access BOSTON 2000-2010

BOSTON'S CITYWIDE TRANSPORTATION PLAN

Parking in Boston

December 2001
First Edition

City of Boston
Mayor Thomas M. Menino

Boston Transportation Department
Commissioner Andrea d'Amato

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The Advisory Committee on Transportation was appointed by the Mayor of Boston and includes residents and representatives from business, environmental and advocacy groups. It serves as the Steering Committee for *Access Boston 2000 – 2010*.

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TABLE OF CONTENTS

ACCESS BOSTON 2000-2010

The Parking Plan is a component of Boston' citywide transportation plan, *Access Boston*. Companion reports are listed below.

Summary Report
Overview of goals and objectives, key findings, recommendations and implementation and funding strategies.

Boston Transportation Fact Book
Citywide and neighborhood demographic, economic and transportation facts and trends that affect planning in Boston.

Parking in Boston
Guidelines to manage off-street parking and review transportation impacts of development projects using a district/neighborhood based approach and approaches to improve management of loading zones, metered parking, neighborhood commercial districts, and resident permit parking program.

Pedestrian Safety Guidelines for Residential Streets
Guidelines to implement operational and design strategies in residential neighborhoods that enhance pedestrian safety, calm traffic and improve quality of life.

Boston Bicycle Plan
Policies, education programs and facility improvements to create a better environment for bicycling in Boston.

Boston's Public Transportation and Regional Connections Plan
Initiatives to improve existing public transportation service and create a priority list of future capital investment and projects. Recommendations for freight movement, commuter corridors, transportation for tourism, intermodal centers, and future capital investment in the highway system that serves Boston.

EXECUTIVE SUMMARY

This report on *Parking in Boston* is one component of the *Access Boston 2000-2010* citywide transportation plan. Companion reports address pedestrian safety, bicycling, public transportation and regional connections.

Auto-related demand can be reduced by encouraging the use of transit and other alternatives to single occupant vehicles as a means to travel in and around the city. This approach is reflected in the policies and action plans described in this report.

The report sets the framework for **off-street parking** policy by inventorying existing parking supply and identifying district-by-district trends for Boston, including the impact of new development projects. The following chapter, on parking districts, describes existing Air Pollution Control Commission (BAPCC) and zoning regulations that control off-street parking. The Action Plan includes a detailed chart of parking-ratio goals for each of Boston's neighborhoods and districts. New development review guidelines are also recommended.

On-street parking is primarily addressed by policy that optimizes the use of curb space among competing users: residents, deliveries, visitors, shoppers and employees. The ongoing corridor improvement program is discussed. Specific strategies to enhance the vitality of neighborhood business districts and to make the resident permit parking program more effective are also discussed and recommended.

The following **key trends** inform the recommendations outlined in this report: Over the last several years:

- Off-street parking supply has increased faster in areas outside the downtown than inside the downtown.
- Employment in the downtown has increased faster than off-street parking spaces, increasing the competition for public off-street parking to the detriment of parking availability for shoppers and visitors.
- Parking charges in lots and garages have increased faster than on-street metered parking costs, increasing demand for lower-priced on-street parking.
- The need for curb space for deliveries continues to increase in the downtown and in neighborhood business districts.
- All-day parking in neighborhood business districts is reducing parking availability for shoppers.
- Auto ownership by Boston residents has grown by 44%, (since 1994) increasing demand for residential parking.

GOALS

Parking management contributes to the quality of life in the city. The Action Plan outlined in this report seeks to maintain an appropriate level and distribution of parking supply in Boston. The location and amount of parking should neither encourage additional auto trips that overwhelm our streets nor threaten individual mobility and appropriate auto access.

- Optimize curb use regulations to promote a balance among the need for deliveries, short-term parking, and resident parking.
- Reduce off-street parking in districts that are well served by transit.
- Manage the location of parking facilities to reduce impacts on neighborhood streets and to achieve an equitable distribution of benefits and burdens.
- Encourage parking turnover in commercial districts to facilitate access and commerce and to reduce illegal parking.
- Coordinate and consolidate regulatory roles and responsibilities among public agencies

Summary of Action Plans

Parking Districts

- Use **district-based parking ratio goals** to manage growth in new off street parking based on transit access.
- Increase the **availability of short-term parking.**
- Identify the percent goal for reducing the number of off-street parking **spaces per employee** .
- Encourage **remote park-and-ride** at regional intermodal facilities.
- Through the formation of a task force, initiate efforts to strengthen the **Boston Proper Parking Freeze.**
- Develop and implement an a system to **disseminate real-time parking information.**
- Work with **Transportation Management Associations** to support district-based parking approach.

Development and Project Review

- Formally adopt the updated **Transportation Access Plan Agreement Guidelines.**
- Conduct annual **Transportation Access Plan Guideline public workshops.**
- Require **fees for development review** and preparation of Transportation Access and Construction Management Plans.
- Create and manage a **Geographic Information System database** to track development projects.
- Extend permitting process of open air parking lots to **include parking garages.**
- Modify zoning code to require **institutional master plan Transportation Access Plan Agreements.**

Parking Management on Major Corridors

- Expand the **Corridor Improvement Program** to additional streets for implementation in 2002/3.
- Increase **enforcement** and **towing capability** at meters.
- Extend **multi-ticketing** approach to loading zones.
- Extend **meter hours** to 8:00 P.M.
- Investigate deployment of **smart meters.**
- Prioritize **curb use for loading** between 8:00 and 11:00 A.M. in high demand areas.
- Investigate **truck-only loading zones.**
- Strengthen **loading dock requirements** in Article 80 development review process.

Neighborhood Business Districts

- Provide merchants and residents with a **basic planning tool** to assess transportation conditions.
- Establish **partnerships to fund** implementation.
- Investigate the construction of **new municipal off-street parking lots.**
- Use **on-street parking** for short-term demands.
- Encourage the increased use of **private off-street parking lots** for long-term parking.
- Improve **pedestrian safety and access.**
- Consolidate **loading zones** to serve multiple businesses in neighborhood business districts.
- Continue **bicycle racks** program.
- Adjust **MBTA bus stop locations** to improve service and reduce parking impacts.

Resident Parking Program (RPP)

- Coordinate the implementation of **car-sharing programs** by private vendors.
- Investigate the **joint use of metered spaces** through meter technologies.
- Strengthen **review guidelines** for new residential projects.
- Investigate **new parking requirements** for condominium conversion projects.
- Investigate dividing the **Allston/Brighton RPP program.**
- Investigate charging a **fee for and/or limiting RPP permits per household.**
- Investigate a **pilot program** modeled on Seattle's "Way to Go," which pays people not to drive.
- Develop a **Geographic Information Systems database** for the RPP Program.

1. INTRODUCTION

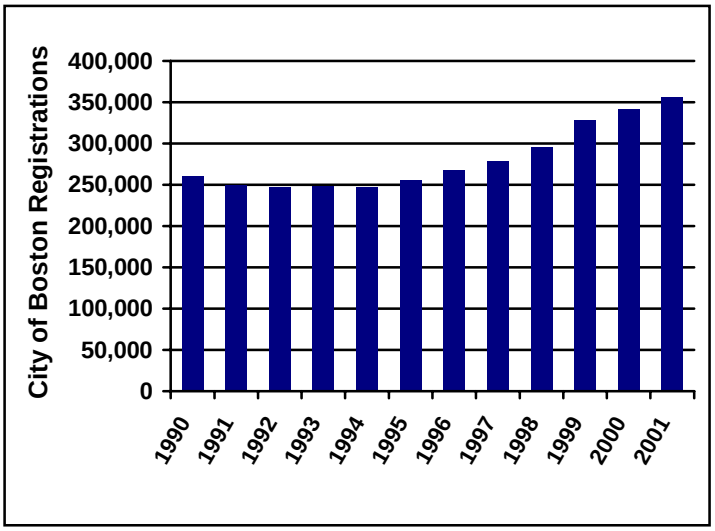
The role of parking as a catalyst for auto travel is an important economic development and quality of life issue in Boston. Proposals for new parking lots and garages have raised concerns from residents and advocacy groups concerned with quality of life and environmental issues. Better economic times have brought more autos to residential neighborhoods as auto ownership levels continue to increase. Future increases in parking challenge the City's ability to facilitate equal sharing among different users and modes of travel.

Economic Growth and Parking

Boston is an important part of the regional economy: home to one in every seven Massachusetts jobs and one in every thirteen New England jobs. The number of jobs in the city increased by 15% in the 1990s, reaching 671,000 in 1998, making Boston one of only three major cities in the nation with more jobs than residents. Office vacancy rates dropped from 17% in 1991 during the recession to 3.3% in 1998. Boston is also a major destination for visitors and tourists. The Greater Boston Convention and Tourism Bureau estimates that 12.9 million people visited Boston in 2000, an increase of 8.4% from 1999.

The recent period of economic growth has increased parking demand in Boston. As illustrated in Figure 1, auto ownership in Boston increased 36% between 1990 and 2001, adding additional demand for all-day parking in many neighborhoods. The higher demand for parking by employees and commuters has fueled a general increase in parking rates at many lots and garages, particularly for short-term parking by shoppers and visitors. Because parking operates on a "first come, first serve" basis, long-term parkers reduce the availability of parking for short-term parking by shoppers and visitors. Another result of the high parking demand is an increased demand for on-street parking and a higher level of illegal parking by drivers who are willing to risk getting a parking ticket. The fee for illegal parking is often less than the charge for off-street parking for three or more hours. In busy commercial areas, more commercial vehicles are also looking to use on-street loading zones, putting increased pressure on limited curb resources and congestion on city streets.

Figure 1
Growth in Auto Ownership



Auto ownership in Boston increased 36% between 1990 and 2001. Nearly all of the growth occurred since 1995. (Source: BTD)

Transit and other modes that reduce auto use must be part of the solution to improve parking management.

The Role of Non-Auto Alternatives

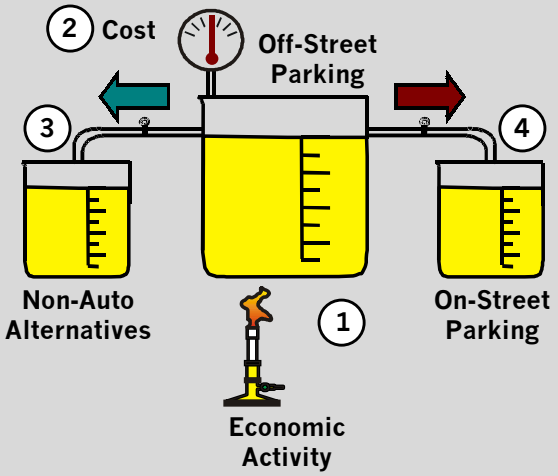
The characteristics of Boston's parking supply vary by location. The parking supply is constrained in some locations by regulatory limitations, the availability of transit and the physical limitations of the city's streets. These constraints reduce the total amount of parking needed to support the city's economic centers. By comparison, development in suburban areas will generally add 8 to 10 times the amount of parking that accompanies downtown development.

All-day parking in downtown lots can exceed $30 in areas of high parking demand within the downtown.

"CHEMISTRY OF PARKING"

Parking cost and availability affects auto ownership and travel decisions. Figure 2 describes in schematic form the relationship between the on-street and off-street parking supply, as well as the role played by non-auto modes to relieve parking demands.

Figure 2
"Chemistry" of Parking



1. Increased economic activity at major employment centers will "fuel" an increase in parking demand.
2. Unless the off-street parking supply is increased, the increased parking demand of an expanding economy will increase parking costs for individual motorists.
3. In response to higher costs and reduced parking availability, some motorists will choose to shift modes and take transit, bicycles or other alternatives to private autos.
4. Some motorists will seek cheaper on-street parking instead of parking off-street in a lot or garage.

Despite high parking costs, many commuters continue to choose to drive into Boston. For some commuters, the high parking costs are offset by subsidies from their employer. Other commuters absorb the full parking costs.

BTD encourages the use of non-auto modes as a means the best approach to reduce traffic parking demands and traffic congestion. The City supports the expansion of the transit system to support economic growth in the downtown and outside. This approach reduces, but does not eliminate the need for new parking. Better transit service also provides alternatives for residential neighborhoods that reduces auto ownership demands. Bicycling is often also a convenient and fast way get around town. The City's Bicycle Program seeks to improve conditions for cyclists and promote bicycling.

Competition for Parking

Table 1 provides examples of different types of competing and complementary parking and loading demands. The competition for parking is most apparent during the day when commuters compete with other users, usually consuming most of the off-street parking capacity before 10:00 a.m. This reduces availability for short-term parkers who arrive after 10:00 a.m. to shop or visit tourist attractions. Residential parking demands occur during the day and night, since many residents leave their vehicles on street and use other modes to travel during the day. Resident Permit Parking programs provide relief from external demands such as employee parking, but are not effective against the growing trend of households with multiple auto ownership. Many dense residential neighborhoods have little off-street parking.

Parking demands compliment each other when they occur during different times of the day, facilitating the joint use of parking spaces by different types of users. In commercial areas in the downtown and in the City's neighborhoods, the high demand for short-term parking and loading requires an on-street parking management approach that encourages turnover – the use of one parking space by several vehicles over the course of a day – for both automobiles and commercial vehicles. Striking a balance among the users in both areas requires prioritizing different types of users at different times of day to reduce conflicts. The City also designates parking spaces for nighttime use by residents.

Table 1 – Examples of Parking Demands

CATEGORY	DURATION	DAYTIME PARKING DEMANDS	NIGHTTIME PARKING DEMANDS
Long-term	4 hours or more (Typically 8+ hours)	• Residents • Employees • Commuters • Students	• Residents • Students • Overnight shift workers
Intermediate	2-4 hours	• Shoppers • Visitors • Hospital outpatient • Students • Building maintenance and service	• Restaurant (valet and non-valet) • Entertainment and cultural venues • Sports events • Visitors
Short-term	Less than 2 hours	• Shoppers • Visitors • Delivery of goods	• Restaurant (valet and non-valet) • Visitors

Approaches in Other U.S. Cities

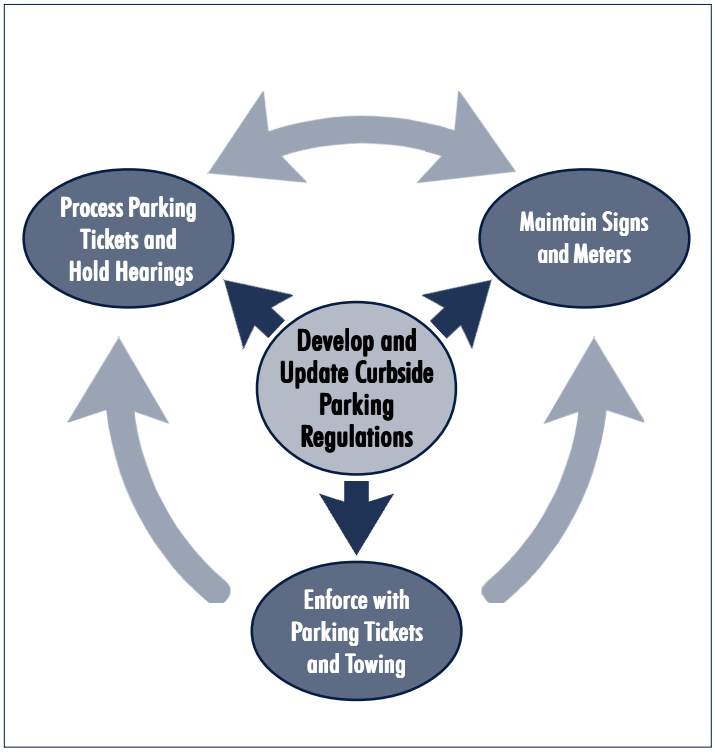
Boston's off-street parking roles and responsibilities are different from other U.S. cities. Most municipalities exercise some control over parking supply. Most large U.S. cities either have a parking authority or a contract for off-street parking services with an outside vendor. Depending on the level of control exercised by the municipality, the rate structure can be used to support different types of parking, such as short-term shopper and visitor parking. Boston operated off-street parking in downtown prior to selling its garages to offset 1980s budget losses related to Proposition 2½.

The San Francisco Department of Traffic and Parking operates eighteen garages with 14,600 parking spaces. Parking is priced at $1.00-2.00 per hour and increases uniformly per hour to the maximum daily rate as compared to $0.75 for 30 minutes of parking (maximum at metered spaces). In some garages, vehicles parked for less than 4-hours represent 80-85% of the total vehicles entering or exiting the facility.

Few examples exist of cities with a cap on the number of off-street spaces. Portland, Oregon capped its downtown spaces in 1975, but increased the number of spaces during the 1980s. Portland is also using parking maximums in its zoning as part of a regional effort to reduce vehicle miles traveled through the reduction in the number of off-street spaces per capita.

Under contract to the City of Portland, the Association for Portland Progress (APP) operates six short-term garages with 3,400 spaces. The rates in the garages are oriented toward short-term parking. Two garages provide electric recharging for vehicles.

Figure 3
BTD's On-Street Parking Management Responsibilities



BTD maintains the City's parking meters.

BTD Roles and Responsibilities

BTD has both on-street and off-street parking responsibilities. Management of the city's curb is a core function of BTD. As illustrated in Figure 3, BTD undertakes a set of interrelated activities to manage this limited resource. BTD administers and enforces parking regulations and installs, fabricates and maintains all street name, traffic, and parking signs on Boston streets. BTD also regularly coordinates with other city departments, state agencies and utility companies to manage requests for signage and regulations for new roadway improvements and temporary construction conditions. BTD uses more than 40 different curb regulations to manage on-street parking by passenger and commercial vehicles. Some key regulations include:

- **parking meters and two-hour parking limits** to accommodate short-term parking demands
- the **Resident Permit Parking Program** restrictions for residents only
- **valet parking** to promote the more efficient use of limited on-street parking spaces near restaurants and other attractions
- designated **loading zones for commercial vehicles** that actively load or unload for one hour or less

Curb regulations are also used to prohibit parking, standing or stopping at the curb and to address public safety and traffic management needs. These regulations are intended to ensure that emergency vehicles can efficiently negotiate city streets, that pedestrians have safe and accessible streets and sidewalks, and that traffic can flow efficiently during peak hours and around special events and construction activities. BTD also restricts curb parking to support transit and high occupancy vehicle use by designating MBTA bus stops, vanpool drop-off/pick-up areas, tour bus stops and sightseeing trolley stands.

BTD currently maintains and operates off-street parking facilities through its Off-Street Parking Division. These facilities are primarily located in neighborhoods outside the downtown. BTD regulates and permits off-street parking through the following roles:

- Determine the appropriate amount of parking in new development projects through the **Article 80 zoning** review process.
- Negotiate parking and supportive Travel Demand Measures (TDM) in the **Transportation Access Plan Agreements** required for new development projects.
- Oversee the City's Parking Freeze through the **Boston Air Pollution Control Commission** (BAPCC).

- **Issue Permits for open-air parking lots** citywide.
- Construct, enforce and maintain parking lots in **neighborhood commercial districts**.

Advocacy for Alternative Modes

Access to transit can reduce auto use, which reduces traffic and parking demands in congested downtown and neighborhood areas. Therefore, the City has adopted a "transit first" approach that looks at public transportation solutions to address access and mobility needs of the city's residents, employees and visitors before considering automobile alternatives. The City is embracing a comprehensive, multimodal view of transportation that considers the relationships between all modes and the role of transportation in the creation and support of high quality and attractive urban environments. BTD advocates for the use of transit and bicycling in the following areas:

1. **Advocacy for quality transit service** through BTD's role on the MBTA Advisory Board and the Metropolitan Planning Organization.
2. Coordination with the BRA to encourage **transit-oriented development**.
3. Support **Transportation Management Associations.**
4. Support of **CARAVAN for Commuters efforts** to encourage the use of alternative modes including carpools and vanpools.
5. Development and implementation of the Boston Bicycle Plan with **bicycle** parking recommendations.
6. Development of design plans and other efforts to support **pedestrian access and mobility**.

BTD Off-Street Parking Division

Some of the real property owned by the City is dedicated as municipal parking facilities. BTD has care, custody and control of these sites. The Off-Street Parking Division, through the use of private contractors, maintains these neighborhood lots, which offer parking to the public without charge. BTD's Off-Street Parking Division also oversees the following:

- Licensing of privately owned fee parking lots, the licensing of valet permits and the care, custody and control of City owned parking lots and facilities.
- The annual renewal of parking lot licenses through a tri-party arrangement among BTD, the Inspectional Services Department and the Boston Fire Department.
- The issuance of valet permits on an annual basis and, in addition to collecting an annual fee, the verification that applicants adhere to mandated criteria for permit issuance.

Members of the Mayor's Advisory Committee on Transportation facilitated discussions at Public Workshops.

Public Process

Parking management policies were reviewed and discussed in the *Access Boston 2000-2010* public participation process. On-street parking was reviewed and discussed during an April 2000 Public Workshop and as part of two Discussion Group sessions that preceded the Public Workshop. The development of new parking lots and garages was discussed during a March 2000 Public Workshop and two Discussion Group sessions that were held prior to the Public Workshop. These forums were used to identify key issues and review potential recommendations. Public input was solicited through a variety of mechanisms that included question and answer session, breakout discussion at the workshops and roundtable discussions. Table 2 summarizes the key parking issues from the public process by topic area.

Table 2 – Key Discussion Points from Public Process

TOPIC AREA	KEY DISCUSSION POINTS
Off-street Parking	• Parking supply constraints and increasing prices can be used as tools to discourage unnecessary driving and encourage a shift to non-auto modes. • Parking can act as a magnet to attract auto traffic and create congestion. • The lack of parking and its high costs are seen as a frustrating aspect of urban living in Boston.
Metered Parking	• The cost of metered parking has risen relative to the cost of parking at parking lots and garages and puts additional pressure on street parking. • The practice of "meter feeding" by motorists seeking cheaper long-term parking alternatives to parking lots and garages reduces parking availability for short-term parking. • New parking meter technologies provide opportunities to offer more flexible meter pricing approaches, to improve customer convenience, and to increase meter reliability.
Loading Zones	• The lack of adequate off-street loading docks at some buildings increases demand at on-street loading zones, highlighting the need to provide adequate loading dock capacity in new development projects. • Double parking around loading zones is related to the amount of loading zone space, the illegal use of the loading zones and the level of enforcement. • The use of on-street loading zones by building contractors and commercial vehicles that are not performing delivery functions reduces the availability of these loading zones for goods delivery.
Neighborhood Commercial Districts	• All-day parking on street by commuters, residents and even merchants and their employees reduces turnover at the curb and decreases the availability of parking for short-term parking by customers. • A multi-modal approach must also consider transit, bicycle and pedestrian access into and within a neighborhood commercial district.
Resident Permit Parking	• The approach to addressing resident parking must seek to reduce the increasing levels of auto ownership through demand management strategies, such as car-sharing options or restrictions on RPP permits. The ratio of permits to spaces is high. • Off-street parking arrangements in existing and new lots and garages could relieve demand in some areas with limited on-street parking opportunities.

2. OFF-STREET PARKING INVENTORY

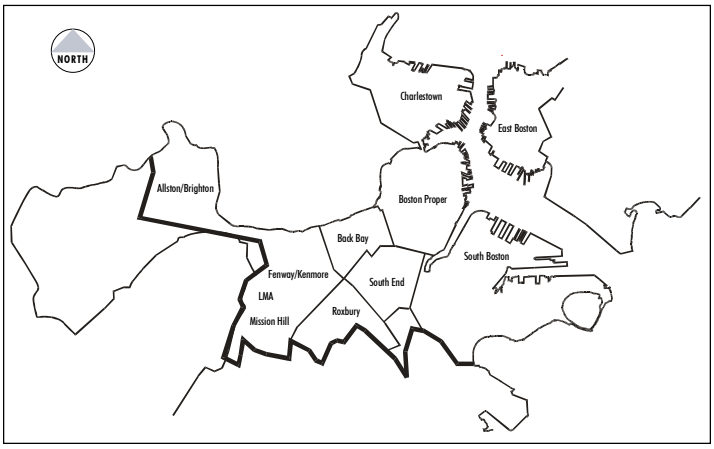
A key goal of *Access Boston 2000-2010* is better management of parking to reduce and minimize the impacts of parking related traffic on neighborhood streets. The development of policy to pursue this goal begins with an analysis of existing off-street parking supply.

This section highlights the inventory of the volume and types of off-street parking and identifies district by district trends for Boston. Subsequent sections use this analysis to develop specific recommendations to manage the growth of parking in new development projects throughout the city.

Two parking inventories were evaluated as part of the *Access Boston 2000-2010* process to understand off-street parking conditions. The Central Transportation Planning Staff (CTPS) conducted a detailed inventory of existing off-street parking during 1997 and 1998. The inventory identified the number of spaces in parking lots and garages by type of use such as residential or employee spaces. The data were correlated with available employment information for comparisons between sections of the study area.

BTD also conducted a study of parking that was planned or proposed in new developments. The data describe the number of spaces by neighborhood, approved or under construction as of June 2001. The study also identified proposed projects in the planning process. These data provide estimates of future growth trends in the city by geographic area.

Figure 4
Study Area for Existing Off-Street Parking Inventory



Off-street parking in the neighborhoods outside the CTPS Study Area is limited and mostly concentrated in City and MBTA parking lots. (See Figure 26 on page 57.)

1997/98 Off-Street Parking Inventory

The 1997/98 parking inventory conducted by CTPS (the most recent available) identified approximately 134,000 off-street parking spaces in garages and lots within the study area that is illustrated in Figure 4. Approximately one-third of the spaces are in the downtown. The study area represents approximately 28% of the land area of the city, including Logan Airport and its regional parking supply.

The study area includes the major employment centers within the city such as the downtown, Back Bay and Longwood Medical Area (LMA). This accounts for approximately three-quarters of the jobs located in Boston. Approximately one-third of the city's population lives within the study area.

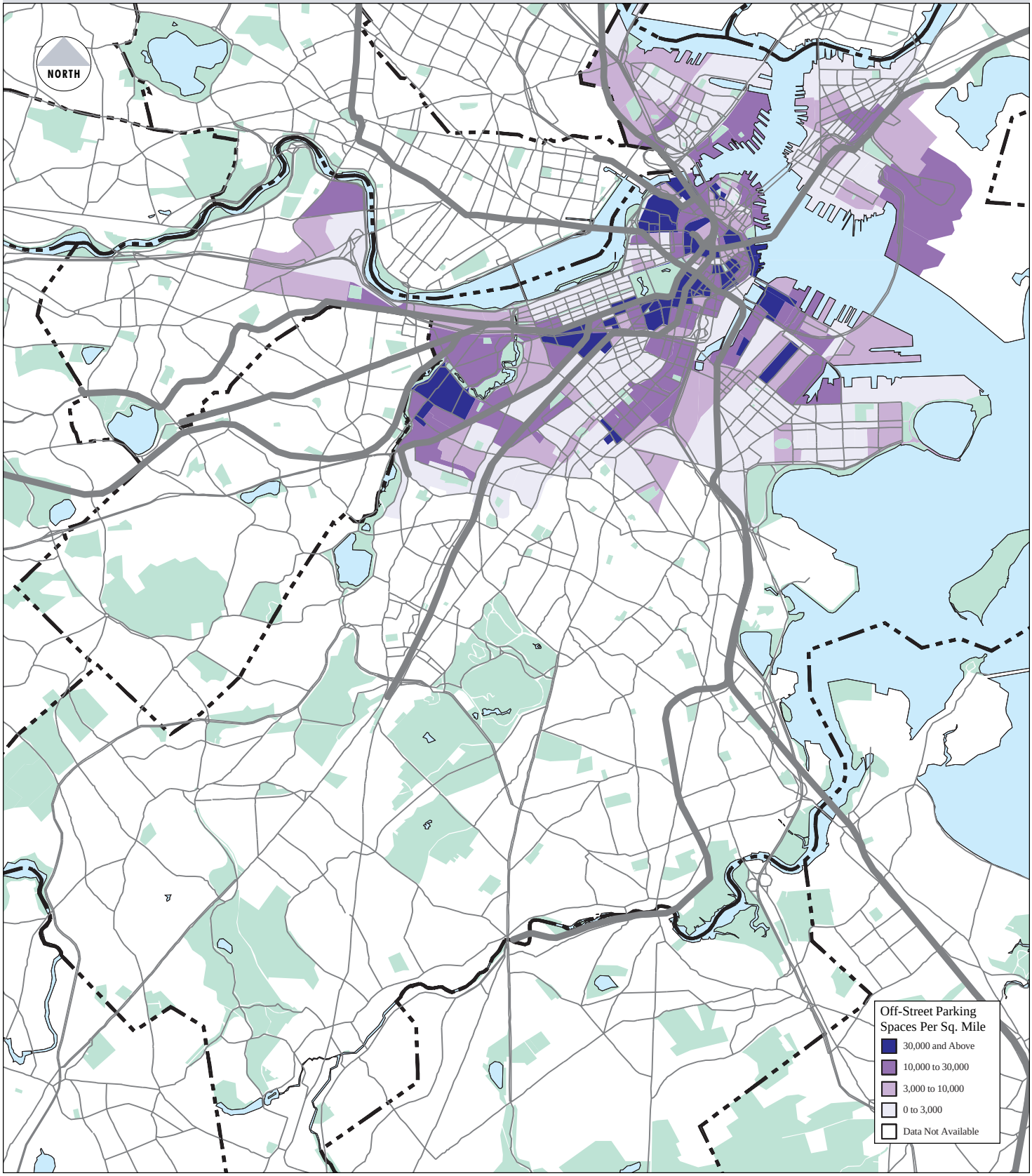


Figure 5:
Off-Street Parking Density

The density of off-street parking is greatest in the downtown, Back Bay and Longwood Medical Area.
Source: Central Transportation Planning Staff

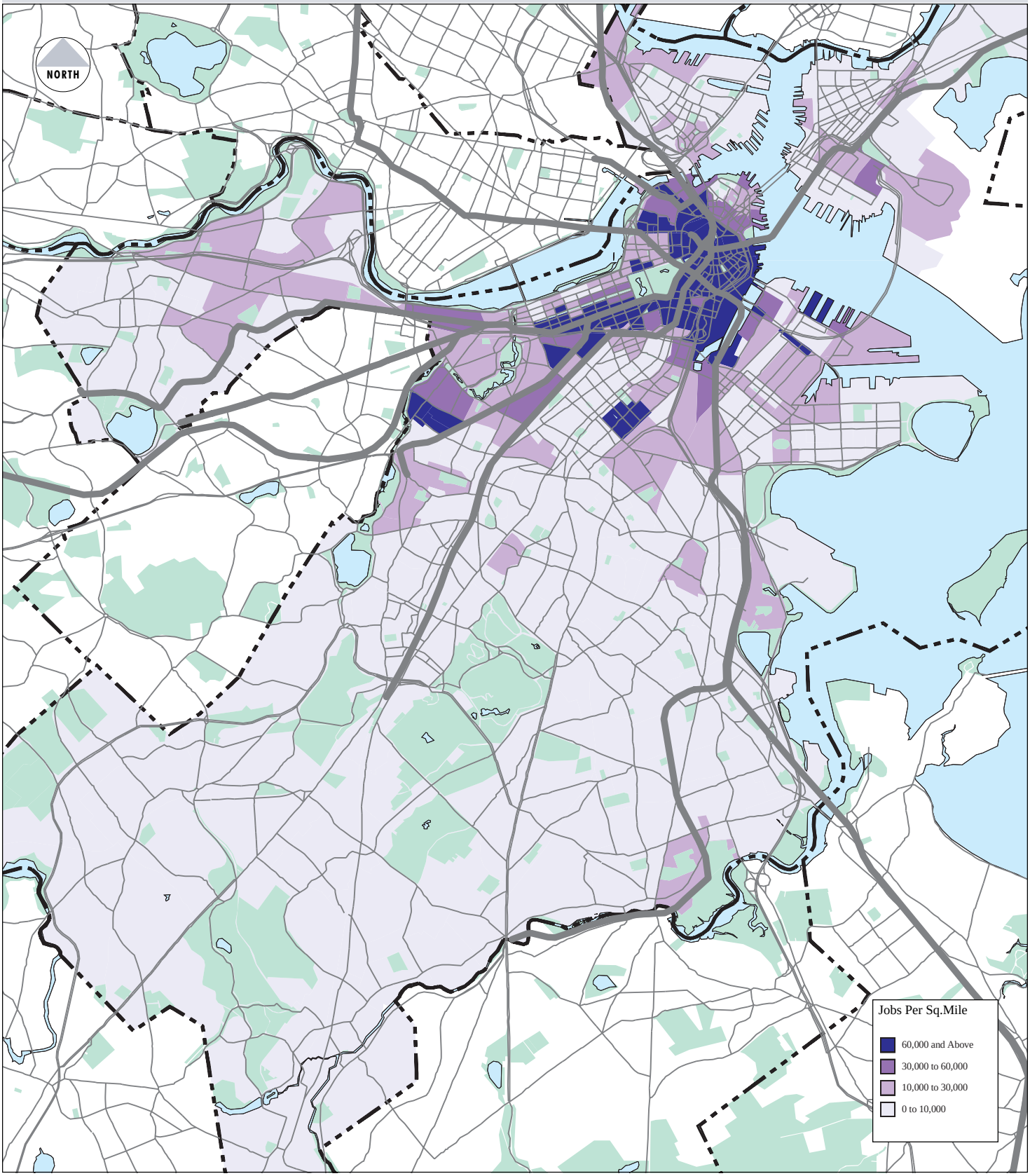
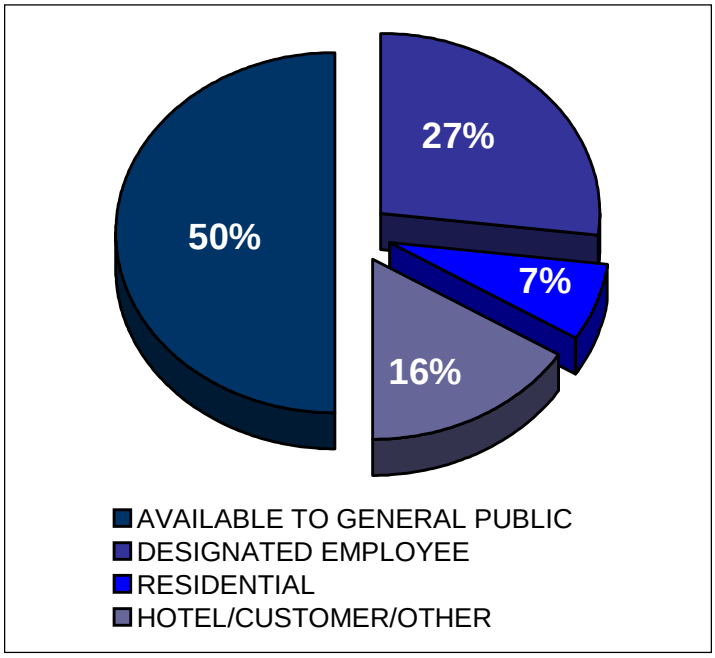


Figure 6:
Employment Density

There is a strong relationship between off-street parking and employment densities.
Source: Central Transportation Planning Staff

Figure 7
Parking Uses in CTPS Inventory



Half of the off-street parking spaces in the CTPS Study Area are open to the general public on a first-come, first serve basis. (Data Source: Central Transportation Planning Staff 1997/1998 Off-Street Parking Inventory)

There is a strong relationship between parking and economic activity. Figure 5 presents the detailed parking density data for the study area. These data illustrate that the density of off-street parking is greatest in the downtown, Back Bay and LMA. These are the city's major employment centers (see Figure 6) and are also important shopping, entertainment, educational and medical centers.

As illustrated in Figure 7, one-half of the spaces in the CTPS study area were open to the general public. The other half of the spaces were designated for specific uses including employee, (27%), resident (7%), and other uses (26%) that include customer and hotel guests. In addition to being the largest "designated" use, employees, by virtue of their early arrival in the city, have a competitive advantage over other parkers to obtain general public spaces.

Parking Spaces per Employee

The study area was divided into ten sub-areas for analysis and comparison. Table 3 presents the number of off-street parking spaces in each area, employment density, parking density and parking spaces per employee. The employment and parking densities represent averages for each section of the study area. The parking space to employee ratio excludes residential and hotel guest spaces and is a measure of the parking demand related to economic activity. For this purpose, hotel guests are treated as residents.

In general, the ratios are well below one space per employee, even with the inclusion of customer parking in the calculation of the ratio. In comparison to the ratios identified in Boston, suburban communities typically have a ratio of at least one space per employee. Suburbia lacks the density to support transit service, which in turn increases auto-dependence for work trips. Due to the street layout walking is usually not an option for many suburban trips.

The parking space to employee ratio is lowest in the downtown and Back Bay. For each parking space in these areas not designated for residential or hotel use, there are six workers, plus visitors, shoppers and tourists. These ratios reflect the high use of transit walking as a viable mode of travel to work. The ability of transit to function as an alternative to auto use reduces parking demand and the need for parking spaces. By the same token the lack of free parking encourages public transit use. In these areas, however, many parking lots and garages are full by late-morning, reducing short-term parking availability and increasing competition for on-street spaces.

Other sections of the study area such as the LMA and Logan Airport have access to transit, but not on the same level as the downtown or Back Bay. Unique parking demands in these areas include parking by shift employees and outpatient and visitor demands at hospitals.

Employees on different shifts at hospitals or at the airport can share the same spaces because of their schedules. This reduces the total number of spaces per employee.

Some additional spaces are necessary to accommodate overlapping schedules (i.e., employees from one shift that arrive before employees from the previous shift depart). On-street parking and, in the LMA, the use of remote park-and-ride lots outside the district are also used to meet parking demand for employees, visitors and customers and can reduce the ratio of spaces to employee.

Parking Rates

Figure 8 maps the off-street parking rate data from the 1997/1998 survey. Garage and parking lot rates are market-driven and correlate strongly with employment densities and other areas of high demand such as tourist attractions. The highest parking rates are in the downtown, which has the highest employment density and numerous visitor attractions.

Table 3 – CTPS 1997/98 Parking Inventory

Neighborhood	Parking Spaces	Land Area (Square Miles)[1]	Employees Per Square Mile	Parking Spaces per Square Mile	Parking Spaces per Employee[2]
Downtown Boston	40,500	1.4	159,700	29,100	0.16
Back Bay	11,000	0.6	103,400	19,700	0.17
Mission Hill/Longwood Medical Area/Fenway-Kenmore	20,200	1.5	34,900	13,100	0.32
South End	7,600	0.7	22,100	10,300	0.44
Allston	6,800	0.8	12,200	8,100	0.56
South Boston	17,700	2.8	14,800	6,500	0.42
Lower Roxbury/Dudley Square	5,500	1.0	9,900	5,300	0.47
Charlestown	5,800	1.3	8,700	4,600	0.48
East Boston	3,800	1.0	6,300	3,800	0.58
SUB-TOTAL	119,000	11.1	38,500	10,700	0.25
Logan Airport[3]	14,800	2.9	5,300	5,100	0.30
TOTAL	**133,800**	**14.0**	**31,700**	**9,500**	**0.28**

Source: Central Transportation Planning Staff 1997/98 parking survey.

Notes:
1. Approximate; only includes section of neighborhood within the CTPS study area.
2. Number of parking spaces excluding spaces that are restricted for use by resident or hotel guests.
3. On-airport parking spaces; number of parking spaces per employee does not include public supply that is used by air passengers.

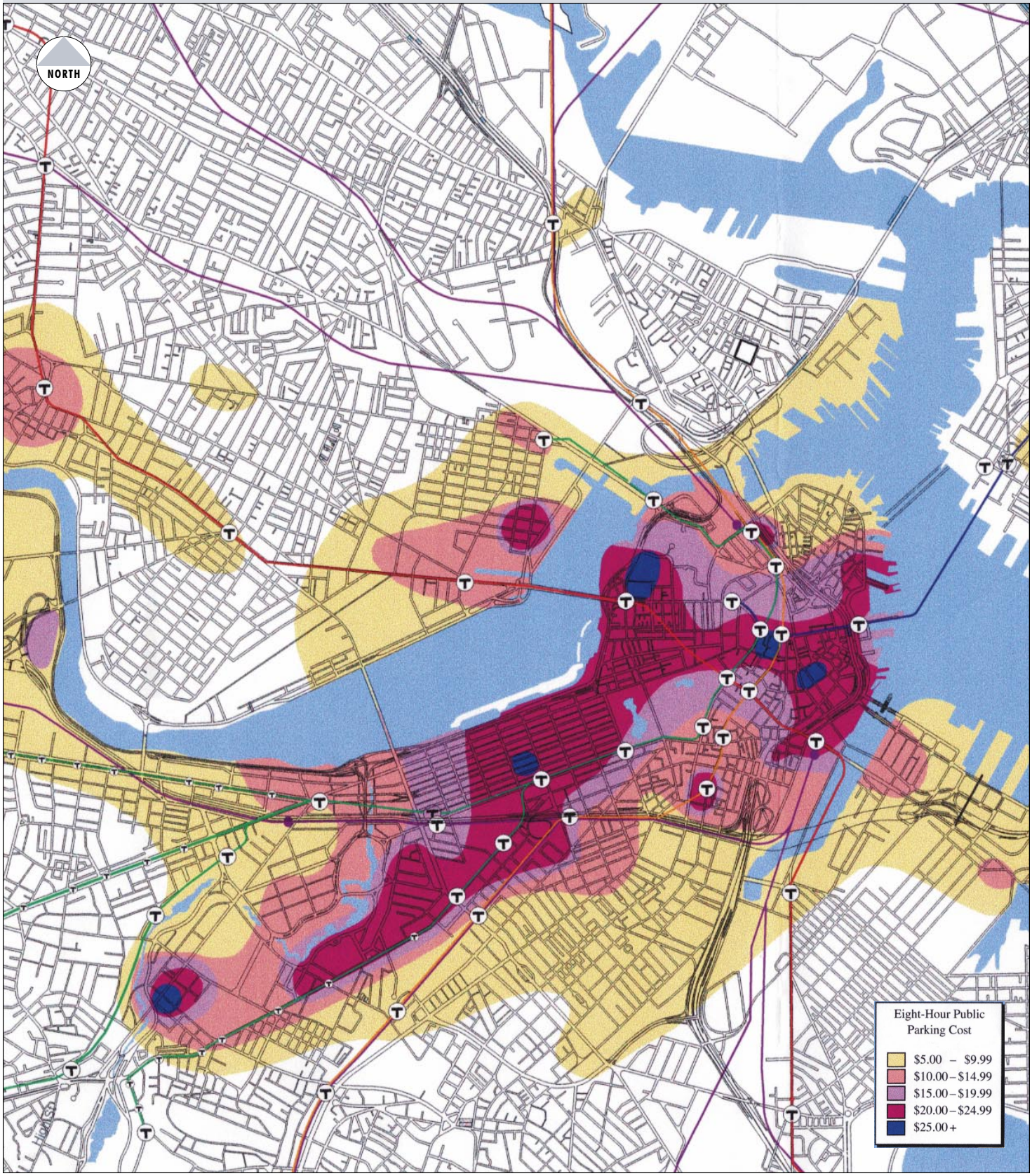


Figure 8:
Parking Rates in Boston Proper

The highest parking rates are in and near the Financial District, which has the highest employment density and numerous visitor attractions.
Source: Central Transportation Planning Staff

Parking rates are highest in the downtown because demand is high and the public supply is limited due to the regulations that put a cap on new spaces.

Downtown rates have doubled since 1980. As indicated in Figure 9, the average rate for the first hour of off-street parking rose from $3.60 in 1982 to $6.60 in 1997. During the same period metered parking fees remained at $1.00 per hour, which represents a 40% reduction in cost accounting for inflation. As a result, an hour of off-street parking, which costs the same as two hours of metered parking in 1982, costs the same as six hours of metered parking in 1997 (see Figure 10). All day parking often costs more than the price of a parking ticket, encouraging motorists to risk illegal on-street parking.

Privately operated parking facilities typically charge the maximum rate after three hours. These rate structures maximize revenue for the operator, but do not encourage or support short-term parking. In the downtown and Back Bay, restrictions on the public parking supply and the intense competition for parking has also diminished parking availability for short-term parkers, who typically arrive after the morning rush hour and leave before the evening rush hour.

2000-2001 Off-Street Parking Trends by Neighborhood

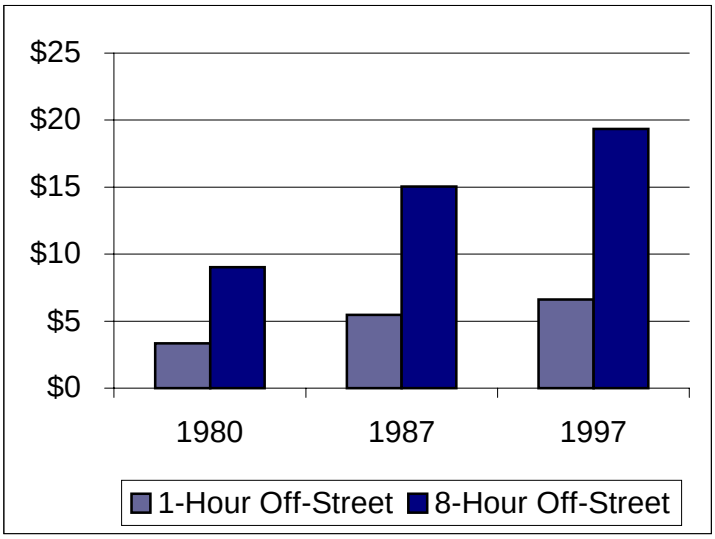
BTD estimated net new off-street parking spaces for approved development projects and projects under review in 2000 and again in 2001 for comparative purposes. Approved projects included projects that were under construction or received a permit to begin construction. Projects under review included development projects that were in the Massachusetts Environmental Protection Act (MEPA) or City Article 80 zoning review process.

Projects under consideration, but not formally under review, are included in the "under review" category to present a complete estimate (or overestimate) of *potential* new parking spaces. Many projects in the inventory are conceptual and may not be built as currently planned. Other projects could take 10 to 15 years to complete depending on the project size, the current demand for space, available financing and the overall health of the economy.

The purpose of the inventory was to provide an overall "snapshot" of off-street parking and insight to the potential parking increases that could occur in different neighborhoods.

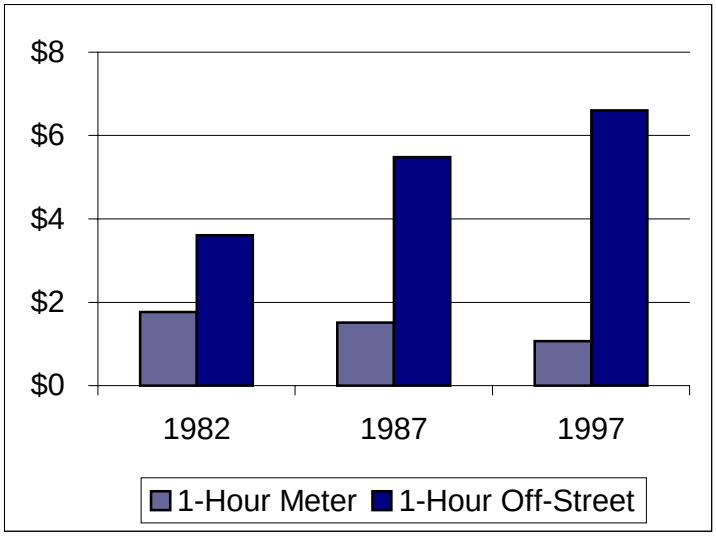
The inventory was also intended to provide guidance for developing and implementing comprehensive, multimodal programs to support reductions in parking levels and encourage the use of alternative modes.

Figure 9
Growth in Off-Street Parking Rates



Downtown parking rates have doubled since 1980. Rates are in 2000 dollars for comparative purposes. (Source: BTD)

Figure 10
Comparison of Metered and Off-Street Parking Rates



An hour of off-street parking cost the same as two hours of metered parking in 1982, increasing to six hours in 1997. Rates are in 2000 dollars for comparative purposes. (Source: BTD)

March 2000 Survey

The March 2000 survey found that approximately 9,500 parking spaces were under construction or approved in the city at the time of the survey. Of these spaces, 75% (7,170 spaces) were located in the Roxbury, Mission Hill, LMA, Fenway-Kenmore and Allston Brighton areas. In these areas six of nineteen projects accounted for 90% of the total parking spaces. In other parts of the city: a few large projects also account for the majority of new parking spaces. The number of projects which would add 400 or more net-new off-street parking spaces were 20% of the total projects citywide but accounted for approximately 75% of the total new *spaces*.

The March 2000 survey also counts approximately 13,000 parking spaces under review or proposed. Downtown and the South End had the highest percentage, accounting for 38%. Mission Hill, LMA, Fenway-Kenmore, Allston Brighton and Roxbury continued to have potential new parking spaces, but fewer parking spaces were under review in 2000 then already approved or under construction.

In the future the Downtown Boston, South Boston, South End and Charlestown areas were anticipated to have more parking spaces as projects in those neighborhoods move from the proposed or under review category to the approved and under construction category.

June 2001 Survey

The June 2001 survey indicated that approximately 13,800 new parking spaces were under construction or approved in the city (see Table 4). This includes the 9,560 spaces in the March 2000 inventory. Therefore, from 2000 to 2001, approximately 4,200 parking spaces citywide were added to the under construction or approved category. In March 2001, there were approximately 11,900 parking spaces under review or proposed compared to 13,000 spaces under review or proposed in March 2000.

Figure 11 compares the existing spaces to off-street parking spaces that may be added for each neighborhood in the future. The existing parking space data is from the CTPS 1997/98 inventory. The potential future spaces are from Table 4, using both the approved or under construction and under review or proposed categories. Figure 11 is likely an overestimate of the amount of parking in the next 10 to 15 years because not all projects will get built. A discussion of parking trends in each neighborhood follows.

Table 4 – June 2001 Survey: Net New Parking Spaces[1]

NEIGHBORHOOD[2]	PROJECTS UNDER CONSTRUCTION OR APPROVED[3]	PROJECT UNDER REVIEW OR PROPOSED[4]
Downtown Boston	1,600	2,600
Back Bay	1,500	1,500
Mission Hill/Longwood Medical Area/Fenway-Kenmore	3,400	600
South End	1,000	1,660
Allston/Brighton	2,470	1,400
South Boston	500	1,900
Lower Roxbury/Dudley Square	2,700	500
Charlestown	850	1,500
East Boston[5]	-190	230
TOTAL	**13,830**	**11,890**

Source: Project Notification Forms, Draft and Final Project Impact Reports, Transportation Access Plan Agreements and information from presentations/meetings with developers, consultants and communities.

Notes:
1. Net new spaces are the total new proposed spaces minus currently existing spaces on site.
2. Boundaries are based on BRA neighborhood maps. Projects can impact multiple neighborhoods.
3. Projects approved, permitted or under construction, and projects nearing final approval as of June 2001.
4. Projects under review as of June 2001 that have submitted an official application to the City. Projects that have been publicly proposed but not officially submitted to the City are included when possible.
5. Does not include projects on airport property.

Downtown Boston

Downtown Boston had 40,500 parking spaces in the 1997/98 CTPS inventory, the most in the city. In the June 2001 inventory, there were approximately 1,600 parking spaces approved or under construction and 2,600 spaces under review or proposed. The Millennium/Ritz Carlton project was under construction in 2001 for 928 net new parking spaces. However, two projects including Tufts Biomedical and One Lincoln projects will reduce parking spaces. The Massachusetts General Hospital Ambulatory Care facility and South Station air-rights projects make up 66% of the 2,600 spaces proposed/under review. Downtown Boston will continue to have the largest number of parking spaces. However, strict regulations limit the growth in spaces.

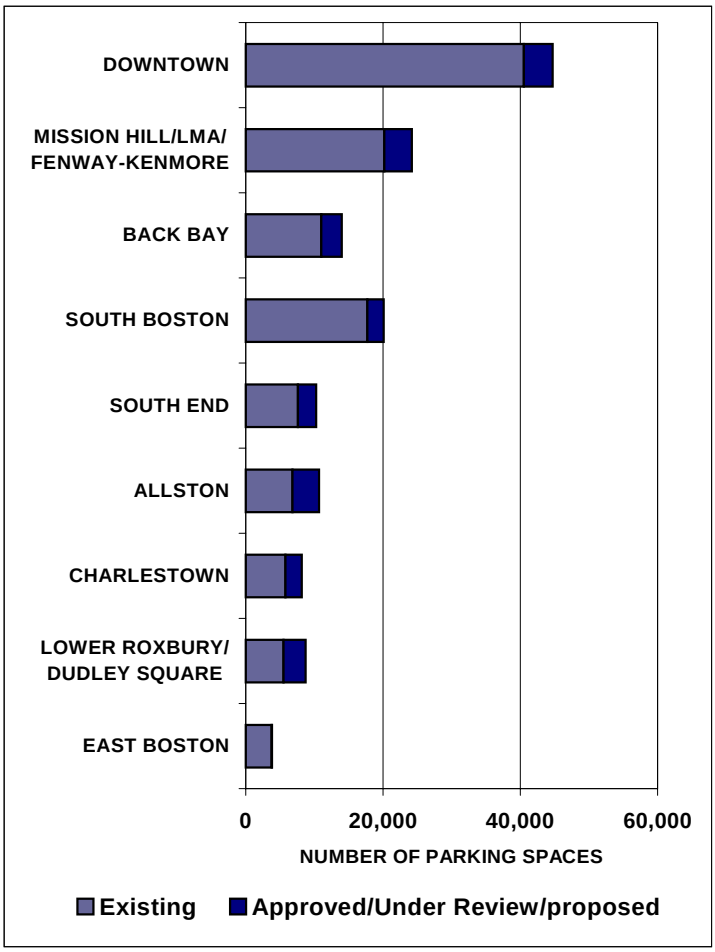
Mission Hill/ LMA/Fenway-Kenmore

There are approximately 20,000 parking paces in the Mission Hill/ LMA/Fenway-Kenmore area according to the 1997/98 CTPS inventory. In the BTD 2001 survey, the area had 3,400 spaces approved or under construction. This included the recently opened Landmark Center. The LMA is under a building boom as institution' position themselves for the next 10 years. Over 1.5 million square feet of development was approved in the LMA with 758 parking spaces for a parking ratio of 0.5 spaces per thousand square feet. Developments including the Fenway Mixed Use Project and One Brigham Circle will bring more parking to the area. However, the numbers will be limited by new parking ratio zoning initiatives by the City. (See Section 4 – Development and Project Review.)

Back Bay

The Back Bay neighborhood had approximately 11,000 off-street parking spaces in the 1997/98 CTPS inventory. In June 2001 there were approximately 1,500 parking spaces under construction or approved in the area and 1,500 spaces under review or proposed. Restriping in the Prudential Center Parking Garage as part of the 111 Huntington Avenue project (Prudential Tower II) accounted for 800 of the approved spaces. Of the 1,500 spaces under review, the proposed Boylston Square project at Massachusetts Avenue on the Turnpike air rights accounts for 860 spaces. That project is on hold at this time.

Figure 11
Existing Off-Street Parking and Parking for Projects that are under Construction or Approved



New parking (approved and under construction as of June 2001) as a percentage of existing parking is lower in downtown and higher in Lower Roxbury and Dudley Square. (DSource: BTD)

Half of the approved spaces in the Back Bay are located in the Prudential Center Parking Garage, which will be restriped as part of the 111 Huntington Avenue project.

The proposed Genzyme project in Allston Landing, which is under review, will add 980 net new parking spaces with easy access to the Massachusetts Turnpike interchange.

Allston/Brighton

The Allston area had approximately 6,800 off-street parking spaces within the 1997/98 CTPS inventory boundary. A significant project within the inventory boundary was the Boston University Master Plan and dormitory for up to 940 net new parking spaces. The proposed Genzyme expansion project is under review with 980 net new parking spaces.

South End

The South End had approximately 7,600 parking spaces in the 1997/98 CTPS inventory. In 2001, there were 1,000 parking spaces under construction or approved. Two projects, Wilkes Passage Loft and Boston Center for the Arts, accounted for 80 percent of these spaces. Most of the spaces were community-supported residential spaces in order to take pressure off on-street parking spaces. The BioSquare Phase II project is under review. Its proposed 1,660 parking spaces have direct highway access, therefore limiting neighborhood impacts.

South Boston

There have been several inventories of the South Boston parking supply, most notably, the 1994 (updated in 2001) South Boston Parking Freeze inventory conducted by the Boston Air Pollution Control Commission (BAPCC). That count found approximately 30,000 off-street parking spaces subject to the Freeze in 2001. The 1997/98 CTPS inventory identified 17,800 off-street spaces. The variance in these counts is due in part to differing inventory methodologies as well as loss of spaces due to Central Artery and other construction during the four years between the counts. In 2001, approximately 500 new off-street parking spaces were approved and 1,900 were under review or proposed.

South Boston is facing a historical time of growth and transformation. Projects such as the Central Artery, Silver Line, Convention Center, Commonwealth Flats, Fan Pier and others will bring significant changes. The area is closely managed by BTD and BAPCC. The trend for South Boston is continued redevelopment of surface parking lots to new residential, office, hotel, retail and convention center uses. The South Boston Parking Freeze and efforts to increase transportation demand management measures will keep the future number of parking spaces in check.

Lower Roxbury/Dudley Square

The Lower Roxbury and Dudley Square areas had 5,500 off-street parking spaces according to the 1997/98 CTPS inventory. The Northeastern Renaissance Park and Crosstown projects make up

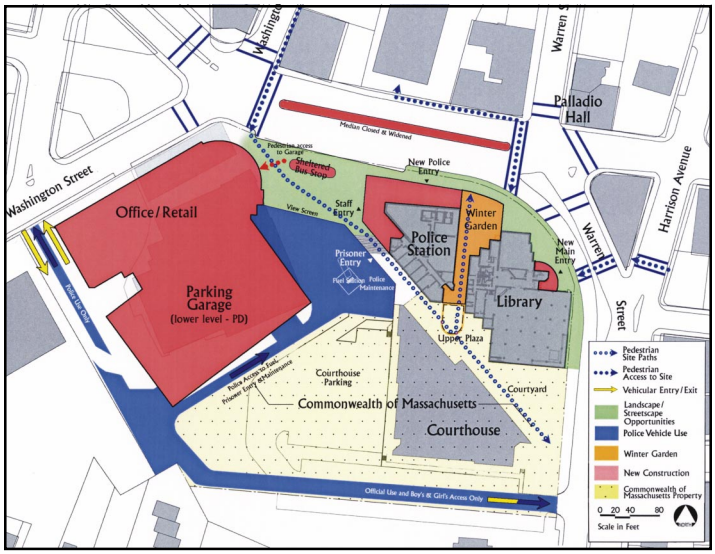
83% of the approved or under construction parking spaces. Crosstown will be built in two phases with 500 spaces in the first phase and 750 in the second. Grove Hall (outside the parking study area) is complete with 157 net new parking spaces. The Modern Electroplating project is under review and proposes 400 spaces to accommodate planned development of the Ferdinand Building for the Department of Public Health.

Charlestown

Charlestown had approximately 5,800 off-street spaces in the 1997/98 CTPS inventory. At the time of the June 2001 survey there were 850 parking spaces under construction or approved and 1,500 spaces under review or proposed. The Central Artery North Area and the Nautica projects accounted for all the parking spaces approved/under construction in 2001. Of the 1,500 spaces under review, 66% were from the Hood Business Park and 20% were from the Little Neck Lofts project. Charlestown has been historically under served in off-street parking, and new development not only serves current needs but meets future demand.

East Boston

East Boston had approximately 3,800 parking spaces in the 1997/98 CTPS inventory. Since then a "park-and-fly" parking lot with approximately 1,400 spaces moved on to Massport property. The June 2001 inventory for approved or under construction projects showed a reduction of about 200 parking spaces due to the East Embassy Suites project which will replace 368 surface parking spaces with 180 spaces. In the future, the Logan Commerce Park project currently under review may inch up the number of off-street parking spaces in East Boston as may potential future development of the East Boston waterfront. Overall, East Boston is not anticipated to have significant growth in off-street parking spaces.



The Modern Electroplating project, which is in the development planning stage, proposes 400 spaces to accommodate planned development for the Department of Public Health (Ferdinand Building) and area residents and merchants.

The Central Artery North Area and the Nautica projects accounted for all the parking spaces in Charleston that were approved or under construction in 2001.

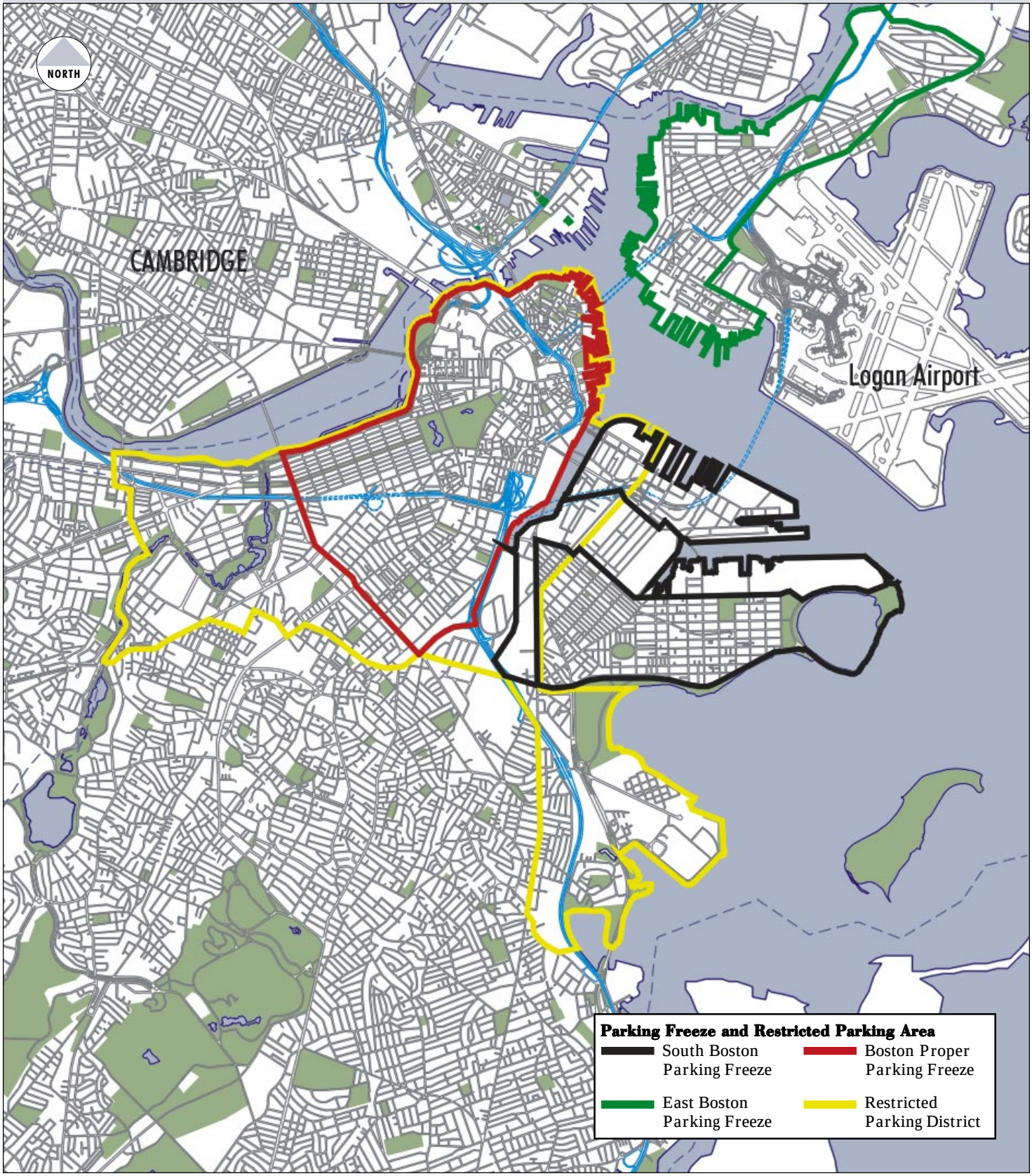


Figure 12
Parking Freeze and Restricted Parking Area

The Boston Air Pollution Control Commission administers "parking freezes that cap all or part of the parking supply in Boston Proper, South Boston and East Boston.

Source: Boston Air Pollution Control Commission

3. PARKING DISTRICTS

A key policy initiative of *Access Boston 2000-2010* is the use of district based strategies to manage off-street parking. This section lays out the fundamentals of a comprehensive off-street parking strategy to be implemented in the coming years. First, existing district based parking management regulations are examined. Case studies of recently completed or ongoing neighborhood master planning and zoning initiatives are also identified. The Action Plan calls for tightening regulations to manage above normal growth in off-street parking supply. Finally, a summary chart details district-by-district parking goals.

As outlined in Section 2, over the last several years, growth in new off-street parking has occurred throughout Boston. Major new developments are under construction in Boston's traditional core, which includes the downtown, financial district and the Back Bay. In general, the core possesses robust transportation infrastructure and already has dense development, so that new developments tend to have incremental impacts. However, the roadway and transit infrastructure is at capacity.

Since the mid-1990s, neighborhoods just outside the traditional core have experienced significant development. Some of these districts have been historically industrial like the South Boston waterfront, Newmarket and sections of Charlestown and East Boston. Other new developments are adjacent to, or in the midst, of residential neighborhoods such as Chinatown, Fenway/Longwood Medical Area and the South End. These areas are served by fewer transit and highway facilities relative to the core and are subject to impacts stemming from new development.

The district-based approach allows the City to tailor its policies to the unique characteristics of each neighborhood. Factors considered include existing and planned land uses, access to transit, local street capacity, existing on and off-street parking supply, and the cumulative impact of proposed developments.

GOALS

The goals of the district parking management recommendations are to:

- Establish district-based guidelines and standards to reduce the growth in parking supply for commuters.
- Build on the consensus reached in neighborhood planning processes with respect to local parking needs.
- Develop a regional approach to address parking management.
- Strengthen existing parking management zoning and other legal mechanisms.
- Use new technologies to optimize the use of existing parking supply before building new spaces.

Parking Freeze Districts

Boston is unique among American cities when it comes to parking supply management. The Boston Air Pollution Control Commission (BAPCC) administers "parking freezes" (see Figure 12) that cap all or part of the parking supply in a geographic area. Boston's parking freezes are included in the State Implementation Plan (SIP). The SIP is approved by the U.S. Environmental Protection Agency. Since 1973, downtown Boston has been subject to a "freeze" on commercial parking, imposed by the Commonwealth and the U.S. EPA as a means to reduce air pollution and meet the Clean Air Act. It sets an absolute cap on public, off-street parking.

In 1989, a parking freeze was added to East Boston to address the rise in airport-related parking uses in the neighborhoods. The East Boston Freeze caps rental car and park-and-fly operations, allowing only for their transfer out of the community and onto airport property. There is also a parking freeze at Logan Airport that is managed by Massport with the Massachusetts Department of Environmental Protection (DEP).

South Boston came under a parking freeze in 1993 when the Commonwealth imposed a cap on parking in order to settle a pending lawsuit brought by environmental advocates over impacts from the Central Artery/Tunnel project. The South Boston Freeze applies to all parking (except existing residential) in the Piers and commercial/ industrial areas and prohibits new remote parking in the residential area. The City of Boston drafted regulations and an inventory of parking in 1994 to comply with the state regulation. The Freeze has acted as a moratorium on new parking facilities. Recently, the BAPCC held public hearings on the latest draft regulations and is in the process of finalizing the inventory and implementing permit fees to fund freeze administration.

Table 5 – Summary of Parking Freeze Areas

LOCATION	OVERSIGHT	KEY ELEMENTS
Boston Proper	Boston Air Pollution Control Commission	Caps general public parking at 1975 level of 35,500 spaces. Allows BAPCC to grant exemption for certain types of spaces based on need (i.e., residential, hotel guest, employee).
East Boston	Boston Air Pollution Control Commission	Caps rental car spaces at 1989 level of 4,012 spaces. Caps park-and-fly spaces at 1,098 spaces.
South Boston[1]	Boston Air Pollution Control Commission	Creates three districts: • South Boston Piers Zone with 16,623 parking spaces. • South Boston Industrial Zone with 16,453 spaces. • South Boston Residential Zone with 11 remote spaces. Caps all types of off-street parking at 1994 levels. Provides for a 10-percent increase after the base inventory and rules are approved by DEP. Prohibits use of spaces in industrial and residential areas for remote parking to Piers area. Exempts residential parking spaces. Requires 10-percent set-aside for "off-peak" parking.
South Boston/ Massport[1]	Massachusetts Department of Environmental Protection	Caps all types of off-street parking in Massport area at 1994 level of 6,064 spaces in the South Boston Piers Zone and 2,933 Spaces in the South Boston Industrial Zone. Provides for a 10-percent increase after the base inventory and rules are approved by DEP. Exempts residential parking spaces. Requires 10-percent set-aside for "off-peak" parking.
Logan Airport	Massachusetts Department of Environmental Protection	Caps all off-street parking at 1989 level of 19,315. Requires maximum of 5,225 employee parking spaces and minimum of 115,467 commercial parking spaces. Includes provision to bring remote park-and-ride spaces onto the airport with a one-for-one increase in the Logan commercial inventory and a decrease in the East Boston park-and-fly inventory.

Note: 1. Massachusetts Department of Environmental Protection has not approved the inventory of spaces. The permit process will begin in Fall 2001.

Boston Proper Parking Freeze

The Boston Proper Parking Freeze was imposed in 1973 and covers "Boston Proper," and includes downtown Boston, Back Bay and the South End. Highlights include:

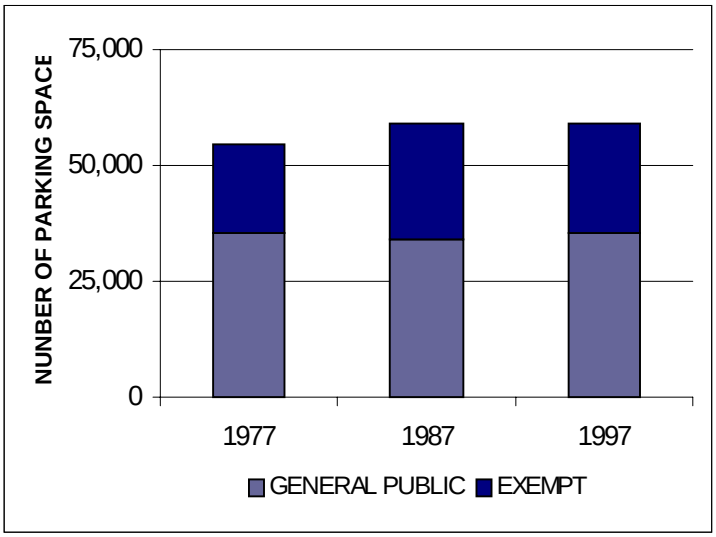
- *Public* spaces were capped at their 1975 levels of 35,500.
- BAPCC may grant exemptions to private off-street parking that is made available exclusively to employees, guests, patrons, customers, clients or patients of an employer in a building.
- Residential parking is outside the scope of the Parking Freeze and developers need only document how the general public will be excluded from these spaces.

The CTPS 1997/98 inventory identified 59,100 total spaces within the Parking Freeze area. While the total number of parking spaces increased by 9% between 1977 and 1997, the number of exempt spaces increased by 26%. (See Figure 13). Significantly, the growth occurred primarily between 1977 and 1987 when an average of 450 spaces per year was added to the supply. The off-street parking supply has remained relatively constant between 1987 and 1997. This reflects the impacts of an economic recession, the use of existing public spaces in the new development projects, and greater control exerted by BTD and BAPCC through the permit process.

The increase in exempt spaces is primarily a result of construction of employee spaces. During the same time period, the number of employees in the downtown increased by 15%. The increased number of employees pressures demand for parking. In response, long-term parking rates nearly doubled between 1977 and 1997. In addition, public parking became more difficult to find during the middle of the day as long-term parkers, such as employees, consumed the limited number of available spaces. This increases costs for businesses and for visitors, tourists and others who cannot "write-off" parking charges.

In the coming decade, parking conditions could change significantly in the downtown due to the construction of new parking facilities in new developments. As Figure 14 illustrates, the parking supply of the Boston Proper Parking Freeze area is anticipated to increase by 7% considering only projects that have been approved or are under construction. Most projects under construction will be open in 2003. Parking could increase by 17% considering both projects approved or under construction projects and those under review or proposed. The latter category will not be built for several years and some not at all.

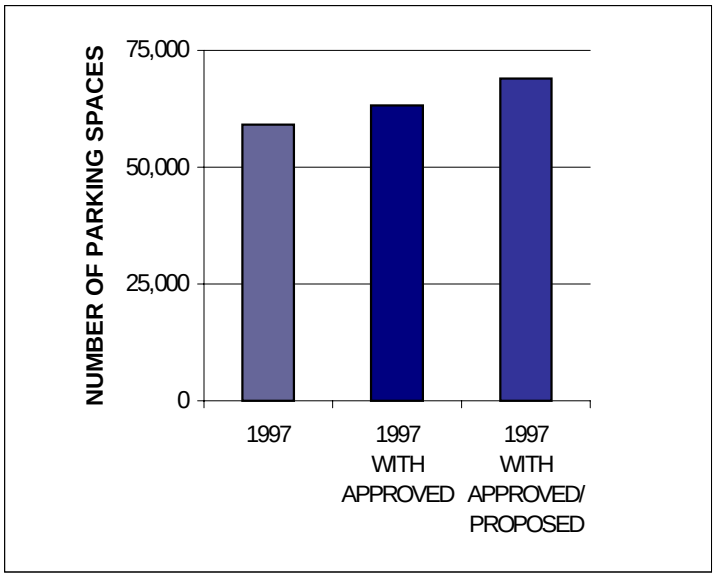
Figure 13
Off-Street Parking Growth in Boston Proper



While the total number of parking spaces increased by 9% between 1977 and 1997, the number of exempt spaces grew by 26%. (Data Source: BAPCC, BTD and CTPS)

The Boston Common Garage is used by area residents, shoppers and commuters.

Figure 14
Future Parking in Boston Proper



Considering projects that are under construction or approved, the parking supply in the Freeze area will increase by an additional 7%. (Source: CTPS and BTD)

The Ritz Carlton project, originally permitted as Commonwealth Center in the late 1980s, was completed in 2001.

It takes time to complete large development projects. This was especially apparent over the last ten years when the economic downturn of the early-1990s affected project financing and schedules. The two projects that account for nearly all of the approved or under construction parking supply in Boston Proper and the Back Bay – the Prudential redevelopment in the Back Bay and the Ritz Carlton project near Downtown Crossing – were proposed and originally permitted in the late-1980s.

The economic downtown also reduced the average annual rate of parking spaces that were added to Boston Proper's parking supply. The rate of 450 spaces per year that was observed in the ten-year period from 1977 to 1987 will drop by 25%, even when projects that are currently under construction or approved are included in the total, due to economic downturn of the early-1990s.

The Ritz Carlton and One Lincoln Center projects, which are now under construction, are also examples of projects that incorporate "unattached" general public parking into the parking supply of the new development. "Unattached" general public lots and garages in the Boston Proper Parking Freeze area are freestanding facilities that are not part of a building or development. These facilities serve the general parking demand of area businesses and residential neighborhoods, rather than specific needs of a particular office building. A large part of the Ritz Carlton project is located on the former site of a surface parking lot that served Downtown Crossing and the Theater District. The One Lincoln Center site includes a parking garage and a parking lot that served Downtown Crossing, the Financial District and the South Station area.

The general public spaces in the Ritz Carlton and One Lincoln Center projects will be available on a "first come-first serve" basis. However, the added demand from the new uses in the development projects will increase competition for the spaces and ultimately increase parking costs and reduce parking availability. This is a positive trend to the extent that it makes driving a less desirable commuting option relative to other modes such as transit.

East Boston Parking Freeze

The BAPCC oversees a Parking Freeze in East Boston that caps the number of rental car and remote airport park-and-ride spaces in the residential neighborhood around the airport. DEP approved the East Boston Parking Freeze in 1991 and the plan was approved by U.S. EPA as part of the 1993 amendments to the Massachusetts State Implementation Plan (SIP). The purpose of this parking freeze is to reduce off-airport parking and rental car facilities in East Boston. Since the Parking Freeze was implemented, the number of off-airport rental car spaces within the area has been limited to 4,012. The number of off-airport park-and-fly spaces has been reduced from 2,475 spaces to 1,098.

Logan Airport is also under a parking freeze that caps the total number of airport spaces at 19,315. Massachusetts DEP oversees this Parking Freeze, which includes Massport property at Logan Airport. Today, there are 15,467 passenger spaces and 5,225 employee spaces at Logan.

South Boston Parking Freeze

The BAPCC oversees a Parking Freeze in South Boston. Unlike the Parking Freeze in Boston Proper, the South Boston Freeze includes employee and general public parking spaces. Residential spaces are exempt. The South Boston Parking Freeze includes three zones: the area north of Summer Street that includes the South Boston Waterfront; the commercial/industrial area roughly between Summer Street and First Street and along Dorchester Avenue; and the residential area south of First Street. Massport properties are not included in the BAPCC Parking Freeze. DEP oversees the Parking Freeze that regulates parking on Massport property.

The South Boston Parking Freeze provides for a bank of 3,308 spaces, which is 10% above the total BAPCC Parking Freeze inventory. When the CA/T project is complete, the BAPCC may add an additional 10-percent to the Parking Freeze bank. The regulations also restrict 10% of existing spaces from being available between 7:30 and 9:30 AM to limit peak-hour travel. This restriction increases to 20% upon completion of the MBTA's Silver Line project in South Boston.

The purpose of the East Boston parking freeze is to reduce off-airport parking and rental car facilities in East Boston. The number of off-airport park-and-fly spaces has been reduced from 2,475 spaces to 1,098.

DEP oversees the Parking Freeze in South Boston that includes Massport properties, such as the World Trade Center development site.

Restricted Parking Districts

Restricted parking districts are zoning tools that require developers to justify parking levels that will be built as part of the development project. Parking is considered a "conditional use" in these areas. Development projects must demonstrate the need for new parking, subject to BRA and Boston Zoning Board of Appeal approval. BTD and BAPCC provide input to the approval process. The zoning code does not require a minimum number of off-street spaces.

In a restricted parking district, the Board of Appeal shall grant a conditional use for an off-street parking facility, whether a parking lot, a public garage, or parking which is accessory or ancillary to any use other than a residential use, only if the Board of Appeal finds that the facility meets one or more of the following conditions:

a. It will serve a traffic demand not adequately provided for by public transportation; or
b. It will replace existing off-street parking spaces in one or more nearby parking facilities, or it will replace legal on-street parking spaces that have been physically eliminated through permanent modification or demolition; or
c. It is accessory or ancillary to a use which by its nature does not contribute significantly to traffic flows during peak traffic periods; or
d. The facility constitutes a temporary parking lot use of land and that serious intent to reuse the land for an allowed use within a specified period of time has been demonstrated to the satisfaction of the Board of Appeal.

Projects that undergo Article 80 Large Project Review, Institutional Master Plans and Planned Development Areas are not subject to the Restricted Parking District. However, the Restricted Parking District acts as a red flag to alert developers that the appropriate amount of parking must be carefully studied. For proposed projects subject to or electing to comply with Large Project Review, off-street parking spaces and off-street loading facilities are determined through the community review process.

Roxbury Strategic Master Plan

The Roxbury Strategic Master Plan is designed to establish a strategic planning agenda that will provide a framework to guide change and economic growth for the next ten to twenty years in Roxbury. The plan recognizes that a balanced transportation system that meets the needs of Roxbury residents, businesses, and visitors is intrinsic to enhancing quality of life in the neighborhood.

The lack of sufficient resident parking, the increasing number of commuters into the area, the growing demand for short-term parking for local businesses, and the need to provide parking for new developments are the realities facing Roxbury. The specific details of the plan are being shaped by an extensive public process. The Plan will allow for the development of Roxbury's assets without unduly burdening the transportation system. The final plan will:

- Prohibit the development of satellite parking.
- Develop specific parking standards and ratios for new developments.
- Identify potential areas for resident parking programs.
- Encourage demand management and shared parking use.
- Recommend guidelines to develop specific strategies for neighborhood commercial areas.

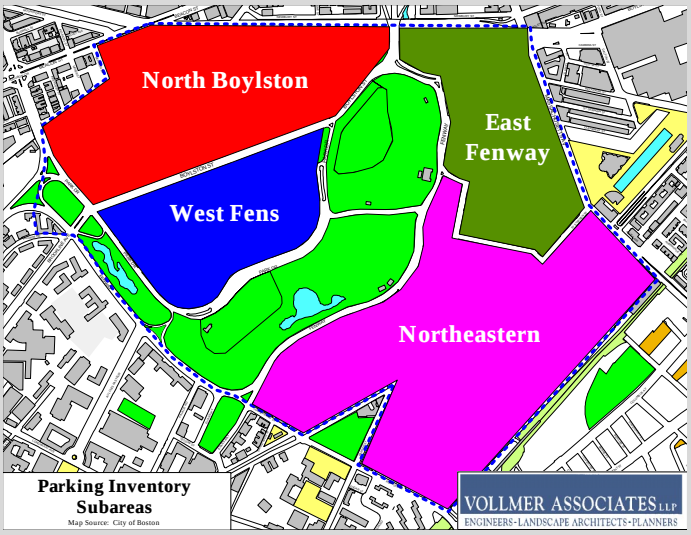
Dudley Square Transportation and Air Quality Study

Dudley Square is the commercial and transportation hub of Roxbury. A joint BTD/BRA/DND effort, makes specific recommendations to ensure that the twin development of the Ferdinand Building (for the Department of Public Health) and Modern Electroplating site (into a 500 space parking garage) do not overwhelm this growing area. Among the study's recommendations are a complete parking plan for Dudley Square, including:

- Controlled use of existing public parking facilities.
- Projections of future parking demands.
- On-street parking and loading regulations.
- Guidelines for use and access of the Modern Electroplating parking facility.

Fenway-Kenmore Neighborhood Transportation Association

Figure 15
Fenway-Kenmore Area



Planning for the Fenway-Kenmore area identified the importance of upgrading Yawkey Station to a full-time commuter rail station.

Table 6 - Fenway Parking by Subarea

Subarea	On-Street Spaces	Off-Street spaces
North Boylston	544	5,286
West Fenway	752	1,410
East Fenway	812	1,142
Northeastern	893	2,207
Total	3,001	10,045

Source: BTD, as of July 2000

BTD and the BRA established the **Fenway-Kenmore Neighborhood Transportation Association (NTA)** in December 1998**.** The purpose of the NTA is to serve as a monthly public forum on development and transportation issues in the area. The NTA consists of community and business groups, residents, area institutions, advocacy groups, and public agencies.

Principles of the Fenway NTA:

- Protect and enhance the quality of life of the Fenway neighborhood.
- Encourage the use of public transportation; create a pedestrian-friendly street environment; alleviate congestion and improve traffic circulation, and address off-street and on-street parking concerns.
- Develop strategies to manage the combined or cumulative transportation impacts of existing, under construction and proposed developments in the neighborhood.
- Keep traffic related to regional destinations on the highway system, protecting local residential streets for local traffic.

Parking Related Accomplishments:

- Updated the parking inventory (Figure 15 and Table 6).
- Recommended parking ratios for new development.
- Conducted development review including number of proposed net new parking spaces.
- Recommended regulations of on-street parking spaces.
- Recommended Yawkey Station as a full-time commuter rail station and three-car trains on the MBTA to help reduce driving and parking in the neighborhood.

Fenway Planning Task Force

In 1999, the City established the **Fenway Planning Task Force (FPTF)** to provide community input and representation in a rezoning process for the Fenway. The FPTF Transportation subcommittee meetings were scheduled to coincide with the already established Fenway NTA. Parking ratios for new development was a key concern. After updating the parking inventory and much discussion about limiting parking and still allowing development according to the community's vision, a maximum parking ratio of 0.75 spaces/unit and 0.75 spaces/1,000 gross square feet of non-residential development was recommended. The development of parking ratios through the district-based approach allows the City to tailor its zoning to the unique characteristics of each neighborhood, including the presence of transit, local street capacity, and general availability of parking.

Civic Vision for Turnpike Air-Rights

In the fall of 1998, Mayor Menino appointed a citizens committee to develop guidelines to govern the use of air-rights parcels over the Boston extension of the Massachusetts Turnpike. (See Figure 16.) As part of this initiative, the BTD and BRA established a Transportation Working Group to address pedestrian safety, parking, and local and regional access. The group released its recommendations in June 2000. Detailed guidelines were recommended to reduce allowable parking for new development as a means to encourage public transportation use. Mode share goals and desired parking ratios were identified for each parcel along the turnpike corridor. These are outlined in Table 7 below.

Figure 16
Massachusetts Turnpike Air Rights

Table 7 – Recommended Parking Goals for Turnpike Air Rights

Recommended Goals	Existing Mode Share and Approved Parking Ratios
Parcels 1-6	**Parcels 1-6**
Mode Share – auto below 50%	Mode Share – auto 50-60%
Parking Ratios:	Parking Ratios:
Hotel - .75/unit	Hotel - .75/unit
Office/ R&D – 1/1,000sf	Office/ R&D – to be determined
Retail – to be determined by CAC	Retail – to be determined
Parcels 7-10	**Parcels 7-10**
Mode Share – auto below 30%	Mode Share – auto 30-40%
Parking Ratios:	Parking Ratios:
Housing - .75 to 1/unit*	Housing - .75/unit
Hotel - .5/unit	Hotel - .5-.9/unit
Office/ R&D - .75 to1/1,000sf	Office/ R&D – 1.25-1.5/1,000sf
Retail – to be determined by CAC	Retail – to be determined
Cinemas – to be determined by CAC	
Parcels 11-19	**Parcels 11-19**
Mode Share – auto below 30%	Mode Share – auto 30-40%
Parking Ratios:	Parking Ratios:
Housing - .75 to 1/unit*	Housing – 1.3-1.5/unit
Hotel - .5/unit	Hotel - .5-1/unit
Office - .75/1,000sf	Office – 1.5-2/1,000sf
Retail – none if possible	Retail – none if possible
Cinemas – to be determined by CAC	Cinemas – to be determined
Parcels 20-23	**Parcels 20-23**
Mode Share – auto below 30%	Mode Share – auto ?%
Parking Ratios:	Parking Ratios:
Housing – community review	Housing – to be determined
Hotel - .5/unit	Hotel - to be determined
Office/ R&D - .75/1,000sf	Office – less than 1/1,000sf
Retail – to be determined by CAC	Retail - to be determined
** Depends on unit type and demand.*	

Source – A Civic Vision for Turnpike Air Rights in Boston, Goody, Clancy & Associates.

Action Plan

Parking Districts

Use District-based Parking Goals Based on Transit Access

Off-street parking needs and impacts vary by location. The district-based approach addresses these differences as part of citywide efforts to reduce parking demands by employees and better manage the overall supply. For Example, in the downtown, BTD and BAPCC uses a ratio of 0.4 parking spaces per 1,000 square feet of commercial office development. Ratios in areas outside the Boston Proper Parking Freeze are based on mode share goals that reflect the location of the project relative to the transit system. BTD has worked with BAPCC, BRA and citizen groups to establish these goals for the Fenway-Kenmore and Turnpike air rights. See Tables 6 and 7 in the proceeding section that follows for additional information.

District-based parking goals are detailed in Tables 8, 9 and 10 starting on page 29.

Increase the Availability of Short-Term Parking

During strong economic times, short-term parking is difficult to find in Boston Proper. Efforts should be made to increase the availability of short-term parking (i.e., less than 4 hours) by reducing long-term/ all-day parking demand. This will further increase pressure to shift employees to alternative, non-auto modes. The City should also investigate the development of an intermodal facility near the South Bay area that could provide short-term visitor and tourist parking with shuttle bus service to downtown.

Reduce the Number of Off-Street Parking Spaces per Employee

The City of Boston will establish a goal to reduce the number of off-street parking spaces per employee. The purpose is to provide an umbrella approach to the district-based and project-level approaches to reduce parking demand and auto use by employees. The reduction in parking will require shifting employees into other modes such as transit, bicycle use or walking. Short-term visitor and customer parking should be included in the calculation of the number of spaces per employee.

Encourage Remote Park-and-Ride at Regional Intermodal Facilities

BTD will encourage the MBTA to continue to increase parking at regional transit stations and not local neighborhood stations to support increased transit use by employees and visitors to the city.

Strengthen the Boston Proper Parking Freeze

BAPCC has managed the off-street parking supply for 25-years without increasing the number of general public spaces. The "exempt" parking supply has increased to accommodate new commercial, residential and hotel demands

Consideration will be given to revising the Boston Proper Parking Freeze in a manner that encourages employees to shift to alternative modes, address residential parking needs and provide opportunities for short-term parking opportunities.

BTD will convene a Task Force consisting of BAPCC, BRA, Massachusetts DEP and representatives from neighborhood, public interest, business and environmental groups. The Task Force will examine the following potential modifications to the current Boston Proper Parking Freeze regulations:

- Allow exemptions for parking spaces below a 0.4 space per 1,000 square feet of commercial office development. Spaces above the ratio would be withdrawn from the Parking Freeze bank. Consideration should also be given to ratios that vary by location relative to the transit system and the downtown core.
- Allow operators of parking spaces within the new cap figure to charge a fee for use of the spaces by the general public as an economic incentive to reduce employee parking subsidies.
- Establish a bank of 2,000 spaces for distribution to non-exempt uses after approval of modification to the Parking Freeze.
- Create an exemption for short-term parking spaces with rates that are indexed to meter rates for the first four hours and that are kept off the market until after 9:30 a.m.
- Allow for trading for (market-based) value of Parking Freeze permits.

Develop and Implement a System to Disseminate Parking Information

BTD will work with parking garage operators to develop a system to inform motorists about parking information. The South Boston Waterfront would provide a good area for consideration due to: the limited number of property owners, public land ownership, an active Transportation Management Association, a high level of demand associated with infrequent visitors (e.g., convention attendees) and a concern about parking associated with the new development in the area. Consideration will be given to the following elements:

- Strategically placed directional signage with "real-time" information about the number of available spaces at each participating lot or garage.
- Integration of the system with other systems to distribute information via a range of media that include the internet, television, and highway signs.
- Dissemination of rate information
- Standardization of signage to protect consumers
- Capabilities to establish a reservation system for pre-payment of parking and reservation of a parking space prior to beginning the trip or en-route.

Work with Transportation Management Associations to Support District-based Parking Approach

Transportation Management Associations (TMAs) are organizations that bring together employees, retailers, business owners, public sector representatives, and others to address employee, visitors and customer transportation issues. BTD should continue to work with TMAs to foster support for and implementation of district-based parking approaches. TMAs also provide the opportunity to implement district-wide potential partner for the BTD to develop and implement district-wide parking information systems.

District-Based Parking Goals

The City uses a district-based approach to manage off-street parking. These goals provide a broad policy framework that will:

- Serve as a guide for the community in each district in planning for their neighborhoods.
- Provide developers with broad standards to adhere to when designing their projects.
- Used as a starting point for district studies and rezoning efforts.

The goals are based on the unique characteristics of each neighborhood such as existing land use, available parking supply, housing density, local street capacity, and cumulative impacts of new and proposed development. The fundamental principal, however, is based on an area's access to public transportation. Districts with good transit access require less parking spaces per square foot or per unit. Even within districts, projects on streets closer to MBTA stations should have less parking spaces than streets further away.

Table 8 summarizes the parking ratio goals for Boston's neighborhoods. Tables 9 and 10 itemize the parking ratio goals for each city district, the minimum requirements in existing zoning, and the existing public transportation access.

Traditionally zoning laws included only minimum parking requirements for projects. This requirement is changing as awareness has increased about the economic and land use disadvantages of requiring parking spaces. As a result, minimum required parking spaces are being reviewed and potentially supplemented with maximum parking spaces. For any project subject to or electing to comply with Article 80 Large Project Review, required off-street parking spaces shall be determined through such review based on the parking ratio goals shown below.

Additional parking principles include the following:

- All development should accommodate associated parking and loading activity *onsite*.
- shares the existing parking supply between different users at different times.
- Make provisions for bicycle, car and vanpool sharing.

Table 8 – Summary of District-based Parking Goals/Guidelines

LOCATION	OFFICE/NON-RESIDENTIAL SPACES PER 1,000 SQUARE FEET	RESIDENTIAL SPACES PER UNIT [2]	HOTEL SPACES PER UNIT
Financial District/Government Center/ Bullfinch Triangle, North End, West End/ Massachusetts General Hospital, Beacon Hill, Chinatown/Leather District, Bay Village, Back Bay, South End (west of Tremont Street)	0.4	0.5-1.0	0.4
South End (east of Tremont Street), Boston Medical Center, Lower Roxbury/Crosstown	0.75-1.0	1.0-1.5	0.4
Dudley Square, Mission Hill	0.75-1.0	0.5-1.0	0.4
Longwood Medical Area, West Fenway/Kenmore, East Fenway	0.75	0.75	0.4
South Boston Waterfront	Down to 0.7[1]	1.0-1.5	0.4
Allston/Brighton, Charlestown, Dorchester, East Boston, Jamaica Plain, Mattapan, Roxbury, South Boston (residential neighborhood)	**DISTANT FROM MBTA STATION** 1.0-1.5 **NEAR MBTA STATION** 0.75-1.25	**DISTANT FROM MBTA STATION** 1.0-1.5 **NEAR MBTA STATION** 0.75-1.25	
Hyde Park, Roslindale, West Roxbury	1.0-1.5	1.0-1.5	

Notes: 1. With proposed MBTA improvements in place.
2. Lower parking ratios may be appropriate for housing types such as elderly, lodging housed, transitorial housing, and group residences.

Table 9 – Parking Goals by Sections of the City within Boston Proper

PARKING REQUIREMENTS IN EXISTING ZONING	PROPOSED PARKING RATIO GOALS	PUBLIC TRANSPORTATION ACCESS
BACK BAY		
• Restricted Parking District • Part of Boston Proper Parking Freeze • Residential: 0.4-1.0 spaces/unit based on Floor Area Ratio	• Office: 0.4 spaces/1,000 square feet • Hotel: 0.4 spaces/hotel room • Residential: 0.5-1.0 spaces/unit based on housing type	• Orange and Green Lines • Commuter rail (Back Bay Station) • Express and local bus • Private commuter/shuttle services • Back Bay TMA programs
BAY VILLAGE		
• Restricted Parking District • Part of Boston Proper Parking Freeze • Hotel: 0.7 spaces/hotel room • Residential: 0.7 spaces/unit	• Office: 0.4 spaces/1,000 square feet • Hotel: 0.4 spaces/hotel room • Residential: 0.5-1.0 spaces/unit based on housing type	• Orange and Green Lines • Local MBTA bus routes
BEACON HILL		
• Restricted Parking District • Part of Boston Proper Parking Freeze • Residential: 0.7 spaces/unit	• Office: 0.4 spaces/1,000 square feet • Hotel: 0.4 spaces/hotel room • Residential: 0.5-1.0 spaces/unit based on housing type	• Red Line • Local MBTA bus routes
CHINATOWN/LEATHER DISTRICT		
• Restricted Parking District • Part of Boston Proper Parking Freeze • Office: Maximum 1/1,500 square feet (Planned Development Area only) • Residential: 0.4-1.0 spaces/unit based on Floor Area Ratio	• Office: 0.4 spaces/1,000 square feet • Hotel: 0.4 spaces/hotel room • Residential: 0.5-1.0 spaces/unit based on housing type	• Orange and Red Lines • Commuter rail (South Station) • Express and local MBTA bus routes • Private commuter/shuttle services • Silver Line (under construction)
FINANCIAL DISTRICT/GOVERNMENT CENTER/BULFINCH TRIANGLE		
• Restricted Parking District • Part of Boston Proper Parking Freeze • Parking requirements range from no parking required for any project to parking required for residential projects based on project location.	• Office: 0.4 spaces/1,000 square feet • Hotel: 0.4 spaces/hotel room • Residential: 0.5-1.0 spaces/unit based on housing type	• All rapid transit lines • Commuter rail (North and South Stations) • Express and local MBTA bus routes • Water transportation • Private commuter/shuttle services • Silver Line (under construction) • Artery Business Committee TMA programs
NORTH END		
• Restricted Parking District • Part of Boston Proper Parking Freeze • Residential: 0.2-1.0 spaces/unit based on housing type or Floor Area Ratio	• Office: 0.4 spaces/1,000 square feet • Hotel: 0.4 spaces/hotel room • Residential: 0.5-1.0 spaces/unit based on housing type	• Orange, Green and Blue Lines • Commuter rail (North Station) • Express and local MBTA bus routes • Water transportation • Private commuter/shuttle services
SOUTH END (EAST OF TREMONT STREET)		
• Restricted Parking District • Part of Boston Proper Parking Freeze • Hotel: 0.7 spaces/hotel room • Residential: 0.7 spaces/unit	• Non-residential: 0.75-1.0 spaces/ 1,000 square feet • Hotel: 0.4 spaces/hotel room • Residential: 1.0-1.5 spaces/unit based on housing type	• Orange Line (north side of area) • Local and CT MBTA bus routes • Silver Line (under construction) • Proposed Urban Ring • Interinstitutional TMA programs

Table 9 (Continued) – Parking Goals by Sections of the City within Boston Proper

PARKING REQUIREMENTS IN EXISTING ZONING	PROPOSED PARKING RATIO GOALS	PUBLIC TRANSPORTATION ACCESS
SOUTH END (WEST OF TREMONT STREET)		
• Restricted Parking District • Part of Boston Proper Parking Freeze • Hotel: 0.7 spaces/hotel room • Residential: 0.7 spaces/unit	• Office: 0.4 spaces/1,000 square feet • Hotel: 0.4 spaces/hotel room • Residential: 0.5-1.0 spaces/unit based on housing type	• Orange Line • Commuter rail (Back Bay Station) • Local and CT MBTA bus routes • Back Bay TMA programs
SOUTH END (BOSTON MEDICAL CENTER)		
• Restricted Parking District • Part of Boston Proper Parking Freeze • Hotel: 0.7 spaces/hotel room • Residential: 0.7 spaces/unit	• Non-residential: 0.75-1.0 spaces/ 1,000 square feet • Hotel: 0.4 spaces/hotel room • Residential: 1.0-1.5 spaces/unit based on housing type	• Local and CT MBTA bus routes • Silver Line (under construction) • Proposed Urban Ring • Interinstitutional TMA programs
WEST END/MASSACHUSETTS GENERAL HOSPITAL		
• Restricted Parking District • Part of Boston Proper Parking Freeze • Residential: 0.5-0.6 spaces/unit	• Office: 0.4 spaces/1,000 square feet • Hotel: 0.4 spaces/hotel room • Residential: 0.5-1.0 spaces/unit based on housing type	• Orange, Green and Red Lines • Commuter rail (North Station) • Express and local MBTA bus routes • Water transportation • Private commuter/shuttle services • Artery Business Committee TMA programs

Table 10 – Parking Goals by Section of the City outside Boston Proper

PARKING REQUIREMENTS IN EXISTING ZONING	PROPOSED PARKING RATIO GOALS	PUBLIC TRANSPORTATION ACCESS
ALLSTON/BRIGHTON		
• Office/Retail: 2.0 spaces/1,000 square feet • Residential: 0.5-2.0 spaces/unit based on housing type • Ongoing North Allston Neighborhood Strategic Plan	**Distant from MBTA Station** • Non-residential: 1.0-1.5 spaces/ 1,000 square feet • Residential: 1.0-1.5 spaces/unit based on housing type **Near MBTA Station** • Cost of parking for employees should be equal to or greater than transit cost • Non-residential: 0.75-1.25 spaces/ 1,000 square feet • Residential: 0.75-1.25 spaces/unit based on housing type	• Green Line • Local MBTA bus routes
CHARLESTOWN		
• Office: 0.4-2.0 spaces/1,000 square feet based on Floor Area Ratio • Retail: 2.0 spaces/1,000 square feet • Residential: None-2.0 spaces/unit based on housing type, Floor Area Ratio or location	**Distant from MBTA Station** • Non-residential: 1.0-1.5 spaces/ 1,000 square feet • Residential: 1.0-1.5 spaces/unit based on housing type **Near MBTA Station** • Cost of parking for employees should be equal to or greater than transit cost • Non-residential: 0.75-1.25 spaces/ 1,000 square feet • Residential: 0.75-1.25 spaces/unit	• Orange Line • Local MBTA bus routes • Proposed Urban Ring • Water transportation (Navy Yard)

Table 10 (Continued)– Parking Goals by Section of the City outside Boston Proper

PARKING REQUIREMENTS IN EXISTING ZONING	PROPOSED PARKING RATIO GOALS	PUBLIC TRANSPORTATION ACCESS
DORCHESTER		
• Restricted Parking District in the Savin Hill area • Ongoing rezoning • Office/Retail: 1.0-2.0 spaces/1,000 square feet • Residential: 0.5-1.0 spaces/unit based on housing type and Floor Area Ratio • Restaurant: 4.0 spaces/1,000 square feet	**Distant from MBTA Station** • Non-residential: 1.0-1.5 spaces/ 1,000 square feet • Residential: 1.0-1.5 spaces/unit based on housing type **Near MBTA Station** • Cost of parking for employees should be equal to or greater than transit cost • Non-residential: 0.75-1.25 spaces/ 1,000 square feet • Residential: 0.75-1.25 spaces/unit based on housing type	• Red Line • Commuter Rail at JFK/UMass • Local MBTA bus routes • Proposed Urban Ring • Proposed improved Fairmount Line
EAST BOSTON		
• East Boston Parking Freeze • Municipal Harbor Planning initiative • Office/Retail: 2.0 spaces/1,000 square feet • Residential: 0.5-2.0 spaces/unit based on housing type • Restaurant: 4.0 spaces/1,000 square feet	**Distant from MBTA Station** • Non-residential: 1.0-1.5 spaces/ 1,000 square feet • Residential: 1.0-1.5 spaces/unit based on housing type **Near MBTA Station** • Cost of parking for employees should be equal to or greater than transit cost • Non-residential: 0.75-1.25 spaces/ 1,000 square feet • Residential: 0.75-1.25 spaces/unit based on housing type	• Blue Line • Local MBTA bus routes • Proposed Urban Ring
EAST FENWAY		
• Restricted Parking District • Ongoing East Fenway Neighborhood Strategic Plan rezoning process • Residential: 0.7 spaces/unit	• Non residential including institutional research and development: 0.75 spaces/1,000 square feet • Residential: 0.75 spaces/unit	• Orange and Green Lines • Commuter Rail at Ruggles Station • Local and CT MBTA bus routes • Proposed Urban Ring
HYDE PARK		
• Office/Retail: Based on Floor Area Ratio • Residential: 0.4-1.0 spaces/unit based on Floor Area Ratio	• Non-residential: 1.0-1.5 spaces/ 1,000 square feet • Residential: 1.0-1.5 spaces/unit based on housing type • Near MBTA stations, cost of parking for employees should be equal to or greater than transit cost	• Commuter Rail • Local MBTA Bus routes • Proposed improved Fairmount Line
JAMAICA PLAIN		
• Ongoing Jackson Square planning initiative • Office/Retail: 2.0 spaces/1,000 square feet • Residential: 0.2-1.5 space/unit based on housing type • Hotel: 0.7 spaces/hotel room	**Distant from MBTA Station** • Non-residential: 1.0-1.5 spaces/1,000 square feet • Residential: 1.0-1.5 spaces/unit based on housing type **Near MBTA Station** • Cost of parking for employees should be equal to or greater than transit cost • Non-residential: 0.75-1.25 spaces/ 1,000 square feet • Residential: 0.75-1.25 spaces/unit based on housing type	• Orange Line and Green Line (E Branch) • Local MBTA bus routes • Proposed Urban Ring

Table 10 (Continued) – Parking Goals by Section of the City outside Boston Proper

PARKING REQUIREMENTS IN EXISTING ZONING	PROPOSED PARKING RATIO GOALS	PUBLIC TRANSPORTATION ACCESS
LONGWOOD MEDICAL AREA		
• Restricted Parking District • Institutional Overlay District • Residential: 0.6-0.9 spaces/unit based on Floor Area Ratio	• Non residential including institutional research and development: 0.75 spaces/1,000 square feet • Residential: 0 .75 spaces/unit	• Green Line • Commuter Rail at Ruggles and Yawkey Stations • Local and CT MBTA bus routes • Private shuttle services • Proposed Urban Ring • MASCO Commute Works TMA programs
LOWER ROXBURY/CROSSTOWN		
• Ongoing Roxbury Master Plan and rezoning • Office: 0.5 spaces/1,000 square feet • Residential: 0.2-1.0 spaces/unit based on housing type	• Non residential: 0.75-1.0 spaces/ 1,000 square feet • Hotel: 0.4 spaces/hotel room • Residential: 1.0-1.5 spaces/unit based on housing type	• Local and CT MBTA bus routes • Silver Line (under construction) • Proposed Urban Ring
MISSION HILL		
• Ongoing planning initiative • Office/Retail: 2.0 spaces /1,000 square feet • Residential: 0.2-1.0 spaces/unit based on housing type • Hotel: 0.7 spaces/hotel room	• Non residential: 0.75-1.0 spaces/ 1,000 square feet • Hotel: 0.4 spaces/hotel room • Residential: 0.5-1.0 spaces/unit based on housing type	• Orange and Green Lines • Local and CT MBTA bus routes • Mission Link Bus
MATTAPAN		
• Office/Retail: 2.0 spaces /1,000 square feet • Residential: 0.2-1.0 spaces/unit based on housing type • Hotel: 0.7 spaces/hotel room	**Distant from MBTA Station** • Non-residential: 1.0-1.5 spaces/ 1,000 square feet. • Residential: 1.0-1.5 spaces/unit based on housing type **Near MBTA Station** • Cost of parking for employees should be equal to or greater than transit cost • Non-residential: 0.75-1.25 spaces/ 1,000 square feet • Residential: 0.75-1.25 spaces/unit based on housing type	• Red Line and Mattapan High Speed Trolley • Local MBTA bus routes • Commuter Rail at Morton Street Station • Proposed Silver Line extension • Proposed improved Fairmount Line
ROSLINDALE		
• Office/Retail: Based on Floor Area Ratio • Residential: 0.4-1.0/unit based on Floor Area Ratio	• Non-residential: 1.0-1.5 spaces/ 1,000 square feet • Residential: 1.0-1.5 spaces/unit based on housing type • Near MBTA stations, cost of parking for employees should be equal to or greater than transit cost	• Commuter Rail • Local MBTA Bus routes

Table 10 (Continued) – Parking Goals/Guidelines by Section of the City outside Boston Proper

PARKING REQUIREMENTS IN EXISTING ZONING	PROPOSED PARKING RATIO GOALS	PUBLIC TRANSPORTATION ACCESS
ROXBURY		
• On-going Roxbury Master Plan and rezoning • Office: 0.5 spaces/1,000 square feet • Hotel: 0.7 spaces/hotel room • Residential: 0.2-1.0 spaces/unit based on housing type	**Distant from MBTA Station** • Non-residential: 1.0-1.5 spaces/ 1,000 square feet • Residential: 1.0-1.5 spaces/unit based on housing type **Near MBTA Station** • Cost of parking for employees should be equal to or greater than transit cost • Non-residential: 0.75-1.25 spaces/ 1,000 square feet • Residential: 0.75-1.25 spaces/unit based on housing type	• Orange Line • Local MBTA bus routes • Proposed Urban Ring • Proposed Silver Line extension • Proposed improved Fairmount Line
ROXBURY (DUDLEY SQUARE)		
• Ongoing Dudley Square Transportation and Air Quality Study process • Office: 0.5 spaces/1,000 square feet • Residential: 0.2-1.0 spaces/unit	• Non-residential: 0.75-1.0 spaces/ 1,000 square feet • Hotel: 0.4 spaces/hotel room • Residential: 0.5-1.0 spaces/unit	• Local and CT3 MBTA bus routes • Silver Line (under construction) • Proposed Urban Ring
SOUTH BOSTON (RESIDENTIAL NEIGHBORHOOD)		
• Restricted Parking District • Residential: 0.2-1.5 spaces/unit based on housing type or Floor Area Ratio	**Distant from MBTA Station** • Non-residential: 1.0-1.5 spaces/1,000 square feet • Residential: 1.0-1.5 spaces/unit based on housing type **Near MBTA Station** • Cost of parking for employees should be equal to or greater than transit cost • Non-residential: 0.75-1.25 spaces/ 1,000 square feet • Residential: 0.75-1.25 spaces/unit based on housing type	• Red Line (west of area) • Local MBTA bus routes
SOUTH BOSTON (WATERFRONT AND FORT POINT)		
• Restricted Parking District • Ongoing planning and rezoning • Residential: 0.4-1.0 spaces/unit based on Floor Area Ratio	• South Boston Parking Freeze • Non-residential: Gradually decrease parking ratio to 0.7 spaces/1,000 square feet • Hotel: 0.4 spaces/hotel room • Residential: 1.0-1.5 spaces/unit	• Local and CT3 MBTA bus routes • Water transportation • Silver Line (under construction) • Proposed Urban Ring • South Boston Seaport District TMA programs
WEST FENWAY/KENMORE		
• Restricted Parking District • On-going planning and rezoning • Residential: 0.7 spaces/unit	• Parking Restricted Overlay District • Non residential including institutional research and development: 0.75 spaces/1,000 square feet (max.) • Residential: 0.75 spaces/unit (min. and max.)	• Green Line • Commuter Rail at Yawkey Station • Local and CT MBTA bus routes • Proposed Urban Ring service
WEST ROXBURY		
• Office/Retail: 2.0 spaces/1,000 square feet • Residential: 0.2-1.5 spaces/unit based on housing type • Hotel: 0.7 spaces/hotel room	• Non-residential: 1.0-1.5 spaces/ 1,000 square feet • Residential: 1.0-1.5 spaces/unit based on housing type • Near MBTA stations, cost of parking for employees should be equal to or greater than transit cost	• Commuter Rail • Local MBTA Bus Routes

4. DEVELOPMENT REVIEW

GOALS

BTD reviews new development projects to accomplish the following policy objectives:

- Decrease auto-use by reducing off-street parking spaces per square foot of new development and/or per employee.
- Respect the specific constraints and opportunities inherent in the local transportation infrastructure by using district based transit mode share and parking ratio goals in evaluating new projects.
- Involve the residential and business community in the development review process.
- Ensure that new development is adequately served by transportation facilities
- Enhance quality of life through appropriate traffic mitigation measures.

BTD's primary tool for managing off-street parking supply is through the development review process. The proponents of new developments are required to sign a Transportation Access Plan Agreement (TAPA) as part of the Zoning Code's Article 80 stipulations. Project specifics with respect to pedestrian and vehicular access, transit use, construction management, and parking are determined through the community and technical review processes leading up to the signing of the TAPA.

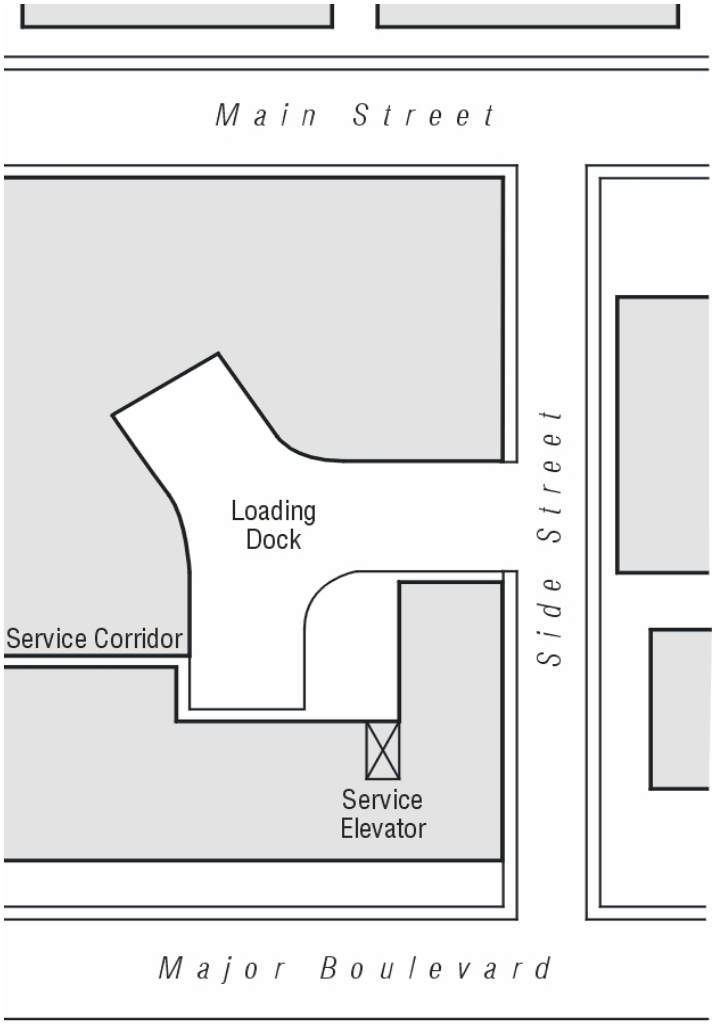
The district-based policy approach adopted by BTD and detailed in the previous sections of this report provides the context to review the parking component of proposed projects. The specifics of the project can be evaluated with respect to the unique character of its host neighborhood or district. Aspects considered include existing capacity in the roadway and transit infrastructure, the cumulative impact of *all* the projects proposed in the vicinity, the constraints imposed by other parking management regulations in the district like parking freezes, and the programs offered by local Transportation Management Associations.

BTD has used TAPA guidelines extensively since they were released in 1989. The experience of the building boom of the late 1980s and the recent trend of new development spreading out to the neighborhoods has provided new perspective on balancing the benefits and costs of new projects in Boston. In response, and as part of the *Access Boston 2000-2010* process, BTD has proposed new TAPA guidelines that include:

- Consideration of the transportation component of a project early in the process to guide land-use and urban design decisions (rather than an "impact" requiring mitigation after the program is finalized).
- The use of district based mode-split and parking ratio goals.
- Updated trip generation tables.
- Mandatory requirements to provide facilities for bicycles and programs such as carsharing.
- An enhanced annual reporting system to allow BTD to monitor compliance and continuously weigh demand for transportation facilities with available public infrastructure capacity.

This section summarizes the public and institutional process that leads to the signing of a TAPA and the components of a typical transportation package associated with a new development. An action plan charting out the need for further changes is also recommended.

The public sector uses tax revenues to operate and to enhance the transportation system including new investments like the Silver Line.



Site access and circulation must be designed to minimize impacts and preserve public safety. Loading docks should be designed for "drive-in/drive-out" operations.

Public and Private Sector

The public and private sectors bear a joint responsibility for managing the transportation demand and impacts of new development.

Public Sector

The public sector includes local state and federal transportation agencies and departments. The public sector uses tax revenues to operate and to enhance the transportation system through capital improvements to roads, sidewalks, and intersections. The public sector is also responsible for traffic management enforcement and public transit service. BTD cooperates with other transportation agencies, state and federal, to improve public transportation and roadways.

Private Sector

Private sector developers contribute to reducing and mitigating the direct transportation impacts of development. These contributions include travel demand management (TDM) measures that reduce the transportation impacts of a development. TDM measures can include the following:

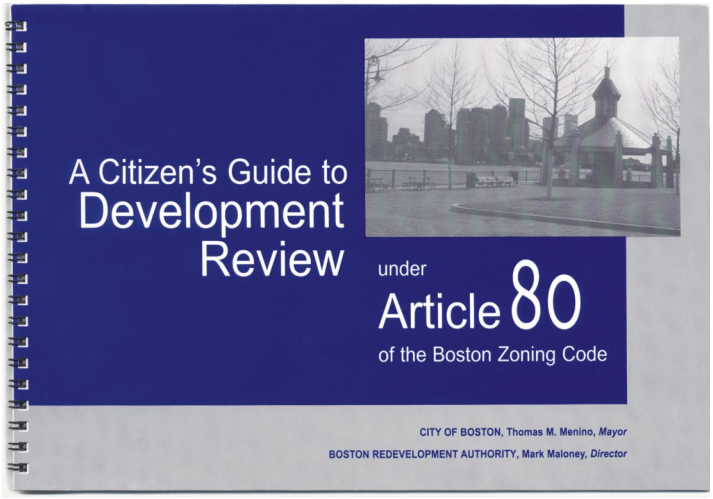
- promoting and subsidizing public transportation,
- reducing parking supply and increasing parking fees,
- facilitating ridesharing and car-sharing,
- encouraging bicycling, and
- improving pedestrian, bicycle, and public transportation facilities.

Site access and circulation must be designed to minimize impacts and preserve public safety. When the scale or nature of the project results in significant traffic impacts to the surrounding streets and intersections, the developer mitigates these impacts through improvements to roadway geometry, traffic signal equipment, and traffic monitoring. BTD works with developers and their consultants to identify and agree on an appropriate package of mitigation measures in the TAPA and to facilitate their implementation.

Article 80 Development Review Process

BTD reviews the transportation aspects of development projects as part of filings submitted by developers to meet the requirements of the Boston Zoning Code's Article 80 and the Massachusetts Environmental Protection Act (MEPA). Article 80 establishes thresholds for development review based on project size, location and use. MEPA thresholds are based on traffic generation. Figure 17 illustrates the general review process that a project follows to secure zoning approval and environmental permits. For large projects, proponents make joint Article 80 and MEPA filings. Smaller projects that do not trip MEPA thresholds may nevertheless be required to make Article 80 submittals.

A proponent submits a Project Notification Form (PNF) and the BRA convenes a Scoping Session during the public review period. A project may be waived from further review depending on its size and impacts. Projects that are subject to "Large Project Review" continue through the Article 80 process by filing a Draft Project Impact Report (DPIR) and, if required, a Final Project Impact Report (FPIR). The DPIR and FPIR are comparable to the Draft and Final Environmental Impact Reports that are required by MEPA.



The BRA has recently released *"A Citizen's Guide to Development Review under Article 80" of the Boston Zoning Code* to describe the City's zoning process.

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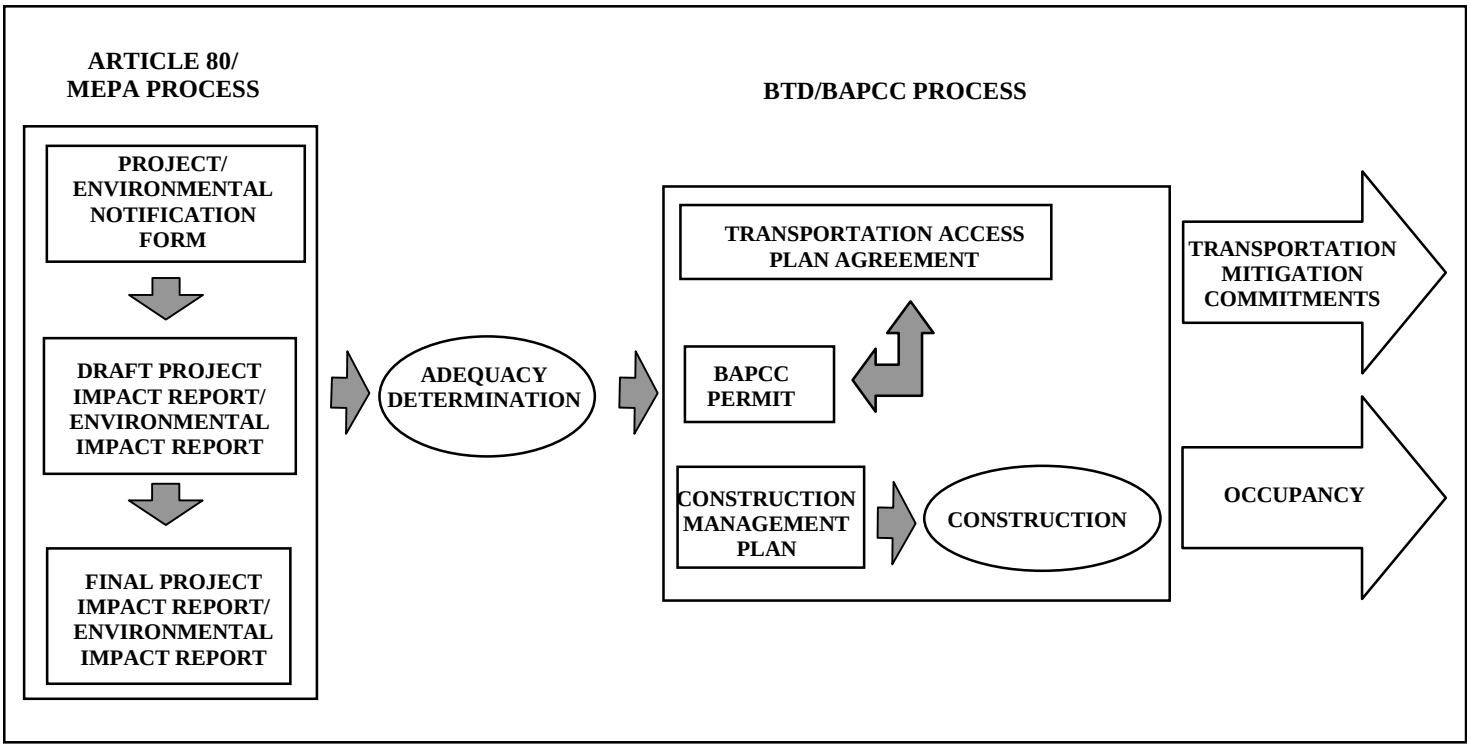
Figure 17 – Development Review Process



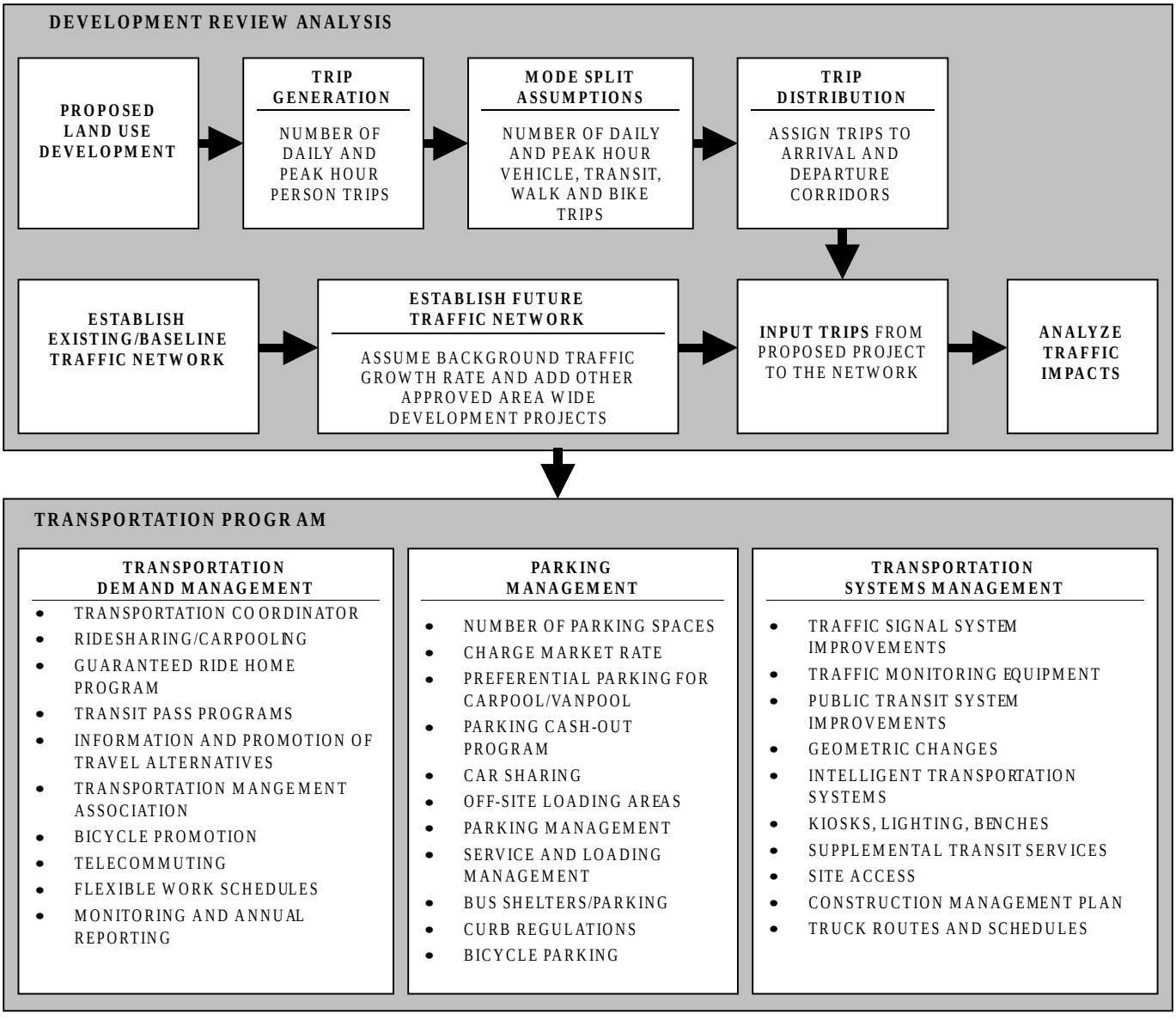
Transportation Components

Simultaneous to the filing process described in the previous section the BTD evaluates the transportation components of the project. As illustrated in Figure 18, elements of the Transportation Access Plan include traffic management, parking management, construction management, and monitoring requirements. BTD details the extent to which these elements are required to be addressed by the proponent at the Scoping Session after the PNF is submitted and by commenting on the DPIR and FPIR.

To establish standards and to provide a defined framework for evaluating the transportation impacts of development projects, BTD issues Transportation Access Plan Guidelines. The guidelines describe BTD's objectives, required data and information, and impact assessment methodologies. Potential mitigation measures are described, including support for Transportation Demand Management (TDM) approaches. Characteristic trip rates and transit mode shares and trip distribution information are included in the appendix.

The BRA issues an Adequacy Determination upon completion of the DPIR/FPIR and BTD negotiates a Transportation Access Plan Agreement. BTD's approval of a construction management plan is required before issuance of a building occupancy permit by the City's Inspectional Service Department.

Figure 18 – Impact Analysis to Establish a Transportation Program



Commitments to manage parking and encourage the use of alternative modes are incorporated in the project's TAPA permit. BTD's review considers the appropriate amount of parking given the proximity of the project to transit, the potential use of alternative modes to access the site and the availability and use of on-street and off-street parking near the site. Consideration is given to constraints related to the operation of local streets and intersections, the location and operation of the entrance/exits and pedestrian and urban design issues.

Boston Air Pollution Control Commission Permit

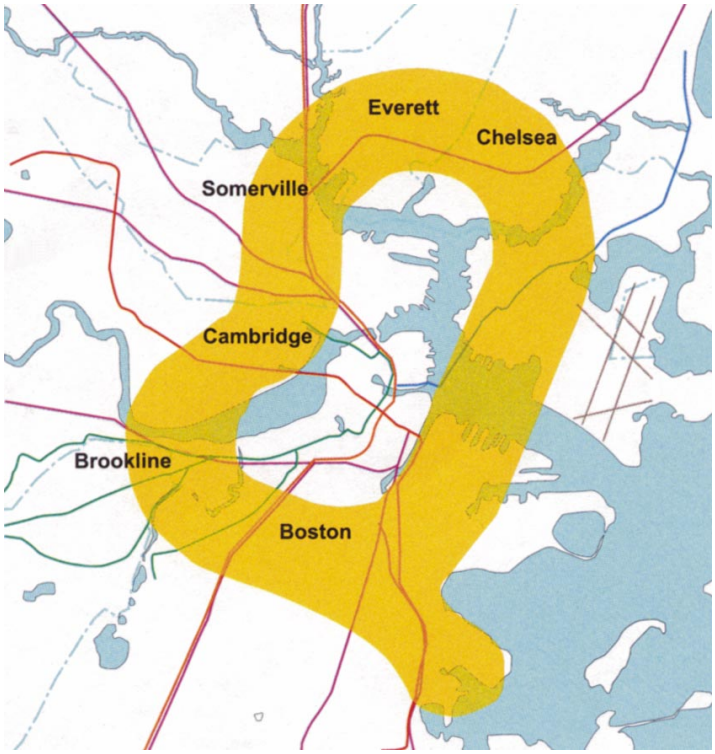
BAPCC issues a parking permit for exempt and non-exempt parking spaces that are part of the proposed development when the project is located in an area that has a Parking Freeze. BAPCC seeks to permit the minimum number of spaces based on the analysis presented by the proponent and reviewed by the City. BAPCC emphasizes that projects should include strong commitments to TDM measures. The commitments are coordinated with the TAPA.

Zoning Board of Appeals

The purpose of Zoning is to protect neighborhoods from the construction of buildings or structures that do not fit into the context of a neighborhood or may bring additional traffic, noise or pollution. The Zoning Board of Appeal (ZBA) can grant relief from strict interpretations of the Boston Zoning Code, including conditional use or variances for parking spaces. The Zoning Board of Appeal is made up of seven professionals appointed by the Mayor for three-year terms.

Institutional Master Plans

Article 80 also includes provisions for multi-year institutional masterplans that provide the framework for the future direction of institutions in Boston. These plans, which are regularly updated include transportation and parking management and mitigation components that describe transportation goals, evaluate the cumulative impacts of the projects described in the plan and propose appropriate mitigation. Institutions are not required to file a TAPA as part of this process. However, in practice the BRA and BTD have encouraged TAPAs for masterplans to provide a context for project-by-project review.



BTD's review considers the appropriate amount of parking given the proximity of the project to transit and other access factors. Efforts also seek to introduce new transit services, such as the Urban Ring in the Longwood Medical Area, to reduce parking growth.

Article 80 also includes provisions for multi-year institutional masterplans that provide the framework for the future direction of institutions in Boston.

Carsharing Programs

Car-sharing is an exciting new concept that is rapidly taking hold throughout North America and Europe. Car-sharing groups own and maintain cars for the use of their members. When a member needs a car, they reserve one on-line, let themselves into the vehicle with an access card, and receive a bill for use at the end of the month. Members pay only for what they use.

Beyond providing an important service to members, car-sharing dramatically reduces parking demand and auto use in neighborhoods. Shared cars generally serve between 15 and 25 members. Of these members, as many as half sell a car or avoid the purchase of a vehicle. It is estimated that each shared-car takes seven to ten cars off the road. Furthermore, members drive about 50% less than people who own their own cars. Members typically walk, bike, or take public transit more frequently than non-members.

Boston is served by Zipcar, Wheels When You Want Them™. The service has dozens of locations throughout the metropolitan area and adds new locations every week. By late summer of 2001, Zipcar had over 1,200 members and 55 vehicles in Boston, Cambridge, Brookline and Somerville. Zipcars are within a five-minute walk of 500,000 people. Eventually Zipcar expects to serve the entire MBTA subway network as well as many commuter rail stations and bus routes.

Along with their positive impact on parking and driving in neighborhoods, shared-cars provide low-cost transportation access to residents of Boston. Ruzheimer International, which conducts cost analysis for AAA and insurers, estimated that the cost of owning a car in Boston is over $8,140 per year. The average Zipcar member spends about $1,200 annually to meet their driving needs.

ZIPCAR FACTS

- Types of Vehicles:
  - New Volkswagens and Hondas
- Cost of Membership:
  - $30 Application Fee
  - $75 Annual Membership
  - $300 Refundable Security Deposit
- Rates:
  - Hourly $5-8 per hour plus 40 cents per mile with no hourly charge between midnight and 6:00 AM.
  - Daily: $65-85 per day with 125 free miles.
  - Rates include gas insurance and maintenance.
- Individual and corporate memberships are available
- For the most current locations and rates, refer to **www.zipcar.com**

Zipcars are conveniently located within a 5-minute walk for 500,000 people in the metropolitan Boston area.

SHARED USE VEHICLES

Shared use vehicles such as carpooling, vanpooling and carsharing help commuters to save money on their travel expenses. Relief from stress and improving environmental conditions are additional benefits of shared use vehicles.

CARAVAN for Commuters, Inc., Massachusetts' statewide commuter services organization, provides assistance to commuters, companies, and Transportation Management Organizations. A private, non-profit organization, CARAVAN's programs are offered free of charge to Massachusetts's commuters and the business community. All of CARAVAN's efforts seek to improve air quality, reduce traffic congestion, and maximize mobility. CARAVAN maintains an extensive database to assist individuals with finding commuting options that best fit their needs.

Carpool Commuting: Carpooling is considered to be the most popular form of shared-ride commuting in the country. According to 1990 U.S. Census data, 12.8% of commuters across the country get to work in a carpool containing two or more people. In Massachusetts, 10.8% of commuters travel in 2-5 person carpools.

Vanpool Commuting: Vanpooling is a cooperative agreement among 7-15 commuters with common schedules share the ride to work. In most cases, one person from the group volunteers to do the driving in exchange for a free commute and personal use of the vehicle. Each group has at least one backup driver. The pick-up/drop-off points and route are set and agreed to by the group.

Action Plan

Development Review

Update Transportation Access Plan Guidelines

BTD will update and distribute its Transportation Access Plan guidelines which date from 1989. The updated Guidelines will provide clearer guidance for evaluating transportation impacts of development projects and create a context for developing mitigation measures that are district based and coordinated with other developments in the area.

Conduct Periodic Transportation Access Plan Guideline Public Workshops

BTD will conduct technical public workshops for transportation consultants involved with the Article 80 process to describe the guidelines, review data presentation and analysis, provide an overview of City transportation polices and provide an opportunity for feedback regarding the preparation of TAPAs. The workshops should be conducted at least once a year. The workshops will be held in partnership with local professional organizations to facilitate coordination and marketing.

Require Fees for Development Review and Preparation of Transportation Access Plans and Construction Management Plans

Article 80 includes a provision that allows the BRA to establish "appropriate fees" for development review. This provision has not been exercised in the past. The BTD will work with the BRA to develop a fee schedule for the review of Transportation Access Plan elements as part of the Article 80 process. The fees should be graduated to reflect project size and to reflect BTD's experience with Article 80 review, the development of TAPAs and Construction Management Plans.

The fees may be deposited in an account designated for project review to support independent consultants hired by the City, to fund studies to examine the cumulative impacts of projects in a district, and to ensure timely responses to submittals.

Create and Manage a GIS Data Base to Track Development Projects

BTD will create a GIS database to track projects from the proposal stage to the implementation of TAPA commitments. The database will provide BTD and the City with the ability to generate comprehensive snapshots of potential changes to the transportation system and parking supply generated by new development. The database will also provide a tool to more effectively analyze potential transportation impacts, evaluate project-related mitigation measures and track compliance with TAPA commitments.

Extend Permitting Process of Open Air Parking Lots to Include Parking Garages

The City will investigate options to require parking garages to file annual parking permits similar to those required of open-air parking lots. The City's primary function related to off-street parking is the regulation of facilities. However, the City exercises minimal authority over garages after initial permits are secured. An annual permitting process would improve enforcement capabilities and provide the City with more realistic information about current parking conditions. Consideration should be given to the following:

- Use a fee structure for garage permits similar to the structure used for open air lots
- Review and update current boundaries that are used to determine fee structure.
- Require garages to provide bicycle parking.
- Create a dedicated enforcement group within BTD to ensure compliance with permit conditions.
- Establish a GIS database to manage the permit process.
- Create an electronic process to streamline permit application and database management.

The City should consider directing the fees generated by the off-street permit process to fund the management of the program, implementation of ITS technologies related to off-street parking management, programs that seek to encourage the use of alternative modes and efforts to encourage conversion to alternative fuel vehicles.

Modify Zoning Code to Require Institutional Master Plan TAPAs

The City should revise Article 80 of the zoning code to require Institutions to file a TAPA as part of their Institutional Masterplan. The masterplan provides a framework to evaluate the cumulative impacts of projects that are planned by an institution. Unlike Large Development Projects, the transportation elements of the Institutional Masterplans are not codified in Transportation Access Plan Agreements. The creation of an Institutional Masterplan TAPA would improve coordination of different commitments by institutions for transportation improvements and provide a mechanism to address broader commitments by the institution that cannot be ascribed to specific projects.

Modify Zoning Code to Require Bicycle Parking

BTD has recommended inclusion of bicycle parking as part of the Article 80 process. However, some projects are too small to trigger that section of the zoning code. To insure that adequate parking for bicycles is included in all projects, the City should adopt a new zoning article generally requiring bicycle parking for all development projects. The article should specify the type, location, and number of parking spaces and parking devices required.

5. PARKING MANAGEMENT ON MAJOR CORRIDORS

Boston is characterized by a number of major arterial streets that radiate from the downtown. These streets link the city's employment centers with residential neighborhoods and outlying suburbs. Efficient traffic flow in these corridors is critical to the daily functioning of the city. At the same time, there is high demand for the use of curbside parking along these corridors, which have a mix of commercial and residential land uses, but little off-street parking. With a thriving economy, the competition for the use of the right-of-way in these corridors has increased significantly over the last decade. The limited width of Boston's arterial streets has to accommodate adequate sidewalks, lanes for moving traffic, curbside parking for loading activity and customer and residential parking. As this demand increases, so does the potential for unsafe and congested streets.

BTD has developed a parking management program to improve the conditions along Boston's major corridors. The goals of this program are to:

- Optimize the sharing of on-street parking by prioritizing its use for different users at different times of the day.
- Adjust on-street parking regulations to reflect the changing character of land use along the corridor.
- Encourage short term parking turnover.
- Enhance enforcement through the strategic deployment of resources.

CHARACTERISTICS OF MAJOR CORRIDORS

- Primary inbound and/or outbound commuter streets.
- High traffic volumes, particularly during peak morning and afternoon commuting hours.
- A mix of land uses including a density of first floor commercial and retail uses.
- Limited or no availability of off-street loading docks.

Double parking by trucks without access to loading zones blocks travel lanes.

Impacts of Double Parking

A key contributor to congestion on major corridors is double parking. It can have a detrimental and wide-ranging impact on the operation of the surface street system. A blocked travel lane reduces the capacity of the street to handle traffic. This can be particularly severe when double parking occurs during peak commuting hours. Other negative impacts of double parking include:

- Increased traffic on residential streets when motorists seek to avoid congestion on major corridors.
- Degradation in the quality of bus service.
- Decreased safety for pedestrians when double-parked cars block sight lines at crosswalks.
- Safety concerns for motorists and bicyclists maneuvering around double-parked cars.

"SMART CARDS"

Parking meters and enforcement are commonly used in cities and towns throughout the country. The most recent, promising trend is the deployment of new technologies to improve the management and operation of meter parking. "Smart card" and multi-space payment kiosks have gained acceptance in U.S. cities as a means to improve customer satisfaction and financial management of transportation services. Some municipalities like New York City have implemented magnetic swipe card technology with multi-space kiosk payment centers. Magnetic swipe cards are similar to bank ATM cards. Information is read from a magnetic strip on a card at a card reader, such as a kiosk with a keypad to enter information that is used to pay for a parking space.

"Smart cards" provide a more sophisticated payment approach. The card itself contains a computer chip that is capable of performing operations such as storing and transferring information. Smart card technology provides the opportunity for individuals to use one card for multiple purposes. Therefore, municipalities do not need to create magnetic swipe cards, which require a municipality to create and market a card for meter use. "Smart card" technology also allows municipalities to capitalize on the growing use of a computer chip on credit cards.

Unlike magnetic strip cards, "smart cards" can operate in a "touch-free" environment. Information can be exchanged through infrared transmission when the card is held in front of, but not touching, a card reader. This reduces wear and tear on equipment. Smart cards also provide encryption capabilities to provide security for users. Hong Kong and Hull in Canada have implemented "smart card" meter systems. In 1999, BTD participated in a joint Smart Card pilot program with Fleet Bank and Boston University with positive results.

Parking Management Regulations

Boston, like many U.S. cities, relies on the use of meters and on-street loading zones to manage short-term parking and loading needs for commercial and retail establishments. BTD maintains and operates approximately 7,500 parking meters throughout the city. The majority of parking meters are located in the downtown, Back Bay and on major corridors like Commonwealth Avenue and Brookline Avenue where parking demand is generally high and there is a need to encourage turnover at the curb. On-street parking is a scarce resource and needs to be efficiently allocated.

Parking Meters

Most of Boston's parking meters are in operation between 8:00 a.m. and 6:00 p.m., Monday through Saturday, except when peak-hour parking restrictions are in effect. They have a two-hour time limit with a $0.25 charge for each 15 minutes of parking. Parking regulations prohibit "meter feeding" (i.e., the illegal practice of motorists who continuously pay meters to stay beyond the posted time limit). However, the rising cost of off-street parking makes "meter feeding" a desirable alternative for some motorists.

Loading Zones

On-street loading zones in Boston are located on streets with concentrations of retail and commercial activities, typically in major activity centers near buildings that lack off-street loading docks. Many buildings in the downtown, Back Bay and neighborhood centers throughout the city were built prior to existing zoning requirements for off-street loading docks. The delivery of goods to these businesses, which usually include first-floor retail stores and restaurants, often use delivery entrances located in the front of the buildings that are accessed from an on-street loading zone.

BTD regulates the use of loading zones by placing additional restrictions on vehicles with commercial plates that are issued by the Registry of Motor Vehicles. These restrictions, contained in Article 1, Section 1 of the Traffic Rules and Regulations of the City of Boston, are used to regulate designated loading zones. Most loading zones are restricted to BTD-defined commercial vehicles that actively load for 30 minutes. On many downtown streets that have high demand for on-street loading, BTD will only allow commercial vehicles to actively load for one-half hour or less.

TYPES OF COMMERCIAL VEHICLES

A variety of companies and commercial vehicle types use on street loading zones. The majority of these vehicles can be grouped into one of five major categories:

- package delivery and courier services
- food and beverage services
- building contractors
- moving companies
- utility companies

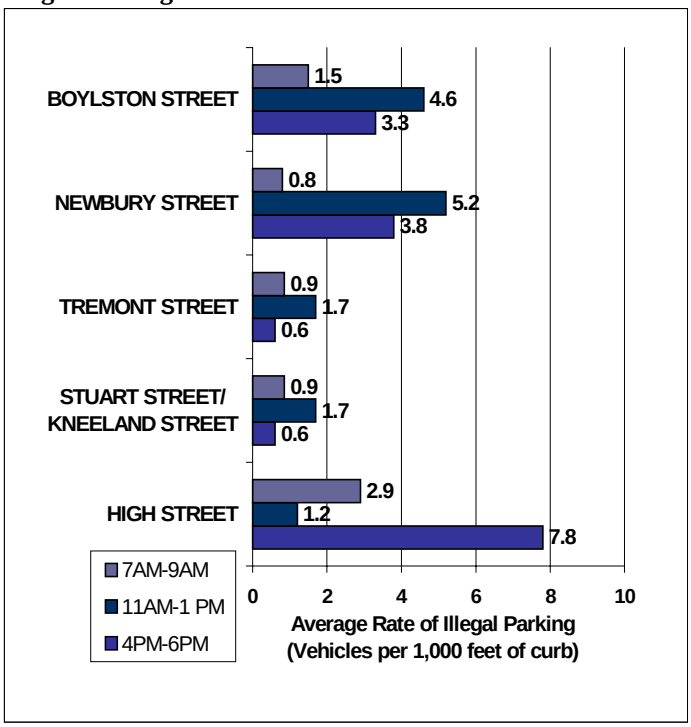
There are key differences among the size of the vehicles, the amount of time that these vehicles are at the curb and the number of companies. Other types of commercial vehicles also use on-street loading zones including armored cars, media vans, newspaper and magazine deliveries, office supply deliveries and storage companies.

Table 11 describes the type of commercial vehicles that use on-street loading zones. BTD updated the regulations governing commercial vehicles in August 2000. The name of the business entity must be displayed in letters or numbers a minimum of three (3") inches in height and the full business address and telephone number must be displayed in letters or numbers a minimum of two (2") inches in height.

Table 11 – Description of Commercial Vehicles

CATEGORY	GENERAL DESCRIPTION	DELIVERY NEEDS/ISSUES
Package Delivery and Courier Services	A small number of companies account for most of the vehicles. Panel trucks and autos.	Most deliveries completed in 1/2 hour. Some vehicles park once and make multiple deliveries (more than 1/2 hour). Services are driven by external schedule and service commitments. Least sensitive of commercial vehicles to the level of fines.
Food and Beverage Services	A small number of companies account for most of the vehicles. Large single-unit trucks and semis (tractor-trailers).	Most deliveries completed in 1/2 hour. Larger deliveries can take significantly longer. Deliveries are schedule driven, but more flexible than package delivery and courier services. Availability of personnel at the delivery point to accept deliveries.
Building Contractors	A large number of small companies that include plumbers, electricians, HVAC and other contractors. Vans or panel trucks.	Building contractors are dominant on some downtown streets. Building contractors park at the curb for more than 1/2 hour, but sometimes 4 or more hours. Contractors have equipment in truck that is needed near site.
Moving Companies	A small number of companies account for most of the vehicles. Large, single-unit trucks and semis (tractor-trailers).	Delivery time can take well over an hour depending upon the size of the move. Business moves usually at night or on weekends, while residential moves occur during the day.
Utility Companies	A small number of companies account for most of the vehicles. Large single-unit trucks and semis (tractor-trailers).	Often parked to make repairs in the street or in buildings, similar to building contractors. Vehicles park at the curb for more than one hour, sometimes all day. Contractors have equipment in truck that is needed near site.

Figure 19
Illegal Parking in Travel Lanes



The highest occurrence of illegal parking in travel lanes typically occurred during midday hours. (Source: BTD 2000 Survey)

LOADING ZONES IN OTHER U.S. CITIES

BTD surveyed the following nine U.S cities to identify current practices for loading zone management: Atlanta, Baltimore, Chicago, Cleveland, Houston, Los Angeles, New York City, San Francisco and Seattle. The surveys identified a range of on-street loading management approaches. The weekday bans of trucks longer than 33-feet from sections of Manhattan in New York City and the Chicago Loop were the most stringent restrictions among the cities that were surveyed, noting that each city provides opportunities for exemptions. New York provides special permits, while Chicago allows deliveries to private loading docks.

Stringent restrictions such as complete bans on deliveries during weekday daylight hours were considered in Chicago and Los Angeles, but were rejected in response to concerns from the business community. San Francisco uses two types of loading zones, one for all types of commercial vehicles and a second, more restrictive loading zone that allows only delivery trucks loading or unloading goods. These loading zones exclude station wagons, passenger vans, or other "non-truck" vehicles with commercial plates. San Francisco aggressively tows and tickets loading zone violators and is considering a third type of loading zone for heavy trucks in excess of 10,000 pounds (e.g., beer trucks or furniture trucks).

Corridor Improvement Program

As part of the *Access Boston* planning process, BTD selected and evaluated five corridors: Boylston Street, Newbury Street, Tremont Street, Stuart/ Kneeland Streets and High Street. The objective of the Corridor Improvement Program was to develop and implement an effective regulatory approach along the five corridors for loading and unloading. The following approach was developed to increase loading availability during the morning hours when peak loading demands occur and to provide additional parking opportunities in the midday, afternoon and evening hours along the five corridors. This program can be expanded to other corridors, recognizing that local conditions will require fine-tuning to accommodate specific needs.

- Provide additional loading zones from 8:00 to 11:00 a.m. through the elimination of parking on one side of the street.
- Provide limited loading zones after 11:00 a.m. and use the available space for short-term metered parking.
- Regulate all previously unregulated curb.
- Extend meter hours of operation from 6:00 to 8:00 p.m.
- Prohibit loading or curbside use during peak periods.

Figure 19 summarizes data collected in May 2000. The data and field observations indicated that each corridor had high incidences of double parking and illegal curb parking and that the rate of illegal parking in travel lanes varies by time of day and by corridor. The data also provided a basis for future evaluations of the program's effectiveness. The programs for each street responded to specific issues pertaining to the unique characteristics of each corridor.

Boylston Street is a wide street with mixed land uses. Newbury Street provides local circulation with significant amounts of on-street parking and loading activity. Tremont Street is outside the downtown, with a higher mix of residential uses. The Stuart/ Kneeland Street corridor has high peak hour traffic demands. High Street mostly provides local circulation within the Financial District. The development of the regulations involved gathering data to understand the functioning of the street and a community outreach program to fine-tune the approach and build support among residents, merchants and delivery companies.

Table 12 – Illegal Parking by Trucks

	Illegally Parked Trucks[1]				Percent of Commercial Vehicles Parked on Street[2]
	7-9 AM	11 AM-1 PM	4-6 PM	TOTAL	
Boylston Street (west)	55%	62%	34%	51%	20%
Newbury Street (east)	31%	49%	42%	41%	6%
Tremont Street (north)	43%	45%	22%	39%	1%
Tremont Street (south)	41%	44%	13%	34%	1%
Stuart/Kneeland (east)	50%	78%	28%	42%	9%
Stuart/Kneeland (west)	31%	56%	9%	24%	5%
High Street	64%	28%	25%	38%	27%
TOTAL	**50%**	**52%**	**29%**	**42%**	**11%**

Source: BTD 2000 Survey

Note: 1. Percent of all illegally parked vehicles as measured during Travel Time Runs.
2. Percent of all vehicles parked on street as measured during Parking Turnover Study.

Double Parking by Trucks

Most double parking or illegal curb parking by trucks on the corridors occurred during the morning or midday hours. Difficulty accessing loading zones contributed to double parking by trucks at several locations. Other factors include high demand, illegal parking and lack of nearby loading zones. Some commercial vehicles double-parked when loading zones were a reasonable alternative. Given these trends, these corridors would benefit from improved loading zone management.

Meter Use

BTD conducted a detailed study of parking turnover at over 400 meters along the five corridors. The results in Table 12 illustrate that the lowest average stay occurred on Kneeland Street, the only corridor with an average stay that was less than the meter time limit. Kneeland Street had the highest percentage of vehicles parked for two hours or less, which explains the low average parking duration at meters on this corridor, and the lowest average occurrence of illegal parking. The high level of long-term parking accounts for the higher average parking duration of the other corridors, particularly on Boylston Street and Newbury Street, which also had the highest average occurrence of illegal parking.

Loading Zone Use

Data was collected on the five corridors to estimate the amount of illegal parking by trucks and other commercial vehicles on these streets. Table 13 indicates that trucks represent a disproportionate amount of vehicles that double-parked or parked in a curb travel-lane in the five corridors. Commercial vehicles accounted for approximately 10% of the total vehicles parked in the corridors. However, trucks accounted for approximately 40% of the total vehicles that were double-parked or parked in a travel lane. High Street had the highest percentage of commercial vehicle parking during the parking turnover studies, while Tremont Street had the lowest percentage.

Table 13 – Demand Characteristics of Vehicles Parked at Meters[1]

	Time Period of Study	Time Limit on Meter	Metered Spaces	Average Stay[2]	Parking Duration		
					2 Hours or Less	3 to 4 Hours	More than 4 Hours
Boylston Street	8 AM to 5 PM	2 hours	203	2.4 hours	72%	14%	14%
Newbury Street	11 AM to 5 PM	2 hours	113	2.4 hours	74%	15%	11%
Tremont Street	8 AM to 5 PM	2 hours	25	3.0 hours	53%	28%	19%
Stuart/Kneeland[3]	11 AM to 5 PM	2 hours	57	1.7 hours	86%	9%	5%
High Street[3]	8 AM to 5 PM	2 hours	41	2.6 hours	68%	15%	12%

Source: BTD 2000 Survey

Note: 1. Includes only parking meters. Does not include double parking in front of meters.
2. Number of vehicles-hours parked divided by the number of hours of the study period.
3. Parking is prohibited from 7:00 to 9:30 AM and 4:00 to 6:00 PM on a section on Stuart/Kneeland and High Streets.

Corridor Improvement Program: Boylston Street

In July 2001, the Boston Transportation Department implemented curbside regulation changes on Boylston Street as part of the Corridor Improvement Program. The goal of the program is to encourage trucks to make deliveries in the morning by "guaranteeing" carriers the ability to deliver on the curb before 11 a.m. Afterwards, curb side delivery opportunities would be limited. This would decrease double parking by trucks and ease congestion on Boylston Street. Specifically the changes included:

- Increasing curbside loading threefold from 8 to 11 a.m.
- Reducing loading curb space by almost 25% after 11 a.m. and adding metered parking (when parking demand peaks).
- Extending meter hours from 6 to 8 p.m.
- In order to accommodate parcel companies and time sensitive deliveries, some loading remains after 11 a.m.

These changes were instituted after a public process that involved neighborhood, merchant and institutional groups in the Back Bay, as well as commercial carriers such as UPS, FedEx and Pepsi-Cola.

Needs Assessment

To develop the new regulations, BTD first investigated traffic conditions on Boylston Street using a variety of measures and found that double parking was the principal contributor to traffic congestion. Other conclusions determined by the investigation included:

- Double parking was at its peak during the midday (11 a.m. to 1 p.m.).
- Double parking by trucks on Boylston Street was most observed closer to Arlington Street.
- Travel speed is slowest in the p.m. peak period because of greater volumes, but double parking (though less than in the midday) still has a significant effect.

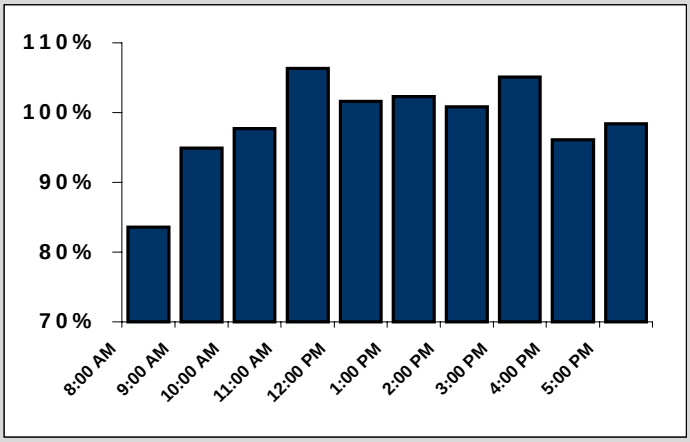
BTD examined curbside use in more detail to see who was double parking and why. Evidence showed that trucks represent a substantial and disproportionate share of double parked vehicles:

- Trucks were only 20% of all vehicles parked on Boylston Street, but 51% of all double-parked vehicles.
- 62% of all double-parked vehicles between 11 a.m. – 1 p.m. were trucks.

Though some trucks double park despite curbside availability and BTD's ongoing ticketing efforts, many are compelled to because they have no alternative. Further analysis of curbside use showed that, though most vehicles park for less than two hours (72%), remarkably, more than 25% of all vehicles park for more than three hours. These longer-term parkers occupy valuable curb space, limiting the ability of the street to function properly. In addition, as illustrated in Figure 20, surveys of parking occupancy show that from 11 a.m. to 4 p.m. the street is more than 100% full (reflecting illegal parking).

Figure 20

Percent of Parking Spaces Used on Boylston Street before the Corridor Improvement Program



Parking occupancy exceeds 100% in the middle of the day, an indication of double parking. (Source: BTD 2000 Survey)

Double parking before Corridor Improvement Program.

Access to curbside loading zones on Boylston Street greatly improved after implementation of new regulations.

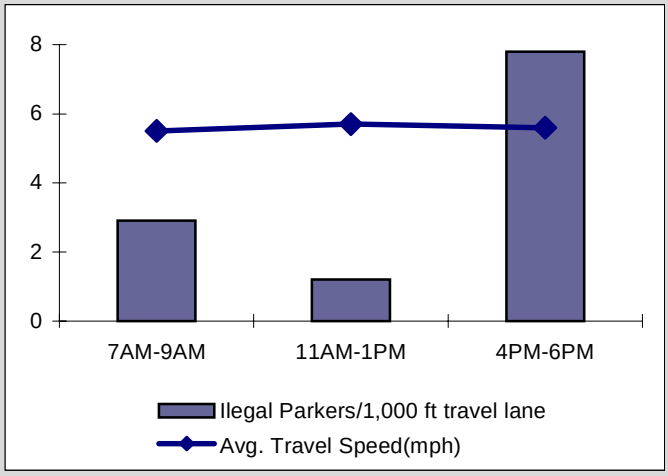
Corridor Improvement Program: New Peak Hour Regulations on High Street

High Street is a major one-way street running southwest from the Central Artery to Summer Street, through the Financial District. A highway off-ramp formerly provided direct access onto High Street. Despite its recent removal, on street activity has not waned. A combination of new skyscrapers, old office buildings, and ground level retail contribute to this activity and the intense use of the curb. BTD implemented curbside regulation changes in January 2001, including:

- Removing the prohibition on peak hour parking except between Pearl and Congress Street.
- Adding priority loading (7 to 11 a.m.) to one side of the street.
- Changing loading times and locations to minimize the impact of loading on traffic flow.
- Extending meter hours from 6 to 8 p.m.

BTD's analysis of High Street showed a very high rate of illegal parking in the travel lane, especially during the peak hours, meaning that the parking restrictions in effect during those times were largely ignored. However, as illustrated in Figure 21, this illegal parking activity had practically no effect on travel speed through the corridor. Overall, BTD determined that the peak hour restriction could be eliminated, except in especially congested locations. This space was converted to "priority loading" during the morning, and becomes metered in the afternoon when higher demand exists. Land use on High Street is changing as the Financial District, formerly moribund after 5 p.m., has seen a growth in restaurants and nightlife, with a concomitant demand for nighttime parking. Meter hours were extended from 6 to 8 p.m. as well.

Figure 21
Comparison of Illegal Parking in Travel Lanes and Average Travel Speed on High Street



Illegal parking did not effect travel speeds throughout the High Street corridor. (Source: BTD 2000 Survey)

BTD color-codes the tops of its parking meters to identify curbs that have multi-purpose use and regulations. The specific regulations are posted on signs on the meters and nearby sign poles.

- **"Red Hat" meters** are used to identify locations with peak hour No Stopping regulations. The parking lanes on these curbs are used as travel lanes during the peak commuting hours.
- **"Yellow Hat" meters** were recently installed to identify meters that are also used as loading zones, typically from 8:00 to 11:00 a.m.

Corridor Improvement Program: New Meters and Shared Loading Zones on Tremont Street

The area around Tremont Street is part of the South End Historic District with Victorian era townhouses and commercial structures. These buildings lack the off-street parking and loading facilities to support their burgeoning use, forcing these necessary activities onto Tremont Street itself. Meanwhile, the South End stretch of Tremont Street, running north-south from the MassPike to Massachusetts Avenue, is a heavily traveled commuter artery. Tremont Street itself is at the center of the revitalization of the South End, and has seen a dramatic change in character over the last few years. Condominium conversions, new storefronts, restaurants and a constant buzz of activity define the Tremont Street of today. The friction between these defining characteristics of Tremont Street plays out on the curbsides and in the travel lanes of this corridor. BTD found that:

- The majority of the curbside is completely unregulated, and thus shows virtually no turnover.
- Cars represent two-thirds of all double-parked vehicles.
- Trucks represent only 1% of all vehicles parked.
- Double parking occurs mostly at commercial nodes.

Parking is difficult in the South End in general and on Tremont Street in particular. As one of the few unregulated areas in the South End, Tremont Street has become a haven for commuters, area employees, and residents without RPP stickers, who tie up this needed curbspace. BTD has developed a coordinated plan for curbside use on Tremont Street that would:

- Install meters on blocks near or with commercial activity.
- Expand the South End Resident Permit Parking (RPP) program to some residential blocks of Tremont Street.
- Extend all meters to end at 8 p.m. and leave most metered parking unrestricted after 8 p.m.
- Add shared loading at key intersections along the corridor.

BTD is currently working with business and resident groups on Tremont Street to review the proposed plan. While all users agree on the approach to regulating Tremont Street, the plan is being refined on a block by block basis for Spring 2002 implementation.

Condominium conversions, new storefronts, restaurants and a constant buzz of activity define the Tremont Street of today.

The opportunities facing Tremont Street are many, as are the causes of congestion.

Table 14 – Parking on Tremont Street (Berkeley St. to W. Newton St.)[1]

	Spaces	Average Stay by Vehicle[2]	Percent of Vehicles Parked for:			Percent of Empty Spaces	Percent of Spaces Used By Vehicles Parked for:		
			2 Hours or Less	3 to 4 Hours	More than 4 Hours		2 Hours or Less	3 to 4 Hours	More than 4 Hours
Meters (2 hour limit)	25	3.0 hours	53%	28%	19%	6%	25%	29%	40%
Unregulated (No time limit)	97	6.4 hours	28%	9%	63%	1%	6%	5%	88%
TOTAL	122	5.2 hours	37%	15%	48%	2%	10%	10%	78%

Source: BTD 2000 Survey

Note: 1. Study hours were 8 AM to 5 PM.
2. Average length of time that a vehicle is parked at a meter.

Action Plan

Parking Management on Major Corridors

Expand Corridor Improvement Program

BTD will evaluate additional corridors for the application of Corridor Improvement Program techniques. Candidate corridors include: Washington Street, Massachusetts Avenue, Brookline Avenue, Commonwealth Avenue, Huntington Avenue, Dorchester Avenue, Blue Hill Avenue, Bennington Street and Chelsea Street.

Increase Enforcement of Meter Parking

Enforcement is a key element to the successful management of the curb. In areas of high demand, enforcement ensures that turnover is maximized and the curb is used in the most efficient fashion. BTD will enhance enforcement by:

- Increasing enforcement of the meter time limit and issuing multiple tickets for the same violation of the time limit as a means to increase compliance with posted regulations. Although BTD raised parking fines in 1999, the current fine for illegal parking is less than the all-day parking rate at nearby garages and parking lots in many downtown locations, and warrants the use of multiple ticket issuance to serve as a deterrent.

- Introducing a new fine structure that includes fines for bus parking violations and doubling fines for peak hour violations.

Extend Multi-Ticketing Approach to Loading Zones

BTD will revise the current parking regulations to include loading zones as an eligible violation for the issuance of multiple parking tickets. Enforcement is a key element to the successful management of loading zones. The regulation governing multiple ticket issuance will provide a major deterrent for illegal parking in loading zones, particularly in downtown areas where the current fine for illegal parking is less than the all-day parking rate at nearby garages and parking lots.

Extend Meter Hours to 8:00 P.M.

BTD has extended the hours of meter operation from 6:00 to 8:00 p.m. on Boylston Street to encourage turnover in the late afternoon and early evening. BTD will monitor this change and recommend potential applications on other, similar corridors with restaurant, shopping and entertainment venues.

Add Parking Meters and Loading Zones

BTD will investigate major corridors to identify the need to add new parking meters or loading zones. For example BTD has added meters and loading zones to sections of High Street that previously had "No Stopping" regulations. The following will be considered to identify corridors requiring new meters and loading zones:

- Demonstrated short-term parking and loading demand.
- Downtown streets with two-hour parking limits but no parking meters.
- Corridors where peak-hour restrictions can be removed without causing congestion.
- Side streets that connect to major corridors with No Stopping curb regulations during peak commuting hours.

Investigate Deployment of Smart Meters

BTD will continue to investigate the deployment of smart card meter technology. Potential applications for consideration include:

- Integration with other electronic payment systems such as the MBTA pass program or Fast Lane.
- Use of technology that consolidates meters into centralized payment "kiosks."
- Ability of motorists to pay in advance for meter time (e.g., park legally one hour before the meter turns on and pay for parking until 9:00 a.m.).
- Introduction of scaled rate structures to discourage long-term parking and increase of rates in areas with higher demand.

BTD should explore the potential use of multi-space meters with smart-card applications as a means to charge for use of loading zones by commercial vehicles. Payment systems are also available, which would allow "cash-free" payment by drivers. This would eliminate the need for drivers to carry cash, reducing or possibly eliminating a barrier to implementation. Multi-space meters would be distinct from regular parking meters, which should reduce the likelihood of passenger vehicles that mistakenly park in loading zones. This approach would encourage turnover at loading zones and reduce illegal parking by other vehicles.

Prioritize Curb Use for Loading between 8:00 A.M. and 11:00 A.M. in High Demand Areas

This approach provides the ability to significantly increase loading opportunities. The reduction in metered spaces during the morning occurs when short-term parking demand is at a relative low point during the day. In addition, the elimination of spaces should discourage all-day parkers ("meter feeders") that typically arrive before 11:00 a.m. and remain throughout the day. Future candidate locations include streets with high loading demand generated by restaurants and other retail uses that could be scheduled in the morning.

Investigate Truck-Only Loading Zones

BTD will investigate the use of a regulation that will allow only delivery vehicles access to designated loading zones. This regulation would be similar to the San Francisco regulation, which restricts certain loading zones to allow only delivery trucks loading or unloading goods. This type of regulation could be used in areas of high demand by delivery vehicles. Potential applications include areas where it is undesirable to eliminate other curb uses such as metered parking to expand the size of the loading zone.

Strengthen Loading Dock Requirements in Article 80 Development Review Process

BTD will work with the BRA at the earliest development review stage to ensure that loading docks meet the needs of the building and minimize impacts on adjacent streets. It is BTD's policy to require new buildings to have loading docks that can accommodate the demands of the building and minimize impacts on adjacent streets (e.g., provide capability for drive-in/drive-out operations). This approach benefits on-street operations by reducing demand for on-street spaces that would be generated by new development. BTD will describe this policy in its revised development review guidelines.

Increase Towing Capability

BTD will investigate the feasibility of obtaining and deploying a tow truck that can tow larger trucks. The current BTD fleet does not have this capability. BTD will also assess its fleet capabilities and staffing levels to determine if additional resources are required to implement a more extensive enforcement program as parking regulations are revised along major corridors.

6. NEIGHBORHOOD BUSINESS DISTRICTS

Boston is blessed with a diversity of neighborhood business districts. Each district is a center of neighborhood life and reflects both the stable and changing natures of the surrounding residential communities that it serves. Most business districts are also historic centers with landmark buildings built in the days before the automobile and are characterized by a mix of land uses built into a dense fabric. Shops and supermarkets, housing, libraries and other community facilities, restaurants and services crowd these areas. This complicates the ability to provide access to necessary transportation services and needs careful on-street parking management. As much as each district differs in style, flavor and rhythm, they all face similar transportation issues and opportunities. Most districts lie at the crossroads of the limited number of major thoroughfares that traverse the city and, as a result, receive a significant and growing amount of automobile through traffic.

GOALS

Effective transportation access and services is key to enhancing the unique community based character and vitality of Boston's neighborhood business districts. BTD is working with merchants, residents and local business associations to address transportation issues. The goals of the programs are to:

- Improve pedestrian safety and access.
- Encourage visitation by public transportation, walking and bicycling.
- Increase parking turnover for on-street parking to encourage short-term parking.
- Improve access to off-street parking.
- Implement Transportation Action Plans developed with local merchants and residents.

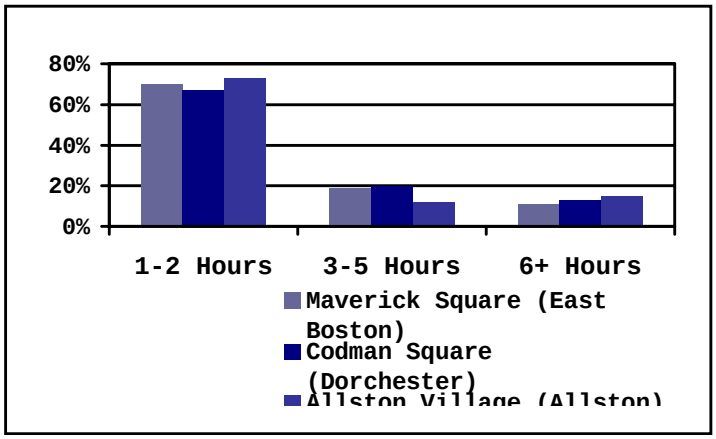
Neighborhood business districts provide a variety of shopping options and services in a pedestrian-scaled environment.

Transportation Issues

Below are transportation issues common to neighborhood business districts. The combination of these issues contributes greatly to the accessibility and ultimately the economic vitality of Boston's neighborhoods.

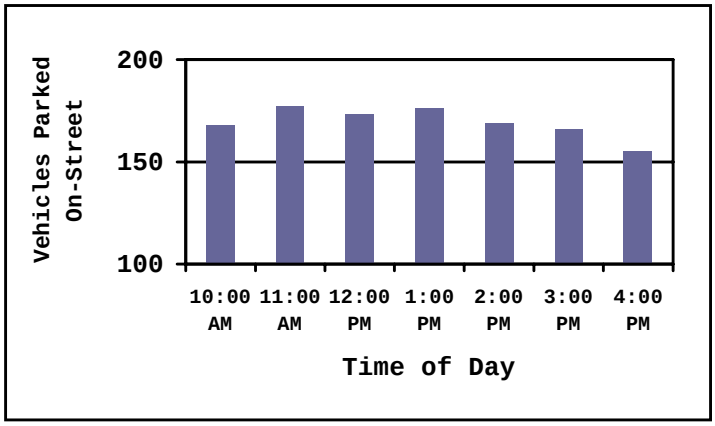
- Automobile use in Boston and its neighborhoods continue to grow at a record pace. As a result, there is not enough parking for customers and employees.
- All districts are served by public transportation, such as a rapid transit station or a connection point for major bus routes in the city. Nonetheless, there is often insufficient use of public transportation in the districts.
- Historic and dense neighborhood business districts were established before today's loading and service needs, resulting in insufficient loading areas and double parking.
- Traffic congestion results from roadway capacity constraints and sometimes encourages motorists to seek alternative routes such as through residential streets.
- Most local travel trips are walk trips. Pedestrian safety is therefore key to the vitality of the district.
- An array of regulatory and directional signs have been placed in neighborhood business districts over the years. The resultant sign clutter is insufficient and unclear.
- Neighborhood business districts need regular enforcement of parking and traffic regulations.

Figure 22
On-Street Parking in Neighborhood Business Districts



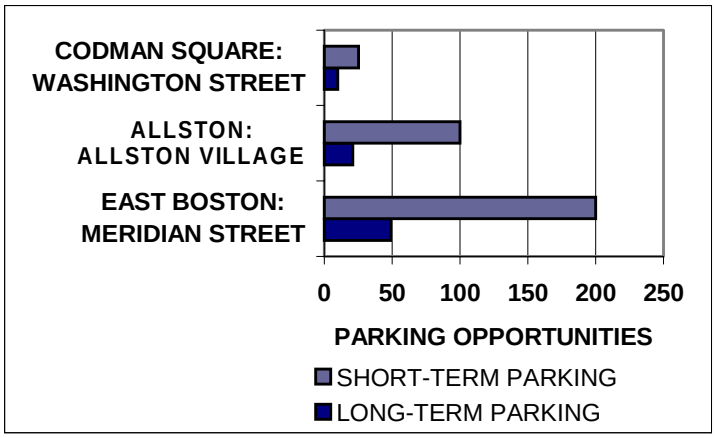
Thirty percent of on-street parking is for three hours or more. (Source: BTD Parking Accumulation Study)

Figure 23
Parking in Maverick Square



Illegal curb parking and double parking begins to occur in the middle of the day. (Source: BTD Parking Accumulation Study)

Figure 24
Lost Short-Term Parking Opportunities



Every vehicle that is parked long-term displaces five customers looking for short-term parking. (Source: BTD Parking Accumulation Study)

Impacts of Long-Term Parking

All-day parking by commuters, residents, and even merchants and their employees is the reason for the shortage of short-term parking in neighborhood business districts. As illustrated in Figure 22, vehicles that park for two hours or less used up to 70% of the parking in a business district. However, parking for more than two hours, especially all-day parking, has a significant impact on the availability of parking in the district. All-day parking on the street, including by merchants and employees who park in front of their business, takes valuable parking spaces away from potential customers. Every vehicle parked long-term displaces almost five customers looking for short-term parking.

Figure 23 illustrates parking accumulation in Maverick Square. All-day parkers – in this case, merchants, employees and residents – are present throughout the day. As shoppers and visitors begin to arrive in the square, the legal parking spaces fill up until illegal curb parking and double parking begins to occur in the middle of the day.

Customers and businesses in neighborhood business districts are sensitive to the price of parking and the level of enforcement used to ticket parking violations. Parking meters and aggressive parking enforcement can potentially create an adverse business climate in a neighborhood business district that is often competing with supermarkets, chain stores and other businesses in large suburban and smaller local malls that provide free and ample parking.

However, many motorists prefer metered parking rather than not being able to find a space.

An analysis of data from three BTD studies indicates that long-term parkers (more than six hours) use 20% to 50% of the available on-street parking supply. As Figure 24 indicates, every vehicle parked long-term in these neighborhood commercial districts displaces almost five customers looking for short-term parking. This can have a significant effect on parking availability, creating “lost parking opportunities” (i.e., short-term parking demand that could be otherwise accommodated in the spaces used for long-term parking).

Neighborhood Business District Transportation Action Plan

Through Neighborhood Business District Transportation Action Plans, BTD evaluates the entire transportation system that serves a neighborhood business district, including motor vehicle and bicycle access, parking, and pedestrian public transit concerns. This analysis often indicates that a well-planned set of small-scale improvements and modifications can have a significant and positive effect on the quality of transportation serving a neighborhood business district. BTD's approach seeks to balance available on-street and off-street parking to serve both the long-term needs of merchants and employees, as well as the short-term needs of customers.

BTD has successfully developed Neighborhood Business District Transportation Action Plans in East Boston (Maverick Square), Allston Village, and Codman Square in Dorchester. As part of the Codman Square plan, area merchants developed an agreement with an area church to use the church's parking lot for employee parking. Employees using the lot received a parking sticker that made them eligible to park in the lot for a small fee. This approach increased the parking supply in the business district with no construction costs or impacts. Figure 25 illustrates parking regulations that were developed for Maverick Square. The plan improved the balance among the different on-street parking uses through:

- New 1 hour parking spaces near businesses
- More 2 hour parking spaces
- Multi-use parking regulations instead of unrestricted

The following are key steps for merchants and residents to, working with BTD, develop a Transportation Action Plan.

1 Meet with local community leaders for orientation and to establish partnerships.

2 Hold a kickoff meeting. Identify transportation issues.

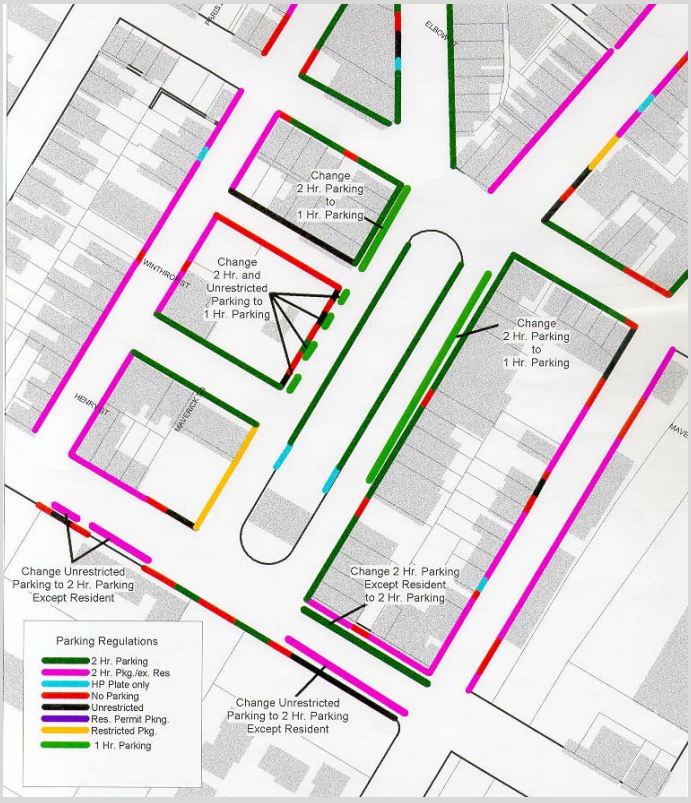
3 Gather information;
- Define and map main street district boundaries. Identify key intersections and circulation within area.
- Identify land uses in the district.

4 Survey existing conditions relating to:
- Parking supply and regulations.
- Parking demand and usage.
- Traffic patterns and conditions.
- Commercial traffic, including service and delivery.
- Pedestrian facilities, circulation, safety and access.
- Bicycle access and parking.
- Availability and use of public transit and location of bus stops.

5 Hold additional public meetings:
- Discuss findings, issues, and possible solutions.
- Develop the TAP including implementation timeline.
- Hold an event to unveil and promote the TAP.

6 Monitor and adjust the plan as necessary.

Figure 25



Transportation Action Plan for Maverick Square.

Clearly marked bus stops and routes are key to managing access to neighborhood business districts.

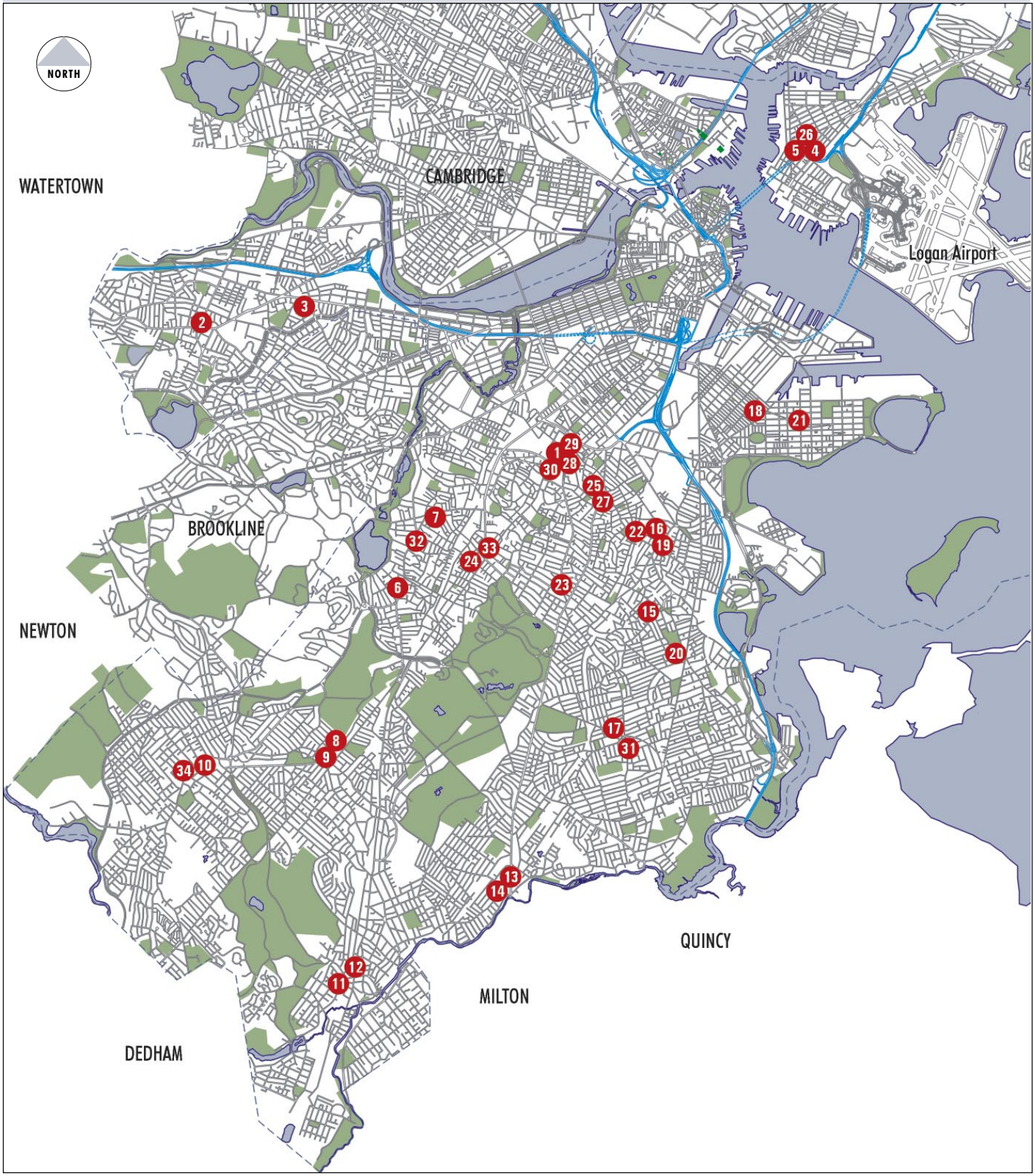


Figure 26:
Municipal Parking Lots

Off-Street Parking Lots

Available off-street parking adjacent to neighborhood business districts is generally limited to municipal parking lots maintained by BTD (see Figure 26). As Table 15 indicates, these lots provide over 1,500 off-street parking spaces free of charge to the general public, typically without restricting the amount of time that a vehicle can park in the lot. Municipal lots are not the only off-street parking option in the neighborhood business district. Many districts have businesses with their own off-street customer and employee parking. These lots often do not allow parking by the general public unless they are conducting business with the adjacent stores. Other off-street parking resources include the network of alleys, backyards and special use parking that are also not generally available to the general public.

Table 15 – Municipal Parking Lot Key

No.	Location/Address	Spaces
1	**Roxbury** 30 Ruggles Street	72
2	**Brighton** 398 Market Street	42
3	**Allston** 115 Harvard Street	60
4	**East Boston** 40 Porter Street	35
5	**East Boston** 166-180 London Street	35
6	**Jamaica Plain** 737 Centre Street	103
7	**Jamaica Plain** 350-352 Centre Street	24
8	**Roslindale** 10 Tafthill Terrace	92
9	**Roslindale** 711 South Street	16
10	**West Roxbury** 39-41 Corey Street	118
11	**Hyde Park** 1269 Hyde Park Avenue	8
12	**Hyde Park** 37 Winthrop Street	135
13	**Matapan** 451-467 River Street	90
14	**Mattapan** 23 Fairway Street	40
15	**Dorchester** 254-258 Bowdoin Street	18
16	**Dorchester** 8-20 Belden Street	32
17	**Dorchester** 575 Washington Street	42
18	**South Boston** 450 West Broadway	60
19	**Dorchester** 16 Hamlet Street	100
20	**Dorchester** 191 Adams Street	22
21	**South Boston** 650-652 E. Broadway	22
22	**Dorchester** 730-732 Dudley Street	12
23	**Dorchester** 23 Georgia Street	40
24	**Jamaica Plain** 3087 Washington Street	15
25	**Roxbury** 14 Roxbury Street	12
26	**East Boston** 36 Bennington Street	26
27	**Dorchester** 25 Blue Hill Avenue	18
28	**Roxbury** 44 Warren Street/Ziegler Street	23
29	**Roxbury** 2196 Washington Street	91
30	**Roxbury** 353 Dudley Street	28
31	**Dorchester** 629 Washington Street	24
32	**Jamaica Plain** 490-498 Centre Street	33
33	**Roxbury** 3042 Washington Street	41
34	**West Roxbury** 1891 Centre Street	18

Action Plan

Neighborhood Business Districts

Provide Merchants and Residents with a Basic Planning Tool to Assess Transportation Conditions

BTD will prepare and distribute an informational brochure that describes its approach to developing a Transportation Action Plan for a neighborhood business district. The brochure will describe common transportation problems in neighborhood business districts based on the plans already completed by BTD. It will provide merchants and residents with insight to identify and evaluate problems at an introductory level. The study tools described in the brochure will include merchants' surveys to gauge long-term parking demands, highlight ways to encourage the use of alternative modes, and sample parking surveys. Dissemination of this information will provide an opportunity to inform merchants of potential transportation issues.

Establish Partnerships to Fund Implementation

Establishing partnerships between the City and business groups, like Main Streets and the local Chamber of Commerce, will be required to enhance the implementation of improvements to business districts. For example, BTD will investigate the feasibility of channeling local parking revenues toward supporting improvements in business districts. The new revenues would be used for the sole purpose of maintaining and improving public parking and other public amenities, such as street furniture, and landscaping. The city would be guaranteed the revenue needed to install and maintain new parking meters. New legislation may be required to pursue this program.

Investigate the Construction of New Municipal Off-Street Parking Lots

BTD should continue to investigate potential opportunities to add new lots in neighborhood business districts. Though the supply and use of off-street parking resources vary from district to district, these lots are often the best places to relieve long-term parking problems. BTD will consider cost and land use in the siting and construction of off-street lots.

Use On-Street Parking for Short-Term Demands

BTD will work with area merchants and residents to develop curb regulations that accommodate short-term customer parking needs as part of a larger program of transportation improvements. BTD will use several approaches to ensure that turnover occurs at the valuable space along the curb. The first is to limit the parking time during business hours. BTD recommends a time limit as a function of the adjacent land use and general character of a district. For example, 15-minute spaces are often used in front of a post office or an ATM location. Two-hour limits would be used in front of business or groups of businesses that require longer parking, such as a grocery store or professional office. BTD will encourage merchants and their employees to observe these restrictions to minimize the need to issue parking tickets in order to achieve compliance.

Encourage the Increased Use of Private Off-street Parking Lots for Long-term Parking

BTD will work with area merchants and residents to develop and implement arrangements that would support the increased use of private off-street parking lots. In districts with short-term parking deficits, it is often desirable to relocate long-term parking from in front of businesses to provide additional short-term customer parking opportunities. In many cases, municipal lots do not provide a viable alternative since they are often at or near capacity. Private lots are an alternative resource that requires a creative approach to address the property owner's concerns about liability and safety issues. Working together, and with BTD, merchants should develop specific arrangements to make this additional parking available to help alleviate the long-term parking demands of the district. Codman Square is an example of a successful application of this approach.

Improve Pedestrian Safety and Access

BTD will work with area merchants and residents to develop and implement improvements to pedestrian safety and access. Pedestrian safety and access is integral to the vibrancy of neighborhood business districts. BTD will use the guidelines that are described in its "*Streeetscape Guidelines for Major Roads*" and "*Pedestrian Safety Guidelines for Residential Streets*" to guide these efforts as part of future evaluations of neighborhood business districts.

Consolidate Loading Zones to Serve Multiple Businesses in Neighborhood Business Districts

BTD will work with merchants to consolidate loading zones in areas with demonstrated demand for on-street loading. Historically, on-street loading zones in neighborhood business districts were established on a request basis, often leading to alternate locations with either too much or too little curb space allocated to loading. BTD seeks to consolidate loading zones where possible, using regulations that were originally developed for downtown. BTD should take advantage of corner locations and other specific elements of each neighborhood business district to provide consolidated loading zones in a manner that minimizes impact to on-street parking, increases the visibility and definition of the loading zone and simplifies the enforcement of the regulation.

Continue Bicycle Racks Program

BTD will continue to install bike racks in publicly accessible areas in consultation with local businesses and community groups. BTD started this program in the summer of 2001. Business districts with newly installed bike racks include Codman Square, Roslindale Square and Centre Street (Jamaica Plain). It will seek additional funds to expand this program. Bicycle racks will also be included in all roadway (which include sidewalks) reconstruction projects.

Adjust MBTA Bus Stop Locations to Improve Service and Reduce Parking Impacts

BTD will work with area residents, merchants and the MBTA to locate bus stops near high demand areas in ways that minimize their impact on curbside parking. Consideration should be given to the relationship of the bus stop to adjacent land uses, its visibility and convenience within the district, pedestrian safety and traffic safety. Parking impacts should consider opportunities to reduce the length of the bus stop and re-use the curb space for parking. For example, moving mid-block stops to an intersection reverts 20 feet of curb (or one parking space) to general use.

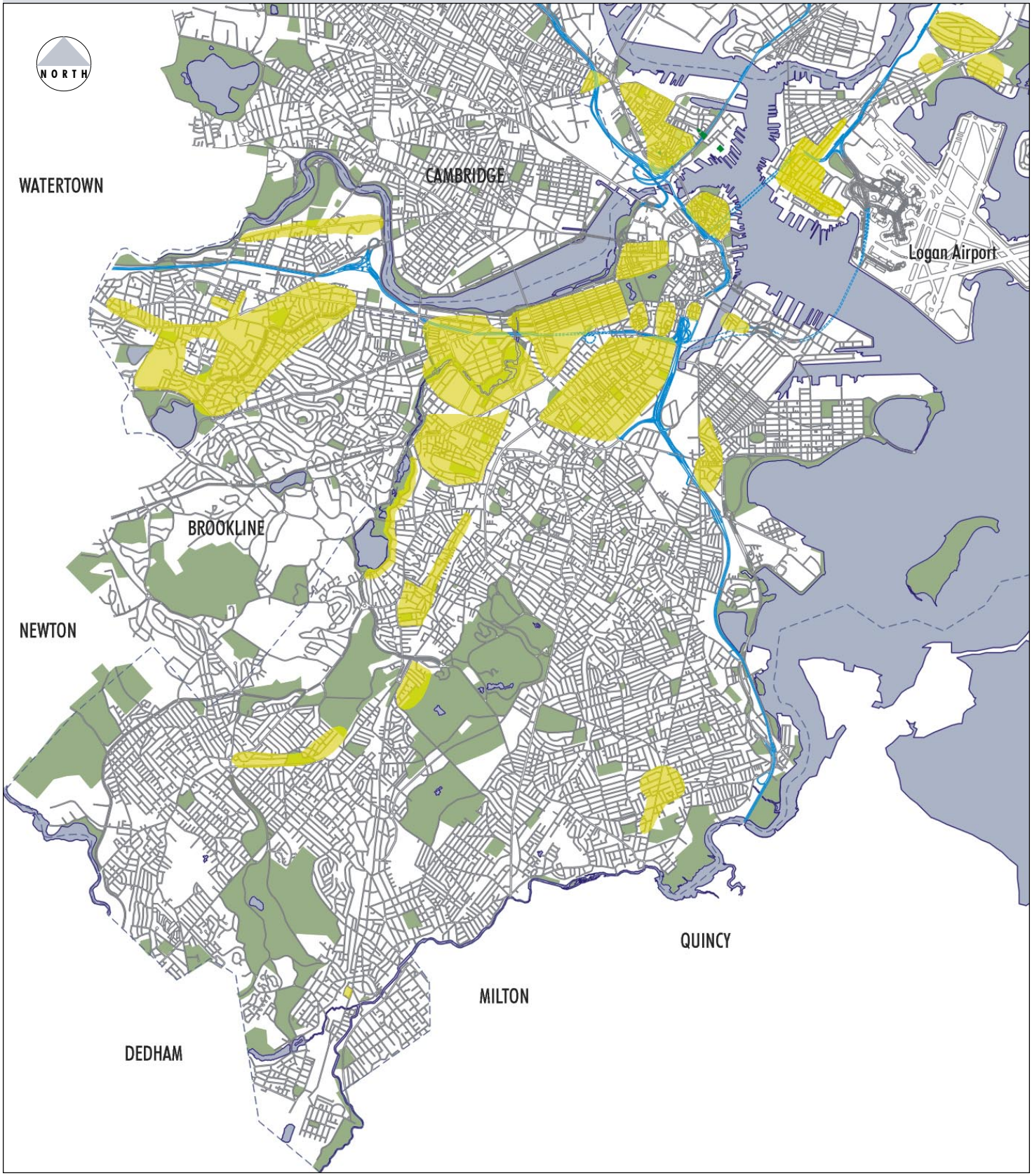


Figure 27:
Resident Permit Parking Program Locations

The Resident Permit Parking Program, which is in nineteen Boston neighborhoods, addresses the competition for spaces in residential neighborhoods by vehicles from outside the neighborhood. The locations illustrated in this figure are approximate and for illustrative purposes only.
(Source: City of Boston, Office of the Parking Clerk)

7. RESIDENT PARKING

Boston has the benefit of vibrant residential neighborhoods located in close proximity to employment centers and transit stations. This fact has helped Boston gain its reputation as a livable city with residents that regularly travel on foot or by transit. However, residents in these neighborhoods also face two types of parking challenges. First is the competition for on-street parking from outside commuters and visitors. The second challenge is the steadily growing auto ownership levels among Boston residents that fills limited spaces with more autos every year in the city's neighborhoods.

These two parking demands translate into a general lack of parking in most of Boston's neighborhoods. With fewer spaces available, illegal parking becomes more problematic. Visitors, service providers such as home health care companies, and contractors often double park in these neighborhoods. These conditions reduce the quality of life of the residential neighborhoods and in the worst case can compromise public safety by reducing response times for emergency vehicles on the narrow congested streets of the city's older neighborhoods.

GOALS

Today, resident parking in Boston relies on the use of City streets. Management of both parking supply and demand is needed to address the parking shortfall experienced in many neighborhoods and to enhance the quality of life and accessibility of these neighborhoods. The goals of the programs are to:

- Protect residential neighborhoods from parking intrusion by commuters and other non-residents.
- Reduce future demands for on-street parking in new residential projects.
- Reduce auto ownership through carsharing programs and increased use of alternative, non-auto modes.

RPP PROGRAMS IN OTHER U.S. CITIES

RPP programs are in effect in Massachusetts cities and other municipalities throughout the U.S. Like Boston, these municipalities share the goal of seeking to reduce parking demand by vehicles from outside the neighborhood or RPP area.

The implementation of the program varies. In general, these programs grew in response to specific needs of a community and, as a result, regulations and requirements differ among locations. Some areas provide visitor passes, while other areas provide designated visitor spaces. Nominal fees are charged in cities while many others provide the permits free of charge. All include proof-of-residency requirements to obtain a permit.

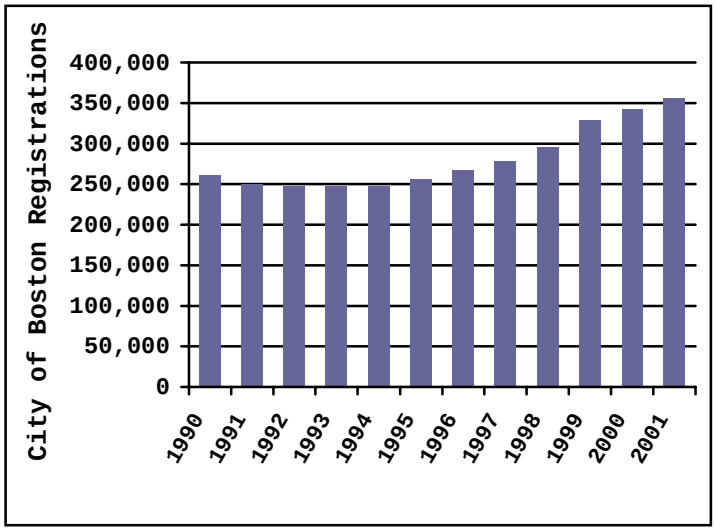
The Use of Resident Permit Parking

BTD, like other U.S. cities, has used a Resident Permit Parking (RPP) program to address the competition for spaces in residential neighborhoods by vehicles from outside the neighborhood. The City's program designates on-street parking spaces in the residential neighborhoods indicated in Figure 27 for "Resident Parking Only." Residents obtain permits from BTD and manually affix the permits to their vehicles.

The regulations have evolved from their original emphasis on 24-hour RPP restrictions. For example, the recently implemented program in Charlestown restricts parking during the day, when commuters use the MBTA Orange Line stations. This program leaves nighttime parking unregulated, facilitating visitor parking in the neighborhood.

- The RPP program was originally instituted in downtown neighborhoods, such as Beacon Hill and Back Bay, to manage commuter traffic and to support the use of transit and alternative modes.
- Later programs in the Fenway, Mission Hill and Allston/ Brighton addressed the use of streets by employees and hospital visitors.
- Programs were also developed near MBTA stations in Dorchester, South Boston, Jamaica Plain, Charlestown, and Roslindale to reduce parking by transit commuters on local streets.

Figure 28
Growth in Auto Ownership



Auto ownership in Boston increased 36% between 1990 and 2001. Nearly all of the growth occurred since 1995. (Source: BTD)

RPP INITIATION AND EXPANSION

BTD receives requests to expand existing RPP programs or initiate a program in a neighborhood. The RPP Program is initiated in neighborhoods at the request of the community. BTD will follow up with community meetings to explain the program in detail and to present a plan designed with that particular neighborhood's needs and goals in mind. Following the meetings, neighborhood organizers must circulate petitions, provided by BTD, and garner signatures in support of the program from 51 percent of the residents in the affected area.

Sometimes due to a lack of consensus between business needs for customer parking and resident needs petitions may not be accepted. Inquiries for the implementation of the RPP Program are directed to

Director of Community Affairs
Residents Permit Parking Program
Boston Transportation Department
Boston City Hall, Room 721
Boston, MA 02201

Although the types of regulations have evolved since the inception of the program, the RPP program is currently not structured to address the growing demand for parking among city residents. Today, there are over 350,000 autos registered in Boston, a 44% increase since 1994. RPP programs in many neighborhoods have little opportunity to add new on-street spaces, particularly in neighborhoods with a high density of vehicles. The lack of off-street parking alternatives in some of these neighborhoods makes the problem worse.

Auto Ownership Levels

Auto ownership is on the increase nationwide. In Boston, the resurgence of the local economy and the growing trend of multi-vehicle households has put pressure on already overburdened streets. Figure 28, which is based on vehicle registration data, illustrates that vehicle auto ownership in Boston grew by 36% between 1990 and 2001. The most significant increase occurred after 1994, coinciding with a period of strong economic growth. During this period, Boston saw a resurgence in residential and commercial development, and a transformation of its housing stock as new residents, many enjoying high income levels, moved into the city. Almost 2,000 new condominium units were created in the 1990s, many replacing rental properties in Charlestown and downtown Boston.

Figure 29 illustrates that average vehicle ownership per household varies by neighborhood. The analysis used data from the 1990 U.S. Census. (This data will not be available until 2002 from the 2000 U.S Census.) Auto ownership per household is highest in auto-dependent neighborhoods like West Roxbury or Hyde Park. These neighborhoods are less dense than the downtown neighborhoods that are transit- and walk-oriented. Many homes in these neighborhoods have driveways, garages or sufficient curb parking to accommodate multiple vehicles.

Auto ownership per household is lowest in downtown neighborhoods where transit and walking are good options to auto use and parking is less convenient. Some neighborhoods outside the downtown like Roxbury and parts of Dorchester also have lower auto ownership levels. The residents in these neighborhoods rely more on public transportation.

In contrast, as illustrated in Figure 30, the number of autos owned ***per square mile*** is higher in downtown neighborhoods and other dense residential areas like Allston/Brighton, resulting in higher on-street parking demands. The population density of these neighborhoods offsets the lower auto ownership rates. The auto-oriented neighborhoods of the city have a lower density of vehicles per square mile because population density is lower in these neighborhoods. With the exception of enclaves of multifamily neighborhoods or locations near transit or business area, parking availability is less of a concern in these areas.

Parking Demand on RPP Streets

The on-street RPP parking supply has remained relatively fixed over the last 10 years– in many cases since the inception of the RPP program. Table 16 indicates that the number of RPP permits issued has grown in many neighborhoods since1990. BTD issued 65,830

RPP PERMITS

BTD issues resident permit stickers based on strict requirements. Applicants must show proof that the car is registered and principally garaged in the applicant's name at the applicant's current Boston address. Specific proof of residency is also required to secure a permit.

Table 16 – Comparison of RPP Permits Issued in 1990 and 2000 by Neighborhood

NEIGHBORHOOD	COVERAGE OF RPP PROGRAM	PERMITS		CHANGE (1990-2000)	
		FY1990[1]	FY2000[1,2]	PERMITS	PERCENT CHANGE
Allston/Brighton	Streets in specific districts	8,329	15,631	7,302	88%
Back Bay	All or most of neighborhood	5,572	7,086	1,514	27%
Bay Village	All or most of neighborhood	440	537	97	22%
Beacon Hill	All or most of neighborhood	3,602	3,933	331	9%
Charlestown	Streets in specific districts	745	4,235	3,490	468%
Chinatown	All or most of neighborhood	601	750	149	25%
Dorchester	Streets in specific districts	1,546	1,037	-509	-33%
East Boston	Streets in specific districts	5,342	7,216	1,874	35%
Fenway/Kenmore	All or most of neighborhood	3,869	4,678	809	21%
Hyde Park	Specific streets	-	14	14	
Jamaica Plain	Specific streets	1,765	2,606	841	48%
Leather District	All or most of neighborhood	67	169	102	153%
Mission Hill	All or most of neighborhood	1,588	2,002	414	26%
North End	All or most of neighborhood	3,387	4,163	776	23%
Roslindale	Streets in specific districts	-	214	214	
Roxbury	Specific streets	-	258	258	
South Boston	Streets in specific districts	901	1,226	325	36%
South End	All or most of neighborhood	7,101	9,678	2,577	36%
West Roxbury	Specific streets	-	397	397	
TOTAL		**44,855**	**65,830**	**20,975**	**47%**

Source: City of Boston, Office of Parking Clerk

Note: 1. Fiscal year 1990 begins July 1, 1989 and ends June 30, 1990; Fiscal year 2000 begins July 1, 1999 and ends June 30, 2000.
2. 1,253 permits were temporary, rental, motorcycle, or dealer permits were issued in FY2000. These permits were distributed proportionally over each neighborhood for comparative purposes with the FY1990 data.

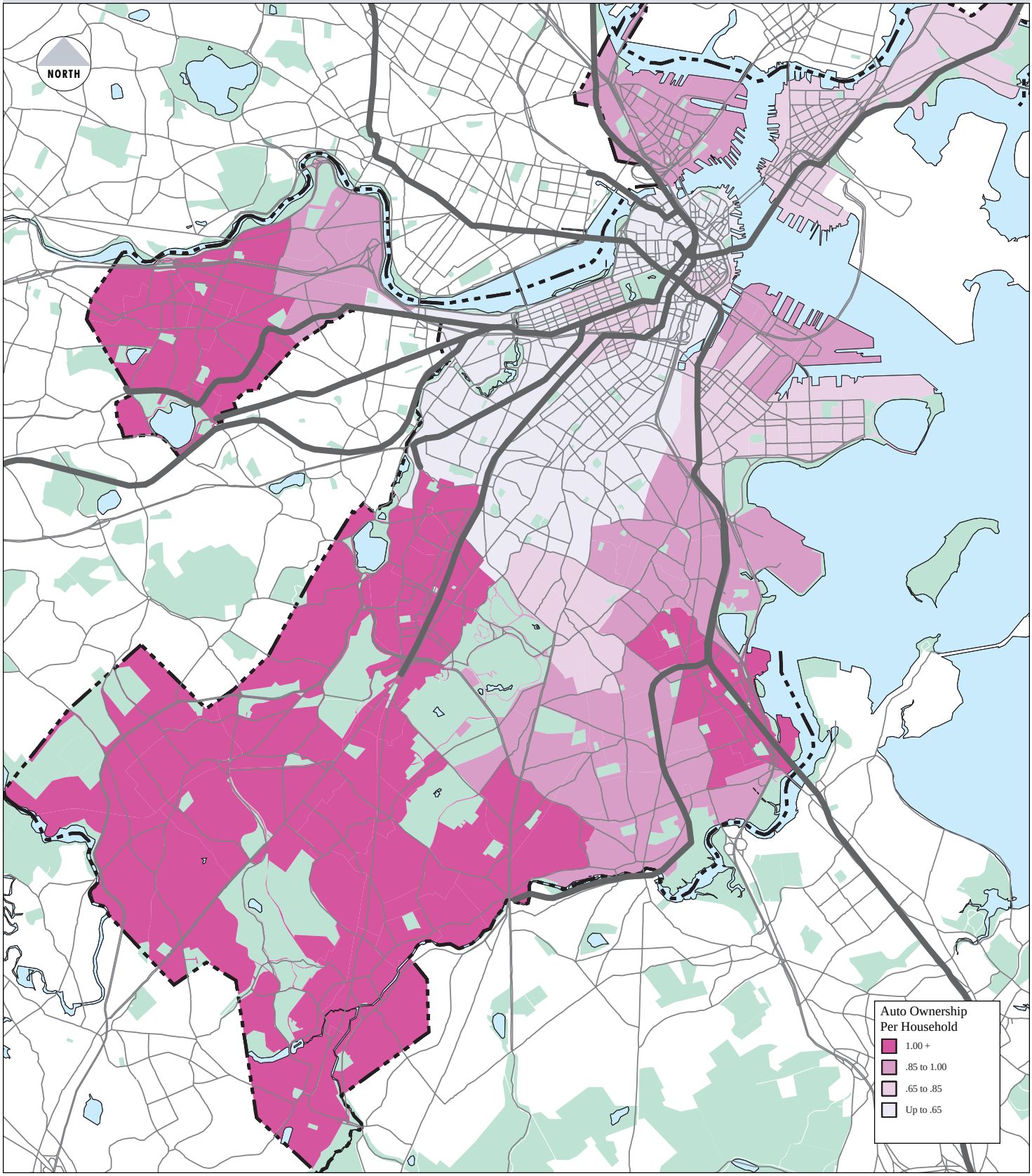


Figure 29:
Auto Ownership Per Household in Boston

Auto ownership per household is highest in neighborhoods further from downtown. These neighborhoods have low density, more driveway space and less pressure for on-street parking.

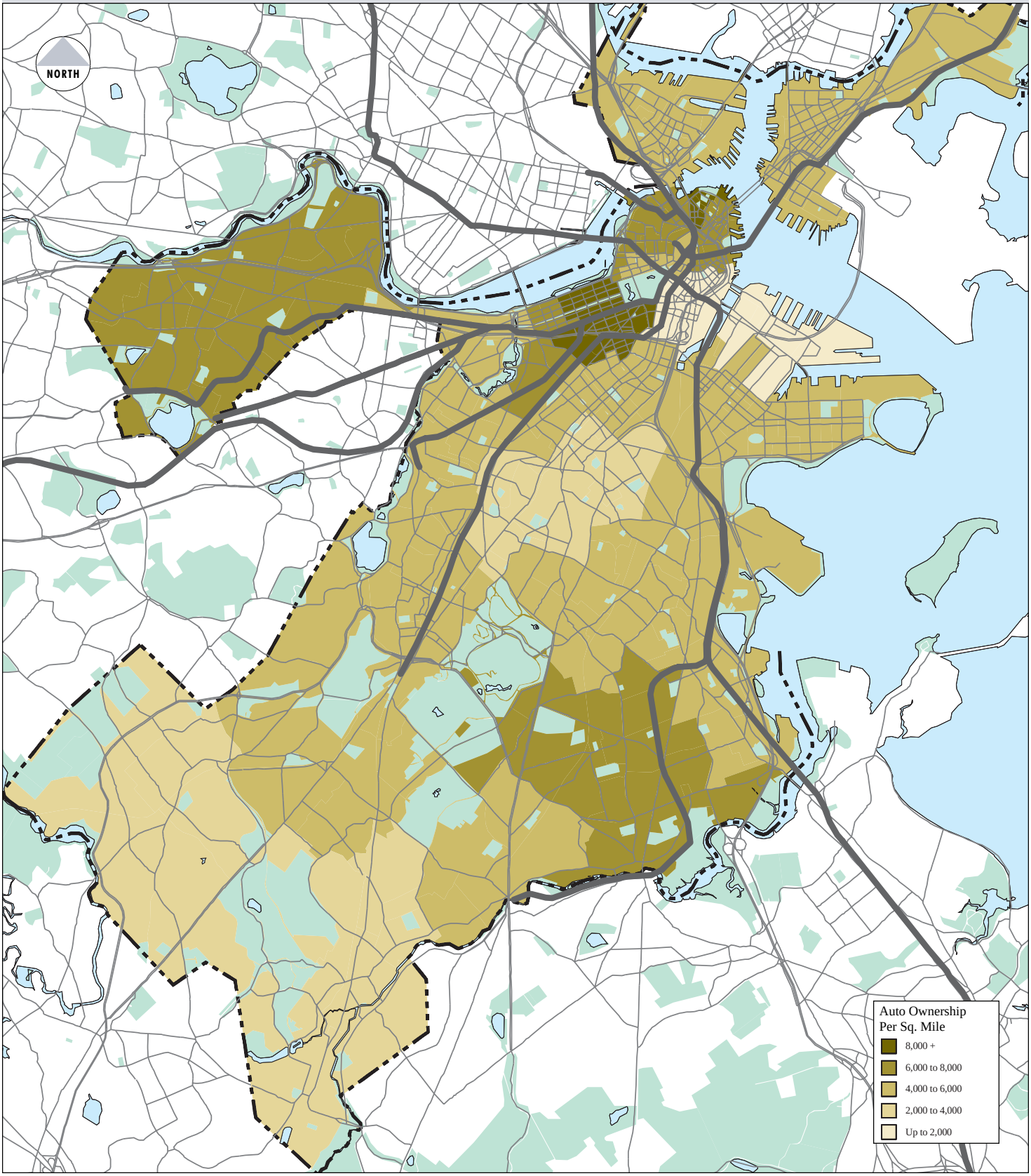
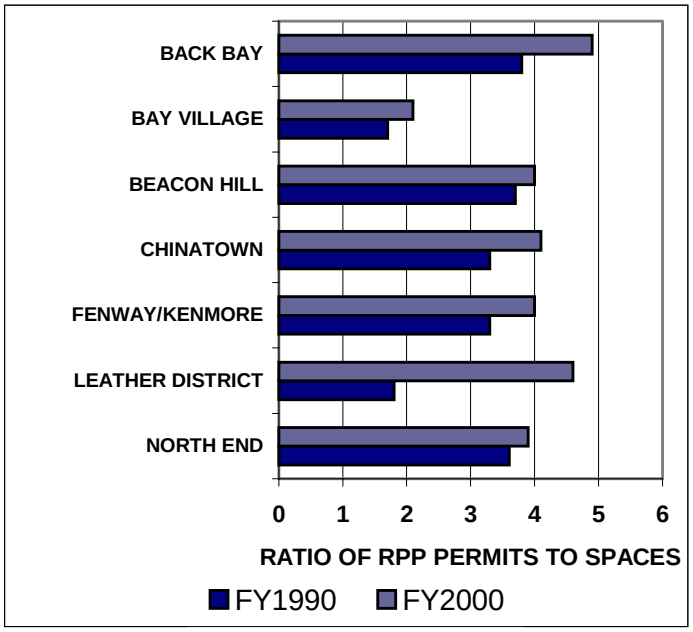


Figure 30:
Auto Ownership Per Square Mile in Boston

Auto ownership per square mile is highest in densely populated neighborhoods in and near downtown putting pressure on street parking.

Figure 31
Increase in Ratio of RPP Permits to Spaces



The ratio of permits to spaces has increased from 3.5 to 4.1 for neighborhoods near downtown, reflecting the high level of demand for on-street RPP spaces in these neighborhoods.

KEY FINDINGS OF SEATTLE'S "WAY TO GO" PILOT PROGRAM

Seattle has recently undertaken a creative approach to convince people to reduce auto ownership. The families in the program signed an agreement not to use one of their vehicles and to keep a diary of their experiences to provide valuable planing information and insight about the program and people's travel choices. The families used a variety of modes to meet their travel needs. The results of the "Way to Go" program provided valuable marketing information to encourage residents to re-think their auto ownership patterns and live with one less car. The following are specific findings that were identified by the City of Seattle from the first phase of the program:

- A savings of approximately $70 a week for most families.
- A reduction of 8,100 vehicle-miles by the 22 families that participated.
- A reduction of 6,500 pounds of CO_2 from the reduction in auto use.

permits in 19 different neighborhoods in fiscal year 2000, an increase of almost 50% over the last 10 years. Expansion of the program to new streets in Allston/Brighton, Charlestown and South Boston account for approximately one-half of the increase in RPP permit issuance. A small percent of the increase is also attributable to the expansion of the program to four new neighborhoods.

More than half of the growth in the RPP program over the last ten years occurred in eleven of the twelve programs that were in existence in 1990. This reflects increased auto ownership, construction of new residential units, and subdivision of houses to condominiums. This has had a significant effect on the older RPP neighborhoods in the Back Bay, Bay Village, Beacon Hill, Chinatown, Fenway/Kenmore, the Leather District and North End.

As illustrated in Figure 31 the increase in the resident parking demand has increased the combined ratio of permits to spaces from 3.5 to 4.1 for the seven neighborhoods in and near the downtown core. Significant increases occurred within each neighborhood. However, the most significant increase occurred in the Leather District, which is one of the smallest programs in the city. The number of permits increased as a result of the influx of residents during the 1990s to the former manufacturing buildings near South Station. Increases of 20 to 30% were experienced in the remaining neighborhoods, which is comparable to the citywide growth in auto ownership. Beacon Hill and the North End saw an increase of 8% in the ratio.

Demand Reduction Approaches

More recently, approaches to reduce auto ownership demand have gained momentum in the U.S. Demand reduction seeks to provide relief by slowing the growth in auto ownership. Pioneered in Europe, car sharing reduces demand by providing motorists with access to a car that can be rented for a short period of time. Individuals join a car-sharing group and reserve vehicles, which are parked in convenient off-street lots and garages. Using Intelligent Transportation Systems technology, the car is programmed to operate only for the individual renting the car. Other efforts include Seattle's "Way to Go" pilot program that created an agreement with families that were part of the program to voluntarily give up the use of one of their autos for a test period.

Action Plan

Resident Parking Program

Coordinate the Implementation of Car-sharing Programs by Private Vendors

BTD will continue to work with potential vendors interested in providing car-sharing programs, particularly in dense neighborhoods in and around downtown. Car sharing could provide an alternative to auto ownership for some residential markets in dense city neighborhoods, particularly neighborhoods with scarce parking. Car sharing can lead to reduced auto ownership and improved air quality and livability. Reduced parking demand is another potential benefit of car sharing. Efforts are underway to introduce this approach in several U.S. cities, including Boston. Carsharing opportunities should be encouraged as part of new developments.

Investigate the Joint Use of Metered Spaces through Meter Technologies

BTD will investigate options as part of the new Smart Card meters in order to facilitate overnight parking at meters by residents. Consideration should be given to allowing a resident to park at a metered space at night and pay in advance for an hour of parking in the morning.

In downtown neighborhoods, BTD regulates some parking meter spaces for use as resident parking spaces at night. Residents use these spaces and other metered spaces, which are unregulated at night, to meet the growing resident parking demand. Residents must move their cars before 8:00 a.m. when the meter goes into effect, or pay in the morning for parking at the meter.

Strengthen Review Guidelines for New Residential Projects

BTD will incorporate the following guidelines for the review of new residential development projects through the Article 80 zoning process and negotiation of the project's Transportation Access Plan Agreement:

- New residential developments must provide parking sufficient to meet their demand.
- When new residential developments are located in or near RPP neighborhoods, consideration should be given to excluding residents in these developments from participating in the RPP program. These exclusions must be included in the unit deed.
- BTD should continue to leverage joint use of off-street parking in new and existing commercial parking lots and garages for area residents in RPP neighborhoods (e.g., favorable night and weekend rates).

Investigate New Parking Requirements for Condominium Conversion Projects

BTD will work with the BRA to investigate the use of parking guidelines for condominium conversions. The conversion of rental properties to owner-occupied condominiums is significant if associated auto ownership trends reflect observed U.S. Census data. This data indicates that auto ownership rates for homeowners such as condominium owners are nearly double the auto ownership rates of renters. Consideration should be given to estimating parking rates for rental and condominium units that could be used to calculate the number of new spaces required by smaller projects and the ability to link the conversions of the requested number of new units with the proponent's ability to provide the additional spaces.

Investigate Splitting the Allston/Brighton Program

BTD will investigate splitting the Allston/Brighton program into two separate programs. Allston/Brighton is the largest RPP program with more than 15,000 permits issued in FY 1999. This is almost double the size of next largest program. BTD must conduct a public review prior to implementation, to discuss boundary issues, if it were to proceed with this proposal.

Investigate Charging a Fee for and/or Limiting RPP Permits per Household

Demand is much greater than supply in some RPP neighborhoods. The growth in the number of multi-vehicle households in Boston has contributed to this condition. BTD will continue to monitor the RPP program to determine the need to charge a nominal fee for permits or restrict the number of permits per household. The revenue generated will be used for programs that support efforts to reduce car ownership and use.

Pricing strategies, such as higher fees for multiple stickers are not recommended as tools to manage auto ownership because fees would not affect auto ownership decisions in comparison to the high operating and insurance costs paid by Boston residents.

Develop a GIS Database to Support the RPP Program

BTD should update its database to provide an up-to-date estimate of the number of spaces within each program. BTD should maintain an accurate map of its RPP programs for internal planning purposes and for external public use. Using this information, BTD should estimate the number of permits issued for residents on streets inside smaller RPP neighborhood area programs (e.g., Roslindale, Hyde Park, etc) and for streets outside the neighborhoods, identifying permits by distance (rings) from the program. BTD should use the database as part of its continued effort to monitor the number of permits per household and determine if limits should be implemented in the future.

Investigate a Pilot Program Modeled on Seattle's "Way to Go" Program

BTD will investigate a program to encourage a set of families not to use one of their vehicles. The program should be modeled on Seattle's "Way to Go" pilot program that used a sample of different household types. The program would offer the cash equivalent of the cost to operate the vehicle during the study period. The study period should evaluate a spring/fall timeframe and a winter timeframe to understand weather-related issues. Funding support will be key.

8. FUNDING AND IMPLEMENTATION

SUMMARY OF FUNDING STRATEGY

City monies will continue to be used for operating and capital costs. BTD will investigate new revenue sources as described below:

- Fees to offset expenditures and generate revenue for parking and travel demand reduction programs:
  - Development Review Fees
  - Parking Lot/Garage Fees
  - Resident Parking Fees
- Public-Private Partnerships including the use of City facilities and bonds to leverage improvements:
  - A new intermodal facility with short-term parking and long-term residential parking.
  - New "Smart Meter" technologies.
  - A district-wide parking availability information system.
  - Bonds.

The funding and implementation plan integrates BTD's on-street and off-street parking roles and seeks to create new revenue streams that can be used to offset administrative costs and provide funding for demand reduction and (vehicular) pollution control programs. Parking management is one of BTD's primary functions. These efforts are funded by revenues from the City's operating budget. Ticket revenue and permit fees generated by these activities are distributed as general revenue funds through the City's budgetary process. General revenue funds are used to fund all City department activities and are not obligated to the specific activities of the department that generated the revenues.

Funding Strategies

The proposed action plans include measures to increase activities in the area of parking management and to employ approaches that seek to reduce on-street parking demand. The City's budget will remain the major funding source for these activities. However, City budgetary constraints limit BTD's ability to initiate new parking management efforts. Therefore, it is important to create new funding opportunities to offset costs and to fund demand reduction programs.

Fees

City monies will be used for many of the activities that are described in this plan, especially in the areas of on-street parking management. However, the opportunity exists to use and extend existing regulations to create new funding sources that could be used to offset BTD expenditures and provide opportunities to fund other *Access Boston* recommendations.

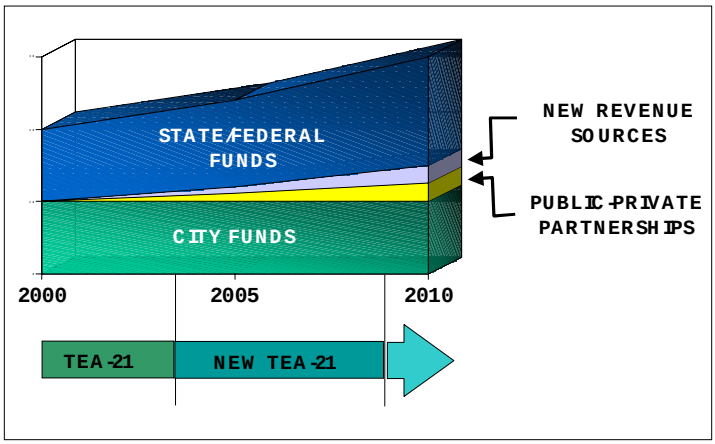
Development Review Fees

The Zoning Code includes a provision for **development review fees**. BTD will investigate applying this provision for the review of Transportation Access Plan Agreement, and Construction Management Plans. These types of fees have precedence, for example, in MassHighway's review of applications for Access Permit applications. The fees will be used to offset BTD expenditures for reviewing development submittals, TAPAs and CMPs.

Parking Lot/Garage Fees

BTD currently generates revenue through the issuance of annually renewed permits for open-air parking lots. The revenue becomes part of the General Fund and the permits do not cover parking garages. The City should consider changes to this program to extend the open air permit process to **cover parking garages and consolidate the permit issuance under the BAPCC**. This approach would generate significant revenue to support the administration of

Figure 32
Benefits of Leveraging Private Funds



Additional public and private revenue sources will allow BTD to pursue new parking management initiatives.

the BAPCC permit program and demand reduction programs that would be consistent with the purpose of the BAPCC. Potential expenditures would include:

- Programs to reduce auto ownership.
- Deployment of ITS technologies to provide real-time parking information.
- Programs and services that encourage and support the use of alternative modes.
- Fleet conversion to alternative fuels.

The funds would not cover the cost of these efforts, but would generate a sufficient revenue stream to provide seed money and matching funds to leverage public-private partnerships and secure funds through state and federal programs.

Resident Parking Fees

Implementing a modest fee for RPP Permits could generate supplemental funds. Directing these funds to the BAPCC as part of the funding approach that is described above, however, would require approval by the City Council to establish the mechanism to receive and distribute the revenue.

Public-Private Partnerships

Opportunities exist to leverage private investment through the use of public resources. This will expand the financial resources available to BTD to pursue new transportation initiatives. (See Figure 32.) This includes the use of public properties and the use of public subsidies to support privately operated programs. BTD will create and foster new public-private partnership opportunities to develop and implement several elements of the Action Plan.

Leveraging City Assets

One option for consideration is the development of an intermodal facility with alternative fuel shuttle services for short-term parking, long-term resident parking and tour bus parking. The City would need to conduct a study of its real estate assets to identify necessary capital needs, site availability and consolidation options that could create the opportunity for the remote park-and-and ride facility. Possible locations would include City-owned sites along Frontage Road and in South Bay at Southampton Street.

Smart Meter Technologies

A second option is the deployment of "Smart Meter" technology similar to the previously implemented pilot program. This effort requires the sustained interest of a financial partner to ensure the long-term viability of the program.

Real-time Parking Information

A third option would be a program to disseminate real-time parking information about the availability of parking in off-street parking facilities. This is a district-wide approach to parking management that would work well within the framework of a Transportation Management Association. The Longwood Medical Area or the South Boston Waterfront are both good candidate locations.

Bonds

The City can float bonds based on its parking meter revenues. This revenue stream would provide a resource to develop and invest in new technologies that would improve the operation of the on-street parking supply.

Implementation Plan

BTD began implementating recommendations of actions during the *Access Boston 2000-2010* process. This activity is part of the "Doing and Learning" approach of the project. BTD recognized the benefits of beginning implementation as early as possible to inform the development of *Access Boston 2000-2010* through an iterative, dynamic process. Ongoing implementation and steps to be taken are identified below.

Parking Districts

BTD continues to work on parking district-related issues. BTD assisted BAPCC on the implementation of the South Boston Parking Freeze. BAPCC held a series of hearings on the proposed rules and regulations and anticipates sending initial permits to property owners in 2001, beginning the process to finalize the Parking Freeze inventory. BTD and the BRA worked with neighborhood groups in the Fenway to establish parking ratios for new development. BTD is also developing district-level parking approaches as part of on-going planning efforts in Roxbury. Through its role on the MBTA Advisory Board, BTD has also supported the development of parking at regional intermodal facilities.

TECHNOLOGY

Intelligent Transportation Systems (ITS) technologies create the opportunity to provide information about parking availability and fee structures to drivers before they make their trip or while they are en-route. Locally, this approach is used in a simple form by the MBTA to inform drivers about the general availability of parking at major transit stations with highway access such as Braintree, Quincy/Adams and Alewife. The MBTA provides information about parking rates on its web site.

Examples of a more comprehensive district-based parking approach can be found in St. Paul Minnesota. These systems provide real-time information about the number of parking spaces in lots and garages via signs that are located before and within the parking district. The purpose of this approach is to reduce driver confusion and vehicle miles traveled by motorists searching for parking as lots or garages become full.

In addition to these on-going efforts, BTD will take the following future actions in 2002:

- Identify the percent goal for reducing the number of spaces per employee for new developments.
- Initiate a GIS database with off-street parking information to track off-street parking changes in new development proposals.
- Through the formation of a Task Force, initiate efforts to strengthen elements of the Boston Proper Parking Freeze.
- Develop a pilot program to disseminate real-time parking information in a district such as the South Boston Waterfront or the Longwood Medical Area.

Development Review

BTD has modified the Transportation Access Plan Guidelines to clarify the analysis of development projects relative to City transportation goals and policies and to provide a more comprehensive database for this analysis. BTD will take the following actions in 2002:

- Release the updated Transportation Access Plan Guidelines.
- Conduct a briefing session with the development community (open to the general public) to review the Guidelines. Conduct follow-up briefing sessions on an annual basis.
- Initiate efforts with the BRA to modify the City's zoning code to require Institutional Master Plan Transportation Access Plan Agreements.

Parking Management on Major Corridors

BTD has implemented Corridor Improvement Program actions on Boyslton Street, Newbury Street, and High Street. Plans are underway to implement changes to parking regulations on sections of Tremont Street in the South End. These efforts are the culmination of a year-long planning and engineering process that included significant public outreach. In addition to these on-going efforts, BTD will take the following future actions in 2002:

- Complete the implementation and monitoring efforts on the initial five corridors.
- Identify a list of candidate streets for implementation in 2002 and 2003.
- Complete a needs assessment for future enforcement and towing requirements to support the Corridor Improvement Program and other parking enforcement activities.
- Convene a Boston Transportation Technology Advisory Group to review future deployment potential of "Smart Meters" as part of an overall ITS strategy for the City.

Neighborhood Commercial Districts

BTD implemented Neighborhood Commercial Business District Transportation Action Plans in Maverick Square (East Boston), Codman Square (Dorchester) and Allston Village (Allston) over a two year period. Each of these efforts involved close coordination with the City's Main Streets program and other city departments as well as a comprehensive public participation and planning process. BTD will take the following future actions in 2002:

- Identify a list of three candidate districts for evaluation in cooperation with the Main Streets Program.
- Produce and disseminate a program brochure that would provide guidance to merchants and residents for the development of action plans.
- Initiate the development of action plans in three neighborhood commercial districts.

Resident Parking Program

BTD has facilitated and encouraged the implementation of carsharing programs by private operators. This includes recommendations to private developers of residential projects to include this approach. BTD has also secured commitments in several new residential development projects that exclude tenants of these projects from access to RPP permits. These efforts will be further described as part of the revised Transportation Access Plan Guidelines. In addition to these on-going efforts, BTD will take the following future actions in 2002:

- Investigate changes to the RPP Program including the use of fees, restrictions on the number of permits per household and splitting the Allston/Brighton program.
- Investigate the implementation of a demand reduction program modeled on Seattle's "Way to Go" program.

Transportation Management Associations

Transportation Management Associations (TMAs) are independent, consensus oriented, non profit organizations of employers, retailers, business owners, public sector representatives, and others working together to address employee transportation issues. The mission of TMAs is to maintain the economic viability of the communities they serve by reducing traffic congestion and improving air quality through the creation of services and materials which promote transportation alternatives to the single occupancy vehicle. TMAs provide numerous services, including:

- Guaranteed Rides Home.
- Transit Pass Purchases.
- Transportation Awareness Days.
- Shuttle Bus Services.
- Information Kiosks.
- Transportation Advocacy Programs.
- Information to Commuter Service Programs.

In addition, TMAs provide proactive organization dedicated to working with local, state, and federal agencies to provide better transportation options for the communities they serve. TMAs are dedicated to researching and providing commuters with cost-effective, dependable, and environmentally sound modes of transportation.

There are six Boston-based TMAs:

- Artery Business Committee TMA serving Downtown Boston
- Back Bay TMA serving Back Bay
- Commute Works/MASCO TMA serving the Longwood Medical and Academic Area
- Logan TMA serving Logan Airport
- Seaport TMA serving the South Boston Waterfront
- TransComm serving the lower South End