy volume and often had many unused parking spaces, leading the operator to want three times the daily and weekly time periods. This created a need for increased capacity, requiring the purchase of a CCTV VPT (gan-tilt-cam) system. The parking facility also wanted a system to automate the entrance and exit of cars in the facility using an LPR system to monitor the inbound and outbound traffic. They already had CCTV cameras installed and were hesitant to purchase additional and potentially redundant equipment. Of course, the facility also needed the new system set and running in a few weeks and on a tight budget. They needed to implement an LPR system that worked for existing hardware infrastructure.

The solution was simple. Provide an LPR application that connects to an integrator's existing CCTV VPT. The solution reads and analyzes the data stream, optimizes the recognition rate, and provides validated results in a database format that fits the integrator's requirements. This solution reduced the implementation costs while simultaneously providing recognition rates of 97 to 99 percent.

CHRISTOPHER PERRY is a Senior Solutions Architect at the Park Systems Division of the Park Systems Group. **KEVIN WOZNIAK** is a Senior Solutions Architect at the Park Systems Group.

8 PARKING PROFESSIONAL | JANUARY 2018 | PARKING.ORG/TPP

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In Case You Missed It...

ON THE BLOG

- **The End of Driving As We Know It?** David Feehan on the realistic future of autonomous cars.
- **Giving Back.** Gary Means, CAPP, explains how to start a donations-for-education program.
- **Parking, New Urbanism, and Small Cities.** Michael Cramer writes about what smaller municipalities need to do to keep up.
- **Read more and claim your free subscription** at parking.org/blog.

IN THE RESOURCE CENTER

- **Case Study: Charlotte, N.C., and Indianapolis, Ind.,** and what their transportation systems have in common.
- **CAPP Certification.** A new video explains why CAPP is the industry's premier certification.
- **Technology Glossary.** A new publication from the British Parking Association (BPA).
- **Download these and more** at parking.org/resource-center.

AND MORE...

- **The 2018 Parking Solutions Competition** is open to college and university students with the next big idea in parking/parking-solutions-competition
- **Planning to earn CAPP or APO? Exam and submission deadline** is March 1 to make it by the 2018 IPI Conference & Expo.
- **New job postings and RFPs.**

Stay up on everything in parking, transportation, and mobility—parking.org!

60 PARKING PROFESSIONAL | JANUARY 2018 | PARKING.ORG/TPP

5 THINGS TO KNOW

Five Books to Read in 2018

ENTREPRENEUR RECENTLY PICKED the top 29 business books it said were essential reading to get ahead in the new year. We saw a lot of similarities between parking industry managers and entrepreneurs (Creative, out-of-the-box thinking, work on their feet, energetic, we could go on) and while we loved the whole list, we present here the five we think our readers should check out first.

- 1 "Outside Insight: Navigating a World Drowning in Data" by Jim Loughe. Moving, transportation, and mobility go with data like peanut butter and jelly, only it can be tough to know how to control all the numbers and turn them into something really useful. This book promises to teach company leaders to ditch their numbers to actionable information and make forward-thinking decisions based on that.
- 2 "Leading Through the Storm: How to Lead When the Odds are Stacked Against You" by Michael. Change industry? Check. Lots to learn? Check again. Read this book to master the "Stormy Road" and reach goals and success despite unexpected interruptions.
- 3 "The Captain Clause: The Hidden Force that Creates the World's Greatest Teams" by Sam Walker. Not everyone is destined for leadership. Learn the author's formula to identify and develop leaders and team members—he says it's worked for Obama and Bill Gates and it'll work for your organization too.
- 4 "Superconnector: Stop Networking and Start Building Business Relationships that Matter" by Scott Carter and Steve Frucht. Tired of grip-and-give events that leave you with a pocket full of business cards and not much else? Superconnector focuses your energy instead on building relationships and pulling people together to find innovative new ideas.
- 5 "The Knowledge Illusion: Why We Never Think Alone" by Steven Shanteau and Phil Fernbach. Get out of your head and look back to learn why it's so important to consider other perspectives beyond our own and how to create new genius by collecting knowledge all around us.

Want to see all 29 books to read in 2018? Visit bit.ly/2018books to see the whole list.

6 PARKING PROFESSIONAL | JANUARY 2018 | PARKING.ORG/TPP

Going Autonomous... or Not

There's a lot of talk about driverless vehicles taking over transportation, but how long until we're really ready?

By Thomas Curtis, CAPP

I have been more than two years since I last wrote about autonomous vehicle acceptance—where I thought it was realistic and how long it would take to get there. Technologically, two years is an extremely long time as I wanted to revisit the subject.

Things certainly have changed. In September 2016, the American Road & Builders Builders Association (ARBA) announced that it had formed a new entity, the Autonomous Vehicle Industry Association (AVIA), to promote the development and use of autonomous vehicles. AVIA's mission is to "advance the development and use of autonomous vehicles through education, research, and advocacy." AVIA's first major project is to create a "roadmap" for the industry, which will include a number of key areas, including safety, liability, and infrastructure.

Technology

We are still years away from the technology to fully support autonomous vehicles. The current generation of autonomous vehicles (AVs) is still in the development phase and is not yet ready for widespread use. AVs are still in the development phase and are not yet ready for widespread use. AVs are still in the development phase and are not yet ready for widespread use.

10 PARKING PROFESSIONAL | JANUARY 2018 | PARKING.ORG/TPP

Going Off the Grid

We're happy to say our new design will allow for much more flexibility with our stories. Longer, shorter, more charts and graphs, links to online resources—all can take a bigger role this year.

We'd be remiss to not give a big shout-out to our fantastic design team at Bonotom Studio, who make us look great every month. Thanks, team!



KIM FERNANDEZ is IPI's director of publications and editor of *The Parking Professional*. She can be reached at fernandez@parking.org.

Texas Connected

By Mary B. Mabry, CAPP

SINCE 1987, THE TEXAS PARKING & TRANSPORTATION ASSOCIATION (TPTA) has been a vehicle for individuals engaged with parking and transportation businesses in municipalities, hospitals, airports, parking authorities, and universities.

2017 Conference and Tradeshow

All who attended the 2017 Conference and Tradeshow had a Texas good time, and networking was at a premium. Thanks to our sponsors and vendors for their generosity and support of our association and conferences.

This was one of our largest attended conferences, with 278 full- and single-day attendees enjoying the Cow-town experience. We introduced our first conference app during the 2017 Conference and Tradeshow, and it was a huge success.



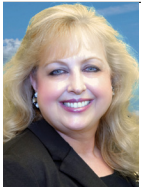
Fourth Annual TPTA Award Competition Winners

Our annual award competition celebrates and recognizes our association members who have outstanding parking-related projects, designs, equipment, operations, and construction. Each year members of the Pennsylvania Parking Association Board of Directors judge our awards competition. The winners were:

- **Parking Structure New:** Texas Christian University, Worth Hills Parking Garage, Walker Parking Consultants.
- **Parking Structure Restoration:** Hilton Houston Post Oak Parking Structure, Walker Restoration Consultants.
- **Parking Program:** COAST (Coogs on Alternative and Sustainable Transportation), University of Houston.
- **Parking Equipment and Technology:** 311 Integration, ParkHouston.
- **Parking Employee:** Norman Holt, Park Houston.

2017 Distinguished Service Award Winners

Maria Irshad, MPA, ParkHouston and Debbie Hoffmann, CAPP, Texas A&M.



MARY B. MABRY, CAPP, is product manager/project manager, parking solutions, with Cardinal Tracking, Inc. She can be reached at mmabry@cardinaltracking.com.



CALENDAR

Jan. 31–Feb. 1: Spring Roundtable, Texas A&M University.

March 26–29: 2018 Conference and Tradeshow: Marquis Marriott, Houston.

June: Summer Roundtable, Fort Worth

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Around the Industry

ParkWhiz Wins 2017 Vega Digital Awards in Three Categories

ON OCTOBER 30, 2017, ParkWhiz won first place at the 2017 Vega Digital Awards competition in the Best Use of GPS/Location category for its mobile app, showing extraordinary prowess in digital creativity. The on-demand parking reservation service competed against more than 1,500 submissions from 32 countries throughout the world.



In addition to winning its top honor, ParkWhiz earned second place in the Maps & Navigation category and third place in the Best User Interface/Experience category.

The work was created by Elizabeth Lindemulder, Mary Eisenmann, Laura Galindo, Josh Elkins, Jessica Johnson, and Brett Ransby.

“Our team is extremely excited and grateful to win these awards. We’re committed to giving our customers the most innovative products and want to provide the best possible parking experience,” says Lindemulder, vice president of product at ParkWhiz.

Vega Digital Awards is an international competition catered to all creative professionals who inspire through concept, writing, or design through traditional or electronic media.

“We wish to recognize the singular achievements of small-

and medium-sized web design and advertising companies and the creative professionals who are the driving force behind global digital communications industry,” says Kenjo Ong, president for the International Awards Associates (IAA). “We hope to find, encourage, and reward the newest and brightest stars emerging in the world of digital communications.”

Vega Digital Awards is administered and judged by IAA Global and a carefully selected panel of internationally

recognized creative professionals. Entries in 200+ professional and student categories were rated according to rigorous standards. During the blind judging period, the panelists searched for and identified the most innovative and creative concepts, the strongest executions, and the highest quality in the digital media. Winners were selected from a broad

scope of categories, from broadcast and print to social media and emerging platforms.

Numerous entries from international brands and top agencies from around the world were received for this year’s award program. The amount of time and passion dedicated to producing such astonishing works is truly admirable. Entries submitted by agencies for companies and brands such as eBay, Toyota, Dell, Mercedes Stadium, LG, Welder Watch, Garmin Vivo, and Clash Royale are among some of the winners from this year’s award program.

This year’s Vega Awards competition included entries from 32 countries around the world. “Winning a Vega Award is a career milestone for recipients,” Ong says. “Only the best entries received recognition. We congratulate this year’s winners and wish them great success.”



Liliana Rambo, CAPP, Named General Manager of William P. Hobby Airport

WILLIAM P. HOBBY AIRPORT (HOU) welcomed back Liliana Rambo, CAPP, to the Houston Airport System (HAS). Rambo serves as the new general manager for HOU and reports to Jesus Saenz, HAS' chief operating officer, effective Dec. 4, 2017.

Rambo is responsible for directing the day-to-day management of HOU, as well as establishing policies, procedures, guidelines, and project schedules for HOU. She is also responsible for developing the collaborative relationships with the air carriers, tenants, and team members to excel at providing a customer-friendly, safe, secure, and efficient operation at HOU to the traveling public. In addition, she coordinates the preparation, implementation, and monitoring of the budget and expenditures for HOU, among other duties.

Before returning to HAS, Rambo served as the president of Winpark, a



Houston-based parking operating company that provides facilities in Houston, San Francisco, Dallas, Sacramento, Phoenix, and Austin. Prior to Winpark, Rambo served as the parking director for HAS, overseeing an operation of over 35,000 parking spaces and achieving annual parking revenue of over \$100

million. Rambo has also served as the parking management director for the city of Houston, managing on-street parking operations. Additionally, she led the city of Hollywood, Florida's, Office of Parking Services and was the director of off-street operations for the Miami Parking Authority.

Rambo holds a master's of science in management from St. Thomas University and a bachelor of business administration in marketing and international business from Florida International University. She has held key leadership roles within the parking community, most recently as the chair of the board of directors for the International Parking Institute. Rambo has also served on the board of directors of the Florida Parking Association and the board of directors of the Texas Parking Association, which recognized her with its Distinguished Service Award.

Jim Riley Joins CDM Smith as National Transportation Director

CDM SMITH IS PROUD to announce that Jim Riley joined the firm as a senior vice president and national transportation director in our North America Unit. Riley will be working in tandem with Doug LaVoie, PE, senior vice president and transportation group manager, to drive our transportation practice forward. He is based in the Cleveland, Ohio, office.

Riley brings 27 years of experience leading national transportation sales and delivery organizations. Prior to CDM Smith, he served in several leadership roles with HNTB, including national transportation market sector leader and chief sales officer, delivering more than \$800 million in transportation and infrastructure sales. While with the Ohio Department of Transportation, Riley was deputy director of innovative delivery and built the department's public-private partnership program.

"Jim brings to CDM Smith the experience, drive, and

enthusiasm that will help propel our transportation group to new levels," says LaVoie. "I'm excited to have Jim join our team and look forward to partnering with him and our group to advance infrastructure for our clients in North America."

"I'm excited for this opportunity," says Riley. "I'm looking forward to working closely with our leadership and technical staff to drive profitable growth for our company and to deliver excellence for our clients."



New Parking App Launched to Ease the Search for a Parking Spot in Europe's First Citywide Rollout of Smart Parking Technology

CARDIFF, U.K., is bidding farewell to the pain of finding a parking spot as a new smart parking system that helps drivers find an available parking space using the new Park Cardiff smartphone app went live in November 2017.

Working with parking technology firm Smart Parking Limited, Cardiff Council has installed 3,300 sensors in paid-for and disabled parking bays.

Cardiff Council is the first council in Europe to roll out this technology across its citywide road network.

Caro Wild, cabinet member for strategic planning and transport at Cardiff Council, has set out his vision to get as many people as possible to use alternative forms of transport.

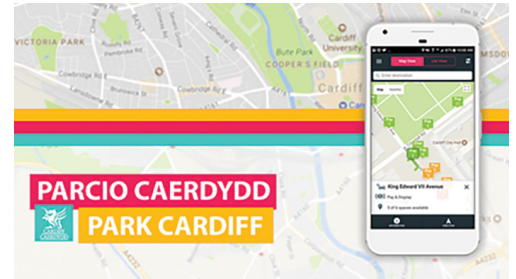
Wild says, "Although our priority is for people to use public or alternative forms of transport, we accept that there will still be a requirement for people to use

the private car. Given this, we want to provide the technology to make parking as easy as possible, so that people don't have to drive around the city to find a parking space.

"Now that we have invested in this scheme, we want people that park in and around the city center to download the free app—it is easy to use and will help both the motorist and the Council. Congestion and driving at low speeds significantly increases pollutants from cars, so we want people to find a space and park as quickly as possible."

Vehicle detection sensors are embedded into the road and detect whether or not the parking bay is occupied using infrared technology.

Populated with data collected through the sensors, drivers in Cardiff can download the Park Cardiff app to search and view a real-time map of parking availabili-



ty and be directed to an empty space. The Park Cardiff app is now available for iOS and Android devices in the Apple Store and Google Play store.

Park Cardiff can also connect users to Cardiff's mobile parking payment service—provided by MiPermit—which comes with free confirmation and reminder texts.

Smart Parking's bay sensor system has already been successfully deployed in Australia, New Zealand, the Middle East, South Africa, and Europe.

Cale Enters New Markets; Next Up Romania!

CALE INSTALLED THE FIRST PILOT in Constanta, the largest harbor city in Romania. Constanta is the fifth largest city in Romania with 300,000 inhabitants. The pilot period is anticipated to last until March 31, 2018.

The two Cale WebTerminals are located in the city center close to the Old Town near the city hall. The terminals will serve 100 paid parking spaces. The scope of the pilot is to get a smart parking solution for the entire city with traffic-regulating capacity.

The pilot will start with coins and a Romanian bank note reader. EMV Card payments will be added as payment method. Later, mobile payments will be introduced.

Enforcement will be done by the municipal police with



a soft start through the end of 2017, giving citizens time to learn and understand the new program during the Christmas holiday.

ParkHub Knocks the Ball Out of the Park During its First MLB Season

PARKHUB, a provider of advanced technology designed to optimize the parking operations of major venues and improve the parking experience for the guests, continues to swing for the fences in its bid to partner with additional Major League Baseball (MLB) franchises. ParkHub, currently in use at four MLB stadiums, as well as many other major sporting event locations across the U.S., met with front office executives of dozens of MLB franchises at the ProVenue Exchange MLB Edition 2017 in November in New York, presented by tickets.com. ParkHub executives joined other technologists, thought leaders, ticketing professionals, and marketing experts to explore how technology can transform the fan experience.

Beginning with the 2017 MLB season, ParkHub was the official parking technology provider to the Los Angeles Angels, Milwaukee Brewers, Oakland Athletics, and Texas Rangers. Parking personnel at each of the parks used ParkHub Prime, the handheld mobile point-of-sale terminal tailored for the parking industry, to quickly, efficiently, and securely process large volumes of traffic and rapidly get guests parked, resulting in less time in line and more time in the ballpark.

During the 2017 MLB season, ParkHub's platform processed more than 1.4 million vehicles, with transactions totaling \$13.8 million. On average, venues that utilize ParkHub's platform see a 27 percent increase in revenue, traffic flow is reduced by over a third, and customer satisfaction ratings increased by over 10 percent.

"At each of the parks where ParkHub's platform was used, we succeeded in accelerating transaction speed, reducing traffic congestion, im-

parkhub



proving customer satisfaction, and increasing parking revenue," says George Baker Sr., ParkHub's founder and CEO. "Parking sets the tone for the fan experience, so when the parking process is unexpectedly easy and fast, fans enter the stadium with a smile."

Earlier this year, tickets.com certified ParkHub as the only parking platform with real-time access to its ProVenue DirectConnect APIs. This means fans have the option to pre-purchase parking through tickets.com online or with their mobile devices, even last-minute while waiting in line to park. In addition to scanning prepaid vouchers, ParkHub's platform can process credit cards and mobile payments (NFC—Apple Pay/Android Pay), track cash transactions, and report transaction and inventory data in real time.

The 2017 MLB data collected at the four parks (over 13 percent of all MLB franchises) where parking personnel used Prime reveal MLB guests used

cash for 54 percent of parking transactions. Another 28 percent parked using pre-paid vouchers while 6 percent paid with credit cards. Twelve percent of parkers were "exempt" and didn't generate any revenue but were still recorded in the system. ParkHub is on track to double its footprint within MLB by the start of the 2018 season.

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Sweden Nominated for Stockholm Award

AS ONE OF THE MOST ADVANCED countries in the world, Sweden has a knack for staying ahead on today's technology and advancements. With approximately 10 million residents living in municipalities and urban areas, and thou-



sands of visitors flowing in and out every day, vehicle parking and management is a must to keep the country on top.

That is why two years ago Mats Igemo and Tommy Jakobsson, responsible for on-street parking operations in Stockholm, began to think about the future of parking terminals and what opportunities were available.

"We looked at the requirements from credit card processors, banks, and the general public when using payment machines," says Jakobsson. "We wanted the payment method of the future to be both

secure, convenient, and flexible, while removing the need for paper tickets. Printed receipts displayed on a dash felt a bit old."

The answer? The new digital and solar-powered Cale Web Terminal (CWT). Not only did they remove the waste of paper tickets, the user-interface is able to accommodate multiple languages. As a service to foreign visitors and tourists, the city is able to provide instructions, via a language button, in German, French, or English. The conversion to the CWT parking terminal opened several additional benefits to the city and its citizens, paving the way for the project to be nominated for the Stockholm City Digitalization Award 2017.

Convenience improves when payment is recorded digitally. Previously in Sweden, roughly 7.5 million receipts were printed each year. Receipts could be forged or blown away and were difficult to handle for two-wheeled vehicles. In addition, paper receipts increased the need for service calls and malfunction checks. With the new CWT Color Touch terminals, customers could begin a parking session by entering the license-plate, selecting time, and then applying payment. No pa-

per receipt was needed, nor the need to walk back to a vehicle to place the receipt in a dashboard.

By switching from the previous "pay & display" model, where receipts were mandated to be printed and displayed in the vehicle, to electronic payment, maintenance costs have been cut drastically.

"The CWT's digital receipt and electronic payment option have completely changed the way we work," says Jakobsson. "We used to have to collect and send out maintenance crews to retrieve coins, change paper, clear jams, etc. These new terminals have eliminated that need. We can now refocus about 60 percent of our maintenance budget to other much-needed areas."

The new CWT units are solar-powered and no longer need to be connected to external power sources. This way, there is no construction work for power lines, which is complicated, expensive, and comes with implementation and electricity charges. The new CWT parking terminals are therefore easy to integrate into the urban environment and can easily be moved to accommodate the changing and growing city.

APT Skidata and CitiPark Make the List of Finalists for the 2017 National Air Quality Awards

APT SKIDATA, the parking technology business, and car park operator CitiPark have been nominated as finalists in the 2017 National Air Quality Awards for their plans to tackle air pollution in the parking space.

The two firms have been shortlisted for the Commercial Sector Air Quality Initiative of the Year for their work to incentivize city drivers toward low- or zero-emissions vehicles through the use of emissions-based parking tariffs.

The National Air Quality Awards is now in its third year, and winners will be announced at the ceremony that follows the AirQualityNews National Air Quality Conference.

CitiPark has installed APT Skidata's emissions-based parking tariff technology at its Clipstone Street branch in Central London. The installation was the first of its kind in the U.K., and with individual parking tariffs set according to vehicles' CO2 emissions, city drivers are being incentivized to use low- or zero-emission vehicles.

APT Skidata's technology uses automatic number plate recognition cameras to identify and record each vehicle as it enters a car park and compares the license plate to a database that includes details on CO2 emissions. Those details are subsequently taken into consideration on payment, with

the correct tariff automatically calculated based on its environmental credentials.

Cars emitting up to 75 grams of carbon dioxide per km, defined as an ultra-low-emission vehicle, qualify for a cheaper Green tariff, with rates starting at 20 percent less than the regular cost. The technology has the potential to alter the way tariffs are calculated in all city centers—places that typically have the highest levels of air/vehicle pollution.

The system was first trialed in April, and within four weeks the number of low-emission vehicles choosing to park at Clipstone increased to an average of 25 across the month, and this quickly rose to 60 qualifying vehicles per month.

APT Skidata expects the take-up of emissions-based tariff calculation to be replicated exponentially across the industry and across the country. “More people than ever are aware of their environmental impact,” says Pete Brown, managing director of APT Skidata. “Both the government and industry are pushing to reduce urban emissions. Our initiative aims to see emissions-based technology improve air quality by encouraging motorists towards greener vehicles, and CitiPark’s Clipstone Street branch proves that the technology works and can attract more environmentally conscious drivers.”

Ben Ziff, managing director of CitiPark, says, “We believe that the infrastructures supporting the automotive industry and governmental green agendas

should also be adopting the same forward-thinking approach. We are investing a great deal into our London car parks at the moment, not just aesthetically but operationally too.”

“Here at CitiPark, we are committed to the fight against rising air pollution currently being experienced across the U.K. and are continuously looking at ways to enhance our Going Green initiative.”

CitiPark is now trialing APT Skidata’s system at its flagship car park in Leeds, which has been selected because Leeds is another city whose local authority is embracing the green agenda with T-charging due to come into force in 2020. Additionally, CitiPark is looking into new parking products such as season tickets for those cars who already qualify for the Green ticket.



Emergency Response Expert Doug Fell Joins Walker Consultants in Minneapolis

WALKER CONSULTANTS is pleased to announce that Douglas Fell, PE, has joined the firm as a senior restoration consultant. Fell will direct Walker’s Emergency Response Services, assisting clients with damaged structures across the United States by overseeing origin and cause investigations, damage assessments, repair cost estimates, and temporary shoring plans. He also serves as an outside investigator liaison and provides coordination with attorneys, insurance companies, and contractors. He will oversee Walker’s Emergency Response Services for all types of structural impairment, from small damage events to large catastrophic losses.

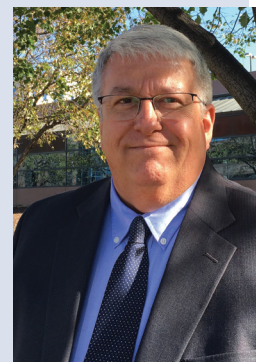
“Doug Fell is a terrific addition to the Walker Consultants team,” says

John Bushman, president, CEO, and chairman of the board of Walker Consultants. “Doug is an extraordinarily gifted restoration professional who is well-known across the United States for his knowledge and experience in repairing damaged structures.”

Fell has over 38 years of engineering experience overseeing the restoration of structures that have suffered catastrophic loss from many causes, including fire, explosion, severe weather, floods, impacts, and design defects. He is certified to work on hazardous material sites, and he has collaborated with the Bureau of Alcohol, Tobacco, Firearms and Explosives; Chemical Safety Board; Occupational and Safety Health Administration; and Federal Emergency Management

Agency, as well as numerous state and local governmental agencies, attorneys, insurance companies, other discipline investigators, and contractors.

“This year’s devastating hurricane season demonstrated how susceptible buildings and building complexes are to damage from hurricanes and other storms, not to mention fire damage and other natural disasters,” says Bushman. “Doug’s skill and experience will be invaluable assets to our clients.”



Metro and Via to Join Forces on Shared Rides to and from Select Transit Stations

THE LOS ANGELES COUNTY Metropolitan Transportation Authority (Metro) announced it will pursue a partnership with Via, a transportation network company, to provide an affordable, equitable, and accessible first and last mile solution for customers to help bridge the first-/last-mile gap. This project will be supported in part by a \$1.35 million from Mobility on Demand (MOD) Sandbox grant from the Federal Transit Administration (FTA).

Using new technology, customers will be able to book a seat in a shared, dynamically routed vehicle to or from three major Metro stations. Metro will ensure that the rides are affordable for customers and will provide a payment solution for the unbanked. Customers with disabilities, including those with service animals, wheelchairs, or other mobility aids or who need additional assistance to board or alight will be able to request rides that meet their needs.

Metro's project is part of a two-region partnership in Los Angeles County and the Puget Sound area with King County Metro and Sound Transit where each region will be testing a new type of partnership with a transportation network company.

The FTA, which is part of the U.S. Department of Transportation, developed the MOD program to support transit agencies and communities as they integrate new mobility tools like smartphone apps, bike- and car-sharing and on-demand bus and van services. MOD projects help make transportation systems more efficient and accessible, particularly for those who lack access to a car.

"We're making our systems more inclusive—because access to public transportation is a right, not a privilege," says Metro Chair and Los Angeles Mayor Eric Garcetti. "Everyone should be able to make a trip on Metro buses and trains, and

these funds will help more riders get where they're going quickly and conveniently."

"Our goal at Metro is to grow our service to provide more options and connections," says Metro CEO Phillip A. Washington. "We think this project has the potential to help us reach out to more people and, hopefully, make their lives easier."

"Via's shared-ride technology is perfect for connecting more people to public transit. Metro is committed to offering innovative services to the public, and we are excited to help Metro solve the first- and last-mile challenge and help millions of new passengers take advantage of other public transportation options," says Daniel Ramot, co-founder and CEO of Via.

The Metro project plan was developed by Metro's Office of Extraordinary Innovation.

"Metro is committed to expanding mobility options in Los Angeles County by leveraging Via's innovations and expertise in offering dynamic shared rides," says Joshua Schank, chief of Metro's office of extraordinary innovation. "Our project with Via demonstrates that there is potential to align public and private sector interests to improve mobility and provide a public benefit through ensuring that rides are affordable, equitable, and accessible for our customers."

To ensure that the project can provide lessons for future partnerships, the Eno Center for Transportation; University of California, Los Angeles; and the University of Washington will be studying the project to identify lessons learned. The FTA will be working with Booz Allen Hamilton and the Transportation Sustainability Research Center to evaluate all participating MOD programs.

Metro and Via are finalizing an agreement with the intent of beginning the mobility on demand project in summer 2018.



New Jersey Parking Institute Hosts City of Beijing, China's Mobility Department

NEW JERSEY PARKING INSTITUTE (NJPI) on October 6, 2017, hosted the city of Beijing, China's Mobility Department, including transportation, parking and traffic enforcement at a Mobility Best Practices Idea Exchange Luncheon held at the Heldrich Hotel in New Brunswick, N.J. The New Jersey Department of Transportation recommended that the Beijing mobility delegation meet with NJPI as New Jersey's primary source for parking and enforcement best practices. Prior to meeting with NJPI the Beijing delegation met with New York City's Department of Transportation and Parking Violation Bureau.

The NJPI delegation was led by Mayor Samson Steinman of Rahway; Len Bier, CAPP, NJPI executive director; and Timothy Haahs. The Beijing delegation,

which included high-level government officials, was led by Boyi Ma, the deputy director of the Beijing Commission of Transportation. Other prominent Beijing mobility officials attending the luncheon included Jin Tong, director of parking management; Jianling Huang, director of the Beijing Transportation Information Center; and Yue Suo, deputy chief of traffic enforcement.

New Brunswick Parking Authority (NBPA), as the host community, demonstrated its PATS electronic parking summons handheld ticketing system, mobile LPR enforcement vehicle, credit card-enabled single-space parking meters, and other technologies. The Beijing delegation toured the NBPA's administrative offices, where they visited the operation command center and observed,

remote monitoring of parking facilities via CCTV, two-way communications with parking customers at pay-stations and in entry/exit lanes, GPS tracking and mapping of enforcement vehicles in the field, as well as on- and off-street parking occupancy heat maps designed for management and enforcement.

The Beijing delegation was extremely interested in NBPA's public-private partnership (P3) model for real estate development which enables the authority to own, invest, and develop commercial real estate projects. They were impressed by the NBPA's P3 Transit Village Mixed Use Project, which included as partners the NBPA, New Jersey Transit Corporation, Rutgers University, New Brunswick Development Corporation, and Penrose Properties, a private developer.



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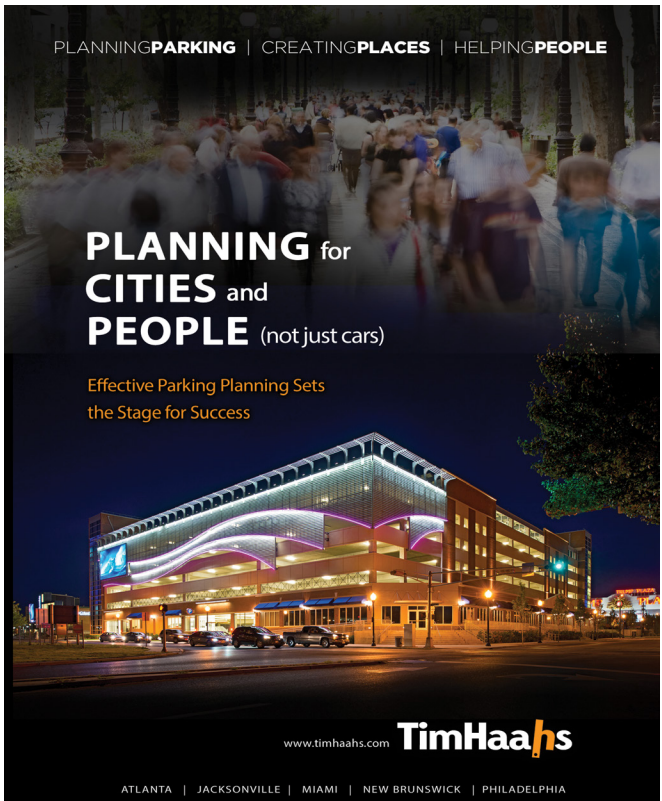
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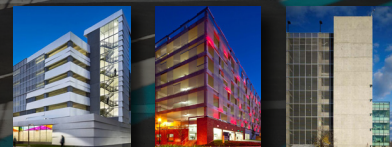
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JIM BASS is landside operations manager at the Bill and Hillary Clinton National Airport, Little Rock, Ark. He can be reached at jbass@clintonairport.com.

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parking.org/parkingsolutions

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MARCH 1

**Deadline to Submit APO for Recognition at
the 2018 IPI Conference & Expo**
parking.org/apo

MARCH 1

**Deadline to take CAPP exam
for June graduation**
parking.org/capp

MARCH 5-7

**Mid-South Transportation and Parking
Association Annual Spring Conference**
Huntsville, Ala.
mstpa.org

MARCH 26-28

**Texas Parking and Transportation
Association Annual Tradeshow
and Conference**
Houston, Texas
texasparking.org

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APRIL 10-19

**Parksmart Advisor Online,
Instructor-led Training**
parking.org

APRIL 11-12

**New England Parking Conference Annual
Spring Conference and Trade Show**
Providence, R.I.
newenglandparkingcouncil.org

APRIL 24-28

**Parking Association of Georgia
2018 Conference**
Augusta, Ga.
parkingassociationofgeorgia.com

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MAY 2-4

**Pennsylvania Parking Association
Spring Conference and Tradeshow**
Pittsburgh, Pa.
paparking.org

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JUNE 3-6

2018 IPI Conference & Expo
Orlando, Fla.
IPIConference.parking.org

JUNE 24-27

World Parking Symposium
Berlin, Germany
worldparkingsymposium.ca

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JULY 25-27

**2018 Pacific Intermountain Parking and
Transportation Association Conference**
Portland, Ore.
pipta.org

In Case You Missed It...

ON THE BLOG

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- ➔ **The End of Driving As We Know It?** David Feehan on the realistic future of autonomous cars.

 - ➔ **Giving Back.** Gary Means, CAPP, explains how to start a donations-for-citations program.

 - ➔ **Parking, New Urbanism, and Small Cities.** Michael Cramer writes about what smaller municipalities need to do to keep up.

 - ➔ Read more and **claim your free subscription** at parking.org/blog.

IN THE RESOURCE CENTER

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- ➔ **Case Study:** Charlotte, N.C., and Indianapolis, Ind., and what their transportation systems have in common.

 - ➔ **CAPP Certification.** A new video explains why CAPP is the industry's premiere certification.

 - ➔ **Technology Glossary.** A new publication from the British Parking Association and IPI.

 - ➔ **Download these and more** at parking.org/resource-center.

AND MORE ...

The 2018 Parking Solutions Competition is open to college and university students with the next big idea! parking.org/parking-solutions-competition

Planning to earn CAPP or APO? Exam and submission deadline is March 1 to make it by the 2018 IPI Conference & Expo.

New job postings and RFPs.

Stay up on everything in parking, transportation, and mobility—parking.org!



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