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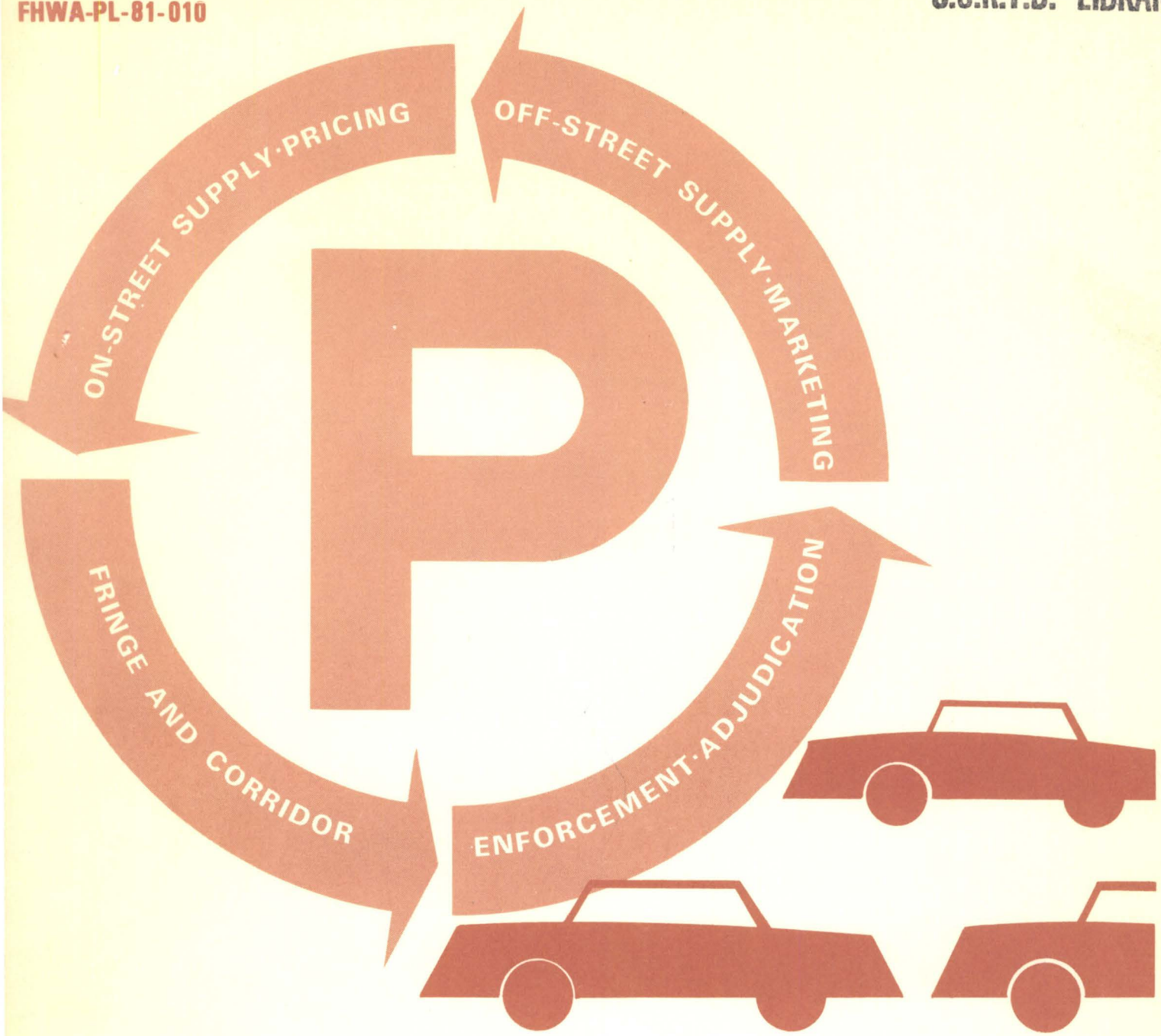

Parking Management Tactics

Volume III: A Reference Guide

U.S. Department of Transportation
Federal Highway Administration

1981

NOTICE

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- Mr. John Brophy, Parking Administrator, District of Columbia Department of Transportation, Washington, D.C.;
- Mr. David J. Dunlap, Director of Transportation Planning, Regional Planning Council, Baltimore, Maryland;
- Mr. William Hill, Executive Director, International Downtown Executive Associates, Washington, D.C.;
- Mr. Walter King, Coordinator Off-Street Parking Division, Los Angeles Department of Transportation, Los Angeles, California; and
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16. Abstract

This guide is the product of the second phase of the project "A Study of Parking Management Tactics." The parking management experiences of 20 cities were investigated and documented in the first phase of the project. Based upon that investigation, parking management experience was synthesized to formulate the guidance contained in this guide. The guide provides information on the planning, implementation, and operation of six types of parking management tactics: on-street parking supply tactics, off-street parking supply tactics for activity centers, fringe and corridor parking facilities, pricing tactics, enforcement and adjudication tactics, and marketing tactics. The guide assesses the essential aspects of the tactics as well as presents some useful analysis procedures for evaluating parking management actions.

The "Reference Guide" is a stand-alone document for use by transportation planners and traffic engineers. It is the third volume of a three-volume series of reports on parking management. The first volume, entitled "Overview," is designed for management. The second volume, entitled "Overview and Case Studies," is designed for technical staff or managers who want detailed city by city information on parking management tactics.

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I. INTRODUCTION

OBJECTIVE OF PARKING MANAGEMENT REFERENCE GUIDE

This parking management guide is intended to assist local governments, metropolitan planning organizations, and state departments of transportation in planning, implementing, and operating the many different types of parking management tactics based on sound practices identified in earlier reports prepared in this project.[1/] A broad range of parking management tactics are covered in the guide including: on-street parking supply tactics, off-street supply tactics applicable to activity centers, fringe and corridor parking tactics, pricing actions, enforcement and adjudication tactics and programs, and marketing tactics. The guide identifies key issues and problems that should be considered in conjunction with such parking management tactics and suggests alternative programs and approaches for addressing such problems in a cost-effective manner. The recommended guidelines are based on a synthesis of "best practices" followed by agencies that have implemented or are about to implement the parking management tactics described herein. The guide is intended to serve as a practical, user-oriented reference of particular interest to local, regional, and state agencies involved in the planning, implementation, and operation of parking tactics. Particular emphasis has been placed on addressing important institutional, technical, financial, political, and legal factors that can significantly influence the effectiveness of parking actions. The presentation of "best current practice" has been stressed throughout the guide.

CONSIDERATIONS IN USING REFERENCE GUIDE

Several factors should be considered in using the parking management guide. First, parking management tactics can be effective in alleviating certain types, but not all transportation problems within individual municipalities and an overall urban area. Such tactics frequently should be planned and implemented in conjunction with other transportation system management (TSM) tactics to help achieve local, regional, and national transportation; energy; economic; environmental; and related objectives. As discussed in later sections of this guide, parking management tactics are commonly implemented in conjunction with carpool and vanpool programs, preferential lane projects for high occupancy vehicles (HOV's), and transit service improvements. It should be noted that parking management tactics are not limited to actions restricting the use of passenger vehicles. Rather, they include many actions that are intended to more effectively use roadway capacity, manage parking supply and/or encourage the economic growth of activity centers while promoting transportation, environmental, energy conservation and other community objectives.

1/ Federal Highway Administration. Study of Parking Management Tactics Volumes I and II, 1980.

Second, parking management tactics frequently can be implemented quickly and inexpensively, which is an important concern to local governments. Many of the on-street, off-street, pricing, marketing and enforcement tactics involve developing new ordinances (e.g., zoning, enforcement) or modifying existing ordinances to implement tactics and do not entail large increases in staffing or costs.

Third, parking management tactics frequently are planned, implemented, and operated by local governments and/or transit authorities and state departments of transportation. In many situations, local governments are the lead agencies because of the highly localized and frequently politically sensitive impacts of such tactics. Nevertheless, it is important that such planning be supportive of adopted regional transportation plans and policies and the transportation improvement program (TIP) of the affected metropolitan planning organization (MPO). MPO's can and do play an important role in identifying and promoting the use of parking management tactics and programs to encourage the urban area's goals and objectives.

Fourth, the highly localized and potentially significant nature of the impacts associated with many tactics makes it extremely important (1) to encourage residential, business, governmental, and other interests to participate in the planning of such tactics and (2) to use accurate, current data on parking demand and supply for the study area in question. If either of these items is lacking, the credibility of the recommended parking management program can be jeopardized. Another potentially serious constraint in planning and implementing parking management tactics is institutional conflicts between various local, regional, and state agencies. These conflicts are common and should be accounted for in planning, implementing, and operating such tactics.

Fifth, an often overlooked but critical element affecting the successful operation of parking management tactics is having an effective parking enforcement program. On-street parking tactics require strict enforcement if they are to be successful.

Sixth, although the guide endeavors to be comprehensive and to present "best current practice," it does have several important limitations. Most importantly, the suggested procedures and practices should be tailored to the needs of each urban area, municipality, and problem. Unless this is done, strict adherence to procedures described in the guide may undermine the success of the parking management program. Next, selected types of parking management tactics which are of particular interest to local and regional agencies and with which such agencies have limited familiarity are stressed in the guide. A detailed treatment of all possible parking management tactics has not been possible. Finally, the documented impacts of the different parking management programs are based on previously conducted analyses of implemented parking management tactics. Considerable effort was expended in attempting to verify such impacts. However, the accuracy of such impact estimates is limited by the accuracy of existing data sources. Caution should also be exercised in assuming that impacts observed in one setting will apply to other circumstances.

II. PARKING MANAGEMENT TACTICS AND PROGRAMS: EXPERIENCE AND POTENTIALS

This section will familiarize practitioners with the types of parking management tactics in use around the nation and assist practitioners in identifying and selecting tactics for consideration in their respective jurisdictions.

DEFINITIONS AND TYPES OF PARKING MANAGEMENT TACTICS

Parking Management Tactics and Programs

Simply stated, a parking management tactic is an action taken to alter the supply, operation, and/or parking demand of a jurisdiction's parking system to further the attainment of local transportation, economic, environmental, energy conservation, and other applicable objectives.

A parking management program is an integrated set of parking management tactics designed to further the attainment of local objectives. For example, a parking management program could include a marketing program, strict enforcement of on-street parking regulations, fringe parking facility construction, and a residential parking permit program.

It is important to note that a jurisdiction's parking management program may not be documented in a single, fully integrated planning study or policy statement. For example, it may be documented in several different reports such as land use plans and policies, zoning ordinances, transportation plans, and parking studies.

A key element of the above definitions is the link between a parking tactic and a jurisdiction's objectives. In some communities, parking management tactics and programs have been implemented to reduce or constrain automobile traffic and alleviate its negative impacts. In other communities, the tactics and programs are intended to encourage nonwork travel (shoppers, tourists, etc.) to CBDs as a means of promoting economic growth, while some jurisdictions have employed such tactics and programs to promote more efficient utilization of their existing parking and transportation facilities. Generally, many of these factors are of concern to local governments in planning, implementing, and operating a parking management program.

The above definition of parking management tactics is consistent with the broader concept of transportation system management (TSM), which includes both incentives and disincentives to encourage the efficient utilization of the existing transportation system and applicable local and regional objectives.

Types of Parking Management Tactics

Six categories of parking management tactics were identified for use in this project:

- On-street parking supply tactics
- Off-street parking supply tactics in activity centers (e.g., hospitals, downtowns, colleges)
- Fringe and corridor parking tactics
- Pricing tactics
- Enforcement and adjudication tactics
- Marketing tactics

The types of tactics included within each category are illustrated in Exhibit 1. This exhibit primarily includes tactics that have been used or are seriously being considered for implementation by local governments.

Relationship to Transportation System Management

The term transportation system management (TSM) refers to transportation actions which emphasize improvements to make efficient use of existing transportation resources to provide for the movement of people and goods in an efficient manner. The scope of TSM includes traffic engineering, public transportation, carpool/vanpool, reserved lane, commercial vehicle, pedestrian/bicycle, work schedule, and parking management tactics.

TYPES OF PARKING MANAGEMENT TACTICS AND PROGRAMS IN USE

Exhibit 2 identifies the parking management tactics used or under serious consideration by each of the following 20 jurisdictions.

Alexandria, Va.	Hartford, Conn.	Portland, Ore.
Arlington, Va.	Honolulu, Hawaii	San Francisco, Ca.
Baltimore, Md.	Los Angeles, Ca.	Seattle, Wa.
Boston, Ma.	Madison, Wisc.	St. Paul, Minn.
Cambridge, Ma.	Milwaukee, Wisc.	Vancouver, B.C.
Chicago, Ill.	Montgomery County, Md.	Washington, D.C.
Eugene, Ore.	Palo Alto, Ca.	

The jurisdictions with the most ambitious sets of parking management tactics include Baltimore; Boston; Montgomery County, Maryland; Portland; San Francisco; Seattle; and Washington, D.C. Each of these jurisdictions has implemented multiple tactics.

The residential parking permit program (RPPP) is the most widely used parking management tactic. Eleven of the 20 jurisdictions have implemented such programs. Most of these programs are intended to reduce long-term commuter parking in residential areas. The RPPPs are commonly utilized in the vicinity of major generators such as universities, hospitals, sports arenas, and commercial areas, as well as in the vicinity of transit stations and stops that attract large numbers of parkers.

Two jurisdictions, Portland and Seattle, have instituted on-street carpool/vanpool preferential parking programs. In both cities, the spaces are located within the less heavily developed portions of the CBDs where long-term

EXHIBIT 1

TYPES OF PARKING MANAGEMENT TACTICS

On-Street Parking Supply	Off-Street Parking Supply in Activity Centers	Fringe and Corridor Parking	Pricing	Enforcement and Adjudication	Marketing
• Add or Remove Spaces • Change Mix of Short and Long-Term Parking* • Parking Restrictions* – Peak Period Restrictions – Off-Peak Restrictions – Alternate Side Parking By Time of Day and/or Day of Week – Permissible Parking Durations – Prohibitions on Parking Before Specified Hours • Residential Parking Permit Programs* • Carpool/Vanpool Preferential Parking* – Carpool/Vanpool Meters – Carpool/Vanpool Stickers • Loading Zone Regulations – Bus – Taxi – Delivery – Diplomat	• Expand or Restrict Off-Street Supply in CBD and Activity Centers* – Zoning Requirements • Minimum Requirements • Maximum Requirements • Joint Use – Constrain Normal Growth in Supply • Maximum Ceiling (i.e., Freeze) on CBD Spaces • Reduced Minimum Parking Requirements Through HOV and Transit Incentives • Restrict Principal Use Parking Facilities – Construct New Lots and Garages • Change Mix of Short and Long-Term Parking* • Restrict Parking Before or During Selected Hours of the Day • Preferential Parking* – Carpool/Vanpool Parking – Handicapped Parking – Small Vehicle Spaces	• Fringe Parking* • Park and Ride Parking* • Carpool/Vanpool Parking*	• Change Parking Rates* – Increase Rates • Parking Price Increase • Parking Rate Structure Revision • Parking Tax • Parking Surcharge – Decrease Rates – Free Parking in CBD – Differential Pricing Programs • Short-Term vs. Long-Term Rates • Carpool/Vanpool Discounts • Vehicle Size Discounts • Geographically Differentiated Rates • Monthly Contract Rates • Merchant Shopper Discounts – Stamp Programs – Token Programs • Employer Parking Subsidies* – Reduce Subsidies – Transit/HOV Subsidies	• Enforcement* – Non-Police Enforcement Personnel – Ticketing – Towing – Booting • Adjudication* – Administrative – Judicial	• Advertising* – Brochures – Maps – Media • Convenience Programs* (i.e., Monthly Contracts)

*Tactics of particular interest in this project.

on-street parking will not hamper traffic flow or utilize parking spaces supporting commercial activities. The response to each program has been favorable.

The institutional TSM plans noted as an on-street supply tactic actually encompass a wide range of TSM actions designed to reduce vehicular traffic and parking demands at major universities and other traffic generators. These programs have typically been initiated in response to city requirements for master plans for major institutions and to alleviate traffic, parking, and other impacts on adjacent residential areas. These programs are implemented by the affected institution in conjunction with local and regional agencies. Typically, such programs include improved transit service, carpool and vanpool programs, subscription bus services, creation of a transportation broker office,[1/] and parking tactics such as RPPPs, more aggressive enforcement, and preferential parking for HOVs.

Portland, San Francisco, and Seattle, in particular, have implemented several integrated off-street parking tactics. These cities have restricted the construction of principal use parking facilities, require that no minimum parking supply be provided by developers, and limit the maximum allowable parking supply for new developments through their zoning ordinances.

Two communities, Boston and Portland, have set limits on the total parking supply in their CBDs. Portland set a ceiling on the total supply of all types of parking while the Boston freeze applies only to commercial spaces open to the public (but not employee and customer parking). The Boston freeze is considerably more limited in scope than Portland's.

Cities such as Baltimore, Boston, Portland, San Francisco, and Seattle are attempting to reduce the demand for long-term parking and to provide adequate short-term parking for shoppers, business travelers, and other such parkers. It is interesting to note that Baltimore, Montgomery County, and Portland also are building or are preparing to build new publicly owned parking facilities in their CBDs. In Portland, two new parking structures are to be restricted to short-term parking.

The range of pricing tactics employed by the jurisdictions under study is limited. Honolulu and Montgomery County have increased parking rates in publicly owned parking facilities. Four jurisdictions, Honolulu, Portland, St. Paul, and San Francisco, have established parking rates in publicly owned parking facilities to encourage short-term parking. In Honolulu, the doubling of municipal parking rates resulted in a 6 percent increase in the number of cars utilizing municipal spaces; a doubling of available spaces during the lunch hour ; and a 36 percent increase in monthly parking revenues.

1/ A transportation broker is typically responsible for coordinating and marketing transit, carpool and/or vanpool services at affected institutions. This function includes selling transit tokens/tickets, providing schedules, organizing carpools, and advertising such services among other activities.

while actually reducing the number of spaces occupied at the hour of maximum accumulation. Both Eugene, Oregon and St. Paul have instituted free downtown parking programs to attract shoppers and other nonwork travelers. Preferential parking rates for carpools and vanpools have been implemented in Montgomery County, Portland, San Francisco, and Seattle.

Parking taxes of 15 percent and 12 percent are in effect in San Francisco and Washington, respectively. These taxes were instituted primarily to raise revenues for each jurisdiction rather than to achieve transportation objectives. Annual revenues of $5.4 million and $8.0 million were generated in San Francisco and Washington, respectively. One jurisdiction, Montgomery County, Maryland, recently implemented differential parking rates on a geographic basis in its Silver Spring Parking Lot District.

Effective enforcement and adjudication programs are critical to the success of many parking management tactics and programs. All jurisdictions have some type of enforcement and adjudication programs. Those communities with particularly interesting programs are identified in Exhibit 2. Perhaps the most interesting total enforcement and adjudication program is that recently instituted in Washington, D.C. In this program approximately 50 new civilian parking control aides have been hired to ticket illegally parked vehicles in both downtown commercial areas and in RPPP areas located throughout the city; an aggressive booting and towing program has been instituted; and an administrative adjudication program has been put into effect to speed up the processing of tickets and the collection of fines.

Baltimore, Montgomery County, Portland, and Seattle have instituted a variety of HOV enforcement programs including having drivers sign certifications that they belong to carpools; conducting monthly telephone verifications of sample of carpool members; and having parking attendants monitor carpool parking.

A number of marketing tactics are employed by several jurisdictions to attract shoppers and other such parkers. These include the printing of brochures showing the locations, reates, etc., of downtown parking facilities (e.g., Hartford, Montgomery County, and Portland) and selling monthly parking convenience stickers to eliminate daily payments for parking. The latter tactics do <u>not</u> include a discount for purchasing monthly stickers.

The proposed Los Angeles parking management plan represents a city-wide effort to gain a consensus on an integrated set of policies and programs to reduce travel by single occupant autos, air pollution, and highway congestion. This plan contains many innovative tactics such as the joint use of parking facilities, reducing minimum parking requirements through various HOV and transit incentive programs, and providing preferential parking for HOVs. However, it should be noted that the plan has not yet been approved for implementation by the City Council.

EXHIBIT 2

SELECTED PARKING MANAGEMENT TACTICS IN USE BY OR PROPOSED FOR SELECTED JURISDICTIONS

Parking Management Tactics	Jurisdiction																				
	Alexandria, Va.	Arlington, Va.	Baltimore	Boston	Cambridge, Ma.	Chicago	Eugene, Ore.	Hartford, Conn.	Honolulu	Los Angeles	Madison	Milwaukee	Montgomery County, Md.	Palo Alto, Calif.	Portland, Ore.	St. Paul, Minn.	San Francisco	Seattle	Vancouver, B.C.	Washington, D.C.
On-Street Supply																				
Residential Parking Permit Program (RPPP)	●	●	●	●	●		●					●	●	○			●		●	●
Carpool/Vanpool Preferential Parking															●			●		
Instititional TSM Plans																	●	●		
Off-Street Supply in Activity Centers																				
Expand or Restrict Supply in CBD and Activity Centers																				
Zoning Requirements																				
— Maximum and No Minimum Parking Requirements															●		●	●		
—Joint Use										○			●	●	●					
Constrain Normal Growth in Supply																				
—Maximum Ceiling (i.e., Freeze) on CBD Supply				●											●					
—Reduced Minimum Parking Requirements Through HOV and Transit Incentives		●				●				○				●						
—Restrict Principal Use Parking Facilities						●											●	●		
Construct New Municipally-Owned Parking																				
—CBD			●									●		●						
—Neighborhood Shopping Districts										●		●					●			
Carpool/Vanpool Preferential Parking	●		●					●		○		●					●	●		
Fringe and Corridor Parking																				
Fringe Lots			●													○	●	●		
Park and Ride Lots			●					●							●			●		●
Carpool/Vanpool Lots																				

Key:

● - Implemented

○ - Planned

EXHIBIT 2 (Continued)

Parking Management Tactics	Jurisdiction																			
	Alexandria, Va.	Arlington, Va.	Baltimore	Boston	Cambridge, Ma.	Chicago	Eugene, Ore.	Hartford, Conn.	Honolulu	Los Angeles	Madison	Milwaukee	Montgomery County, Md.	Palo Alto, Calif.	Portland, Ore.	St. Paul, Minn.	San Francisco	Seattle	Vancouver, B.C.	Washington, D.C.
Pricing																				
Increase Parking Rates									●	○#			●							
Differential Pricing Programs																				
—Rates Favor Short-Term Parker									●						●	●	●			
—Geographical Rate Differentials													●							
—Carpools/Vanpools													●		●		●	●		
Free Downtown Parking							●									●				
Parking Tax																	●			●
Surcharge on Parkers Arriving During "Prime Time" (i.e., 6:30 - 9:30 am)											○									
Enforcement and Adjudication																				
• Aggressive Ticketing				●	●		●					●			●		●			●
• Booting				●																●
• Towing				●											●					●
• Administrative Adjudication																				●
• HOV Enforcement			●										●		●			●		
Marketing																				
Monthly Parking Convenience Stickers							●						●							
Advertising (Media Ads, Brochures, Maps)								●					●		●					

#Increase Rates For City Employees

Key:

● - Implemented

○ - Planned

CHARACTERISTICS OF PARKING MANAGEMENT TACTICS

This subsection describes the following characteristics of parking management tactics:

- Types of impacts attributable to each tactic
- Type of parkers affected by a tactic
- Typical area of application
- Typical implementation times (i.e., length of time typically necessary to implement tactic after decision is made to go ahead)

Potential Impacts

Exhibit 3 identifies the types of impacts that individual parking management tactics may have as well as the type of problems such tactics can address. The impact categories have been selected to correspond with commonly used transportation, environmental, economic, neighborhood, and financial objectives. The tactics are assessed in relation to whether the noted impact category would:

- potentially increase (+);
- potentially decrease (-); or
- remain unaffected (0).

For example, increasing short-term on-street parking and reducing long-term on-street parking may attract additional (+) short-term parkers and constrain long-term parking (-), promote transit patronage among long-term parkers (+), improve highway level of service (+) and air quality (+), reduce energy consumption (-), and promote economic growth through increased retail sales (+). Depending upon the actual new mix of short- and long-term parkers, parking revenues may either increase (+) or decrease (-).

Those tactics that may reduce auto usage and parking demand are likely to increase transit patronage, highway level of service, and air quality and may reduce energy consumption. Many tactics (e.g., RPPPs, parker information systems, enforcement) are not expected to affect either overall auto usage or transit patronage but may affect the locations where vehicles are parked and the duration of parking.

Many parking management tactics potentially can reduce (-) energy consumption and improve (+) air quality. However, the air quality improvements may be for carbon monoxide concentrations at locations in the vicinity of the parking management improvements, rather than changes in regional ozone levels.

EXHIBIT 3

POTENTIAL IMPACTS OF PARKING MANAGEMENT TACTICS

Tactics	Impact Category									
	Auto Usage (ADT, VMT)	Transit Patronage	Highway LOS	Parking Capacity	Air Quality	Energy Consumption	Economic Growth	Neighborhood Amenities	Parking Revenues	Parking Operating Costs
On-Street Supply										
Add or Remove Spaces										
Add Spaces	+	–	–	+	–	+	+	0	+	+
Remove Spaces	–	+	+	–	+	–	–	0	–	–
Change Mix of Short and Long Term Parking										
Increase Short Term & Reduce Long Term Supply	+,–	+	+	0	+	–	+	0	+,–	0
Increase Long Term & Reduce Short Term Supply	+,–	–	–	0	–	+	–	0	+,–	0
Parking Restrictions	–	+	+	–	+	–	0	+	0	+
Residential Parking Permit Programs	0	0	0	+	+	0	0	+	0	+
Carpool/Vanpool Preferential Parking	–	0	+	+	+	–	0	0	0	+
Loading Zone Regulations	0	0	+	+,–	+	–	0	0	0	0
Telpark System	0	0	0	0	0	0	0	0,+	0	–
Off-Street Supply in Activity Centers										
Expand or Restrict Off-Street Supply										
Construct New Lots and Garages	+	–	–	+	–	+	+	0	+	+
Restrict Supply										
Zoning Requirements	–	+	+	–	+	–	0,–	0	–	–
Supply Ceiling	–	+	+	–	+	–	0,–	0	–	–
Reduced Supply Reqts. Thru HOV Incentives	–	+	+	–	+	–	0,–	0	–	–
Restrict Principal Use Parking Facilities	–	+	+	–	+	–	0,–	+	–	–
Change Mix of Short and Long Term Parking										
Increase Short Term Supply	–	+	+	0	+	–	+	0	+,–	0
Increase Long Term Supply	+	–	–	0	–	+	–	0	+,–	0
Restrict Parking Before or During Selected Hours	–	+	+	–	+	–	0	0	–	–
Preferential Parking for HOV's and Small Vehicles	–	0	+	+	+	–	0	0	0,–	+,0
Joint Development	0	0	0	+	0	0	+	+	0	0
Parker Information System	0	0	+	+	+	–	+	0	+	–
Telephone Reservation System	0	0	0	+	+	–	+,–	0	+,–	+

Key: + Potentially increases impact category
– Potentially decreases impact category
0 Impact category probably unaffected

EXHIBIT 3 (Continued)

Tactics	Impact Category									
	Auto Usage (ADT, VMT)	Transit Patronage	Highway LOS	Parking Capacity	Air Quality	Energy Consumption	Economic Growth	Neighborhood Amenities	Parking Revenues	Parking Operating Costs
Fringe and Corridor Parking										
Fringe Parking	–	+	+	+	+	–	0	0		
Park and Ride Parking	–	+	+	+	+	–	0	0		
Carpool/Vanpool Parking	–	+	+	+	+	–	0	0		
Park and Ride Substitution Proposal	–	+	+	+	+	–	+	0		
Pricing										
Change parking Rates										
Increase Rates										
– Price Increase	–	+	+	0	+	–	–	0	+	0
– Rate Structure Revision	–	+	+	0	+	–	–	0	+	0
– Parking Tax	–	+	+	0	+	–	–	0	0,–	0
– Parking Surcharge	–	+	+	0	+	–	–	0	0,–	0
Decrease Rates	+	–	–	0	–	+	+	0	0,–	0
Free Parking	+	–	–	0	–	+	+	0	–	0
Differential Pricing Programs	+,–	+	+	0	+	–	+	0	+,–	0
Merchant Shopper Discounts	+	–	0	0	–	+	+	0	+,0	+,0
Employer Parking Subsidies										
Reduce Subsidies	–	+	+	0	+	–	0	0	+	0
Transit/HOV Subsidies	–	+	+	0	+	–	0	0	+	0
Parking Stall Tax	–	+	+	0,–	+	–	–	0	0,–	+
Enforcement and Adjudication										
Enforcement										
Ticketing	0	0	+	0	+	–	+,–	0	+	+
Towing	0	0	+	0	+	–	+,–	0	+	+
Booting	0	0	0	0	0	0	0	0	+	+
Adjudication										
Administration	0	0	0	0	0	0	0	0	+	+,–
Judicial	0	0	0	0	0	0	0	0	+	+,–
Marketing										
Advertising	+	0	–	0	–	+	+	0	+	+,0
Convenience Programs	+	0	–	0	–	+	+	0	+	+,0

Key: + Potentially increases impact category
– Potentially decreases impact category
0 Impact category probably unaffected

Types of Parkers Impacted

The first two columns in Exhibit 4 indicate if short-term and/or long-term parkers are likely to be impacted by the various types of tactics. This is an important question that frequently is a source of uncertainty and controversy in implementing parking management tactics. Short-term parkers typically include shoppers, persons making business calls, medical visits, etc., who park for three hours or less. Long-term parkers are those who park for three or more hours.

Tactics leading to the expansion of parking capacity generally would promote both short- and long-term parking. Conversely, off-street supply tactics leading to restrictions on the growth in supply may tend to constrain both types of parkers. Many jurisdictions appear to be interested in promoting economic growth by encouraging short-term parking while at the same time reducing total auto travel and long-term parking. A number of tactics such as increasing short-term supply and reducing long-term supply, giving preferential rates to short-term parkers, and merchant shopper parking discount programs can encourage such objectives.

Implementation Time

A key issue in comparing parking management tactics is the time required for implementation. Many tactics, particularly the on-street supply tactics and selected off-street supply, pricing, and enforcement tactics can be implemented within three months of the decision to apply the tactics (see Exhibit 4). Those tactics requiring three to six months to implement may involve more complex programs, the passage of enabling legislation, the holding of public hearings, and/or the acquisition/procurement of specialized equipment and/or services. Implementation periods of six or more months may be necessary because the tactics may be particularly controversial and complex to implement; may involve significant technical and/or institutional problems; or may involve the design and construction of new or expanded parking facilities.

Combinations of Parking Management and Other TSM Tactics

Although the preceding discussion has focused on the characteristics of individual parking management tactics, it is important to note that such tactics frequently are implemented in conjunction with other parking management and TSM tactics. Implementing effective parking management tactics and programs will likely involve multiple parking management actions supplemented by public transportation, traffic engineering, and related actions.

The potential number of combinations of parking management tactics is very large as suggested by the number of tactics in Exhibit 1. This combined with the large number of different urban settings and urban transportation problems of interest illustrates the difficulty of readily identifying packages of parking management tactics that "should be" used under selected circumstances.

EXHIBIT 4

TYPES OF PARKERS IMPACTED AND LIKELY IMPLEMENTATION TIME OF PARKING MANAGEMENT TACTICS

Tactics	Impacted Parkers		Implementation Time		
	Short-Term Parkers	Long-Term Parkers	0-3 Mo.	3-6 Mo.	> 6 Mo.
On-Street Supply					
Add or Remove Spaces					
Add Spaces	+	+	X		
Remove Spaces	–	–	X		
Change Mix of Short and Long Term Parking					
Increase Short Term Supply	+	–	X		
Increase Long Term Supply	–	+	X		
Parking Restrictions	–	–	X		
Residential Parking Permit Programs	0	–		X	
Carpool/Vanpool Preferential Parking	0	–		X	
Loading Zone Regulations	–	0	X		
Telpark System	0	0		X	
Off-Street Supply in Activity Centers					
Expand or Restrict Off-Street Supply					
Construct New Lots and Garages	+	+			X
Restrict Supply					
Zoning Requirements	–	–			X
Supply Ceiling	–	–			X
Reduce Supply Rents thru HOV Incentive	0	–			X
Restrict Principal Use Parking Facility	–	–		X	
Change Mix of Short and Long Term Parking					
Increase Short Term Supply	+	–	X		
Increase Long Term Supply	–	+	X		
Restrict Parking Before or During Selected HOV	+	–	X		
Preferential Parking for HOV's and Small Vehicles	0	–		X	
Joint Development	+	+			X
Parker Information System	+	0			X
Telephone Reservation System	+,–	+,–			X
Fringe and Corridor Parking					
Fringe Parking	0	–			X
Park and Ride Parking	0	–			X
Carpool/Vanpool Parking	0	–			X
Park and Ride Substitution Proposal	0	–			X

Key: + Promotes Parking Demand
– Discourages Parking Demand
0 Minimal Impact on Parking Demand

EXHIBIT 4 (Continued)

Tactics	Impacted Parkers		Implementation Time		
	Short-Term Parkers	Long-Term Parkers	0-3 Mo.	3-6 Mo.	> 6 Mo.
Pricing					
Charge Parking Rates					
Increase Rates					
– Price Increase	–	–	X		
– Rate Structure Revision	–	–	X		
– Parking Tax	–	–	X		
– Parking Surcharge	–	–	X		
Decrease Rates	+	+	X		
Free Parking	+	+	X		
Differential Pricing Programs	+	–	X		
Merchant Shopper Discounts	+	0		X	
Employer Parking Subsidies					
Reduce Subsidies	0	–		X	
Transit/HOV Subsidies	0	–		X	
Parking Stall Tax	–	–		X	
Enforcement and Adjudication					
Enforcement					
Ticketing	+,–	+,–	X		
Towing	+,–	+,–			X
Booting	+,–	+,–			X
Adjudication					
Administrative	0	0			X
Judicial	0	0			X
Marketing					
Advertising	+	–		X	
Convenience Programs	+	–		X	

Key: + Promotes Parking Demand
– Discourages Parking Demand
0 Minimal Impact on Parking Demand

Perhaps the strongest evidence illustrating the use of multiple tactics is found in Exhibit 2. In particular, communities such as Baltimore, Boston, Los Angeles, Montgomery County, Palo Alto, Portland, San Francisco, Seattle, and Washington, D.C., all have implemented multiple parking management actions to meet their local needs and further their local objectives. These actions have been supported by carpool/vanpool programs, improved public transit services, preferential lanes for HOVs, traffic operations improvements and other such actions.

Exhibit 5 also illustrates the packaging of parking management and TSM ations to meet two illustrative sets of problems and objectives commonly of interest in urban areas. Although many of the tactics would be implemented by different local, regional, and state agencies, they can, if properly integrated, promote the noted objectives.

EXHIBIT 5

ILLUSTRATIVE PARKING MANAGEMENT AND TSM PROGRAMS

	Example 1	Example 2
Problems:	• Extensive Peak Period Congestion • Underutilization of Transit System • Violation of Air Quality Standards	• Loss of Business in CBD • Illegal Parking in CBD and Residential Neighborhood
Objectives:	• Improve Highway Level of Service • Increase Transit Patronage • Reduce Energy Consumption • Improve Air Quality	• Encourage Downtown Development • Reduce Illegal Parking • Increase Parking Supply • Improve Neighborhood Amenities
Potential Tactics:	**Parking Management** • Reduce/Prohibit On-Street Parking • Provide Preferential Carpool/Vanpool Parking • Construct Park and Ride Lots and Fringe Lots • Parking Tax on Parkers Arriving During A.M. Peak Period • Implement More Aggressive Ticketing and Booting Program **Related TSM Tactics** • Provide Transit Service to Fringe and Park and Ride Lots • Provide Preferential Lanes for Transit and HOV • Institute Transit, HOV Marketing Program • Improve Traffic Signal System • Institute Turning Lane and Lane Use Restrictions • Institute Flexible Work Hours	**Parking Management** • Institute Downtown "Marketing" Programs for Retailers, etc. • Provide Additional Short Term Parking On and Off-Street • Implement More Aggressive Ticketing Program • Provide Preferential Rates for Short Term Parkers • Implement Residential Parking Permit Programs in Areas Adjacent to CBD Impacted by Long Term Parking • Implement Joint Development Projects **Related TSM Tactics** • Widen Sidewalks • Pedestrian Grade Separations • Pedestrian Malls • Bus Only Streets

III. PLANNING PARKING MANAGEMENT TACTICS

This section discusses important activities that are typically performed in planning most types of parking management tactics. These activities include:

- Designating a lead agency
- Involving interested citizens, developers, the private parking industry, and others in the planning process
- Assessing existing parking problems in relation to objectives
- Selecting tactics of interest
- Analyzing and evaluating the proposed tactics
- Approving tactics for implementation

Because these activities are common to most tactics, they are considered in this section rather than repeated in each of Sections IV through IX. However, planning issues pertinent to specific types of tactics are discussed in these later sections of the guide.

DESIGNATE LEAD AGENCY

An important step in planning all types of parking management tactics is designating a lead agency that has the responsibility for a given tactic. From an overall management perspective, it is advisable for a single agency to have the power to plan, implement, and operate one or more tactics. This should minimize problems such as having plans developed by a "planning" agency conflict with schedules and priorities of "implementing and operating" agencies. This also will help citizens, businesses, and others to interact with a single agency.

The designation of a lead agency shall not preclude involvement of other agencies (e.g., planning departments, institutions, police, economic development departments, MPOs, transit authorities, air quality agencies, etc.) when planning tactics to further local objectives. Unless such agencies are consulted, their concerns could later become impediments to implementing the tactics.

In addition to designating a lead planning agency, adequate staffing and budget should be made available to perform the authorized planning.

Exhibit 6 identifies the types of agencies and organizations that typically are responsible for various types of parking management tactics. On-street supply tactics are commonly under the jurisdiction of the local

EXHIBIT 6

AGENCIES TYPICALLY RESPONSIBLE FOR PARKING MANAGEMENT TACTICS

TACTICS	RESPONSIBLE AGENCY								
	Parking Authority	Local DOT/T.E.	Police	Planning Department Zoning Board	Transit Authority	Private Parking Industry	Employers	Institutions	Developers
ON-STREET SUPPLY									
Add or Remove Spaces									
All Spaces	•	•							
Remove Spaces	•	•							
Change Mix of Short and Long-Term Parking									
Increase Short-Term Supply	•	•							
Increase Long-Term Supply	•	•							
Parking Restrictions	•	•							
Residential Parking Permit Programs	•	•			#				
Carpool/Vanpool Preferential Parking	•	•			•				
Loading Zone Regulations	•	•							
Telpark System	•	•							
OFF-STREET SUPPLY IN ACTIVITY CENTERS									
Expand or Restrict Off-Street Supply									
Construct New Lots and Garages	•	•				•	•	•	•
Restrict Supply									
Zoning Requirements				•					
Supply Ceiling				•					
Reduce Supply Requirements through HOV Incentives				•					
Restrict Principal Use Parking Facilities				•					
Change Mix of Short and Long-Term Parking									
Increase Short-Term Supply	•					•		•	
Increase Long-Term Supply	•					•		•	
Restrict Parking Before or During Selected Hours	•					•		•	
Preferential Parking for HOVs and Small Vehicles	•					•	•	•	
Joint Development	•			•		•		•	•
Parker Information System	•	•				•			
Telephone Reservation System	•					•			

Carpool Agency

EXHIBIT 6 (Continued)

TACTICS	RESPONSIBLE AGENCY								
	Parking Authority	Local DOT/T.E.	Police	Planning Department Zoning Board	Transit Authority	Private Parking Industry	Employers	Institution	Developer
FRINGE AND CORRIDOR PARKING									
Fringe Parking	•	◘			•				
Park and Ride Parking		◘			•				
Carpool/Vanpool Parking		◘			#				
Park and Ride Substitution Proposal		◘		•	•				
PRICING									
Charge Parking Rates									
Increase Rates									
– Price Increase	•				•	•	•	•	
– Rate Structure Revision	•				•	•	•	•	
– Parking Tax		•							
– Parking Surcharge		•							
Decrease Rates	•				•	•	•	•	
Free Parking	•				•	•	•	•	
Differential Pricing Programs	•				•	•	•	•	
Merchant Shopper Discounts	•					•	◉		
Employer Parking Subsidies									
Reduce Subsidies							•	•	
Transit/HOV Subsidies							•	•	
Parking Stall Tax									
ENFORCEMENT AND ADJUDICATION									
Enforcement									
Ticketing	•	•	•						
Towing	•	•	•						
Booting	•	•	•						
Adjudication									
Administrative		•							
Judicial			△						
MARKETING									
Advertising	•					•	◉		
Convenience Programs	•					•	◉		

◘ And State DOT

△ Courts

◉ Retailers

Carpool Agency

department of transportation and traffic or the parking authority. These agencies usually have the staff expertise, equipment, and familiarity with municipal parking regulations to perform such duties. Many different agencies can be involved in planning and implementing off-street supply tactics in activity centers. These include planning departments, zoning boards, the private parking industry, employers, institutions, and developers. This reflects the wide range of actions included in this category of tactics.

In most instances, local and state departments of transportation and transit authorities are responsible for fringe and corridor parking tactics. Pricing tactics can be the responsibility of many different organizations including parking authorities, transit authorities, the private parking industry, employers, and institutions. Many pricing tactics may require coordinated actions of several or most of such organizations to be effective.

Enforcement and adjudication tactics are usually the responsibility of parking authorities, local departments of transportation or traffic, and the police department, while the courts have the prime responsibility for administering a judicial adjudication program. Marketing tactics are usually formulated and implemented through the cooperative efforts of retailers, the private parking industry, and parking authorities.

The above point out a potentially important problem with parking management tactics; namely, the diffusion of responsibility among many different agencies for such tactics. This situation suggests that there should be a framework or forum for ensuring that the various parking management tactics planned or implemented for a given area are complementary and consistent with adopted transportation land use and other plans. This can be an important role for metropolitan planning organizations (MPOs) to fulfill.

INSTITUTE PUBLIC PARTICIPATION PROGRAM

It is highly recommended that the lead agency institute an active public participation program when planning and implementing parking management tactics. This is advisable for several reasons. It provides interested parties with an opportunity to express their perception of the problems, to identify potential solutions to the problems, to participate in the evaluation and selection of actions for implementation, and to participate in the implementation and enforcement phases of the parking management program. This is important given the highly localized and potentially controversial impacts associated with some types of tactics.

A particularly important element of a public participation program is identifying and communicating with all groups potentially affected by the tactics under consideration. Such groups and interests could include those listed in Exhibit 7.

Many useful references are available concerning the strengths and limitations of public participation programs. One such reference is:

EXHIBIT 7

INTERESTS POTENTIALLY IMPACTED BY PARKING MANAGEMENT TACTICS

COMMUNITY	INSTITUTIONS	PRIVATE SECTOR	GOVERNMENT AGENCIES
• Residents • Home Owners Associations • Employees, Students, Patrons, etc.	• Schools • Universities • Hospitals	• Employers • Developers • Motor Carrier Industry • Taxi Companies • Chamber of Commerce • Private Parking Industry	• Local and State Departments of Transportation • Transit Operator • Parking Authority • Police • Planning Department/Zoning Board • Metropolitan Planning/ Organization • Air Quality Agencies • Judicial System

Federal Highway Administration, Effective Citizen Participation in Transportation Planning. Volumes I and II, 1976.

Planners should consult such publications to help organize their public participation programs.

ASSESS PARKING PROBLEMS IN RELATION TO OBJECTIVES

A basic step that should be performed in planning all types of parking management tactics is clearly identifying the nature and causes of the parking problem(s) and reaching a consensus on what objectives (e.g., reducing long-term parking, conserving energy) should be given high priority in solving the problem.

Determining the nature, magnitude, geographic scope, and causes of the parking problem typically should be based on accurate, up-to-date information on the existing supply, location, type (e.g., ownership), usage, and prices of parking in the area of interest. Such information can greatly enhance the credibility of the entire planning effort. This may require conducting parking usage surveys, parking accumulation surveys, and parking supply inventories to address the above issues. The data collection programs may range from a field reconnaissance of the study area in question to full-scale surveys and inventories. Except when large geographic areas are of concern (e.g., an entire CBD), the staff time for such data collection and analysis programs frquently can be limited to several person-days, perhaps one person-week, of effort. Sections IV through IX of this guide discuss specific data collection procedures that are applicable to each type of parking management tactic.

SELECT TACTICS OF INTEREST

Based on the results of the problem assessment step described above, the lead agency should identify potential changes to existing parking regulations and programs and/or new tactics to promote objectives of interest and to alleviate existing and future parking problems. Readers are urged to consult Section II and Sections IV through IX of the guide for further information on the applicability of various parking tactics to different objectives and to different parking and related problems.

ANALYZE AND EVALUATE PROPOSED TACTICS

After selecting parking management tactics for further study, it is important that the impacts of the tactics be estimated and evaluated. Exhibit 8 lists the types of impacts and issues that are commonly of concern to interested groups. A useful method for identifying significant impacts and issues of concern is through the lead agency's public participation program.

EXHIBIT 8

TYPES OF IMPACTS AND ISSUES OF CONCERN FOR PARKING MANAGEMENT TACTICS

- Effects on Travel Times
- Effects on Parking and Overall Travel Costs
- Effects on Availability of Parking Supply for Affected Groups by Time of Day
- Effects on Walking Distances to Destination and Associated Comfort, Convenience, and Personal Security Concerns
- Effects on Highway Congestion and Level of Service
- Effects on Transit Usage and Carpooling
- Effects on Capital and Operating and Maintenance Costs by Affected Agency, Firm, Institution
- Effects on Air Pollution Emissions and Air Quality
- Effects on Energy Consumptions
- Effects on Level, Types, and Location of Development, Employment and Sales
- Effects on Neighborhood Amenities

Evaluations may be limited to analyzing short-term impacts (i.e., what will happen in the next three to six months) of selected parking management tactics (e.g., RPPPs) while other evaluations may also be concerned with long-term (e.g., five to 15 years) impacts of tactics such as parking freezes and changes in zoning regulations.

Evaluation practices followed by many jurisdictions suggest that impacts such as those on travel times, transit usage, highway congestion, and capital and operating costs are expressed quantitatively while impacts on economic development and neighborhood amenities commonly are expressed qualitatively.

Section X describes a wide range of techniques that are suitable for analyzing many types of parking management tactics.

APPROVE TACTICS FOR IMPLEMENTATION

A key final step in planning parking management tactics is securing approval for implementation. Clearly, a jurisdiction-specific process will be followed for holding hearings, reviewing proposed tactics and programs, and meeting legal and administrative requirements in order to authorize the implementation of applicable tactics. The ease or difficulty of securing approval will depend on many factors including the extent of community support for the recommended tactics, the implementation and recurring costs of the tactics, the perceived legality of the tactic, and other impacts and issues of concern. The lead agency's public participation program should help to identify and account for such concerns before they become major obstacles to approval.

IV. ON-STREET PARKING SUPPLY TACTICS

This section presents important considerations for planning, implementing and operating two particular types of on-street parking supply tactics:

- residential permit parking programs (RPPPs), and
- preferential on-street parking for carpools and vanpools.

These two tactics are emphasized as they are the subject of considerable interest among local governments and little information is available that describes effective practices for planning, implementing, and operating such tactics.

RESIDENTIAL PARKING PERMIT PROGRAMS

A RPPP is an integrated set of actions that a local government can implement to restrict and reduce high levels of nonresident commuter parking in residential areas. Typically, a single institution or activity center can be identified as the major parking generator whose proximity to the residential neighborhood creates the nonresident parking problem. Major parking generators that have led to the use of RPPPs include:

- Employment centers
- Universities
- Hospitals
- Retail centers
- Transit terminals

Nonresidents park in neighborhoods to have better access to transit services, to avoid parking charges, or because the available supply at their destination is inadequate for the demand.

Planning the RPPP

Section III of the guide discusses key steps that should be performed in planning parking management tactics. This subsection focuses on several issues that pertain directly to planning RPPPs.

Definition of Study Area Boundaries

As illustrated in Exhibit 9, RPPPs generally have been implemented in specific neighborhoods or subareas within cities.

Factors to consider in defining boundaries for a RPPP include:

- Locations where high levels of nonresident parking currently exist
- Locations where nonresident parkers may park if a RPPP is implemented
- Location of the generator attracting the parkers
- Distances nonresident parkers are willing to walk to their destinations

EXHIBIT 9

CHARACTERISTICS OF SELECTED RESIDENTIAL PARKING PERMIT PROGRAMS

CITY	RESPONSIBLE AGENCIES	IMPLEMENTATION		OPERATING CHARACTERISTICS				
		ACTIVITY GENERATING IMPACTS	CRITERIA	HOURS	GEOGRAPHIC AREA	PERMIT FEE	NON-RESIDENT PARKING PRIVILEGES	PENALTY FOR PARKING VIOLATIONS
Alexandria, Va.	Traffic	CBD	• Peak Occupancy 75% • Nonresident 25%	• M - F • 8 am - 5 pm	• 2 Districts	$2/yr.	• 3 Hours • Visitor Permits	$15.00
Arlington, Va.	Traffic Engineering	Employment Center	• Peak Occupancy 75% • Nonresident 25%	• M - F • 8 am - 5 pm	• 7 Districts • Total of 100 Blocks	None	• Visitor Permits	N.A.
Baltimore, Md.	Transit and Traffic	Hospital	• Peak Occupancy 80% • Nonresident 25%	• M - F • 24 Hrs.	• Neighborhood • 20 Blockfaces	$10/yr.	• Visitor Permits	$7.00
Boston, Ma.	Traffic and Parking	CBD	Administrative Discretion	• 24 Hrs.	• City Wide • Neighborhood- (1 Program)	None	• 2 Hour (City Wide) • 2 Spaces/Block (Neighborhood)	$5.00 (City Wide) $10.00 (Neighborhood)
Cambridge, Ma.	Traffic and Parking	• University • Transit Stations • Retail Area	Administrative Discretion	• M - F • 24 Hrs.	City Wide	$1/yr.	Visitor Permits	$15.00
Eugene, Ore.	Traffic	University	Administrative Discretion	• M - F • 9 am - 3 pm	33 Blocks	$5/yr.	2 Hour Parking	N.A.
Milwaukee, Wis.	DPW	• University • Hospital • Industrial Area • Retail Area	• Minimum 150 Spaces • Nonresident 20% • Transit Nearby	• Except Sunday • 8 am - 5 pm	Eleven Districts	$6/yr.	2 Hour Parking	$20 - $40 For Falsification of Application
Montgomery County, Md.	Traffic Engineering	• Hospital • High School	• Average Occupancy 8 am - 5 pm > 50% • Non-Resident 50%	• M - F • 9 am - 5 pm	• 2 Districts	$5/yr.	Visitor Permits	$10
San Francisco, Ca.	Traffic Engineering	• Transit Stations • CBD • University	Peak Occupancy 80% • Nonresident 50%	• M - F • 8 am - 9 pm	• 3 Separate Districts • Area A Has 4,000 Spaces	$5/yr.	2 Hour Parking	$10
Vancouver, B.C.	City Engineering	Local Generators	• Petition From 213 Residents	24 Hrs.	• 150 - 200 RPDs • Each RPD is Generally 2 -3 Spaces	None	None	$25
Washington, D.C.	D.C. DOT	• CBD • Transit Stations • Other Generators	• Peak Occupancy 70% • Nonresidenc 10%	• M - F • 7 am - 6:30 pm	• Multiple Areas Covering 12 - 15% of All Residential Streets	$5/yr.	• 2 Hours Visitor Permits	$5

Identifying boundaries based on the above factors may involve an interactive process.

Arlington, Virginia's experience with this iterative process led the traffic department to conclude that about seven to 10 blocks is the maximum necessary distance to discourage parking. Cambridge uses a city-wide approach to satisfy all neighborhood requests, because of the diverse and overlapping parking attraction caused by its universities, transit stops, commercial areas, and employment centers. The city is unable to associate any one geographic area with a particular generator and uses a blanket coverage approach.

The agency responsible for the RPPP should designate a preliminary study area for analysis purposes. The designated area should be selected after a field reconnaissance of the geographic area and in consultation with affected neighborhood groups, businesses, institutions, and others. The area should include locations where parking problems are likely to exist as well as adjacent locations where the problem may exist or that could be impacted by the implementation of an RPPP.

Public participation is an integral part of the RPPP planning process and most city governments require citizens to petition them before they will analyze the potential for an RPPP in their area. Exhibits 10 and 11 present the types of petitions that must be submitted in San Francisco and Washington, D.C., before an RPPP study will be initiated.

Identification of Data and Analysis Requirements

As noted in Exhibit 9, the majority of the adopted RPPP ordinances require parking occupancy counts prior to designating an area for permit parking. Ordinances typically contain usage criteria that must be met for a neighborhood or district to be eligible for an RPPP. Criteria generally require that a traffic survey conducted during peak parking periods reveal overall usage of at least 75 percent and nonresident usage of at least 15 percent. (These criteria vary by locale and range from 50 percent to 80 percent for overall occupancy and from 10 to 50 percent for nonresident occupancy.)

Occupancy calculations may be required for a blockface, an entire block, or the entire proposed district. A problem that develops with the blockface type of analysis is the opportunity it creates for displaced parkers to easily shift from permit parking spaces to nearby unrestricted spaces. On the other hand, occupancy levels calculated at the district level may fail to meet required criteria even though specific streets within the proposed district may clearly qualify. Analysis at a small district level with the opportunity for expanding the zone later would address both of these limitations.

Four types of data generally are needed for evaluating proposed RPPPs:

- Inventory of parking spaces within the study area
- Maximum (i.e., peak) parking accumulation in the study area (possibly by block face)

EXHIBIT 10

PETITION FOR RESIDENTIAL PERMIT PARKING FOR WASHINGTON, D.C.

The undersigned residents of the _____(hundred) block of _____ Street, _____, petition the Mayor and City Council to designate this street as part of the Residential Permit Parking Program. This petition contains signatures of a majority of the households on each hundred block. Where there are no other conflicting parking restrictions, this program will restrict the parking of vehicles beyond a consecutive two (2) hour period between the hours of 7 AM and 6:30 PM on weekdays, except holidays, with the understanding that vehicles bearing a valid parking permit will be exempt from this restriction. Residents who own cars will pay a five dollar annual permit fee for each car.

Every block that is eligible for signs must meet the minimum criteria of seventy percent of all legal spaces filled during business hours, of which at least ten percent must be occupied by cars with out of state tags. Residents of streets having other parking restrictions may obtain stickers upon presentation of a valid petition. These blocks must be adjacent to existing designated streets to be eligible for stickers. Once a block has been designated, residents will be notified of the date when signs, if any, are to be posted and where they may obtain parking permits.

Signature	Address
block (representative:) _____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Mail or present petitions to: Parking Division, Room 430, #65 Mass. Ave., N. W. Washington, D.C. 20001 (727-5104)

EXHIBIT 11

PETITION FOR RESIDENTIAL PARKING PERMIT PROGRAM FOR SAN FRANCISCO

_____ RESIDENTIAL PERMIT PARKING AREA

(NAME OF PROPOSED AREA)

STREET BOUNDARIES - NORTH _____ WEST _____ SOUTH _____ EAST _____

The undersigned residents of the above-named residential area hereby petition the San Francisco Chief Administrative Officer to perform the necessary survey, hold neighborhood hearing(s), and recommend to the Board of Supervisors that this area be designated a Residential Permit Parking area, accordance with Ordinance #312-76.

We understand if the area is designated by the Board of Supervisors, the following parking restrictions would become effective:

- Posted Time Limit Parking
- Exemption of Parking Limit for Residents and One Automobile per Business Upon Purchase of an Annual $10.00 Sticker from the San Francisco Tax Collector

	NAME	ADDRESS (PLEASE PRINT)	PHONE #	OWNER or RESIDENT?
1.	Sign _____ Print	San Francisco		
2.	Sign _____ Print	San Francisco		
3.	Sign _____ Print	San Francisco		
4.	Sign _____ Print	San Francisco		
5.	Sign _____ Print	San Francisco		
6.	Sign _____ Print	San Francisco		
7.	Sign _____ Print	San Francisco		
8.	Sign _____ Print	San Francisco		
9.	Sign _____ Print	San Francisco		
10.	Sign _____ Print	San Francisco		

- Number and percent of nonresidents parking in the study area during the peak hour of parking

- Parking durations of resident and nonresident parkers

The parking supply inventory and the parking usage data should be compiled for all on-street parking as well as for off-street parking provided by major traffic generators in the study area. The major generator parking supply data is needed to determine whether the available supply is adequate to absorb nonresident on-street parkers potentially displaced by the RPPP.

The two principal procedures for collecting the above data are a parking supply inventory and a parker usage survey. Four types of information are to be collected in the parking supply inventory:

- Number and location of spaces
- Types of space (e.g., metered, free, illegal)
- Parking rates, if applicable
- Parking regulations

A parker usage survey involves monitoring the usage of parking in the study area to determine:

- Maximum parking accumulation
- Number of parkers by parking duration
- Resident or nonresident status of the parkers

The first two data items above can be obtained directly from observations by survey crews. To obtain data on resident status, it may be necessary to record license plate numbers and relate these to the parker's residence using motor vehicle records.

A number of useful references are available concerning procedures for conducting parking inventories, parking usage surveys, and parker surveys. These include:

- Institute of Transportation Engineers. Manual of Traffic Engineering Studies. Fourth Edition. 1976.

- Public Administrative Service. Procedure Manual for Conducting a Comprehensive Parking Study. Revised Edition. July 1957. (Available from University Microfilms International, 300 North Zeeb Road, Ann Arbor, Michigan, 48106.)

This analysis should be documented for review by residents, businesses, institutions, and others. This can serve several useful purposes:

- First, it provides a basis for determining if an RPPP is needed, and, if so, what the appropriate geographic boundaries of the RPPP should be.

- Second, it provides information for developing specific characteristics of the RPPP, including such factors as hours and days of operation, and allowable parking duration for nonresidents, etc.

- Third, it provides an opportunity to obtain input from affected parties regarding the impacts and issues of major concern.

Analysis and Evaluation of Impacts

It will be necessary to define the specific characteristics of the RPPP. These include:

- Hours and days of the week in which the program is in effect

- Restrictions pertaining to nonresident parking

- Permit fee and the method for selling and renewing the permit

- Enforcement program and its associated costs and staffing requirements as well as applicable parking fines

- Agency responsibilities for performing each of the key functions in implementing and operating the program

These characteristics are examined in further detail under the discussion of RPPP implementation procedures.

The above characteristics of the RPPP should account for:

- Availability of parking for residents and nonresidents by time of day

- Walking distances to destination and associated comfort, convenience, and personal security concerns

- Business sales and the operation of businesses and institutions

Some of the above considerations can be estimated quantitatively while others generally can only be assessed in qualitative terms. The effects on parking availability, walking distances, and capital and operating costs can be estimated or inferred from the parking inventory and parking usage data previously discussed. The potential effects of an RPPP on factors such as comfort, convenience, personal security, and retail sales are extremely difficult to estimate, and should be assessed in conjunction with affected interests in weighing their impacts on the desirability of implementing an RPPP.

Approval Process

The approval process for creating RPPP districts varies among communities and is described in the different types of ordinances that have been adopted. There are two types of RPPP ordinances: one type requires that the city council approve all RPPP districts and the other assigns the authority to create RPPPs to the traffic department without additional city approval. The Washington, D.C., ordinance illustrates the first general form where proposed RPPPs must be approved by both the Mayor and City Council. San Francisco employs a similar process whereby the Board of Supervisors reviews and votes upon each proposed RPPP application. Cambridge, Massachusetts, on the other hand, has empowered its Traffic and Parking Department to create RPPP districts where appropriate. The first type of ordinance is preferable if the creation of RPPPs may be politically sensitive or controversial while the second type of ordinance is applicable when start-up problems with an RPPP program have been overcome and well-defined procedures have evolved for planning and implementing such tactics. RPPP ordinances for Arlington, Virginia, Washington, D.C., and San Francisco are included in Appendix A.

Implementing the RPPP

Implementing an RPPP in a community currently without a program will involve several important activities:

- Procedures for advising the public of the program's requirements
- Procedures for selling and renewing a parking permit
- Procedures for selling and monitoring the use of visitor (i.e., non-resident) parking stickers
- Programs for enforcing the RPPP
- Programs for funding the capital, operating, and enforcement costs of the RPPP

Public Information Program

A critical step in initiating the RPPP within a specific subarea is informing residents and others of the requirements of the program and the procedures for selling (or distributing) parking permits.

City agencies responsible for informing the public about RPPP regulations have generally used public notices in local newspapers and on radio, announcements in public buildings, and mailings. Most communities mail all affected residents a notice or fact sheet about the RPPP to be implemented (see Exhibit 12), and in smaller districts agencies have followed up with personal contacts. Courtesy ticketing is another method of informing both residents and nonresidents about a newly implemented RPPP. During the first week or two of

EXHIBIT 12

ILLUSTRATIVE PUBLIC INFORMATION MATERIALS

CITY AND COUNTY OF SAN FRANCISCO

DEPARTMENT OF PUBLIC WORKS

OFFICE OF THE
DIRECTOR OF PUBLIC WORKS

November 24, 1978

260 CITY HALL
SAN FRANCISCO
CALIFORNIA 94102

Dear Resident:

Following petitions by residents and a public hearing last May, your neighborhood was designated by the Board of Supervisors as Residential Permit Parking Area "D."

The intent of the Residential Permit Parking Program is to preclude commuter parking in residential areas. We hope this program will be successful in providing you with more parking on your streets.

Parking signs are now being installed on the residential streets in your area, and the program will go into effect on Friday, December 1, 1978. Under this program, non-resident parking will be limited to 4 hours between 9 a.m. and 5 p.m., Monday through Friday. However, those vehicles displaying a valid Residential Parking Permit for Area "D" will not be subject to those restrictions.

Permits will only be available to the following persons:

1. A legal resident of the residential permit parking area who has a motor vehicle registered in his name or who has a motor vehicle for his exclusive use and under his control.

2. A person who owns or leases commercial property and actively engages in business activity within a residential permit parking area. However, no more than one parking permit may be issued for each business establishment for a motor vehicle registered to or under the control of such a person.

Listed on the other side are the rules to follow if you wish to apply for a permit.

Very truly yours,

Jeffrey Lee

Jeffrey Lee
Acting Director
of Public Works

EXHIBIT 12 (Continued)

CITY AND COUNTY OF SAN FRANCISCO

DEPARTMENT OF PUBLIC WORKS

OFFICE OF THE
DIRECTOR OF PUBLIC WORKS

260 CITY HALL
SAN FRANCISCO
CALIFORNIA 94102

IMPORTANT
Permit Parking Information and Application

Permit Information for Residents

1. Application may be made in person at the Tax Collector's Office, Room 107, City Hall. Hours: 8 a.m. to 5 p.m., Monday through Friday.

2. Application may also be made by mail by filling in the attached application and mailing it along with a check for $10 and photocopies of your vehicle registration and driver's license which show that you live in the area to the Tax Collector's Office.

3. Applicants must present their vehicle registration and driver's license at the time of applying for a permit.

4. All applicants must reside in the designated area.

5. Vehicles for which permits are applied must be registered to an address within the designated area.

6. The permit fee for the period December 1, 1978, to November 30, 1979, is $10 each. One permit is good for only one vehicle and each permit will bear the license number of the vehicle. A resident of the designated area may get permits for as many vehicles as he or she owns that are registered to an address within the designated area.

7. This permit does not allow you to park in an illegal parking area such as a red zone or to park illegally at a parking meter. It does allow you to park in any legal parking place within the designated area for more than two hours.

8. Permits, when issued, should be applied to the left rear bumper, or the left rear portion of the vehicle, plainly visible for police inspection.

9. All communications should be addressed to:

License Bureau
Tax Collector's Office
Room 107, City Hall
San Francisco, CA 94102
Telephone: 558-3761

operations, enforcement agencies will issue nonpunitive tickets (i.e., courtesy tickets) to educate RPPP violators about the program and the city's intent to enforce it.

Procedures for Selling and Renewing Parking Permits

A program for selling parking permits to eligible residents must be developed. Based on reviews of operational RPPPs, two key requirements must be considered:

- Developing unambiguous eligiblity criteria
- Establishing a controllable, convenient program for selling permits

The program for selling permits should define who is eligible to purchase a resident parking permit and the information required to establish such eligibility. At a minimum, a listing of eligible street names and address ranges should be developed, and an applicant should be required to provide (1) proof of residency and (2) a valid motor vehicle registration in order to purchase a permit. The need for both items of identification is intended to limit nonresident "cheating." In residential areas where there is relatively little turnover among residents, this information is likely to be adequate to screen out nonresidents. However, in residential areas with high turnover in occupants (e.g., areas with many rental units) and particularly acute parking problems, further eligibility controls may be needed. For example, criteria should be developed to assess the eligibility of the following to acquire a parking sticker:

- Vehicles with out-of-city license plates
- Leased vehicles
- Company cars
- Dealer tags
- Temporary license plates
- Commercial tags
- Diplomats

Exhibit 13 summarizes the various types of information required in Washington, D.C., to purchase a residential parking permit. This exhibit shows that the applicants must clearly demonstrate they are residents of the RPPP area and the vehicle for which they are obtaining a permit belongs to them. An illustrative application form and parking permit from Washington, D.C., are shown in Exhibit 14.

The method used to sell residential parking permits can greatly influence the success of the program. A single agency should be responsible for selling the permits at a single outlet convenient to the RPPP area. If multiple locations are used, this greatly increases the likelihood of nonresidents obtaining permits as well as residents obtaining "extra" permits for friends, visitors, and others. This was a serious problem when San Francisco implemented its first RPPP.

EXHIBIT 13

TYPES OF INFORMATION REQUIRED TO ESTABLISH ELIGIBILITY TO PURCHASE A RPPP PERMIT IN WASHINGTON, D.C.

Type of Applicant/Vehicle	Type of Information Required						
	Proof of Reciprocity (if applicable)	Proof of Residence	D.C. Motor Vehicle Registration	Copy of Lease	Notarized Letter from Company Officer	Valid Salesman's License	Special Form
Without District of Columbia License Plates	●	●	●				
Change of Address		●	●				
Leased Vehicle		●	●	●			
Company Car	●	●	●		●@		
Dealer's Tag	●	●			●@	●	
Diplomats#	●	●	●		●#		
Temporary License Plates*							
Commercial Vehicles Under 6,000 Pounds							●

Regular application procedures apply unless four or more vehicles are being registered for RPPP permits. In the event this number is exceeded a letter specifying the applicant's names, address, and principal uses of the vehicle must be sent from the Ambassador to the City's Parking Administrator.

* Permanent RPPP permits are not issued to vehicles with temporary license plates. However, a temporary permit is issued free for the life of the temporary license.

@ Letter should designate the applicant as the operator of the vehicle and state that the vehicle is kept at applicant's address.

EXHIBIT 14

RPPP APPLICATION AND STICKER FOR WASHINGTON, D.C.

GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
RESIDENT PARKING PERMIT

DO NOT WRITE IN THIS SPACE

(PRINT IN INK OR TYPE)

TAG NO. R-

PERMIT NO.

RECIPROCITY STICKER NO.

PERMIT EXPIRES

OWNER _____
(LAST NAME) (FIRST) (INITIAL)

CLERK WARD

RESIDENCE _____
(STREET) (SECTION) (ZIP CODE)

TRADE NAME _____

BODY STYLE _____

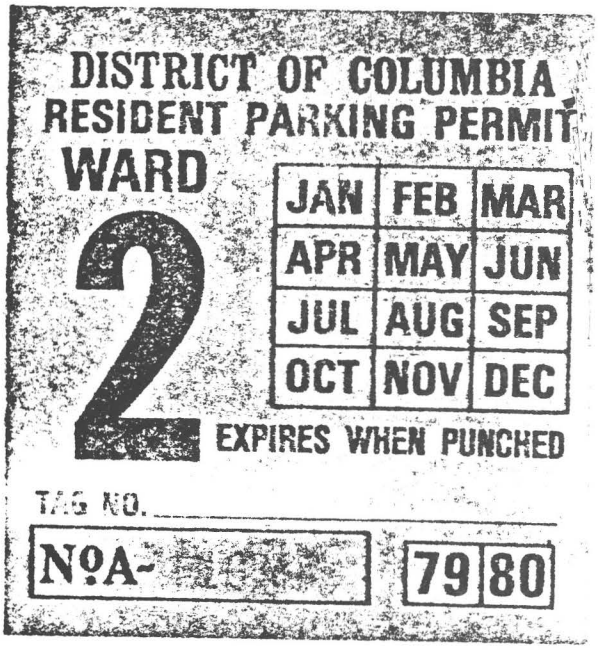
SERIAL NUMBER _____

DRIVER'S LICENSE NO. _____

DO NOT SEPARATE THIS FORM. RETURN WITH PAYMENT OF $5.00, PAYABLE TO D. C. TREASURER, TO RESIDENTIAL PARKING OFFICE, ROOM 1157, 301 C STREET, N.W. 20001. TELEPHONE: 727-5409.

DOT 52-43

J-90062



This sticker valid only in designated Residential Permit Parking areas in Ward shown on face. Vehicle is exempt from 2-hour parking restrictions in these designated areas. All other posted parking regulations must be observed.

Sale, transfer or other misuse of this sticker is a violation subject to a maximum $300.00 fine and/or 10 days imprisonment.

TO APPLY STICKER

Remove facing paper, apply to lower left-hand corner of rear view window. On convertibles and vehicles with heating elements in rear view window, apply to lower left-hand corner of windshield.

Rub hard after application.

DOT 52-42

Vehicle identification number _____

Potential locations for selling permits include:

- City hall
- Neighborhood government centers
- Police and fire stations

It is highly advisable to conduct a training course on the rules and regulations of the RPPP for personnel responsible for selling permits and enforcing the program. This will help minimize problems in implementing and operating the program.

Since the parking permits typically are in effect for a year, the program must include provision for renewing permits. Permits can be renewed by mail or in person. In San Francisco, a self-mailer renewal notice is sent to residents at least one month prior to the renewal date. Regardless of whether renewal is by mail or in person, the applicant must furnish a photocopy of a valid driver's license and vehicle registration with an address in the RPPP area.

Procedures for Selling and Monitoring Use of Visitor Parking Stickers

As indicated in Exhibit 9, a variety of procedures have been used to solve the problem of visitor parking.

Nonresident parking restrictions range from complete prohibition to limited parking privileges. Some communities, such as Boston and Alexandria, permit nonresidents to park for two or three hours during the time the RPPP is in effect. Communities that allow nonresident parking for limited durations are frequently trying to preserve short-term parking opportunities for shoppers and business clients while preventing long-term parking. A limitation to this approach is the increased enforcement efforts necessary to monitor the parking duration of nonresident vehicles. If permissible non-resident parking is as long as three or four hours, then commuters may try to circumvent the policy by moving their cars during the day.

Vancouver, British Columbia, uses a variation of the RPPP to create resident parking only (RPO) zones. An RPO is typically two or three spaces in the middle of a block reserved exclusively for residents of that block. The adjoining spaces may be used by residents and nonresidents alike. The concept is to preserve for residents some parking which is reasonably close to their homes, even during periods of peak demand. In practice, some residents will occupy these spaces during the peak and off-peak periods (rather than parking in an open space during off-peak and thereby keeping the RPO free for residents who may be arriving during the peak parking demand).

RPPPs that prohibit nonresident parking at all times usually have some provision for issuing visitor permits. Cambridge, for example, will sell a resident household up to two visitor permits at a cost of 50 cents each. These permits are valid for one year but a visitor may not park for more than

three consecutive days with a visitor permit. The visitor permits are color-coded and are only valid in designated neighborhoods. Other communities, including Arlington and Alexandria, have adopted a more restrictive policy for accommodating visitors. On a daily basis, residents may acquire visitor permits which are valid only for one day. This procedure allows the traffic departments in these towns to monitor the use of visitor permits. Another variation is Alexandria's guest permit, issued on an individual basis, allowing long-term guests to park up to 30 days.

Another approach for guest parking was used in Boston's experimental Beacon Hill RPPP. Several spaces on each block were reserved exclusively for nonresidents and no parking limits were established. This approach minimizes enforcement requirements but does not act to exclude commuter parkers from monopolizing the spaces all day. Proprietors of commercial establishments often request that spaces immediately adjacent to their businesses be exempted from the RPPP to provide short-term customer parking. Installing meters or establishing hourly limits near commercial activities to prohibit long-term parking can solve this problem.

Visitor parking includes many different situations that need to be taken into account:

These include, but are not limited to:

- Day or evening parking by friends and relatives
- Short-term or extended parking by repairmen
- Extended parking by nurses, babysitters and other such individuals

This diversity has made it difficult for jurisdictions to adopt rigid rules regarding such parking. A number of jurisdictions have found it useful to encourage residents to discuss their "special visitor parking problems" with the applicable enforcement agency as a means of resolving them on an informal, case-by-case basis.

A visitor parking permit from Washington, D.C., is shown in Exhibit 15.

RPPP Enforcement Program

RPPPs are typically introduced with a high level of enforcement and publicity. After an initial period of rigorous ticketing, many communities have reduced their level of enforcement without a serious recurrence of over parking. In smaller RPPP districts, police will often respond to neighbors' complaints rather than perform regular patrols. The appropriate level of enforcement depends largely upon:

- Characteristics of the nonresidential parking generator
- Availability of alternative parking or transit
- Severity of the fine for violation
- Characteristics of the nonresident parkers

EXHIBIT 15

VISITOR PARKING PERMIT FOR WASHINGTON, D.C.

DISTRICT OF COLUMBIA

VISITOR PARKING PERMIT

1

PERMIT NO. _____

VISITOR'S TAG No. _____

RESIDENTIAL PARKING AREA

EXPIRATION DATE _____

THIS PERMIT ISSUED BY _____

OF THE _____ DISTRICT

(DISPLAY IN LOWER LEFT WINDSHIELD)

J-62980

If commuters with relatively fixed destinations (i.e., their workplace) consistently incur stiff fines for illegal RPPP parking, they will seek alternative solutions to their long-run transportation needs. Students, on the other hand, are more transient and consequently an "education period" each year is probably in order to acquaint newcomers with the jurisdiction's intent to enforce the RPPP.

The fine for parking illegally in an RPPP can be a significant deterrent to such parking. Exhibit 9 shows that such fines typically range between $5 and $15. If nonresident parking continues to be a problem after the RPPP is implemented, it may be necessary to increase enforcement and the fines for illegal parking.

Implementation Costs

Implementation costs are a major share of the total expenditures associated with residential parking permit programs.

Implementation costs for RPPPs depend upon the scale of the program and the administrative procedures adopted to implement it. San Francisco allocated $65,000 in its last budget to cover the costs of one full-time staff engineer, one part-time supervising engineer, and two technicians assigned to the resident parking permit program. Material costs were about $65 per sign (installed) plus printing costs for registration materials and permits. San Francisco has three relatively large RPPP districts already operating and plans to implement 15 to 20 additional districts in the next few years. Alexandria, Virginia, on the other hand, implemented a much smaller RPPP (total of about 55 blockfaces in two districts) for about $13,000. These start-up costs included signing, registration materials, permits, etc., and a part-time administrative assistant to distribute the permits. Implementing a 70 blockface RPPP in Montgomery County, Maryland, cost approximately $4,000 for personnel and $2,955 for sign fabrication and installation.

As shown in Exhibit 9, permit fees typically range from $5 to $10 per year. Most communities set their RPPP sticker fees to cover the costs of administering the program.

Implementation Schedule

Attention should be paid to allowing adequate time to:

- Advise the public of the RPPP
- Develop, print, and distribute forms, applications, and other materials
- Secure approval for staff positions (if applicable), and recruit and train staff
- Design, acquire, and install signs and other materials
- Finalize any interagency problems associated with the RPPP

Operating and Enforcing the RPPP

The types of start-up problems that could occur include the need to:

- Hire additional staff to enforce the RPPP
- Revise the level of enforcement to reflect compliance with the RPPP regulations
- Revise administrative procedures to improve one or more elements of the RPPP (e.g., visitor permitting procedures)
- Expand the boundaries of the RPPP to reflect changes in commuter parking patterns
- Expand and improve the public information program to familiarize citizens with RPPP regulations

It is essential that one staff member have the clear responsibility for overseeing the operation of the program and, as appropriate, resolving day-to-day management problems. The duties of this individual and supporting staff would include:

- Directing and/or coordinating all functions in the RPPP
- Managing the financial condition fo the program
- Overseeing the enforcement and the continuing marketing of the program
- Evaluating the performance of and making necessary refinements to the program

The monitoring of the enforcement operations, resident complaints, and the program's effectiveness in removing nonresident parking from the affected geographic area is particularly important. Frequently, day-to-day management pressures and limited staff resources restrict periodic monitoring of an RPPP. Although a "large-scale" evaluation program is not warranted or feasible, staff should be assigned to make periodic occupancy checks, and review parking citations, revenues and costs, and citizen complaints to insure that the RPPP is meeting its objectives.

Impacts

Without exception, communities that have implemented RPPPs feel that the parking problems they hoped to correct were substantially or completely resolved. Usage studies conducted before and after the implementation of RPPPs in Washington, D.C., and San Francisco suggest how well these problems have been resolved.

In San Francisco, the Division of Traffic Engineering conducted before and after parking surveys of RPPP Area A in the fall of 1976. The before survey disclosed that for the 4,191 legal on-street parking spaces there were 4,320 vehicles parked at 1 p.m. (for an occupancy rate of 103 percent). Fifty-two percent of all parking was commuter vehicles. In October 1978 (after the RPPP was implemented), another survey was conducted which recorded overall occupancy at 94 percent with 35 percent of the vehicles lacking resident stickers (two-hour nonresident parking is permitted in Area A). A postcard survey of residents conducted at the same time indicated that 74 percent of the respondents favored continuation of the program (based upon a 29 percent return).

The Washington, D.C., DOT conducted before and after surveys for the two permit areas of Friendship Heights and Georgetown. The results are displayed in Exhibit 16. Occupancy fell dramatically in both areas. An important benefit in the Georgetown area was the decrease in illegally parked vehicles.

When RPPPs are implemented, displaced on-street parkers are likely to impact other components of the parking or transit systems. In situations where off-street parking existed but was not being used due to the costs, some displaced on-street parkers are likely to start using the off-street facility. Displaced parkers may also start using other residential areas not covered by the RPPP or adopt alternative transportation modes (carpools, transit, taxis, etc.).

Secondary impacts on transit systems may take two forms. One potential impact may be an increase in ridership as commuters and other tripmakers leave their autos at home. This has important implications for transit systems whose peak hour capacity is already being used to its maximum and additional peak hour commuters will create major incremental costs or service degradation. Alternatively, transit ridership may decline in certain corridors where RPPPs are implemented as commuters who previously parked and rode are unable to find suitable substitutes for the feeder function their cars provided.

ON-STREET CARPOOL AND VANPOOL PARKING

A relatively new and potentially inexpensive parking management tactic to encourage carpooling and vanpooling is to reserve on-street metered parking in high employment areas for such vehicles. Basically, these programs allow participants to park all day at specific downtown metered locations for a small monthly fee.

Planning On-Street HOV Parking

The planning of on-street parking for HOVs should typically include:

- Assessing the feasibility of using on-street parking supply for HOV parkign
- Designating an agency to be responsible for such a program

EXHIBIT 16

RESIDENTIAL PARKING PERMIT IMPACTS

AREA	STUDY DATE	D.C. VEHICLES	OTHER VEHICLES	VACANT SPACES	LEGAL SPACES	PERCENT OCCUPANCY
• Friendship Heights	9/75	427	713	203	1188	96%
	4/77	231	270	687	1188	42%
• Georgetown	1/76	1612	2077	–292	3397	109%
	10/78	1412	1197	259	2859*	91%

*Different Restictions Accounted For The Reduction Of Legal Spaces.

Source: D.C. DOT

Feasibility Assessment

Most urban areas have a program to promote carpooling and vanpooling. The cities of Portland and Seattle have implemented new programs to encourage high-occupancy vehicle travel by providing reserved on-street parking for such vehicles near their central business districts. In both of these areas, there was strong support for HOV programs, and it was not necessary to undertake large-scale modeling or data collection efforts to demonstrate the desirability of such a tactic. This is likely to be the case in other urban areas.

Prior to implementation it will be necessary to assess the availability of on-street parking that is suitable for such a program and to determine if there are any negative impacts of such a tactic.

On-street parking for HOVs generally would not be provided throughout the CBD or its periphery. As illustrated in Exhibit 17 for Portland, on-street parking for HOVs should be limited to three types of areas:

- Streets where there currently is low parking utilization and low traffic volumes during peak travel periods
- Areas outside residential and highly patronized commercial areas
- Areas where there would not be serious neighborhood, environmental, and economic impacts

The major incentive encouraging carpooling is to provide inexpensive parking relative to that available elsewhere in the downtown. Generally, the parking locations for HOVs would not be located in "prime" parking areas. For example, in both Portland and Seattle, HOV parking is provided in less developed sections of their downtowns. In both areas, considerable care was taken to designate a limited number of spaces for HOVs that would not cause parking problems in the designated areas.

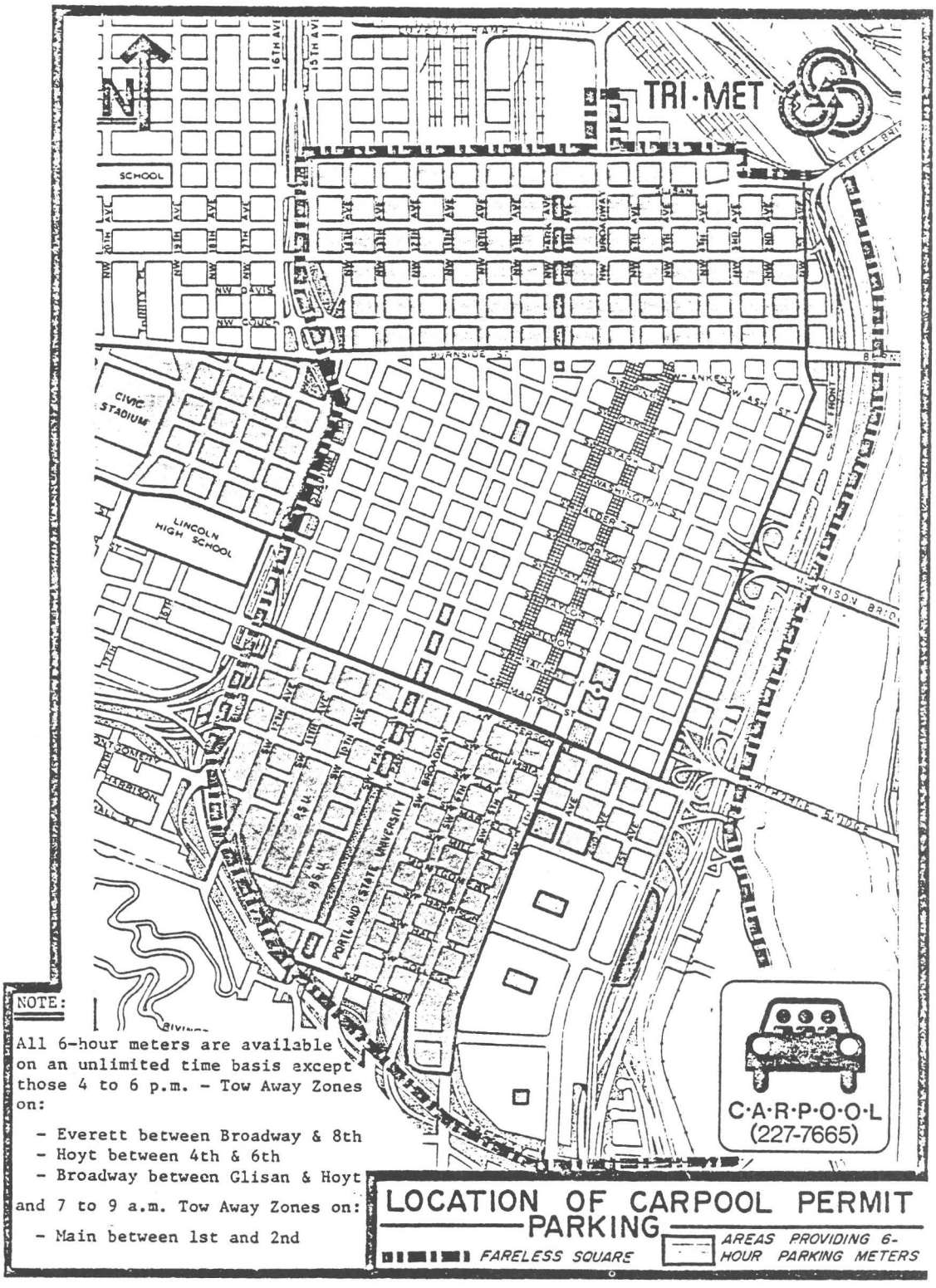
Jurisdictions considering implementing such tactics should conduct peak parking accumulation surveys and a parking inventory of potential parking to estimate the number of spaces that are available for HOVs without causing undesirable impacts. It is also highly desirable to meet with businesses, residents, and others potentially affected by such a program.

Designation of a Responsible Agency

In both Portland and Seattle, the city traffic engineering departments and the agencies responsible for the regions' carpool program were actively involved in setting up the on-street HOV parking program. The traffic engineering departments generally designated the geographic areas and number of spaces that could be used for HOV parking while the carpool agencies generally were responsible for implementing and operating the program.

EXHIBIT 17

LOCATION OF ON-STREET CARPOOL PARKING IN PORTLAND



The involvement of the applicable carpool agency is highly desirable as it can readily match carpoolers with available spaces.

Implementing and Operating On-Street HOV Parking

The implementation and operation of an on-street HOV parking tactic will require the development of:

- Rules for operating the program and selling permits
- An enforcement program
- Staffing and financial plans for implementing and operating the program

Program Operation

Portland and Seattle provide useful guides for operating such programs. Exhibit 18 summarizes the major characteristics of these on-street parking programs for HOVs.

The Portland program consists of 2,615 six-hour on-street metered parking spaces designated by the Bureau of Traffic Engineering. Tri-Met, the region's transit and carpool agency, is authorized to sell a maximum of 500 carpool permits each month. This number was based on parking usage studies performed in the affected areas.

Carpools which display the carpool parking permit from the rearview mirror are allowed to park at any of the above meters on an unlimited basis on Monday through Saturday. They do not have to pay the meter. Any existing parking restriction must be observed (i.e., no parking, 4 to 6 p.m., tow-away zone, etc.). The monthly fee is $15 per carpool. The permit is a license to hunt for a space. A parking space is not guaranteed.

To qualify for the program, an application (Exhibit 19) along with the $15 monthly fee is submitted to Tri-Met's CARPOOL project. The project staff verifies by telephone: (1) the applicant's place of employment, (2) the existence of a carpool of three or more people, and (3) the accuracy of the other information on the application. The carpool is then given a certified carpool number and the permit is mailed. Only one permit is issued per carpool. The permit is transferable between cars within the pool. Exhibit 20 presents the carpool parking rules. Notice that rule number 7 prohibits the use of vehicles not designed to carry three or more persons. After a carpool has been certified and received the first monthly permit, the permits are renewable during the last two weeks of the month. To renew the permit, the carpool completes and returns the renewal form which was provided with the last permit with the $15 fee to the CARPOOL project office.

The Seattle program currently involves 164 metered on-street spaces mainly located at the south end of the downtown. These spaces are reversed

EXHIBIT 18

CHARACTERISTICS OF ON-STREET CARPOOL PARKING PROGRAMS

CITY	PARKING MANAGEMENT TACTIC	RESPONSIBLE AGENCY	LOCATION	OPERATING CHARACTERISTICS	COMPLIANCE
PORTLAND	Reserved On-Street Carpool Spaces	Tri-Met and Bureau of Traffic Engineering	CBD	• 2,615 Existing 6-Hour Parking Meters • Carpool with Permit Are Able to Park at These Meters for an Unlimited Time Basis. • 3 or More Persons Per Carpool • Permit Is a License to Hunt. The Space Is Not Guaranteed.	10% of These Carpools Are Audited Each Month
SEATTLE	Reserved On-Street Carpool Spaces	Commuter Pool	CBD	• 124 On-Street Metered Spaces Reserved From 7-9 AM For Carpools • 3 or More Persons for Carpool • Permit Costs $5/Month • Permit is License to Hunt. The Space Is Not Guaranteed	• Carpools Are Certified. • Parking Patrol Checks For Valid Permits.

EXHIBIT 19

APPLICATION FOR ON-STREET CARPOOL PARKING PERMIT

C·A·R·P·O·O·L
(227-7665)

(FOR OFFICE USE ONLY)

DATE RECEIVED_____

CARPOOL NUMBER_____

ASSIGNED PERMIT NUMBER_____
(month) (No.)

APPLICATION FOR CARPOOL PARKING PERMIT

Instructions: Complete in full and sign this application. Return it to Tri-Met's CARPOOL Project, 520 S. W. Yamhill Street, Portland, Oregon, 97204, together in one envelope with the other completed, signed applications of your carpool, and your Carpool's monthly parking fee of $15.00. Please do not send cash. Make checks or money orders payable to the City of Portland. Remember, the $15.00 monthly fee is per Carpool, not per person.

I. NAME:_____
(first) (m.i.) (last)

II. HOME ADDRESS:_____
(number) (street) (city) (zip)

III. EMPLOYMENT DATA:

1. Employee of:_____

2. Work Address:_____
(number) (street) (city) (zip)

_____
(room number) (building) (mail stop or dept.)

3. Work or Contact Phone:_____ Extension:_____

4. Start Work ___:___ ___a.m. ___p.m. Stop Work ___:___ ___a.m. ___p.m.

5. How long have you been carpooling?

☐ Just Started ☐ 1 - 6 Months ☐ 6 Mo. to 1 Year
☐ 1 - 2 Years ☐ More Than 2 Years

IV. LICENSE NUMBER(S) (for each car you personally may drive in your carpool)

_____ _____
_____ _____
_____ _____
_____ _____

V. NAMES OF OTHER CARPOOLERS IN YOUR CARPOOL:

_____
_____
_____
_____
_____

VI. NAME OF CONTACT PERSON FOR THIS CARPOOL:_____

CERTIFICATION: I certify that I am a member of a carpool, or will be upon receipt of a carpool parking permit, with the individuals indicated above, and that I commute to and from work with them on a regular basis (at least 4 days each week). I agree to use the carpool permit only for the purposes for which it is issued. Should any change(s) occur in my participation in the carpool, I agree to promptly notify the Tri-Met's CARPOOL office of said change(s). I realize that should any of the information contained herein, specifically relating to the carpool of which I am a member, be found to be untrue, the carpool's special parking privileges will be revoked and fees forfeited.

SIGNATURE:_____

DATE:_____

Rev. 7/29/77

EXHIBIT 20

RULES FOR ON-STREET CARPOOL PARKING PROGRAM IN PORTLAND

CARPOOL PARKING RULES

Enclosed is the parking permit for your carpool. Please have all your carpool members read the following instructions.

1. Only one permit will be issued per carpool. The permit must be hung from the rearview mirror and readable from outside the car. Without this permit, regular meter rates and limits are applicable to your car.

2. Remove the permit from the mirror when driving to prevent obstruction of vision of the driver.

3. Park in any curbside 6-hour meter in downtown Portland for an unlimited time, Monday through Saturday. Your permit is not valid in any meter of shorter term.

4. Carpoolers must observe any restriction applying to the meter (other than total parking time) such as "No Parking 4-6 p.m. - Tow Away Zone".

5. No reserved places will be assigned; park as near your work as you can find a meter. Attached is a map showing the general location of 6-hour meters in downtown Portland. Free bus service is available in Fareless Square.

6. If any changes occur in your participation in this car-pool, including changes in carpool members, addresses, phone numbers, employers, etc. notify Tri-Met's CARPOOL Project, 520 S. W. Yamhill Street, Portland, Oregon, 97204, or call 227-7665, C-A-R-P-O-O-L.

7. Vehicles not designed to carry 3 or more people are not eligible for use in this program.

for vehicles with valid carpool permits between 7 and 9 a.m. The carpool does not pay the meter. Any spaces which are empty after 9 a.m. can be used by a vehicle which pays the meter. More parking permits are sold than spaces, so there is no guarantee that parking will be available. The monthly fee is $5 which is paid quarterly, compared to the average downtown parking cost of $39/month.

To qualify for the program, a carpool must consist of three or more people. Each member of the pool completes the application shown in Exhibit 21. The Commuter Pool staff reviews the application and determines if the pool has logical origins and destinations. The certified carpool is mailed one permit which is transferable between the various vehicles used by the pool. The rules and regulations governing the Seattle program are shown in Appendix C.

Enforcement Program

In Portland, a minimum of 10 percent of all renewed carpools are reviewed and reverified each month by the Tri-Met CARPOOL project staff. Each member of the carpool is contacted and asked if they are still in the carpool. If a carpool no longer meets the criteria for the program, a new permit is not issued. The project staff estimates that five out of 100 permit holders are in volation of program rules.

The City of Portland Parking Patrol enforces the use of the permits at all six-hour meters. Any vehicle at an expired meter which does not display a current permit is ticketed.

In Seattle, a work-study student employed by Commuter Pool makes random checks of carpools to see if they still qualify for the program. Occasionally, the staff observes carpools arriving at the spaces and challenges by phone obvious violators. Violators can be fined, have their vehicles impounded, and/or lose their permit. The Parking Patrol checks for valid permits as part of their regular rounds.

Program Costs

Exhibit 22 presents a detailed breakdown of the costs and revenues for the on-street carpool program in Portland. For its first six months of operation the program produced $13,000 in revenues while implementation and operating costs were approximately $7,500. It should be noted that enforcement revenues and costs are not included in Exhibit 21.

The Portland situation shows that the staffing and costs of such a program are relatively low. The administration of the on-street HOV parking program can be readily integrated into the operation of regional carpool and vanpool programs.

Impacts

Both Portland and Seattle have conducted evaluations of their programs.

EXHIBIT 21

APPLICATION FOR ON-STREET CARPOOL PARKING PERMIT IN SEATTLE

COMMUTER POOL
SEATTLE/KING COUNTY
COMMUTER POOL
Arctic Building, Room 600
704 Third Avenue
Seattle, Washington 98104
625-4500

Application for Carpool Parking

PERMIT NO. _____

1 Your Carpool must consist of 3 or more people.
2 Have each member complete and sign an application form.
3. Carpools are charged $5 a month, paid quarterly.
4. Return completed applications together to:
COMMUTER POOL, Arctic Building, Room 600, 704 Third Avenue, Seattle, WA 98104

Name _____
First Middle Initial Last

Home Address _____
Number Street City Zip

Place of Work _____

Work Address _____
Number Street City Zip

_____
Building if Applicable

Work or Contact Phone _____ Extension _____

Arrive at Work: _____ ☐ AM ☐ PM Leave Work: _____ ☐ AM ☐ PM

How long have you been carpooling? ☐ Just Started ☐ 1 to 6 Months ☐ 6 Months to 1 Yr.
☐ 1 to 2 Years ☐ More than 2 Years

License Number(s) — For each car titled to you:

_____ _____ _____ _____

Names of other carpoolers in your Carpool _____

_____

When you ride, are you dropped off before entering the lot? ☐ Yes ☐ No

APPLICABLE PARKING & TRAFFIC RULES AND REGULATIONS:
1 The Motor Vehicle and other traffic laws of the State of Washington.
2 The Traffic Code of the City of Seattle.
3 Commuter Pool Carpooling Rules.

CERTIFICATION: I certify that I am a member of a carpool, or will be upon receipt of a carpool parking permit, with the individuals indicated above and that I commute to and from work with them on a regular basis (at least 4 days each week). I agree to use the permit only for the purposes for which it is issued. Should any change(s) occur in my participation in the carpool, I agree to promptly notify the Commuter Pool office of said change(s). I have read and agree to abide by the Safety, Parking and Traffic Rules and Regulations printed or referenced herein as promulgated by the City of Seattle with the understanding that violations on my part may result in the cancellation of the permit. I realize that should any of the information contained herein, specifically relating to the carpool of which I am a member, be found to be untrue, the carpool's special parking privileges will be revoked.

SIGNATURE _____ DATE _____

EXHIBIT 22

(SEPTEMBER, 1977 - FEBRUARY, 1978)
DOWNTOWN PORTLAND CARPOOL PARKING PERMIT PROGRAM BUDGET

Labor		
Staff for Promotion and Program Maintenance		
15 days x 8 hrs. x $7.50 = $ 900.00		
8 hours/mo. x 6 x $7.50 = $ 360.00		
40 hours x $3.00 = $ 120.00		$1,380.00
Application Processing		
20 mins./application x 182 permits @ $7.00/hr. = $ 424.66 x 6 months		$2,547.97*
Applicant verification		
2 hours @ $5.00 x 6 months		$ 60.00
Evaluation		
15 days x 8 hours x $7.00		$ 840.00
	Total Labor	$4,827.97
Materials and Supplies		
Posters		$ 470.00
CARPOOL Stickers for meters		28.00
2 mailings to CARPOOLers in CARPOOL system		182.00
Mailing to Downtown Employers		130.00
Postage for 6 months		58.50
CARPOOL Parking Permits for 6 months		
Design, lay-out, & printing		1,524.00
Paper Supplies		150.00
Rubber Stamps		25.00
Surveys & Data Processing		43.75
Survey postage		125.45
	Total materials & Supplies	$2,736.70
	Total Program Cost	$7,564.67

* Reflects average of renewals and new applicant processing.

EXHIBIT 22 (Continued)

BUDGET (Continued)

Monthly Cost to Operate Program as of February, 1, 1978

Program Maintenance	
8 hours x $7.50	$ 60.00
Application Processing	
20 min./application x 182 permits @ $7.00	$ 424.66
Applicant verification	
2 hours @ $5.00	$ 10.00
Paper Supplies - application, renewals, etc.	$ 5.75
Postage	9.75
Permits	274.00
Total Monthly Cost	$ 784.16

Revenue from Parking Permits at 6-hour Meters

	# Permits	Revenue
September	105	$ 1,575.00
October	132	1,980.00
November	143	2,115.00
December	145	2,160.00
January	166	2,490.00
February	180	2,700.00
	871**	$13,020.00

** Reflects 3 permits issued and voided.

Source: "Six Month Evaluation, Downtown CARPOOL Parking Permit Program", prepared by Tri-Met Marketing Department, May, 1978.

In Portland, as of February 1, 1979, 288 carpools were in the program for a total of 948 people. The average auto occupancy is 3.3 persons per vehicle. Of the total carpools, 61 percent were formed as a result of this program.

A survey of participants in the program was conducted during the early part of 1978. The survey results indicated the following:

- 58 percent were new carpoolers
- 29 percent formerly drove with fewer than three people, 29 percent were former bus riders, and 40 percent were in three-person carpools
- 57 percent indicated that economics was the main reason given for forming a carpool
- 54 percent of the participants formerly parked in a lot or a garage
- 31 percent were paying between $20 and $29 per month for parking
- 57 percent work within three blocks of where they park
- 13 percent use the bus services in Fareless Square
- 54 percent of the carpoolers commute between five and 15 miles

In Seattle, there were 193 carpools certified for use of the 164 spaces. This involved 613 people for an average auto occupancy of 3.18. There is a waiting list for permits in Seattle.

V. OFF-STREET PARKING SUPPLY TACTICS IN ACTIVITY CENTERS

The types of tactics of particular interest in this section are:

- Changes in zoning requirements for parking (e.g., minimum space requirements, maximum space requirements, joint use of parking)
- Constraints on the growth in parking supply (e.g., ceilings on supply, reductions in parking requirements through HOV and transit incentives, restrictions on principal use parking facilities)
- Preferential parking for HOVs, handicapped, and small vehicles in off-street parking facilities

These tactics are emphasized as they are the subject of considerable interest among local governments and relatively little information is available on such tactics.

Many of the above off-street supply tactics differ from those in other sections of this report in one important respect. The private sector typically builds, owns, and operates most of the off-street parking facilities in activity centers (e.g., CBDs, office parks), although some jurisdictions are notable exceptions to this. Consequently, the role of government agencies in providing such parking is predominantly one of developing and applying rules and standards regulating the amount, location, and type (e.g., lot, garage) of parking and amenities and facilities to be provided to protect public health and welfare (e.g., lighting, ventilation, fire protection).

PLANNING AND IMPLEMENTING OFF-STREET SUPPLY TACTICS

Section III of the guide discusses the key steps that should be performed in planning parking management tactics. This subsection focuses on several issues that pertain directly to planning off-street supply tactics in activity centers.

Assessment of Existing Parking System

Some of the off-street supply tactics, particularly those involving parking ceilings or freezes or major changes in zoning requirements, may generate considerable controversy. There is limited experience with such tactics, and it is difficult to accurately predict the economic, development, environmental, and transportation impacts of such tactics.

There is concern in most communities as to how changes in parking policies will affect the economic viability and the development potential of activity centers such as the CBD or major office and retail areas outside the CBD. The viability of such centers is important to the tax base of a community

and, therefore, proposed government policies affecting such activity centers should be carefully and objectively analyzed. Consequently, it is important to comprehensively, even if qualitatively, analyze and evaluate such tactics and to address important issues raised by affected interests.

In many jurisdictions in which zoning and supply constraint tactics have been implemented, there was broad based community sentiment to reduce traffic congestion, improve transit ridership, reduce air pollution and other undesirable environmental impacts, and promote an economically and culturally strong downtown.

A basic step that should be taken in evaluating changes in off-street parking policies (e.g., zoning changes, freezes) is determining the characteristics and adequacy of the existing parking system and the likely characteristics and adequacy of the future system under current parking policies. This should include compiling accurate information on the existing supply, location, type (e.g., ownership), usage, and prices of parking within activity centers. Specific types of data of interest and sources of such information are shown in Exhibit 23. This data should be used to identify existing parking problems such as inadequate short or long term parking supply or an oversupply of parking.

Such information is necessary to (1) demonstrate an understanding of the parking system and (2) provide a basis for assessing the impacts of changes in off-street parking policies on the activity center.

Many jurisdictions do not have current data on the characteristics and usage of parking facilities in and adjacent to activity centers. The collection of such information can become costly if a large number of facilities must be analyzed and, particularly, if parking usage surveys are to be conducted. Although such data is important, it may only be feasible to collect limited supply and usage information for the entire activity center or a sample of subareas because of budget and staff limitations.

If a ceiling or freeze on parking supply is being contemplated, it is essential to accurately determine the existing total number of parking spaces. Depending upon the characteristics of such tactics, it may be necessary to develop the inventory by geographic area, ownership, and facility use (e.g., commuter parking, shopper parking).

Existing parking policies should also be reviewed in terms of their long-range implications. For example, future parking demand should be estimated based on land use and employment projections, planned highway and transit improvements, and other factors (e.g., price of gasoline, transit fares). This information is available from the urban transportation planning agency in each urban area. The parking demand forecasts should be compared with existing and future parking supply to identify potential parking problems and requirements. In some jurisdictions this information is available from activity center parking studies.

EXHIBIT 23

POTENTIAL SOURCES OF DATA FOR PLANNING OFF-STREET PARKING MANAGEMENT TACTICS

Applicable Data for Problem Assessment	Potential Sources of Data
1. Parking Inventory	
– Number of Spaces by Type	Parking Inventory;
– Location of Spaces	Record of Local DOT, Parking Authority, or Planning Department
– Applicable Parking Rates	
– Restrictions and Use of Facility	
– Hours of Operation	
– Ownership	
2. Parking Usage Data	
– Maximum Parking Accumulation	Usage Survey; Records of Local DOT or Parking Authority
– Number of Parkers by Parking Duration	
– Parking Turnover	
– Trip Purpose, Residence, Number of Occupants and Destination of Parker	Parker Survey; Records of Local DOT or Parking Authority
3. Existing and Projected Land Use, Employment and Economic Data	Local and Regional Planning Agencies, Chambers of Commerce; Universities
4. Existing and Projected Travel by Mode, Purpose, etc.	Local, Regional, and State Transportation Planning Agencies; Transit Operators
5. Existing and Projected Transportation System Characteristics	Local, Regional and State Transportation Planning Agencies, Transit Operator, and Parking Authority

The findings of such an assessment should be documented for use in subsequent stages of the planning and implementation process.

Selection of Tactics

Based on the results of the problem assessment described above, planners should be in a position to identify changes to existing off-street supply programs or new tactics to promote activity center development and economic objectives. Exhibit 24 shows the applicability of selected off-street supply tactics to alleviate activity center problems.

The advantages and disadvantages of selected off-street parking supply tactics are described below.

Minimum and Maximum Parking Requirements

Most communities have zoning codes which specify the number of parking spaces to be provided per unit (e.g., 1,000 square feet of development, dwelling unit) and type (e.g., office, retail, hotel, industrial) of development. Some communities specify the minimum number of spaces required while others specify the maximum number per unit of development. The use of minimums or maximums is important from the perspective of controlling off-street parking supply. If a community wishes to constrain supply, it can set maximum (i.e., "build no more than") parking requirements at a "low" level which achieves this objective. Alternatively, if inadequate parking supply is available for certain uses (e.g., retail), minimum (i.e., "build at least") parking space requirements can be set at a "high" level to promote additional supply.

Aside from specifying parking requirements in terms of minimums and maximums, many jurisdictions should review their parking space zoning requirements in light of public transit, carpool/vanpool, and other transportation programs designated to increase modal split and vehicle occupancies particularly for work trips. Zoning requirements can be set to restrict parking supply, which will likely increase the price of parking. Both of these effects may encourage transit ridership, carpooling, and vanpooling. Gasoline price increases and possibly its availability also may cause reductions in parking demand over time. Changing parking requirements in a zoning code are likely to have long-range rather than short-range impacts on supply. Such impacts would occur as new development or redevelopment occurs over time.

Three cities, Portland, San Francisco, and Seattle, have combined a "no minimum parking" requirement with a low maximum allowable parking limit to restrict the growth of parking in their respective CBDs. The limits in Portland and Seattle are comparable, at one space per 1,000 sq. ft., for most areas (see Exhibit 25).

Joint Use of Parking Facilities

This tactic is intended to lessen the duplication and improve the utilization of existing and new parking facilities. Two or more nearby developments

EXHIBIT 24

APPLICABILITY OF OFF-STREET SUPPLY TACTICS TO SELECTED PROBLEMS IN MAJOR ACTIVITY CENTERS

Tactics Off-Street Parking Supply in Activity Centers	Selected Problems					
	Provide Adequate Supply of Short Term Parking	Provide Adequate Supply of Long Term Parking	Encourage Efficient Use of Existing Supply	Reduce Highway Congestion in Peak Periods	Promote Economic Development	Conserve Energy and Reduce Air Pollution
• Expand or Restrict Off-Street Supply in CBD and Activity Centers						
– Zoning Requirements						
• Minimum Requirements				X	X	X
• Maximum Requirements				X	X	X
• Joint Use			X		X	
– Constrain Normal Growth in Supply						
• Maximum Ceiling (i.e., Freeze) on CBD Spaces				X		X
• Reduced Minimum Parking Requirements Through HOV and Transit Incentives				X	X	X
• Restrict Principal Use Parking Facilities				X		X
– Construct New Lots and Garages	X					
• Change Mix of Short and Long-Term Parking	X	X	X	X	X	X
• Restrict Parking Before or During Selected Hours of the Day	X			X		X
• Preferential Parking						
– Carpool/Vanpool Parking						
– Handicapped Parking			X	X		X
– Small Vehicle Spaces						

EXHIBIT 25

CHARACTERISTICS OF SELECTED OFF-STREET PARKING MANAGEMENT TACTICS

TACTIC	JURISDICTION	AGENCY	AREA	OPERATING CHARACTERISTICS	COMPLIANCE	IMPACTS
•Expand or Restrict Supply in CBD and Activity Centers						
•Zoning Requirements						
— Maximum and No Minimum Parking Requirements	Portland, Ore.	Planning Commission	CBD	• No Minimum Required Parking • Maximum Allowed Parking For Retail or Office Development is 1 Space Per 1,000 Sq. Ft.	•Development Review Process	• This Action in Conjunction with Other Tactics Has Resulted in 1 Space Per 1350 Sq. Ft. Being Provided For New Developments.
	San Francisco	City Planning Commission	CBD	• No Minimum Required Parking. • Limits Parking to 7% of the Gross Floor Area.	•Development Review Process	• Moderate Growth in Private Off-Street Parking Has Occurred in Contrast to High Growth in Downtown Office and Retail Space.
	Seattle	Department of Buildings	CBD	• No Minimum Required Parking. • Depending On the Zone and Utilization, Maxium Allowed Parking Ranges From 1 Space Per 1,000 Sq. Ft. to 1 Space Per 2,000 Sq. Ft.	•EIS Review	• Parking Supply is Growing in Areas Further From the Retail Core and Decreasing Closer in.
— Joint Use	Los Angeles	Planning Commission	Entire City	• Would Allow Developments Within 1500 Ft. to Share Parking if Demand Patterns Do Not Conflict.	•Land Covenant •Performance Bond	• Proposed Action
	Montgomery County, Md.	Division of Parking	Suburban CBD	• Spaces Rented By Local College For Use By Students	Parking Patrol Checks For Valid Stickers	• Student Parking Impacts Have Been Reduced.
	Portland	Planning Commission	CBD	• City Has Agreed to Increase Number of Short-Term Spaces in City Garage if Developer Reduces Number of Off-Street Spaces Provided. • Code Allows Developers to Share Parking.	•Development Review Process	• Development Under Construction

EXHIBIT 25 (Continued)

TACTIC	JURISDICTION	AGENCY	AREA	OPERATING CHARACTERISTICS	COMPLIANCE	IMPACTS
• Constrain Normal Growth in Supply	Palo Alto	Department of Planning and Community Environment	Entire City	• Allows Reductions of Up to 20% For Developers Without Conflicting Demand Patterns	• Development Review Process	____
— Maximum Ceiling (i.e., Freeze) On CBD Supply	Boston	Boston Air Pollution Control Commission	CBD	• Limit On The Total Number of Allowable Commercial Spaces. Freeze Does Not Apply to Free Employee and Customer Parking	• Development Review Process	• Development Has Not Been Hindered.
	Portland	Planning Commission	CBD	• Limit On The Total Number of Allowable Parking Spaces By Sector.	• Development Review Process.	• Ceiling Has Not Been Reached. Tactic Has Encouraged Parking in Desired Sectors. Development Has Not Been Hindered.
—Reduced Minimum Parking Requirements Through HOV and Transit Incentives	Arlington, Va.	Zoning Administration	Entire County	• Developers Located Near Rail Rapid Transit Station May Provide Approximately 70% of Required Parking	• Development Review Process	• Should Reduce Commuter Parking Impacts.
	Chicago	Zoning Administration	CBD	• Required Parking is Reduced if Developer Meets Certain Conditions Concerning Transit Stations	• Development Review Process	• There are 1000 Fewer Spaces in CBD Since 1975. • A 110 Story Building (Sears Tower) Constructed with 150 Spaces.
	Los Angeles	Planning Commission	Entire City	• Parking Requirements Would Be Reduced if Developer Provides HOV and Transit Incentives • Developer Would Be Allowed to Substitute On-Site Spaces For Off-Site Park-and-Ride Spaces • Developer Would Be Able to Reduce Required Parking By 1.5 Space For Each Space Reserved For HOV's.	• Land Covenant • Development Review Process • Developer Would Contribute Monies For Park-and-Ride Facility Development and Transit Shuttle Services	• Proposed Actions
	Palo Alto	Department of Planning and Community Environment	Entire City	• Allows Up to 20% Reduction in Required Parking if Transit and HOV Incentives are Employed	• Development Review Process • Legal Agreements	• Several New Developments Have Agreed to Institute HOV Incentives
— Restrict Principal Use Parking Facilities	Chicago	Zoning Administration	CBD	• Prohibits Construction of Principal Use Parking Facilities	• Development Review Process.	• The Number of Parking Spaces Has Decreased By 1,000 Since 1975 • Number of Long-Term Parkers Has Increased
	San Francisco	Planning Commission	CBD	• New Principal Use Parking Facilities Require Conditional Use Review	Developement Review Process	____

EXHIBIT 25 (Continued)

TACTIC	JURISDICTION	AGENCY	AREA	OPERATING CHARACTERISTICS	COMPLIANCE	IMPACTS
	Seattle	Department of Buildings	CBD	• New Parking Lots are Prohibited. New Parking Structures are Prohibited in Most of CBD.	• Development Review Process	• No New Principal Use Facilities Have Been Built Since 1976. Economics is a Major Factor.
• Construct New Municipally Owned Parking Facilities						
— CBD	Baltimore	Baltimore City	CBD	• New Facilities For Tourists and Shoppers are In Capital Improvement Plan	• Not Applicable	• Facilities are Planned and Under Construction
	Montgomery County, Md.	Division of Parking	Suburban CBD's	• New Parking Structures Have Been Constructed to Meet Long-Term and Short-Term Demand.	• Not Applicable	• Employers and Shoppers are Encouraged to Work and Shop In These Suburban CBD s.
	Portland, Ore.	Downtown Development Commission	Retail Core of CBD	• Recently Completed 492 Space Garage with a 752 Space Garage Under Construction. Designed For Short-Term Use Only • 60 ¢ Per Hour, Merchant Stamp Program	• Not Applicable	• Merchants Pleased By Increased Supply of Short-Term Parking.
— Neighborhood Shopping Districts	Los Angeles	City DOT	Various Neighbor-hoods	• Over 7000 Spaces In Over 100 Facilities Have Been Provided.	• Not Applicable	• Program Has Increased Attractiveness of Shopping Districts
	San Francisco	Parking Authority	Various Neighbor-hoods	• Began Program to Increase The Number of Available Short-Term Spaces	• Not Applicable	• Merchants are Supportive. Made Less Impact On Surrounding Neighborhoods.
Carpool/Vanpool Preferential Parking	Alexandria, Va.	Alexandria	CBD	• Reserves Spaces For City Employee Carpools of 3 or More Persons • City Vehicles are Also Available to Carpools	• Applications are Cross Checked.	• 15 Pools in Program
	Los Angeles	City of Los Angeles	At City Facilities	• Free Reserved Spaces Are Proposed for City Employees	——	• Proposed Action
	Montgomery County, Md.	Division of Parking	Suburban CBD's	• 55 Spaces are Reserved For Carpools of 3 or More. Cost is $16 Per Month Versus Normal Fee of $24 Per Month.	• Vehicles Must Arrive with 3 or More Occupants	• There are 48 Pools in the Program.

EXHIBIT 25 (Continued)

TACTIC	JURISDICTION	AGENCY	AREA	OPERATING CHARACTERISTICS	COMPLIANCE	IMPACTS
	San Francisco	California DOT	Fringe of CBD	• 40% of Under Freeway Lots are Reserved For Vanpools. • Fee is $10 Per Month Versus Normal Fee of $60 Per Month	• Vanpools are Certified	• Program is Just Beginning.
	Seattle	Commuter Pool	CBD and Fringe of CBD	• 219 Spaces Under a Freeway are Reserved For 3 + Carpools at $5 Per Month. • 1,000 Spaces in Stadium Lot are Available to Poolers of 3+ For Free	• Carpools Must Be Certified and are Audited.	• Freeway Lot is Full. • Stadium Lot Has Low Utilization • 40% of Carpoolers Formerly Used Transit

would be able to meet local zoning requirements by constructing fewer total parking spaces (probably in a single facility) than would normally be required if each development were treated separately. Several conditions typically must be met for this tactic to be feasible:

- The proposed joint parking facility should be in close proximity (e.g., within 1,500 feet) of each participating development.
- The time periods during which each development would use the parking faciity should not overlap or be in conflict.
- There should be a legally enforceable agreement between each participating developer to ensure that the parking facility is built and operated in accordance with local zoning requirements.

For example, a joint-use parking facility may be feasible in settings where theaters or sports arenas, which attract evening and weekend travel, are built near an office development that experiences its peak parking demands on weekdays between 8 a.m. and 6 p.m. The key element of this example is that the temporal distribution of parking demand for these developments would not overlap, and consequently, the parking supply in the joint-use facility could serve both developments. This would eliminate the need for duplicating parking supply.

This tactic provides an incentive to developers to reduce their costs associated with meeting municipal parking requirements while allowing the development of more revenue-producing space in their projects. Duplicative parking can eliminate spaces which serve travelers with different temporal parking patterns (e.g., daily work-trip parkers vs. evening theater, or sports parking). The land freed by such a tactic can be developed for employment and revenue-producing purposes which benefit citizens and municipalities. Further, the tactic might encourage multipurpose projects, increasing activities during the evening hours in downtown areas that are oriented to office buildings.

This tactic has limitations. There are relatively few instances where no conflicts exist in the hours of parking for two or more developments. The developments must be in close proximity; otherwise the long walking distance to one or both developments may inconvenience parkers. The enforcement of the joint use agreement through a land covenant or a performance bond may discourage the execution of such an agreement. This tactic can be implemented through a revision of the zoning code. However, in order for it to be effective, considerable care must be exercised in defining the criteria where joint use will be permitted and in specifying the legal and financial mechanisms to be followed by developers to enforce the agreement over time. If either or both of these items are perceived by developers and others as being too rigid, it may undermine the use of this tactic.

Ceiling and Freeze on Parking Supply

Ceilings and freezes are major actions taken to control parking supply. A ceiling sets an upper limit on the parking supply within a geographic area. The supply ceiling could be equal to or larger than the existing parking supply. Conversely, a parking freeze would limit the future parking supply in a geographic area to the number of spaces available for use at the time the freeze is put into effect.

There are several significant factors that must be considered in planning and implementing a ceiling or a freeze on parking:

- Types of parking to be covered
- Geographic area to be affected
- Provisions for reviewing and approving proposed parking facilities
- Provisions for "banking" parking supply which is converted to other uses.

Experience with parking freezes and ceilings is very limited. The importance of the above considerations is illustrated below using experiences from Boston and Portland.

In Boston the parking freeze stipulates that the supply of off-street commercial spaces may not exceed the level which existed as of October 1973. There are 400 off-street parking facilities in Boston with a total of 54,452 spaces. Of these, 35,503 are defined as general purpose commercial off-street, and this has been certified as the 1973 freeze level. As long as the number of off-street, commercial spaces equal the freeze number, no additional parking of this nature may be built. To permit the construction of new spaces under the freeze, old spaces must be eliminated on a one-for-one basis. Boston operating agencies refer to the freeze system as the freeze "bank" and the number of spaces which may be potentially developed as the "balance." Only commercial parking spaces and legal on-street spaces which have been physically eliminated are counted as replaceable with new construction. Administrative regulations to remove parking spaces (e.g., parking bans) are not counted as eliminations.

Construction or modification of commercial parking facilities may not commence without a Parking Freeze Permit. A commercial parking space is defined as any off-street parking space which is available for use by the general public for a fee at any time of the day. Excluded from this restriction are parking spaces limited exclusively to residents or users of residential buildings (e.g., hotels); private, free parking; and parking on public streets. Permits will be granted if the applicant can satisfy the following criteria:

- o Spaces in parking bank are available

- It will not add commercial off-street parking in an area which is already adequately served by existing parking facilities
- It will not contribute significantly to traffic flows during peak traffic periods
- It is located and designed so that the surrounding sidewalks and streets are sufficient to accommodate pedestrians and vehicular movements
- It has satisfactory access to the major highways serving the area
- It directly serves development in the surrounding area
- Its design, including height, bulk, ground floor use, and landscaping, is in accordance and consistent with architectural and land use patterns in the surrounding area and is itself esthetically pleasing

The Portland parking ceiling was adopted by the City Council in February 1975, as part of the downtown Parking and Circulation Policy and was included in the State Implementation Plan by the Oregon DEQ. The Portland Bureau of Planning was designated to plan and coordinate downtown parking, to administer this policy on parking and circulation, and to process all applications for new parking spaces.

The total number of parking spaces (on-street and off-street) available for use in the downtown is not permitted to exceed 38,870. This number was established by a parking survey in 1973 as the number of existing and committed spaces. The boundaries of the area are shown in Exhibit 26. The two lettered areas, A and B, are redevelopment zones which are not included under the ceiling. New parking spaces for residential and hotel uses are exempt from this limit.

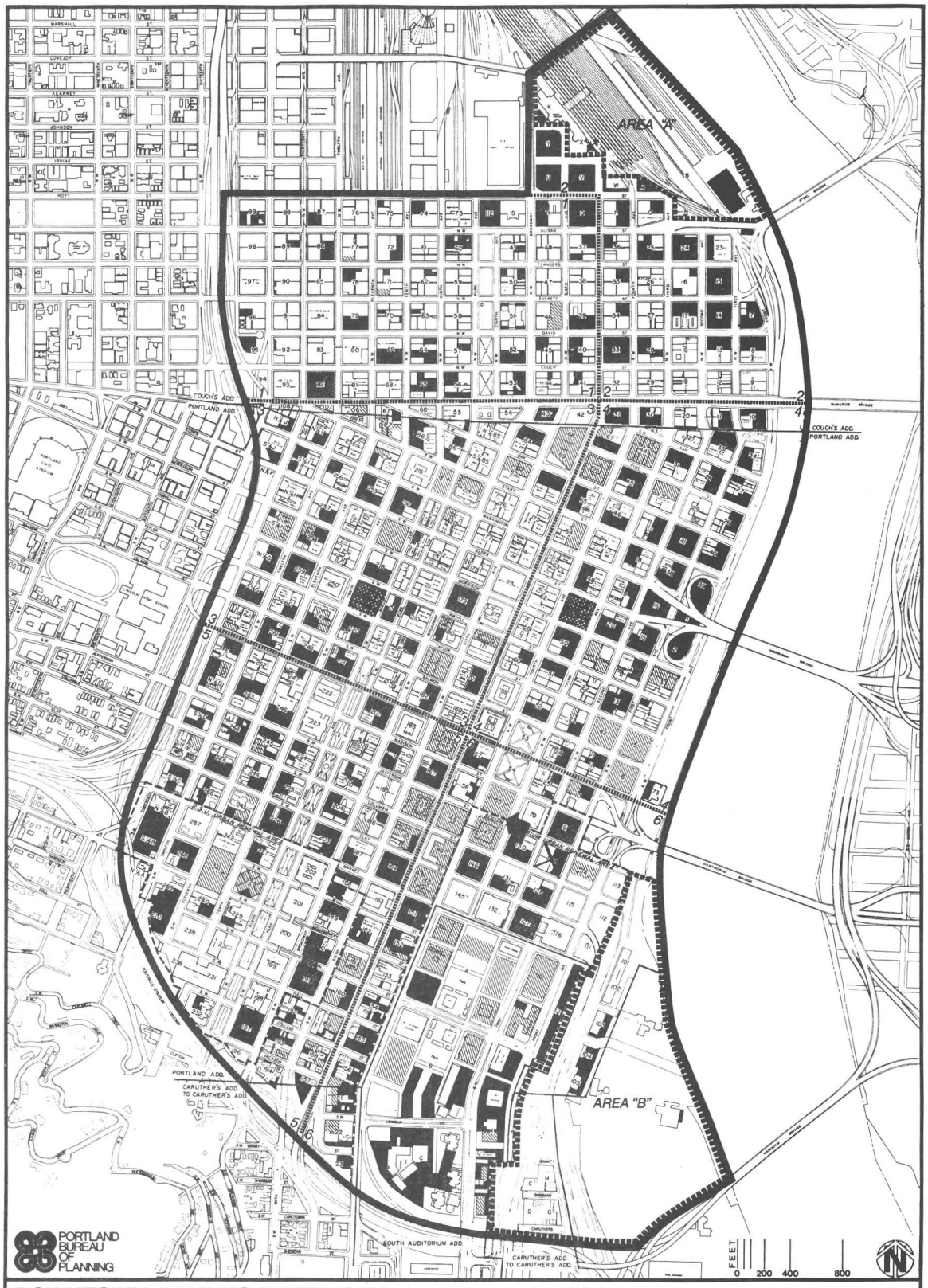
The downtown was further divided into six parking sectors. As a guide to public and private investment, sector allocations were suggested as a goal for 1990 (see Exhibit 27).

There are four questions which are asked by the Bureau of Planning concerning parking for new developments:

- Does the requested parking exceed the ceiling?
- Are the maximum parking to floor space ratios exceeded?
- Does the requested parking conform with the parking sector goals?
- Does the requested parking promote the goal of increasing short-term parking spaces over the provision of long-term spaces?

EXHIBIT 26

AREA COVERED BY PARKING SUPPLY FREEZE IN DOWNTOWN PORTLAND



DOWNTOWN PARKING INVENTORY

May, 1976

- LOT
- PARKING STUCTURE
- STUCTURE WITH LIMITED PARKING
- NEW CITY OWNED SHORT TERM GARAGE
- PARKING CONTROL BOUNDARY
- SECTOR BOUNDARY
- AREA EXEMPT FROM LID
- URBAN RENEWAL AREA BOUNDARY
- BLOCK NUMBER FROM LEGAL DESCRIPTION
- SUBDIVISION & ADDITION BOUNDARY

UPDATE

CHANGES	DATE	RECORDER	CHANGES	DATE	RECORDER

EXHIBIT 27

DESIRED AND CURRENT PARKING INVENTORY BY PARKING SECTOR FOR PORTLAND

PARKING SECTOR	DESIRED PARKING SPACE ALLOCATION	CURRENT (11/1/78) PARKING INVENTORY
1	2,777	3,532
2	2,470	2,345
3	9,990	8,713
4	7,500	7,132
5	6,950	7,579
6	9,000	8,195
UNASSIGNED	183	
TOTAL	38,870	37,410

When the developer can answer these questions to the satisfaction of the Planning staff, then the parking segment of the development is approved. The Bureau of Planning coordinates with the Portland Development Commission so that prospective developers are fully informed of the parking ceiling. However, the entire development must conform to the City development policies and applicable codes before a building permit will be issued by the Planning Commission.

Reduce Parking Requirements Through HOV and Transit Incentives

This tactic is intended to reduce vehicular travel to and congestion in major activity centers by encouraging travelers to park at remote locations and utilize carpools, vanpools, and transit to reach their place of employment. This tactic differs from conventional park and ride tactics in several important respects. The affected municipality would construct park and ride facilities in suburban parts of the municipality. The municipality would then encourage developers and employers to purchase such spaces as an alternative to building spaces within major activity centers. The developers and employers would be charged the unit development cost per space to acquire the remote parking supply. Regulations governing this tactic should be documented in a municipality's zoning code.

The developers and employers participating in this proposal would be required to support transportation services (e.g., carpools, vanpools, and public transit) to link the lots with the place of employment. To ensure that all elements of this agreement are adhered to, it may be necessary to require performance bonds or execute covenants on the property in question.

The provision of remote parking for transit, carpools, and vanpools would promote HOV travel, particularly among single occupant auto drivers, and may reduce congestion. The developer can use more of his project for office, retail, or other purposes which could increase profitability of the project. Developers will also save capital costs for constructing parking facilities.

Selecting sites for such park and ride lots and operating the lots and supporting transit services must be done with extreme care. It will be necessary to locate lots to serve commuting patterns of employees for specific firms that have purchased spaces in a park and ride lot. Clearly such commuting patterns may change over time for a given employer. Facility locations must be selected in locations where a "stable" market of employees is likely to be found.

Keys to developer/employer participation in this type of effort are likely to include (1) the role and cost of the developer/employer in promoting and financially supporting carpool, vanpool, and transit service programs, (2) the type of legal agreements (e.g., performance bonds, land covenants) required by the municipality, (3) the savings in parking facility capital costs to the developer, and (4) the ease of leasing space under the provisions of the parking substitution program. These are difficult questions to answer, but are critical to the overall success of the project.

A particularly important municipal responsibility in this tactic is the timely and cost-effective development of park and ride facilities that can be acquired by the private sector. If the planning and construction of such spaces are not in phase with private sector schedules, this may jeopardize the results of this tactic. Municipal staff and capital and operating budgets will have to be structured to meet this need.

The proposed Los Angeles and existing Palo Alto zoning codes provide for reduced parking in exchange for developer-funded HOV and transit service incentives (see Exhibit 24).

Restrict Principal Use Parking Facilities

A number of cities such as Chicago, San Francisco, and Seattle, have implemented restrictions on the development of principal use (i.e., stand alone) parking facilities. Both Chicago and Seattle have prohibited the development of principal use parking facilities in all or most of their CBDs. In San Francisco, proposed new principal-use parking facilities must undergo a conditional use review.

These restrictions generally have been implemented to restrict the growth in parking supply especially that which is not a part of a development project within these cities.

It should be noted that this tactic may not be applicable in many jurisdictions that have inadequate parking or that must rely heavily on the private parking industry to build and operate such facilities.

Preferential Parking

Considerable interest has been generated in providing preferential parking in off-street parking facilities to promote certain social, energy conservation, and other objectives. A growing practice in many part of the country is reserving convenient parking spaces for the handicapped.

Government and private employers are increasingly providing preferential parking for carpools and vanpools. This tactic readily compliments carpool and vanpool programs that are sponsored by such employers.

There is little evidence available that the private parking industry has implemented preferential parking tactics for carpools and vanpools. Several factors may contribute to this. Reserving spaces for carpools and vanpools may cause a loss in revenues if the spaces are not fully utilized, and such spaces may require additional supervision and rules to identify carpools. These types of problems are likely to be overcome through proper coordination between the public sector and the private parking industry.

IMPACTS

Exhibit 25 summarizes the selected impacts of off-street supply tactics. The most comprehensive application of off-street zoning and supply constraint

parking management tactics have taken place in Chicago, Portland, San Francisco, and Seattle. In all four of these cases, the growth of the parking supply has been restricted. The supply in Chicago and Seattle has decreased by approximately 1,000 spaces over the last several years.

With improvements in transit service, Portland and Seattle have experienced increased ridership. Transit ridership in Portland has risen from 145,000 daily passengers in 1975 to 180,000 in 1978. Air quality in Portland and Seattle has also improved according to local officials. For all four cities, development of new commercial spaces has continued despite these restrictions. On the negative side, Chicago has experienced an increase in long-term parkers which implies a decrease in available short-term spaces. The CBD of Chicago's share of regional retail sales has also declined from 66 percent to 58 percent during this time period. Merchants in downtown Seattle have also expressed the concern that the lack of convenient short-term spaces may have contributed somewhat to a similar decline.

VI. FRINGE AND CORRIDOR PARKING TACTICS

Parking tactics covered in this section include fringe parking, park and ride parking, and carpool/vanpool parking.

As illustrated in Exhibits 28 and 29, fringe parking refers to a facility for leaving parked vehicles that is located outside, but in close proximity to the CBD, and that serves transit travelers destined to the CBD. In some situations, fringe parking is intended for carpools and vanpools. Park and ride parking is located along transportation corridors in outlying areas away from the CBD and permits travelers to drive to a designated parking facility for the purpose of transferring to transit service to reach their final destinations. Carpool/vanpool parking is a special case of park and ride parking in which drivers "meet" to form carpools and vanpools. Carpool/vanpool lots are typically located in outlying, low-density suburban and rural areas where travel demand typically does not warrant park and ride lots and the associated transit service.

Park and ride facilities have been implemented in many urban areas around the nation and are among the most widely used parking management tactics.

A number of useful reports are available which present guidelines and procedures for planning, implementing, and operating park and ride tactics. These include:

- Ohio Department of Transportation. Park and Ride Design Guidelines. January 26, 1979.
- Texas State Department of Highways and Public Transportation. Design Guidelines for Park and Ride Facilities. September 1978.
- Urban Mass Transportation Administration. Simplified Aids for Transportation Analysis: Fringe Parking Site Requirements. Report UMTA-IT-06-9020-79-6. January 1979.

PLANNING FRINGE AND CORRIDOR PARKING TACTICS

Identification of Service Areas and Potential Sites

An important step in planning fringe and corridor parking facilities is defining applicable service areas and identifying and inventorying potential sites for such facilities.

EXHIBIT 28

CHARACTERISTICS OF SELECTED FRINGE AND CORRIDOR PARKING MANAGEMENT TACTICS

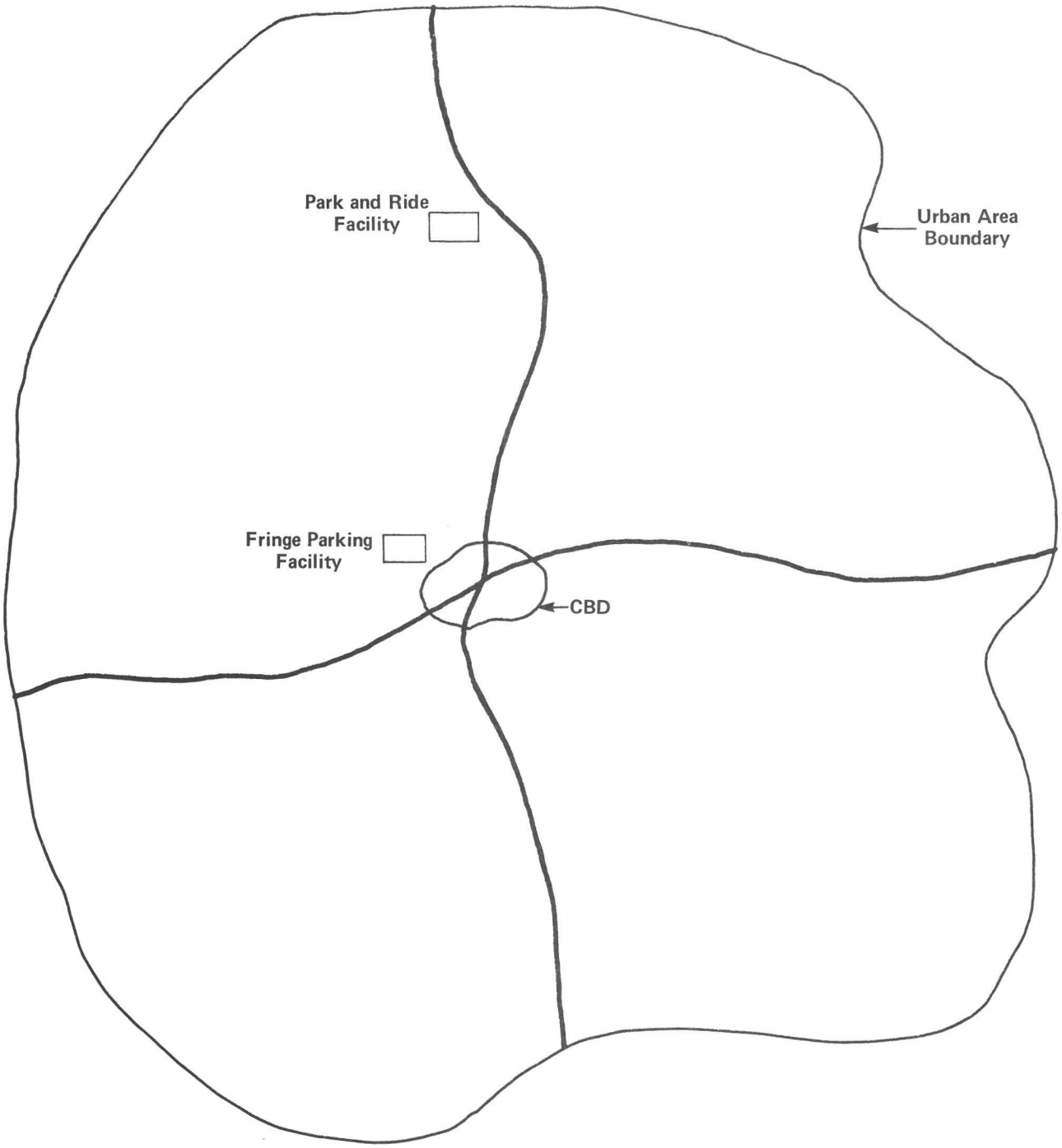
TACTIC	JURISDICTION	AGENCY	AREA	OPERATING CHARACTERISTICS	COMPLIANCE	IMPACTS
Fringe Lots	Baltimore	Baltimore City	Fringe of CBD	• Metered Parking Lots on Redevelopment Sites are Available to Parkers ($2.00/Day) • 600 Spaces in 6 Locations Reserved for Voluntary Carpools of 3 or More Persons (Same Fee as Non-Carpoolers)	• Not Applicable	• 82% to 94% Utilization in 3 Lots Surveyed in 1976
	St. Paul, Minn.	City of St. Paul	Fringe of CBD	• Fringe Lot System Being Planned as Part of Downtown People Mover System	• Not Applicable	• Planned Action
	San Francisco	California Department of Transportation	Fringe of CBD	• CALTRANS Leases Spaces Under Freeway to Parking Operators ($.75 to $2.00/Day) • 40% of Spaces Reserved for Vanpools (Fee is $10 Per Month Versus Normal Fee of $60 Per Month)	• Not Applicable • Vanpools are Certified	• Utilization is High • Program Just Beginning
	Seattle	King County	Fringe of CBD	• County Stadium Facility at South End of CBD is Available for Commuter Parking; 1,000 Free Spaces are Available to Poolers of 3+		• Utilization is Low at Stadium Lot
		Commuter Pool	CBD and Fringe of CBD	• 219 Spaces Under a Freeway are Reserved for 3+ Person Carpools at No Charge	• Carpools Must be Certified and are Audited	• Freeway Lot is Full. • 40% of Carpoolers Formerly Used Transit

Park and Ride Lots	Baltimore	Maryland DOT Baltimore City	Suburban	• Free Parking at 7 Lots
				• Local and Express Bus Service
				• 1770 Total Spaces
				• Leases or Owns Lots
					• Not Applicable	• Survey of Selected Lots Showed That:
						  • 46% Were Auto Users
						  • 33% Were Other Transit Users
						  • 21% Were Carpool Users
						• Utilization Varies; Frequently Between 80% and 100%

	Boston	Massachusetts Bay Transportation Authority	Throughout Region	• Lots Served By Rapid Transit Express Bus and Commuter Rail • Fees Charged at Rapid Transit Lots ($.50 - $1.00)	• Not Applicable	
	Hartford, Conn.	Connecticut DOT	Throughout Region	• 36 Lots Served By Express Bus Service • 84 Carpool Lots	• Not Applicable	• Lot Utilization Ranges From 60% to 82% • Usage Ranges from 45% to 64%
	Portland	Tri-Met (Transit Property)	Throughout Region	• 73 Free Lots with Bus Service • Tri-Met Uses These Lots Without Charge	• Not Applicable	• 1,742 Vehicles Use The Lots Every Day
	Seattle	Metro (Transit Property) Washington State	Throughout Region	• 6 Permanent Lots and 15 Interim Lots (Agencies Own Permanent Facilities) • Free Parking and Local and Express Bus Service • 17 New Lots Planned	• Not Applicable	• Overall Utilization is Approximately 62%
	Washington, D.C.	D.C. DOT Metro (Transit Property)	Throughout City	• 3 D.C. DOT Lots are Free and are Served By Bus • 6 Metro Lots in City Serve the Rail Rapid Transit System. There is a Parking Charge at Lots	• Not Applicable	• Metro Lot is Highly Utilized • Utilization of Park and Ride Lots Ranges Between 18% and 56%

EXHIBIT 29

ILLUSTRATIVE LOCATIONS OF FRINGE PARKING AND PARK AND RIDE FACILITIES



Criteria for Defining Service Areas

Criteria for defining service areas are shown in Exhibit 30.[1/],[2/] These criteria represent "minimum" conditions that are conducive to having successful fringe and corridor parking tactics. Many of the criteria are common to all three tactics. In particular, such parking tactics should be considered in service areas that:

- Experience considerable highway congestion during peak periods
- Have a high travel demand to the CBD and other such activity centers
- Experience high CBD parking utilization and parking costs
- Show evidence of informal park and riding, fringe parking, and carpool/vanpool parking

If one or more fringe and corridor parking tactic appears to warrant further study, it will be necessary to define the geographic service area(s) of interest and to identify and inventory potential parking sites. Criteria that should be considered in defining service areas (i.e., passenger sheds) for such facilities include:

- The origin-destination pattern of travel
- The layout of the existing highway system and travel patterns for accessing major arterials and freeways to reach the CBD or other applicable activity centers
- The coverage and level of existing transit service in the corridor(s) of interest
- The development patterns and density of development within the corridor(s) of interest
- The likely radius for attracting travelers to a fringe and corridor parking facility served by high quality transit service

Clearly, these criteria will require subjective application in defining the service area for fringe and corridor parking. The size and shape of the

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1/ Ohio Department of Transportation. Park and Ride Design Guidelines, January 26, 1979.

2/ North Central Texas Council of Governments. Estimating the Service Area for Park and Ride Operations. Technical Report Series 20. Arlington, Texas, July 1979.

EXHIBIT 30

CRITERIA FOR DEFINING SERVICE AREAS FOR FRINGE AND CORRIDOR PARKING FACILITIES

Criteria	Fringe Parking	Park and Ride Parking	Carpool/ Vanpool Parking
1. Facility should be in a travel corridor that experiences intense levels of peak period congestion.	●	●	●
2. Facility should be located to give travelers an opportunity to use transit prior to encountering heavy highway congestion in the corridor (or in the CBD for fringe parking).	●	●	●
3. Facility should be located adjacent to major radial arterials or freeways.	●	●	●
4. Facility should be located in an area readily served by existing transit service to the CBD or other activity centers which can provide off-peak service.	●	●	
5. The bus (carpool/vanpool) portion of the average park and ride (carpool/vanpool) trip should represent the major portion of that trip.		●	●
6. The facility should be located in a geographical area with a high travel demand to the CBD or other activity centers readily served by transit.	●	●	
7. Downtown parking conditions should show high utilization of existing parking supply, high parking rates, and possible extensive illegal parking.	●	●	
8. The service area should show evidence of "informal" park and ride and similar usage.	●	●	●
9. Travel corridor should provide opportunities for preferential treatment of buses and carpools/vanpools.			

service area and the potential for successfully implementing such tactics will depend upon the specific characteristics of each corridor and urban area.

A recent study conducted by the North Central Texas Council of Governments analyzed the size and shape of service areas for park and ride facilities served by (1) express bus service and (2) local bus service.[1/] Exhibit 31 shows the general dimension and shapes of such service areas which contain 90 percent of the users of such facilities. The average and 80th percentile travel times for travelers using each type of park and ride facility and fringe parking facilities are presented below:

Type of Facility	Travel Time	
	Average	80 Percentile
Park and Ride with Express Bus Service	9 Minutes	11 Minutes
Park and Ride with Local Bus Service	8.6 Minutes	11 Minutes
Fringe Parking	13 Minutes	15 Minutes

Other studies have shown that 80 to 90 percent of the users of park and ride facilities travel five miles or less to reach such facilities.[2/]

Identify and Inventory Sites

Once it is established that the potential for a fringe parking or park and ride facility exists, the next step is to identify and assess potential sites for such tactics. This activity should include: (1) an office survey of potential sites using recent aerial photographs, land use maps, and other readily available data sources and (2) a field inventory of those sites that appear suitable for the development of a parking facility.

The initial screening of potential sites should be based on:

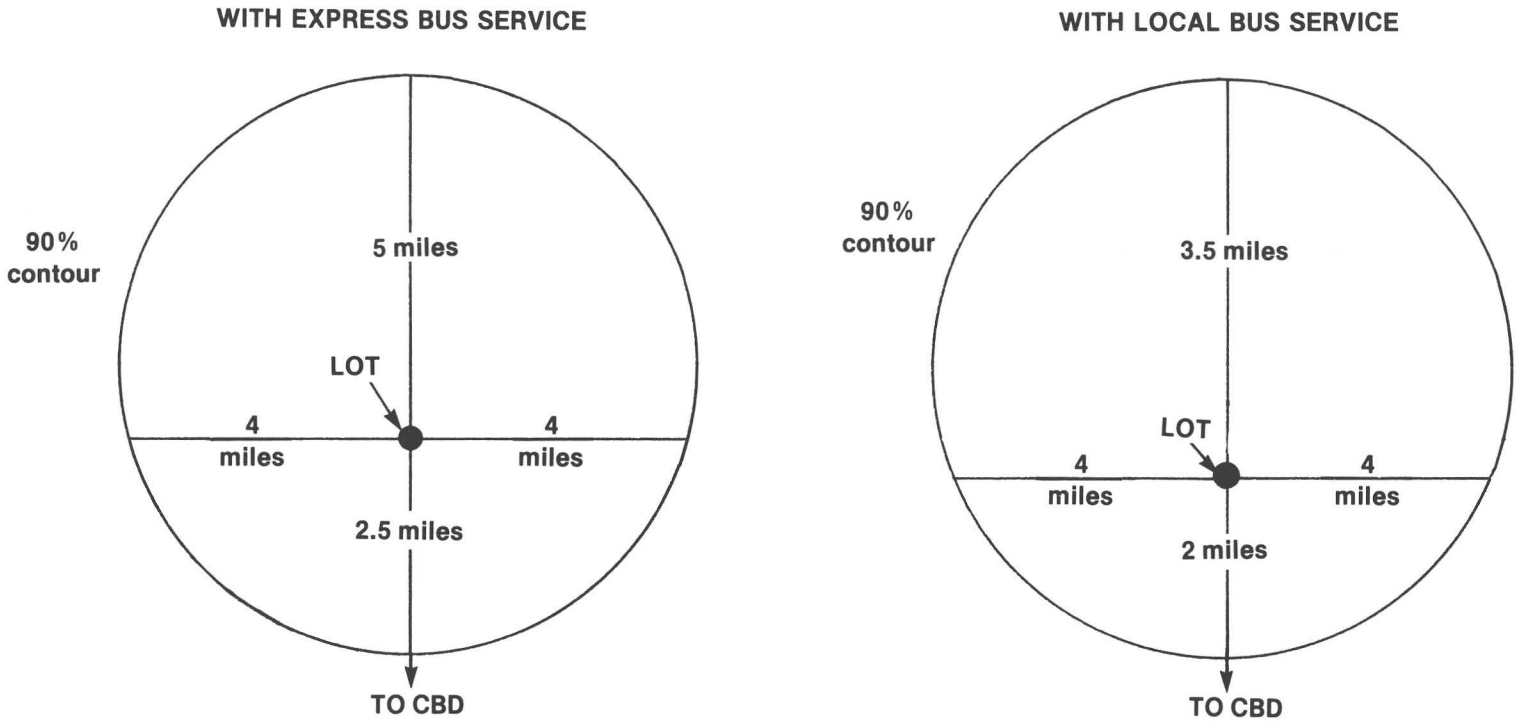
- Suitability of the site for parking and supporting transit service
- Character of the adjacent neighborhood
- Visibility of the site from adjacent arterial streets and freeways
- Potential for expansion
- Ease of access and egress from the site
- Ownership of the site

1/ North Central Texas Council of Governments. Op. cit.

2/ Daniel M. Gatens. "Locating and Operating Bus Rapid Transit Park and Ride Lots." Transportation Research Record 505. 1974.

EXHIBIT 31

CHARACTERISTICS OF VARIOUS PARK AND RIDE SERVICE AREAS



Source: Douglas Allen. *Estimating the Service Area for Park and Rider Operations,* Technical Report Series 20. Arlington, Texas, July 1979.

The following criteria have been suggested by Ohio DOT for conducting detailed field analyses of these sites:[1/]

1. The location should be along a high density corridor just outside a radial freeway (major arterial) bottleneck where heavy congestion occurs. This will encourage drivers to change modes, since the driver's inconveniences in the bottleneck will exceed the inconveniences he would suffer as a transit or carpool rider.

2. The location should be highly visible to motorists passing by the site to aid in attracting potential users to the facility and eliminate confusion in locating the site. If the site is not visible, then additional promotional efforts such as signs and television, radio, and newspaper publicity will be necessary. If the site is visible, then motorists will see others using it and be more likely to try it.

3. The location should be readily accessible from residential and commercial areas, yet in a location where land costs make it reasonable to consider development of a site.

4. Successful park and ride facilities for bus transit have been located within 13 miles of the CBD. More than 50 percent of the drivers to the park and ride lots surveyed had traveled no more than five miles. The ability of buses to maintain high quality service, short headways, and reasonable operating costs decreases the farther the sites are located from the CBD.

5. The park and ride facility should be located where access to the lot is convenient for both buses and autos and where it can intercept trips bound for the freeway (or major arterial). Desirably the lot should not have direct access to the arterial, nor should it be located on a residential street causing undesirable traffic to travel on streets not designed to carry large volumes of traffic.

6. The location of fringe parking facilities should not be less than one mile from the CBD or high concentration employment centers, as motorists may not patronize transit service to the facility.

7. The location should result in minimal adverse operational effects on adjacent areas in the immediate vicinity of the site. Careful study of local traffic circulation and the projected impact of a park and ride lot is therefore very essential.

8. The location should be one that is economical to develop, which makes shopping center complexes and other existing parking facilities very attractive to consider as potential sites.

1/ Ohio Department of Transportation. Park and Ride Design Guidelines. January 26, 1979.

9. The location should be one which has been chosen to serve the desires and interests of the general public. The public interests should be gathered and assessed by means of an effective community involvement process which might involve media announcements, surveys, public meetings or hearings.

The inventory of each potential site should be sufficiently detailed to insure that serious impediments to implementing a fringe and corridor parking tactic are identified. The initial screening of sites should be based on a "rough" estimate of peak parking requirements at the site(s) to insure that the site(s) is sufficiently large to satisfy the demand.

There are many different types of land uses that are potentially suitable for fringe and corridor parking facilities. These include:

- Existing highway right of way
- Existing fringe and corridor parking facilities capable of expansion
- Shopping center parking
- Church parking lots
- Stadium, sports arena, and related parking
- Land adjacent to freeway interchanges
- Vacant land

Agencies should examine the feasibility of using underutilized parking facilities at shopping centers, churches, and stadiums for parking. This helps to minimize public sector capital costs and the lead time for implementing such facilities and services.

The findings of the office and field service area and site investigations should be documented in a form suitable for use in working with citizens, land owners, planning agencies, and others interested in or potentially affected by such facilities. Such a report or memorandum should present the findings as well as the recommendations for sites to be evaluated further.

A sensitive element of planning fringe and corridor parking facilities is coordination with owners and representatives of shopping centers, churches, and other property owners whose properties appear to be suitable for fringe, park and ride, and carpool/vanpool parking facilities. Initial contacts should be made with such individuals and firms to assess their willingness to have a portion of their existing land and parking supply used on a "donated" or lease basis for daily parking by commuters. Clearly, it will be important to identify potential benefits to the property owners for agreeing to the use of these spaces by commuters. These benefits could include increased patronage for commercial establishments as well as making a public service contribution toward reducing energy consumption and air pollution.

It will also be important to demonstrate that the use of the privately owned parking will not adversely affect the operation of the shopping center, church, or other establishment nor will it cause the owner to incur additional

maintenance, operating, enforcement, insurance, and related costs. In this regard, it is advisable for the lead planning agency to have at least a "preliminary" policy for reimbursing or sharing such costs with the land owners. The lack of such guidance could create a negative impression of the parking program.

Portland, Oregon, and a number of other urban areas around the nation have made extensive use of lease arrangements. Exhibits B-1 and B-2 in Appendix B present illustrative lease agreements that have been developed by Tri-Met, the transit property in Portland, and the Ohio DOT. These lease agreements should be used with caution. Local and state laws and administrative practices may significantly impact the form and provision of such agreements. For example, if church property is used for commuter parking in Ohio and if the church is reimbursed for the cost of maintaining its facility, the church would lose its tax exempt status, according to Ohio DOT.

Analysis and Evaluation of Tactics

In analyzing and evaluating fringe and corridor parking tactics, it will be necessary to:

- Define the characteristics of the tactics of interest
- Select and apply procedures for estimating the impacts of interest

Define Characteristics of Tactics

To estimate the parking demands and requirements and the impacts associated with alternative fringe and corridor parking tactics, it is necessary to define the following characteristics of the tactics:

- Location of the proposed parking facility
- Likely points of access and egress for the site
- Current and projected level and types of transit service to be provided at the site including (if applicable):
  - Local or express services
  - Hours of operation
  - Frequency of service
  - Fares
  - Travel times to principal destinations
  - Provision for preferential treatment for buses and carpools/vanpools
- Parking charges (if applicable) at the site
- Potential limits on the number of vehicles that can be parked on the site

This information must, of course, be supplemented by other data (e.g., highway travel times, fuel costs, parking costs at the destination) in order to apply most travel estimation procedures.

It should be recognized that the above characteristics of the site will frequently be modified during the planning and implementation phases based on cost constraints, environmental considerations, and access conditions.

There are several factors that require particularly careful treatment in planning fringe and corridor parking facilities. The first is the number and locations of the lots, and the second is the type and level of transit service available at the lot. Exhibit 32 presents the advantages and disadvantages of multiple versus single lot systems. The major trade-offs between the single and multiple lot options are ease of access/egress, parking capacity, cost, and the level of transit service. It has been suggested that park and ride facilities should have a minimum of 500 parking spaces to provide adequate demand for operating frequent, high-quality transit service to such facilities.1/

The success of fringe and park and ride facilities is likely to depend heavily on the characteristics of the transit service linking the lot with the applicable activity centers. Such transit service should conform to the following whenever possible:

- Adequate transit capacity (or excess capacity on existing bus routes) should be provided to satisfy predicted demand.
- Service should be provided at five to 10 minute headways during peak periods.
- Transit service to the facilities should be available at a reasonable frequency during mid-day and early evening off-peak hours.
- The overall trip travel time and cost of using the fringe or corridor parking facility should be "roughly" comparable to that for trips by auto to major activity centers (e.g., CBD).

Select and Apply Analysis Procedures

There are a number of reports which present useful procedures for analyzing fringe and corridor parking tactics. Section IX of the guide describes these procedures.

1/ Raymond Ellis. "Parking Management Strategies." Transportation System Management - Special Report 172. Transportation Research Board. 1977.

EXHIBIT 32

ADVANTAGES AND DISADVANTAGES OF MULTIPLE (TWO OR MORE) FRINGE AND CORRIDOR PARKING LOTS

MULTIPLE LOTS, ADVANTAGES

- Provision of multiple lots results in a larger geographical area being included in the total park-and-ride market area. The result should be some increase in total park-and-ride utilization.
- If the maximum parking lot size constraints (~ 800 parking spaces/bus-loading area) developed in the following section of this report are exceeded, mutiple lots provide a means of accommodating the demand.
- If either land availability and cost or available surface street capacity pose problems in providing one large lot, it may be more economical to provide multiple smaller lots rather than incur massive land and/or street improvement costs to build a single large facility.
- Smaller lots will reduce both congestion and walking distances within the lot.
- A smaller percentage of the total trip will be made by auto.

MULTIPLE LOTS, DISADVANTAGES

- The construction and maintenance of costs of one large facility will be less (assuming similar land costs and facilities) than those of multiple smaller lots. This will generally be true as long as the demand at the one large lot does not necessitate large-scale improvements to the adjacent street system.
- If express bus service is provided, longer headways will exist in the multiple-lot situation (assuming comparable bus load factors). That is, each small lot will not have the same level of bus service that would be provided at one large lot. Similarly, with shorter headways a bus will more frequently be visible at the lot; this may increase the appearance of reliable service.
- Bus breakdowns may pose a greater problem in the multiple lot situation, where the breakdown might cause headways to increase fhe scheduled 15 or 20 minutes to 30 or 40 minutes. The latter represent unacceptably long headways. Conversely, at the large lot, a bus breakdown would typically result in bus headways in the range of 10 to 15 minutes.
- Provision of certain amenities (security, information, shelters, vending machines, etc.) may be more easily justified at one large facility than at several smaller facilities.
- Although multiple lots may provide an adequate number of total spaces, a probability exists that one of the smaller lots may become filled while others have substantial unused capacity. Drivers would then be expected to travel to more than one location to find an available space.

Source: Texas Transportation Institute. *Design Guidelines for Park and Ride Facilities.* Prepared for Texas State Department of Highways and Public Transportation. Research Report 205-3. September 1978.

IMPLEMENTING FRINGE AND CORRIDOR PARKING TACTICS

Implementing fringe and corridor parking facilities will involve seven activities:

- Designing the facilities
- Executing leases or other agreements to use private property
- Designing a parking enforcement and security program
- Identifying sources and securing capital and operating funding for such facilities
- Developing a program for facility maintenance
- Developing a marketing program for the facility and supporting transit service, if applicable
- Preparing an implementation schedule

Design Facilities

The design of fringe, park and ride, and carpool/vanpool parking facilities can significantly impact the successful operation of such facilities. The agency repsonsible for designing and constructing such facilities should address the following requirements:

- Physical layout of the facility
  - Access and egress routes for traffic and walk-in users
  - Location and supply of short-term, long-term, bus, bicycle, kiss-and-ride, and elderly and handicapped parking
  - Traffic circulation within the facility
  - Parking stall dimensions and layout
- Pavement design
  - Drainage
  - Pavement types and loadings
  - Pavement width
- Facility amenities
  - Bicycle storage
  - Shelters

- Security considerations

  - Lighting
  - Fencing
  - Security guard, periodic police patrols

- Traffic control

  - Traffic signals
  - Signing
  - Pavement markings

- Landscaping

- Maintenance plan

An important requirement in the design process is to attempt to minimize potentially serious impacts that were identified in the planning phase. This will require carefully integrating the design of the facility with the adjacent highway system and development.

This report is not intended to present specific procedures and guidelines for facility design. The previously referenced Ohio DOT study, Park and Ride Design Guidelines, is a very useful source of information on facility design as well as maintenance issues.1/

Execute Leases for Private Property and Parking

If private property is to be used for a fringe or corridor parking facility, a lease between the property owner and the implementing agency should be executed. Appendix B presents lease agreements that have been developed in Portland, Oregon, and Ohio. Key issues that should be covered in such agreements include:1/

- Specific location of the site

- Time period of agreement and minimum termination notice period

- Use of property and specific improvements to be made (e.g., signing, signals, markings, lighting, shelters)

- Access for vehicles and pedestrians

- Maintenance of facility

- Liability for injuries and damages

1/ Ohio DOT. Op. cit.

- Payment of leasing costs to property owner
- Security

As noted earlier in this section, the terms of the lease should conform to local and state regulations. Applicable local and state legal counsels should be involved in drafting, negotiating, and executing such agreements.

Identify Sources of Funding

The costs of implementing and operating fringe and corridor parking tactics may be substantial, particularly if large parking facilities are to be built and significant improvements to transit service are to be provided. A factor further complicating the funding of such tactics is that different agencies may be participating in the project. For example, it is common to have a local or state DOT design and build a parking facility with the local transit operator providing transit service. This situation points to the need for developing accurate capital and operating costs by agency and for identifying and securing available sources of funds to implement and operate the tactics. Typical implementation and operating and maintenance costs concerns for fringe and corridor parking tactics include:

Implementation Costs

- Engineering and design
- Lands acquisition
- Property leasing
- Parking facility construction costs
- Traffic signalization, pavement marking and signing costs
- Bus acquisition

Operating and Maintenance Costs

- Parking facility operating costs (e.g., power, lighting, insurance)
- Parking facility maintenance costs (e.g., cleaning, repairs, snow removal)
- Transit service operating and maintenance costs
- Marketing (promotional) costs

Estimates for each of the above items should be based on the design for the parking facility and the specific characteristics of the transit service to be provided.

Both FHWA and UMTA provide funding for fringe and corridor parking. A recent FHWA report indicated that Federal-aid system funds can be used in the cost of constructing or leasing such facilities on or in proximity to any Federal-aid highway in order to encourage the use of public transportation or

carpools and vanpools.[1/] To qualify for funding, these facilities must be located outside the CBD.

The following items are eligible for funding under the Federal-aid highway program:

- Preliminary engineering, right of way, and construction
- Initial and renewal costs to lease public or private parking space such as at shopping centers
- Landscaping and sanitary facilities
- On-site signing and pavement marking
- Off-site informational and guidance signs
- Bus passenger loading facilities including shelters
- Lighting and security facilities
- Traffic control devices which enhance access and egress to the parking facility
- Parking and safe storage for bicycles, mopeds, etc.

The Federal share of the cost of the project depends upon the applicable Federal aid highway program. Facilities benefitting the Interstate system generally would be eligible for 90 percent funding, provided transit service is offered to the facility, while projects benefitting non-Interstate highways typically would receive 75 percent Federal funding.

The Section 3 and Section 5 funding program administered by UMTA provides capital funding for projects benefitting public transportation. These programs would cover 80 percent of the bus purchase costs and parking facility capital costs. The Section 5 program also provides operating assistance to eligible transit operators for partially offsetting operating deficits.

Design Parking Enforcement Program

Under the following circumstances, it may be advisable to develop a parking enforcement program for fringe and corridor parking facilities:

- If parking meters or carpool/vanpool permits are used at such facilities

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1/ Federal Highway Administration. TSM and Federal-Aid Highway Funds for Transportation Improvements. Second Edition. July 1979.

- If parking is to be reserved only for transit riders and/or carpool/vanpool parkers

- If widespread abuse of the parking regulations is undermining the transportation benefits and financial viability of the program

The need for a parking enforcement program is likely to be greatest for fringe parking reserved for carpools and vanpools. For example, some communities, such as Baltimore, have observed considerable use of reserved carpool space by single occupant autos.

Several enforcement program options are available to affected agencies. In instances where permits are used to identify eligible carpool and vanpool vehicles, some communities have placed their enforcement emphasis on the front-end or application part of the process. In Seattle, for example, the Commuter Pool staff reviews applications to determine if the carpool origins and destinations are logical. A work-study student is also employed to make random checks on carpools to see if they are complying with the program and obvious violators are challenged by phone contacts. (Violators can be fined, their autos impounded, and/or their permits revoked.) Portland uses telephone contacts to verify the applicant's place of employment, the existence of all three members of the carpool, and the correctness of the information on the application. When permits are renewed each month a minimum of 10 percent of the renewals are processed as original applications and submitted to the same level of scrutiny. The Portland project staff estimates that 5 percent of the permit holders are violating the program rules.

A second enforcement method is to station enforcement personnel at the entrance to the reserved parking facility to ticket ineligible vehicles or prevent ineligible vehicles from using such a facility. This type of enforcement program could involve periodic monitoring of such facilities or, in instances where parking violations are widespread, daily monitoring of facilities during peak arrival hours. The costs of daily enforcement can be high which argues strongly for periodic enforcement.

Develop Marketing Program

A marketing program should be developed for publicizing fringe, park and ride, and carpool/vanpool parking. One agency should have prime responsibility for this operation. Because it performs such functions on a daily basis, the transit operator can be a logical agency for such a responsibility. Local and state DOTs, MPOs, and carpool/vanpool agencies also can play a lead or important supporting role in such a program.

The marketing program should be designed to (1) publicize the initiation of the service and (2) provide information on the facility and supporting transit, carpooling, and vanpooling programs on a continuing basis. A wide range of mechanisms can be used to familiarize potential travelers with the service:

- Public service radio announcements
- Press releases
- Newspaper advertisements
- Posters displayed in banks, retail stores, etc., in the service area
- Brochures mailed directly to residents in the service area
- Maps and transit schedules
- "Free" introductory bus service for "x" weeks
- Mailings to persons who have responded to carpool/vanpool matching programs

In addition to preparing and distributing the above materials, it is important to have the capability to respond to telephone inquiries regarding fringe, park and ride, and/or carpool/vanpool program parking. In service areas experiencing high growth or considerable turnover, new residents and potential patrons/parkers will need continuing assistance in determining schedules, bus routings, fares, or hours of operations.

Reports which may prove useful in developing a marketing program include:

- Urban Mass Transportation Administration, Office of Transit Management User Information Aids, Transit Marketing Management Handbook. November 1975.
- Urban Mass Transportation Administration, Office of Transit Management, Pricing, Transit Marketing Management Handbook. April 1976.

Develop Facility Maintenance Program

The agency responsible for the fringe or corridor parking facility should develop a program for periodically inspecting and maintaining the facility. This is needed to insure that the facility remains in good condition and that the necessary budget and staffing are available. Maintenance activities typically required at such facilities include:1/

- Regular inspection
- Pavement repair

1/ Ohio DOT. Op. cit.

- Traffic control devices repair
- Replacement of signs and pavement markings
- Lighting repair
- Sweeping/trash pickup
- Landscaping
- Shelter maintenance
- Snow removal and control

Relatively little information is available on the maintenance costs of fringe and corridor parking tactics. One source indicated that "normal maintenance" costs in 1978 covering snow removal, sweeping, mowing, and weekly trash pickup at two park and ride lots of 188 spaces and 292 spaces equalled "roughly" $11 per space per year.1/ Actual maintenance costs will depend on the size, location, and nature of maintenance activities performed at the parking facility.

Develop Implementation Schedule

Once the details of the fringe or corridor parking tactic have been finalized, a detailed schedule should be developed for implementing the tactic. This schedule should include major tasks and milestones. Particular attention should be paid to allowing adequate time to:

- Advise the public of the facility and supporting transit and carpool/vanpool service
- Complete the design and construction of the parking facility
- Acquire buses, if applicable
- Implement any related preferential treatment actions

IMPACTS

The utilization of fringe lots depends upon many factors including their locations relative to major activity centers, the price of parking, ease of access and egress, and security. According to impact data cited in Exhibit 28, many lots have attracted high use while others have been noticeably underused.

1/ Ohio DOT. Op. cit.

The above comments also apply to park and ride lots. However, the success of such facilities is also heavily dependent on the availability of high quality transit service. The limited available impact data show that the utilization of park and ride lots frequently ranges between 60 percent and 80 percent of available space, although lower and higher figures are not uncommon. The utilization of the carpool lots in Connecticut ranges between 45 and 64 percent of capacity, while the usage at the 219-space Seattle fringe carpool lot is virtually 100 percent.

Data from Seattle show that 40 percent of the carpoolers surveyed in fringe carpool facilities located adjacent to the CBD were former transit riders. This suggests that HOV programs may compete with transit services for riders.

VII. PRICING TACTICS

The use of parking pricing tactics, particularly in conjunction with other TSM tactics, is frequently cited as having considerable potential for achieving many important objectives including:

- Promoting transit patronage and carpooling/vanpooling
- Reducing automobile travel and congestion
- Reducing energy consumption and air pollution emissions
- Reducing parking requirements in activity centers

Despite this potential, many jurisdictions have been reluctant to implement aggressive parking pricing tactics because their impacts are difficult to accurately predict and they can be highly controversial.

Another important characteristic of such tactics is that the private sector (i.e., the private parking industry, employers, and developers) is responsible for establishing and implementing pricing strategies for the vast majority of parking facilities in activity centers in most urban areas. Government agencies are generally responsible for setting parking rates for on-street metered parking and off-street parking owned and operated by such agencies. Governments can also impact private sector parking rates by imposing parking taxes and parking surcharges.

The type of tactics of particular interest in this section are:

- Parking rate increases achieved through general rate increases, revisions to the rate structure, parking taxes, and parking surcharges
- Differential pricing programs for short-term versus long-term parkers, carpool/vanpools, and other programs
- Changes in employer parking subsidy programs including reductions in subsidies and transit/HOV subsidy programs

PLANNING AND IMPLEMENTING PRICING TACTICS

Section III of the guide discusses key steps that should be performed in planning parking management tactics. This subsection focuses on several issues that pertain directly to pricing tactics.

Assessment of Existing and Future Parking Systems

The types and sources of information that may be useful in analyzing pricing tactics are identified in Exhibit 33. Accurate information should be obtained on the supply, rates, and usage of existing parking facilities by type of ownership. This data provides at least a "rough" basis for assessing

EXHIBIT 33

POTENTIAL SOURCES OF DATA FOR PLANNING PRICING TACTICS

Applicable Data for Problem Assessment	Potential Sources of Data
1. Parking Supply and Rate Inventory – Number of Spaces by Type – Location of Spaces – Applicable Parking Rates – Restrictions on Use of Facility – Hours of Operation – Ownership	Parking Inventory Records of Local DOT, Parking Authority, or Planning Department
2. Usage of Parking System by Facility and Parking Duration	Usage Survey Records of Local DOT or Parking Authority
3. Number of Travelers Destined to Study Area by Mode, Trip Purpose, Socioeconomic Characteristics	Parker Survey Records of Local DOT or Parking Authority Vehicle or Passenger Cordon Counts
4. Level of Transit Service	Transit Operator Schedules
5. Level of Highway Service	Traffic Count Data and Level of Service Analysis

the effects of different pricing policies on the users, owners, and operators of parking facilities of interest.

Based on experiences in several jurisdictions, an important consideration in evaluating parking pricing tactics is determining the availability of alternative forms of transportation (e.g., public transit services, carpooling, and vanpooling) to provide a viable option to driving and incurring higher transportation costs. It is likely to be necessary to demonstrate that such alternatives exist for those parkers who may be impacted by higher parking rates.

Many jurisdictions do not have current data on the characteristics and usage of parking facilities in and adjacent to activity centers. The collection of such information can become costly if a large number of facilities must be analyzed and, particularly, if parking usage surveys are to be conducted. Although such data is important, it only may be feasible to collect limited parking supply and usage information for the geographic areas of interest because of budget and staff limitations.

Pricing policies should also be considered in terms of their long-range implications particularly with respect to the economic, development, environmental and transportation plans and objectives of the affected study area. For example, future parking demand should be estimated based on land use and employment projections, planned highway and transit improvements and other factors (e.g., price of gasoline, transit fares). This type of information is typically available from the urban transportation planning agency in each urban area. The parking demand forecasts should be compared with existing and future parking supply to identify potential parking problems and requirements.

Selection of Tactics

Based on the results of the problem assessment described above, an agency or jurisdiction would be in a position to identify changes to existing parking pricing policies or new pricing tactics to promote its development, economic, environmental, and transportation objectives and to alleviate existing and future parking problems. Exhibit 34 shows the applicability of selected pricing tactics to commonly encountered problems and issues.

The advantages and disadvantages of the following pricing tactics are described below to assist communities in such analyses:

- Parking rate increases
- Parking taxes, including stall taxes
- Parking surcharges
- Differential parking pricing programs
- Employer parking and transportation subsidy programs

Parking Rate Increases

Increases in parking rates represent a potentially important tool for discouraging vehicular travel, increasing transit ridership, and reducing

EXHIBIT 34

APPLICABILITY OF PRICING TACTICS TO SELECTED PROBLEMS

Pricing	Promote Transit Ridership and Carpooling	Reduce Highway Congestion in Peak Periods	Conserve Energy and Reduce Air Pollution	Promote More Efficient Use of Parking System	Encourage Commercial Activity
• Change Parking Rates					
– Increase Rates					
• Parking Price Increase	X	X	X		
• Parking Rate Structure Revision	X	X	X	X	
• Parking Tax	X	X	X		
• Parking Surcharge	X	X	X		
– Decrease Rates					X
– Free Parking in CBD					X
– Differential Pricing Programs					
• Short-Term vs. Long-Term Rates	X	X	X	X	X
• Carpool/Vanpool Discounts	X	X	X		
• Vehicle Size Discounts			X		
• Geographically Differentiated Rates				X	
• Monthly Contract Rates	X				
• Merchant Shopper Discounts					
– Stamp Programs					X
– Token Programs					
• Employer Parking Subsidies					
– Reduce Subsidies	X	X	X		
– Transit/HOV Subsidies					

congestion, air pollution, and energy consumption. In many areas, such rates have increased over time to compensate for increased parking facility construction and operating costs, inflation, and other such factors. Such increases are typically implemented by individual parking facility owners/operators, employers, institutions, and government agencies responsible for municipal parking facilities. There is no evidence in the literature that these diverse interests have jointly (i.e., collectively) agreed to raise (or lower) parking rates to meet transportation, economic, environmental, or other objectives.

The role of government agencies in implementing parking rate increases to meet transportation, economic, environmental, and other objectives is two-fold. First, government agencies can increase rates in those facilities that it owns and operates. This could include government employee parking facilities as well as public parking facilities open for use by all workers, shoppers, and others. Although they have such powers, many agencies have been reluctant to begin charging employees the "true" cost of parking because of employee and union opposition.

Second, such agencies can work with the private parking industry, the business community, employers, and institutions to attempt to implement increased parking rates. The powers of local government are limited in this regard. Such a proposal is doomed to failure unless a broad based consensus for such a tactic can be achieved. Elected officials and community leaders must strongly support such a potentially controversial proposal, since even noncontroversial programs, like carpooling and vanpooling, encounter opposition from businesses and the community.

Estimating the "appropriate" increase in parking rates and the corresponding parking revenue, transportation, air pollution, enegy, and associated impacts of such increases can be accomplished using travel forecasting techniques available in most urban areas. Where possible, it is advisable to analyze a range of parking rate changes to identify the relative impacts and their incidence on different interests.

Even if broad support for increasing parking rates is achieved, the powers of government to enforce such price increases are virtually nonexistent. Individual parking operators in all likelihood will set their rates to meet their profit objectives. This is a major weakness of this tactic from the perspective of government agencies.

Parking Taxes

Parking taxes have been implemented in a number of jurisdictions and advocated in others as a means of increasing revenues and discouraging vehicular travel. The parking taxes can take a number of forms including a tax on parking charges or a parking stall tax.

Parking Charge. The most common type of parking tax is that placed on for-hire parking facilities. Jurisdictions such as Pittsburgh, San Francisco, and Washington, D.C., have implemented parking taxes of between 12 and 20

percent of the parking rate in for-hire parking facilities. These taxes are not gross receipt taxes, but taxes on individual patrons. The facilities subject to such taxes vary by jurisdiction. In Pittsburgh, all facilities that charge for parking are subject to the tax while in Washington, only privately owned commercial parking facilities are subject to the tax.

Such taxes can generate substantial revenues. For example, the taxes in Pittsburgh, San Francisco, and Washington generated revenues of $4.8 million, $5.4 million, and $8.0 million, respectively, in fiscal year 1978.

The potential revenues generated by such a tax appear to have been a more important factor than transportation benefits in securing its approval.

Three important factors need to be addressed in evaluating and implementing such a tax:

- Amount of the tax
- Types of facilities on which the tax will be imposed
- Mechanism for collecting the tax from parking facility owners and operators

Empirical data and model estimates suggest that low parking taxes on the order of 5 to 10 percent will have little impact on the demand for long-term commuter parking in downtown areas. Practically speaking, increases of this magnitude are probably not perceived as being any different from periodic price increases attributable to inflation. Higher percentage taxes coupled with high existing parking rates may be perceived as having a significant impact on parkers and the parking industry. This situation may prove to be controversial and may require considerable coordination between elected officials and parking and other interests.

The revenues generated and impacts of the tax will be significantly affected by the types of facilities covered by the tax. For example, the parking tax in Pittsburgh applies to all commercial, parking authority, hospital, university and other parking facilities that charge for parking. This is a considerably broader-based tax than that in Washington, D.C., which only applies to privately owned commercial parking facilities. The broader-based tax impacts a larger number of parkers which can generate higher revenues and transportation and related impacts all other things (e.g., tax rate) being equal. This tax is also more equitably distributed across all drivers. However, such a broader based tax is also likely to increase opposition to the tax.

Parking Stall Tax. Using this tactic, a special tax would be imposed on parking spaces within the affected jurisdiction. The tax potentially could be applied to all or to selected (e.g., municipal, commercial, and private parking) parking spaces. The stall tax is intended to increase the cost of providing parking supply and thereby to reduce the existing supply of parking

and the development of new parking facilities. This tactic could indirectly affect the demand for parking if the cost of the tax is passed on to the parkers. It can also be a source of municipal revenues.

The tactic differs from conventional real estate taxes in several respects. Conventional real estate taxes apply to the overall value of land and improvements and do not directly impact parking facilities (except to the extent that the tax is imposed directly on a privately owned principal use parking lot or structure). The stall tax can be set at a level which discourages the development of new parking spaces, discourages operating existing parking spaces which are provided free or at a low cost to parkers, and encourages parking facility operators to pass the cost on to parkers.

The tax can be a disincentive to operating marginal commercial parking facilities, heavily subsidized employee provided parking facilities and to developing new parking facilities. Such a tactic could be an important part of a broad package of actions (e.g., maximum parking space requirements, reduced parking requirements through transit and HOV incentives) designed to control the growth in parking supply.

Such a tax potentially could have undesirable land use impacts by encouraging new commercial, office, and related development to locate in municipalities that are not subject to the tax. If, for legal reasons, the tax must be applied to all nonresidential parking facilities in a municipality, this may impose heavy financial burdens on private parking interests, as well as churches, colleges, hospitals, and other institutions. If such institutions, shopping centers, and employers respond by reducing their parking supply, this may cause spillover parking in nearby neighborhoods and commercial areas and may result in undesirable financial impacts on many businesses and institutions.

The tax would be simple to administer and enforce. An accurate, current inventory of parking spaces by tax parcel would be the basic requirement. The tactic would have little, if any, effect on administrative cost to parking operators, land owners, and developers. However, the total direct and indirect costs of a stall tax on the private parking industry and activities that require significant parking supply potentially could be significant.

Peak Period Parking Surcharge

This tactic would entail all vehicles entering parking facilities during the a.m. peak period (e.g., 6:30 a.m. to 9 a.m.) paying a parking surcharge. This time period is of interest as it is a period of significant congestion and work-related travel that could be made by transit and/or carpools. This type of tactic typically would have to be enacted by the affected city council or comparable body of elected officials.

The peak period parking surcharge is intended to discourage automobile travel by long-term work trip parkers (particularly single occupant parkers) who normally travel during congested morning and evening peak periods. It is also an effective mechanism for raising revenues for the general fund or for other transportation programs. This tactic, if effective in reducing long-term parking, can free parking spaces for short-term parkers during the midday shopping periods.

This tactic potentially could be applied to all types of parking: municipal, commercial, and private nonresidential. However, different mechanisms may be needed to collect and enforce the surcharge. In attendant facilities, the surcharge could be directly collected by the attendant/cashier. In non-attendant facilities, it would be necessary to require parkers to display a permit or license purchased from the applicable governmental agency for the value of the surcharge. The permits or licenses have the added potential of being applied to specific geographic areas. The permits or licenses could be sold at stores, banks, and other outlets as is the case for lottery tickets.

An effective enforcement program would be important to the overall success of the surcharge program. The program would require the checking of permits or licenses for violations and possible counterfeiting of permits. The fine structure might have to be increased to discourage illegal parking. The enforcement of permits in private parking facilities may be a problem as such facilities are not typically under the jurisdiction of the applicable parking enforcement agency.

The parking industry may object to the surcharge because it may reduce industry revenues and will increase parking employee workloads. Many parkers will object to the surcharge because of its financial impacts, particularly on low-income motorists and travelers without a perceived transit or carpool alternative.

The imposition of a surchrage may lead to an increase in illegal parking and parking in residential areas adjacent to major employment centers.

Unless such a program were implemented on an areawide basis, it could encourage new development to locate in areas not covered by the surcharge.

The implementation of a parking surcharge is likely to be highly controversial. The planning of such a tactic must carefully examine:

- Geographic area and types of parking facilities covered in the program
- Duration of the time period during which the surchage is in effect
- Dollar value of the surcharge
- Use of revenues generated by the surcharge
- Procedures for collecting and enforcing the surcharge, particularly for metered parking spaces
- Enforcement of parking regulations in and adjacent to the affected geographic area

Because of its potentially significant impacts on many travelers, serious consideration should be given to implementing other TSM tactics such as

transit improvements, carpool and vanpool programs, and flexitime to alleviate some of the impacts.

Differential Pricing Programs

Differential pricing programs are intended to encourage selected types of parking and discourage others. Pricing incentives and disincentives can promote objectives such as:

- Reducing travel in single occupant autos
- Reducing congestion in major activity centers
- Promoting carpooling and vanpooling
- Promoting short-term parking and discouraging long-term parking in major activity centers

Such programs could be applied to:

- Carpools and vanpools
- Energy-efficient vehicles
- Short-term versus long-term parking
- Underutilized parking facilities within major activity centers

The procedures for implementing such actions will differ depending upon the nature of the price differential. Reducing short-term rates relative to long-term rates can be readily accomplished at attendant facilities and through meter settings at metered facilities. This is also the case for geographically differentiated rates. However, rate differentials for energy-efficient vehicles or carpools are not readily enforced in nonattendant facilities. Some type of permit may be required to enable such parkers to receive reduced rates.

The implementation of such rates should be accompanied by an advertising program as well as by a set of clear rules regarding the operation of the price differential program.

While differential pricing programs are conceptually appealing, very limited information is available on their impacts and effectiveness. Although such tactics are relatively easy to implement, there are many detailed operating issues that need to be analyzed to develop an effective program.

Parking facility operators may be reluctant to implement such tactics because of the uncertainty of their impacts and difficulty of enforcement.

In order to implement effective pricing differential tactics, it is necessary to address the following types of issues:

- Magnitude of the price differential
- Financial impacts and possible methods for mitigating such impacts on the municipal and commercial parking operations
- Eligibility criteria for qualifying for the discount

A commonly encountered problem in carpool programs is the question of requiring the full carpool to arrive at the parking facility to qualify for the pricing discount (and preferential space in many instances). If this requirement is dropped, then another mechanism should be developed to verify that carpoolers only are participating in the program. Examples of such checks include conducting periodic telephone verifications that a carpool is in operation (e.g., Portland, Oregon) or requiring monthly written certification from carpoolers before a permit is issued.

Removal of Employer Parking Subsidies

The purpose of this tactic is to discourage employees from driving to work, particularly in single occupant autos, by eliminating employer-provided parking subsidies. Variations of this tactic can be used to provide transit and carpooling incentives to employees.

Many employers provide free or low-cost parking to employees. This fringe benefit subsidizes automobile travel by employees and does not provide a comparable subsidy to employees who carpool or use transit.

Employer parking subsidies could be removed or lowered in several ways:

- Charging rates comparable to commercial parking rates
- Dropping subsidies for parking in commercial parking facilities
- Giving employees a monthly cash payment to defer some portion of their travel costs while charging commercial parking rates at its facilities.

These options are likely to have many different effects. The first directly impacts employees who drive to work. The revenues generated by the tactic would accrue to the employer if he owns the parking facilities. The second option has a similar effect except that the employer no longer pays the parking charges for his employees in nearby commercial or private parking facilities.

The third option would provide all employees of a firm with the same monthly transportation subsidy. The cash payment could be used at the discretion of each employee. This type of program has been implemented by American Hospital Services Company in Evanston, Illinois.

These tactics directly impact the parking cost of work travelers, which is intended to discourage automobile commuting and promote transit and carpooling. Such actions may also reduce the demand for parking and reduce the supply requirements and capital and maintenance costs for employers.

The payment of a transportation subsidy has the important effect of treating all employees equally, which generally is not the case when only parking is subsidized. This gives employees the flexibility to use their funds as they see fit.

The removal of parking subsidies will be a controversial action. Many employers have long standing policies to provide free or low-cost parking and may be highly reluctant to change. The provision of free subsidized parking may, in fact, be part of union agreements or employee contracts which can only be changed through the labor negotiation process.

A key element in encouraging employers to reduce subsidies to demonstrating: (1) that the cumulative effects of such actions by employers can make an important contribution to reducing congestion, increasing transit ridership and carpooling, improving air quality, and reducing energy consumption, and (2) that the direct impact on employers, and their employees, will not be so severe that major short-term or long-term labor relation problems will develop. Clearly, it is also important that unions and employee groups be actively involved in efforts to implement such tactics.

Programs for phasing out parking subsidies over several years could be developed to lessen the impacts and provide a transition period.

Two important examples of large employers substantially increasing parking rates for their employees are the fedearl governments of Canada and the United States. In Canada, the rates were increased from "no monthly charge" to 70 percent of the applicable commercial rate (approximately $20 to $24 per month). In the United States, President Carter announced as part of his energy policy that commercial parking rates will be charged for parking in federal facilities. This program has been implemented in two phases. Fifty percent of the commercial parking rate has been charged in the first year of the program, and the full commercial rate will be charged at the end of the second year of the program.

Evaluate Impacts/Issues of Concern

The pricing tactics that have been implemented were not based on highly sophisticated planning studies. Rather, the basic considerations such as:

- Increasing parking revenues
- Promoting vehicle turnover, particularly for short-term spaces
- Discouraging vehicular travel and conserving energy during peak periods

were frequently the justifications given for implementing parking pricing tactics. However, it should be noted that many urban areas can readily apply available modal split models to estimate changes in modal split and parking demand, possibly by trip purpose and time of day, to determine the travel, air pollution, energy consumption, and related impacts of such actions. Unfortunately, little information is available upon which to estimate the important and highly complex economic and land use impacts of such tactics. These impacts should be explicitly addressed even though this may be in qualitative terms.

IMPACTS

The impacts of the pricing tactics are summarized in Exhibit 35. The parking taxes in Pittsburgh, San Francisco, and Washington, D.C., have generated substantial revenues (i.e., $4.8 million, $5.4 million, and $8.0 million, respectively, in FY '78). However, a study of the original 25 percent ad valorem parking tax in San Francisco found that gross revenues to the private parking industry were estimated to be 36 percent below the level projected under normal growth and 31 percent under those of the year before the tax was implemented.[1/] This study also indicated that the tax had little impact on traffic in the city.

The preferential HOV pricing tactics have generally been successful in attracting carpools. The utilization of the HOV spaces has generally exceeded 75 percent in Montgomery County and Seattle. A survey in Portland determined that 61 percent of the carpools using the on-street carpool spaces were formed as a result of the program.

In Honolulu, the doubling of municipal parking rates to discourage long-term parking resulted in a 6 percent increase in the number of cars utilizing municipal spaces, a doubling of available parking spaces during lunch hour, and a 36 percent increase in monthly parking revenues.

In Montgomery County, the higher parking rates resulted in an increase in turnover in short-term parking spaces for 3.39 to 3.78 vehicles per space. Data are not available on the impacts on long-term parking demand and facility utilization. In its Silver Spring Parking Lot District, parking rates were not increased in selected underutilized off-street facilities in order to attract parkers from heavily utilized areas of the district. The desired reallocation of parkers did not occur. County officials believed this was because the price differentials may not have been sufficiently large to compensate parkers for the less convenient parking locations.

1/ Damian Kulash. Parking Taxes as Roadway Prices: A Case Study of the San Francisco Experience. The Urban Institute, Washington, D.C., March, 1974.

EXHIBIT 35

SELECTED PRICING PARKING MANAGEMENT TACTICS AND IMPACTS

JURISDICTION	DESCRIPTION OF PRICING TACTIC	IMPACT
Honolulu, Hawaii	• Municipal Parking Rates Increased to Discourage Long-Term Parking From 20 ¢ Per Hour to 40 ¢ Per Hour in High Demand Areas From 15 ¢/20 ¢ Per Hour 25 ¢ Per Hour in Fringe	• Number of Cars Parked Between 7 am and 3 pm Increased From: — 4,645 to 4,847 Off-Street — 6,265 to 6,735 On-Street • Number of Available Spaces at Lunch Hour Increased From: — 209 to 495 Off-Street — 260 to 440 On-Street • Total Revenue Per Month Increased By $49,000 (36%)
Montgomery County, Md.	• Municipal Parking Rates Increased From 10 ¢ Per Hour to 25 ¢ Per Hour at Most Facilities • Rates at Selected Off-Street Facilities Kept at 10 ¢ Per Hour to Encourage Use of Underutilized Facilities • Carpool Permits Sold at $16/Month Versus Standard Permit of $24/Month (Also Reserved Carpool Spaces) • Merchant Parking Validation Program is in Effect	• Average Turnover in Short-Term Spaces Increased From 3.39 to 3.78 Vehicles Per Space • Shifts of Parkers to Underutilized Facilities Did Not Work • Carpool Spaces 74% Occupied
Portland, Oregon	• 60 ¢ Per Hour On Straight Line Basis For Short-Term Parking • Merchant Parking Validation Program is in Effect • $15 Per Month Carpool Permit	• 288 Carpools Use On-Street Carpool Spaces (61% of Carpools Formed Because of Program)
San Francisco	• 15% Parking Tax on Patrons of For-Hire Parking Facilities • $10 Per Month Charge For Vanpools in CALTRANS Lots Versus Standard $60 Per Month • Long-Term Parking Rates Increased in Municipal Garages and Number of Monthly Contracts Reduced to Encourage Short-Term Parking	• Tax Generated $5.4 Million in Revenues in FY 77-78
Seattle, Washington	• $5 Per Month Rate For HOV On-Street Parking Permits Versus Standard $39 Per Month Rate	• 193 Carpools Certified to Use 164 Spaces. The Number of Carpools Exceed the Number of Spaces to Ensure High Utilization
Washington, D.C.	• 12% Parking Tax on Patrons of For-Hire Parking Facilities	• Tax Generated $8.0 Million in Revenues in FY 78
Ottawa	• Parking Rates For Federal Employees Increased From No Charge to 70% of Commercial Rate (Approx. $20 - 24 Per Month)	• 23% Reduction in Federal Employees Driving to Work • Auto Occupancy Estimated to Have Increased From 1.33 to 1.41 • Bus Riders in Federal Work Force Increased by 16%
U.S. Government	• Institute Commercial Rates in Federal Government Parking Facilities	
Pittsburgh	• 20% Parking Tax on Patrons of all Public and Private Nonresidential Facilities that Charge for Parking	• Tax Generated $4.8 Million in Revenues in 1978

The imposition of increased parking rates on federal employees in Ottawa had several important travel impacts.[1/] These included:

- A 23 percent reduction in the number of employees driving to work
- An increase in average auto occupancy from 1.33 to 1.41 persons per vehicle
- A 16 percent increase in transit ridership by federal employees

Particular care must be taken in attempting to generalize these impacts to other areas. It should be noted that almost half of the federal employees traveled to work by transit prior to the increase in parking charges. This degree of transit usage is not common in other areas the size of Ottawa.

1/ DeLeuw, Cather. The Impact of Increased Parking Charges Within the Ottawa-Hall Central Area. A Working Paper prepared for Transport Canada, Montreal, Quebec, June 1976.

VIII. ENFORCEMENT AND ADJUDICATION OF ON-STREET PARKING

Enforcement and adjudication of on-street parking are not objectives themselves but rather actions taken to promote transportation, economic, environmental, safety and other such objectives. Consequently, such programs should be planned, implemented, and operated in conjunction with other parking management, transportation, and related policies and programs.

Enforcement tactics, such as aggressive ticketing, towing, and booting illegally parked vehicles, have been used in many communities around the nation. They are not new, yet the use and integration of such tactics to meet broader transportation, economic, environmental and related objectives has received little attention, at least in the literature.

ENFORCEMENT TACTICS

Planning Enforcement Tactics

Because most urban jurisdictions have some type of parking enforcement program, planning improvements or revisions to such programs commonly occur as part of the day-to-day management and operation of these tactics. Planning new or revised parking enforcement programs should encompass the following steps:

- Designating a lead agency
- Reviewing and assessing the effectiveness of the existing parking enforcement program
- Developing a public participation program
- Identifying potential changes to the program
- Analyzing and evaluating the benefits and costs of such proposals
- Securing approval to implement the program

Designation of Lead Agency

To promote the integration and mutual reinforcement of enforcement tactics and other TSM actions, it seems desirable to assign parking enforcement activities to the traffic engineering, transportation, or public works department. In this type of organizational structure, enforcement programs and regulations potentially can be developed and managed from a broad transportation perspective. The development of programs for enforcing parking restrictions for HOV lanes, RPPP areas, commercial shopping areas, and other problems would be directed and implemented by a single agency rather than by multiple agencies.

Some communities, such as Washington, D.C., have concentrated responsibilities for parking enforcement in their departments of transportation or similar agencies. An important consideration in such decisions appears to be reducing the role of the police department in parking enforcement to free personnel for other higher priority police duties. Exhibits 36 and 37 present the organization of the parking enforcement activity in Washington, D.C. All enforcement activities are under the direction of the chief of the parking enforcement division.

Assessment of Existing Enforcement Program

A basic requirement before instituting major changes or expansions in a parking enforcement program is identifying the types, severity, and locations of parking enforcement problems in a jurisdiction and the effectiveness of the existing enforcement program in addressing problems. The types of issues and data that should be considered in this regard are illustrated in Exhibit 38. If a comprehensive parking enforcement program is under consideration, information on illegal parking, scofflaws, program costs and revenues, and staffing should be analyzed.

As shown in Exhibit 39, much of the information needed in such an analysis is likely to be available from agency records and budgets. Compiling such data should not be a problem for those agencies with up-to-date manual or computer information systems. However, it is likely that some type of field investigations will be necessary to determine the severity of illegal parking problems. Many agencies may not have current and/or readily accessible data of this type on a geographic basis. The number of tickets issued does not necessarily indicate the severity of the illegal parking problem. Usage surveys and possibly parking supply inventories may be needed to obtain information on factors such as parking turnover; illegal parking in loading zones, crosswalks, and at fire hydrants; and meter violations.

Usage surveys and parking inventories can be costly to perform and analyze. Consequently, those geographic areas of particular concern should be identified and given first priority, while geographic subareas (e.g., blocks) should be sampled in other less critical areas to determine the nature of their parking problems. This type of approach was recently followed by the District of Columbia DOT in developing a new comprehensive enforcement program for the City.1/

As noted in Section IV, useful references presenting procedures for conducting parking usage surveys and parking inventories are:

- Institute of Transportation Engineers. Manual of Traffic Engineering Studies. Fourth Edition. 1976.

1/ District of Columbia Department of Transportation. Improved Parking and Traffic Enforcement in the District of Columbia. April 1977.

EXHIBIT 36

DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF PARKING AND ENFORCEMENT

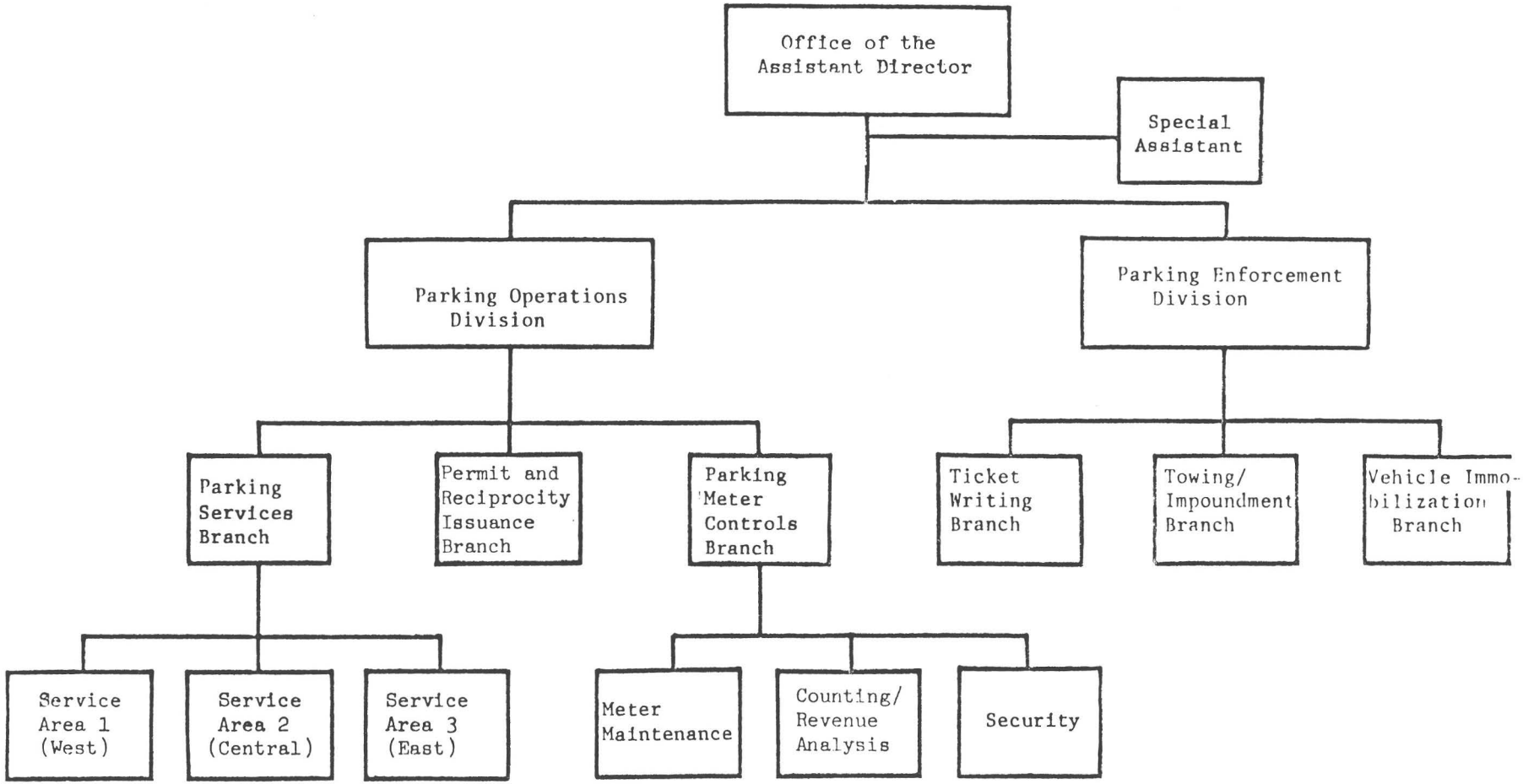

EXHIBIT 37

DISTRICT OF COLUMBIA BUREAU OF PARKING AND ENFORCEMENT
PARKING ENFORCEMENT DIVISION

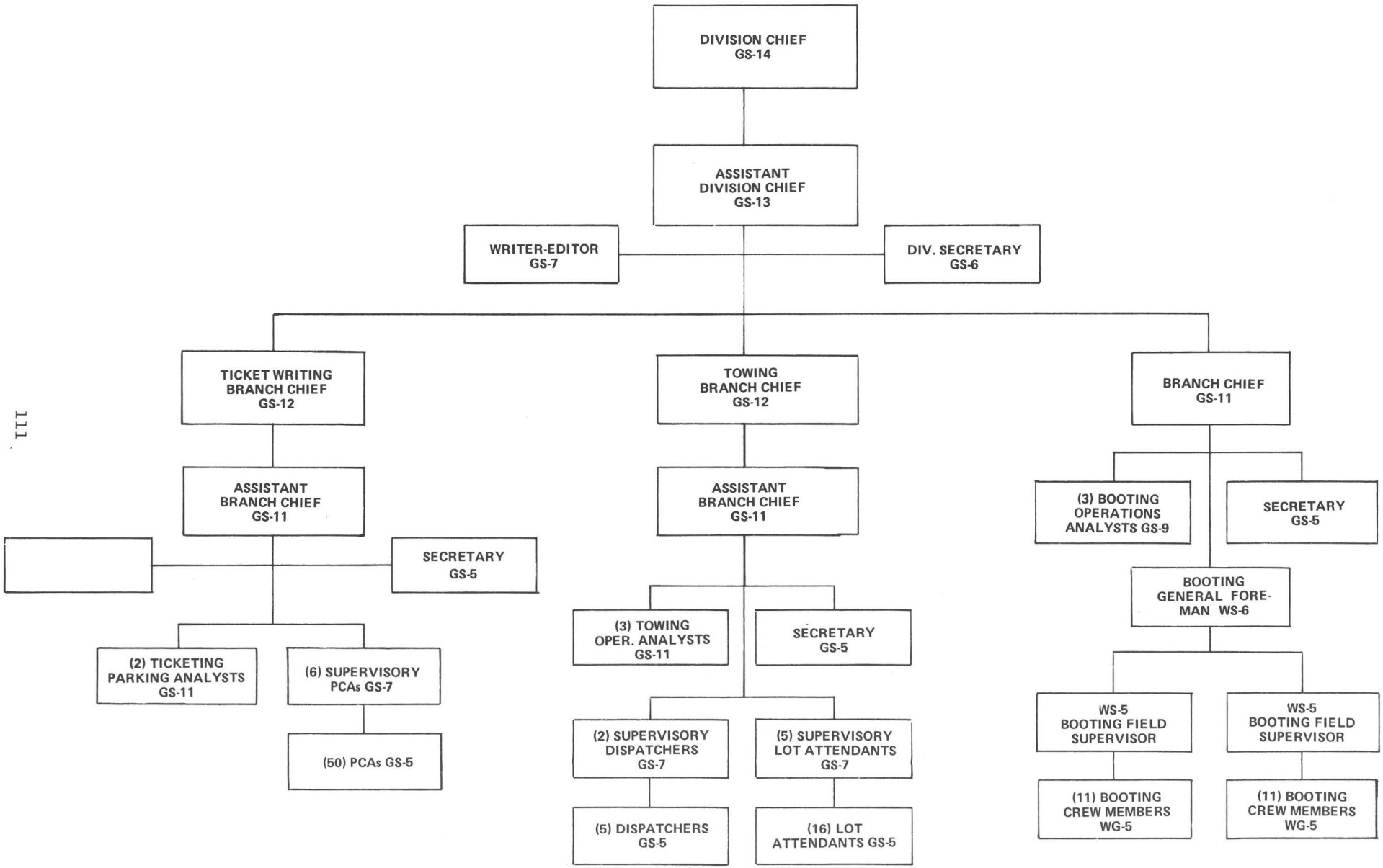

EXHIBIT 38

APPLICABLE DATA FOR ASSESSING ENFORCEMENT AND ADJUDICATION TACTICS

Potential Actions	Number, Types and Locations of Parking Violations	Characteristics of Scofflaw Problem	Operating Characteristics of Existing Enforcement Program	Operating Characteristics of Adjudication Process
1. Reduce Illegal Parking				
– Parking Violations	X		X	X
– Impeding Traffic During Peak Hours	X		X	X
2. Increase Apprehension of Scofflaws	X	X	X	X
3. Reduce Operating Costs and/or Increase Revenues				
– Enforcement	X	X	X	
– Adjudication	X	X		X
4. "Free-up" Police for Other Duties	X		X	

EXHIBIT 39

POTENTIAL SOURCES OF DATA FOR PLANNING ENFORCEMENT AND ADJUDICATION TACTICS

Applicable Data for Assessment	Potential Sources of Data
1. Number, Types, and Locations of Parking Violations	Records from Enforcement Agency (e.g., Police, DOT, Parking Authority) Usage Surveys and Parking Inventories
2. Characteristics of Scofflaw Problem – Number – Distribution of Scofflaws by Number of Citations – Value of Unpaid Citations	Records from Enforcement and Adjudication Agencies
3. Operating and Financial Characteristics of Enforcement Program – Responsible Agency – Enforcement Practices (e.g., routes, frequency) – Types of Activities Performed (e.g., Ticketing, Towing, Booting) – Staffing and Organization – Operating Costs and Revenues	Records and Budgets of Enforcement Agency
4. Operating and Financial Characteristics of Adjudication Program – Responsible Agency – Adjudication Practices – Cases Processed – Staffing and Organization – Operating Costs and Revenues	Records and Budgets of Adjudication Agency

- Public Administrative Service. Procedure Manual for Conducting a Comprehensive Parking Study. Revised Edition. July 1957. (Available from University Microfilms International, 300 North Zeeb Road, Ann Arbor, Michigan, 48106)

The analysis of the existing enforcement program not only should address the cost-effectiveness of the program but also should determine if the program is promoting the transportation, economic, energy conservation, and environmental objectives of the community.

The findings of the analysis should provide a basis for deciding if changes to the existing enforcement program and/or new enforcement programs are needed. It is highly advisable to document the findings of this analysis for review by elected officials, department administrators, and interested citizens, businesses, and institutions. Exhibits 40, 41, and 42 illustrate the findings of such an inventory and analysis in a sample of residential and commercial areas within the District of Columbia. The exhibits provide a good summary of the types and number of parking violations along with a measure of the corresponding level of enforcement (i.e., tickets issued). The data show, for example, that parking violations in bus zones and loading zones in commercial areas are a widespread problem. Vehicles parked illegally near intersections may also contribute to pedestrian and traffic safety problems within the city.

Analysis and Evaluation of Enforcement Tactics

In order to analyze and evaluate enforcement tactics, it will be necessary to:

- Define the characteristics of the tactics of interest
- Specify the types of impacts/issues of concern in the evaluation
- Select and apply procedures for estimating the impacts of interest

Define Characteristics of Tactics. Based on the findings of the evaluation of the parking enforcement program, the affected jurisdictions may decide to change selected elements of the parking enforcement program or to develop a more comprehensive enforcement program, possibly including towing, booting, and new forms of adjudication. It is particularly important that the enforcement requirements of on-street supply tactics (e.g., RPPPs, HOV on-street parking), pricing tactics, and fringe and corridor parking tactics be considered in assessing the requirements and scope of the parking enforcement program.

An important concern in this effort is deciding if towing and booting programs should be implemented within a jurisdiction. If a jurisdiction has a large number of scofflaws that cannot be apprehended through actions such as screening applications for annual vehicle registration, then it may be necessary to tow or boot "scofflaw" vehicles to enforce parking regulations and particularly to secure payment for past parking violations.

EXHIBIT 40

SUMMARY OF ENFORCEMENT PROGRAM REVIEW IN SELECTED RESIDENTIAL AREAS IN WASHINGTON D.C.

Residential Survey	RESIDENTIAL SPACE			CURBSIDE VIOLATIONS										
	Vacant	D.C. Tag	Other Tag	Meters	40' From Intersection	Driveway and Alley	Loading Zone	Entrance	Bus Zone	Hydrant	Double Parking	No Parking/ Standing	Tickets Issued	Total Violations
Capitol Hill AM & PM 47 blk.	15	605	754	9	129	49	14	12	10	5	3	17	4	248
New SW PM 21 blocks	17	288	381	3	45	12	0	4	15	6	4	11	6	100
Walter Reed PM 20 Blocks	119	304	470	0	9	6	0	1	2	1	1	0	0	20
Gateway PM 5 Blocks	8	25	53	0	9	2	0	0	0	0	0	0	0	11
Adams-Morgan PM 15 Blocks	43	293	197	0	29	3	6	11	0	1	3	23	0	76
Pleasant Park AM 5 Blocks	12	33	64	0	10	2	0	0	0	0	0	0	0	12
Burleith AM 28 Blocks	9	286	528	0	55	27	0	0	1	3	0	7	8	93
Anacostia (L'Enfant Sq.) PM 7 Blocks	5	53	23	0	6	2	0	4	0	1	0	0	0	13
Congress Hts. (M.L. King & Portland) AM 2 Blocks	9	25	10	0	3	0	0	0	1	1	0	0	0	5
150 Blocks	237	1912	2480	12	295	103	20	32	29	18	11	58	18	578

	Legal Spaces	% Occupancy	% D.C. Tags	Violations Per Block	% Tickets
Capitol Hill	1,126	98.7%	54.5%	5.3	1.6%
New S.W.	586	97.1	50.6	4.8	6.0
Walter Reed	873	86.4	39.3	1.0	0.0
Gateway	75	89.3	32.1	2.2	0.0
Adams-Morgan	457	90.6	59.8	5.1	0.0
Pleasant Park	97	87.6	34.0	2.4	0.0
Burleith	730	98.8	35.1	3.3	8.6
Anacostia	68	92.6	69.7	1.9	0.0
Congress Heights	39	76.9	71.4	2.5	0.0
Total	4,051	94.1%	43.5%	3.9	3.1%

EXHIBIT 41

SUMMARY OF ENFORCEMENT PROGRAM REVIEW IN SELECTED COMMERCIAL AREAS OF WASHINGTON D.C.

Commercial Survey	Parking Meters					Curbside Violations									
	Vacant	Occupied Legal	Violation No Ticket	Violation w/Ticket	Total Meter Violation	40' From Intersection	Driveway	Loading Zone	Entrance	Bus Zone	Hydrant	Double Park	No Parking	Ticket Issue	Total Non-meter Violation
East CBD 94 Blocks	92	476	342	67	409	81	20	127	66	94	6	65	306	43	765
West CBD 58 Blocks	14	277	166	4	170	52	17	26	56	45	1	27	217	11	441
Georgetown Business 19 Blocks	20	104	59	18	77	13	2	14	9	6	4	2	66	10	116
Anacostia Good Hope-King 6 Blocks	53	11	14	1	15	2	1	4	2	1	0	2	3	0	15
Congress Hts. King @ Portland 4 Blocks	23	9	9	0	9	1	0	2	0	1	0	0	3	0	7
Rhode Island Ave. Brentwood-Eastern 14 Blocks	51	13	19	0	19	0	1	5	0	4	1	0	2	0	13
Georgia Ave. 55 Blocks	202	122	273	1	274	21	4	22	0	75	1	6	56	0	185
Connecticut Avenue 35 Blocks	59	110	84	0	84	18	4	38	16	38	2	4	55	0	175
285 Blocks	514	1122	966	91	1057	188	49	238	149	264	15	106	708	64	1717

	Total Meters Surveyed	% Occupancy Vehicles vs. Meters	% Violations vs. Vehicles	% Tickets vs. Violations
East CBD	977	90.6%	46.2%	16.4%
West CBD	461	97.0	38.0	2.4
Georgetown	201	90.0	42.5	23.4
Anacostia	79	32.9	57.7	6.7
Congress Hgts.	41	43.9	50.0	0.0
R.I. Ave.	83	38.6	59.4	0.0
Georgia Ave.	598	66.2	69.2	0.4
Conn. Ave.	253	76.7	43.3	0.0
TOTAL	2,693	80.9%	48.5%	8.6%

EXHIBIT 42

SUMMARY OF PARKING VIOLATIONS IN WASHINGTON D.C.

	Non-Meter Violations	% Violations Per Block	% Tickets vs. Violations
East CBD	765	8.1%	5.6%
West CBD	441	7.6	2.5
Georgetown	116	6.1	8.6
Anacostia	15	2.5	0.0
Congress Hgts.	7	1.2	0.0
R.I. Ave.	13	0.9	0.0
Georgia Ave.	185	3.4	0.0
Conn. Ave.	175	5.0	0.0
TOTAL	1,717	6.0%	3.7%

Towing programs also provide an important method for clearing illegally parked vehicles from streets with peak period parking restrictions and from reserved lanes for buses and other HOVs. It should be noted that scofflaw vehicles identified on streets with peak hour parking restrictions should not be booted, as such immobilized vehicles will block traffic. This illustrates that both towing and booting may be necessary if an aggressive scofflaw apprehension program is implemented.

It is advisable to identify alternative enforcement programs to determine which programs are likely to be most cost-effective. In order to make such comparisons, alternative enforcement programs should be defined in terms of factors shown in Exhibit 43. Although this list is extensive, it illustrates the many factors bearing on the cost and ultimately the effectiveness of a parking enforcement program. The specific characteristics of an enforcement program should be identified in the public participation program based on the types of parking problems found in the jurisdiction.

Define Issues and Impact of Interest. Parking enforcement programs must be tailored to meet the needs and problems of specific subareas and interests within a jurisdiction. Consequently, it is important to analyze enforcement program impacts by geographic area and by affected interest group.

Program effectiveness, revenues, and costs should be analyzed for the overall enforcement program and for the:

- CBD
- Fringe of CBD
- Outlying commercial areas
- Transit stations (if applicable)
- Residential areas
  - high density
  - low density

Selecting and Applying Analysis Procedures. Highly complex technical procedures are not necessary to estimate the impacts of alternative parking enforcement programs. Probably the most critical requirement is for the analyst to have a thorough understanding of how the programs are expected to work in order to estimate realistic equipment and staffing requirements, implementation costs, operating costs, and program effectiveness measures.

Important sources of information for developing meaningful impact estimates are the experiences of other jurisdictions with similar tactics.

EXHIBIT 43

FACTORS FOR DEFINING ENFORCEMENT PROGRAMS

- Responsible Agency
- Staffing Levels
- Geographic Areas of Coverage
- Levels of Enforcement
  - Frequency of Patrols
  - Number of Citations, Tows, and Bootings to be Accomplished.
- Enforcement Methods
  - Ticketing
  - Towing
  - Booting
- Fines
  - Ticketing
  - Towing
  - Booting
- Need for Contractor Support (e.g., for towing)
- Method for Recovering a Towed or Booted Vehicle
- Equipment Requirements
  - Communication Equipment and System (e.g., CB)
  - On line Computerized Information System
  - Tow Truck Dispatching System
  - Storage Area for Towed Vehicles
  - Patrol Vehicles for Ticket Writers
  - Cranes for Towing
- Facility Requirements
  - Impoundment Lots
  - Office space for Supervisors, Staff and Equipment

The report, Study of Parking Management Tactics,[1] presents impact and revenue and cost data for several comprehensive enforcement programs.

Implementing Enforcement Tactics

The implementation of a comprehensive enforcement program can be a major undertaking, particularly if it incorporates towing and booting tactics. Important activities that will likely have to be performed include:

- Developing detailed requirements, specifications, etc., for staffing, towing and booting equipment, physical facilities (e.g., impoundment lots), and communication and information system equipment
- Determining an implementation schedule
- Defining and documenting management, adminsitrative, and operating procedures to be followed in the program
- Drafting and securing passage of enabling legislation, if applicable
- Developing requests for proposals, bid documents, etc., for procuring contractor services, if applicable
- Developing staff training program
- Preparing and distributing information to the public on the operation of the towing program
- Identifying sources of funds for implementing and operating the program

A number of these issues are considered below.

Develop Program Requirements

Exhibit 44 lists the many personnel and equipment requirements for implementing a comprehensive parking enforcement program. If the enforcement program is limited to aggressive ticketing, the principal requirements will be staffing, designation of regular enforcement routes, frequencies, etc., and a management information system to monitor the number of tickets issued by parking control aide and geographic area as well as to identify scofflaws if this is of concern to the jurisdiction. In many instances, relatively simple software and supporting administrative procedures can be developed to implement the information system. Clearly, an agency must assess, case by case,

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1/ Federal Highway Administration. Study of Parking Management Tactics - Volumes I and II, 1980.

its ticketing program to determine if it is large enough to warrant such a system.

The decision to implement a towing and/or a booting program increases the staffing, equipment, and physical facility requirements for an enforcement program. The enforcement program recently implemented by the District of Columbia DOT provides a useful example of how ticketing, towing, and booting programs can be integrated and the associated staffing, equipment, and facility requirements of such tactics.

In Washington, a staff of approximately 50 parking control aides (PCA) is responsible for enforcing parking regulations. The PCAs are assigned beats which are covered on foot or in vehicles depending upon the location of the beat. Both commercial and residential areas are covered with manpower concentrated on critical arterials during the peak traffic periods. The aides patrol these beats looking for violations such as expired time at parking meters and vehicles in no parking zones. The PCAs are also responsible for identifying vehicles in tow-away zones for the towing crews.

The towing operation is performed by a contractor. The contractor is required to have 25 cradle cranes available for use in the District. He must be able to remove and impound approximately 200 vehicles per day between 7 a.m. and 7 p.m. on weekdays.

The PCAs in the field identify vehicles which have committed towable parking violations. Generally, vehicles parked in tow-away zones or on restricted rush hour streets are selected. The PCA issues a ticket and calls the towing dispatcher with the location and description of the vehicle. A bright orange "tow" sticker is placed on the rear window of the vehicle for further identification. The aide continues his patrol. The PCA is not required to wait for the tow truck to arrive. Within 15 minutes, the tow truck arrives and hooks up the vehicle. Vehicles are placed on dollies if required. If the driver returns during this time, the tow truck driver is required to unhook the vehicle and return it to the owner. A towed vehicle is taken to one of three impoundment lots. The vehicle is sealed and placed in a numbered stall. District of Columbia personnel operate the impoundment lots.

To retrieve his vehicle, the owner must pay the $50 towing fee and any other outstanding traffic violations. This is done at the District government cashier's office and not at the impoundment lot. The owner must present his receipt and proof of ownership before the vehicle is released.

The Washington booting program is aimed at scofflaws, particularly those residing outside the District of Columbia. There are 80,000 vehicles which have been issued four or more tickets by the District and have not paid the fines. Ten crews search the city for vehicles on the list each day. Vehicles are immobilized by placing a Denver boot on the vehicle's front tires (see Exhibit 44). The owner of the vehicle must pay all outstanding fines plus a $25 booting fine before the vehicle can be released. Scofflaws found on rush hour streets are towed to impoundment lots. Booted vehicles on streets without rush hour parking restrictions are left on the street for 72 hours and then towed.

EXHIBIT 44

BOOTED VEHICLE

In Washington, an administrative adjudication process has been instituted to process all parking offenses and minor traffic infractions. All paperwork, including fine collection is handled by the Bureau of Traffic Adjudication. The Bureau is responsible for hearing specific cases as required. Major traffic offenses will still be tried in criminal court.

Based on the Washington example, the integration of ticketing, towing, and booting operations typically requires that:

- All PCAs have two-way radios to request towing equipment
- Some PCAs have vehicles to reach patrol areas (e.g., commercial areas or RPPP areas) throughout the city
- Communication system be established to identify vehicles to be towed (see Exhibit 45 which indicates characteristics of vehicle to be towed)
- On-line information system be established to identify vehicles that have been towed or booted, their impoundment/booted locations, the outstanding citations and fines on the vehicles, and their status with respect to paying all fines and charges
- Impoundment lots and associated security provisions be developed
- Cranes for towing be acquired/rented and maintenance and storage facilities be provided

Develop Management and Administration and Operating Procedures

The success and political acceptability of an aggressive enforcement program, particularly a program involving towing and booting, will be heavily dependent on the equitable and reliable operation of the program. Although programs as complex as that in Washington inevitably will have some startup problems and periodic problems with erroneous towing and booting, it is essential that such problems be kept to a minimum and corrected immediately. This clearly requires that carefully structured management, administrative, and operating procedures be documented, communicated to the staff, and enforced on a continuing basis. A number of key issues in this regard are discussed below.

Staff Training. The importance of a thorough training program for program supervisors, PCAs, crane operators, dispatchers, booting personnel, impoundment lot personnel, and others involved in the enforcement program cannot be overstated. Many of these individuals will have extensive contact with "angry" vehicle owners and should have a clear understanding of how to handle both routine and unique situations. Erroneous or inconsistent application of enforcement regulations, discourteous treatment of the public, or deliberate neglect of standard operating requirements (e.g., in securing

EXHIBIT 45

DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
TOWING AND IMPOUNDMENT FORM

TRANS. NO.

MAKE_____ LIC. NO._____ STATE_____

COLOR_____ LOCATION_____

LOT. NO._____ SPACE NO._____ TIME 1._____

REMARKS_____ 2._____

3._____

4._____

VEHICLE DESCRIPTION (INDICATE DAMAGED AREA BY MARKING THE DRAWINGS)

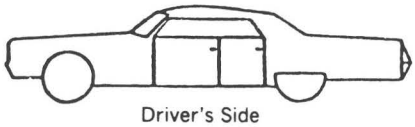
	YES	NO
INTERIOR ALL DOORS LOCKED	☐	☐

B-BENT D-DENTED

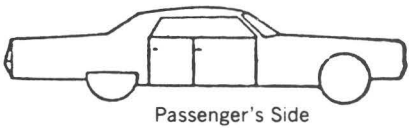
T-TORN M-MISSING

BR-BROKEN S-SCRATCHED

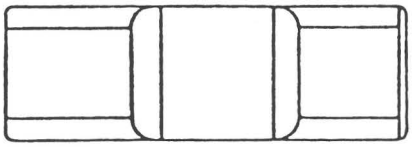
CH-CHIPPED GC-GLASS CRACKED



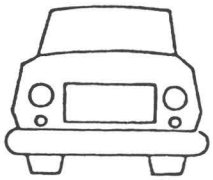
Driver's Side



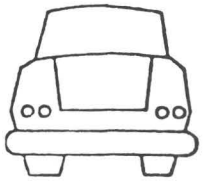
Passenger's Side



Top View



Front



Rear

LIST AND IDENTIFY VALUABLE CONTENTS OF PASSENGER COMPARTMENT_____

DAMAGE DESCRIPTION (BRIEFLY DESCRIBE ANY EXISTING DAMAGE)

TYPE OF TOW WHEELS OFF GROUND ☐ FRONT ☐ REAR ☐ ALL

VERIFICATION OF VEHICLE CONDITION

STORAGE ATTN. SIGNATURE_____

CRANE OPERATOR'S SIGNATURE_____

VEHICLE DISPOSITION

RELEASED TO:
NAME (print)_____ TIME OF RELEASE

OP. LIC. NO. | | | | | | | | | | |

STREET_____

CITY & STATE_____

No. 023493

DOT-CA-1 (11/78)
J-90789

impounded vehicle) can seriously and quickly undermine the credibility and support of the enforcement program.

Washington, D.C., has instituted a two-week training course for PCAs which includes two or three days of on-street supervised patrolling. This program is designed to familiarize PCAs with applicable parking regulations and patrol procedures. Crane (i.e., tow truck) operators are also instructed on procedures for performing this operation. For example, if the driver of a vehicle that is to be towed returns before the crane leaves for the impoundment lot, the crane operator is instructed to return the vehicle to its owner.

Vehicle Security. Particularly sensitive issues when vehicles are being towed and impounded are preventing damage to the exterior of the vehicle and securing contents of the interior of the vehicle. Each of these concerns is affected by the methods used to tow and protect impounded vehicles.

It is highly advisable to develop procedures for recording the physical condition of vehicles which are towed and impounded. Exhibit 45 is the form used in Washington, D.C., to record such information. This form serves as both a record of a vehicle being towed as well as a description of the physical condition of the vehicle. This form is completed when the vehicle arrives at the impoundment lot. In some instances, photographs of damaged vehicles are taken to protect the D.C. DOT from potentially fraudulent claims.

Protecting the interior contents of towed vehicles is a very serious issue. The methods used to tow vehicles greatly affect how this can be accomplished. In some towing operations, crane operators are allowed to enter a vehicle to facilitate the towing operation while in others crane operators are explicitly prohibited from entering a vehicle. The D.C. DOT system is an example of the latter operation where the cranes used enable the operator to perform all towing operations from outside the vehicle. It is also necessary to secure vehicles while they are on the impoundment lot. This requires providing the necessary fencing, lighting, and, as required, security personnel at the lots. The contents of towed vehicles can be further protected by "sealing" vehicles when they arrive on the impoundment lot, as is done in Washington. The "sealing" consists of taping closed the doors, hood, and trunk of towed vehicles to prevent theft or vandalism.

Procedures for Returning Vehicles. The procedures established for returning impounded or booted vehicles should be carefully developed. Basic questions to be addressed include:

- Use of centralized or decentralized (i.e., at impoundment) cashier facilities for paying outstanding fines and costs and the necessary fiscal control on such operations

- Type of evidence, (e.g., vehicle registration) needed to establish vehicle ownership before releasing the vehicle

- Time periods during which vehicles can be obtained from the impoundment lot

- Need for a daily storage charge at the impoundment lot

- Procedures for processing damage or other claims against the jurisdiction

The appropriate method for addressing each of these issues will depend on the specific characteristics of each jurisdiction's enforcement program.

Improving Operating and Administrative Procedures. Because of the complexity and public visibility of aggressive enforcement programs, changes and improvements to such programs may be periodically required. The Washington, D.C., program provides a good example of this. The following problems were encountered during the first full year of operation of the ticketing, towing, and booting program.

- The original goal of towing 450 cars per day was found to be impossible.

- Citizens and elected officials were critical of "overly aggressive" enforcement in selected residential areas.

- A small number of vehicles were erroneously towed and booted because of staff or data errors.

- An impoundment lot was broken into and selected impounded vehicles were vandalized.

In response to such problems, major and minor revisions and improvements were made to the enforcement program. For example, the contract with the towing contractor was renegotiated to provide for towing 200 vehicles per day at a cost equitable to the City and the contractor. The claims of "overly aggressive" ticketing were addressed by instructing PCAs on the types of violations that should be ticketed. The Department continuously monitors its operations to correct problems that may lead to erroneously towing or booting vehicles. Finally, security at the impoundment lots has been increased to protect vehicles from vandalism. In addition to the above problems, the D.C. DOT has found it is necessary to revise downward its net revenue projections for several of the enforcement tactics in light of revised program objectives and performance.

This discussion is not intended as a criticism of the D.C. DOT program, but rather as an illustration of the need to carefully manage and adjust the program in light of changing conditions.

Use of Contractor Services

A number of options are available to jurisdictions for operating their towing and potentially their booting programs. These options include using public employees, private contractors or a combination of both. Jurisdictions such as Washington, D.C., have contracted out their towing operations which

has resulted in cost savings to the jurisdiction. This approach may also enable a jurisdiction to minimize start-up capital costs for cranes, communication equipment, and maintenance facilities by acquiring such services from contractors.

The advantage and disadvantages of this approach must be considered on a case-by-case basis. Under certain circumstances, it may be advantageous for a jurisdiction to consider the option of using private contractors.

Develop Public Information Program

When implementing major changes to an existing enforcement program or totally new enforcement activities, it is essential to advise the public of such developments. Such a public information program is particularly critical if towing and booting are part of the enforcement program. Radio, television, and newspaper coverage should be arranged and flyers, posters, and other mechanisms used to inform the public of the requirements of the enforcement program.

The requirements of the public information program include specifying:

- Parking rules and regulations of jurisdiction
- Fines and other penalties (e.g., towing, booting) associated with parking violations
- Methods for responding to a parking ticket, including contact agencies and address, hours for hearing, and amount and method of payment
- Necessary steps to recover a vehicle that has been towed or booted, including contact agency and address, hours for payment of fines and retrieving vehicles, location of impoundment lots, form of payment (e.g., cash, certified checks, credit card)

The District of Columbia prepared a brochure similar to the one described above.[1/] This document included a detailed map showing the locations for paying fines and other costs and impoundment lots in relation to the subway lines and stations serving the City.

Identify Sources of Funds

The capital and operating costs of the enforcement program typically must come from local sources. There are no federal funding sources for parking enforcement.

1/ District of Columbia Department of Transportation. District of Columbia Parking Enforcement Program, Washington, D.C., 1978.

Many local agencies have pointed out problems of securing approval of start-up costs for comprehensive enforcement programs. This problem may be partially overcome by showing appropriate administrators and elected officials that start-up costs can be repaid over time from parking enforcement revenues. For example, the ticketing, towing, and booting tactics in Washington, D.C., were estimated to produce net revenues to the City of $5.37 million, $150,000, and $900,000, respectively, in fiscal year 1979.

Potential sources of start-up funds include general revenues, existing parking enforcement revenues, parking meter revenues, or possibly a special purpose parking tax.

Impacts

The impacts and key characteristics of parking enforcement programs in selected cities are summarized below.

Ticketing Programs

Boston currently employs about 50 parking control aides (PCAs) who each write about 100 tickets per day. The PCAs are civilians in the Traffic and Parking Department and were hired to augment Police Department parking enforcement. The PCAs write about 80 percent of all citations and the city budgets $1.24 million per year for them (including supervision and vehicles). In 1976, 1.4 million tickets were issued in Boston.

Washington, D.C., has also chosen to improve its parking enforcement capabilities through the use of civilian PCAs. The D.C. DOT estimates that the PCAs will write an additional one million tickets per year over the 1.5 million citations currently issued for an average of 75 tickets per day per PCA. D.C. DOT estimates expenses for these activities at $1.03 million and anticipates gross fine revenues at $6.4 million for a net of $5.37 million in FY '79. Exhibit 46 shows that parking turnover and the percent of illegally parked vehicles in CBD changed radically after the enforcement program was initiated. Meter revenues increased from $2.7 million in FY '78 to $3.7 million in '79, an increase of 34 percent.

Another city with strict enforcement policies is Portland, Oregon. The city employs 24 civilian parking control aides in the Bureau of Traffic Engineering. Sixteen PCAs are assigned to the CBD which is covered at least four times per day. The city budgets $.4 million for the enforcement patrol and collects about $1.0 million in fines per year.

Towing Programs

Boston originally towed scofflaws with five or more outstanding citations but capacity constraints in the impoundment lots and the introduction of Denver boots led the city to adopt booting as a more cost-effective way to

EXHIBIT 46

WASHINGTON, D.C., TURNOVER STUDY COMPARISONS

	PRIOR TO ENFORCEMENT PROGRAM	AFTER ENFORCEMENT PROGRAM
• Legal Hours Parked	13%	56%
• Illegal Hours Parked	84%	31%
• Vacant Hours	3%	13%
• Turnover	1.2	2.9

Source: D.C. DOT, Bureau of Parking Enforcement

deal with that program. Boston continues to tow vehicles parked in loading zones, at fire hydrants, etc., but state legislation which limits the maximum towing fine to $12.50 makes this an unprofitable activity for the city. Boston estimates the costs for the city to tow an auto at $39.

Washington, D.C.'s, towing is performed by a contractor. The contractor utilizes 25 cradle cranes to tow approximately 200 cars per day between 7 a.m. and 7 p.m. Washington had originally planned to tow 450 vehicles daily but this level of enforcement proved to be politically and logistically unfeasible. The contractor is paid $19.35 per hour per crane. This is a substantial saving for the District as the Police Department estimates that tows performed by the City cost $29 each. Between January 8, 1979, when the towing program began and the end of September 1979, 35,540 vehicles were towed. The average vehicle towed had $25 in outstanding fines in addition to the $50 towing fine. Washington, D.C., expected to net $150,000 from this towing program in FY '79.

Ann Arbor, Michigan, instituted a towing and booting program in August 1978. In the first ten months of the program 1,040 vehicles were towed, and the total value of the tickets on these vehicles was $164,000 (i.e., $158 per towed vehicle).

Booting Programs

Denver booting programs have been recently implemented in Washington, D.C., Boston, and Ann Arbor, and are designed to apprehend scofflaws. Boston estimates there are 52,00 scofflaws on its records while Washington, D.C., identifies 80,000 scofflaws.

The three cities use teams of spotters who patrol the streets with lists of autos whose owners are scofflaws. Boston uses 15 CETA employees and Washington sends out 10 teams each day. Ann Arbor uses City employees who are on light duty or workman's compensation as spotters. After a scofflaw's car has been identified, a van carrying boots is notified and an operator comes and attaches the device. Violators must then pay all outstanding fines plus the booting fine ($25 in Washington). In Washington, cars of scofflaws located on streets with peak hour parking restrictions are towed and not booted. In addition, a booted vehicle unclaimed for three days is towed to the City's impoundment lot.

In Washington, D.C., 11,460 vehicles were booted in 10 months during FY '79. Washington, D.C., forecast gross revenues from its booting program to be $1.5 million in FY '79. Expenses were estimated at $6 million for a net of $900,000. Boots cost $250 each and the average ticket value on booted cars in Washington has been $175. In Boston the average ticket value declined from $750 per auto when the program was first implemented to about $160 currently. (This is due to their policy of going after the worst offenders first). Boston currently owns 150 boots and has an additional 100 on order. On an average day in early 1979, 140 cars were booted in Boston.

ADJUDICATION TACTICS

Adjudication refers to the legal process for conducting hearings on contested cases involving traffic and parking violations. There are two methods of adjudication: judicial and administrative. The judicial adjudication system is administered by the courts, commonly the criminal courts, while the administrative adjudication system is administered by a traffic department or other non-judicial agency. Many legal, institutional and political factors must be considered in assessing the desirability of transferring the adjudication function from the courts to a non-judicial agency. Such factors include:

- Existence of legal powers for establishing an administrative adjudication program or support of passing such legislation
- Case load demand, particularly the traffic and parking case load, on the court system
- Average elapsed time for holding a hearing on traffic and parking cases
- Cost and staff resources of the judicial system devoted to traffic and parking cases
- "Observed" effectiveness of the adjudication program for discouraging and apprehending scofflaws
- Likely costs, effectiveness, and operating characteristics of possible administrative adjudication systems

A useful step in analyzing the advantages and disadvantages of administrative adjudication is to review the operation of implemented programs.

Jurisdictions such as New York City, Buffalo, Rochester, the State of Rhode Island, and Washington, D.C., have implemented administrative adjudication systems. Benefits of such systems include:1/

- Quickly hearing and deciding cases involving traffic and parking tickets
- Significantly reducing the average length of wait time from several hours to 20 to 40 minutes for citizens appearing for hearings
- Reducing judge and prosecutor case loads and enabling them to concentrate their efforts on criminal cases
- Reducing the need for court appearances by police officers

1/ District of Columbia Department of Transportation. Improved Parking and Traffic Enforcement in the District of Columbia. April 1977.

- Greatly reducing the ability of parking scofflaws to avoid apprehension

- Eliminating the criminal stigma associated with a hearing on parking violations

In a study of its judicial adjudication system, the District of Columbia DOT found many deficiencies including:

- Unmanageable volume of cases

- Long delays between issuing tickets and adjudication

- Lengthy waits for citizens appearing in court

- Judge shopping and inconsistent sentences

- Wasted man-hours and unnecessary appearances for police officers and problems of notifying affected police officers of upcoming court cases

- Lengthy lag time between non-payment of a ticket and issuance of a warrant for non-payment

In order to meaningfully compare both types of adjudication and to gain necessary political and institutional support for administrative adjudication, it is important for all agencies involved in and affected by the program to participate in the analysis. This typically would include:

- Elected officials

- Representatives of the judicial system

- Police department

- Jurisdiction's legal counsel

- Traffic department or DOT

- Community leaders

- Public interest groups concerned with protecting the legal rights of citizens

The last group should be involved to address concerns that citizens' legal rights will not be violated in the adjudication process and that appropriate legal mechanisms exist for appealing decisions, fines, etc.

At a minimum the planning phase for an administrative adjudication system should determine:

- Existence of or need to secure enabling legislation for such a system

- Agency to be responsible for the system
- Types of parking and traffic offenses to be covered in the system
- Major components of the system including ticket processing, hearing processing, options for appeals, enforcement of penalties, and driver rehabilitation for traffic offenses

There are many issues that must be resolved in order to implement an effective administrative adjudications system. These include:

- Defining parking and other (e.g., traffic) violations to be handled and all operations to be performed under the system
- Estimating the case load on the system as a function of the characteristics of the enforcement program
- Developing an organization plan and corresponding staffing and training requirements
- Developing management, administrative, and operating procedures for the program
- Designing and implementing a management information system to support the adjudication process and to integrate the enforcement and adjudication functions
- Estimating the start-up and operating costs and revenues for the program
- Developing a detailed schedule for implementing the adjudication system
- Developing materials for familiarizing citizens with the workings of the system

Many of the above steps are self-explanatory. However, there are several that warrant further discussion. A basic system characteristic is the types of parking and other (e.g., traffic) violations that will be handled in the administrative adjudication process as opposed to the courts. Serious traffic (e.g., driving while intoxicated, reckless driving) and parking (e.g., scofflaw) violations would likely be handled by the criminal courts, while routine, less serious violations would be the responsibility of the adjudication system.

The characteristics of a jurisdiction's enforcement program should be accounted for in estimating case load staffing. For example, the implementation of an aggressive ticketing, towing, and booting program is likely to generate a substantial increase in tickets and adjudication hearings over that for the existing enforcement program. In Washington, D.C., the PCAs are estimated to write an additional one million tickets annually under its new enforcement program. This could represent a large increase in work loads, cost, and revenues for the system.

IX. MARKETING TACTICS

Marketing tactics are important, but frequently overlooked, elements of TSM programs in general and parking management programs in particular. As used in this report, marketing refers to promotional programs to attract customers and others to a particular activity center.

It is important to recognize that a marketing strategy not only includes preparing promotional materials such as maps and advertisements but also includes developing parking convenience programs (e.g., reimbursement of parking charges by businesses), pricing strategies, and providing convenient, safe parking facilities.

The development of an effective marketing program for parking involves the following activities:

- Designating a lead agency and developing the objectives of the marketing program
- Developing specific marketing tactics
- Implementing and operating such tactics.

DESIGNATION OF LEAD AGENCY

There are no clear "factors" that indicate which types of agencies should be responsible for such marketing programs. Rather, local circumstances appear to significantly affect the interest in and roles of agencies in such programs. One common trait in the several jurisdictions was involvement of the downtown business community as well as local government agencies in developing and implementing such marketing tactics. In Hartford, a privately funded downtown promotion and improvement organization, Hartford's Downtown Council, developed the marketing program which included an advertisement program and a transit/policy cost reimbursement program. In Montgomery County, the County's Parking Authority worked closely with Chambers of Commerce in two activity centers, Bethesda and Silver Spring, to develop and implement several parker convenience programs. Similarly, the business community in downtown Portland worked with City agencies to develop promotional material to attract shoppers to downtown.

Private and public sector cooperation appears to be a key in designing an effective marketing program. Strong support and participation by the business community will help relate the marketing program to the overall economic and development objectives for activity centers.

Parking is not an end in itself, but merely an activity that must be performed in satisfying other needs (e.g., shopping, attending entertainment events, dining out, attending to personal business). This perspective is important because it indicates that parking should be marketed in a manner

which supports the economic, development, and related objectives of activity centers. It also indicates that such a marketing program should be directed to those shoppers, workers, patrons, and visitors who are likely to be attracted to the activity center in question.

The development of the overall objectives of the marketing program ideally should be determined by the private and public sectors. The types of issues to be addressed include:

- What types of customers and others currently patronize the activity center and what other types of patron is the activity center trying to attract?
- What should the relative emphasis be on providing long-term commuter parking versus short-term parking?
- Should programs to encourage transit ridership and carpooling be adopted?
- What types of pricing policies and parking convenience programs will promote the economic and development objectives of the activity center?
- What information programs can be used to attract patrons to the activity center? If applicable, how can this effort be coordinated with that of the transit operator and the carpool/vanpool agency?
- Which organizations will take the lead in designing the program?

SELECTION OF SPECIFIC MARKETING TACTICS

Based on the objectives of the program important steps that should be taken in designing a marketing program include:

- Selecting specific tactics to analyze including
  - Maps
  - Brochures
  - Newspaper and radio advertisements.
  - Parker convenience programs
- Developing details of each tactic
- Estimating the costs and sources of funding for the marketing tactics
- Specifying how the tactics will be implemented, monitored, and updated (e.g., for maps)

Exhibit 47 lists important considerations that should be addressed in developing one or more of the noted marketing tactics. The preparation of maps and brochures is likely to be the least expensive tactic to develop and

EXHIBIT 47

CONSIDERATIONS IN DEVELOPING MARKETING TACTICS

Maps and Brochures	Newspaper and Radio Advertisements	Convenience Program

• Type of Information to be Presented
  – Parking Facility Location
  – Parking Rates and Reimbursement of Charges
  – Hours and Days of Operation
• Design (i.e., Layout) of Map and Brochure
• Use of a Logo for the Program
• Contact Agency for Additional Information
• Required Quantities
• Method for Distributing the Map and Brochures
• Method and Frequency of Updating Map and Brochures
• Cost of Maps and Brochures
	• Types of Information to be Communicated
	• Selection of Media for Advertisement
	  – Newspaper
	  – Radio
	  – Other
	• Design of Advertisement
	• Advertisement Program
	  – Number of Newspapers
	  – Location of Ads
	  – Frequency of Advertisement
	• Cost of Advertisement Program
		• Target Market
		  – Shoppers and other Short-Term Parkers
		  – Patrons Traveling By Transit
		  – Commuters
		• Program Characteristics (as applicable) for Full/Partial Reimbursement of Parking (or Transit) Costs
		  – Publicity of Program
		  – Hours and Days of Operation
		  – Levels of Reimbursement/Discount and Amount of Purchase to Qualify
		  – Method for Reimbursement/Discount
		  – Stamps
		  – Tokens
		  – Passes
		  – Other
		  – Participating Parking Facilities or Transit Systems
		  – Method of Distributing Tokens, Stamps, etc. to Participating Merchants
		  – Contact Agency for Further Information
		  – Cost of Program
		  – Use of a Logo for the Program

implement because it is a "one-shot" effect that requires only periodic updating to remain current. Newspaper and radio advertising may be somewhat more costly than maps and brochures because of the potentail need to develop and place different advertisements over time. However, such a program may also reach a large segment of the market of interest.

The development and operation of a convenience program, particularly one involving full or partial reimbursement of parking or transit costs, is likely to be the most complex and expensive of the three types of actions under discussion. However, such programs have the potential to be the most effective in attracting patrons and other markets of interest to an activity center. Many communities have instituted "park and shop" type of parking reimbursement programs to attract customers. The continued operation of these programs suggests they are functioning without serious problems and that they are perceived as being effective in meeting their objectives. Unfortunately, little data is available on program participation and costs.

A major consideration in designing convenience programs is whether to expand such programs to include transit order as well as short-term parkers (e.g., shoppers) in the convenience program. As described later in this section, Hartford has instituted such a program to attract shoppers to the downtown commercial area.

The following briefly describes and presents examples of several marketing tactics used in Hartford, Montgomery County, Maryland, and Portland.

Hartford

Hartford has the most comprehensive marketing program of the jurisdictions studied in this project. This program was developed by a privately funded downtown promotion and improvement organization (Hartford's Downtown Council).

The Hartford program includes several integrated marketing tactics. First, an "Instant Repay" program was established that enables downtown establishments to purchase specially minted tokens (with a 25¢ value) that are honored at CBD parking lots or on the Connecticut Transit Company's systems. Merchants purchase the tokens in minimum lots of 100 at a cost of $26 per lot. A local bank handles the accounting and sale of the tokens along with regular weekly coin and currency deliveries.

Businesses distribute tokens on the basis of minimum purchase or other business transaction (e.g., banking, shopping, medical, or professional visit).

Although each business may distribute tokens according to its own criteria, the program recommends that one token be issued for a purchase of $5 or more and two tokens for $10 or more. The program does place a limit of four tokens to any one customer showing a single transit or parking receipt.

Advertising for the program has been extensive and has included radio and newspaper ads. Special promotional pins and logos for display at business establishments have been distributed. Merchants who participate in the program are listed in a special directory which is displayed in locations at each of the parking facilities included in the program. The Instant Repay program is also promoted on city buses and in Connecticut DOT advertising.

In support of the Instant Repay program, information brochures have been developed that show the location, name, telephone numbers, days and hours of operation, rates, number of spaces, and related information on downtown Hartford parking. Exhibit 48 presents a copy of this brochure.

Montgomery County

Montgomery County has developed brochures describing its Monthly Convenience Sticker Program and its Preferential Car Pool Permit Program. Exhibit 49 illustrates one such brochure which describes application/renewal procedures and conditions of sale for the Convenience Sticker Program.

Montgomery County initiated its Parking Convenience Sticker Program to eliminate the need for regular commuter parkers to carry large amounts of change for metered parking. The County sells the monthly stickers for $24, which does not give the purchaser a discount.

Vehicles displaying a parking convenience sticker are allowed to park at any 9- or 12-hour parking meter without additional charge. The sticker is valid for on-street as well as metered off-street facilities in each of the four parking districts until 6:00 p.m., Monday through Friday. The sticker is a "licence to hunt" and does not guarantee a parking space. The fee is $24 per month in Silver Spring and Bethesda and $16 per month in Wheaton and Montgomery Hills. For an additional charge of $1 per vehicle, up to four additional automobiles may be registered on the same sticker. This permits the transfer of the sticker between vehicles to facilitate carpooling.

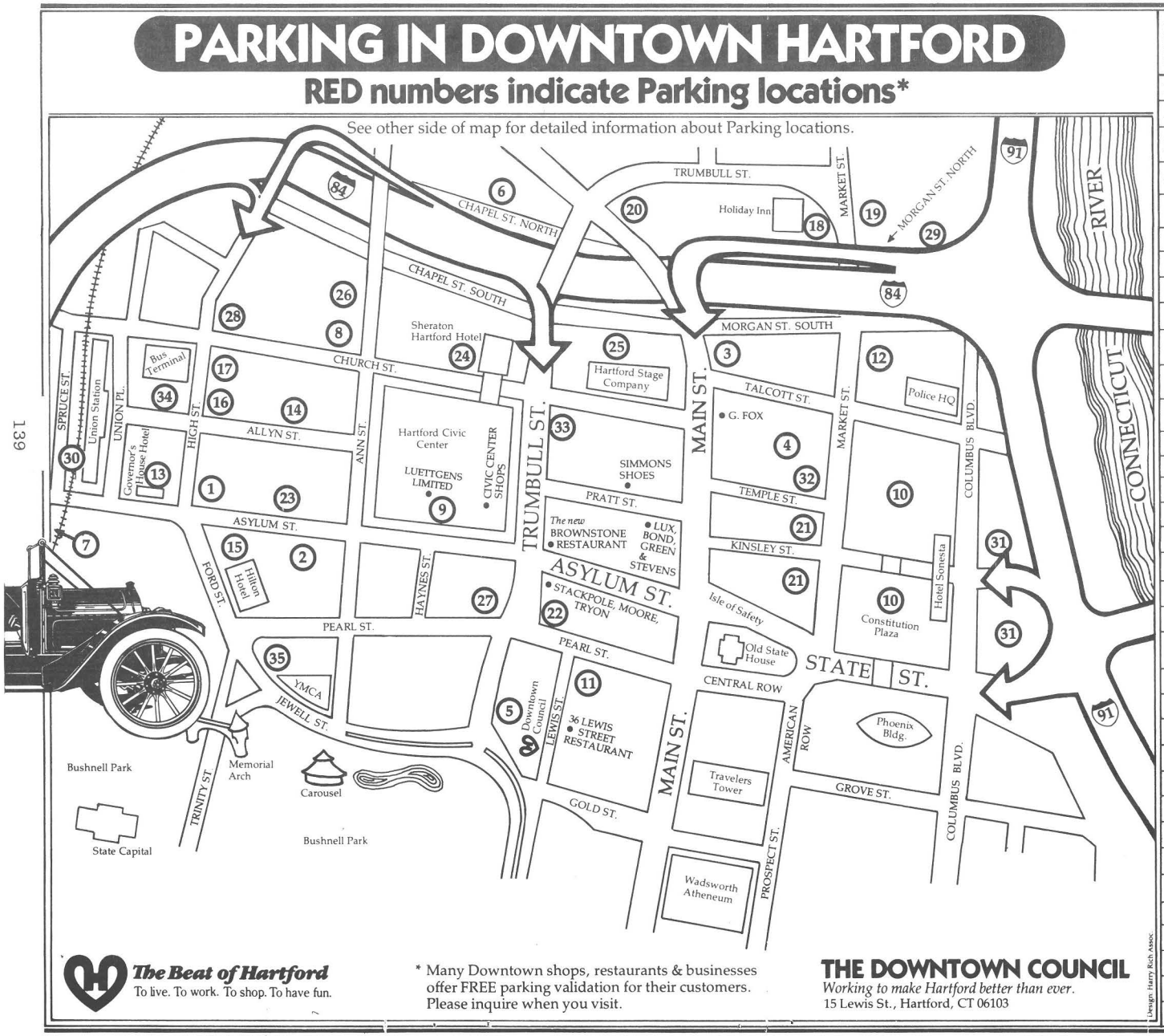
The place of employment is verified for each applicant. The parking enforcement officers check for valid permits and ticket vehicles illegally parked in short-term spaces.

In 1978, sales of the convenience stickers brought in $353,839. The program provides a service to residents and employees of the parking district as well as reducing meter collection and enforcement costs.

The Montgomery County Division of Parking also operates a Parking Stamp Program in its Silver Spring Parking Lot District. In this program, merchants purchase parking stamps from the Division of Parking. The stamps are issued by the merchants to patrons who make purchases exceeding certain minimums. These stamps can only be used at the County's two attendant parking facilities in Silver Spring. Each stamp is worth 10¢ (i.e., one hour) free parking, subject to maximum limit of 40¢ worth of stamps (i.e., approximately 2.25 hours with the County's graduated parking rates). Total sales for the program reached $5,160 (51,600 stamps) in fiscal year 1979).

EXHIBIT 48

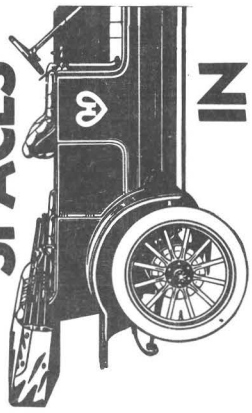
PARKING IN DOWNTOWN HARTFORD



NUMBER ON MAP	NAME, LOCATION & PHONE NUMBER	DAYS & HOURS OF OPERATION
1	A & S PARKING, ASYLUM @ HIGH STS.	Mon.-Fri. 9am-8pm
2	ANTHONY'S, 309 ASYLUM STREET Tel. 524-1230	Mon.-Sat. 9am-11pm C. C. Events
3	AUTO PARK, MAIN @ TALCOTT STREET Tel. 728-3075	Mon.-Sat. 8am-6:30pm Thrs. 9:00pm
4	BROWN THOMSON GARAGE, TEMPLE ST. Tel. 728-9348	Mon.-Sat. 7:30am-6:30pm Thrs. 10:00pm
5	BUSHNELL PARKING LOT, TRUMBULL @ JEWELL STREET Tel. 728-9269	Mon.-Sat. 7:30am-6pm C. C. Events
6	CHAPEL STREET AUTO SERVICE, 58-78 NORTH CHAPEL STREET Tel. 247-7542	Mon.-Fr. 7am-6pm
7	CHICKEN-COOP PARKING, 515 ASYLUM ST. Tel. 246-7261	Daily 24hrs.
8	CHURCH STREET PLAZA, CHURCH @ ANN STREET Tel. 247-4688	Daily 7am-5pm C. C. Events
9	CIVIC CENTER GARAGE, CIVIC CENTER PLAZA Tel. 566-6533	24 hrs. Daily
10	CONSTITUTION PLAZA, NORTH/SOUTH TALCOTT, KINSLEY & STATE STREETS Tel. 524-5965	N. Mon.-Sat. 7am-7pm S. Mon.-Sat. 7am-1am
11	FINANCIAL PLAZA GARAGE, 55 PEARL STREET Tel. 527-4286	Mon.-Thrs. 6am- Midnight Fri.-Sat. 2am
12	G. FOX GARAGE, 160 MARKET STREET Tel. 249-9711 Ext. 793	Mon.-Sat. 7am-7:30pm Thrs.-10pm
13	GOVERNOR'S HOUSE PARKING 440 ASYLUM STREET Tel. 246-6591	Daily 7am-11pm
14	HARRIS PARKING, 124 ALLYN ST. Tel. 523-4459	C. C. Events
15	HARTFORD HILTON GARAGE ASYLUM @ FORD STREET Tel. 249-5611	Daily 7am-1am
16	HERTZ RENT-A-CAR, INC. ALLYN @ HIGH STREETS Tel. 278-1100	Mon.-Frl. 7am-7pm Sat.-Sun. 9am-5pm
17	HIGH STREET MOBIL SERVICE, CHURCH @ HIGH STREET Tel. 728-9412	Mon.-Fri. 7am-6pm Sat. 8am-12pm
18	HOLIDAY INN GARAGE, MORGAN ST. NORTH @ MARKET STREET Tel. 549-2400	Mon.-Fri. 7am-1am
19	JOHNNY'S FRIENDLY PARKING LOT, 252 MARKET STREET Tel. 728-8887	Mon.-Sat. 7am-9pm
20	J & J PARKING, MAIN @ MORGAN STREET NORTH Tel. 728-9325	Mon.-Sat. 7am-6pm
21	KINSLEY STREET PARKING, NORTH AND SOUTH, MARKET @ KINSLEY STS. Tel. 527-5976	Mon.-Sat. 7:30am- 8pm Thr. 9pm
22	MECHANICS BANK PARKING, PEARL @ TRUMBULL STREETS Tel. 728-9396	Mon.-Sat. 8:30am-5pm C. C. Events
23	MONTANO PARKING, 300 ASYLUM ST. Tel. 247-5541	Mon.-Sat. 8am-9pm C. C. Events
24	MUNICIPAL GARAGE, 200 CHURCH STREET Tel. 566-6958	24 hrs. Daily
25	MUNICIPAL GARAGE ANNEX, 55 SOUTH CHAPEL STREET Tel. 566-6054	24 hrs. Daily
26	NUTMEG SERVICE CENTER, ANN ST. @ SOUTH CHAPEL STREET Tel. 247-7937	Daily 7:30am-5:30pm C. C. Events
27	PARK-IT, PEARL @ TRUMBULL STREETS Tel. 728-8382	Mon.-Sat. 8am-9pm C. C. Events
28	PARK N' LOCK, CHURCH @ HIGH ST. Tel. 523-4459	Mon.-Sat 7am-5pm C. C. Events
29	PARK N' LOCK, MARKET @ MORGAN ST. NORTH Tel. 523-4459	Mon.-Sat. 7:30am-5pm
30	PARK WEST, SPRUCE @ ASYLUM ST. Tel. 728-8294	Mon.-Sat. 6am-6pm
31	PLAZA PARKING, NORTH & SOUTH 400 COLUMBUS BLVD. Tel. 728-5503	Mon.-Sat. 7am-10pm
32	SHOPPERS PLAZA, 84 MARKET ST. Tel. 728-8216	Mon.-Sat. 8:30am-6pm Thr. 9pm
33	SHOPPERS PLAZA, 75 CHURCH STREET Tel. 728-8999	Mon.-Sat. 8am-10pm C. C. Events
34	UNION STREET PARKING 200 ALLYN STREET Tel. 527-5604	Daily 6:30am-11pm Mon.-5:45pm
35	YMCA PARKING, PEARL @ FORD ST. Tel. 522-4183	Mon.-Sat. 6am-10pm Sat. 8am-5pm

Source: The Downtown Council, Hartford, Connecticut.

YOUR CONVENIENT GUIDE TO 10,364 PARKING SPACES IN DOWNTOWN HARTFORD



Keep in your glove compartment

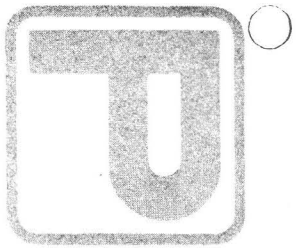
Everything you ever wanted to know about Downtown Hartford parking.

NUMBER ON MAP	NAME, LOCATION & PHONE NUMBER	DAYS & HOURS OF OPERATION	RATES*			VALIDATION SYSTEM	ENCLOSED OR OPEN LOT	ATTENDANT ON DUTY	CAPACITY (SPACES)
			HOURLY	DAY & NIGHT	MONTHLY				
1	A & S PARKING, ASYLUM @ HIGH STS.	Mon.-Fri. 9am-8pm	.50¢ 1st ½hr. .25¢ Add'l ½hr.	$2.75/Day	$25	No	Open	Yes	40
2	ANTHONY'S, 309 ASYLUM STREET Tel. 524-1230	Mon.-Sat. 9am-11pm C. C. Events	.75¢ 1st ½hr. .25¢ Add'l. ½hr.	$3/Day $3/Night	$30	No	Open	Yes	35
3	AUTO PARK, MAIN @ TALCOTT STREET Tel. 728-3075	Mon.-Sat. 8am-6:30pm Thrs. 9:00pm	.60¢ 1st ½hr. .30¢ Add'l. ½hr.	$4/Day $2/Night	$35	Yes	Open	Yes	83
4	BROWN THOMSON GARAGE, TEMPLE ST. Tel. 728-9348	Mon.-Sat. 7:30am-6:30pm Thrs. 10:00pm	.35¢ 1st ½hr. .25¢ Add'l. ½hr.	$3/Day	$30	Yes	Enclosed	Yes	150
5	BUSHNELL PARKING LOT, TRUMBULL @ JEWELL STREET Tel. 728-9269	Mon.-Sat. 7:30am-6pm C. C. Events	.60¢/½hr.	$4/Day $2/Night	$30	Yes	Open	Yes	105
6	CHAPEL STREET AUTO SERVICE, 58-78 NORTH CHAPEL STREET Tel. 247-7542	Mon.-Fr. 7am-6pm	.50¢ 1st 2hrs. .25¢ Add'l. ½hr.	$1.50/Day	$25	No	Open	Yes	250
7	CHICKEN-COOP PARKING, 515 ASYLUM ST. Tel. 246-7261	Daily 24hrs.	—	$1/Day $1/Night	$15	No	Open	Yes	250
8	CHURCH STREET PLAZA, CHURCH @ ANN STREET Tel. 247-4688	Daily 7am-5pm C. C. Events	.50¢ 1st ½hr. .25¢ Add'l. ½hr.	$2/Day $2/Night	$20		Open	Yes	120
9	CIVIC CENTER GARAGE, CIVIC CENTER PLAZA Tel. 566-6533	24 hrs. Daily	.25¢/ ½hr.	$1/Night After 5pm	—	Yes	Enclosed	Yes	505
10	CONSTITUTION PLAZA, NORTH/SOUTH TALCOTT, KINSLEY & STATE STREETS Tel. 524-5965	N. Mon.-Sat. 7am-7pm S. Mon.-Sat. 7am-1am	.45¢/½hr.	$3.50/Day $1.50/Night	$40	Yes	Enclosed	Yes	1,800
11	FINANCIAL PLAZA GARAGE, 55 PEARL STREET Tel. 527-4286	Mon.-Thrs. 6am-Midnight Fri.-Sat. 2am	.60¢ 1st ½hr.	$6/Day $2/Night	$40	Yes	Enclosed	Yes	1,100
12	G. FOX GARAGE, 160 MARKET STREET Tel. 249-9711 Ext. 793	Mon.-Sat. 7am-7:30pm Thrs.-10pm	.50¢/hr.	$5/Day	—	Yes	Enclosed	Yes	850
13	GOVERNOR'S HOUSE PARKING 440 ASYLUM STREET Tel. 246-6591	Daily 7am-11pm	.50¢ 1st ½hr. .25¢ Add'l. ½hr.	$2/Day $1.50/Night	$30	No	Open	Yes	35
14	HARRIS PARKING, 124 ALLYN ST. Tel. 523-4459	C. C. Events	—	$2/Night	$25	Yes	Open	Yes	20
15	HARTFORD HILTON GARAGE ASYLUM @ FORD STREET Tel. 249-5611	Daily 7am-1am	.50¢ 1st ½hr. .35¢ Add'l. ½hr.	$3.50/Day $2.75/Night	$40	Yes	Enclosed	Yes	221
16	HERTZ RENT-A-CAR, INC. ALLYN @ HIGH STREETS Tel. 278-1100	Mon.-Fri. 7am-7pm Sat.-Sun. 9am-5pm	$1.00 1st hr. .50¢ Add'l. hr.	$2.50/Day $3.50/Night	$40	No	Open	Yes	30
17	HIGH STREET MOBIL SERVICE, CHURCH @ HIGH STREET Tel. 728-9412	Mon.-Fri. 7am-6pm Sat. 8am-12pm	.50¢ hr.	$3/Day $2/Night	$20	No	Open	Yes	30
18	HOLIDAY INN GARAGE, MORGAN ST. NORTH @ MARKET STREET Tel. 549-2400	Mon.-Fri. 7am-1am	.40/½hr.	$4/Day $2/Night	$30	Yes	Enclosed	Yes	400
19	JOHNNY'S FRIENDLY PARKING LOT, 252 MARKET STREET Tel. 728-8887	Mon.-Sat. 7am-9pm	—	.75¢/Day	$12	No	Open	Yes	450
20	J & J PARKING, MAIN @ MORGAN STREET NORTH Tel. 728-9325	Mon.-Sat. 7am-6pm	—	$1/Day .75¢/Night	—	No	Open	Yes	475
21	KINSLEY STREET PARKING, NORTH AND SOUTH, MARKET @ KINSLEY STS. Tel. 527-5976	Mon.-Sat. 7:30am-8pm Thr. 9pm	.60¢ 1st ½hr. .25¢ Add'l. ½hr.	$3/Day $1/Night	—	No	Open	Yes	113
22	MECHANICS BANK PARKING, PEARL @ TRUMBULL STREETS Tel. 728-9396	Mon.-Sat. 8:30am-5pm C. C. Events	.60/½hr.	$2.50/Night	—	Yes	Open	Yes	22
23	MONTANO PARKING, 300 ASYLUM ST. Tel. 247-5541	Mon.-Sat. 8am-9pm C. C. Events	.75¢ 1st ½hr. .25¢ Add'l ½hr.	$3/Day $2/Night	$25	Yes	Open	Yes	40
24	MUNICIPAL GARAGE, 200 CHURCH STREET Tel. 566-6958	24 hrs. Daily	.25¢/½hr.	$2.75/Day $1/Night	$35	Yes	Enclosed	Yes	1,050
25	MUNICIPAL GARAGE ANNEX, 55 SOUTH CHAPEL STREET Tel. 566-6054	24 hrs. Daily	.25¢/½hr.	$1/Night	$35	Yes	Enclosed	Yes	1,200
26	NUTMEG SERVICE CENTER, ANN ST. @ SOUTH CHAPEL STREET Tel. 247-7937	Daily 7:30am-5:30pm C. C. Events	.50¢ hr.	$1.50/Day $2.00/Night	$20	No	Open	Yes	75
27	PARK-IT, PEARL @ TRUMBULL STREETS Tel. 728-8382	Mon.-Sat. 8am-9pm C. C. Events	.50¢ 1st ½hr. .25¢ Add'l. ½hr.	$4.00/Day $1.00/Night	$35	Yes	Open	Yes	85
28	PARK N' LOCK, CHURCH @ HIGH ST. Tel. 523-4459	Mon.-Sat 7am-5pm C. C. Events	.50¢ hr.	$2/Day $2/Night	$15	Yes	Open	Yes	100
29	PARK N' LOCK, MARKET @ MORGAN ST. NORTH Tel. 523-4459	Mon.-Sat. 7:30am-5pm	—	.50¢/Day	$12	No	Open	Yes	80
30	PARK WEST, SPRUCE @ ASYLUM ST. Tel. 728-8294	Mon.-Sat. 6am-6pm	.50¢ hr.	$2/Day $1/Night	$15	Yes	Open	Yes	120
31	PLAZA PARKING, NORTH & SOUTH 400 COLUMBUS BLVD. Tel. 728-5503	Mon.-Sat. 7am-10pm	.35¢ 1st ½hr. .20¢ Add'l. ½hr.	$1.50/Day .75¢/Night	$22	No	Open	Yes	279
32	SHOPPERS PLAZA, 84 MARKET ST. Tel. 728-8216	Mon.-Sat. 8:30am-6pm Thr. 9pm	.50¢ 1st ½hr. .25 Add'l ½hr.	$3/day $1/Night	—	Yes	Open	Yes	56
33	SHOPPERS PLAZA, 75 CHURCH STREET Tel. 728-8999	Mon.-Sat. 8am-10pm C. C. Events	.50¢ 1st ½hr. .25¢ Add'l ½hr.	$1/Night $2/C. C. Ev.	$30	Yes	Open	Yes	80
34	UNION STREET PARKING 200 ALLYN STREET Tel. 527-5604	Daily 6:30am-11pm Mon.-5:45pm	.60¢ 1st ½hr. .25¢ Add'l. ½hr.	$1/Night $2/C. C. Event	$25	No	Open	Yes	75
35	YMCA PARKING, PEARL @ FORD ST. Tel. 522-4183	Mon.-Sat. 6am-10pm Sat. 8am-5pm	.50¢/hr.	$2/Night	—	No	Open	Yes	40

*Rates subject to change.

EXHIBIT 48 (continued)

7. The Parking Convenience Sticker does not entitle a vehicle to be parked at any parking meter of less than nine (9) hour duration or in any area where parking is prohibited or any place not otherwise designated as a legal parking space.
8. The Parking Convenience Sticker is valid only within the Parking District for which it was originally sold or in Districts of equal or lesser monthly fee. Within each District the Sticker is valid only at 9-hour and 12-hour parking meters.
9. Park front in only such that no part of the automobile straddles the parking stall lines.
10. Trucks, buses and vans in excess of one (1) ton rated capacity and all trailers are prohibited in public parking facilities.
11. For Multi-Vehicle Stickers a maximum of five vehicles per sticker is allowed.
12. Montgomery County reserves the right to suspend or revoke an individual's privilege to participate in this program if for any reason that individual fails to comply with the above conditions.
13. Montgomery County reserves the right to deny the sale of a Parking Convenience Sticker to any person who cannot satisfactorily demonstrate employment or residence within one of the four parking districts or in the event sale of the monthly stickers exceed program limitations or parking capacity.



To:

Division of Parking
730 Ellsworth Drive
Silver Spring, Maryland 20910

Daytime Public Parking

Convenience Sticker Program

Until 6:00 P.M. Daily
Phone: 301-565-7693

MONTGOMERY COUNTY, MARYLAND

GENERAL INFORMATION

The Public Parking Convenience Sticker Program is established to serve the residents, patrons and employees of the Bethesda, Silver Spring, Wheaton and Montgomery Hills Business Districts who use County public parking facilities on a frequent and regular basis. The program provides the means by which a motorist can pay for parking through one monthly charge thereby avoiding the inconvenience of "meter feeding" unnecessary parking fines and loss of paid up parking meter time.

Upon registration and payment of one monthly fee, a "Sticker" is issued for display from the rear view window of a vehicle. When properly displayed, that vehicle may be parked at any 9-hour or 12-hour parking meter without additional charge. The Parking Convenience Sticker does not apply to any parking meter of less than 9 hours duration nor does it entitle the

operator or a vehicle to a "reserved" or "assigned" parking space. All public parking spaces in County operated facilities are operated on a first-come, first-served basis unless otherwise posted as reserved or restricted parking.

Two types of Parking Convenience Stickers are available depending upon where the vehicle is parked. For $24.00 monthly, a sticker may be purchased which allows a vehicle to be parked in any of the four districts regardless of parking rate. However, because Wheaton and Montgomery Hills parking districts have lesser parking rates, a $16.00 monthly sticker may be purchased for use only in those districts and is not valid in Silver Spring or Bethesda.

For an additional charge of $1.00 per vehicle, up to four additional automobiles may be registered on the same sticker thus permiting transfer of the sticker between several vehicles. This provision is intended to accommodate car pooling and motorists who own two or more vehicles.

Because of program limitations, participation is limited to residents or employees of the four business districts mentioned — Silver Spring, Bethesda, Wheaton and Montgomery Hills. Only individuals who work, live or do business in the above areas are eligible for monthly parking stickers.

APPLICATION/RENEWAL PROCEDURES

1. In order to subscribe to this program, motorists must register their automobile(s) with the Division of Parking Sales Office, 730 Ellsworth Drive, Silver Spring, Maryland. A motor vehicle registration card must be presented for each vehicle registered in the program. Renewal forms for the following month will be provided with each monthly sticker issued.
2. In subsequent months renewal forms may be submitted by mail along with the monthly fee. Applicants submitting by mail will receive the next monthly sticker by return mail along with a renewal application for the following month. Make checks or money orders payable to Montgomery County, Maryland. **Do not mail cash.**
3. Monthly stickers will only be issued after the 15th day of the month preceeding the application month. One-half month stickers will be issued on or after the 15th day of that month.
4. In order to register a replacement vehicle or new license tags, the new Motor Vehicle registration form must be presented to the Division of Parking.
5. Lost, stolen or damaged stickers are to be reported immediately and can only be replaced upon presentation of a valid receipt of purchase for the lost, stolen or damaged sticker. ■

CONDITIONS OF SALE

1. **FEE:**

Silver Spring and Bethesda	$24.00
Wheaton, Montgomery Hills	$16.00
Multi-vehicle charge per vehicle	$ 1.00

   Payable each calendar month in advance. The monthly Parking Convenience Sticker will not be issued prior to the 15th day of the month preceeding the application month.
2. Participation in the Parking Convenience Sticker Program is limited to individuals with employment or resident addresses within any of the four Parking Districts.
3. The monthly fee is not refundable for any unused portion of the month.
4. The Parking Convenience Sticker applies until 6:00 p.m. daily, Monday through Friday, for the designated month only. (Weekend parking is free).
5. A Parking Convenience Sticker is applicable only to the vehicle(s) to which it is assigned. Transfer to any other vehicle is prohibited.
6. The Parking Convenience Sticker must be displayed from the inside of the vehicle on the lower left side of the rear view window in such a manner that it is visible when viewed from behind the vehicle. For convertibles, station wagons with movable rear windows, or for vehicles with rear window defoggers or defrosters, the sticker should be placed on the inside lower left side of the front windshield.

EXHIBIT 49 (Continued)

Portland

Portland has used newspaper advertising to inform shoppers of the availability of merchant-subsidized parking in the downtown retail core. An example of such advertisement is presented in Exhibit 50.

IMPLEMENTATION OF MARKETING TACTICS

Particularly significant implementation and operations issues for all marketing tactics are (1) accurately estimating the overall cost of each marketing tactic and the overall program, (2) determining how such costs should be equitably shared among participating businesses, and (3) controlling the costs and operation of the program and revising the program as necessary to improve the performance.

The method used to allocate the costs of marketing tactics can be a particularly sensitive issue if "large" costs are being contemplated. It may be necessary to analyze a variety of allocation mechanisms to reach a consensus on this matter.

To maintain program credibility, procedures for controlling and regularly reporting on the cost of marketing programs to participating firms and agencies should be developed and implemented. The responsibility for performing such operations should be clearly specified. Similarly, it will be necessary to identify a firm, organization, or agency to be responsible for periodically reviewing and refining the scope and content of the marketing program to maintain or improve its effectiveness.

EXHIBIT 50

SHORT-TERM PARKING ADVERTISEMENT
(FROM THE OREGONIAN, FEBRUARY 21, 1979)

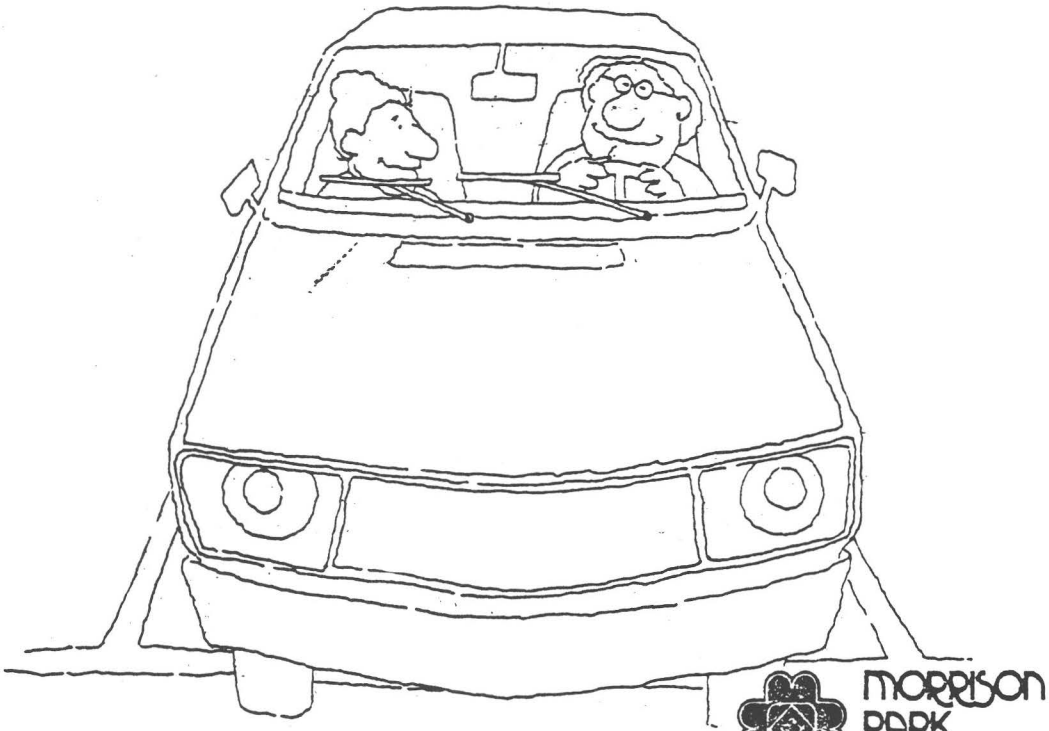
When all you need is a parking place.

Spending a few hours in downtown Portland can be a simple, fun experience. There's plenty to see and do. So just hop in your car and drive on in. Follow your own schedule, or follow no schedule at all.

Yes, it's even easy to find a parking space ... if you pull into Morrison Park West. It's that bright, new parking facility on Morrison Street, next to the Galleria. And it offers you nearly 500 well-lit parking spaces, under cover. At just 60¢ an hour. Morrison Park West is a smart buy. As a matter of fact, over 200 downtown businesses will validate your parking stub when you make a small purchase.

If you prefer seeing downtown Portland on your own terms, remember Morrison Park West. It has just what you need. A place to park.

P.S. Be sure to visit the eight street level shops and restaurants under Morrison Park West



MORRISON PARK WEST

City of Portland Parking Garage

S.W. 10th between Yamhill & Morrison (Enter on 10th)

X. TECHNIQUES FOR ANALYZING PARKING MANAGEMENT TACTICS

This section identifies and briefly describes procedures that can be used to estimate important impacts associated with parking management tactics. The first part of this section briefly reviews the types of impacts of interest while the second part describes selected types of impact estimation procedures.

The impact analysis procedures include both manual and computer based procedures. Particular emphasis has been given to procedures that are likely to be available to local, regional, and state transportation agencies.

This section is not intended to serve as a users manual which describes the detailed steps necessary to apply each procedure. Readers are urged to consult the reference cited in this section for such information.

TYPES OF IMPACTS OF INTEREST

Exhibit 51 lists the different types of impacts and issues that may be of concern in planning parking management tactics. Many of the impacts typically can be quantified using either manual and/or computerized travel and related estimation procedures. As described later in this section, the use of manual or computerized estimation procedures will depend upon the specific tactics, geographic area, and issues under consideration.

Unfortunately, some important impacts (e.g., neighborhood quality of life, comfort, convenience and personal security; and development, employment, and sales impacts) generally cannot be accurately quantified with the types of data and estimation procedures typically available in most jurisdictions and urban areas. Such impacts are commonly considered in qualitative terms.

IMPACT ESTIMATION PROCEDURES

Based on a review of the literature, eleven analysis techniques were selected for consideration. (See Exhibit 52.) These techniques are of four types:

- Manual analyses of available parking usage surveys and supply inventories
- Techniques expressly designed for parking analyses
- Manual and computerized sketch planning techniques.
- Forecasting techniques used in the urban transportation planning process

The characteristics of each of these techniques are described below including an assessment of its applicability of analyses of particular types of tactics.

EXHIBIT 51

TYPES OF IMPACTS AND ISSUES OF CONCERN

- Effects on Travel Times
- Effects on Parking and Overall Travel Costs
- Effects on Availability of Parking Supply for Affected Groups by Time of Day
- Effects on Walking Distances to Destination and Associated Comfort, Convenience, and Personal Security Concerns
- Effects on Highway Congestion and Level of Service
- Effects on Transit Usage and Carpooling
- Effects on Capital and Operating and Maintenance Costs by Affected Agency, Firm, Institution
- Effects on Air Pollution Emissions and Air Quality
- Effects on Energy Consumptions
- Effects on Level, Types, and Locations of Development, Employment and Sales
- Effects on Neighborhood Amenities

EXHIBIT 52

SELECTED IMPACT ESTIMATION PROCEDURES

Procedure	Reference
1. Analysis of Parking Data	Institute of Transportation Engineers. Manual of Traffic Engineering Studies. Fourth Edition, 1976. Bureau of Public Roads (Now FHWA). Procedures Manual for Conducting a Comprehensive Parking Study. Revised Edition, July 1957.
2. Parking Allocation Model (PAM)	Federal Highway Administration. A Guide to Parking System Analysis. Prepared by Peat, Marwick, Mitchell & Co. October 1972.
3. Parking Accumulation Method	Urban Mass Transportation Administration. Simplified Aids for Transportation Analysis: Estimating Parking Accumulation. Prepared by Peat, Marwick, Mitchell & Co. January 1979.
4. UMTA Fringe Parking Method	Urban Mass Transportation Administration. Simplified Aids for Transportation Analysis: Fringe Parking Site Requirements. Prepared by Peat, Marwick, Mitchell & Co. January 1979.
5. NCTCOG Park and Ride Methods	North Central Texas Council of Governments. Park and Ride and Preferential Treatment Analysis Methods. Technical Report Series 21. Arlington, Texas. September 1979. North Central Texas Council of Governments. Estimating the Service Area for Park-and-Ride Operations. Technical Report Series 20, Arlington, Texas. July 1979.
6. NCHRP 187 Methods	Natural Cooperative Highway Research Program. Quick Response Travel Estimation Manual Techniques and Transferable Parameters: A User's Guide. NCHRP Report 187. Prepared by Consis Corporation. 1978.
7. NCTCOG TSM Methods	North Central Texas Council of Governments. Handbook for Transportation System Management Planning. Prepared by Alan M. Voorhees & Associates, Inc. March 1978.
8. DOE Methods	U.S. Department of Energy. Analytic Procedures for Urban Transportation Energy Conservation. Volumes I-V. Prepared by Cambridge Systematics, Inc. October 1979.
9. EPA Methods	Environmental Protection Agency. Transportation Air Quality Analysis - Sketch Planning Methods. Volumes I and II. Prepared by Cambridge Systematics, Inc. December 1979.
10. RIDE	Urban Mass Transportation Administration. RIDE User's Guide. Prepared by Barton Aschman Associates, Inc. and Peat, Marwick, Mitchell & Co. (Forthcoming).
11. Computerized Travel Estimation Methods	Various reports documenting travel forecasting procedures used for urban transportation planning.

Manual Analysis of Available Data

The most common methods used to plan parking management tactics are field observation and the analysis and interpretation of available parking usage survey data, parking survey (i.e., questionnaire) data, and parking inventory data for the study area in question. Such information may be available from continuing monitoring of parking demand and supply or may be compiled from special purpose surveys and inventories.

In many jurisdictions that have implemented parking management tactics, extensive use has been made of such information. There appear to be several important reasons for this. Generally, the estimation techniques and data available for areawide transportation planning are too aggregate, out of date, and not directly applicable for planning many types of highly localized parking management tactics. The planning of such tactics requires current, accurate information on the level and the characteristics of such demand (e.g., arrival time, parking duration, turnover, illegal parking, resident vs. non-resident), applicable parking regulations and enforcement programs, and the supply of parking within the geographic area of interval. The lack of such information can jeopardize the credibility of the planning program and the operational effectiveness of the implemented tactics.

The availability of current demand and supply data is a necessary but not sufficient condition for planning. Local traffic engineers, planners, and others who are responsible for parking management programs must exercise sound professional judgement in interpreting such information in order to develop effective parking management tactics and estimate the positive and negative impacts of such tactics. This requires the use of experienced staff who are familiar with the geographic areas in question and the tactics under consideration.

As noted earlier in the report, two useful references describing methods for conducting parking usage and parking surveys and parking inventories are:

- Institute of Transportation Engineers. Manual of Traffic Engineering Studies. Fourth Edition. 1976.

- Public Administrative Service. Procedures Manual for Conducting a Comprehensive Parking Study. Revised Edition. July 1957. (Available from University Microfilms International, 300 North Zeeb Road, Ann Arbor, Michigan, 48106).

As indicated in Exhibit 53, the analysis of up-to-date parking usage and supply data to estimate many of the impacts of interest is particularly applicable to on-street parking supply tactics, some off-street parking supply tactics, enforcement and adjudication tactics, and marketing tactics. These tactics, because of the flexibility, are primarily concerned with current and near-term parking problems and typically do not have major long-range development, economic, and financial impacts.

EXHIBIT 53

SELECTED TRAVEL ESTIMATION TECHNIQUES APPLICABLE TO ANALYSES OF PARKING MANAGEMENT TACTICS

Illustrative Tactics	Analysis of Parking Data	Parking Analysis Procedures				Manual and Sketch Planning Procedures				Computerized "3-C" Methods
		PAM	Parking Accumulation Methods	UMTA Fringe Parking Methods	NCTCOG Park and Ride Methods	NCHRP 187 Methods	NCTCOG TSM Methods	DOE & EPA Methods	RIDE	
On-Street Parking Supply										
• Change Parking Restrictions	●									
• Residential Parking Permit Programs	●									
• Carpool/Vanpool Preferential Parking	●									
Off-Street Parking Supply in Activity Centers										
• Change Zoning Requirements (e.g., Maximums, Minimums)	◒		●			◒	◒	◒	◒	◒
• Ceilings/Freezes	◒	●	●			◒	◒	◒	◒	◒
• Preferential Parking (e.g., HOV's, Handicapped)	●							◒	◒	
• New/Expanded Supply	◒	●	●			◒	◒	◒	◒	◒
Fringe and Corridor Parking										
• Fringe Parking	◒			●	●	◒		◒	◒	◒
• Park and Ride Parking	◒			●	●	◒		◒	◒	◒
• Carpool/Vanpool Parking	●			◒	◒	◒		◒	◒	
Pricing										
• Change Rates	◒		◒			●	●	●	●	●
• Differential Pricing	◒		◒			●	●	◒	◒	◒
• Employer Transportation Subsidies	◒		◒			◒	◒	◒	◒	◒
Enforcement and Adjudication										
• Enforcement	●									
• Adjudication	●									
Marketing										
• Advertising, etc.	●									

Key: ● Very Applicable
◒ Partially Applicable

Exhibit 54 shows that such information can be readily used to analyze impacts such as the usage and availability of parking supply, changes in parking costs, and potential changes in walking distances, highway congestion, and capital and operating costs of tactics. Other techniques should be used to estimate additional impacts of interest.

The use of current usage and supply data has several important limitations for planning certain types of parking management tactics. If the tactics potentially involve major changes in modal split and major increases or decreases in parking demand over time, existing data on parking usage and supply must be supplemented by other estimates possibly from other travel forecasting techniques cited in Exhibit 53. Information from other data sources, such as the Characteristics of Urban Transportation Systems,[1/] can be used to estimate impacts (e.g., emissions, energy consumption) that cannot be directly determined from analyses of available survey and inventory data.

A second problem with the use of parking usage and inventory data is the cost and time required to compile and analyze such information. For small geographic areas covering a limited number of blocks (e.g., 5-10), the usage and supply data can be collected relatively easily and inexpensively. However, the cost can rapidly increase if a large geographic area with many off-street parking facilities must be surveyed.

Parking Analysis Procedures

A number of techniques have been developed to analyze selected parking management tactics. Four such techniques are considered in this report:

- Parking allocation model developed for FHWA
- Parking accumulation methodology developed for UMTA
- Fringe parking methodology developed for UMTA
- NCTCOG park and ride estimation methodology

Each of the techniques is described below.

Parking Allocation Model

The parking allocation model (PAM) is a computerized procedure for analyzing the utilization and operation of the parking system within an activity center such as a central business district. The PAM utilizes a linear programming technique to allocate parking demand stratified by time of

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1/ Urban Mass Transportation Administration. Characteristics of Urban Transportation Systems - A Handbook for Transportation Planners. Washington, D.C. June 1979.

EXHIBIT 54

APPLICABILITY OF SELECTED TECHNIQUES FOR ESTIMATING IMPACTS

Type of Impact	Analysis of Parking Data	Parking Analysis Procedures				Manual and Sketch Planning Procedures				Computerized "3-C" Methods	CUTS	CUTD	MOBILE 1
		PAM	Parking Accumulation Method	UMTA Fringe Parking Method	NCTCOG Park and Ride Method	NCHRP 187 Methods	NCTCOG TSM Methods	DOE & EPA Methods	RIDE				
Travel Times				●	●	●	●	●	●	●		◒	
Parking and Travel Costs	●	●		●	●	●	●	●	●	●	◒		
Usage and Availability of Parking Supply	●	●	●	●	●	◒	◒	◒	◒	◒		◒	
Walking Distance	◒	●											
Highway Congestion and Level of Service	◒			◒	◒	◒	◒	◒		●			
Transit Usage				●	●	●	●	●	●	●		◒	
Carpooling								●	●				
Air Pollution Emissions and Air Quality				◒	◒	◒	●	●	◒	●	◒		●
Energy Consumption				◒	◒	◒	●	●	◒	●	◒		
Capital and Operating and Maintenance Costs	◒	◒	◒	◒	◒	◒	◒	◒	◒	◒	◒		

Key: ● Highly Applicable for Estimating Impact

◒ Partially Applicable for Estimating Impact

day to available parking supply. In assigning parkers to a parking facility, the model is designed to minimize total "parker disutility" which is estimated as a function of parking cost and the walking distance between the chosen parking facility and the parker's final destination.

In order to apply this technique, the study area of interest is divided into a set of destination zones. A computerized "walking" network is then developed which links each destination zone to each parking facility of interest within the study area. The network is used to determine walking distances for estimating "parker disutility." Parking demand by destination zone is usually estimated from a parker survey of from trip attraction estimates available for the study area from the affected urban transportation study. The demand should be stratified by arrival and departure time to account for parking duration and possibly by trip purpose (e.g., work, shop, personal business) or other parker characteristics. Parking supply is represented in the model by:

- Location
- Number of spaces available by time of day
- Hours of operation of the parking supply
- Parking cost

The PAM is a particularly powerful tool for analyzing the operation of a study area's parking system in response to different levels of demand and different parking policies and levels of supply. It can be used to determine (See Exhibit 54):

- Parking accumulations by parking facility and geographic area by time of day
- Total number of parkers using a parking facility daily
- Parking revenues by facility
- Walking distance, frequency, distributions, and average walking distances by trip purpose

As noted in Exhibit 53, the model can be used to analyze the effects of: (1) adding or reducing parking supply and varying the location of such supply, (2) changing parking rates on a facility basis or for the entire study area, or (3) restricting on-street parking during peak periods or parking in residential areas adjacent to the activity center of interest.

The procedures and programs for applying the PAM are available from FHWA and are documented in the report:

Federal Highway Administration. A Guide to Parking Systems Analysis, October, 1972.

The PAM has been successfully used to develop system capital improvement programs in Bethesda and Silver Spring, Maryland, suburban activity centers outside Washington, D.C.[1/]

The PAM also has a number of features which may limit its use in some instances. In order to obtain the full benefits of the model, accurate parking demand estimates by arrival and departure times should be used. Information also is needed to develop relationships between parking cost and walking distance between the chosen parking facility and the parker's final destination. These relationships are required to apply the model to existing or future parking demands and systems. In many communities, obtaining such data may require conducting a questionnaire survey of parkers which can be costly if a large number of parking facilities must be covered.

An accurate inventory of parking facilities should also be available if the PAM is used.

The computer time costs associated with using the model can be substantial if a large number of time periods during the day, trip purpose categories, and parking facilities are used. Based on applying the PAM in both Bethesda and Silver Spring, Maryland, a reasonable balance between computer costs and detail in the analysis was achieved by:

- Dividing the period 6 a.m. to 6 p.m. into four time periods
- Using three trip purposes
- Using approximately 40 parking facilities to represent parking supply in each study area

Methodology for Estimating Parking Accumulation

The report, "Simplified Aids for Transportation Analysis: Estimating Parking Accumulation," describes a manual method for estimating the hourly accumulation of parked vehicles within an activity center for a typical weekday.[2/] Parking accumulation and utilization of parking facilities can be estimated for long-term parkers and for short-term parkers. This proedure is particularly useful in estimating the adequacy of existing or future parking supply to handle the future demand for parking within an activity center. As shown in Exhibit 53, it is primarily applicable to analyses of selected off-street supply tactics and parking tactics applicable to activity centers. It can be used for sketch-planning analyses of alternative parking, transportation, land use, air quality, and energy conservation policies as well as to parking studies for specific activity centers.

1/ Montgomery County Department of Transportation, Division of Parking. Recommended Capital Improvement Program for the Bethesda Parking Lot District, July, 1976.

2/ Urban Mass Transportation Administration. Simplified Aids for Transportation Analysis: Estimating Parking Accumulation, January 1979.

This procedure is designed to use vehicle trip destination estimates developed for urban transportation planning in estimating parking demand and parking system utilization. As such, it provides an easily applied technique for utilizing outputs from the areawide travel forecasting process in parking analyses for specific activity centers. In addition to vehicle trip destinations, other information needed to apply the procedure includes an inventory of existing (or future) parking supply and a set of parking "accumulation factors." A default set of hourly parking accumulation factors for home based work, shop, and other trips and non-home based trips is presented in this report (See Exhibit 55).

The report describes an eight-step process for applying the parking accumulation methodology and presents an example of how to perform the recommended steps in the methodology. In most instances, the application of the parking accumulation methodology will require two to three hours once the vehicle trip destinations and the parking supply data for an activity center are available.

There are a number of potential limitations associated with this procedure. The accuracy of the estimates developed from this methodlogy is highly dependent on the accuracy of the vehicle trip destination estimates, the parking supply estimates, and the hourly parking accumulation factors used. The vehicle trip destination estimates should be carefully checked for reasonableness against other available data sources. These demand estimates should correspond to the transit service, parking pricing, and land use policies of the activity center under study.

The use of accurate parking supply data is equally important if parking facility plans and policies are being evaluated. The report recommends using activity center-specific parking accumulation factors where possible. This will reduce potential bases in applying the default parking accumulation factors presented in the report.

An important limitation of the procedure is that it examines the parking demand and supply for an entire activity center. If block-level or other subarea estimates are required, more detailed parking analysis procedures should be used.

UMTA Fringe Parking Site Requirements Procedure and NCTCOG Park and Ride Procedures

As noted in Exhibit 53, there are many techniques that are applicable to analyzing fringe and corridor parking tactics. Two useful manual techniques that have been developed for such tactics include the "Fringe Parking Site Requirements" procedures developed for UMTA[1/] and the "Park and Ride and

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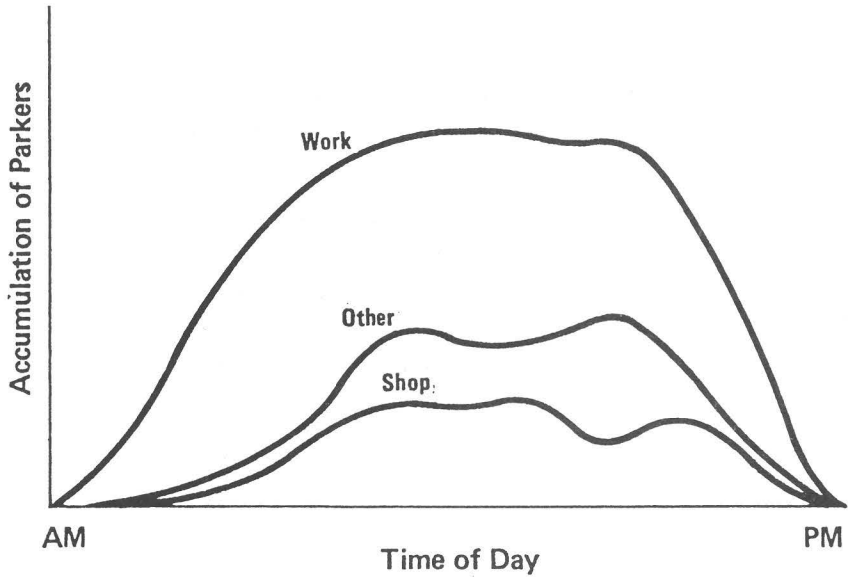
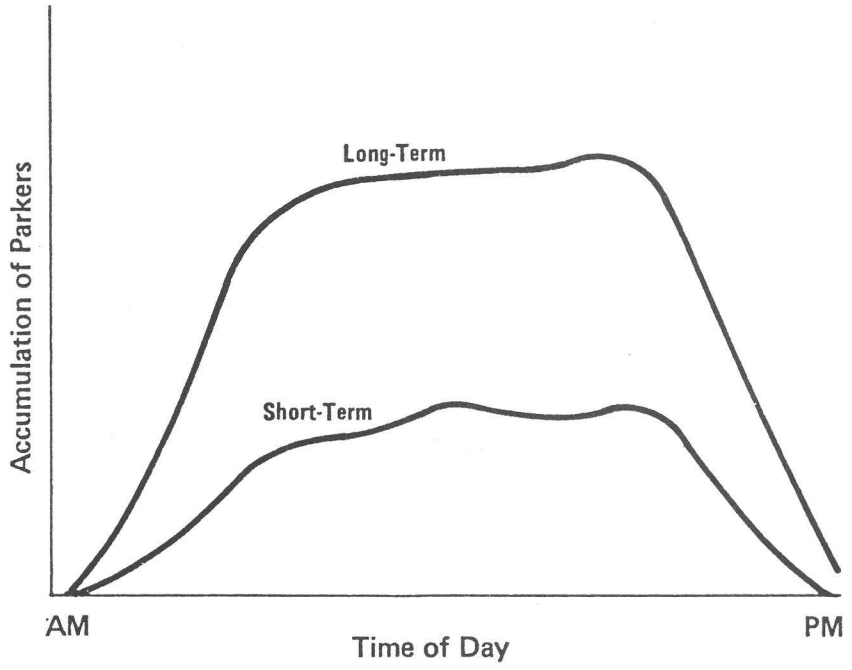
1/ Urban Mass Transportation Administration. Simplified Aids for Transportation Analysis: Fringe Parking Site Requirements, January, 1979.

EXHIBIT 55

ILLUSTRATIVE PARKING ACCUMULATION CURVES





SOURCE: Urban Mass Transportation Administration. Simplified Aids for Transportation Analysis: Estimating Parking Accumulation. January 1979.

Preferential Treatment Analysis Methods" developed by the North Central Texas Council of Governments.1/

Both of these documents present user-oriented manual techniques that can readily be used to:

- Identify candidate sites for fringe and park and ride parking
- Estimate specific parking facility requirements and transit demands at these facilities
- Analyze the highway access requirements for the site

Each of the reports presents modal split techniques for estimating the number of travelers likely to use a proposed park and ride lot or fringe parking lot. The techniques are sensitive to the location of the proposed facility and the relative automobile and transit travel times and costs for the trip interchanges of interest. The application of each of these techniques is fully illustrated in the referenced reports using example problems, step by step directions, and sample worksheets.

The use of either of these techniques in most analyses should not require more than several (e.g., 3-5) person-days to identify potential sites of interest, develop the inputs to the model, apply the estimation techniques, and summarize the parking requirements and transit ridership at the proposed parking facility.

The outputs of these techniques can be used with other sources such as the report, Characteristics of Urban Transportation Systems, to estimate highway congestion, air pollution, energy consumption, and capital and operating cost impacts of many types of fringe and corridor parking tactics.

These two techniques should be used with caution in several respects. First, up-to-date input data should be used with either technique to produce accurate ridership and parking requirement estimates. Second, while the two procedures cited in this discussion have been widely used, the transferability of such procedures cannot be assured in all situations. The outputs of these techniques should be carefully reviewed for reasonableness, particularly in light of the ridership attracted to similar park and ride facilities already operating within the urban area.

Manual and Computerized Sketch Planning Techniques

A number of recently developed manual and computerized TSM sketch planning techniques are applicable to analyzing travel, air pollution emission,

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1/ North Central Texas Council of Governments. Park and Ride and Preferential Treatment Analysis Methods. Technical Support Series 21. Arlington, Texas. September, 1979.

and energy consumption impacts of selected types of parking management tactics. These techniques include:

- NCHRP Report 87 procedures
- NCTCOG TSM analysis methods
- DOE and EPA analysis methods
- The RIDE program developed by UMTA

All of these procedures are designed to facilitate quick, low-cost analyses of many TSM tactics.

As shown in Exhibit 53, these techniques are particularly applicable to analyzing selected types of pricing types and potentially some types of off-street parking tactics in activity centers and fringe and corridor parking tactics.

The principal uses of such procedures for analyzing parking management tactics include estimating the amount and modal split of person travel to areas where parking management tactics have been proposed. Consequently, the analysis of parking management tactics will principally involve the use of trip generator and modal split techniques available in the above references.

These procedures can be particularly useful for estimating travel impacts if parking tactics applicable to large activity centers such as an entire CBD are under consideration. The coarse nature of many of these techniques may not be a serious problem when analyzing parking pricing and transit service policies for such activity centers. However, these same techniques generally will produce impact estimates that are too coarse for evaluating highly localized parking tactics such as on-street parking supply tactics.

The NCHRP techniques provide manual methods for performing trip generator, distributor, model split, and manual traffic assignment. All of the methods are documented in detail and illustrated using real world examples.

The NCTCOG techniques also are designed to be applied manually. These procedures include trip generation, distribution, modal split, costing, emission, and energy consumption techniques expressly designed and documented to facilitate their use in TSM analyses.

The trip generator and modal split procedures in the NCHRP and NCTCOG techniques can be useful in planning selected types of parking management tactics, although neither of these procedures directly estimate carpool demand.

The recently published DOE and EPA travel analysis procedures can be applied using manual hand calculator and computer methods. Both reports contain many of the same techniques that are designed to estimate travel as well as air pollution and energy consumption impacts of many types of TSM tactics.

For example, the EPA report includes three types of manual techniques, three types of programmable calculator methods, and several computer sketch planning methods applicable to travel demand analyses for corridor and regional TSM strategies. The report also includes manual, programmable calculator, and computer techniques for analyzing traffic engineering type TSM tactics as well as techniques for estimating the air pollution emissions and energy consumption impacts of many types of tactics. For example, Exhibit 56 illustrates the applicability of these methods to various types of TSM tactics.

An important feature of the DOE and EPA technique is that they can be used to estimate the demand for carpooling based on TSM tactics promoting HOV travel. This is an important capability which neither the NCHRP nor NCTCOG procedures provide.

The DOE and EPA reports present many useful worksheeting guidelines, and case study examples for applying these techniques.

The RIDE model is a computerized sketch planning technique which is designed to analyze corridor and areawide transit, pricing, and related TSM tactics. The model has several important features. It uses the Twin Cities home-based work trip model which include five travel modes (i.e., transit, and 1, 2, 3, 4+ autos). This greatly facilitates the analysis of preferential HOV lane and pricing tactics. Another desirable characteristics of the RIDE program is that it does not require the development of detailed transit and highway networks which can greatly reduce the cost of applying this procedure.

The RIDE program has several limitations in terms of its use for parking management planning. It only models home-based work trips which relate to long-term parking, but excludes non-work trips which pertain to short-term parking. The sketch planning nature of the program also limits the usefulness of this procedure for detailed subarea level planning of parking management tactics.

Computerized Travel Estimation Methods

The travel forecasting techniques used in the urban transportation planning process provide a potentially important source of current information and forecasts that are likely to be useful for developing and analyzing selected parking management tactics (See Exhibit 53). This process can provide information on the existing and future demand for parking as represented by vehicle trip attractions for the CBD and other subareas within a region. The use of computerized modelling processes also can provide estimates of many of the impacts of interest for parking management tactics as shown in Exhibit 54. The parking accumulation method described earlier in this section can be used in conjunction with the outputs of such a forecasting process to estimate short-term and long-term parking demand.

These procedures have many of the same limitations of the manual and computerized sketch planning procedures. They often provide data and impact predictions that are too coarse for planning tactics with highly localized impacts. Another potential problem with available data and models is that they are frequently out of date and cannot be reliably used for parking management planning without updating and further detailing such information.

EXHIBIT 56

APPLICABILITY OF DEMAND AND FACILITY OPERATIONS ANALYSIS METHODS TO SELECTED TYPES OF TSM TACTICS

METHOD	AUTO RESTRICTED ZONES	HOV PRIORITIES	TRAFFIC FLOW IMPROVE-MENTS	TRANSIT SYSTEM IMPROVE-MENTS	PARKING PROGRAMS	PRICING POLICIES	CARPOOL/ VANPOOL INCENTIVES	STAGGERED WORK HOURS
Manual Demand								
PIVOT POINT MODE CHOICE	●	◑	◑	◑	◑	◑	◑	●
SYNTHETIC MODE CHOICE	●	◑	◑	◑	●	◑	◑	●
QUICK RESPONSE ESTIMATION	●	●	●	●	●	●	●	●
SYSTEMATIC DATA ANALYSIS	◑	◑	◑	◑	◑	◑	◑	◑
Calculator Demand								
HHGEN	●	◑	◑	◑	◑	○	◑	◑
2MODE-AGG	●	●	◑	◑	◑	◑	●	◑
3MODE(VAN)-AGG	●	◑	◑	◑	◑	○	○	◑
Computer Demand								
CAPM	◑	◑	◑	●	●	●	●	●
SRGP	○	◑	○	◑	◑	○	◑	◑
TRANSIT SKETCH PLANNING	●	●	◑	◑	◑	●	●	◑
Manual Facility Operations								
TRAFFIC FLOW FORMULAE	◑	◑	◑	◑	◑	◑	◑	◑
GRAPHICAL TECHNIQUES	◑	◑	◑	◑	◑	◑	◑	◑
AREAWIDE TRAFFIC ENGINEERING	◑	○	○	◑	◑	◑	◑	◑
TRANSFER OF EXPERIENCE	◑	◑	◑	◑	◑	◑	◑	◑
Calculator Facility Operations								
BUS	●	◑	●	○	●	●	●	●
Computer Facility Operations								
TRANSYT	◑	○	○	○	○	○	○	○
FREQ	○	○	○	○	○	○	◑	○
Manual Impacts								
EMISSIONS WORKSHEETS	◑	○	○	◑	◑	○	○	◑
FUEL CONSUMPTION/OPERATING COSTS	◑	○	○	◑	◑	◑	○	◑
Calculator Impacts								
BUSPOL/ENERGY	◑	◑	◑	○	●	◑	◑	◑
Computer Impacts								
MOBILE1	◑	○	○	◑	◑	◑	○	◑

KEY

○ GENERALLY APPLICABLE

● GENERALLY NOT APPLICABLE

SOURCE: Environmental Protection Agency. Transportation Air Quality Analysis - Sketch Planning Methods - Volume 1: Analysis Methods. EPA 400/1-800-001a. December 1979.

APPENDIX A

RESIDENTIAL PARKING PERMIT PROGRAM ORDINANCES

FOR WASHINGTON, D.C. AND SAN FRANCISCO

WASHINGTON, D.C. RESIDENTIAL PARKING PERMIT PROGRAM ORDINANCE

Regulation No. 74-25 October 12, 1974

The District of Columbia City Council having passed a regulation on second and final reading October 1, 1974, and the Mayor-Commissioner having signed such regulation October 12, 1974, an amendment to Highways and Traffic Regulations authorizing residential permit parking in certain areas, is hereby adopted as follows:

Section 1. Article XIII of the Highways and Traffic Regulations of the District of Columbia is hereby amended as follows:

(1) by redesignating subsections (a) and (b) of Section 82 as subsection "(b)" of Section 80; and

(2) by adding a new Section 82 titled "Residential Parking Areas", to read as follows:

"Section 82. Residential Permit Parking Areas

"(a) The Commissioner is hereby authorized to designate by order, subject to approval by the Council as hereinafter provided, (public highways and other areas) within the District on which the parking of vehicles may be restricted, beyond a consecutive two (2) hour period between the hours of 7 A.M. and 6:30 P.M. on weekdays, excepting holidays, in whole or in part to vehicles bearing a valid parking permit issued pursuant to this section. This authority shall be in addition to and may be exercised in conjunction with any other authority the Commissioner may have to regulate the times and conditions of motor vehicle parking.

"(b) As used in this section --

"(1) 'Residential area' shall mean a contiguous or nearly contiguous area containing public highways or parts thereof primarily abutted by residential property or residential

and non business property (such as schools, parks, churches, hospitals, and nursing homes), and designated as such by the Commissioner.

"(2) 'Commuter vehicle' shall mean a motor vehicle parked in a residential area by a person not a resident thereof.

"(c) A residential area shall be deemed eligible for residential permit parking if, based on objective criteria established by the Commissioner, parking therein is impacted by commuter vehicles between 7 A.M. and 6:30 P.M. weekdays, except holidays.

"(d) In determining whether an area identified as eligible for residential permit parking shall be designated as a residential permit parking area, the Commissioner shall take into consideration the following factors:

"(1) The local and metropolitan needs with respect to clean air and the requirements of Federal and District air quality plans, rules and regulations;

"(2) The possibility of a reduction in total vehicle miles driven in the District of Columbia;

"(3) The likelihood of alleviating traffic congestion, illegal parking, and related health and safety hazards;

"(4). The proximity of public transportation to the residential area;

"(5) The desire and need of the residents for residential permit parking and their willingness to bear the administrative costs in connection therewith; and

"(6) The need for parking in excess of two (2) hours in proximity to establishments located therein and used by the general public for religious, health, or educational purposes.

"(e) In order to determine whether a particular street, avenue, or other location shall be designated as a residential permit parking area, the Commissioner or his designee may conduct, upon his own initiative or upon a petition of a majority of the households in such area,

addressed to the Commissioner or the Council, a public forum, prior to the designation of a parking permit area, or prior to the withdrawal of such designation once it is established. Such forum shall be held only after due notice has been published in a newspaper of general circulation throughout the District and in the D. C. Register. The notice shall clearly state the purpose of the forum, the exact location and boundaries of the residential permit parking area under consideration, the reasons why such area is being proposed for designation as a residential permit parking area, and, if applicable, the proposed permit parking fee that would be charged. In addition to the published notice a similar notification shall be mailed to every household, the identity of which can reasonably be established, within the area under consideration. During such forum, any interested person shall be entitled to appear and be heard. No forum shall be held and no area designated if it is not found to be an impacted area under subsection (c) of this section.

"(f) Within 30 days following the close of the public forum, the Commissioner shall recommend by report to the Council, based on the record of such forum, whether to designate the area under consideration as a residential permit parking area or to remove the designation in the case of an established residential permit parking area. Within 45 days following the receipt of the report, the Council shall approve or disapprove the recommendation of the Commissioner.

"(g) Following Council approval of the designation of a residential permit parking area, the Commissioner or his designee shall issue appropriate permits and shall cause parking signs to be erected in the area, indicating the times, locations, and conditions under which parking shall be by permit only. A permit shall be issued upon application and payment of the applicable fee, only to the owner or the operator of a motor vehicle who resides on property immediately adjacent to a street, avenue, or other location within the residential permit parking area.

"(h) The application for a permit shall contain the name of the owner or operator of the motor vehicle, residential address, the motor vehicle's make, model, registration number, and the number of the applicant's operator's permit. The motor vehicle's registration and operator's license may, in the discretion of the Commissioner, be required to be presented at the time of making said application in order to verify the contents thereof. The owner or operator of any motor vehicle applying for a residential parking permit shall have valid District of Columbia motor

vehicle license tags unless not legally required to have them. The permit shall be renewed annually upon such conditions and procedures as the Commissioner shall specify. The permit shall display the motor vehicle's serial, license and zone numbers and expiration date.

"(i) Notwithstanding any provision of this Article to the contrary, the holder of a residential parking permit shall be permitted to stand or park a motor vehicle operated by him in any designated residential parking area during such times as the parking of motor vehicles therein is permitted. While a vehicle for which a residential parking permit has been issued is so parked, such permit shall be displayed so as to be clearly visible through the windshield of the vehicle. A residential parking permit shall not guarantee or reserve to the holder a parking space within a designated residential permit parking area. A residential parking permit shall not authorize the holder thereof to stand or park a motor vehicle in such places or during such times as the stopping, standing, or parking of motor vehicles is prohibited or set aside for specified types of vehicles, nor exempt the holder from the observance of any traffic regulation other than two-hour parking limit.

"(j) No person other than the permittee named thereon shall use a residential parking permit or display it on a vehicle operated or parked, and any such use or display by a person other than the permittee shall constitute a violation of this regulation by the permittee and by the person who so used or displayed such parking permit.

"(l) It shall constitute a violation of this regulation for any person to falsely represent himself as eligible for a residential parking permit or to furnish any false information in an application to the Commissioner in order to obtain a residential parking permit.

"(2) The Commissioner is authorized to revoke the residential parking permit of any permittee found to be in violation of this regulation and, upon written notification thereof, the permittee shall surrender such permit to the Commissioner. Failure, when so requested, to surrender a residential parking permit so revoked shall constitute a violation of this regulation.

"(k) The Commissioner is authorized to establish by order an annual residential permit parking fee to cover the administrative costs of permits issued pursuant to this section.

"(l) The Commissioner is authorized to make provisions for: (i) the issuance of temporary parking permits to bona fide visitors of residents o a designated residential parking area; and (ii) the issuance of exemption parking permits to handicapped persons in keeping with the requirements of Regulation No. 73-12, (Regulation Providing Special Parking Privileges for Handicapped Drivers).

"(m) Any person who shall violate any provision of this regulation shall, upon conviction, be subject to punishment by a fine of not more than $300 or imprisonment of not more than 10 days, or both."

Section 2. Severability.

The provisions of this regulation are severable and if any provision, clause, sentence, subsection, word or part thereof is held illegal, invalid or unconstitutional, or inapplicable to any person or circumstances, such illegality, invalidity or unconstitutionality, or inapplicability shall not affect or impair any of the remaining provisions, clauses, sentences, subsections, words, or parts of the regulation or their application to other persons or circumstances. It is hereby declared to be the legislative intent that this regulation would have been adopted if such illegal, invalid, or unconstitutional provision, clause, sentence, subsection, word or part had not been included therein, and if such person or circumstances, to which the regulation or part thereof is held inapplicable, had been specifically exempted therefrom.

Section 3. This regulation shall take effect sixty (60) days after enactment.

SAN FRANCISCO RESIDENTIAL PARKING PERMIT PROGRAM ORDINANCE

Be it ordained by the People of the City and County of San Francisco:

Section 1. Part II, Chapter XI of the San Francisco Municipal Code is amended by adding Article 15 thereto, reading as follows:

RESIDENTIAL PERMIT PARKING PROGRAM, Article 15

Sec. 301 - Legislative Purpose

This Article is enacted in response to the serious adverse effects caused certain areas and neighborhoods of the City and County of San Francisco by motor vehicle congestion, particularly the long-term parking of motor vehicles on the streets of such areas and neighborhoods by non-residents thereof. As set forth in more specific detail in Section 302 of this Article, such long-term parking by non-residents threatens the health, safety and welfare of all the residents of the City and County of San Fracisco. In order to protect and promote the integrity of these areas and neighborhoods, it is necessary to enact parking regulations restricting unlimited parking by non-residents therein, while providing the opportunity for residents to park near their homes. Uniform parking regulations restricting residents and non-residents alike would not serve the public interest. Rather such regulation would contribute to neighborhood decline while ignoring the public transit alternatives to automobile travel available to non-residents. For the reasons set forth in this Article, a system of preferential resident parking is enacted hereby for the City and County of San Francisco.

Sec. 302 - Legislative Findings

(a) General Finding The Board of Supervisors finds as a result of public testimony, evidence generated by both professional urban planning studies and derived from other sources, that the continual vitality of the City and County of San Francisco depends on the preservation of safe, healthy and attractive neighborhoods and other residential areas therein. The Board further finds that

the flight of residents and property owners from major metropolitan cities can be traced in part to the deterioration of such cities as attractive and comfortable places in which to reside. The Board further finds that one factor that has contributed to this deterioration in the city and county is the excessive and burdensome practice of non-residents of certain areas and neighborhoods parking their motor vehicles for extended periods of time therein. Since there is in the city and county at any one time a large surplus of motor vehicles over available on and off-street parking spaces, this condition detracts from a healthy and complete urban environment. A system of preferential resident parking will serve to reduce a number of strains on residents of the city and county and thus promote the general public welfare.

(b) Specific Findings - The following specific legislative findings of the Board of Supervisors in support of preferential resident parking are set forth as illustrations of the need compelling the enactment of this Article. They are intended as illustrations only and do not exhaust the subject of the factual basis supporting its adoption:

(1) The safety, health and welfare of the residents of the city and county can be greatly enhanced by maintenance of the attractiveness and livability of its neighborhoods and other residential areas;

(2) It is a fact of modern living in the city and county that a large portion of San Francisco residents posses automobiles and as a result are daily faced with the need to store these automobiles in or near their residents;

(3) Certain neighborhoods and areas of the city and county do not have sufficient on or off-street space to accommodate the convenient parking of motor vehicles by residents thereof in the vicinity of their homes;

(4) Such areas as described in (3) above are often further burdened by influxes of motor vehicles owned by non-residents which compete for the inadequate available on-street parking spaces;

(5) There further exist certain parking "attractors" within the city and county, i.e. hospital and university complexes, mass transit stations and terminals, and locations convenient for commute parking, which further exacerbate resident parking problems;

(6) Unnecessary vehicle miles, noise, pollution, and strains on inter-personal relationships caused by the conditions set forth herein work unacceptable hardships on residents of these neighborhoods and other residential areas by causing the deterioration of air quality, safety, tranquility and other values available in an urban residential environment;

(7) If allowed to continue unchecked, these adverse effects on the residents of the city and county will contribute to a further decline of the living conditions therein, a reduction in the attractiveness of residing within said city and county, and do frequent injury to the general public welfare;

(8) A system of preferential resident parking as enacted in this Article will serve to promote the safety, health and welfare of all the residents of the city and county by reducing unnecessary personal motor vehicle travel noise and pollution, and by promoting improvements in air quality, the convenience and attractiveness of urban residential living, and the increased use of public mass transit facilities available now and in the future. The public welfare will also be served by ensuring a more stable and valuable property tax base in order to generate the revenues necessary to provide essential public services.

Sec. 303 - Definitions

(a) 'Residential area' shall mean a contiguous or nearly contiguous area containing public streets and highways or parts thereof where residents dwell;

(b) 'Commuter vehicle' shall mean a motor vehicle parked in a residential area in which it is not registered with the State Department of Motor Vehicles;

(c) 'Resident vehicle' shall mean a motor vehicle parked in a residential

area in which it is registered with the State Department of Motor Vehicles;

(d) 'Residential permit parking area' shall mean a residential area designated as herein provided wherein resident vehicles displaying a valid permit as described herein shall be exempt from parking time restrictions established pursuant to this Article;

(e) The masculine form as used in this Article if applicable as shown by the context thereof shall apply to a female person;

(f) 'Own' shall mean that a person has at least a one-quarter interest in a parcel of real property within a residential permit parking area;

(g) 'Leases' shall mean that a person pays rent or other remuneration for use of a parcel of real property as his residence or place of business;

(h) 'Motor vehicle' shall include an automobile, truck, motorcycle or other motor-driven form of transportation not in excess of 6000 pounds gross weight;

(i) 'Person' shall mean a natural person.

Sec. 304 - Designation of Residential Permit Parking Areas

The Board of Supervisors shall, upon recommendation of the Chief Administrative Officer, consider for designation as residential permit parking areas those residential areas meeting and satisfying the objective criteria therefore established in this Article. It may in its discretion then designate by resolution certain residential areas as residential permit parking areas in which resident vehicles displaying a valid parking permit may stand or be parked without limitation by parking time restrictions established by this Article. Said resolution shall also state the applicable time limitation, period of the day for its application, and the fee to be charged upon permit issuance.

Sec. 305 - Designation Criteria

(a) A residential area shall be deemed eligible for consideration as a residential permit parking area if based on surveys and studies prepared at the

direction of the Chief Administrative Officer or his designee, objective criteria establish that the residential area is impacted by commuter vehicles for any extended period during the day or night, or weekends, or during holidays.

(b) In determining whether a residential area identified as eligible for residential permit parking may be designated as a residential permit parking area, the Chief Administrative Officer and the Board of Supervisors shall take into account factors which include but are not limited to the following:

(1) The extent of the desire and need of the residents for residential permit parking and their willingness to bear the administrative costs in connection therewith;

(2) The extent to which legal on-street parking spaces are occupied by motor vehicles during the period proposed for parking restriction;

(3) The extent to which vehicles parking in the area during the period proposed for parking restriction are commuter vehicles rather than resident vehicles; and

(4) The extent to which motor vehicles registered to persons residing in the residential area cannot be accommodated by the number of available off-street parking spaces.

Sec. 306 - Designation Process

(a) Upon receipt of verified petition of residents of at least 250 dwelling units in the residential area proposed for designation or residents living in 50% of the living units in the area proposed for designation, the Chief Administrative Officer or his designee shall undertake or cause to be undertaken such surveys or studies as are deemed necessary to determine whether a residential area is eligible for residential permit parking. Such surveys or studies shall be completed within ninty (90) days of receipt of a petition calling for such

surveys or studies to be undertaken, unless otherwise provided by the Board of Supervisors.

(b) Within thirty days of the completion of surveys and studies to determine whether designation criteria are met, the Chief Administrative Officer or his designee shall notice as herein provided a public hearing or hearings in or as close to the neighborhood as possible on the subject of the eligibility of the residential area under consideration for residential permit parking. Said hearing or hearings shall also be conducted for the purpose of ascertaining boundaries for the proposed residential permit parking area as well as the appropriate time limitation on parking and the period of the day for its application.

Notice of public hearing or hearings provided for herein shall be published in the official newspaper of the City and County at least ten days before the hearing date and circularized generally in the neighborhood. The notice shall clearly state the purpose of the hearing, the location and boundaries tentatively considered for the proposed residential permit parking area and, if applicable, the proposed permit fee to be charged therefor. During such hearing or hearings, any interested person shall be entitled to appear and be heard, subject to appropriate rules of order adopted by the Chief Administrative Officer or his designee.

Sec. 307 - Recommendation of the Chief Administrative Officer

(a) Within sixty days of the completion of the hearing or hearings conducted with regard to a particular residential area, the Chief Administrative Officer shall recommend by written report to the Board of Supervisors, based on the record of such hearing or hearings and the surveys and studies performed, whether to designate the residential area under consideration as a residential permit parking area.

(b) In the report of the Chief Administrative Officer, he shall set forth the evidence generated as a result of surveys and studies performed, significant subjects and concerns raised at the public hearing or hearings conducted, the

findings relative to those designation criteria listed in Section 305 deemed applicable to the residential area and conclusions as to whether the findings justify preferential residential parking for that particular area, the proposed boundaries of the residential permit parking area, a proposed time limitation and period of the day for its application, and a proposed fee to be paid upon permit issuance.

(c) The designation process and designation criteria set forth in this Article shall also be utilized by the Chief Administrative Officer and the Board of Supervisors in determining whether to remove designation as a residential permit parking area from a particular residential area.

Sec. 308 - Issuance of Permits

(a) Parking permits shall be issued by the Tax Collector. Each such permit shall be designed by the Tax Collector to state or reflect thereon the particular residential permit parking area as well as the license number of the motor vehicle for which it is issued. No more than one parking permit shall be issued to each motor vehicle for which application is made. The Chief Administrative Officer is authorized to issue such rules and regulations, not inconsistent with this article, governing the manner in which persons shall qualify for parking permits;

(b) Parking permits may be issued for motor vehicles only upon application of the following persons;

(1) A legal resident of the residential permit parking area who has a motor vehicle registered in his name, or who has a motor vehicle for his exclusive use and under his control;

(2) A person who owns or leases commercial property and actively engages in business activity within a residential permit parking area. However, no more than one parking permit may be issued for each business establishment for a motor vehicle registered to or under the control of such a person.

(c) Proof of residency or ownership shall be demonstrated in a manner to be determined by the Chief Administrative Officer.

(d) Proof of motor vehicle ownership or vehicle use and control shall be demonstrated in a manner determined by the Chief Administrative Officer.

Sec. 310 - Posting of Residential Permit Parking Area

Upon the adoption by the Board of Supervisors of a resolution designating a residential permit parking area, the Director of the Department of Public Works shall cause appropriate signs to be erected in the area, indicating prominently thereon the time limitation, period of the day for its application, and conditions under which permit parking shall be exempt therefrom.

Sec. 311 - Display of Permits

Permits shall be displayed in a manner determined by the Chief of Police.

Sec. 312 - Permit Parking Exemption

A resident motor vehicle on which is displayed a valid parking permit as provided for herein shall be permitted to stand or be parked in the residential permit parking area for which the permit has been issued without being limited by time restrictions established pursuant to this Article. Said resident motor vehicle shall not be exempt from parking restrictions or prohibitions established pursuant to authority other than this Article. All other motor vehicles, other than vehicles specified in Article 1.1 of this code, parked within a residential permit parking area shall be subject to the time restrictions adopted as provided in this Article as well as the penalties provided for herein.

A residential parking permit shall not guarantee or reserve to the holder thereof an on-street parking space within the designated residential permit parking area.

Sec. 313 - Application For and Duration of Permit

Each parking permit issued by the Tax Collector shall be valid for one year from the date of issuance. Permits may be renewed annually upon re-application in the manner required by the Chief Administrative Officer. Each application or reapplication for a parking permit shall contain information sufficient to identify the applicant, his residence address or address of real property owned or leased within a residential permit parking area, and the license number of the motor vehicle for which application is made, and such other information that may be deemed relevant by the Chief Administrative Officer.

Sec. 314 - Permit Fees

The fee for a residential parking permit shall be ten dollars ($10.00) a year for each motor vehicle applied for by an eligible applicant. The fee for visitor's permits shall be one dollar ($1.00). There shall be a one dollar ($1.00) transfer charge for those with permits in one designated area who move to another designated area and apply for a permit in the new area of residence. In such cases the new permit shall expire at the same time as the former permit would have.

Sec. 315 - Penalty Provisions

(a) It shall be unlawful and a violation of this Article, unless expressly provided to the contrary herein, for any person to stand or park a motor vehicle of a gross weight exceeding fifty pounds for a period exceeding the time limitation established pursuant hereto. Said violation shall be punishable by a fine not exceeding ten dollars ($10.00), imprisonment of not more than ten (10) days, or both;

(b) It shall be unlawful and a violation of this Article for a person to falsely represent himself as eligible for a parking permit or to furnish false information in an application therefor to the Tax Collector;

(c) It shall be unlawful and a violation of this Article for a person holding a valid parking permit issued pursuant hereto to permit the use or display of such permit on a motor vehicle other than that for which the permit is issued. Such conduct shall constitute an unlawful act and violation of this Article both by the person holding the valid parking permit and the person who so uses or displays the permit on a motor vehicle other than that for which it is issued;

(d) It shall be unlawful and a violation of this Article for a person to copy, produce or otherwise bring into existence a facsimile or counterfeit parking permit or permits without written authorization from the Tax Collector. It shall further be unlawful and a violation of this Article for a person to knowingly use or display a facsimile or counterfeit parking permit in order to evade time limitations on parking applicable in a residential permit parking area. Upon conviction thereof, a person shall be punishable by a fine not exceeding five hundred dollars ($500) or be imprisoned for a period not exceeding six (6) months, or both.

Sec. 316 - Revocation of Permit

The Tax Collector is authorized to revoke the residential parking permit of any person found to be in violation of this Article and, upon written notification thereof, the person shall surrender such permit to the Tax Collector. Failure, when so requested, to surrender a residential parking permit so revoked shall constitute a violation of law and of this Article.

Sec. 317 - Severability

The provisions of this Article are severable and if any provision, clause, sentence, subsection, section, work or part thereof is held illegal, invalid or unconstitutional, or inapplicable to any person or circumstance, such illegality, invalidity or unconstitutionality or inapplicability shall not affect or impair any of the remaining provisions, clauses, sentences, subsections, sections, words or parts of the Article or their application to other persons or circumstances. It is hereby declared to be the legislative intent that this Article would have been adopted if such illegal, invalid or unconstitutional provision, clause, sentence, subsection, section, word or part had not been included therein, or if such person or circumstance to which the Article or part thereof is held inapplicable had been specifically exempted therefrom.

APPENDIX B

PARK AND RIDE FACILITY LEASE AGREEMENTS FOR PORTLAND AND OHIO

PARK AND RIDE FACILITY LEASE AGREEMENT
FOR PORTLAND, OREGON

This agreement, dated _____, between the Tri County Metropolitan Transportation District of Oregon, and _____ _____ (Owner).

1. Purpose. The purpose of this Agreement is to provide Tri-Met with the use of part of Owner's premises as a park and ride and carpooling facility for the benefit of Tri-Met's patrons and persons in carpools.

2. Premises. Owner hereby licenses Tri-Met to use for park and ride and carpooling purposes that portion of Owner's premises marked "Park and Ride" in Exhibit "A" hereto (hereinafter called "Premises").

3. Term. The term of this Agreement shall be _____ years from date hereof. Either party, however, may terminate this Agreement after _____ months by giving _____ months notice to the other party of its intent to terminate.

4. Use of the Property. Tri-Met may use the Premises for a park and ride facility for Tri-Met and its patrons, and for a carpooling parking facility; vehicle access and parking for Tri-Met patrons and persons in carpools; marking of the Premises; and all similar and related uses. Tri-Met will be the owner of all improvements it places on the Premises, but will obtain the Owner's written approval before placing any improvements on the Premises.

5. Access. Tri-Met may use the Owner's property surrounding the Premises for vehicle and pedestrian access and circulation for Tri-Met and its patrons, excluding buses, and persons in carpools.

6. Marking of Premises and Publicity. Tri-Met may mark the Premises, and will install a sign indicating that the Premises are available for Tri-Met patrons and persons in carpools as a result of Owner's courtesy. Tri-Met will obtain Owner's written approval before placing any improvements on the Premises.

7. Maintenance. Tri-Met will provide reasonable maintenance for the Premises and improvements thereon. Owner agrees to notify Tri-Met promptly of defects in parking areas which could give rise to third party injury or damage, even though Tri-Met may make periodic inspections of the Premises.

8. Governmental Charges. Tri-Met will have no obligation to pay any taxes, assessments, or governmental charges against the Premises.

9. Liability. Tri-Met will hold Owner harmless from all claims, damages, losses and expense arising out of Tri-Met's installation, maintenance and permissible use of the park and ride facility.

10. Termination. On termination of this Agreement, Tri-Met will surrender use of the Premises to Owner, will remove all signs and structures placed on the Premises by Tri-Met, and will repair any damage to the Premises caused by the removal.

OWNER

By _____

Title _____

Property Address _____

_____

TRI-COUNTY METROPOLITAN TRANSPORTATION DISTRICT OF OREGON

By _____
Director of Contract Administration

SAMPLE PARK AND RIDE FACILITY LEASE AGREEMENT
FOR OHIO

IN THE MATTER OF THE ESTABLISHMENT
AND OPERATION OF A PARKING FACILITY
BY THE (AGENCY) ON PROPERTY OF
(OWNER) AT (LOCATION)

AGREEMENT NO. _____

THIS AGREEMENT made this _____ day of _____, 19 ___, by and between (Name of Agency) hereinafter referred to as "AGENCY" and (Company, Person, or other entity owning property) hereinafter referred to as the "OWNER".

WITNESSETH,

WHEREAS, the AGENCY has determined it to be in the public interest to establish a staging area in the vicinity of (describe general location) for persons interested in participating in Park-and-Ride transportation operations, and

WHEREAS, the parties hereto have found the premises of the OWNER to be suitable for the establishment and operation of a staging area to provide space for pickup and discharge of high occupancy vehicle passengers and for the parking of private vehicles of passengers participating in the Park-and-Ride program, and

WHEREAS, it is the desire of the parties hereto to carry out and accomplish the establishment, operation and maintenance of a Park-and Ride staging area on property of the OWNER and to determine and agree upon the manner of doing the work and the responsibilities of each of the parties hereto.

NOW, THEREFORE, for and in consideration of the mutual convenants hereinafter stipulated to be kept and performed, it is agreed between the parties hereto as follows

SECTION I.

The OWNER hereby agrees to make available to the AGENCY that portion of the OWNER'S property shown on the drawings attached hereto and marked as Attachment "A" for use by the AGENCY for construction, operation and maintenance of a Park-and-Ride facility, and such other of the OWNER"S property as may be necessary and mutually agreed upon by the parties hereto, as access to the said Park-and-Ride facility.

In exchange for this right to use, the AGENCY agrees to pay to the OWNER the sum of _____ on the date this agreement becomes effective, and the sum of _____ each (month) (year) thereafter until this agreement is terminated.

The AGENCY shall take out and keep in effect a policy of insurance in the name of the AGENCY and COMPANY, jointly, to protect both the AGENCY and COMPANY against loss or damage to property and injury to or death of persons, and against all claims, demands, suits, expenses and/or judgements arising because of, or resulting from, the construction, operation and maintenance of the Park-and-Ride facility. Such policy of insurance to provide single limit coverage of $1,000,000 for bodily injury and property damage per vehicle per occurrence.

SECTION II.

The work to be done under the terms of this agreement and shown on the plans attached hereto and made a part of this agreement as Attachment "A", consists of the alteration of certain properties of the OWNER for operation and use by the AGENCY as a staging area for persons traveling in buses, carpools and other ride-sharing vehicles. Said staging area commonly referred to as the Park-and-Ride facility.

SECTION III.

Responsibility for the several necessary items of work shall be as follows:

(a) The following work shall be done or caused to be done by the AGENCY at its own cost and expense, subject to the provisions of this agreement.

1. Furnish and erect signs designating the Park-and-Ride facility.

2. Furnish and install pavement markings, parking stops, as necessary to enhance traffic operations.

3. Erect fencing as shown on the plans to provide security for the facility.

4. Furnish and install necessary lighting fixtures including furnishing power therefor.

SECTION IV.

The AGENCY shall provide reasonable maintenance for the Park-and-Ride facility including all improvements made by the AGENCY, and shall make periodic inspections to determine the extent of any defects which may require maintenance or repair.

The OWNER agrees to notify the AGENCY promptly of any defects in the Park-and-Ride facility which could give rise to third party injury or damages.

It is agreed between the parties hereto that the AGENCY may arrange with and obtain the services of local police agencies to enforce parking regulations within the Park-and-Ride facility, including the removal of improperly parked or abandoned vehicles.

SECTION V.

This agreement shall become effective upon execution by the parties hereto and shall remain in effect so long as the AGENCY continues to operate the Park-and-Ride facility in accordance with the terms herein set forth and shall be binding on the successors or assigns of either or both parties. Providing, however, that after the first anniversary of this agreement, either party hereto may terminate the agreement by notifying the other party in writing by certified mail, thirty (30) days in advance of the proposed date of termination.

Upon termination of this agreement, the AGENCY shall have an additional thirty (30) days in which to cease operations and restore the property to its original condition or as may be agreed to by the OWNER in writing.

IN WITNESS WHEREOF, the parties hereunto have caused this agreement to be executed in duplicate as of the day and year first above written.

_____
(Name of Agency)

_____ By: _____
(Title)

_____
(Name of Owner)

By: _____
(Title)

Property Address

_____

_____

APPENDIX C

RULES AND REGULATIONS FOR ON-STREET CARPOOL PARKING PROGRAM IN SEATTLE

COMMUTER POOL

625-4500

APPENDIX C

RULES AND REGULATIONS FOR
ON-STREET CARPOOL PARKING PROGRAM IN SEATTLE

I. APPLICATION, FEE, ELIGIBILITY AND ISSUANCE OF PERMITS

Application. Each applicant must read the Rules And Regulations and fully complete and sign the application. Any and all changes in the information required must be immediately reported to the Commuter Pool office. Falsification of information requested on the application or failure to report changes in that information will result in the enforcement of the penalties listed in Section VII below.

Fee. An administrative charge of $5.00 a month per carpool made payable to the City Treasurer by check or money order must be paid before the permit is issued. This charge is paid quarterly as permits are renewed on a quarterly basis (every three months). New applicants are accepted on a space available basis; therefore, do not send a check until you have been notified.

Eligibility. After the applications are received by the Commuter Pool office, the information supplied must meet the following criteria:

1. No member of the carpool has had their permit revoked within the past six months;

2. All members must live and work in a reasonable commute pattern;

3. All members must carpool on a regular basis (at least four days a week);

4. For the Pool-It Lot and the On-Street locations, there must be at least three members in the carpool;

5. For the Kingdome lot there must be two or more members in the carpool with a preference given to carpools of three or more. Kingdome pools of two are charged $10.00 a month, paid quarterly;

6. All members must commute to the Central Business District. (A carpool may be allowed to drop off one or more members on the fringes of the CBD if Commuter Pool finds that the carpool is otherwise meeting the objectives of the preferential parking program. Preference will be given to carpools which do not drop off members outside of the CBD.)

Issuance. The information supplied in the applications will be reviewed. When Commuter Pool is satisfied that the information is correct and the applicants are eligible, a permit will be issued. Permits are issued on a space available

basis; no applicant receives a permit as a matter of right. To avoid overcrowding, some permits will be issued for specific areas. Carpoolers must park in the area designated by their permit. When space is not available, the applicants will be placed and retained on a waiting list for six months. Reapplication will be required after the six month term. The number one applicant, as designated on the application, will receive all correspondence for the entire carpool and will be responsible that the information is made available to all carpool members.

It is necessary to oversubscribe to better utilize the many daily empty spaces. On rare occasions carpoolers may be unable to find a parking space in the lot. A permit does not guarantee a carpool a space. Space is on a first come, first served basis.

Occasionally events may be scheduled at the Kingdome and carpoolers may not be allowed to take advantage of reduced rate parking. You will be notified in advance, however, if this situation occurs.

II. RENEWAL

Every three months renewal forms for each member of the carpool will be mailed to the number one carpooler. Each member of the carpool is required to note any changes on the form and to sign it. The number one carpooler shall return the forms together, along with a check for $15.00 ($30.00 for Kingdome pools of two) made payable to City Treasurer, before the permit expires. After the renewal forms are received and reviewed to see that the carpool still meets the eligibility criteria, a new permit is issued for another three months. If for some reason the carpool does not receive its renewal forms, it is its responsibility to call the Commuter Pool office before the permit expires and make arrangements for replacement renewal forms. All permits that have not been renewed by the expiration date will be issued to other carpools on the waiting list.

III. PERMITS

A carpool is issued one permit which must be displayed on the vehicle in use. Each vehicle registered for carpooling will receive a clear plastic pocket to be used to display the parking permit. This pocket must be attached to the inside of the windshield in the lower center or lower corner of the driver's side. The permit must be displayed in the plastic pocket with the permit number clearly visible from the outside of the vehicle. Only one vehicle registered under a permit may use the preferential parking areas at a time. Display of the permit in any other place or manner than described will result in a warning for the first offense and a citation for each subsequent offense. See Section VII below.

Permits do not exempt carpoolers from obeying all traffic and parking regulations including signs, barriers, or meter hoods which specify restrictions on parking.

Commuter Pool will audit carpools periodically to detect abuse of permit privileges. All carpools must cooperate fully with the audit and supply true and correct information to the auditor.

Two-seater cars are not allowed in carpool parking areas unless prior approval has been obtained through the Commuter Pool office.

IV. UPDATE

It is the responsibility of each carpooler to notify the Commuter Pool office in the event of any change in the information supplied on their application. Failure to do so will result in the enforcement of the penalties listed in Section VII below.

V. MISUSE

Misuse of the permit may result in a citation, impoundment or revocation of the permit and its privileges. See Section VII below. Each carpool member is responsible for their own compliance with the rules and regulations and should report any known abuses by other carpoolers. When a permit is revoked, each member of the carpool becomes ineligible for all Commuter Pool permits for six months.

VI. LOST OR FORGOTTEN PERMITS

Lost or destroyed permits must be reported immediately and the loss explained to the Commuter Pool office. A new permit must be applied for in person by a member of the carpool.

A registered carpool which does not have its permit displayed in the vehicle must park only in the Pool-It Lot and immediately report the situation to Commuter Pool in Room 600, Arctic Building, or by phone at 625-4500. Parking in other carpool facilities without a permit will result in a citation and/or impoundment of the vehicle, as appropriate, for each subsequent offense. See Section VII below.

VII. PENALTIES

In order to protect the interest of all carpoolers, the enforcement of penalties against those who abuse the preferential parking program is essential. The penalties noted here are applied pursuant to the Seattle Traffic Code, Ordinance 91910 as amended by Ordinances 104905, 104952, 105673, and 105853. For purposes of the following table, an authorized vehicle is one registered under a valid carpool parking permit.

RULES AND REGULATIONS
Page 4

OFFENSE	WARNING TICKET	$10.00* CITATION	VEHICLE IMPOUNDED	PERMIT REVOCATION	INELIGIBILITY FOR SIX MONTHS
Unauthorized vehicle, no permit	--	X	--	--	--
Unauthorized vehicle, with permit					
1st offense	X	--	--	--	--
2nd offense	--	X	--	--	--
Subsequent offenses	--	X	X	X	X
Authorized vehicle, no permit					
1st offense	X	--	--	--	--
2nd offense	--	X	--	--	--
3rd offense	--	X	X	--	--
Subsequent offenses	--	X	X	X	X
Authorized vehicle, invalid or expired permit					
1st offense	--	X	--	--	--
2nd and subsequent offenses	--	X	X	--	--
False information on application	--	X	--	X	X
Failure to update	--	X	--	X	X
Used less than 4 days per week	--	--	--	X	--
Used by less than 3 persons	--	--	--	X	--
Sale or transfer	--	X	--	X	--

*Ordinance #91910

12/78

*U.S. GOVERNMENT PRINTING OFFICE: 1991-0-524-117/269

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