



PARKING MANAGEMENT PRINCIPLES

These ten general principles can help guide planning decision to support parking management.

- **Consumer choice** People should have viable parking and travel options
- **User information** Motorists should have informa-

tion on their parking and travel options

- **Sharing Parking** facilities should serve multiple users and destinations
- **Efficient utilisation** Parking facilities should be sized and managed so spaces are frequently occupied
- **Flexibility** Parking plans should accommodate uncertainty and change
- **Prioritisation** The most desirable spaces should be managed to favour higher-priority uses

- **Pricing** As much as possible, users should pay directly for the parking facilities they use
- **Peak management** Special efforts should be made to deal with peak demand
- **Quality v quantity** Parking facility quality should be considered as important as quantity, including aesthetics, security, accessibility and user information
- **Comprehensive analysis** All significant costs and benefits should be considered in parking planning

Innovative solutions to parking problems

PARKING IS AN ESSENTIAL component of the transportation system. Vehicles must park at every destination. A typical automobile is parked 23 hours each day and uses several parking spaces each week.

Parking facilities are a major cost to society, and parking conflicts are among the most common problems facing designers, operators, planners and other officials. Such problems can be often defined either in terms of supply (too few spaces are available, somebody must build more) or in terms of management (available facilities are used inefficiently and should be better managed).

Parking management refers to policies and programs that result in more efficient use of parking resources. Parking management is based on the general principles listed in the box above, and includes several specific strategies. When appropriately applied, parking management can significantly reduce the number of parking spaces required in a particular situation, providing a variety of economic, social and environmental benefits. When all impacts are considered, improved management is often the best solution to parking problems.

PARADIGM SHIFT

Parking management represents a paradigm shift, that is, a fundamental change in how a problem is perceived and solutions evaluated. The current paradigm assumes that parking should be abundant and free. Under the old paradigm, parking problem means that inadequate free parking is available at each destination. The new paradigm strives to provide optimal parking supply and price. It considers too much supply as harmful as too little, and prices that are too low as harmful as those that are too high.

The old paradigm assumes that parking lots should almost never fill, that parking facility costs should be incorporated into the costs of buildings or subsidised by

governments, and that every destination should satisfy its own parking needs.

The new paradigm strives to use parking facilities efficiently. It considers full lots to be acceptable, provided that additional parking is available nearby, and that any spillover problems are addressed. It emphasises sharing of parking facilities between different destinations. It favours charging users directly for parking facility costs, and providing savings to people who reduce their parking demand.

PARKING MANAGEMENT STRATEGIES

Table 1 on page 18 lists seventeen parking management strategies and their impacts. Of course, not every strategy can be applied in every situation. Planners must carefully select these strategies and create an integrated parking management programme to meet specific needs and conditions.

Many of these strategies are well known and are successfully implemented in some situations. However, they are not being implemented to the degree justified by their total benefits because current planning practices emphasise supply solutions and treat management solutions as a last resort to be implemented only when it is particularly difficult to expand parking facilities. In addition, current planning tends to overlook many benefits that could result from more efficient management. For example, when transportation engineers compare supply expansion with parking management solutions they often overlook indirect costs such as stormwater management costs, sprawl costs, and reduced pedestrian accessibility that result from parking facility expansion, and so underestimate the full benefits from management solutions.

Although individual parking management strategies often have modest impacts, their effects are cumulative. A cost-effective, integrated parking management programme can often reduce

parking requirements by 20–40%, while improving user convenience and helping to achieve other planning objectives, such as supporting more compact development, encouraging use of alternative modes, and increasing development affordability. This can increase profits and help address a wide range of transportation and land use problems. Management solutions tend to provide many benefits compared with current practices:

- Reduced development costs and increased affordability
 - More compact, multi-modal community planning (smart growth)
 - Encourage use of alternative modes and reduce motor vehicle use (thereby reducing traffic congestion, accidents and pollution)
 - Improved user options and quality of service, particularly for non-drivers
 - Improved design flexibility, creating more functional and attractive communities
 - Ability to accommodate new uses and respond to new demands
 - Reduced impervious surface and related environmental and aesthetic benefits
- Parking management allows greater design flexibility and huge cost savings by applying 'contingency-based planning' which identifies specific solutions that will be implemented if problems develop in the future. For example, rather than building 100 parking spaces at a particular destination, based on conventional parking standards, a contingency-based plan might initially build 60 spaces and identify various management strategies that will be implemented as needed if that proves to be inadequate the future.

HOW MUCH PARKING TO SUPPLY

Current planning relies on generic standards to determine how much parking to supply. These standards tend to be excessive in most situations because they are based on demand surveys that were mostly performed in automobile-dependent locations, and so require more parking than needed in areas with good travel options, accessible land use, or transportation and parking management programmes. Yet, this overabundance of supply does not eliminate parking problems because spaces are often unavailable for priority uses or are

Table 1 Parking management strategies

Strategy	Description	Typical reduction	Traffic reduction
Shared parking	Have each parking space serve multiple users and destinations	10–30%	✓
Parking regulations	Regulations that favour higher-value uses such as service vehicles, deliveries, customers, quick errands, and people with special needs	10–30%	
More accurate and flexible standards	Adjust parking standards to more accurately reflect demand in a particular situation	10–30%	
Parking maximums	Establish maximum parking standards	10–30%	
Remote parking	Provide off-site or urban fringe parking facilities	10–30%	
Smart growth	Encourage more compact, mixed, multi-modal development to allow more parking sharing and use of alternative modes	10–30%	✓
Walking and cycling improvements	Improve walking and cycling conditions to expand the range of destinations serviced by a parking facility	5–15%	✓
Increase capacity of existing facilities	Increase parking supply by using otherwise wasted space, smaller stalls, car stackers and valet parking	5–15%	
Mobility management	Encourage more efficient travel patterns, including changes in mode, timing, destination and vehicle trip frequency	10–30%	✓
Parking pricing	Charge motorists directly and efficiently for using parking facilities	10–30%	✓
Improve pricing methods	Use better charging techniques to make pricing more convenient and cost effective	NA	✓
Financial incentives	Provide financial incentives to shift mode	10–30%	✓
Unbundle parking	Rent or sell parking facilities separately from building space	10–30%	✓
Parking tax reform	Tax parking facilities and their use	5–15%	✓
Bicycle facilities	Provide bicycle storage and changing facilities	5–15%	✓
Improve user information and marketing	Provide convenient and accurate information on parking availability and price, using maps, signs, brochures and electronic communication	5–15%	✓
Improve enforcement	Insure that parking regulation enforcement is efficient, considerate and fair	NA	
Transportation management associations	Establish member-controlled organizations that provide transport and parking management services in a particular area	NA	✓
Overflow parking plans	Establish plans to deal with periods of peak parking demand	NA	
Address spillover problems	Use management, enforcement and pricing to address spillover problems, such as undesirable use of nearby parking facilities	NA	
Parking facility design and operation	Improved parking facility design and operations to help solve problems and achieve parking management objectives	NA	

difficult to access. The real problem is not inadequate supply, it is inefficient management.

There are better ways to determine how much parking to supply at a particular site.

Efficiency-based standards size facilities for optimal utilisation. This means that most parking lots are allowed to fill, provided that management strategies can insure user convenience and address any problems. For example, parking facilities at a store can be sized to fill daily or weekly, provided that overflow parking is available nearby, motor-

ists have information about available parking options, and regulations are adequately enforced to address any spillover problems that develop. Efficiency-based standards take into account geographic, demographic and economic factors that affect parking demand.

Current planning practices are said to measure parking demand, but demand is actually a function: the quantity of a good consumers would purchase at a given price. Most parking surveys are performed where parking is free, which is equivalent

to asking how much food a store could give away. To truly measure demand the analysis must determine how much parking would be used with various conditions and prices. For example, rather than saying, 'A 25 000 square feet commercial building requires 100 parking spaces,' a planner should be able to say, 'A 25 000 square feet commercial building requires 100 parking spaces if at a automobile-dependent location with unmanaged and unpriced parking; 80 spaces if at a multi-modal location; 60 spaces if at a multi-modal location and parking is managed efficiently; 40 spaces if at a multi-modal location, parking is managed efficiently and priced at \$2 per day; and 20 spaces if at a multi-modal location, parking is managed efficiently and priced at \$5 per day.'

Overabundant parking supply imposes huge social costs. A typical urban parking space has an annualised value of \$600 to \$1 200. There are estimated to be about five parking spaces per automobile, totaling approximately \$3 000 in annual value. In other words, for each dollar consumers spend on an automobile somebody devotes about 50¢ to parking. Because consumers pay indirectly for parking they tend to use it inefficiently, resulting in more parking demand, more vehicle ownership and more vehicle mileage than is economically efficient. Current practices are also inequitable since they force non-drivers to subsidise parking costs, reduce travel options for non-drivers, and reduce housing affordability.

DEVELOPING A PARKING MANAGEMENT PLAN

It is generally best to develop an integrated parking management plan which includes a complementary set of strategies that meet the needs of a particular situation. A typical plan includes strategies that:

- Increase parking facility efficiency by sharing, regulating and pricing; use off-site parking facilities; implement overflow parking plans; improve user information; and improve walking and cycling conditions
 - Reduce parking demand by encouraging use of alternative modes and more accessible land use development
 - Improve enforcement and control of parking regulations, and address spillover problems in various other ways
 - Improve parking facility design and operation to improve user convenience and safety and reduce negative impacts
- Begin with a comprehensive menu of potential strategies, such as those listed in table 1, and identify those that are most suitable, taking into account all benefits and costs, including strategic planning objectives, such as a desire to encourage more compact development or reduce vehicle traffic. Select and prioritise strategies, and

determine which combinations should be implemented together. For example, strategies that increase regulations and prices should generally need to be implemented with strategies that increase user information, expand parking options, and improve enforcement.

The next step is to develop an implementation plan. This may include various phases and contingency-based options. For example, some strategies will be implemented the first year, others within three years, and a third set will only be implemented if necessary, based on performance indicators such as excessive parking congestion or spillover problems.

EXAMPLES

Below are two examples of parking management programmes.

Ashland, Oregon

Ashland is a small but rapidly growing city in central Oregon, which is famous for its Shakespeare Festival that attracts tens of thousands of visitors each year. The city's downtown is a major destination and activity centre, particularly during the summer tourist season. Downtown business people were concerned that existing parking supply

was at capacity but feared that pricing parking would have a negative effect on customer traffic. To address these concerns local planners examined the experience of five comparable cities that have recently implemented priced parking. Their research indicated that pricing did not adversely affect visitor demand or use, that it increased turnover, that it generates net revenue, and that newer multi-space meters work well.

Using this feedback and information, the planners developed a parking management plan. They divided the downtown into three major parking management zones, described as 'Core', 'Intermediate', and 'Periphery'. For each of these zones they developed overall guiding principles, parking management strategies, and an implementation plan with near-, mid- and long-term actions. The plan includes pricing of publicly owned parking facilities to increase turnover, shift employee parking to less convenient locations, encourage use of alternative modes, and provide funding to increase parking supply and support alternative modes.

Austin, Texas

Many neighbourhoods experience parking spillover problems, including difficulty

finding parking for residents and visitors, concerns that public service vehicles cannot pass two lanes of parked vehicles on the street, or that parking on the street reduces neighborhood attractiveness.

Austin is addressing these problems by allowing neighbourhoods to establish parking benefit districts (PBDs). A PBD is created by metering the on-street parking (either with pay stations on the periphery of the neighbourhood or with the traditional parking meters) and dedicating the net revenue (less costs for maintenance and enforcement) towards neighbourhood improvements such as sidewalks, curb ramps, and bicycle lanes. The PMD may be used in conjunction with a residential permit parking programme to ensure that parking is available for residents and their visitors.

▶ ABOUT THE AUTHOR

Todd Litman is the author of *Parking management best practices*, published by the American Planning Association's Planners Press (www.planning.org/bookservice).

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