2. OFF-STREET PARKING INVENTORY

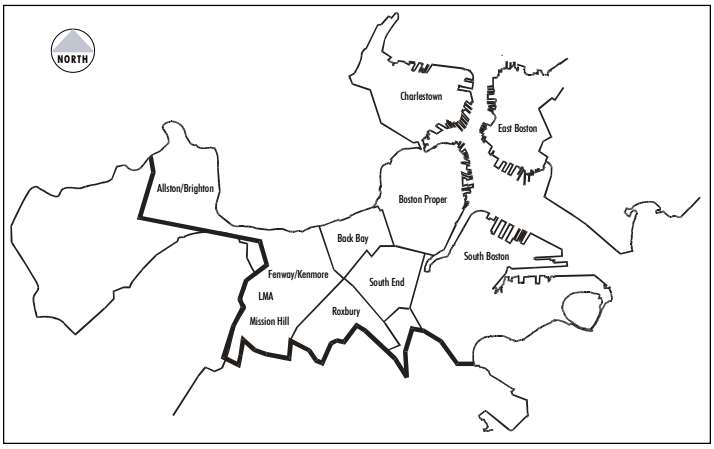
A key goal of *Access Boston 2000-2010* is better management of parking to reduce and minimize the impacts of parking related traffic on neighborhood streets. The development of policy to pursue this goal begins with an analysis of existing off-street parking supply.

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.

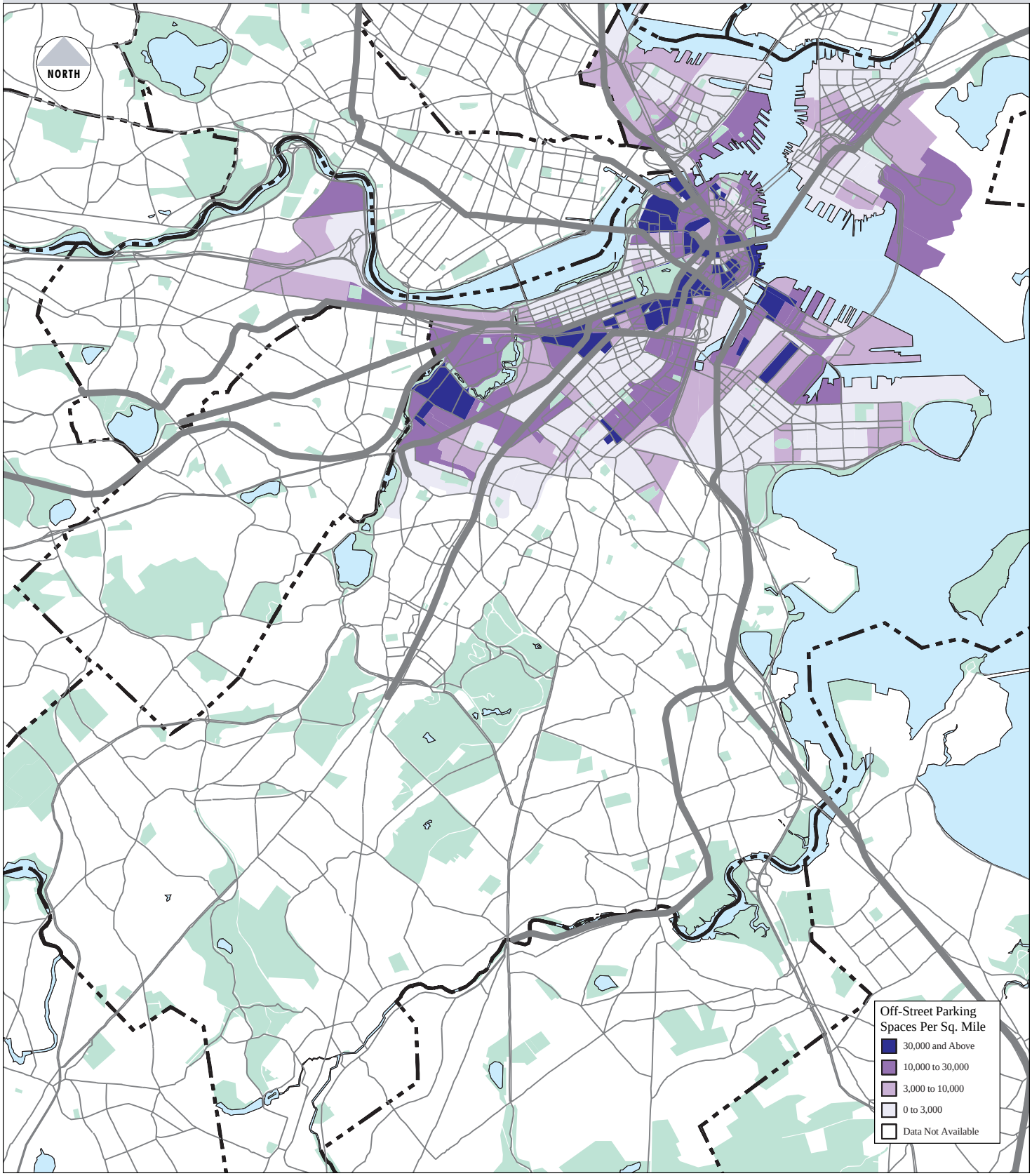


Figure 5:
Off-Street Parking Density

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

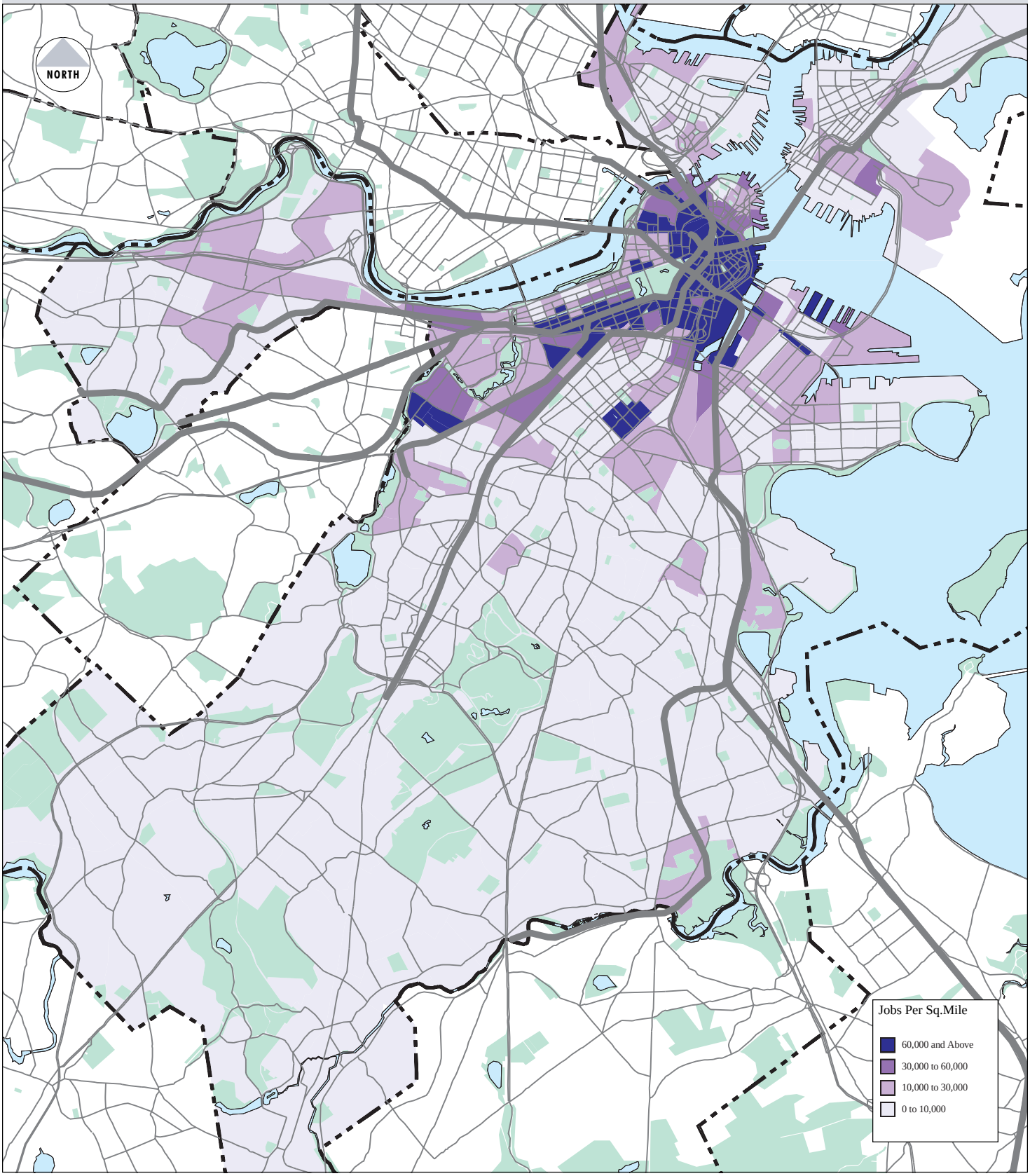
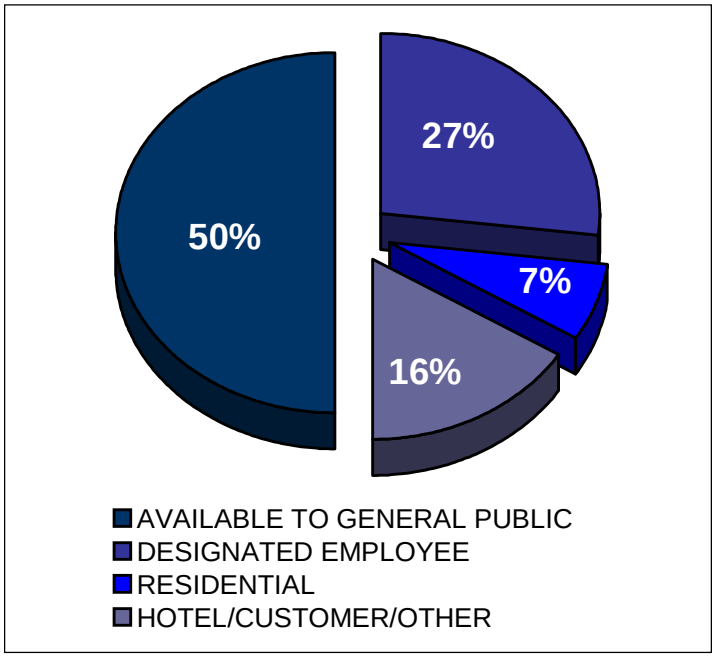


Figure 6:
Employment Density

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.

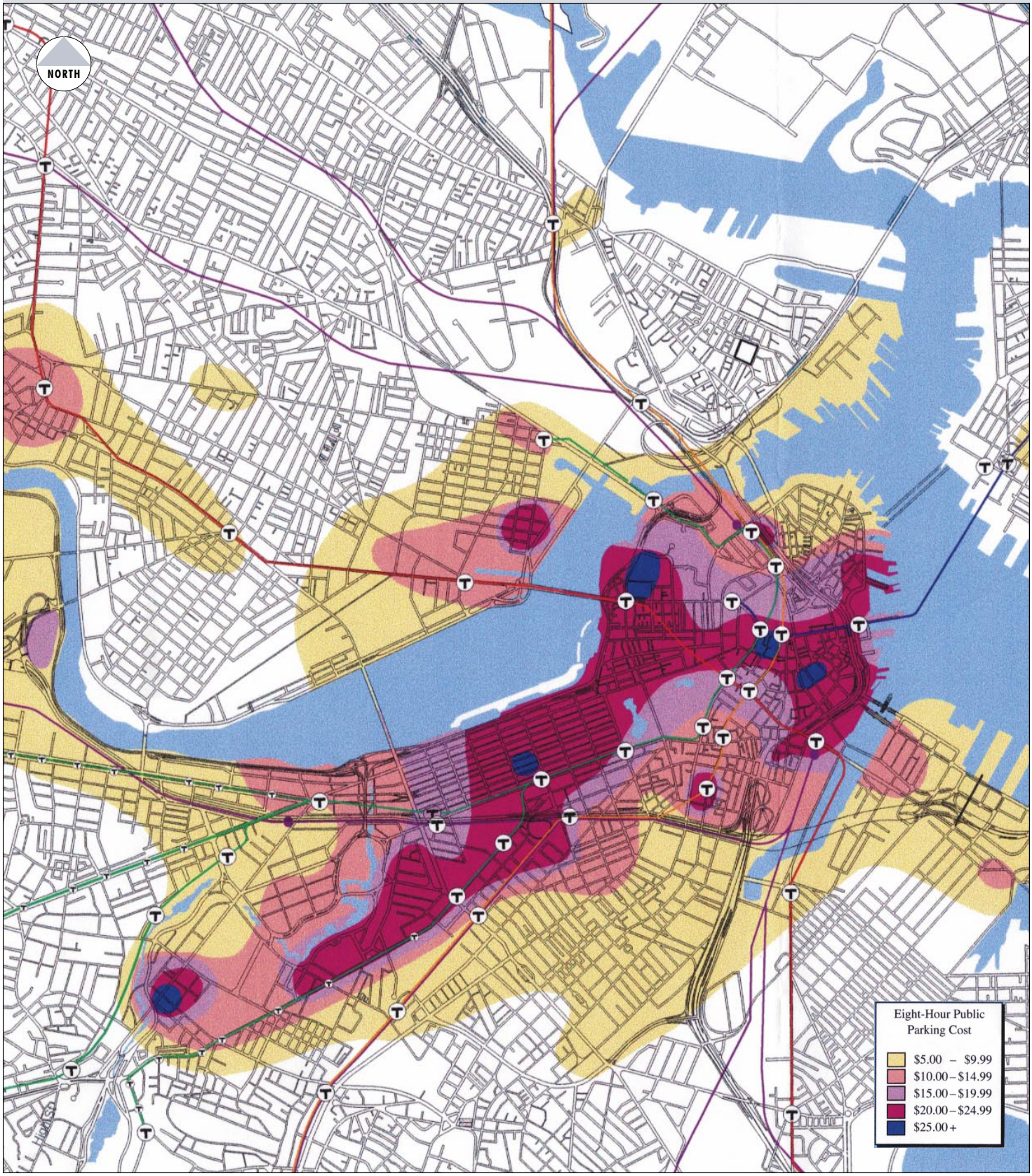


Figure 8:
Parking Rates in Boston Proper

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

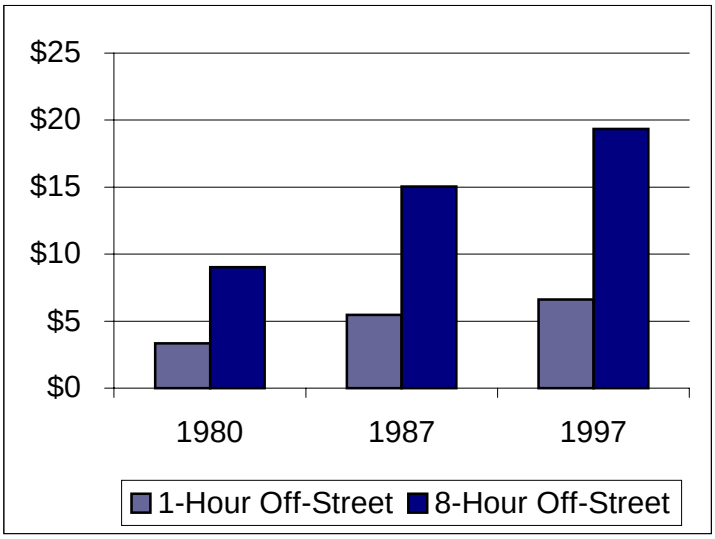
BTD estimated net new off-street parking spaces for approved development projects and projects under review in 2000 and again in 2001 for comparative purposes. Approved projects included projects that were under construction or received a permit to begin construction. Projects under review included development 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.

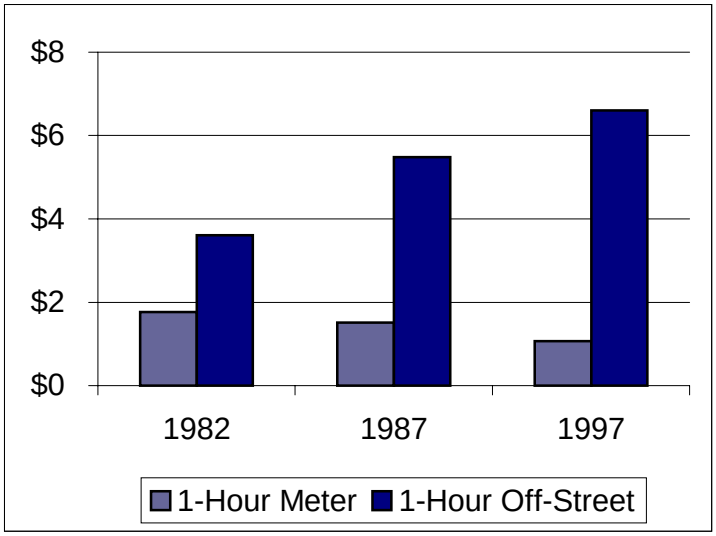
The inventory was also intended to provide guidance for developing and implementing comprehensive, multimodal programs to support reductions in parking levels and encourage the use of alternative modes.

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.

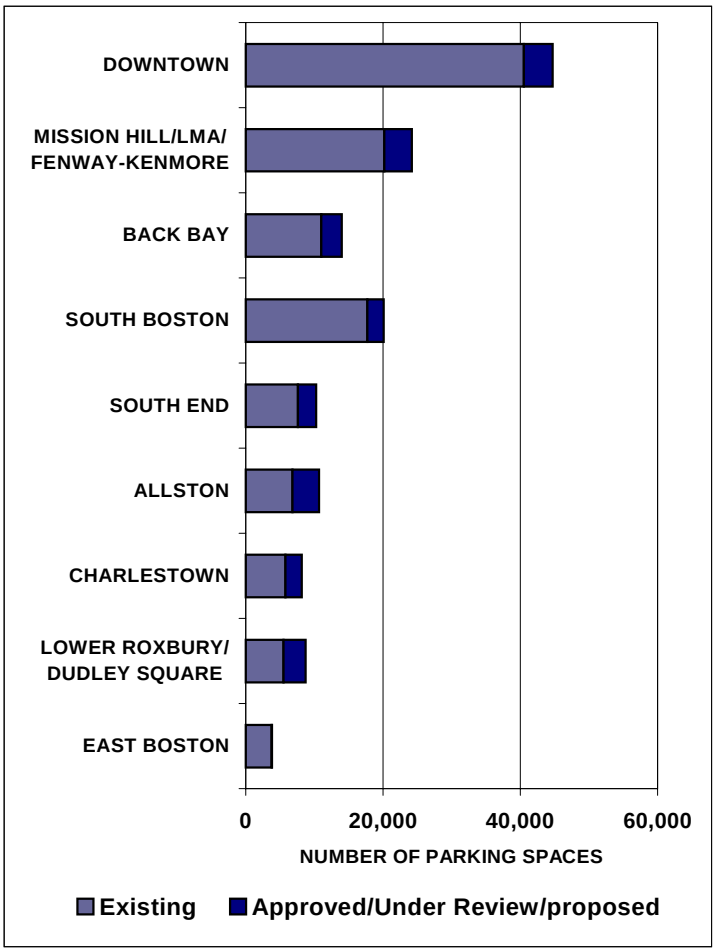
Mission Hill/ LMA/Fenway-Kenmore

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

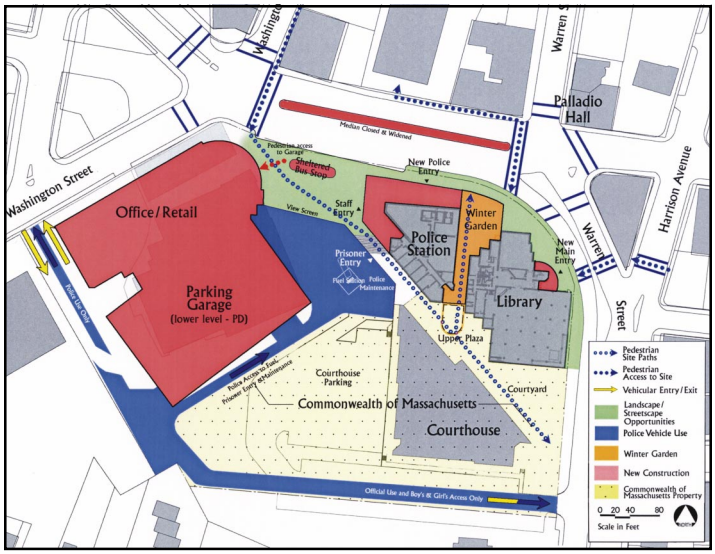
83% of the approved or under construction parking spaces. Crosstown will be built in two phases with 500 spaces in the first phase and 750 in the second. Grove Hall (outside the parking study area) is complete with 157 net new parking spaces. The Modern Electroplating project is under review and proposes 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.

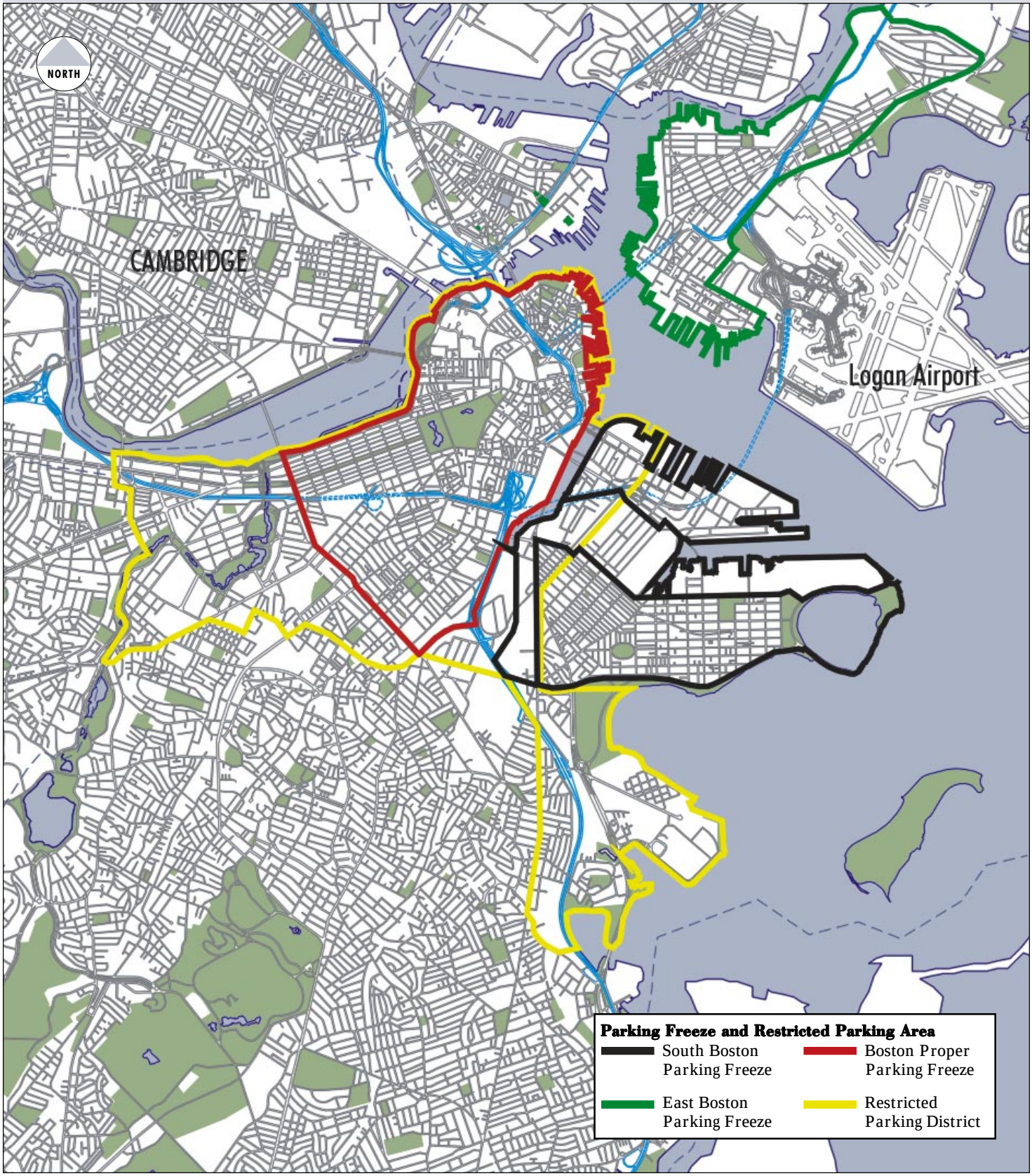


Figure 12
Parking Freeze and Restricted Parking Area

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