

Many cities throughout the country are confronted with the problem of developing an integrated, coordinated on-street parking management program that can accommodate high levels of automobile use within the constraints of safety standards and limited municipal budgets. Effective parking management, a goal in itself, has the added dimension of providing a significant non-tax source of revenue to cities in financial crisis.

Recent experiences in several cities have demonstrated that a comprehensive and well-managed parking program results in (a) significant reductions in parking violations, (b) substantial increases in on-street parking space availability, and (c) major increases in parking-related revenues. By integrating and coordinating their parking management and enforcement activities, these cities have improved parking conditions and increased mobility in downtown areas, and they have also collected significant additional revenues from parking meters and parking fines that were previously unpaid. (See Figure 1.)

On-Street Parking Management Programs

Elements of Effective On-Street Parking Management Program

An effective on-street parking management program comprises nine major elements:

- regulation of on-street parking supply
- residential parking permit program
- parking meter management
- ticket writing
- booting
- towing
- parking ticket processing system
- parking ticket collections
- parking ticket adjudication

Although many communities operate enforcement programs with only some of these elements, the experiences to date clearly demonstrate that on-street parking management programs are most effective when all nine elements are integrated into a highly visible program with mutually reinforcing components. For example, consistent parking enforcement is essential to obtaining significant revenues from parking meters or to implementing a residential parking permit program. Simply issuing parking tickets will not reduce violations unless there is back-up from a parking ticket processing system (and related mechanisms) that ensures collection of fine revenues.

Thus, these nine elements cannot be considered in isolation. A well-organized program comprising all nine elements will produce the greatest impacts on reducing violations and generating revenues.

Regulation of the on-street parking supply is the first step in implementing an on-street parking management

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Figure 1. Why a city should implement an on-street parking management program.

An On-Street Parking Management Program Will:

- Provide Significant Transportation Benefits:
 - Increase On-Street Parking Availability for Short-term Parkers
 - Reduce Traffic Congestion
 - Decrease Transit Travel Time
 - Decrease Illegal Parking
- Provide Significant Financial Benefits
 - Significant Net Income After All Costs
 - Low Start-up Costs
 - Manageable Operating Costs
- Provide Other Benefits:
 - Improve Quality of Life in Neighborhoods
 - Improve Safety
 - Improve Air Quality
 - Conserve Energy
- Facilitate Expansion of Activity Centers

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program. Regulating on-street parking supply includes

- allocation of the on-street supply among various uses (e.g., general parking, taxi, loading zone)
- loading zone regulations
- restrictions on the duration of parking (e.g., setting a maximum limit to encourage short-term parkers)
- restrictions on the hours of parking (e.g., peak-period restrictions to facilitate rush-hour traffic flow)
- providing preferential treatment to carpools and vanpools

On-street parking supply regulation must be reviewed periodically to ensure that it conforms with changing land uses and community and institutional requirements. Most importantly, the inventory of parking control signs must be maintained and updated.

Residential parking permit programs (RPPPs) provide a proven means for controlling commuter parking in residential neighborhoods adjacent to major activity centers such as central business districts (CBDs), shopping centers, hospitals, universities, and suburban office and research parks. Although the administrative requirements vary, all RPPPs allow neighborhood residents to park on-street with no restrictions, and they prohibit long-term commuter parking. An RPPP should be administered to minimize inconveniences to neighborhood residents (e.g., accommodations for delivery and service vehicles, visitors, etc.). Further, permits must be issued carefully to eliminate the opportunities for fraud. The costs of implementing and maintaining an RPPP are relatively small and are usually covered by charging a small fee for the permit (e.g., \$5/year).

Parking meters are typically used to control parking on streets within and adjacent to major activity centers. In addition to generating substantial municipal revenues, meters control parking duration. Components of a parking meter management program include

- parking meter location policies
- meter rate policies
- meter maintenance
- comprehensive cash management procedures to eliminate or minimize pilfering of meter revenues

In many cities, opportunities exist to increase the number of parking meters in operation and thereby increase the total parking meter revenue. Frequently, meter rates have not been adjusted in recent years to take into account inflation and related increases in off-street parking rates. Modern cash management procedures are essential to maintaining the integrity of the parking meter program.

Parking Enforcement Tactics

The basic objective of parking enforcement is to persuade the parker that parking regulations will be enforced and

that parking scofflaws will be caught. An individual's decision to park illegally reflects his or her assessment of the likelihood of being caught and the likelihood of paying a fine if caught, balanced against the cost of finding and paying for legal parking. A successful enforcement program will make the potential costs of illegal parking much greater than the actual costs of legal parking and will persuade the parking public of this fact.

Traditionally a police responsibility, ticket writing is a critical element in a coordinated enforcement program. When police officers write parking tickets, their time is not necessarily used in the most cost-effective manner for safeguarding the public welfare. Several cities have addressed this issue by transferring primary responsibility for parking ticket writing from their police department to their traffic (or transportation) department. Civilians are then employed by the traffic department to enforce parking regulations only. These personnel are frequently called parking control aides (PCAs); their wages and benefits are lower than those of police officers, and their ticket writing productivity is substantially higher as this is their primary responsibility. PCAs in several cities average 100 or more tickets per day—this is an achievable goal if ticket writing resources are managed properly.

Issuing parking tickets, however, is only the first step in an effective enforcement program. If a motorist fails to pay the parking fine or to respond to the ticket, the parking management agency must have procedures to identify and apprehend these scofflaws.

The four major elements of a program to ensure that parking tickets are paid are

1. **Booting.** A Denver boot is a rugged metal clamp that fits over a vehicle's wheel and prevents the vehicle from being moved. Boots are used to immobilize the vehicles of scofflaws on the street until all outstanding parking tickets (and the booting fee) are paid. Booting can only be done when the immobilized vehicle will not constitute a hazard to traffic or an impediment to peak-period traffic flows. Booting is typically used for out-of-state vehicles and vehicles whose registration has changed—because tag-stop programs (described below) are ineffective in apprehending those scofflaws.

2. **Towing.** Towing is used to impound the vehicles of scofflaws until all outstanding parking tickets (and the towing fee) are paid. Towing is used when immobilizing the vehicle on the street by a boot would constitute an impediment or hazard to traffic. Like booting, it is used for situations when a tag-stop approach will not work. Towing is also used to remove illegally parked vehicles impeding rush-hour traffic flows on arterial streets.

3. **Parking Ticket Processing Systems.** Parking ticket processing systems are essential to the overall parking enforcement program. They provide the information base for the booting and towing programs. Further, they include a tag-stop capability, which precludes the renewal of a license or permit for all vehicles with outstanding parking citations. Finally, they permit the city to effectively manage enforcement resources and to measure its

parking enforcement program performance.

4. **Parking Ticket Collections.** Even with booting, towing, and tag-stop programs, a number of classes of scofflaws are difficult to apprehend. Parking ticket collection programs focus on all scofflaws—with particular emphasis on those difficult to apprehend (e.g., the infrequent out-of-state traveler).

Several cities use teams of spotters and centralized communications systems to identify and immobilize scofflaws' vehicles. The spotters are supplied with computer-generated lists of vehicle registrations that have outstanding citations. Illegal parking behavior is analyzed to direct the spotters to areas frequented by repeat parking offenders. This strategy makes the booting program more effective as illegal parkers often return to the same section of town (e.g., to go to work or school). The spotters notify the communications center when a scofflaw's vehicle is found, and a booting team is dispatched.

A particularly effective enforcement approach is to coordinate rush-hour ticketing and towing activities to remove illegally parked cars on arterials before they seriously disrupt traffic flow. Several cities have found that it is more effective to contract towing services than it is to own and operate their own equipment. Washington, D.C., requires its towing contractors to use cradle cranes; these cranes are less likely to damage the vehicle's drive train (as the wheels are placed on dollies) and can tow parallel parked cars without interference from cars parked in front or back of the towed vehicle.

Processing hundreds of thousands of parking violations is a complex task that is best accomplished by a computer-based processing system. Implementation of a computer-based processing system is critical to developing an effective parking management and enforcement program. The first function of the parking ticket processing system is to monitor the number of tickets issued by each ticket writer and to ensure that appropriate standards are maintained. Second, the parking ticket processing system can provide a real-time or pseudo real-time capability to identify scofflaw vehicles; such a capability is essential to support both the booting and the towing programs so that PCAs can easily verify whether a given vehicle has outstanding unpaid parking tickets. Third, the ticket processing system—when linked to a vehicle license or permit renewal process—provides the data base for a tag-stop program. Fourth, the ticket processing system supports the fine payment process by calculating the outstanding penalties and immediately changing the status of motorists who pay their fines; such a system also supports the fine-collection process. Finally, the ticket processing system efficiently tracks parking tickets as they move through the processing cycle so that fewer tickets are lost in the process. In summary, an effective ticket processing system is absolutely essential to a parking enforcement program.

Even when booting, towing, and tag-stop programs are in operation, a number of types of scofflaws may not be affected. In particular, these include the out-of-state motorist because tag-stop programs generally do not ex-

tend beyond the boundaries of the state in which the jurisdiction is located. Sophisticated parking ticket collection systems have been developed that obtain the name and address of the vehicle owner from the state license number. Such parking ticket collection systems have proven effective in collecting fine revenues from these special classes of scofflaws.

An important related action that several cities have taken to improve parking enforcement is the use of administrative procedures for adjudicating disputed parking tickets. Criminal courts were traditionally responsible for this function, creating situations where parking tickets were given low priority on the court agenda and large-scale ticket write-downs occurred to reduce the court's caseload. Lengthy delays in ticket hearings became de facto dismissals because the cases were never adjudicated. To combat these problems, several cities have transferred parking adjudication responsibilities to non-judicial agencies and have created a civil adjudication process. Hearing examiners (rather than judges) are able to adjudicate disputed tickets in a timely manner and to administer judgments that are consistent with the parking infraction. Benefits of administrative adjudication include

- improved service delivery to the public
- penalties that are consistent with the objectives of the parking management and enforcement program
- lower operating costs
- centralized recordkeeping
- increased ticket revenues
- reduced burden on criminal courts

Washington, D.C., Parking Enforcement Program

Washington, D.C., has integrated the nine parking management program elements described above into a proven, effective parking management program. Where other cities have implemented particular elements of parking management and/or enforcement with varying degrees of success, Washington has combined all of the nine elements into a cost-effective system that has produced significant revenues for the District.

In the District of Columbia, parking management is directly related to the District's overall transportation program. The District's Department of Transportation (DOT) is responsible for all parking management and enforcement activities, including administrative adjudication.

The District's DOT manages about 11,000 parking meters and employs about 50 PCAs. There are nine two-person booting crews, and towing is contracted to private operators who provide a total of 25 cranes. A Bureau of Administrative Adjudication has been established in the District DOT to provide non-judicial adjudication of all parking tickets. A recent analysis of the District's parking management program indicates that implementation of the parking management and enforcement programs has resulted in reduced parking violations, increased on-street parking availability for short-term parkers, and sig-

nificantly increased revenues to the District from meter operations and fine revenues.

Implementation of the parking management program has led to a major increase in parking enforcement activity in the District. The number of tickets issued has increased 38 percent from about 1.3 million tickets in FY 1975 to about 1.8 million tickets in FY 1980 (Figure 2). Though all of the parking tickets in FY 1975 were issued by the Metropolitan Police Department (MPD), the MPD issued only about 73 000 (or 42 percent) of the tickets in FY 1980. Thus, increased police resources were available for other purposes.

Booting activity in the District increased 275 percent, from about 8000/year in FY 1976 to nearly 30 000/year in FY 1980. The increased booting activity is attributed to the District DOT; booting activity by the MPD remained essentially unchanged.

Towing activity in the District increased 187 percent, from 15 900 tows in FY 1975 to about 46 000 tows in FY 1980. Although the MPD provided the towing services in 1975, in 1980 these were performed by the District DOT, thereby freeing police resources for other purposes.

The parking management and enforcement program's primary objective is to reduce parking violations. The program has effectively reduced illegal parking both in the CBD and in selected residential areas. Surveys conducted before and after the program indicate that in the CBD, the average number of parking violations per block dropped from 5.85 to 1.9. Average parking violations per block in residential areas fell from 2.6 to 1.5. (See Figure 3.)

One of the most important benefits of the program has been its positive impacts on increasing the availability of legal on-street parking spaces for short-duration parkers. The availability of on-street parking space has increased in both the west and east portions of the CBD as a result of the parking management program (Figure 4). Because

Figure 2. Distribution of tickets issued.

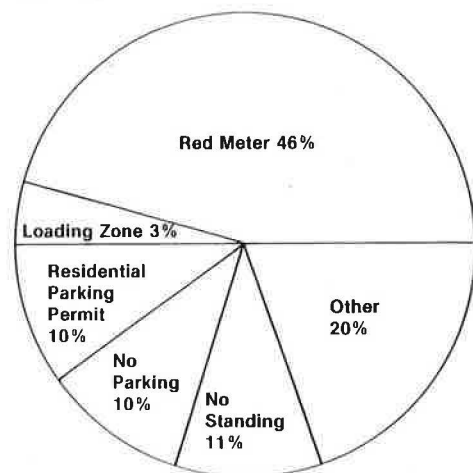


Figure 3. Parking violations.

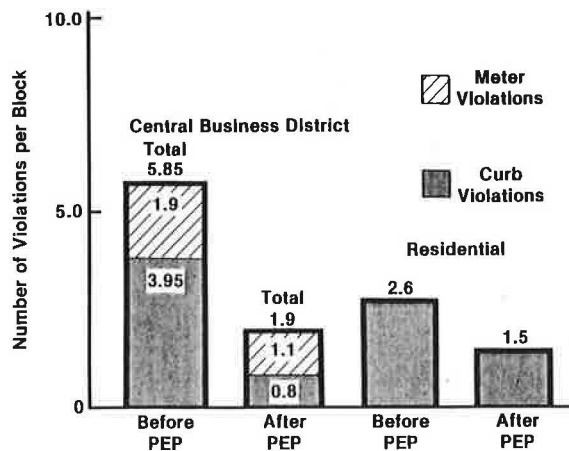


Figure 4. Meter utilization.

	WEST CBD		EAST CBD	
	BEFORE	AFTER	BEFORE	AFTER
% Vacant	3.0	5.1	9.4	18.5
% Occupied Legally	60.0	79.4	48.7	67.9
% Occupied Illegally Without Ticket	36.0	11.6	35.0	10.0
% Occupied Illegally With Ticket	1.0	3.0	6.9	3.6

more on-street parking space is available, parking turn-over has increased from 1.7 to 2.1. Illegal use of curb meters has dropped dramatically from about 40 percent of meter time before the program to about 14 percent afterwards. As a result, meter revenues increased 76 percent, from \$2.78 million before the program to \$4.9 million afterwards.

While improving transportation service, the District DOT's parking management and enforcement program also provides substantial revenues. Revenues in FY 1980 totaled more than \$25 million from the following sources :

Source	Amount (\$)
Ticketing	18 361 000
Towing and storage	1 971 000
Booting	542 000
Meters	4 900 000
Total	25 774 000

These substantial revenues were generated from a program with relatively small operating costs. In FY 1980,

the total operating cost of the parking management and enforcement program was \$6.8 million, broken down as follows:

<u>Source</u>	<u>Amount (\$)</u>
DOT Parking Enforcement Division	3 505 000
DOT Bureau of Traffic Adjudication	1 909 000
MPD Parking Enforcement Activities	869 000
DOT Parking Operations Division	577 000
Total	6 860 000

In FY 1980, with revenues of \$25.8 million and operating costs of \$6.9 million, the District of Columbia obtained a net operating income of about \$18.9 million from its on-street parking management program. Few, if any, other municipal transportation programs provide improved transportation service and about 73 percent net operating income.

The capital costs of implementing the parking management program were a relatively small \$4.2 million. The net operating income thus pays for the total capital costs in less than three months of program operations. There are few, if any, potential municipal investments that improve transportation service and provide such a positive financial contribution to the local government. This financial contribution is particularly important today when municipal governments are severely stressed to maintain service in an inflationary environment without increasing local taxes and with significant declines in federal assistance.

Implications for Other Cities

The positive results of the parking management program in the District of Columbia and similar successes in a few other communities establish a clear rationale for the implementation of an on-street parking management program. The transportation and financial benefits of such a program are clear, particularly in terms of decreased parking violations, increased on-street parking space availability, and major increases in net revenues. A parking management program further provides significant other benefits, such as an improved quality of life in neighborhoods, improved safety, and improved air quality. Parking management frequently may be essential to expanding activity centers in congested areas. Implementing a parking management program when an activity center (such as a hospital, university, or office center) is built or expanded can dramatically reduce potential adverse impacts on adjacent residential neighborhoods.

In some cases, many of the resources required to implement a parking management program are already in place, and the crucial issue is to organize and manage these resources in an integrated manner. Each city needs to consider its unique resources and institutional requirements in order to implement a parking management program that meets its objectives and reflects its constraints.

Profiles



**Legal Resources
Are Vital Tools
in Transportation
Activities,
Says Caltrans'
Robert F. Carlson**

"The Model Code of Professional Responsibility of the American Bar Association states that a lawyer must maintain high standards of professional conduct. Canon 6 of this code requires a lawyer to represent a client competently. For such representation, it is clear that a lawyer must be able to research the law. All lawyers are expected to know those plain and elementary principles of law that are commonly known by well-informed attorneys and to discover the additional rules that, although not commonly known, may readily be found by standard research techniques. For the public lawyer representing transportation agencies, the ability to locate the current ruling authorities in the specialized field of highway and transportation law is needed more so when compared with other ordinary fields of law."

This is the opinion of Robert F. Carlson, deputy chief counsel for the California Department of Transportation (Caltrans), who has in his 29-year career as a trial attorney and law office manager for the state of California been an advocate of thorough and complete legal research. The caliber of transportation attorneys is directly related to their research ability, he says.

A must for legal research in transportation law is ready access to prior legal opinions. The need is obvious—to shorten research time and to provide consistency in opinions and recommendations to administrative heads of transportation boards and agencies. The four law libraries at the California Department of Transportation have a computer-compiled opinion index. Opinions are indexed by author, title, subject, code sections, and case name. An index is located in each law library.

"It is obvious that I believe in adequate law libraries,