

Conduent Merge[®] Curbside Management

Helping manage parking resources



Managing people, field equipment, and revenue — and doing so all at once — can be challenging for parking managers. They need a single solution to direct resources with one back-end view to better manage the magnitude of second-by-second inputs. Imagine having operational data from cameras, sensors, parking meters, apps, and other technologies combined in a cohesive system dedicated to simplify your parking operation. Now that's a solution we can get behind.

The Problem

The way curbside management is viewed has changed considerably during the past several years. Parking is a scarce and valuable resource impacting traffic flow, congestion, and economic vitality. New technologies are being introduced almost daily to improve revenue, reduce costs, and make parking more convenient. However, effectively managing parking has become more challenging, despite the growth in parking-related technologies.

As cities increasingly adopt new technologies, the ability to manage disparate hardware and software solutions will become more challenging. A growing array of on-street assets, maintenance issues, collection protocols, and a need for real-time data have led to information overload. The problem? There's no comprehensive data integration. As new technology is implemented, controlling and monitoring available data becomes harder because each solution has its own back-end software. As your technology expands, the systems used to keep it moving must grow too.

Wouldn't it be great if you had a solution that would allow you to:

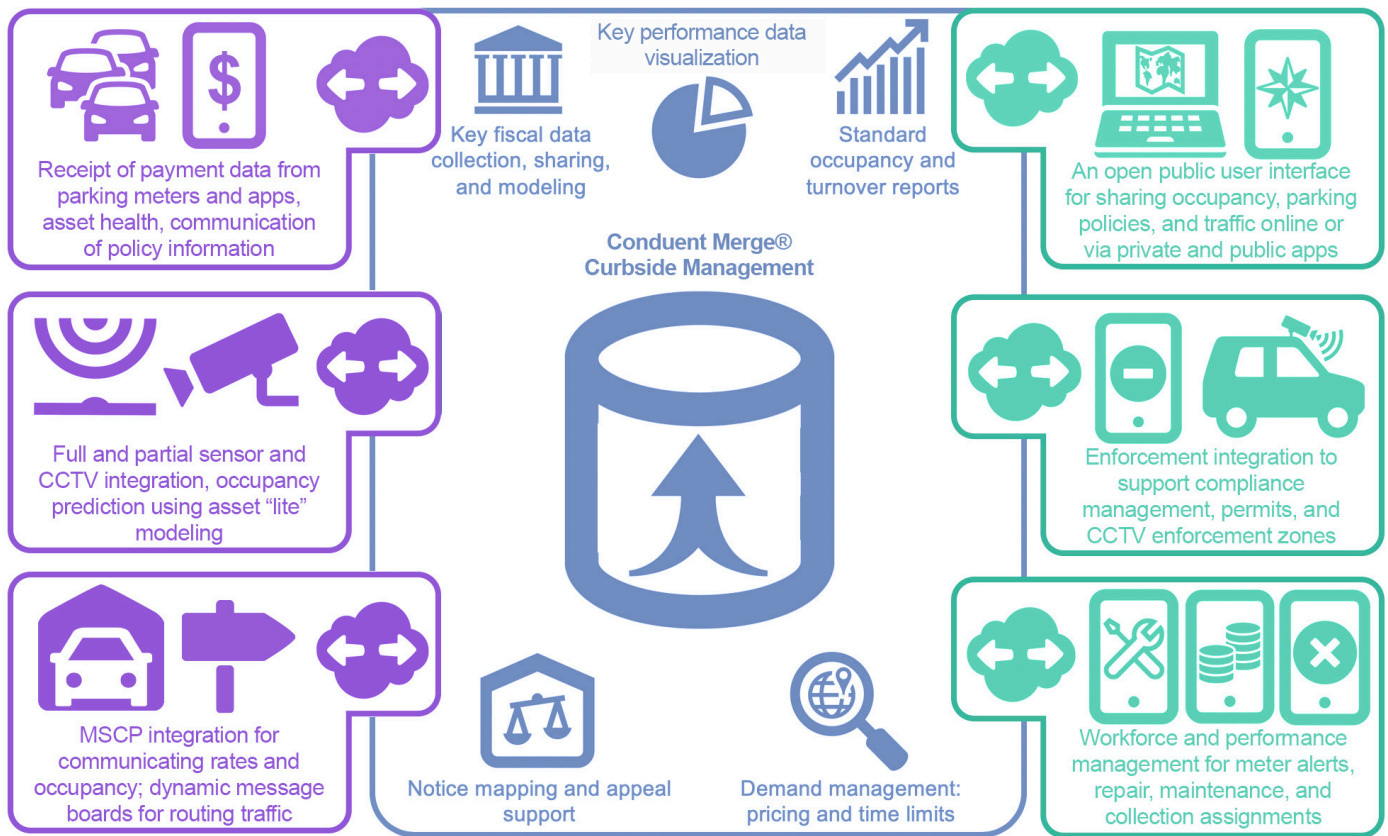
- Collect and analyze data in one place
- Manage resources and equipment from a computer or tablet
- Plug in new hardware and software when and as you need it
- Improve motorists' experience with real-time data
- Make data-driven decisions to create turnover, reduce congestion, and improve pedestrian and cyclist safety

The concept of curbside management continues to evolve, moving beyond simply parking enforcement and parking meter collections and maintenance. Now the idea of curbside management includes complex functions like smart asset allocation and demand pricing, optimizing the use of parking spaces, and reducing the time customers spend on parking.

An Integrated Solution for Managing the Curb

Now live in various cities, Merge® helps Authorities manage personnel, assets in the field, and revenue - all from one integrated portal presenting information in a GIS format. It provides real-time visual status information from all participating on-street paid parking spaces. Users can view payment, enforcement, occupancy, and meter information in real-time. Further, Merge® summarizes the data and uses the results to display parking space availability information to the public online or via your preferred app.

With Merge® you're able to observe system occupancy, maintenance and collections status, enforcement requirements, financial performance, and other critical information to support motorist service and adjudication. The system reduces the time spent on finding information, trims operational costs, and boosts productivity.



Centralization of Data Connectivity Infrastructure

Merge® provides a structured data exchange that can significantly reduce the number of data feeds and connections by replacing the traditional spider web with a hub-and-spoke connectivity model. Each vendor device talks to our central system. Our solution then communicates the necessary information to other platforms, enabling you to have a system with a single point of control. This reduces complexity, implementation time and cost, and allows for new technologies to be added to the system with minimal impact to the overall system. The additional value lies in the analytics capabilities that Merge® offers - capturing all of the data from various platforms and providing you with a big-picture perspective of parking management.

Evolving Parking Needs

Merge® provides transportation professionals with complete visibility into the current conditions of a parking space, block, town, or city so that they can make real-time decisions on rate structures and smarter enforcement. Our expansive integration ensures that the components of the system act together to form a complete picture benefitting municipalities and their stakeholders.

Managing Inventory and Asset Management

Merge® offers a single system for communicating rate changes, time limits, hours and days of operations, and other policy decisions to multiple meter types, manufacturers, and multiple payment technologies, including traditional networked single- and multi-space parking meters machines and pay by phone apps.

- **Meter Payments.** Merge® accepts data sent from meter manufacturers, including the meter number, zone number, VRM, location, payment method, time purchased, overtime parking, and quantity paid.
- **Apps.** We receive data from app providers when customers access their secure account via smart phone and purchase time for a specific space, zone, or vehicle. The API is consistent with the Meter Payments API, and we use this data for revenue reporting, collections reporting, and payment verification.
- **Curbside Inventory Management.** Merge® can easily be configured to allow meter and supporting parking detection technologies to be managed in groups. These include scheduling of collections and maintenance and policy programming. Further, Merge® provides a two-way, near real-time bi-directional exchange of inventory and policy data. This allows clients to view transaction

details, set space policies, and manage the attributes of individual or groups of meter spaces in a centralized system, including - hours of operation, hourly rate segments, closures, and rules concerning pre-purchases.

- **Dynamic Message Signs (“DMS”).** We support a number of different DMS. For example, we provide preconfigured messages to curbside signs every few minutes, sharing information about occupancy, events, and closures with drivers.

Occupancy Detection and Prediction

We’ve worked on some of the largest sensing installation projects—including the use of partial and full in-ground sensor coverage, portable cameras, fixed CCTV, ANPR, paid use, and historical citation issuance—and understand the various infrastructure challenges and the limits of data proxies for predictive analytics. Our sustainable solutions help to drastically reduce the costs of infrastructure and communications using temporal and spatial sampling and algorithms to optimize the placement of assets.

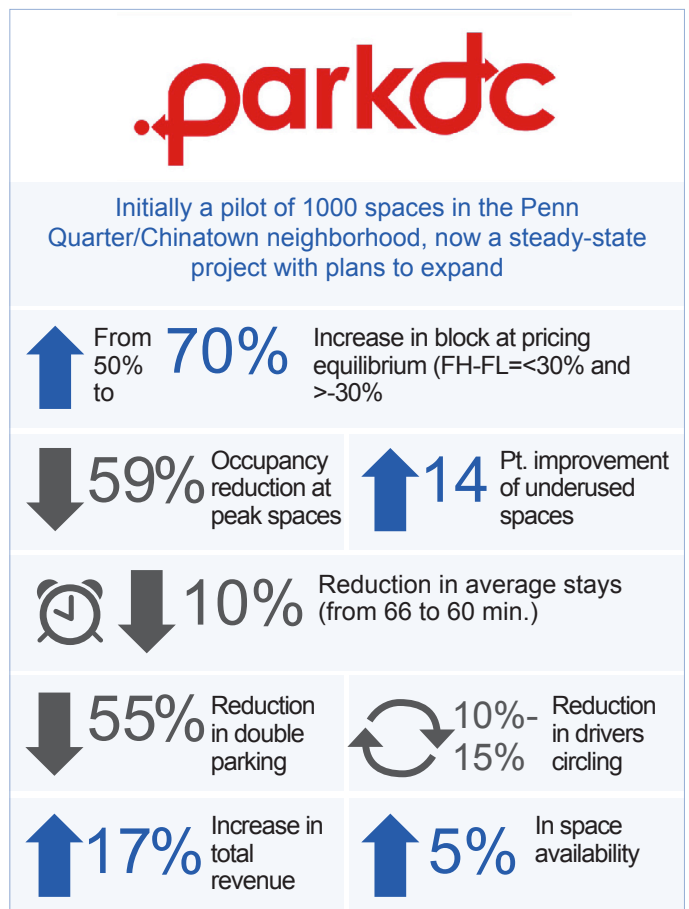
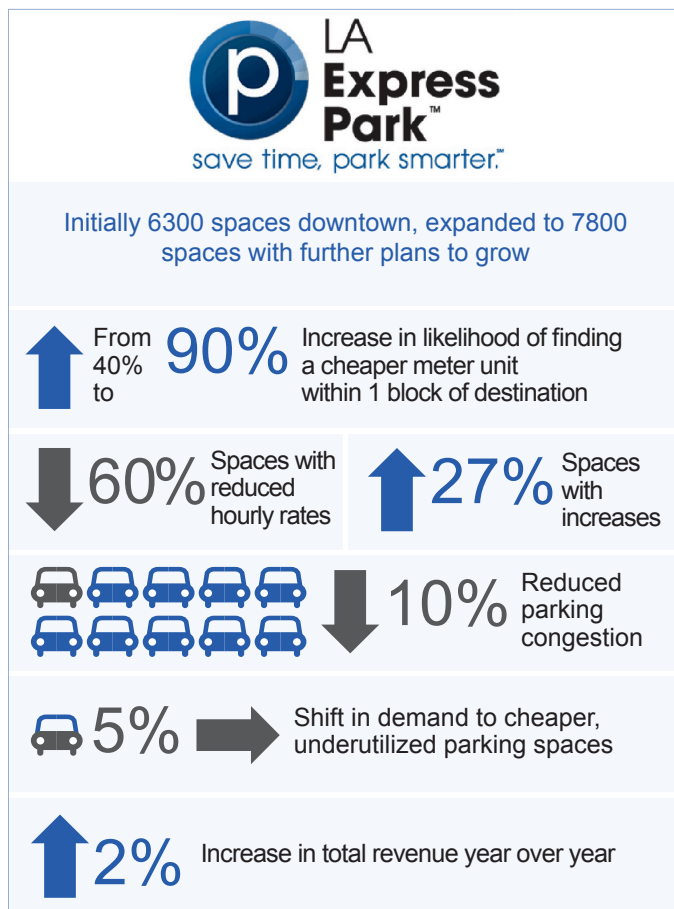
Knowing Your Operations

“We are what we measure,” and Conduent Transportation works with clients to identify key performance metrics, including operational

measures, system availability, and other critical aspects of a program. Merge® provides aggregated data visualizations through extensive data integration, providing critical insights into revenue, occupancy, demand, turnover, and stay durations. Our platform ensures users can observe system utilization, maintenance and collections status, enforcement requirements, and financial performance. Customer service and hearing personnel use Merge® data to determine if meter units were broken, in the process of being collected, or otherwise inoperable at the time of a parking violation. We reduce the time transportation professionals need to spend on finding information, trimming operational costs and boosting productivity by automatically collecting and disseminating performance data, revenue, and other vital information.

Trip Planning and Parking Guidance

We offer websites and integration to public and private parking apps to help motorists plan trips and search for available parking via map-based interfaces. Imagine being able to understand the likelihood of finding parking in an hour, two hours, or more, rather than simply relying on real-time data. Giving motorists that power can help shift them to alternative modes, help them park in different locations, or provide guidance about the best time to drive and park. We provide real-time and predictive occupancy data and rate



information to commercial and municipality apps. We can also provide data to motorists via in-vehicle navigation systems and public information services.

Workflow and Managing Personnel

Merge® provides P&D alerts, repair, maintenance, and collection assignments to personnel. Users can choose from work order lists and complete assignments via a mobile device. Supervisors can customize and manage maintenance, repair, and collection routes. Managers can view inventory, maintenance entries and asset states, and permit and bagging history. Merge® provides productivity reports across groups of technicians and per individual, including the number of repairs completed per day, the average repairs per month, and the average time spent on repairs.

Compliance Management

Merge® integrates with Conduent's Compliance Enforcement solution for citation issuance, informing our parking CEO's of meter units, app payments, applicable permits, and other key information. Enforcement personnel can make informed decisions about the payment status of parked vehicles and avoid issuing wrongful citations in the field.

Demand Pricing

Parking is a scarce resource, especially curbside. Demand has generally outpaced supply. As a result, motorists are more likely to cruise, circling continually for an available space – exacerbating traffic and air pollution. As the Authority, it's important to properly price and manage consumer demand. Varying rates by location and time of day create availability. Those vacancies reduce the time spent searching for on-street parking and ensure that motorists are drawn to businesses served by parking payment options.

We don't take a "finger in the air" approach to recommending curbside demand-based rate changes. Merge® supports the evaluation of occupancy trends on each street face and calculates optimal parking rates within the town's specified constraints. The idea is to

redistribute parking demand across various street faces in the vicinity so as to maximize occupancy in low demand areas while creating available parking spaces on the congested ones. The platform uses proprietary machine learning to take the guesswork out of setting and adjusting rates, hours of operation, and other P&D policies as frequently as necessary to effectively communicate occupancy and manage demand.

Merge® is a business intelligence platform in the truest sense, working for our clients to:

- **Improve turnover** - increasing turnover on heavily utilized streets and reducing turnover of underused spaces in order to shift demand from areas where available parking is at a premium.
- **Increase parking availability** - Managing parking isn't just a demand-side problem; it requires effort to increase supply as well, and Merge® assists by improving the efficiency of existing parking spaces by leveraging enforcement integration and meter maintenance.

The Results

We know the value of properly managing an asset as complex as the curb. And we know it hasn't necessarily become easier as the technology has grown. However, it doesn't need to be difficult.

Conduent Merge® Curbside Management is a simpler solution ready to grow with next generation technology – providing data integration and embracing complex solutions with a single back-end to help manage scarce curbside space and achieve goals like promoting access, achieving Vision Zero, creating modal shift, and mitigating congestion.

Contact Us

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