

Draft Report



Downtown Boston Business Improvement District *Pedestrian and Bicycle Studies*

Prepared for
Downtown Boston BID

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Background and Objectives

The Downtown Boston Business Improvement District Corporation (BID) was founded in September 2010 as a non-profit corporation made up of over 500 property and business owners committed to helping the downtown grow and prosper as a “vibrant and thriving destination.” BID boundaries are shown on **Figure 1**. Part of their mission is to support the community in improving downtown’s public realm through landscaping, new street furniture, signing and design. To provide a basis for assessing infrastructure improvement priorities, the BID has engaged Howard/Stein-Hudson Associates (HSH) to conduct pedestrian and bicycle counts and analyses during the busy holiday shopping season.

Study Methodology

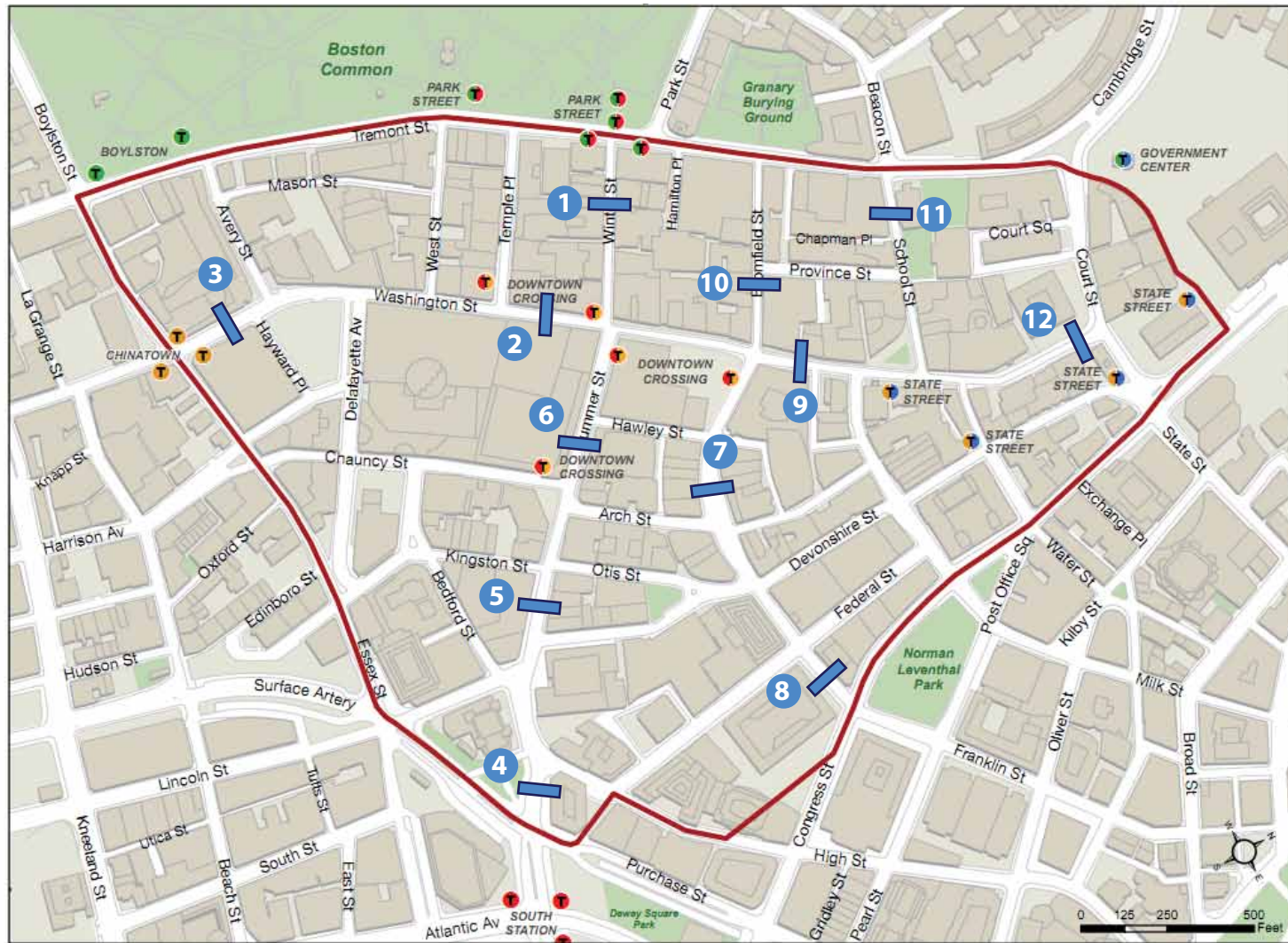
The study area for the counting program is shown in **Figure 1**. To give an indication of the relative use of downtown gateways by pedestrians and cyclists, 11-hour (7:00 AM to 6:00 PM) bi-directional counts were scheduled at six major boundary sites. To gauge variations in shopper volumes, counts were also scheduled for six key blocks within the core retail business area.

Counts were conducted by Precision Data, Inc. (PDI) during the period of December 13 to December 19, 2011. A combination of manual and digital Miovision camera counts was used to reflect accurately pedestrian and bicycle patterns on streets with heavy use. Both December 13, and December 19, 2011 were sunny/partly cloudy days with an average temperature of 28.9 °F and 37.5°F, respectively. Also Hubway, Boston’s new bike share program, dismantled all of their stations on November 30th, 2011 for the winter season. Therefore, any Hubway-related bicycle trips were not a part of our study. **Table 1** lists each of the locations with the method for its count.

Table 1. Counting Methodology at Study Area Intersections

Map Key	Location	Date Counted	Method
<i>Boundary locations</i>			
1	Winter St. east of Tremont St.	12/13/2011	Camera
3	Washington St. (Essex St. to Avery St)	12/19/2011	Camera
4	Summer St. just west of Surface Rd.	12/13/2011	Camera
8	Franklin St. west of Congress St.	12/19/2011	Manual
12	Washington St. south of Court St/State St.	12/19/2011	Camera
11	School Street east of Tremont St.	12/19/2011	Camera
<i>Internal locations</i>			
2	Washington St. (Summer St. to Temple St)	12/19/2011	Camera
5	Summer St. east of Otis St.	12/13/2011	Manual
6	Summer St. east of Hawley	12/13/2011	Camera
7	Franklin St. east of Hawley	12/19/2011	Manual
9	Washington St. (Franklin St. to Milk St.)	12/19/2011	Camera
10	Bromfield St. east of Province St.	12/19/2011	Manual

Figure 1. Study Area and Count Locations



Following the counting program, HSH summarized the count data in tabular and graphic form. Data were analyzed for the 11-hour (daily), AM peak hour, PM peak hour, and midday peak hour, as shown in the following sections of this report.

Study Findings

The findings of the study are summarized in the sections below.

Peak Hour Definition

The 11-hour counts revealed that the AM peak hour occurs from 8:15 to 9:15 AM, with 21,756 pedestrians counted within the district, the midday peak hour from 12:15 to 1:15 PM, with 31,140 pedestrians within the district, and the PM peak hour from 5:00 to 6:00 PM, with 30,309 pedestrians within the district.

Daily and Peak Hour Entering and Exiting Pedestrians

Eleven hour, AM peak hour, midday peak hour and PM peak hour pedestrian counts for the six boundary locations are summarized in **Table 2** and **Figure 2**, **Figure 3**, **Figure 4**, and **Figure 5**. All raw traffic count data can be found in **Appendix A**.

Table 2. 11-Hour, AM Peak Hour, Midday Peak Hour and PM Peak Hour Pedestrian Counts at Gateway Locations

Map Key	Location	Daily Volumes	AM Peak Hour Volumes	Midday Peak Hour Volumes	PM Peak Hour Volumes
1	Winter St. east of Tremont St.	27,573	2,138	2,681	3,027
3	Washington St. (Essex St. to Avery St)	13,414	747	1,383	1,209
4	Summer St. just west of Surface Rd.	9,360	1,039	981	1,786
8	Franklin St. west of Congress St.	18,615	1,957	2,546	3,125
12	Washington St. south of Court St/State St.	10,903	1,036	1,630	1,057
11	School Street east of Tremont St.	15,097	882	1,810	1,585

Figure 2. Percentage of Daily Pedestrian Volumes at Gateway Locations

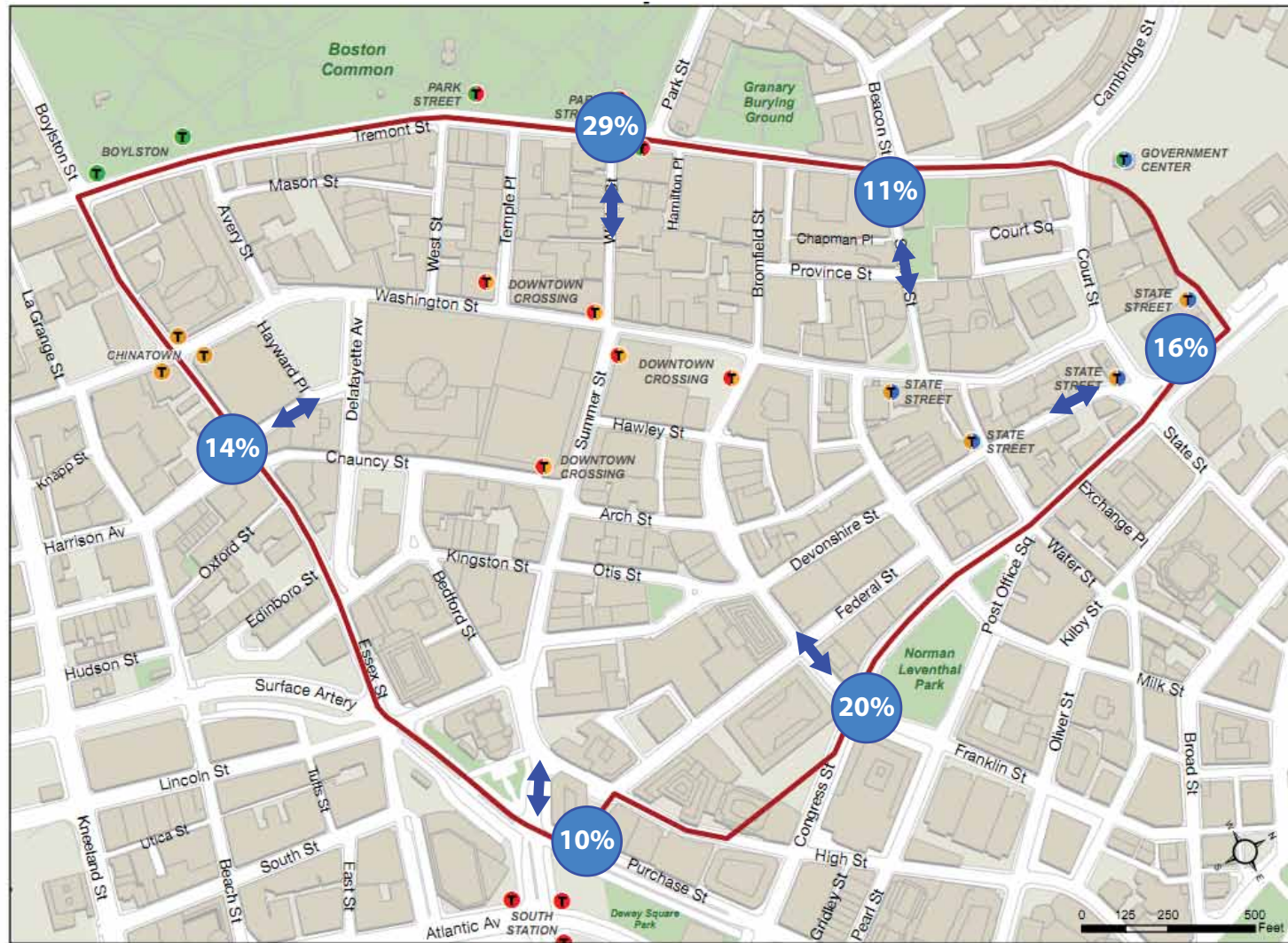


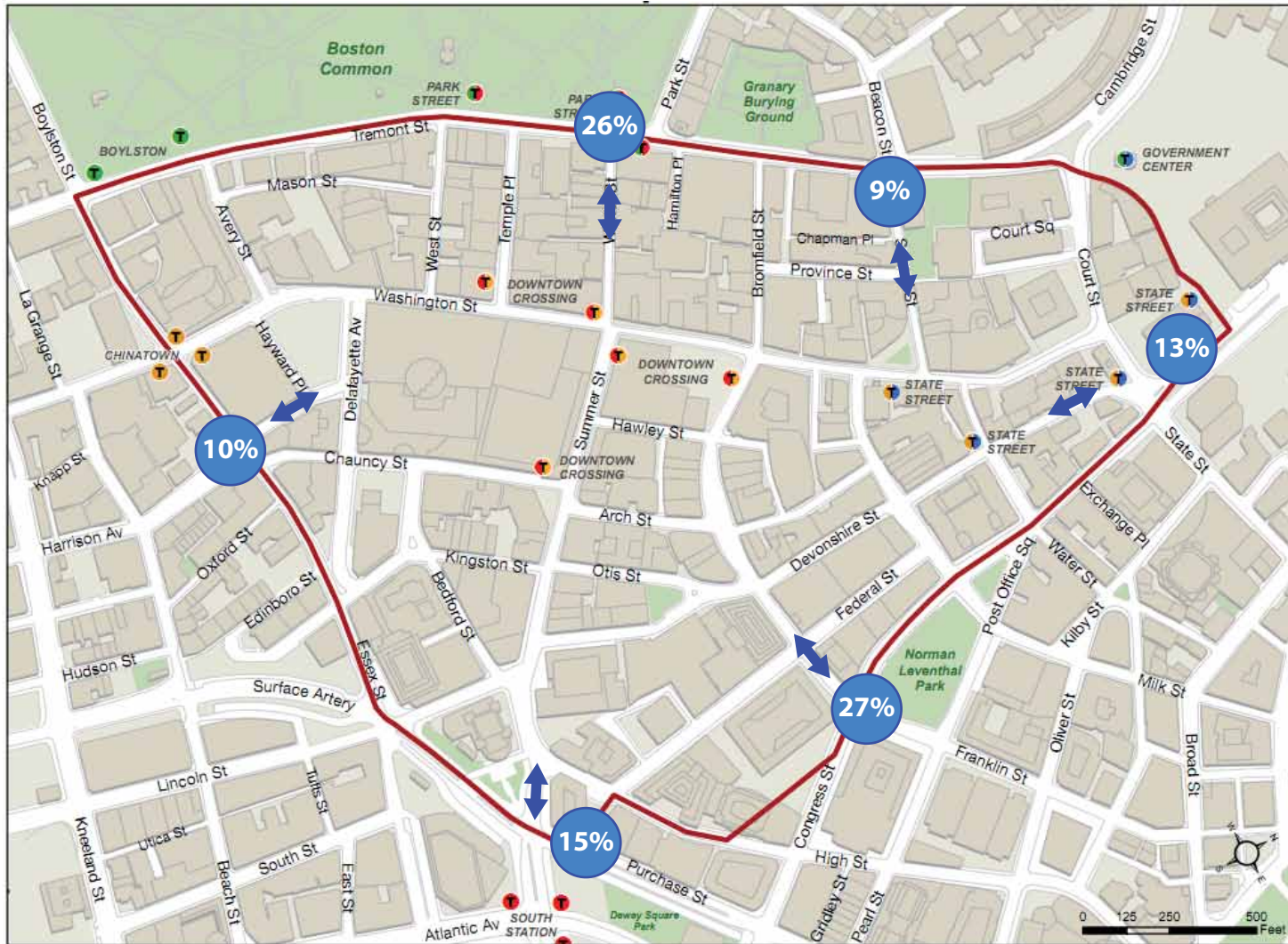
Figure 3. Percentage of AM Peak Hour (8:15-9:15 AM) Pedestrian Volumes at Gateway Locations



Figure 4. Percentage of Mid-day Peak Hour (12:15-1:15 PM) Pedestrian Volumes at Gateway Locations



Figure 5. Percentage of PM Peak Hour (5:00-6:00 PM) Pedestrian Volumes at Gateway Locations



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The six gateway locations accounted for 94,962 entering and exiting pedestrian trips over the 11-hour count period. Entering and exiting trips were fairly evenly balanced both over the course of the day and midday peak hours, as would be expected, and surprisingly during the AM and PM peak hours as well. The AM peak hour accounted for 8% of the total 11-hour volumes; the midday and PM peak hours each accounted for 12% of the 11-hour volumes.

The major gateway into and out of the downtown over the course of the 11-hour day was Winter Street, accounting for 29% of total entering and exiting pedestrian trips passing through the six locations – 27,573 out of 94,962 total trips. Similarly, Winter Street accounted for 27% of 7,799 total trips in the AM peak hour; 24% of 11,031 total trips at midday, and 33% of 11,789 total trips in the PM peak hour. The strong volumes are easily explained by the proximity of Park Street MBTA Green and Red Line Station.

Surprisingly, though, the Summer Street gateway accounted for only 10% of the daily pedestrian volumes counted, 13-15% of the AM, PM and 9% of the midday peak hour. With South Station as a major pedestrian generator, it might be expected that this route would account for a higher share of pedestrian trips into and out of the district. Much of the South Station pedestrian traffic, however, is routed into the district via the pedestrian passageway on the north side of 175 Federal Street. We recommend that this location along with all the other pedestrian gateways be incorporated into the larger spring data collection effort in order to obtain a more comprehensive picture of pedestrian activity.

Franklin Street accounted for 20-27% of daily and peak hour pedestrian volumes. In this case, there is no adjacent transit station, but there are several large office buildings along the street, as well as the large Post Office Square Garage.

Daily and Peak Hour Pedestrian Volumes at Internal Locations

Eleven hour, AM peak hour, midday peak hour, and PM peak hour pedestrian data for the six internal locations are summarized in **Table 3** and volumes at all count locations are shown in **Figure 6**, **Figure 7**, **Figure 8** and **Figure 9**. All raw traffic count data can be found in **Appendix A**.

**Table 3. 11-Hour, AM Peak Hour Midday Peak Hour and PM Peak Hour
Pedestrian Counts at Internal Locations**

Map Key	Location	Daily Volumes	AM Peak Hour Volumes	Midday Peak Hour Volumes	PM Peak Hour Volumes
2	Washington St. (Summer St. to Temple St)	23,372	2,042	2,418	3,022
5	Summer St. east of Otis St.	24,972	2,294	4,114	3,029
6	Summer St. east of Hawley	51,501	5,297	6,664	6,760
7	Franklin St. east of Hawley	9,898	777	1,598	1,123
9	Washington St. (Franklin St. to Milk St.)	36,452	3,094	4,256	3,767
10	Bromfield St. east of Province St.	7,255	453	1,059	819

As shown, the highest daily volumes were found on the block of Summer Street between Hawley Street and Arch Street, with a total of 51,501 pedestrians passing through over the 11-hour counting period. The next highest density was found on Washington Street between Milk Street and Bromfield Street, with 36,452 pedestrians counted. Franklin and Bromfield Streets had lower daily volumes.

In the midday peak hour, the Summer Street block between Hawley and Arch was again the most heavily travelled, with 6,664 pedestrians counted. This volume exceeded predicted midday peak volumes from 3,480 to 5,750 for this block contained in the Downtown Crossing Identity and Branding Strategy Study. Summer Street between Otis and Devonshire and Washington Street between Milk and Bromfield each had over 4,000 pedestrians counted in the midday peak. The Summer Street midday volume was within the same 3,480 to 5,750 range of predicted volumes from the Identity and Branding Strategy study. The Washington Street volume of 4,256 was lower than the 5,750 low end of the highest range in the predictions, but still within the next level down.

Figure 6. Daily Pedestrian Volumes

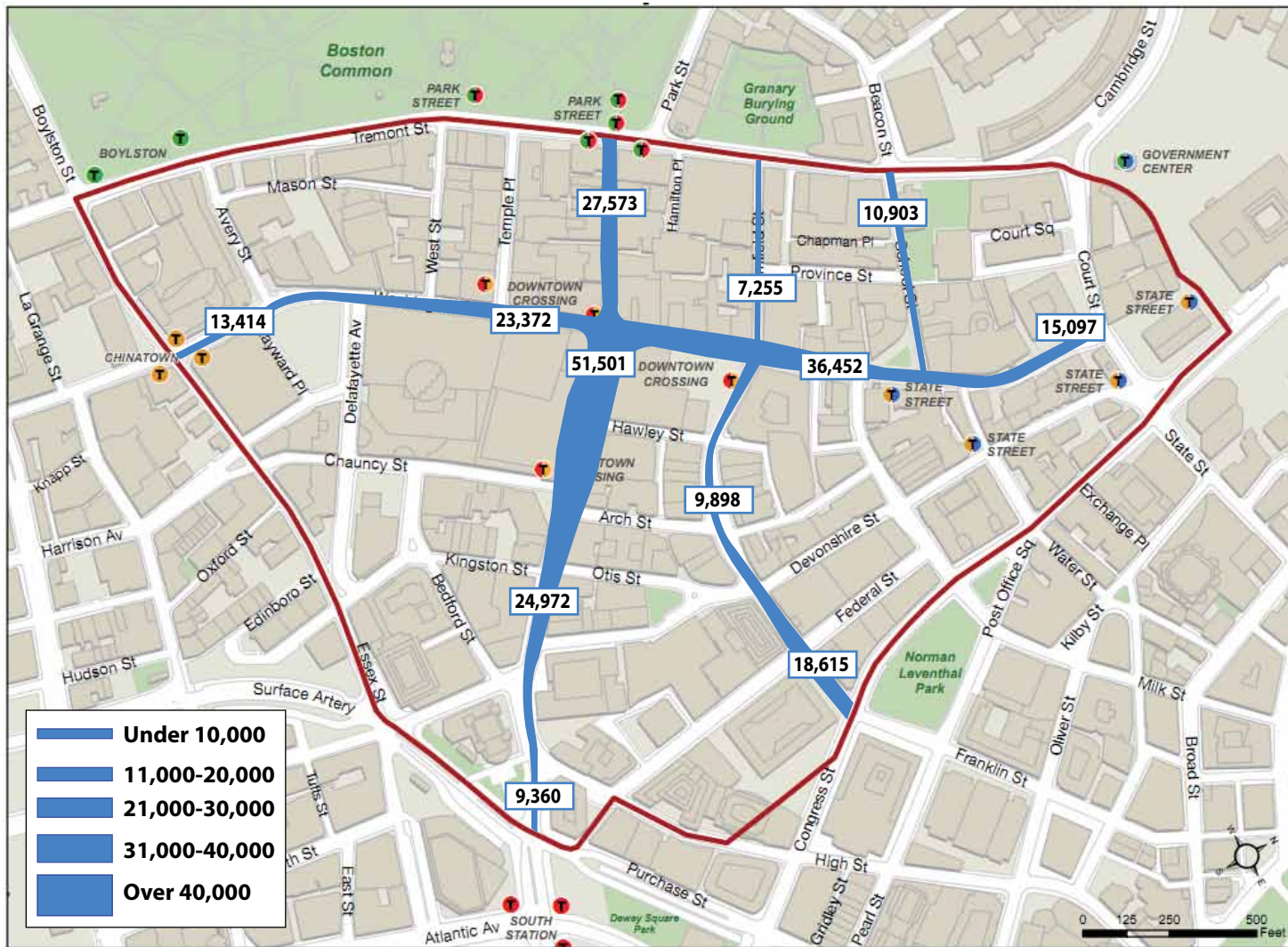


Figure 7. AM Peak Hour (8:15-9:15 AM) Pedestrian Volumes

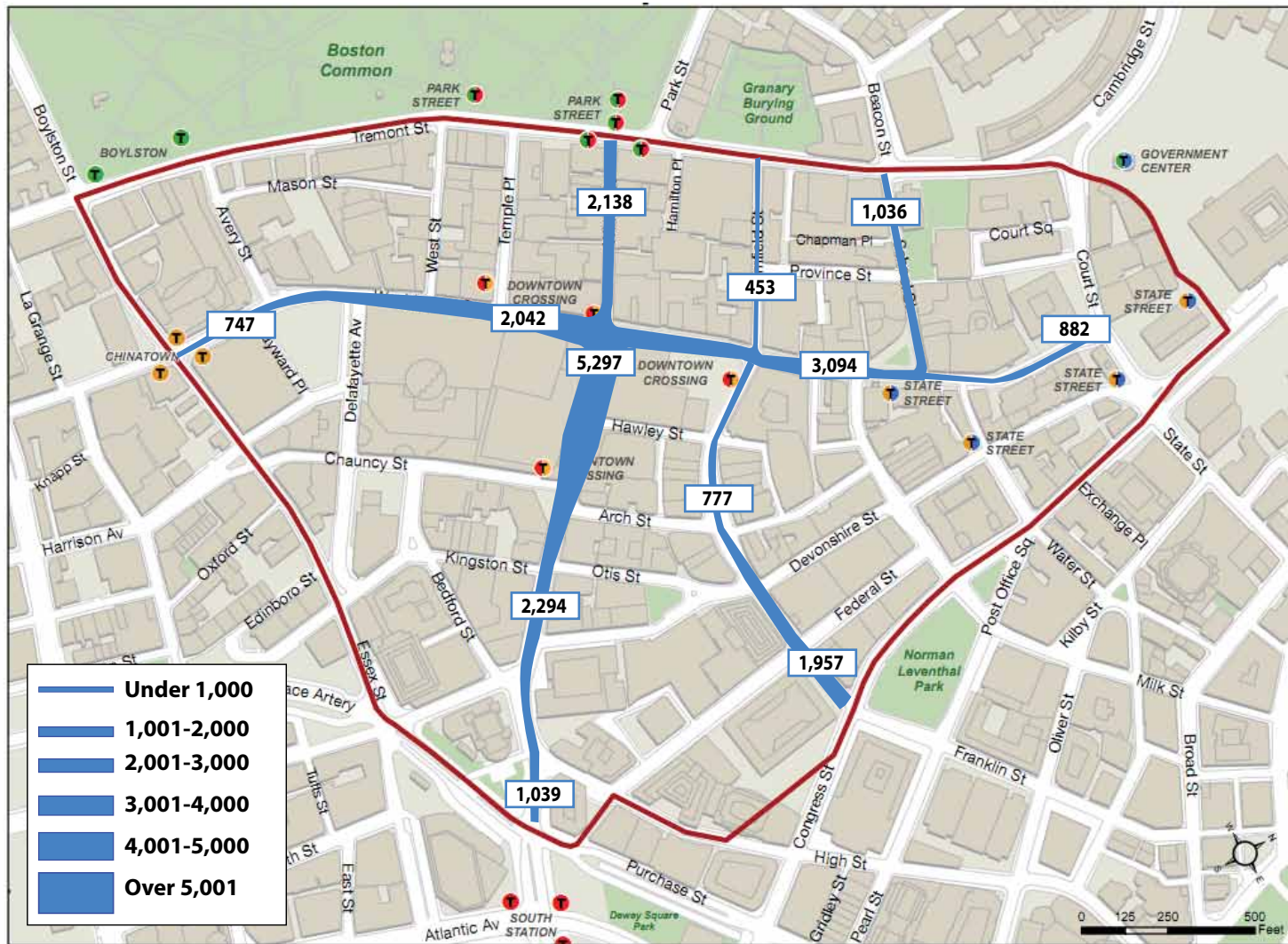


Figure 8. Mid-day Peak Hour (12:15-1:15 PM) Pedestrian Volumes

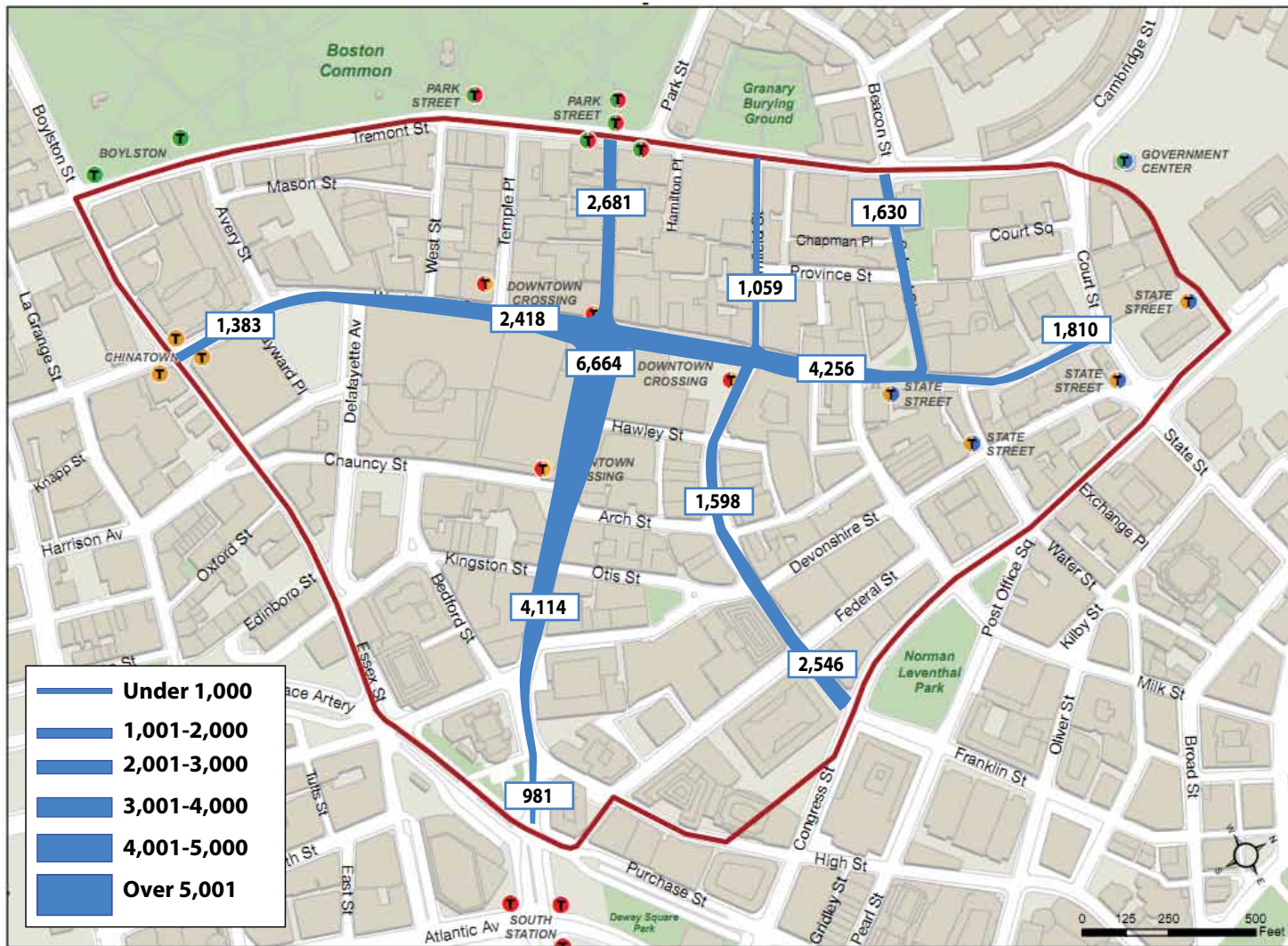
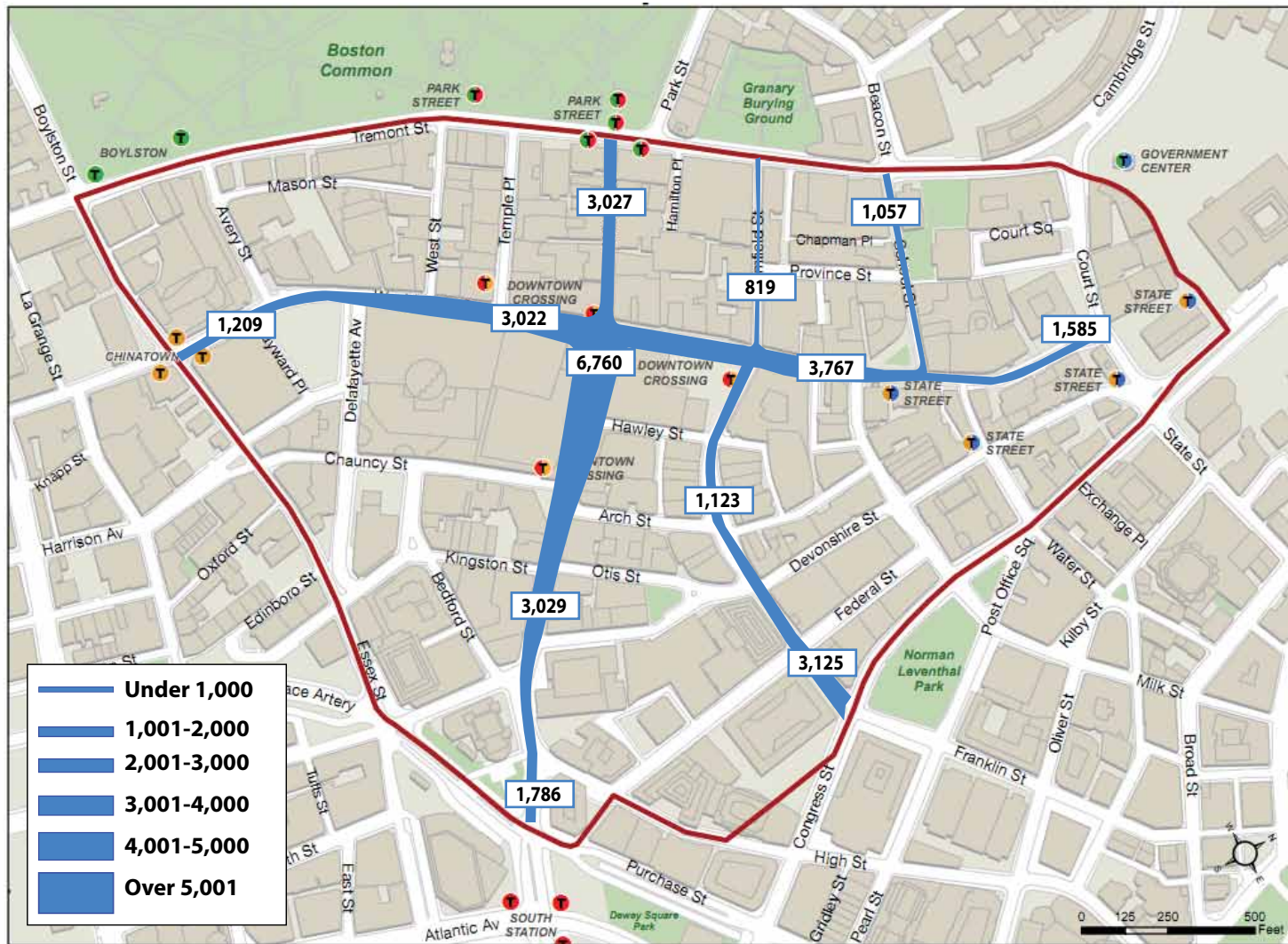


Figure 9. PM Peak Hour (5:00-6:00 PM) Pedestrian Volumes



Daily and Peak Hour Entering and Exiting Bicycles

Eleven hour, AM peak hour, midday peak hour and PM peak hour bicycle counts for the six boundary locations are summarized in **Table 4** and daily bicycle volumes are shown in **Figure 10**. All raw traffic count data can be found in **Appendix A**.

Figure 10. Daily Bicycle Volumes

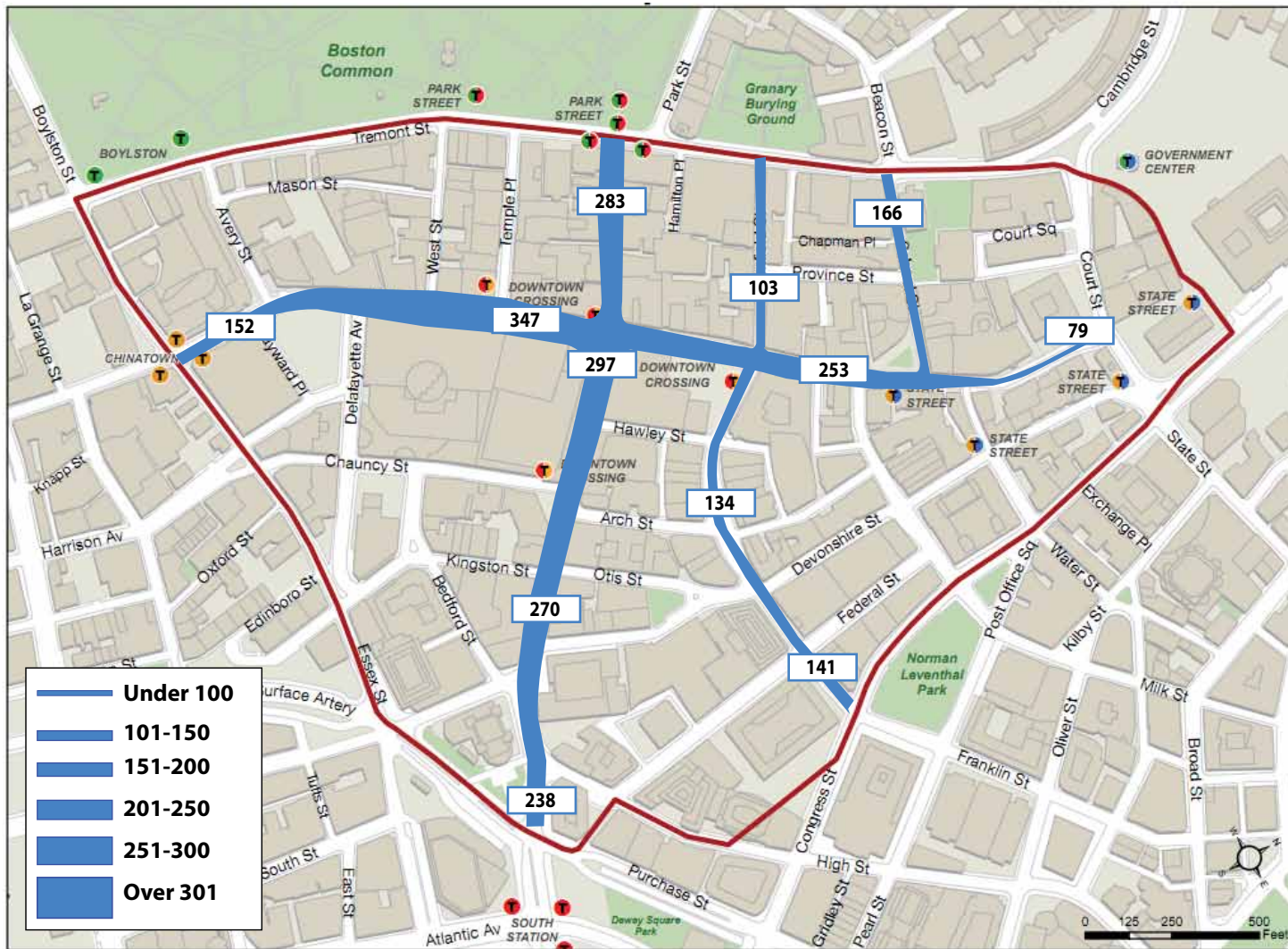


Table 4. 11-Hour, AM Peak Hour, Midday Peak Hour and PM Peak Hour Bicycle Counts at Gateway Locations

Map Key	Location	Daily Volumes	AM Peak Hour Volumes	Midday Peak Hour Volumes	PM Peak Hour Volumes
1	Winter St. east of Tremont St.	283	40	17	24
3	Washington St. (Essex St. to Avery St)	152	38	3	7
4	Summer St. just west of Surface Rd.	238	29	23	26
8	Franklin St. west of Congress St.	141	5	14	17
12	Washington St. south of Court St/State St.	166	25	21	6
11	School Street east of Tremont St.	79	4	1	16

During the 11-hour period, 1,059 bicycles entered or exited the study area via the gateway locations. Some locations, including the Winter Street and Summer Street gateways, have bicycle volumes that are very evenly balanced between entering and exiting. Winter Street is restricted to vehicles and Summer Street is a two-way roadway. Other locations, including the northern and southern Washington Street locations, had a majority of the volumes traveling in one direction. Due to Washington Street being a one-way roadway, this imbalance in directional volume is expected. The AM peak hour had the largest volume of bicycles for any peak hour, accounting for 13% of the 11-hour volumes. The midday peak hour accounted for 7% of the 11-hour volumes and the PM peak hour accounted for 9% of the 11-hour volumes.

Paralleling the pedestrian data, a majority of the bicycles assessed the downtown crossing area via Winter Street, accounting for 27% of the total entering and exiting gateway bicycle trips. During the AM, midday, and PM peak hours, Winter Street bicycle volumes account for 28%, 22%, and 25% of the bicycle volumes at the six gateway locations. It can be deduced that the Winter Street bicycle trips are originating and/or ending in Back Bay, Beacon Hill, Fenway, and Allston neighborhoods.

The Summer Street gateway accounted for the second largest volume of bicycles out of the six gateway locations, with 22% of the 11-hour volumes. The Summer Street bicycle volumes accounted for 21% of the AM peak hour, 29% of the midday peak hour, and 27% of the PM peak hour gateway volumes. These bicycle trips are most likely originating and/or ending in the South Boston area.

Daily and Peak Hour Bicycle Volumes at Internal Locations

Eleven hour, AM peak hour, midday peak hour, and PM peak hour bicycle data for the six internal locations are summarized in **Table 5** and **Figure 10**. All raw traffic count data can be found in **Appendix A**.

Table 5. 11-Hour, AM Peak Hour Midday Peak Hour and PM Peak Hour Bicycle Counts at Internal Locations

Map Key	Location	Daily Volumes	AM Peak Hour Volumes	Midday Peak Hour Volumes	PM Peak Hour Volumes
2	Washington St. (Summer St. to Temple St)	347	94	12	49
5	Summer St. east of Otis St.	270	38	23	15
6	Summer St. east of Hawley St.	297	65	50	20
7	Franklin St. east of Hawley St.	134	2	9	30
9	Washington St. (Franklin St. to Milk St.)	253	76	6	19
10	Bromfield St. east of Province St.	103	3	7	19

In general, midday peak hour bicycle volumes were lower than those during AM and PM peak hours. This is due to the fact that many of the bicyclists traveling in the downtown area on any given day are bicycle commuters, who are not traveling via bicycle during the midday peak hour.

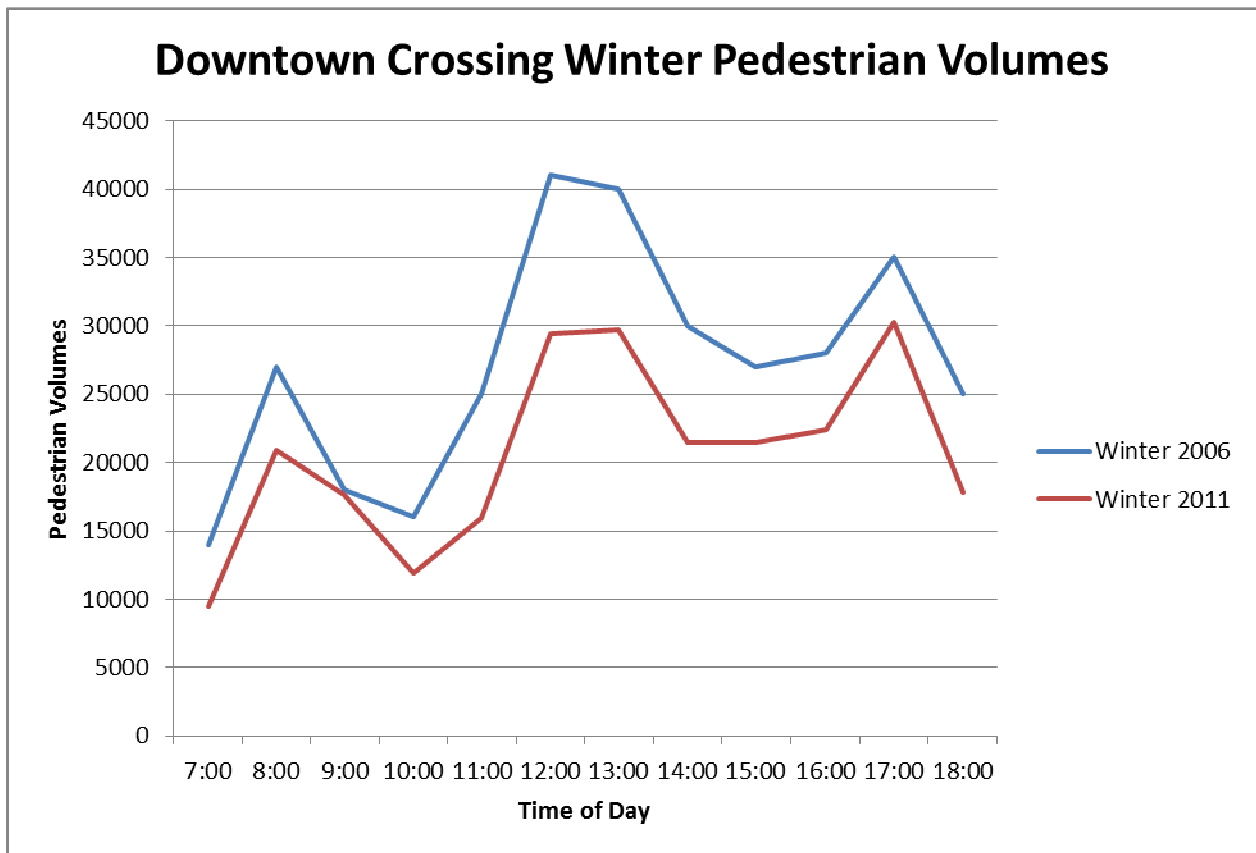
The highest bicycle volumes were observed on Washington Street between Summer Street and Temple Street with 347 bicycles traveling in either direction during the 11-hour count. Washington Street is a pedestrian/bicycle roadway at this location. With regular traffic prohibited from the roadway, bicyclists may travel safely and comfortably, making this location an attractive choice for bicyclists. During the AM, midday, and PM peak hours at this location, 94, 12, and 49 bicycles respectively were observed traveling in either direction at this location.

Summer Street between Hawley Street and Arch Street had the second-highest bicycle volumes for the six internal locations with 297 bicycles traveling in either direction during the 11-hour count. While vehicles are permitted to travel on Summer Street at this location, this location is adjacent to the Washington Street pedestrian roadway and therefore has fairly low vehicular traffic. The AM, midday, and PM peak hour bicycle volumes for this location are 65, 50, and 20 bicycles respectively.

Comparison with 2008 Report Data

Following the tabulation of the count data, a comparison of the data contained in the June 2008 *Downtown Crossing: a Crossroads for a Crossing* report was evaluated. In the 2008 report, pedestrian count data was collected on November 15, 2006 and July 24, 2007. The report uses these counts to represent pedestrian volumes during the winter and summer seasons, where pedestrian volume and behavior will differ due to weather, tourism, and the school-year. HSH compared the report's winter 2006 pedestrian volumes with the new winter 2011 pedestrian volumes. This comparison can be seen in **Figure 11**.

Figure 11. Downtown Crossing Winter Pedestrian Volumes Comparison



As shown, winter 2006 pedestrian volumes are somewhat larger than the winter 2011 pedestrian volumes, with the largest difference in volumes during the midday peak hour, due to both the lower number of locations counted in 2011 and to the land use changes between 2006 and 2011. Due to the country's recession, some businesses, including Barnes and Noble bookstore and Filene's department store, have closed their retail locations in Downtown Crossing. But, **Figure 11** does show that pedestrian's patterns throughout the day are consistent in both studies.

The 2008 report evaluated the Winter Street location as a moderate location of pedestrian volume while the 2011 data shows this location to be a major location of pedestrian volumes. Within the past five years, pedestrian volumes on Winter Street have increased.

Conclusion

The Downtown Boston Business Improvement District Corporation (BID) charged Howard/Stein-Hudson Associates (HSH) with conducting a pedestrian and bike study within the downtown crossing district to update previous pedestrian data and analyze the information for pedestrian trends. HSH has found that the major gateway in which pedestrians and bicyclists are accessing the downtown crossing area is Winter Street. However, while the Summer Street gateway volumes accounted for a minimal percentage, HSH believes that pedestrians are accessing Downtown Crossing from South Station via the pedestrian passageway on the north side of 175 Federal Street. HSH recommends conducting counts at this location during the spring study to confirm this theory.

HSH also compared and contrasted the pedestrian volume data collected in December 2011 with pedestrian data collected in November 2006. HSH found these numbers to confirm that pedestrian behavior trends have remained consistent, even though pedestrian volumes captured in the December 2011 study show somewhat decreased pedestrian activity from the 2006 data, particularly during the midday peak hour. HSH looks forward to collecting more pedestrian and bicycle volumes in the upcoming spring to analyze and compare with previous volumes to better understand the major pedestrian and bicycle movements throughout Downtown Crossing.