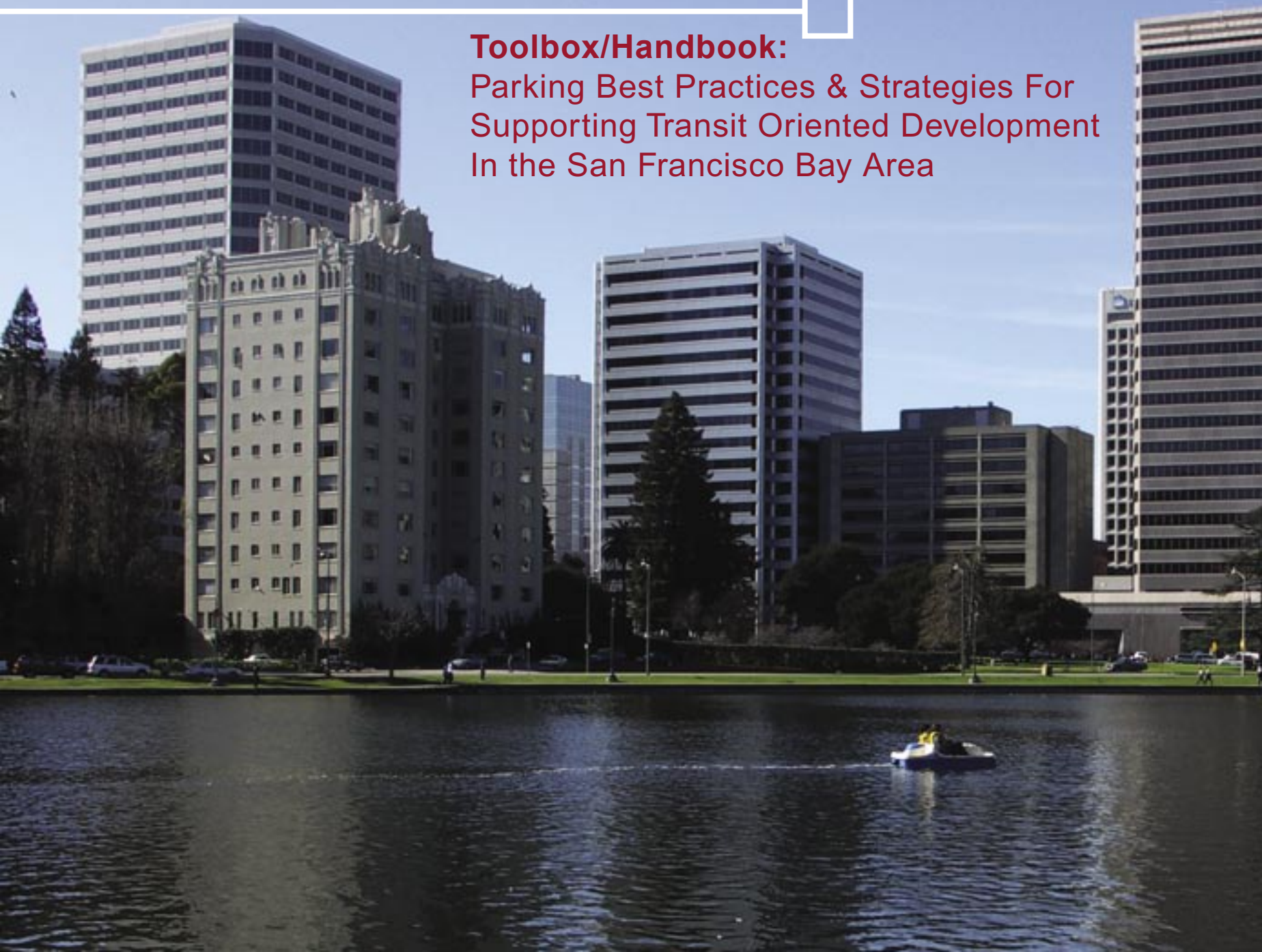


# REFORMING PARKING POLICIES TO SUPPORT SMART GROWTH

**Toolbox/Handbook:**  
Parking Best Practices & Strategies For  
Supporting Transit Oriented Development  
In the San Francisco Bay Area





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Parking Best Practices & Strategies For  
Supporting Transit Oriented Development  
In the San Francisco Bay Area

**Metropolitan  
Transportation  
Commission**  
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# INTRODUCTION

This report is intended to serve as a guide or a handbook for communities interested in planning and implementing parking policies and programs that are supportive of Smart Growth and Transit Oriented Development (TOD). The focus is on downtowns, neighborhoods, and transit station areas in which a major investment has been made to provide regional and local transit accessibility. In order to maximize the value of that investment and to discourage the solo use of the automobile for travel, this report will assist communities in identifying the TOD supportive parking policies and improvements that are best suited to their individual characteristics. It is important to note that the research conducted during these studies and a number of recent similar efforts have shown that the parking related objectives needed to support TOD can be achieved through a broad variety of actions and initiatives. In short, there are a number of ways to solve a given problem. For that reason this handbook includes a “toolbox” of proven parking management initiatives and actions which can be applied to address a given issue or objective.



# HOW TO USE THIS HANDBOOK

This handbook is designed to assist city officials, technical staff and political decision makers with the planning and implementation of parking policies and programs designed to encourage and support Smart Growth and TOD. This handbook is organized to facilitate quick access to a variety of approaches and programs that can be selected based on the specific characteristics of your community. To best use this handbook proceed as follows:



## Step 1: Define Your Community

Go to this section of the report to determine which of five distinct location types best defines the characteristics of your community:

- Regional Center
- City Center/Urban Neighborhood
- Suburban Center/Town Center
- Transit Neighborhood
- Rural/Small Town

## Step 2: Explore Potential Strategies

Use the matrix or go to the page which outlines the policies and programs which have been shown to work in your type of community. This indicates which policies might be good candidates for your community.

## Step 3: Best Practices

The section of this report on Best Practices provides more information about the candidate policies and programs, and provides examples of where they have worked elsewhere. It also provides information about the resource documents that are available for your use and the current practices of Bay Area communities.

## Step 4: Implementation Guidelines

This section of the report provides tools and a guide for communities to develop and implement new parking policies. It shows communities how to determine the appropriate amount of parking that should be provided with new development, and explains the best approach or process for gaining support of the community to move into implementation of the selected policies.

# DEFINE YOUR COMMUNITY

The toolbox organizes communities into five major area types to help cities self-identify by community characteristics such as transit service and access, density and land use mix, retail and employment characteristics and development challenges. This is the important first step in the process which helps communities to define their goals and select area appropriate parking strategies. Every place is unique; this typology is only intended to assist cities in identifying types of strategies by area types and is not intended to limit consideration of approaches.

	Regional Center <i>(see page 7)</i>	City Center/ Urban Neighborhood <i>(see page 9)</i>	Suburban Center/ Town Center <i>(see page 11)</i>	Transit Neighborhood <i>(see page 13)</i>	Rural / Small Town <i>(see page 15)</i>
What are/will be the characteristics of the Focus Area?	Primary center of economic and cultural activity	Center of economic and cultural activity w/regional-scale destinations or residential district w/ good access to Regional Centers	Center of economic, community and cultural activity with regional-scale destinations	Predominantly residential district organized around transit station	Local center of economic and community activity
What is/will be the primary transit mode in the Focus Area?	BART, LRT/Streetcar	BART, LRT/Streetcar, BRT, Commuter Rail	BART, Commuter Rail, Regional Bus Hub , LRT/Streetcar, Ferry	LRT/Streetcar, BRT, Commuter Rail, Bus, Potentially Ferry	Commuter Rail, Local/Regional Bus Service
What is/will be the land use mix and density in the Focus Area?	High-density mix of residential (25+du/acre), commercial, employment, and civic/cultural uses	Moderate- to high-density mix of residential (15-25du/acre), commercial, employment, and civic/cultural uses, or mod-high dens residential uses with supporting commercial and employment uses	Moderate- to high-density (12-25 du/acre) mix of residential, commercial, employment, and civic/cultural uses	Low- to moderate-density (8-12 du/acre), predominantly residential uses with supporting commercial and employment uses	Low to Moderate-density mix of residential (5-12 du acre), commercial, employment, and civic uses
What are/will be the characteristics of retail in the Focus Area?	Regional-serving destination retail opportunity; need for local-serving retail	Regional-serving destination retail opportunity; neighborhood local serving retail opportunity; need for local-serving or community-serving retail	Regional or community serving destination retail opportunity; need for local-serving retail	Primarily local-serving retail opportunity	Local serving retail destination; need for community-serving retail
What are/will be major planning and development challenges?	Integrating dense mix of housing and employment into built-out context	Integrating high-density housing into existing housing & employment to support local-serving retail Expanding local retail opportunities & increasing high-density housing	Introducing housing and increasing density into predominantly employment uses, improving connections/access to transit	Integrating moderate-density housing and supporting local-serving retail into existing context	Increasing densities and improving transit access
Example	Downtown San Francisco, Oakland & San Jose	Downtown Hayward, Berkeley & Santa Rosa	Pleasant Hill BART, Union City BART, Walnut Creek, Downtown San Mateo, Vallejo, Menlo Park, Downtown Petaluma	Whisman Station (Mountain View), Fruitvale, Hercules	Downtown Morgan Hill, Fairfield

Key Identifying Questions

# DEFINE YOUR GOALS

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Community goals serve as the basis for parking policies. As such, the next step is for your community to define its goals relevant to selecting particular parking strategies. The following is a list of sample goals that cities might consider to start the planning process; it is only intended to assist cities and is not to limit your consideration of possible objectives.

## Check each goal which your community has an interest in pursuing

- \_\_\_\_\_ Optimize use of land for housing and development
- \_\_\_\_\_ Maximize the use of parking areas for public parking and mixed use development
- \_\_\_\_\_ Evaluate/meet current/future parking needs efficiently
- \_\_\_\_\_ Determine appropriate parking rates
- \_\_\_\_\_ Support/encourage alternatives to driving
- \_\_\_\_\_ Support/encourage pedestrian/bike circulation connectivity in the focus area
- \_\_\_\_\_ Support/encourage economic development
- \_\_\_\_\_ Other Goal(s) \_\_\_\_\_

This preliminary list of goals can be furthered by the application of smart growth parking strategies. Additional goals related to density, development, land use and transportation not otherwise outlined above are also supported by the strategies covered in the toolbox. The third and final step is to select the strategies to support these goals.



# EXPLORE POTENTIAL STRATEGIES

## Potential Policies for Different Types of Areas

The appropriate mix of parking policies and parking management strategies are unique for each agency and jurisdiction. The mix must consider various factors, such as local objectives, existing parking occupancy, investment that is occurring, auto ownership and alternative travel mode availability. However, there are some general approaches that can be used for different types of areas. The matrix on this page presents the general strategies that can be applied in each type of area. Learn more about these strategies by referring to the Best Practices section of this report. Learn more about the location types in the following pages.



STRATEGIES	Regional Center	City Center	Urban Neighborhoods	Suburban Center	Transit Neighborhood	Small Town
<b>1 Transit/TOD Supportive Policies</b>						
Transit Incentive Programs	■	■	■	■	■	■
Transit Friendly Parking Design	■	■	■	■	■	■
Transit Supportive Zoning	■	■	■	■	■	■
Carsharing	■	■	■	■	■	■
Walkability and Wayfinding	■	■	■	■	■	■
<b>2. Parking Requirements</b>						
Reduced Parking Requirements	■	■	■	■	■	■
TOD Friendly Parking Requirements	■	■	■	■	■	■
Parking Maximums	■	■	■	■	■	■
Shared Parking	■	■	■	■	■	■
<b>3. Parking Pricing</b>						
On-street Parking Pricing	■	■	■	■	■	■
Variable Rate Parking Pricing	■	■	■	■	■	■
Coordinated Off-street and On-street Pricing	■	■	■	■	■	■
Unbundled Parking	■	■	■	■	■	■
Parking Cash-Out	■	■	■	■	■	■
<b>4. Parking Management Strategies</b>						
Parking Payment Technology	■	■	■	■	■	■
Parking Database	■	■	■	■	■	■
Real-time Parking Information	■	■	■	■	■	■
<b>5. Parking Districts</b>						
Assessment Districts	■	■	■	■	■	■
Revenue Districts	■	■	■	■	■	■
Residential Permit Parking	■	■	■	■	■	■
<b>6. Parking Financing</b>						
In-Lieu Fees	■	■	■	■	■	■
Risk Fund	■	■	■	■	■	■
Parking Occupancy Tax	■	■	■	■	■	■
Parking Tax by Space	■	■	■	■	■	■
Tax Exemptions and Variable Rate Tax	■	■	■	■	■	■



# REGIONAL CENTER

Regional Center areas consist of high-rise office buildings, commercial services, ground-floor retail and market-based parking pricing. They can include high-density residential development. These downtowns are regional destinations with intensive transit access such as BART, Caltrain, Muni light rail or VTA light rail. Examples include downtown Oakland, San Francisco, and San Jose.

Potential policies that can be applied to regional centers are listed below. Refer to the Best Practices section of this report for more information on each policy or program.



## 1. Transit/TOD Supportive Policies

These policies and programs are designed to support the use of transit and to create a walkable transit friendly environment, reducing or eliminating the need for a private automobile. Relevant examples include:

- **Transit Incentive Programs**
- **Carsharing**
- **Transit Friendly Parking Design**
- **Transit Overlay Zones**
- **Walkability and Wayfinding**

## 2. Parking Requirements

Managing the amount of parking associated with new development is an effective way to allow increased density and to support transit. These policies focus on reducing or limiting the amount of parking that is required and encourage efficient use of the parking. Examples of this approach which are relevant to regional centers include:

- **Reduced Parking Requirements**
- **TOD Friendly Parking Requirements**
- **Parking Maximums**
- **Shared Parking**

### 3. Parking Pricing

Pricing has long been recognized as the most powerful parking management tool. Effective pricing policies can be used to discourage commuter parking in key locations and increase customer access to convenient short-term parking supplies. Revenues from parking can be used to fund transit supportive parking and transportation improvements. A broad range of pricing policies are available for application in regional centers:

- **On-street Parking Pricing**
- **Variable Rate Parking Pricing**
- **Coordinated Off-street and On-street Pricing**
- **Unbundled Parking**
- **Parking Cash-Out**

### 5. Parking Districts

A parking district is a tool which supports the development of parking and transportation improvements within a given area. Recently it has been shown that property owners, businesses, and residents are very supportive of programs designed to return revenues from parking back to the district in which they were collected as a means of making desired improvements to the area. Three basic types of districts exist:

- **Assessment Districts**
- **Revenue Districts**
- **Residential Permit Parking**

### 4. Parking Management Strategies

Information is a key element of parking management. Effective management of the parking supply and pricing requires access to accurate data defining existing and historic parking characteristics. Research has also shown that consumers respond well to new parking technologies which provide them with information about parking and make paying for parking more convenient. The types of strategies include:

- **Parking Payment Technology**
- **Parking Database**
- **Real-time Parking Information**

### 6. Parking Financing

There are many tools and methods available to finance the development of parking and parking related transportation improvements. These include:

- **In-Lieu Fees**
- **Risk Fund**
- **Parking Occupancy Tax**
- **Parking Tax by Space**
- **Tax Exemptions and Variable Rate Tax**

# CITY CENTER/ URBAN NEIGHBORHOODS

Within urban settings, there exist neighborhoods that are well integrated with key transit providers and direct connections to an urban downtown. As such, these areas that are served by rail transit or provide good bus connections to nearby rail transit are identified as urban neighborhoods. City centers and urban neighborhoods are served by vehicles, transit, and pedestrian systems. The neighborhood's built environment is defined by a mix of land use types where the collective synergy promotes one another to create a livable environment. Examples of urban neighborhoods include: South Beach (San Francisco), North Berkeley (Berkeley), and Lakeshore (Oakland). Potential policies that can be applied to city center/urban neighborhoods are listed below. Refer to the Best Practices section of this report for more information on each policy or program.



## 1. Transit/TOD Supportive Policies

These policies and programs are designed to support the use of transit and to create a walkable transit friendly environment, reducing or eliminating the need for a private automobile. Relevant examples include:

- **Transit Incentive Programs**
- **Transit Friendly Parking Design**
- **Transit Supportive Zoning**
- **Carsharing**
- **Walkability and Wayfinding**

## 2. Parking Requirements

Managing the amount of parking associated with new development is an effective way to allow increased density and to support transit. These policies focus on reducing or limiting the amount of parking that is required and encourage efficient use of the parking. Examples of this approach which are relevant to urban neighborhoods and city centers include:

- **Reduced Parking Requirements**
- **TOD Friendly Parking Requirements**
- **Parking Maximums**
- **Shared Parking**

### 3. Parking Pricing

Pricing has long been recognized as the most powerful parking management tool. Effective pricing policies can be used to discourage commuter parking in key locations and increase customer access to convenient short term parking supplies. Revenues from parking can be used to fund transit supportive parking and transportation improvements. A broad range of pricing policies are available for application in city centers/urban neighborhoods:

- **On-street Parking Pricing**
- **Variable Rate Parking Pricing**
- **Coordinated Off-street and On-street Pricing**
- **Unbundled Parking**
- **Parking Cash-Out**

### 5. Parking Districts

A parking district is a tool which supports the development of parking and transportation improvements within a given area. Recently it has been shown that property owners, businesses, and residents are very supportive of programs designed to return revenues from parking back to the district in which they were collected as a means of making desired improvements to the area. Three basic types of districts exist:

- **Assessment Districts**
- **Revenue Districts**
- **Residential Permit Parking**

### 4. Parking Management Strategies

Information is a key element of parking management. Effective management of the parking supply and pricing requires access to accurate data defining existing and historic parking characteristics. Research has also shown that consumers respond well to new parking technologies which provide them with information about parking and make paying for parking more convenient. The types of strategies include:

- **Parking Payment Technology**
- **Parking Database**
- **Real-time Parking Information**

### 6. Parking Financing

There are many tools and methods available to finance the development of parking and parking related transportation improvements. These include:

- **In-Lieu Fees**
- **Risk Fund**
- **Parking Occupancy Tax**
- **Parking Tax by Space**
- **Tax Exemptions and Variable Rate Tax**

# SUBURBAN CENTER/ TOWN CENTER

Suburban Centers and Town Centers are generally located in the center of communities with less density as compared to urban downtowns. Typically, these areas contain a good mix of medium or low-rise office buildings and housing types including townhomes and apartments. These locations can act as both origin and destination settings. The parking environment is typically defined by ample surface parking lots, however, suburban downtowns also tend to have a good mix of transit service with direct connections to urban settings, (e.g. San Francisco, Oakland, and San Jose). Examples of suburban centers and town centers include Walnut Creek, Concord, San Mateo or Palo Alto. Potential policies that can be applied are listed below. Refer to the Best Practices section of this report for more information on each policy or program.



## 1. Transit/TOD Supportive Policies

These policies and programs are designed to support the use of transit and to create a walkable transit friendly environment, reducing or eliminating the need for a private automobile. Relevant examples include:

- **Transit incentive Programs**
- **Transit Friendly Parking Design**
- **Transit Supportive Zoning**
- **Walkability and Wayfinding**

## 2. Parking Requirements

Managing the amount of parking associated with new development is an effective way to allow increased density and to support transit. These policies focus on reducing or limiting the amount of parking that is required and encourage efficient use of the parking. Examples of this approach which are relevant to suburban centers/town centers include:

- **Reduced Parking Requirements**
- **Shared Parking**

### **3. Parking Pricing**

Pricing has long been recognized as the most powerful parking management tool. Effective pricing policies can be used to discourage commuter parking in key locations and increase customer access to convenient short term parking supplies. Revenues from parking can be used to fund transit supportive parking and transportation improvements. A broad range of pricing policies are available for application in suburban centers and town centers:

- **On-street Parking Pricing**
- **Variable Rate Parking Pricing**
- **Coordinated Off-street and On-street Pricing**
- **Parking Cash-Out**

### **5. Parking Districts**

A parking district is a tool which supports the development of parking and transportation improvements within a given area. Recently it has been shown that property owners, businesses, and residents are very supportive of programs designed to return revenues from parking back to the district in which they were collected as a means of making desired improvements to the area. Three basic types of districts exist:

- **Assessment Districts**
- **Revenue Districts**
- **Residential Permit Parking**

### **4. Parking Management Strategies**

Information is a key element of parking management. Effective management of the parking supply and pricing requires access to accurate data defining existing and historic parking characteristics. Research has also shown that consumers respond well to new parking technologies that provide them with information about parking and make paying for parking more convenient. The types of strategies include:

- **Parking Payment Technology**
- **Parking Database**
- **Real-time Parking Information**

### **6. Parking Financing**

There are many tools and methods available to finance the development of parking and parking related transportation improvements. These include:

- **In-Lieu Fees**
- **Risk Fund**
- **Parking Tax by Space**

# TRANSIT NEIGHBORHOOD

Transit neighborhoods are located in communities with existing centers of high transit activity, defined by rail service or multiple bus lines that connect at one location including suburban transit stations. As one of the primary lifelines of the city or jurisdiction, transit neighborhoods are supported by a large ridership base that includes both local residents and regional travelers. As such, transit neighborhoods are directly connected to regional transit providers such as BART, in the Bay Area. Examples of suburban transit station areas include El Cerrito del Norte BART, Dublin/Pleasanton BART, or Mountain View Caltrain. Potential policies that can be applied to transit neighborhoods and suburban transit station areas are listed below. Refer to the Best Practices section of this report for more information on each policy or program.



## 1. Transit/TOD Supportive Policies

These policies and programs are designed to support the use of transit and to create a walkable transit friendly environment, reducing or eliminating the need for a private automobile. Relevant examples include:

- **Transit Incentive Programs**
- **Carsharing**
- **Transit Friendly Parking Design**
- **Transit Overlay Zones**
- **Walkability and Wayfinding**

## 2. Parking Requirements

Managing the amount of parking associated with new development is an effective way to allow increased density and to support transit. These policies focus on reducing or limiting the amount of parking that is required and encourage efficient use of the parking. Examples of this approach which are relevant to transit neighborhoods include:

- **Reduced Parking Requirements**
- **TOD Friendly Parking Requirements**
- **Parking Maximums**
- **Shared Parking**

## 3. Parking Pricing

Pricing has long been recognized as the most powerful parking management tool. Effective pricing policies can be used to discourage commuter parking in key locations and increase customer access to convenient short term parking supplies. Revenues from parking can be used to fund transit supportive parking and transportation improvements. A broad range of pricing policies are available for application in transit neighborhoods:

- **On-street Parking Pricing**
- **Variable Rate Parking Pricing**
- **Coordinated Off-street and On-street Pricing**
- **Unbundled Parking**
- **Parking Cash-Out**

## 5. Parking Districts

A parking district is a tool which supports the development of parking and transportation improvements within a given area. Recently it has been shown that property owners, businesses, and residents are very supportive of programs designed to return revenues from parking back to the district in which they were collected as a means of making desired improvements to the area. Three basic types of districts exist:

- **Assessment Districts**
- **Revenue Districts**
- **Residential Permit Parking**

## 4. Parking Management Strategies

Information is a key element of parking management. Effective management of the parking supply and pricing requires access to accurate data defining existing and historic parking characteristics. Research has also shown that consumers respond well to new parking technologies that provide them with information about parking and make paying for parking more convenient. The types of strategies include:

- **Parking Payment Technology**
- **Parking Database**
- **Real-time Parking Information**

## 6. Parking Financing

There are many tools and methods available to finance the development of parking and parking related transportation improvements. These include:

- **In-Lieu Fees**
- **Risk Fund**
- **Parking Occupancy Tax**
- **Parking Tax by Space**
- **Tax Exemptions and Variable Rate Tax**



# SMALL TOWNS

There are a number of examples of small towns within the San Francisco Bay Area. These communities are typically characterized by low levels of suburban development and small established centers of retail activity. These small towns are linked to the urban environment via an established transportation network. It should be noted, however, that the existing transportation network may or may not include transit linkages to regional public transportation systems. Examples of small towns include Danville, Morgan Hill, or Fairfield. Potential policies that can be applied to rural and small towns are listed below. Refer to the Best Practices section of this report for more information on each policy or program.



## 1. Transit/TOD Supportive Policies

These policies and programs are designed to support the use of transit and to create a walkable transit friendly environment, reducing or eliminating the need for a private automobile. Relevant examples include:

- **Transit Friendly Parking Design**
- **Transit Incentive Programs**
- **Walkability and Wayfinding**

## 2. Parking Requirements

Managing the amount of parking associated with new development is an effective way to allow increased density and to support transit. These policies focus on reducing or limiting the amount of parking that is required and encourage efficient use of the parking. Examples of this approach which are relevant to small towns include:

- **Reduced Parking Requirements**
- **Shared Parking**

### **3. Parking Pricing**

Pricing has long been recognized as the most powerful parking management tool. In small towns where land costs are low and parking is readily available, parking pricing policies are generally not appropriate. Parking time limits, permit parking programs, and other parking controls can be used to manage the parking supply.

### **4. Parking Management Strategies**

Information is a key element of parking management. Effective management of the parking supply and pricing requires access to accurate data defining existing and historic parking characteristics. Research has also shown that consumers respond well to new parking technologies that provide them with information about parking and make paying for parking more convenient. The types of strategies include:

- **Parking Database**

### **5. Parking Districts**

A parking district is a tool which supports the development of parking and transportation improvements within a given area. Recently it has been shown that property owners, businesses, and residents are very supportive of programs designed to return revenues from parking back to the district in which they were collected as a means of making desired improvements to the area. Two basic types of districts exist:

- **Assessment Districts**
- **Revenue Districts**

### **6. Parking Financing**

There are many tools and methods available to finance the development of parking and parking related transportation improvements. These include:

- **In-Lieu Fees**

# EFFECTIVENESS | A Simple Look at Major Strategies

Different parking policies have a range of effectiveness on parking demand depending on various local factors such as mix of land uses, degree of mode choice, development density and the cost of parking versus other modes in the area. The following table summarizes the potential effectiveness of various parking policies and additional factors that should be considered prior to their selection.

It is difficult to generalize about the effectiveness of various parking policies and programs in terms of their ability to reduce parking demand. Before and after studies are seldom available. In addition, the effectiveness of the policies and programs is highly dependent upon the particular context — for example, parking pricing can be highly effective in a location of high demand, or quite ineffective in a lower demand situation or one with high levels of free parking close by. That being said, from the limited information available, this table summarizes the relative effectiveness of the major types of smart growth supportive parking policies and programs. Note that these programs work best when combined, and customized to the particular setting.

Policy/Program	Potential Effectiveness (percent reduction in demand)	Comments
<b>Parking Pricing</b>	<b>HIGH</b> <b>TYPICALLY 5-30%</b> Depending on the amount of the parking fee and the surrounding/controls on parking	Pricing is known as the most effective way to manage parking demand. There are a number of specific approaches to address different settings.
<b>Shared Parking</b>	<b>MEDIUM/HIGH</b> <b>TYPICALLY 10-20%</b> Depending on the mix of land uses and parking demand in relatively close proximity	Shared parking reductions can be readily calculated once the actual land use types are known.
<b>Reduced Parking Requirements</b>	<b>MEDIUM</b> <b>TYPICALLY 10-15%</b> Depending on how close the requirements are to actual demand rates	Reduces the supply, which in turn may reduce demand, or reflect a lower demand, especially adjacent to transit or combined with shared parking and pricing.
<b>Unbundling and Cash-Out Options</b>	<b>MEDIUM</b> <b>TYPICALLY 10-15%</b> Depending on the price, demand and convenience of parking in the area	This is really a variation of parking pricing and is quite effective. Can be used in both residential and work environments.
<b>Transit Passes and Incentives</b>	<b>MEDIUM/LOW</b> <b>TYPICALLY 5-10%</b> Depending on how close the requirements are to actual demand rates. Depends on transit access + relative convenience between transit and destinations + price/income levels	The cost-effectiveness of these measures appears to be very good for development immediately adjacent to transit stations/corridors.
<b>Car Sharing</b>	<b>LOW</b> <b>TYPICALLY 3-5%</b> Depending on the auto-ownership levels, density and level of mixed use development in the area, and transit quality	Car sharing supports lower household auto ownership rates, transit and other parking policies. It may indirectly contribute to greater reductions in demand.

# BEST PRACTICES

Some cities look to take a leadership role in developing new parking policies, while others are not interested in being the pioneers, unless it is absolutely necessary. Even those cities that are willing to pursue new paths can benefit from the experiences of other cities that have tried or considered similar ideas. The best practices research that was conducted as part of this study revealed that good examples of all of the many candidate policies and programs that were identified can be found around the country. In fact, many of them are already in place somewhere in the Bay Area. Using the resources developed as part of this project, cities can find examples of each of the many policy and program options that would potentially fit their needs. It is important to caution that what works in one city may need to be modified for another. The structure of a city's government, the makeup of the community, and a number of other factors can influence results. This is why once a candidate policy or program is under consideration it is important to spend some effort to contact the cities that already have implemented a similar policy and to learn as much as possible about their experience. Helpful information can include:

- **The type of process used to plan and implement the program**
- **The actual costs (hard and soft) of the program**
- **Copies of enabling legislation and ordinances**
- **Lessons learned**
- **Experiences after the program was implemented**

*These topics are discussed in more detail in this section of the report. For those who desire even more information, please refer to the Task 3 Report – Best Practices which is in the companion document to this report, the Compendium of Technical Papers.*



# EXISTING BAY AREA PARKING POLICIES

A survey of Bay Area cities conducted by MTC was used to document current approaches to parking policies and practices. The survey and review of the parking requirements and policies currently used by Bay Area cities revealed the following:

1. Much of the classic literature on parking is oriented towards free, auto-dependent suburban land uses.
2. Cities seeking to develop new parking policies and programs have a number of technical resources available to them. However, many of the resources offer limited and confusing information for cities seeking to modify their parking requirements or to develop other parking management policies. A list of key documents is provided at the end of this tool box.
3. Cities tend to copy the parking requirements adopted by their neighbors and other peer cities rather than invest the major effort required to develop requirements that are truly relevant to the city's characteristics and goals.
4. Most cities have a one-size-fits-all uniform parking requirement which covers the entire city. Parking requirements in these cities do not change with density and transit availability, which inhibits TOD in those areas which have good levels of transit access.
5. Many Bay Area cities have already adopted policies and programs specifically designed to promote smart growth and TOD, but have not been able to implement these policies.
6. Widely held concepts of land use and parking are hard to displace. Any successful effort to adopt progressive parking policies must address the numerous concerns of the various stakeholder groups and the political decision makers.
7. Because many cities have already taken the steps to adopt progressive parking management policies and measures, the other cities can benefit directly from their experience. The perceived risks of being a pioneering community can be diminished through sharing of experiences and information, which is one of the key objectives of this project.

*Those desiring more information about current policies and practices should go to the Task 2 Report - Existing Bay Area Parking Policies in the companion document to this report, the Compendium of Technical Papers.*



# 1 TRANSIT / TOD SUPPORTIVE POLICIES

Transit improvements and incentives help reduce parking demand and create viable alternative modes in areas trying to implement parking management and pricing programs. Downtowns and town centers with high-quality transit benefit greatly by using transit as a resource in-lieu of parking spaces. This can result in a reduction of parking demand that, combined with transit use and pedestrian improvements, creates a more vibrant, walkable area.

## Transit Incentive Programs

Transit Incentive programs vary from passive and indirect to planned under an overall strategy mandated through local ordinance, law or promulgated rulemaking. Although broadly considered as part of Transportation Demand Management actions, incentive programs are generally implemented at the local level by transit providers (bus passes, fare free zones, fare discounts to seniors, school kids, etc), individual employers or through TMAs, and through special user-side subsidies from social service agencies or school districts. The most common incentive is a pass program. In areas with a parking shortage, group discount pass programs may reduce parking demand, shifting commuters and residents from driving alone to transit.

## Carsharing

Carsharing programs provide participants with access to a fleet of centrally owned and maintained vehicles located near residences, workplaces, or transit hubs. Members typically reserve shared vehicles for a specific timeframe and pay for use through some combination of hourly, overhead, and mileage based rates. Implementation of carsharing offers compelling parking management benefits. First, by distributing the fixed costs of car ownership into the marginal cost of every trip made, carsharing reduces the total number of trips made by participants. Second, by offering an alternative to individual car ownership, carsharing programs have helped participants eliminate one or more existing household vehicles, contributing to lower auto ownership rates.

By increasing the number of users per vehicle and encouraging more frequent use throughout the day, carsharing programs directly reduce parking demand while preserving the convenience and flexibility of automobile use for participants.



## TOD Friendly Parking Design

Good design features greatly improve the impact of parking garages on the community and the environment. Street alignment and wrapping with retail supports a lively pedestrian realm. Shared parking between transit stations and other uses — entertainment, retail, office and residential — has significant potential benefit as discussed in a recent analysis of the MacArthur BART Station [http://accma.ca.gov/pdf/talu/TOD\\_TAP\\_SharedParkingReport\\_051707.pdf](http://accma.ca.gov/pdf/talu/TOD_TAP_SharedParkingReport_051707.pdf). Good design can reduce the impact on the environment through techniques such as permeable paving, landscaping and innovative storm water management as described in another recent local study. [http://accma.ca.gov/pdf/talu/FinalReport\\_Alameda\\_TOD-TAP\\_01lc.pdf](http://accma.ca.gov/pdf/talu/FinalReport_Alameda_TOD-TAP_01lc.pdf)

## Transit Supportive Zoning/Transit Overlay Zones

Transit can also be supported by the use of transit supportive zoning and overlay zones. In a transit overlay zone, cities modify the underlying zoning regulations to ensure that development encourages greater transit use and supports efficient transit service. For example, the Transit Overlay Zone in the City of Mountain View allows for the creation of corporate neighborhoods that are integrated with a new light rail station. TOD and Transit Overlay Zones allow for more density while reducing parking requirements. It is directly linked to transit incentives (employer or other sponsored bus passes). New developments, at a minimum, must meet existing peak hour transit mode split through the use of TDM actions, allowing shared parking use and granting density bonuses for certain uses or developments.

## Walkability and Wayfinding

Walkable and bike-able environments are key to developing vibrant downtowns, city centers, and transit neighborhoods. In areas around transit stations, people walk for half of their close destinations (MTC STARS report [http://www.mtc.ca.gov/planning/smart\\_growth/stars/index.htm](http://www.mtc.ca.gov/planning/smart_growth/stars/index.htm)). Better pedestrian environments are key to encouraging walking. MTC's *Bay Area Pedestrian Districts Study* [http://www.mtc.ca.gov/planning/bicyclespedestrians/Ped\\_Districts/index.htm](http://www.mtc.ca.gov/planning/bicyclespedestrians/Ped_Districts/index.htm) is designed to assist local jurisdictions in defining the types and costs of pedestrian facilities that have the greatest impact on improving the pedestrian environment. Bicycle accessibility is strengthened by explicit connections to local and regional bicycle facilities; good signage is key. The Safe Routes to Transit Program <http://www.mtc.ca.gov/planning/bicyclespedestrians/index.htm> offers funding for improving walk and bike access to transit, and Transportation for Livable Communities (TLC) offers planning and Capital funding through regional and county level programs.



# 1 TRANSIT / TOD SUPPORTIVE POLICIES EXAMPLES

## Transit Incentive Programs

### **Example: Santa Clara Valley Transportation Authority Annual Pass Program**

The Santa Clara Valley Transportation Authority offers ECO passes for businesses and residential communities. Employers can purchase an annual ECO pass for all full-time employees at a discounted price based upon service and number of employees. Residential communities such as condominiums, apartments, townhouses, homeowner associations and community associations can also purchase ECO passes for their residents at a discounted price. Customers can use these passes on any SCVTA bus or rail line. The use of these passes saves the user the cost of a transit pass, increases transit ridership and results in a lower demand for parking.

## Carsharing

### **Example: San Francisco Parking Requirement Reduction**

The San Francisco Planning Department granted a variance to construct the 141-unit Symphony Towers apartments with only 51 spaces (rather than the required 141) in part because of the commitment for two car sharing parking spaces and the use of unbundled parking ([Shoup, 2005](#)).

### **Example: City of Berkeley Fleet Replacement**

The City of Berkeley, California retired its fleet vehicles and replaced them with carsharing vehicles saving an estimated \$250,000 in the first three years of the program ([KRON4, 2004](#); [City of Berkeley, 2005](#)).







# EXAMPLES

## **TOD Friendly Parking Design**

### ***Example: Marin TPLUS Pedestrian and Transit Oriented Design Toolkit – Structured Parking Design Guidelines***

Marin's TPLUS TOD toolkit provides Structured Parking Design guidelines that include pedestrian-friendly orientation and access, and de-emphasize automobile access by requiring specific block placement and orientation and ground floor land use activation. These requirements engage and activate the street by allowing the continuation of the pedestrian fabric and streetscape.

### ***Example: BART's Parking Policy to Advance TOD***

The Bay Area Rapid Transit (BART) Board of Directors has adopted a TOD policy that provides flexibility for replacing parking displaced by a TOD. The more flexible policy allows for less than full replacement if TOD and access investments are made that increase transit ridership, enhance BART's fiscal stability and reduce auto access mode share.

BART has developed a methodology to determine where a less than one-to-one BART parking replacement will effectively meet both BART and community needs. The methodology considers those additional riders from the TOD itself as well as those who would access BART via improved transit feeder routes, improvements to bicycle and pedestrian access to the station, and parking capacity at nearby stations.

# EXAMPLES

## Transit Supportive Zoning/Transit Overlay Zones

### **Example: City of Oakland – Transit Oriented Development Zone Regulations** *(Chapter 17.100 S-15)*

The S-15 zone is intended to “create areas devoted primarily to serving multiple nodes of transportation and to feature high density residential, commercial and mixed-use development to encourage a balance of pedestrian oriented activities, transit opportunities and concentrated development.” The S-15 zoning regulations are used to create high-density transit oriented development. The S-15 zones require parking as provided in Chapter 17.116. The actual number of required parking spaces is generally determined by the Director of City Planning.

## Walkability and Wayfinding

**Example:** Santa Rosa has developed east-west pedestrian linkages to connect sides of the community divided by Highway 101. The pedestrian walkway project is within 2 blocks of the downtown transit mall, which serves a local and regional bus hub and is near the Santa Rosa bikeway system. The city also runs a trolley service through the area. Pedestrian and bike amenities include narrowed intersections, special pavement, pedestrian scale lighting, and bike parking. The project is being coordinated with an affordable housing redevelopment strategy and a cultural arts market. *(MTC TLC, 2006)*

**Examples:** Burbank, CA, Philadelphia, PA; San Antonio, TX; and Indianapolis, IN have developed pedestrian wayfinding systems that make it easier for visitors to walk around the downtown and park once and walk from parking structures to major attractions. The City of Burbank (1992) used a combination of priority parking for customers, shared parking, employee parking pricing, and pedestrian improvements to revitalize its downtown area, creating an entertainment area with 35 restaurants, a downtown shopping center, movie theaters, anchor retailers and specialty retail shops. Pedestrian improvements create a core walkable environment and provide linkages to shared parking facilities. *(Wilbur Smith Associates, Kodama et al, 2005)*

# 2 PARKING REQUIREMENTS

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Off Street parking requirements are standards established by cities that require provision of parking for each use. They are typically based on national guides that set parking levels based on demand for free parking in a suburban land use pattern and without other travel modes available. Cities hoping to support smart growth and TOD benefit by rethinking these standards. Off-street parking requirements in local municipal codes directly affect parking supply, parking pricing possibilities, urban design, and development feasibility. Reducing or eliminating parking requirements in areas with development opportunities may provide a better use of resources, especially in locations with shared parking opportunities to handle peak parking demand and in communities with a highly developed transit system that provides viable alternatives.

## Reduce Parking Requirements

In deciding how much to reduce the requirements or whether to eliminate them entirely, communities should consider the effect of providing parking on development feasibility. This is especially important in locations with high land costs or community preservation issues (protection of historical buildings, community character, aesthetics and environmental concerns). The reduction or elimination of offstreet parking requirements is most effective in areas with high-quality transit service, parking pricing and a walkable environment. These characteristics reduce the demand for parking and impact of spillover parking into a neighborhood. To reduce, develop demand based, or eliminate parking requirements, a community will need to examine economic issues, site and neighborhood characteristics, location features, and market issues. In addition, the community will also need to examine existing parking occupancy to determine the feasibility of reducing parking requirements in the downtown. One key component to effectively implementing reduced parking requirements is to consider these policies within the context of Transit Oriented Development. As such, each community must identify its individual process and select the most appropriate tools and standards. Notably, if reduced parking requirements are approached in this way, they can be linked to a development's proximity to transit and good pedestrian infrastructure.



## Develop TOD Friendly Parking Requirements

The initial step toward developing revised parking requirements involves conducting a parking utilization study to determine how the existing parking supply is being used, and to consider this information in the context of the development goals and community vision.

### Parking Maximums

Alternative methods of tailoring parking requirements involve establishing limits or “caps” on the quantity of parking that can be provided for a given development. Establishing the parking maximum limits the number of spaces, promotes more efficient use of land, enhances urban form, encourages the use of alternative modes, provides for better pedestrian movement and protects air and water quality. Parking maximums can be linked with the availability of alternative modes to capture the accessibility of the existing transit infrastructure.

### Shared Parking

Shared parking can significantly improve the economics of constructing new parking by providing greater turnover in the facility — rather than one user per day a facility may service multiple users. Shared parking is based upon the concept of using the same parking spaces for two or more different land uses at different times. Notably, if payment charges are placed on parking, this turnover can increase the ability to finance the facility. Allowing for shared parking arrangements significantly reduces the amount of land devoted to parking and, in so doing, creates more opportunities for mixed use, creative site planning and landscaping. In addition to revisions to local zoning codes to enable shared parking, shared parking arrangements can be implemented through shared parking agreements between individual developers or the construction of public parking facilities. In some cases, shared parking can be a formal or informal agreement among different peak users on different days.

Some local jurisdictions incorporate language in local ordinances to permit and even encourage shared parking. These jurisdictions allow shared parking to meet minimum parking requirements for uses located within the same lot or building and also permit off-site shared parking arrangements to meet on-site parking requirements for complementary uses within a defined area. These location requirements are typically based on acceptable walking distances.



# 2 PARKING REQUIREMENTS EXAMPLES

## Reducing Parking Requirements

### **Example: Berkeley TOD Parking Requirement Reduction**

*Section 23E.28.140 Required Findings for Parking Reductions under Section 23E.28.130*

- A.** In order to approve any Administrative Use Permit or Use Permit under this chapter, the Zoning Officer or Board must make the findings required by Section 23B.28.050 and/or 23B.32.040 as applicable, in addition to any findings required in this section to the extent applicable.
- B.** To approve any reduction of the off-street parking spaces under Section 23E.28.130, or under other sections that refer to this section, the Zoning Officer or Zoning Adjustments Board must find that the reduction will not substantially reduce the availability of on-street parking in the vicinity of the use. The Zoning Officer or Board must find that at least one of each of the two groups of conditions below apply:
- 1) The use is located one-third of a mile or less from a Bay Area Rapid Transit (BART) station, intercity rail station or rapid bus transit stops;*
  - 2) Or the use is located one-quarter of a mile or less from a publicly accessible parking facility, the use of which is not limited to a specific business or activity during the new use's peak parking demand;*
  - 3) Or a parking survey conducted under procedures set forth by the Planning Department finds that within 500 feet or less of the use, on the non-residential street where the use is located, at least two times the number of spaces requested for reduction are available through on-street parking spaces for at least two of the four hours of the new use's peak parking demand;*
  - 4) Or the use includes one of the following neighborhood-serving uses: Retail Products Store(s), Food Service Establishments, and/or Personal/Household Service(s). These uses include, but are not limited to: Dry Cleaning and Laundry Agents, Drug Stores, Food Products Stores, Household Items Repair Shops, and/or Laundromats;*
  - 5) And the parking requirement modification will meet the purposes of the district related to improvement and support for alternative transportation, pedestrian improvements and activity, or similar policies;*
  - 6) Or there are other factors, such as alternative transportation demand management strategies or policies in place, which will reduce the parking demand generated by the use.*
- C.**

To approve any modification of the parking requirements, unrelated to the number of spaces, under Section 23E.28.130, the Zoning Officer or Zoning Adjustments Board must find that the parking requirement modification allows the continued use of an existing parking supply and that meeting the parking requirements is not financially feasible or practical.

*(Ord. 6856-NS § 7 (part), 2005)*

# CONTINUED

## Reducing Parking Requirements (Continued)

### **Example: Marin Affordable Housing and Financially Feasible Development Regulations**

Marin TPLUS Pedestrian and Transit Oriented Design Toolkit developed a feasibility analysis of a hypothetical infill analysis project in Marin County to illustrate the effect of parking requirements on the financial feasibility of a project and to illustrate the impact that an additional floor of units can have on the feasibility of an development. A three-story project with two parking spaces versus one parking space per unit generates a sales price of \$459,000 versus \$417,000 per unit. A four-story building built on the same size lot sells for \$402,000 versus \$360,000 per unit. The higher density and lower parking ratios would combine to improve the affordability of the units and reduce the price by \$99,000 per unit.

## Parking Maximums

### **Example: Portland, Oregon Maximum Parking Requirements**

The City of Portland, Oregon has established maximum parking requirements for new development in each central business district. Additionally, the City has also applied a parking maximum for development across the entire Portland metro area. Parking maximums are set based upon the availability of transit service. Lower maximums are set based upon a ¼ mile walk from a frequently served bus stop or ½ mile walk from a transit station. The parking maximum in the central downtown core is 0.7 per 1,000 sq. ft. up to 2.5 in adjacent business districts.

# CONTINUED

## Shared Parking

**Examples: City of Berkeley Shared Parking Code** *Section 23D.12.060 Joint Use of Off-street Parking Spaces*

- A.** The Zoning Officer may approve an AUP to allow a Joint Use Parking Agreement to satisfy off-street parking space requirements, if all of the following findings are made:
- 1) The off-street parking spaces designated for joint use are located within 800 feet of the use to be served; 2) And the times demanded for these parking spaces will not conflict substantially between the use offering the spaces and the use to be served; 3) And the off-street parking spaces designated for joint use are not otherwise committed to satisfying the parking requirements for some other use at similar times.*
- B.** The Board may approve a Use Permit authorizing the off-street parking requirements for offices in R-4 or R-5 Districts to be supplied jointly with off-street parking facilities provided for multiple dwellings, if it finds:
- 1) No more than 20 percent of the off-street parking spaces required for the multiple dwelling use will serve as required off-street parking for offices; 2) And the off-street parking spaces to be jointly used are located on the same lot as the offices which they are to serve, or on property under the same ownership within 300 feet from such offices.*
- C.** A statement shall be recorded in the Office of the County Recorder that restricts the use of the property and designates the off-street parking that is to serve the other property. The deed restrictions shall state that the property cannot be used so as to prevent the use of the parking that is being provided in compliance with the requirements of the City, unless the restriction is removed by the City. Upon submission of satisfactory evidence either that other parking space meeting the requirements of this Ordinance has been provided or that the building or use has been removed or altered in use so as to no longer require the parking space, the City shall remove the restriction from the property. *(Ord. 6794-NS § 1 (part), 2004; Ord. 6478-NS § 4 (part), 1999)*

# 3 PARKING PRICING

Parking pricing concepts should be considered as an integral part of any comprehensive parking policy approach. Parking pricing is a powerful tool that can affect parking occupancy and turnover and can induce greater turnover of the most convenient spaces, increase parking availability, and generate revenue to fund community improvements. Parking pricing is most effective when it is combined with a comprehensive package of incentives for alternative modes, such as rail improvements, express or bus rapid transit, shuttle services, bus service, and pedestrian and bicycle amenities.



## On-Street Parking Pricing

On-street parking pricing is an integral part of parking pricing, since on-street parking conditions often drive off-street policy. Notably, if the on-street price is too low, demand for these spaces will exceed supply, resulting in a shortage of parking spaces. Therefore, the development of a successful on-street parking management system relies upon the development of a coordinated and comprehensive parking management system that prioritizes parking spaces for specific users.

## Variable Rate Parking Pricing

Variable rate parking pricing can be used to maximize parking resources, encourage the use of alternative modes and discourage single occupant vehicles. Variable rate parking pricing can be used in areas with seasonal or special event parking considerations. This may also be used by cities to maintain desired occupancy rates (for example – charge a higher fee during events near special event centers or during special shopping seasons). It can also be used to encourage turnover and increase short term parking supply. Discounts can be given to vanpools and carpool parking as is done in employer run garages.

## Coordinated Off-Street And On-Street Pricing

Off-street and on-street parking prices should be coordinated together. This encourages commuters to use alternative modes while still providing short term parking for customers.



## Unbundled Parking

Typically, parking is bundled or absorbed into tenant leases, hiding the true cost of parking. For example, the price for an apartment with two parking spaces may be rented for \$1,000 per month. However, if the price for those parking spaces were unbundled, the price for rent for the apartment would be \$800 per month, plus \$100 per month for each parking space. Alternatively, renters could be offered a discount if they use fewer than the average parking spaces provided. For example, an apartment or office might rent for \$1,000 per month but renters using only one space receive a \$100 monthly discount. Unbundling parking is an essential first step towards getting people to understand the economic cost of parking and providing users with the opportunity to opt out of parking and make alternative travel decisions. Without unbundled parking, tenants experience parking as free, while transit costs them money. Unbundled parking provides a foundation for additional parking pricing policies.

## Parking Cash-Out

Parking cash-out allows employees to choose between a parking subsidy (free parking), or the out-of-pocket equivalent cost of the parking space. Employees may choose to apply the money towards their parking space or make arrangements to use a lower cost alternative mode and keep the cash. A study on parking cash-out summarized results from seven work sites and estimated a 26 percent reduction in parking demand (Shoup, 1992). Under California Law, Assembly Bill 2109 (1992) requires parking cash-out of sites with 50 or more employees in non-attainment air quality areas which provide parking subsidies, have non-owned employee parking and can reduce parking without a financial penalty. In recent years, the definition of cash-out has been expanded to provide a more flexible and broader application. Within the past ten years, many employers in downtown Portland, downtown San Francisco and downtown Seattle have created effective programs that eliminate free or subsidized parking while providing employees with transit passes.



# 3 PARKING PRICING EXAMPLES

## On-Street Parking Pricing

### **Example: Redwood City On-Street**

Redwood City has taken the concept a step further, approving an enabling ordinance that uses parking utilization as the key for on-street pricing policy. The municipal code ([section 20.120](#)) allows for the periodic adjustment of the downtown meter rates based upon a target parking utilization rate of 85 percent. It also includes the creation of a parking database and provision of an annual parking utilization study to adjust parking rates. The parking manager has the authority to adjust rates up or down twenty five cents based upon the target occupancy rate of 85 percent. The hourly meter rate shall not exceed \$1.50.

## Variable Rate Parking Pricing

### **Example: New York**

New York's Mid-Town Commercial Parking Pricing Program sets on-street rates for multi-space muni-meters (pay and display) at \$2 for one hour, \$5 for two hours, \$9 for three hours and \$12 for four hours. Initial results from the program indicated a decrease in average parking time from about 4 to 6 hours down to 90 minutes with a corresponding reduction in occupancy rates from 120 percent to 85 percent ([New York, 2006](#)). New York pay station customers can also use credit cards or NYC Parking Cards to pay for parking. Estimated revenue from this program increased from \$3.527 million (*FY2004*) to \$6.42 million (*FY2006*).

## Coordinated Off-Street and On-Street Pricing

### **Example: Aspen Colorado**

Aspen, Colorado (1999) balances on-street and off-street parking pricing policies. Aspen changed its parking pricing structure to increase the availability of prime on-street parking (short-term customers) and increase the utilization of its off-street municipal parking structures (long-term visitors and employees). Funding from parking is used to pay for parking improvements and to improve streetscapes and encourage the use of alternative modes ([Aspen 1999](#)).

# CONTINUED

## Unbundled Parking

### **Example: San Francisco: Central Waterfront Plan**

The Central Waterfront Plan includes the elimination of dwelling unit density restrictions, designates residential as a principally permitted use, limits retail and office uses to the first and second stories, eliminates minimum parking requirements and requires unbundled parking from the rental or sale of residential uses.

**Example:** Downtown Seattle has created an environment that allows businesses to cash out because it makes economic sense and serves their own self interest. Downtown Seattle has the key elements to promote cash-out including:

- **Excellent transit service**
- **Unbundled parking leases**
- **Limited parking supply and parking prices**
- **High land values**

## Parking Cash-Out

### **Examples: City of Santa Monica Parking Cash-Out Law**

The City of Santa Monica is the only city in California that requires compliance with the parking cash-out law. The program is part of the city's Emission Reduction Plan. There are 26 employers who participate in the program, resulting in a 20 percent reduction in parking use at these employment sites. A study conducted by Donald Shoup (1997), concluded that two Santa Monica employers who used cash-out reduced solo driving by 7 to 8 percent.



# 4 PARKING MANAGEMENT STRATEGIES

Parking management is defined as the strategic application and use of existing and planned parking spaces for both on-street and off-street facilities in a given area. Parking management is a system management tool which addresses how vehicles access, use (length of time) and egress from parking spaces. The development of parking management strategies, programs and technology considers parking perceptions and attitudes, parking pricing, land use policies, community characteristics and transportation alternatives. Developing parking policies to support TODs and Smart Growth, however, requires a new attitude that recognizes parking location, cost, and supply and demand issues. Implementation of parking management strategies needs to consider economic and financial feasibility issues, site characteristics, location features and compatibility with surrounding uses as well as market and regional issues.



## Parking Payment Technology

Better information systems can support more user friendly options and improve management. Rapid development in pay station technology is providing options for variable pricing and multiple payment methods. This new technology allows for the development of pay stations with advance pricing capabilities. The pay stations create financial and operational databases that provide an audit trail, real-time data and increased revenue opportunities. Pay stations accept credit cards and create the ability to use on-street variable rate parking systems that allow for higher rates for longer stays or special events.

## Parking Database

Intelligent Transportation Systems (ITS) technology provides great opportunities to develop comprehensive on-street and off-street parking databases that will give local jurisdictions more accurate assessments of parking use upon which they can develop programs to best address local conditions and issues. These data bases could also be used to provide the public with real-time information on parking availability at employment sites and other attractor/generators. Current efforts involve taking and evaluating regular surveys. Cities are now beginning to examine the feasibility of creating these types of databases through ITS technology to gather, analyze and provide real-time parking information.

## Real-Time Parking Information

Districts may have a sufficient total supply of parking, but use portions of the inventory inefficiently. Real-time parking information, guidance and wayfinding systems make it more convenient to find parking. These systems range from guidance given in the garage itself as to the location of available spaces to guidance systems that provide directions to the appropriate parking garage and guidance within that facility. Some cities have electronic wayfinding guidance systems as they enter a district. Both improve traffic circulation and the efficiency of the parking system.



# 4 PARKING MANAGEMENT STRATEGIES EXAMPLES

## Parking Payment Technology

### **Example: City of Seattle**

In 2004, the City of Seattle began replacement of single space meters with a multi-space pay and display system. As a result, per space parking revenue with the same fee has increased 40% due to the propensity of motorists to use credit cards (62% of parking revenue) to purchase the maximum parking period allowed and avoid a parking ticket.

## Parking Database

### **Example: Downtown Seattle Parking Database**

Downtown Seattle has a parking database. Downtown Seattle has limited parking (54,063 spaces) to support an employment base of 181,807 jobs. The overall central business district peak-hour occupancy rate of 76.8 percent indicates that parking is generally well used in Downtown Seattle (*King County Metro, 2001*).

## Real-Time Parking Information

### **Example: Santa Monica**

Downtown Santa Monica has introduced a web-based system that allows visitors to easily determine when and where parking is available. The system is based on data transmitted by sensors located on ramps at every entry/exit point throughout participating structures that collect travel information and track the movement and direction of vehicles in the facility. Parking information is updated every 5 seconds to ensure real-time data is transmitted.

### **Example: Berkeley**

Downtown Berkeley is introducing a real-time three tiered dynamic parking signage and information system which is planned to be tied into their web-based parking system. The real time system has three gateway/entry points into the downtown which advertises and directs visitors to available parking depending upon whether the downtown or University is their destination. The second tier guides drivers once in their district with routing to secondary neighborhood destinations. The third tier provides facility information including spaces available and rates.



# 5 PARKING BENEFIT DISTRICTS

Parking Benefit Districts generally utilize revenues generated by a range of means including assessments, taxes or parking meters to provide transportation-related services, and various infrastructure/and or other improvements in order to improve the viability of the area. These districts may also use a variety of strategies to enhance the benefits derived from the revenue. Parking can be managed on an area-wide or site specific basis. Development of a parking benefit district begins with the involvement of key stakeholders (e.g. businesses, developers, land owners, residents and government representatives) to create a set of guiding principles that help facilitate the process and develop the rules for a parking district. During this initial step, identified stakeholders should work collaboratively to develop shared goals, objectives and an overall plan to create a parking district. The next step is to develop an action plan that establishes boundaries, specific locations of parking meters, assessments and other strategies. During the final step, a plan is developed defining programs and projects to be funded, funding levels, and responsibilities.



# 5 PARKING BENEFIT DISTRICTS EXAMPLES

## **Example: Old Pasadena Parking Benefit District**

In Old Pasadena, there are an estimated 750 on-street parking spaces and 8,000 off-street spaces. The City operates three parking structures in Old Pasadena with approximately 1,600 spaces. In these facilities, the first 90 minutes are free, with the hourly rate set at \$2 and a maximum rate of \$6. Vehicles that enter from 10:00 pm to 5:00 am pay a flat rate of \$5 (*Meyer Mohaddes, 2006*).

The focus of the Old Pasadena parking system is to make the on-street parking more accessible and available for customers rather than visitors and employees. The City created a parking management program for on-street parking utilizing meters that were calibrated to eliminate “cruising” for spaces. According to the Kolozsvari and Shoup (2003) study in Old Pasadena, the city did the following:

- *Gained support of merchants for installing the meters by agreeing that the revenue stays in the Old Pasadena District*
- *Coordinated efforts with the Old Pasadena’s Business Improvement District (BID) to create boundaries for the Old Pasadena Parking Meter Zone (PMZ)*
- *Founded the Old Pasadena PMZ Advisory Board which was made up of businesses and property owners  
The members provided input for parking policies and spending priorities for area’s meter revenues*
- *Installed parking meters to manage on-street parking supply and established a \$1.00 hourly rate  
Increased available parking spaces by pricing the on-street spaces*
- *Allocated all of the funds to public investment in the Old Pasadena District*
- *Utilized funds to purchase street furniture, trees, tree grates, and historic lighting fixtures and to maintain the area  
Maintenance included daily sweeping of the streets and steam cleaning of the Colorado sidewalks*
- *Conducted marketing campaign to inform shoppers of the benefits of meter revenues*

A key element of the plan was the creation of the Old Pasadena Business Improvement District (BID). Developed in partnership with the City of Pasadena, the BID reinvests parking revenues in the district. The BID Board consists of business and property owners who set spending priorities based upon the zone’s parking meter revenues. The first project was the Old Pasadena Streetscape and Alleyways Project. This \$5 million project updated street furniture, trees, tree grate and historic lighting fixtures. Since then, the BID has relied upon this funding source for its own street sweeping, trash collection, graffiti removal and sidewalk cleaning program.





# CONTINUED

## **Example: Lloyd District Meter District**

The Lloyd District Meter District (Williams, et al 2005) is located just across the Willamette River from downtown Portland, Oregon. A majority of the meter revenues are allocated to transportation improvements and programs in the Lloyd District. The Lloyd District meter district includes nearly 2,000 metered stalls serving a mixed-use business center in Portland, OR. Established in 1997, revenues from the meters can be used to fund transportation improvements and programs such as:

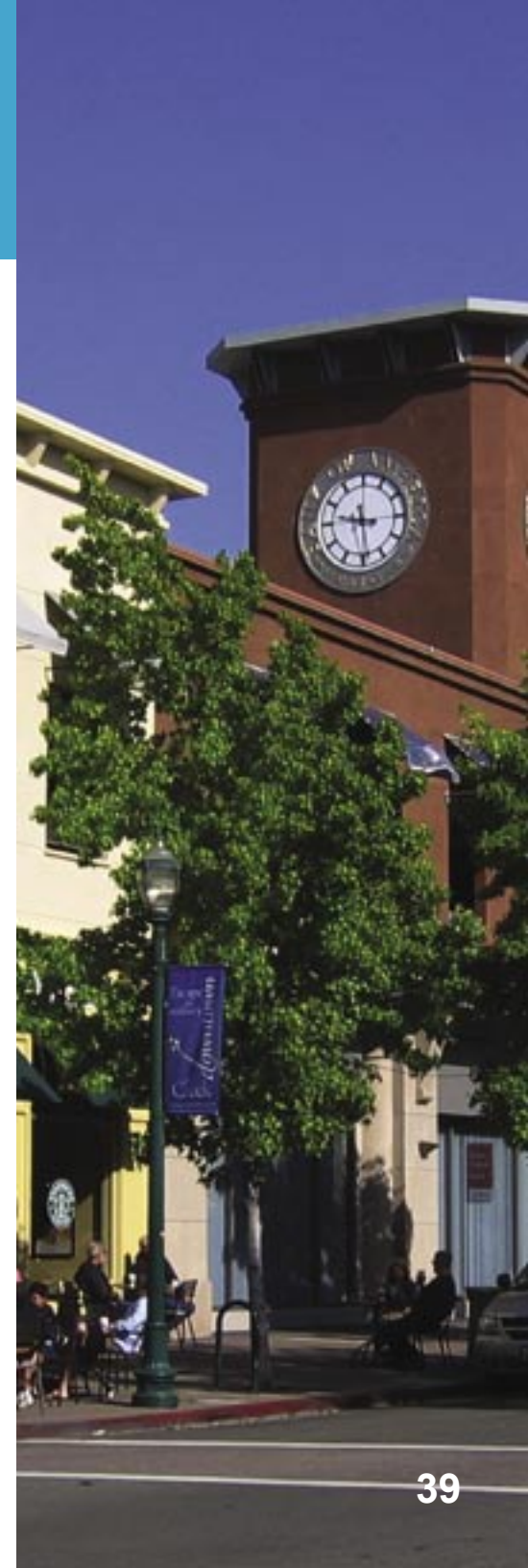
- *Extension of the Fareless Square for transit service connecting the Lloyd District and Downtown Portland*
- *Operating funds for the Lloyd District Transportation Management Association*
- *Pedestrian improvements including sidewalks, intersection crossings and lighting*
- *Signage and wayfinding systems*

## **Example: Downtown Tempe Community (DTC)**

DTC is a non-profit business association in Tempe, Arizona that is funded through a business improvement district. The DTC manages on-street parking in Tempe's central business district. DTC now manages over 95 percent of the public and private parking, including on-street parking in its service area.

## **Example: Downtown Management Commission**

In Boulder, Colorado, the Downtown Management Commission manages on and off-street parking. It collects parking revenues from garages, meters and in-lieu parking fees. These revenues are used to provide free universal transit passes, guaranteed ride home services, ridematching, bicycle parking and other benefits.



# 6 PARKING FINANCING

Financing parking can be one of the most challenging parts of parking development. Constructing parking spaces typically costs anywhere from \$8,000 per space for a suburban surface parking lot to \$60,000 per space for an underground parking facility (construction and land cost). Pacific Place parking garage in Downtown Seattle had a per stall cost of \$61,000 (Seattle Post Intelligencer, 1998 and Washington State Department of Transportation, 1999). To determine the cost of parking, it is important to consider the facility's annual income, operating costs, amortization rate, land costs and construction costs. The cost of parking also needs to consider the highest and best use of land. For infill locations, the opportunity cost can be very high and therefore needs to be considered with the above mentioned factors.

The development of parking can be a risky and expensive proposition. Parking costs per space vary depending on a variety of conditions. The financial viability of parking (revenue and cost) involves a financial feasibility assessment and a financing plan. Key issues include identification of revenue streams, development of financing options, determining construction costs, paying for operation and maintenance as well as examining alternative uses of land. Generally a financial feasibility study is conducted to determine the costs of constructing and maintaining the parking facility. The following are some financing and revenue options to build a parking facility.

Most parking structures are financed with private funds. Private financing can be 10 to 20 years and may include a variety of financing options such as variable, indexed or blend mortgages. Local jurisdictions may use public financing that can involve the use of municipal bonds. Parking revenues, lease payments, benefit assessments may be used to secure bond payments. The following are other sources of funds that can be used to pay for parking facilities.



## **In-Lieu Fee**

In some cities, developers are allowed to buy out of minimum parking requirements. The in-lieu fee is set at a level below the cost of constructing parking spaces and can be used to fund future parking facilities. More creative cities also use this fund to pay for other transportation improvements in the project area. It can often be a favorable solution for the redevelopment of older and historic properties and can be used to develop shared parking facilities.

## **Risk Fund**

Development of a risk fund can guarantee revenue for short-term parking lot owners/operators. This is accomplished by guaranteeing owners of parking facilities a level of revenue in exchange for agreeing to provide short term parking. This can be used to encourage the use of parking resources for short term uses, discourage commuter parking and support the use of transit alternatives.

## **Parking Occupancy Tax**

Parking can be financed from levying a Parking Occupancy Tax (POT). The POT is a tax on paid parking. These revenues can then be designated to fund the parking program's monitoring and enforcement functions or some other agreed upon purpose.

## **Tax Exemptions and Variable Rate Tax**

Some cities are looking at the feasibility of providing special discounts on taxes to parking owner/operators who allow access to their parking for specific priority users (such as short-term customers). They are also looking at the feasibility of a variable rate parking tax based on parking type and fee level to encourage operators to prioritize parking for this specific target market.

## **Parking Tax By Space**

An additional form of revenue to finance parking can come from taxing parking that is provided free or bundled into lease agreements. A small annual tax on these free parking spaces could result in a significant new revenue source for transportation projects.



# 6 PARKING FINANCING EXAMPLES

## In-Lieu Fee

### **Example: City of Pasadena**

Pasadena has used in-lieu-fee funds to pay for various transportation improvements in Old Town Pasadena. The city created a “Parking Credit Program” that enables businesses to meet their off-street parking requirements. In 2001, it was set at \$115 per space, which is substantially lower than the cost to construct a parking stall. These lower charges allow a business to locate in a building which may not have sufficient parking to meet the higher parking requirements of that use. The intent of the City’s zoning credit is to use fees to create a pool of funds to develop off-street parking (Shoup, 2005).

### **Example: City of Mountain View**

The City of Mountain View has an in-lieu fee program that is used on developments fronting the main streets in Downtown Mountain View. This encourages shared parking facilities, reduces the development cost of parking and makes better use of parking resources. The in-lieu fees can work with density adjustments for residential uses (Hurrell, 2006).

## Risk Fund

### **Example: Seattle, Washington**

Seattle WA (2006) is using this strategy to increase short term parking supply and discourage commuter parking as part of the Alaska Way Viaduct and Seawall Replacement Mitigation Program.

# CONTINUED

## Parking Occupancy Tax

### **Example: Los Angeles, California**

The LA Department of Transportation is contemplating establishing a Parking Occupancy Tax that would be levied on paid parking. The revenues collected from this tax would go directly to the City's General Fund. This initiative would increase revenues available to cover increased monitoring, enforcement, and regulation of off-street parking operations.

## Parking Tax By Space

### **Example: Los Angeles, California**

The City of Los Angeles is considering placing a small annual tax placed on free parking or parking that is otherwise bundled into lease agreements. If enacted it could result in a significant new revenue source for parking or transportation projects.



A man in a grey suit and a woman in a tan blazer are leaning over a desk, looking at a document. The man is pointing at the document, and the woman is holding a pen. There is a calculator, a glass of water, and a green mug on the desk.

# IMPLEMENTATION

This section of the report presents information on how to best implement TOD supportive parking policies and programs in your community. Like many community issues, parking is generally a sensitive topic and affecting change can be difficult. Overcoming myths about parking is key. Creating or strengthening vibrant town centers requires a new way of thinking about parking in a new multi-modal context, and sensitivity to local interests is essential. Extensive experience has shown that the communities that are able to implement new parking policies and programs are those that have been successful in engaging stakeholders effectively in defining the problems and developing the solutions.

## The keys to successful implementation of a parking management program include:

- 1. Stakeholder Involvement:** Local residents, business owners, property owners, developers and other interests need to be identified and encouraged to actively participate in developing parking solutions.
- 2. Parking Information:** It is critical that a solid foundation of parking supply and utilization information be available to assist and educate the stakeholders during the process, and to dispel the misinformation that may exist.
- 3. Analysis:** Technical tools such as the parking demand model developed as part of this project need to be applied to measure current and future parking supply and demand relationships, as well as to test the impacts of pricing strategies, sharing parking, transit incentives and other innovative approaches.
- 4. Best Practices:** Implementing new parking policies and programs can involve complex institutional, legal, and technological challenges. Understanding how others have overcome these obstacles can pave the way for a smooth implementation process.
- 5. Monitoring:** It is important to have reliable before and after information whenever new parking measures are implemented. Effective monitoring will support fine-tuning of the program to improve performance, and will help to dispel misguided anecdotal accounts of the results.

# 1 STAKEHOLDER INVOLVEMENT

Effective stakeholder involvement can be the most difficult part of any effort to enact new parking policies and programs. It requires a lot of time and effort and still the results may be frustrating. It is almost inevitable, however, that proposed parking solutions that have been developed without attention to the stakeholders will end up being torpedoed by an outraged public when they are brought before the political decision makers. Key elements of stakeholder involvement include:

- **Identification of the Stakeholders:** It is important to identify all of the key individuals who would best represent the interests of the area. This should include residents, business owners, employees, property owners, elected officials, representatives of neighborhood groups and business associations, and any other parties or groups with a direct interest in parking. This process should include contacting known stakeholders to allow them the opportunity to suggest other individuals who should participate.
- **Engaging the Stakeholders:** It must be demonstrated to the stakeholders that their involvement is sincerely desired and that their input will be given full account. Interviews with the stakeholders can be effective if there is a follow up to the interview to assure them that their input is being used. A very effective method of gaining stakeholder participation is to form a “Parking Task Force” or parking advisory group; thereby empowering them to play a key role in the process.
- **Public Information/Involvement:** In addition to the key stakeholders the general public needs opportunities to become informed and participate. Project websites and newsletters are good tools, as are the use of the news media to provide information about the project. Public meetings, open houses, and workshops are also an effective tool to allow the public to participate.
- **Creating a Sponsorship:** The ideal outcome of a stakeholder process is for a coalition of the stakeholders to become the sponsors or supporters of the parking plan in which they had a stake in developing.



# PARKING INFORMATION

The basic data collection required for a good database consists of four elements:

**1. Parking Space Inventory** – Once the study area is defined all of the public parking spaces in the area need to be inventoried. This would include all the on-street parking and all of the off-street parking which is accessible to the public, including both public and privately owned parking on a block-by-block basis. All the on-street spaces on each block face should be counted by type. Time limits, parking fees, loading zones, and other types of on-street parking should be noted. All the off-street spaces in each block should be counted, noting any time restrictions, fees, or other provisions that affect the use of the parking. Parking facilities that are strictly dedicated to a specific use, such as parking for a bank or an apartment complex, should be noted as such; consideration should be given as to whether this parking could be shared under the right conditions.

**2. Parking Occupancy Survey** – Once the parking space inventory is prepared, a field occupancy survey can be conducted. The purpose of the occupancy survey is to determine on a block-by block basis the number of cars parked at a given time of day. This is done by systematically counting the number of cars parked along each block-face and in each off-street parking facility. Typically the counts would be performed once each hour throughout the day, taking care to assure that the survey covers the period(s) of peak parking activity during the day.

**3. Land Use Inventory** – A critical input into the parking demand model is the inventory of land use in the form of building types and sizes (square footages or number of units) occupying each parcel in the study area. While overall a vacancy rate of 10 to 15 percent is pretty common and does not require special consideration, it is important to make note of any major vacancies that would result in a much higher vacancy rate.

**4. Other Transportation Information** – Information about transit services, bicycle routes and parking, and important pedestrian connections in the study area should be collected.

Once the data has been collected it is important to invest the time and effort to prepare summaries of all this information. Graphs and maps can be very helpful communication tools.



# ANALYSIS

With the availability of a good parking information database as discussed in the last section, the opportunity to use a number of analytical tools exists. Each of these is discussed below.

## Parking Demand Model

Understanding the impact of policy changes on parking supply and demand is critical to informing decision makers as to the implications of proposed actions. A parking demand model, such as the one developed for this project, estimates the demand for parking taking into account the characteristics of the area such as transit availability, walkability, auto ownership and the types and densities of land use. The model also is able to reflect impacts of parking pricing on demand. During the course of this project the demand modeling process was applied to eight case study cities. The table shown here was developed from the case study results and from the information gathered during the Best Practices research. It can be used as a general guide to identify the range of parking requirements that would characterize each of the location types identified in this project.

### REPRESENTATIVE PARKING REQUIREMENTS

(in spaces per unit)

*For more information on the use of the parking demand model please see the Task 3.2 report Parking Demand Model Methodology in the Compendium of Technical Reports.*

Location Types

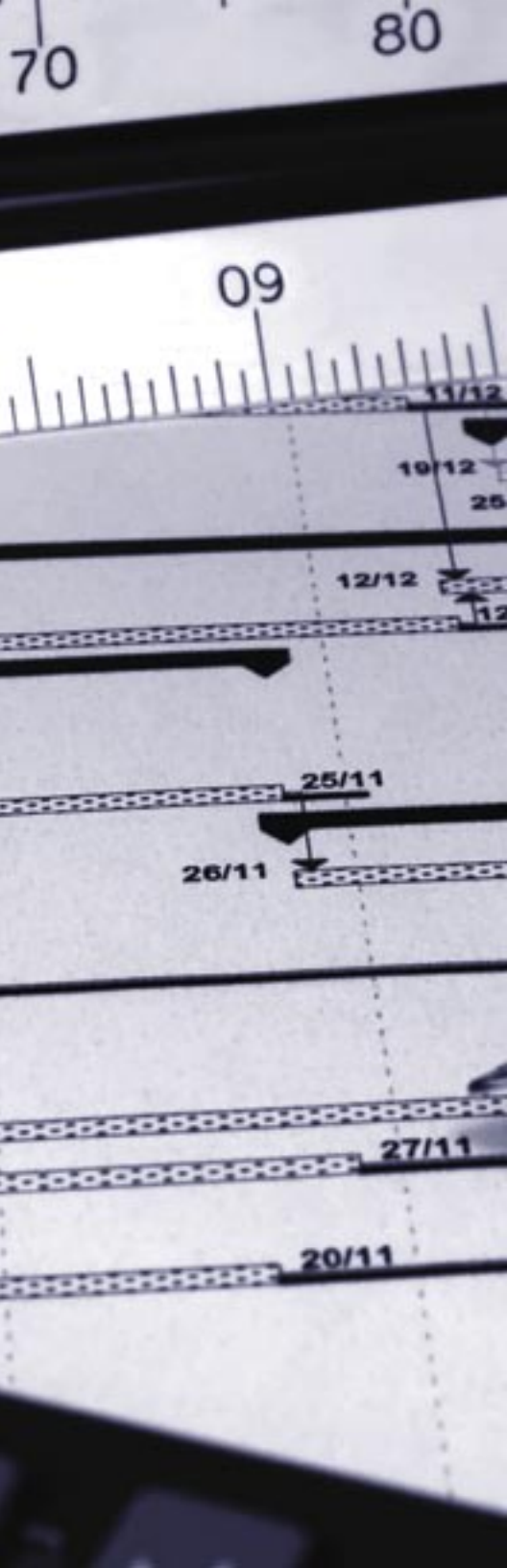
Land Use	Unit	Regional Center		City Center Urban Neighborhoods		Suburban Center/Town Center		Transit Neighborhood		Rural/Small Town	
		Low	High	Low	High	Low	High	Low	High	Low	High
Residential	Dwelling	0.25	1.00	0.50	1.25	1.00	1.50	1.25	2.25	1.50	2.50
Office	1000 sq.ft	0.10	0.75	0.25	1.25	2.00	3.00	2.25	3.33	3.00	4.00
Retail	1000 sq.ft	0.50	1.00	1.00	2.00	1.50	2.50	2.50	4.00	3.00	4.00
Restaurant	1000 sq.ft	1.00	2.00	1.00	3.00	3.00	5.00	4.00	8.00	8.00	12.00

# ANALYSIS CONTINUED...

## Supply/Demand Comparisons

Once the parking demand model has been developed it is possible to use the model and the inventory of parking supply to do comparisons on parking supply and demand. These are usually done on a block-by-block basis. For each block the estimated parking demand is compared with the available supply, with the difference representing either a surplus or a deficiency in parking for that particular block. Because people often park outside of the block where their destination is located, a good practice is to combine those blocks that make up a logical cluster or zone. When this is done, a better picture will emerge in terms of whether or not there is a surplus or deficiency of parking. It is unusual for the parking supply over a large area to be at 100% occupancy even when the demand is known to exceed the supply. This is because there is an inherent inefficiency in matching cars with vacant spaces. When someone leaves a space, it may be several minutes before someone seeking a space manages to find the vacant space. Off-street parking and parking in more remote areas may never fill up because people simply don't know it is there, or would rather drive around looking for a more convenient or cheaper space. Because of this phenomenon, many parking researchers have suggested that the supply in supply/demand comparisons should be reduced 10 to 15% to represent the "practical capacity" of the parking system. In more urban areas, care should be taken using this approach as it will tend to overstate the amount of the deficiency and potentially encourage more parking construction rather than a focus on improving parking efficiency. Note that this provides an estimate of demand for free parking. The model provides a method for incorporating the effect of parking pricing as well as other innovative strategies.





# CONTINUED...

## Financial Models

The fiscal impacts of proposed parking programs and improvements need to be understood in order to make sound decisions. For example, an analysis of replacing parking meters with pay-and-display machines needs to take into account the capital costs of acquiring and installing the new equipment and removing the parking meters. New signage and pavement markings may also be needed. Once the new equipment is in place there needs to be an understanding of how much it will cost to operate and maintain the equipment, and to collect the revenue as compared with the current parking meters. Also the costs of enforcement may change. For parking policy decisions two types of financial models are typically needed:

- **Capital Program Development Model** – The development costs of a program include both the “hard” costs of equipment purchase, installation, and/or construction; and the “soft” costs of program implementation. Soft costs include expenditures on program development, planning, and design; costs of obtaining clearances and approvals, cost of soliciting and reviewing bids, and costs of administering the installation of the equipment. If special financing is needed to fund the project, then the costs of the financing need to be included as a soft cost.
- **Program Cash-Flow Model or Proforma** – In simple terms a parking program has certain costs of operation and revenues. The comparison of costs and revenues provides an estimate of the net revenue that the program will generate. A proforma is a multiyear statement of costs and revenues. Even in a relatively static program, over time costs of operation will increase due to inflation and revenues may increase due to growth in demand or changes in parking fees. Once developed a cash flow model can be used to view the likely changes in cost and income that would occur over a period of many years. With both a capital program and a cash-flow model it is possible to provide a long-term view of the implications of major parking program changes such as the purchase of new equipment, the construction of new parking, or other changes in operation. This financial information can also be used to assess the cost effectiveness of approaches that reduce demand for parking such as bicycle amenities, carsharing and reduced parking standards.

# BEST PRACTICES

Some cities look to take a leadership role in developing new parking policies, while others are not interested in being the pioneers, unless it is absolutely necessary. Even those cities that are willing to pursue new paths can benefit from the experiences of other cities that have tried or considered similar ideas. The best practices research that was conducted as part of this study revealed that good examples of the many candidate policies and programs that were identified can be found around the country. In fact, many of them are already in place somewhere in the Bay Area. Using the resources developed as part of this project, cities can find examples of each of the many policy and program options that would potentially fit their needs. It is important to caution that what works in one city may be an absolute failure in another. The structure of a city's government, the makeup of the community, and a number of other factors can influence results. This is why once a candidate policy or program is under consideration it is important to spend some effort to contact the cities that already have implemented a similar policy and to learn as much as possible about their experience. Helpful information can include:

- **The type of process used to plan and implement the program**
- **The actual costs (hard and soft) of the program**
- **Copies of enabling legislation and ordinances**
- **Lessons learned**
- **Experiences after the program was implemented**



# 5 MONITORING

Performance monitoring is an important part of successful parking management. Many cities implement parking programs without setting aside the resources to monitor the outcome of the changes. This makes any evaluation of the results of the program difficult. The first mistake that is made is not to collect accurate data documenting conditions before the change was enacted. The second mistake is to make so many changes at once, that it is not clear which change is responsible for which impact. A third problem that occurs is that outside influences such as the state of the economy, other construction projects, or changes in local land use, can mask the results and make it hard to understand what is really happening. A good monitoring program should follow the following steps:

- **Develop a monitoring program prior to implementing any changes in parking policies**
- **Collect solid baseline data of “before” conditions prior to implementing changes**
- **If possible, design the parking program & monitoring plan in a way that will allow you to isolate the impacts of specific policy changes**
- **Practice regular (annual) parking data collection and analysis**
- **Analyze data within the context of changes in population, employment, and economic activity in the study area**
- **Use the monitoring plan and data to help revise and update your parking policies as needed**

## ***Example: Redwood City, Burlingame, California***

### ***Monitoring Parking Utilization to Adjust On-Street Parking Rates***

Redwood City has adopted and implemented an ordinance that uses parking utilization to determine on-street pricing policy. The municipal code requires annual adjustment, but authorizes quarterly adjustment of the downtown meter rates as needed, based upon a target parking utilization rate of 85%. It also includes the creation of a parking database and provision of an annual parking utilization study to adjust parking rates. The parking manager has the authority to adjust rates up or down twenty five cents based upon the target occupancy rate of 85 percent.

### ***Annual Downtown Parking Surveys to Adjust Rates and Time Limits***

Burlingame has conducted annual surveys of parking occupancy and turnover in the Burlingame Avenue Business District since 1999. The results of the surveys are used to make changes in the pricing and time limits for public on-street and off-street parking.

# RESOURCE DOCUMENTS

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The following documents and resources are available to assist communities in the development of new parking policies and programs.

## **Institute of Transportation Engineers' (ITE) *Parking Generation***

While this document is the best source of parking demand data by land use type, cities hoping to develop parking policies supportive of smart growth and TOD will generally not find this resource very helpful. The information tends to be for suburban land uses and generally is not applicable to urban and semi-urban settings.

## **National Parking Association/Urban Land Institute's *Dimensions of Parking***

While this document is a good general resource for information about most aspects of parking, there is not much information in this publication to assist cities interested in smart growth or TOD oriented parking policies. Some of the topics which are described in *Dimensions of Parking* are a review of the analysis tools which help assess parking needs; the potential costs of providing new parking; the development of local land use and zoning requirements; and the elements of functional parking design.

## **Urban Land Institute's *Shared Parking***

The Urban Land Institute (ULI) report *Shared Parking*, presents the findings of shared parking research over the past 22 years. In its first publication in 1983, *Shared Parking* established a methodology for shared parking analysis. *Shared Parking* is an excellent resource for cities to develop parking requirements for specific projects, land uses, and combination of land uses. The



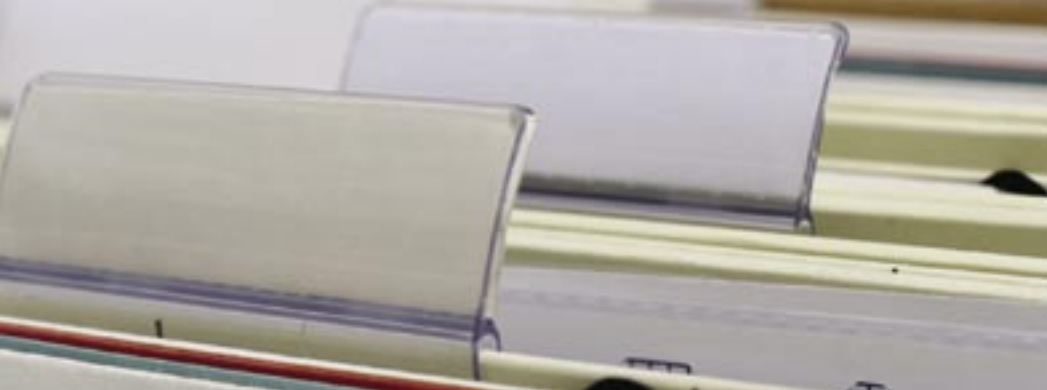
methodology is, however, fairly labor intensive. The base parking demand ratios that are provided are largely for suburban land use types, and as a result care must be taken when applying these ratios to an urban or semi-urban settings.

## **American Planning Association's *Flexible Parking Requirements***

Given the variability of parking within different communities, the American Planning Association (APA) has developed recommendations to assist cities and jurisdictions in creating flexible parking regulations. This document is an excellent resource for cities to use to establish parking requirements which reflect actual local characteristics and which provide the degree of flexibility required to encourage innovation in development practices.

## **Weant and Levinson and The Eno Foundation's *Parking***

In the publication entitled *Parking*, Weant and Levinson in collaboration with the Eno Foundation take a comprehensive view of parking, covering a broad range of topics. *Parking* reviews a variety of topics from assessing different types of parking demands to citing examples of parking experiences throughout the nation.



# CONTINUED...

### **Todd Litman *Parking Management Best Practices***

Litman's *Parking Management Best Practices* publication provides a menu of parking management strategies and implementation tactics. Litman stresses that the effect of parking strategies is cumulative. Individually, strategies typically reduce parking requirements by five to 15 percent. However, he says that a cost-effective, integrated parking management program can often reduce parking requirements by 20 to 40 percent and improve user convenience. A comprehensive strategy may help achieve larger planning objectives, such as supporting more compact development, encouraging use of alternative transportation, and increasing development affordability.

### **Donald Shoup's *The High Cost of Free Parking***

No publication on the subject of parking has stimulated as much discussion and interest as *The High Cost of Free Parking* by Donald Shoup. This publication suggests a major rethinking of parking policies, with an emphasis on market approaches. It is a very useful resource in re-conceptualizing parking policies for smart growth and transit-oriented development, providing extensive examples and recommendations.

### **EPA *Parking Spaces Community Places: Finding the Balance through Smart Growth Solutions***

The EPA developed this guide to demonstrate the significance of parking decisions in development patterns, illustrate the environmental, financial and social impact of parking policies, strategies for balancing parking with other community goals, and provide case studies of places that are successfully using these strategies: <http://www.epa.gov/smartgrowth/pdf/EPAParkingSpaces06.pdf>

### **Caltrans TOD Study**

The California State Department of Transportation developed the *Special Report on Parking and TOD: Challenges and Opportunities* which addresses parking for transit oriented development, from their statewide report on key transit oriented development projects and significant issues, see <http://transitorienteddevelopment.dot.ca.gov/PDFs/Parking%20and%20TOD%20Report.pdf>

### **Parking for Transit Stations**

Parking for transit stations needs to address the impacts on transit ridership, congestion and transit revenues, as well as opportunities for sharing, pricing and design. A recent presentation with some useful ideas may be found at: [http://nelsonnygaard.com/ITE\\_Parking\\_for\\_TOD.pdf](http://nelsonnygaard.com/ITE_Parking_for_TOD.pdf)

# Notes



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It is also available on-line at

[http://www.mtc.ca.gov/planning/smart\\_growth/parking\\_study.htm](http://www.mtc.ca.gov/planning/smart_growth/parking_study.htm)

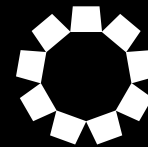
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