



Long-term parking



In a bid to counter those who suggest parking can never be green, *Intertraffic World* presents some compelling arguments that showcase exactly how parking can become a truly sustainable industry in the coming years

Words | **Jerry Marcus**



Although different transportation options (besides a single-occupant vehicle) should be considered for any new development, in many cases additional off-street parking is necessary to support the business district or planned future development. The typically low-density developments in the last half of the 20th century that compelled suburbanites to drive from one errand to another have been shown by research to produce unsustainable rates of driving, carbon emissions, pollution, stormwater runoff and even adverse health effects. The parking world, like its commercial cousin, wants to be a more responsible steward of the environment.

The new wave of sustainable development is offering a more dense, pedestrian friendly experience (even in suburban areas). One of the most important tools of today's developer is shared parking. Shared parking creates development where multiple uses are planned for each parking space, which will allow for far fewer parking spaces for the development than would be necessary in a lower density, traditional suburban model.



“Most developers use estimates that result in building tens – if not hundreds – of unused parking spaces”

How is building less parking sustainable? What most planners don't usually understand is that for parking construction, no other sustainable building tool can compare to a smaller parking facility. Not low-energy lighting, not better cement mixtures and not providing incentives for low-emission vehicles. In fact, most of the world believes there is very little sustainable about parking. That is because car parks store vehicles and the reduction of vehicle emissions is a core concept in the quest to be more sustainable. But I am here to convince you that an optimised-sized parking structure is the best tool for greener parking.

Eliminate needless construction

Each parking bay is constructed of tonnes of concrete. Its production requires enormous amounts of energy to make the concrete, transport it to the building site and to erect the car park. Each space not constructed saves more energy than eliminating any other feature of the facility.

Unfortunately, how do we know when planning a development the correct number of spaces that will be necessary to support the programme?

(Top) **Improving parking guidance helps cut harmful emissions** (Left) **NFC technology can help streamline parking operations**



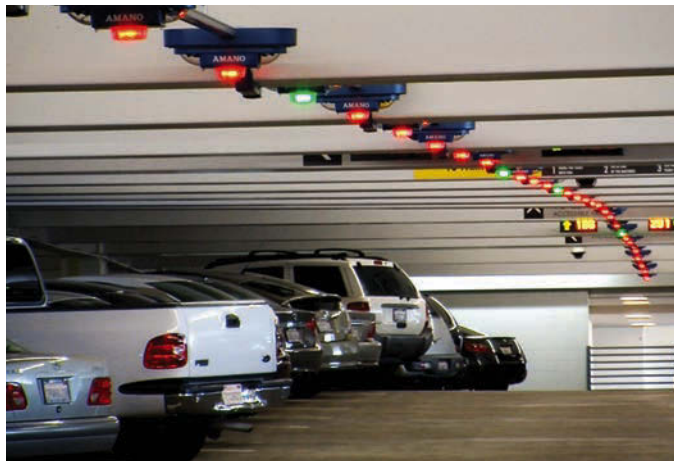
Most developers use estimates that result in building tens – if not hundreds – of unused spaces. Determining the optimal parking supply starts with a shared use model. The Urban Land Institute's (ULI) shared use model is a good place to start to answer the question of how do we 'right size' a parking facility? It contains the information to estimate parking requirements for a mixed-use setting where parking is shared among various parking generators. Factors, such as the ability to use the spaces to support multiple business entities, mode of arrival and seasonal variations, are key components. It is widely considered to be the best methodology for modelling shared use parking.

Although the ULI model can reduce the amount of unused space, to accurately utilise all the parking, a blend of good pre-planning and better data management is the key to achieving near-100% utilisation of a facility.

This data is derived from a number of parking technologies that have been developed in recent years.

Parking guidance systems

Parking guidance systems (PGS) are sensor- or camera-based tools that monitor available spaces and guide patrons to the nearest open spaces. Systems by companies,



(Left) **PGS help maximise the utilisation of facilities** (Below, left) **Clear, functional signage is a low-tech way to get drivers into spaces more efficiently**



such as ParkHelp and Amano, are extremely effective in maximising the utilisation of large facilities – thereby allowing owners or communities to build fewer spaces. They have the added sustainable benefit of shortening drive time to each space.

App-based parking reservations

App-based parking reservations are smartphone-enabled solutions that enable customers to reserve parking in busy parking facilities. This also greatly improves utilisation in parking facilities. You can now reserve the last few parking spaces available. Apps, such as SpotHero, ParkNow and Parkopedia, are revolutionising the parking operations business and improving utilisation rates in many parking facilities.

Automatic vehicle identification

Automatic vehicle identification (AVI) systems use devices similar to toll road tags, which allow customers to enter facilities without tickets or traditional credentials. Reservations can be tied to the tag, permitting advanced sales and higher car park occupancies. These devices, by companies such as Transcore and TagMaster, provide the added benefit of decreasing transaction time and reducing vehicle emissions.

Today's car parks are designed to serve differing groups of patrons around the clock. This allows developers and municipalities to build much less parking and has the added benefit of producing walkable, vibrant projects. This has been made possible by blending thoughtful planning with enhancements in technology. Despite the naysayers, parking can be – and should be considered – sustainable. ■

Jerry Marcus is president of the USA's Parking Advisory Group. He can be contacted by emailing jmarcus@theparkingadvisorygroup.com

TABLE SETTINGS

The table illustrates the comparative savings of a retrofit to energy-efficient LED lighting versus the reduction in the quantity of parking spaces in a 500-stall model facility. The model shows a reduction in parking count of 10% to 450 parking stalls.

It also shows how developing a parking structure with fewer spaces is a more cost-effective way to reduce a facility's carbon footprint. Even when we add in the cost of one of the

most high-priced technologies (at US\$400 per space or US\$180,000 for our 450-space facility), the 'right sized' smaller parking facility is more cost effective and sustainable. Technologies such as smartphone reservation and individual-space PGS work hand in hand to enable operators to maximise the use of spaces. This model provides justification for such advanced systems, proving that not all sustainable enhancements are more costly.

Comparison of space reduction to energy-efficient lighting

	Cost of spaces	Cost savings in power cost	Years for equivalent savings	LBS carbon reduced	Years for equal reduction
Reduction – constructed parking	US\$750,000			100,000	
LED lighting retrofit		US\$33,288	22.53	6,500	15.38
Assumptions space reduction • 500-space parking structure • Cost per space US\$15,000 • 10% reduction in space to 450 spaces			Assumptions lighting retrofit • US\$0.16 per kWh • 1.22 lbs of carbon per kWh • Lights 24 hours a day • Not including relamping		