

2012 POINT-IN-TIME SURVEY

City of New Haven
New Haven, Connecticut
MMI #1621-43-1



PREPARED FOR:
City of New Haven
200 Orange Street
New Haven, Connecticut 06510

April 2013



MILONE & MACBROOM

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April 15, 2013

Mr. Jim Travers
Interim Director
Department of Transportation, Traffic, and Parking
200 Orange Street, G3
New Haven, CT 06510

Mr. Michael Piscatelli
Executive Director
New Haven Parking Authority
50 Union Avenue
New Haven, CT 06510

**RE: New Haven Point-in-Time Survey and
Parking Plan Update – 2012
MMI #1621-43/44**

Dear Mr. Travers and Mr. Piscatelli:

Milone & MacBroom, Inc. has prepared this report presenting and analyzing the results of the 2012 Point-in-Time survey. We hope this report is useful to you and the City of New Haven in providing a thorough understanding of downtown parking, bicycling, and walking activity. We have presented a number of recommendations that we feel will allow the city to continue to provide parking in a way that is beneficial to residents and businesses. If you have any questions or need anything further, please do not hesitate to contact me.

Very truly yours,

MILONE & MACBROOM, INC.

David G. Sullivan, P.E. – Associate
Senior Transportation Engineer

Enclosure

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**CITY OF NEW HAVEN
NEW HAVEN, CONNECTICUT**

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Prepared by:

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EXECUTIVE SUMMARY

Beginning in 2003, the City of New Haven began monitoring the supply of and demand for publicly accessible parking in the downtown area. This was done and continues through a series of "Point-in-Time" surveys, which provide a snapshot of peak weekday parking demand in downtown New Haven. The Point-in-Time survey also counts the pedestrian and bicyclist traffic at key intersections in central New Haven. The data from these surveys are used for a number of purposes including the careful planning of bicycle facilities, new parking facilities, and the reduction or limiting of parking supply in locations with an abundance of parking. In 2009 through 2011, Milone & MacBroom, Inc. (MMI) oversaw the Point-in-Time survey and furnished the city with the results as well as an update to the downtown parking plan.

In 2012, MMI has again managed the Point-in-Time survey, coordinating a count of all publicly accessible downtown parking lots, garages, and metered on-street parking spaces, and counts of bicycle and pedestrian activity at key intersections. The results and discussion of these counts are presented herein.

In 2011, the city expanded focus and interest on the pedestrian and bicyclist counts by adding six new intersections to monitor in more detail the pedestrian and bicyclist traffic in the downtown area. In 2012, the city further expanded the study area by conducting pedestrian and bicycle counts at 15 additional intersections: in the Route 34, Medical District, and Union Station areas. All totaled, pedestrian and bicycle traffic was surveyed at 25 intersections for the 2012 study. With regard to the parking counts, 49 parking areas were surveyed in 2012, an increase over the 45 surveyed in 2011. Overall, the total number of spaces surveyed increased from 15,904 in 2011 to 16,937 in 2012.

The key findings of this study are:

- The observed overall 2012 parking utilization rate in central New Haven decreased from prior years to 79%. This represents the lowest occupancy rate since this study has been conducted going back to 2003.
- The overall parking utilization rate decrease from 87% in 2011 to 79% in 2012 reflects both an increase in capacity and a decrease in demand.
- Projection of parking utilization through 2015 indicates that the previously forecasted parking "crunch" is no longer projected.
- Bicycle ridership at previously surveyed locations has been fairly stable overall, but with some decreases from 2011 to 2012.
- Counts of pedestrian activity showed that of the four original downtown intersections counted in previous studies there was an observed overall decrease of pedestrian traffic (approximately -6%) from 2011 to 2012 during the midday.
- Route 34 corridor pedestrian activity decreased slightly (approximately -4%) from 2011 to 2012 during the midday.

As New Haven continues to see development in the coming years, parking conditions should be closely monitored so that utilization rates remain within the optimal range of between 80% and 90%. A proper balance of available parking supply and management of demand will help ensure that the city develops in a sustainable, livable, and economically successful manner. The construction of the second parking garage at Union Station and parking associated with the redevelopment of the Coliseum site are anticipated to create a net increase of approximately 725 spaces by 2016. While most of the spaces in the garage proposed for the Coliseum site will eventually serve the mixed-use development anticipated for that site, the second Union Station garage will provide much-needed capacity to the public parking system.

The bicycle and pedestrian counts indicated that nonmotorized transportation continues to play an increasingly important role in the downtown transportation system. Notable flow of bicycle traffic was observed between Yale University and the Medical District, as well as through downtown along east-west routes. Pedestrian counts remained high, but some locations did experience decreases from the prior year. As the city continues to develop in the coming years, in addition to the aforementioned parking supply increases, we recommend that the city explore Transportation Demand Management strategies to reduce parking and motor-vehicle traffic demands downtown. The city should also explore potential modifications to the transportation system through improved and new transit, bicycle, and pedestrian facilities to further promote sustainable, nonmotorized travel.

2012 POINT-IN-TIME SURVEY - INTRODUCTION

During the past 10 years, the City of New Haven has experienced a significant amount of economic development, which has resulted in increased demands on its transportation system. In particular, the city has sought to maintain and improve the economic vitality of the downtown by ensuring that (1) the transportation system is not overly reliant on the private automobile and (2) that the parking supply can meet current and projected demands while avoiding an excess in parking supply that could occupy otherwise developable land or result in a financial drain on the city's resources.

In order to properly manage the supply of downtown parking, the city has commissioned and undertaken a number of studies, starting in 2003, which sought to assess the adequacy of the publicly accessible downtown parking supply, determine future parking needs relative to supply, and make recommendations accordingly. The findings of the 2003 study were presented in the *Downtown New Haven Parking: Strategic Plan*, completed by Wilbur Smith Associates (WSA) in May 2004. The city updated and expanded upon the plan in September 2004 and undertook additional updates in June 2006, August 2007, and October 2008. The core information utilized in these studies was capacity and utilization data obtained through Point-in-Time surveys completed in 2003 and 2008, in which the city manually counted publicly accessible parking utilization throughout the downtown study area.

In addition to monitoring and managing the parking supply, the city has in recent years taken significant steps to provide a greater range of transportation options for residents and visitors. Much of this focus has been on "active transportation" modes such as walking and biking, which have the potential to meet many of the transportation needs of both residents and visitors without the increases in pollution and traffic congestion associated with motor vehicle travel and without further increases in parking demand. In 2008, the city passed Complete Streets legislation aimed at creating a safe and sustainable transportation network that is accessible and beneficial to all users. A major component of the Complete Streets legislation is to ensure that the city develops

and maintains its transportation system with all roadway users in mind, including pedestrians, cyclists, motorists, and transit users.

Since the 2008 Complete Streets legislation was passed, the city has conducted numerous studies and plans to support its initiative in creating more "choice" for transit users. The 2011 Point-in-Time study focused more heavily on pedestrian and bicyclist counts by adding six new major intersections and conducting bicycle counts during the morning commute period. The current 2012 Point-in-Time study once again has made pedestrian and bicyclist counts a priority by adding 15 new intersections within the downtown, Route 34 corridor, and Medical District/Union Station areas. The counts included both morning and midday counts for both pedestrians and bicyclists.

The City of New Haven engaged MMI to manage and conduct its eighth Point-in-Time survey of parking supply and demand as well as manual counts of bicycle and pedestrian activity downtown. The 2012 survey uses the similar methodology employed in 2011; however, in 2012 the study utilizes professional enumerators. Also, the 2012 study identifies the downtown, Route 34 corridor, and Medical District/Union Station areas each separately due to the addition of 15 new intersections and morning bicyclist and pedestrian volumes at all locations. MMI organized and oversaw the parking, bicyclist, and pedestrian counts; compiled that data; and presents the findings in this report. The results of the parking counts were compared to the findings of the 2009, 2010, and 2011 studies and additional data provided by the city in order to develop a profile by which anticipated future parking supply and demand within the study area could be assessed.

POINT-IN-TIME HISTORY

Beginning in 2003, the City of New Haven carefully monitored downtown parking demand relative to the supply of publicly accessible parking including metered on-street parking, surface parking lots, and parking garages. The city then included the pedestrian and bicyclist counts in 2009 to formally call the study the Point-in-Time. Provided below is a brief summary of each of the previous parking plans and updates.

Strategic Parking Plan (2003) - The *Downtown New Haven Parking: Strategic Plan* was completed by Wilbur Smith Associates (WSA), a consultant commissioned by the City of New Haven and the New Haven Parking Authority (NHPA). In 2003, WSA undertook a parking utilization study, assembled stakeholder input, and made recommendations to address the parking needs of downtown. The study released in May 2004 concluded that parking occupancy in the downtown study area, shown in Figure 1, was in excess of 80% and approaching 90% at most locations. Recommendations included both the provision of additional parking facilities as well as parking management strategies such as discouraging single-use parking facilities and improved coordination between the City of New Haven and private businesses and institutions.

Detailed Parking Plan (2004) - The *Update Report: Detailed Parking Plan for Gateway/Ninth Square and South/West of Chapel* was completed by WSA one year after the study that served as the basis for the Strategic Parking Plan. This plan was formulated after the details surrounding a number of planned retail, residential, and institutional projects were confirmed by the City of New Haven. The plan included projections for anticipated parking supply and demand through July 2008. Based on their findings, WSA recommended the construction of new parking facilities. In addition, WSA recommended two interim solutions to address a projected insufficiency in parking supply relative to demand as well as parking management strategies aimed at limiting the growth in parking demand in the longer term.

Parking Plan Update #1 (2006) - As recommended in the previous plans, the City of New Haven continued to monitor and assess changes in parking supply and demand. In 2006, several city

departments including the New Haven Parking Authority; the New Haven School Construction Office; Transportation, Traffic & Parking Department; City Plan Department; and Office of Economic Development worked together to update the parking supply and utilization data. The data was obtained from on-street parking counts conducted by consultants Tighe & Bond as well as utilization data provided by parking facility operators. The update found that since the 2004 study, utilization increased from 86.3% to 89.1% and predicted that the most significant parking crunch would occur in the first half of 2008. The recommendations included the continued monitoring of the parking supply relative to demand, continued attention to planned and pending developments expected to impact parking supply and demand, and that the planned 810-space midblock garage proposed for the Financial/Audubon District remain on schedule so that it opens in the second half of 2008. It was also recommended that the proposed second garage at Union Station be completed in a timely manner.

Parking Plan Update #2 (2007) - In 2007, the same city departments collaborated to update the parking plan from the previous year, focusing primarily on changes due to the scheduling of major projects. Adjustments were made to utilization rates based on data provided by surface lot and garage operators. The update noted that two of the biggest planned changes to the parking system, the construction dates of the midblock garage and the second Union Station garage, were pushed back to 2010 and 2012, respectively. Additionally, the midblock garage was officially changed to "State and Wall," reflecting a new planned location, and was reduced in size from 810 to 600 spaces. Based on the scheduling changes, the plan indicated that the tightest parking situation would occur in fall/winter 2009. The plan recommended that the city continue to monitor the downtown parking situation, continue to track planned developments as well as changes to the parking supply, and that the State and Wall garage and second Union Station garage be completed in a timely manner based on the revised schedule.

Parking Plan Update #3 (2008) - Due to significant changes in the parking supply as well as to the scheduling of major development projects, the city undertook a significant update to its parking plan in 2008. The update was the result of a collaborative effort between a number of city departments, including the Office of Economic Development; the Department of

Transportation, Traffic & Parking; the Livable City Initiative; and the City Plan Department. These departments undertook a manual count to collect updated supply and utilization data for publicly accessible parking facilities in downtown New Haven including surface parking lots, parking garages, and metered on-street spaces. As with previous updates, the city also examined projected parking demand and supply based on planned developments and anticipated changes to the parking supply. The 2008 update found that overall supply increased slightly while utilization dropped to 85%, down from 90% the year before. The decrease was attributed to a number of factors including rising gasoline prices, additional lots constructed by Yale University that reduced demand for public facilities, and increased capacity with respect to publicly accessible parking facilities. The updated study also concluded that if the surface parking lot located at the former Coliseum site is taken offline prior to the construction of a second parking garage at Union Station the overall utilization in the Ninth Square District will rise to 97% based on current demand. Therefore, the construction of a second parking garage at Union Station was deemed essential to managing the parking system.

Point-in-Time Survey and Parking Plan Update (2009) - Despite the sustained national economic downturn, the City of New Haven continued to experience investment and growth in its downtown due to its strong position with respect to the education and medical fields. In 2009, the city hired MMI to oversee a count of all publicly accessible parking spaces in the downtown and complete an update of the 2008 parking plan. This Point-in-Time survey also included midday counts of cyclists and pedestrians at major downtown intersections.

The study showed that the overall downtown parking utilization increased to 88%, up from 85% the previous year. Updated parking projections indicated that the relocation of Gateway Community College will continue to pose the most significant challenge to the downtown parking system. It is expected that the college will lease approximately 700 spaces in the Temple Street garage, and faculty, staff, and students will likely utilize an additional 600 parking spaces at the college's own proposed garage. The report also indicated that the expected redevelopment of the Coliseum site will further reduce the downtown parking supply by 500

spaces and, therefore, the timely completion of the planned second garage at Union Station will continue to be a top priority.

Point-in-Time Survey and Parking Plan Update (2010) - As part of its ongoing efforts to monitor parking utilization along with obtaining pedestrian and bicyclist volumes within the downtown area, the city hired MMI to oversee the 2010 Point-in-Time survey. The 2010 survey mirrored the 2009 survey to provide a straightforward comparison of year-to-year results. However, in 2010, the on-street parking counts included only metered parking spaces. Nonmetered on-street parking spaces within the study area were determined to not give an accurate utilization rate, and it was recommended that a separate study be conducted to determine the total amount of metered and nonmetered on-street parking spaces.

The results of the 2010 survey indicated that the parking demand was at levels similar to those observed in 2009. However, with additional parking supply in 2010, a lower parking utilization rate of 82% was observed compared to 88% in 2009. The relocation of Gateway Community College to the downtown was again projected to create a strain on the transportation system by adding 1,300 additional vehicles and 600 additional parking spaces. The downtown parking system was projected to operate at over 90% occupancy from the second quarter of 2013 until late 2014 when the proposed garages at Union Station and on the redeveloped Coliseum site are expected to be completed.

The 2010 pedestrian and bicycle counts also reinforced the importance of nonmotorized travel as a major component of the downtown transportation system. With the same four major intersections observed in 2009, two of the four intersections experienced pedestrian volumes of over 1,000 pedestrians per hour and an overall 14% increase in bicyclists from 2010.

On-Street Parking Survey (2011) - It was recommended in the 2010 Point-in-Time survey and Parking Plan Update that the city inventory the total number of metered and nonmetered on-street parking spaces in the downtown in order to determine a more accurate utilization rate. The city hired MMI to conduct this survey in summer 2011. This study found there to be a total of

2,567 on-street parking spaces in downtown, of which there were 492 spaces of nonmetered parking and 2,075 spaces of metered parking.

Point-in-Time Survey and Parking Plan Update (2011) - The 2011 study mirrored the 2010 Point-in-Time survey while it also increased the pedestrian and bicyclist focus by adding six new intersections along the Route 34 corridor. In the downtown area at the four original intersections, a 23% decrease in pedestrians was experienced along with a 10% increase in bicyclists during the midday commutes.

Parking in the downtown was monitored as in years past. Projections indicated an increase in utilization in 2011 and that the anticipated parking crunch would begin sooner rather than later, around the third quarter of 2012 when Gateway Community College relocated downtown.

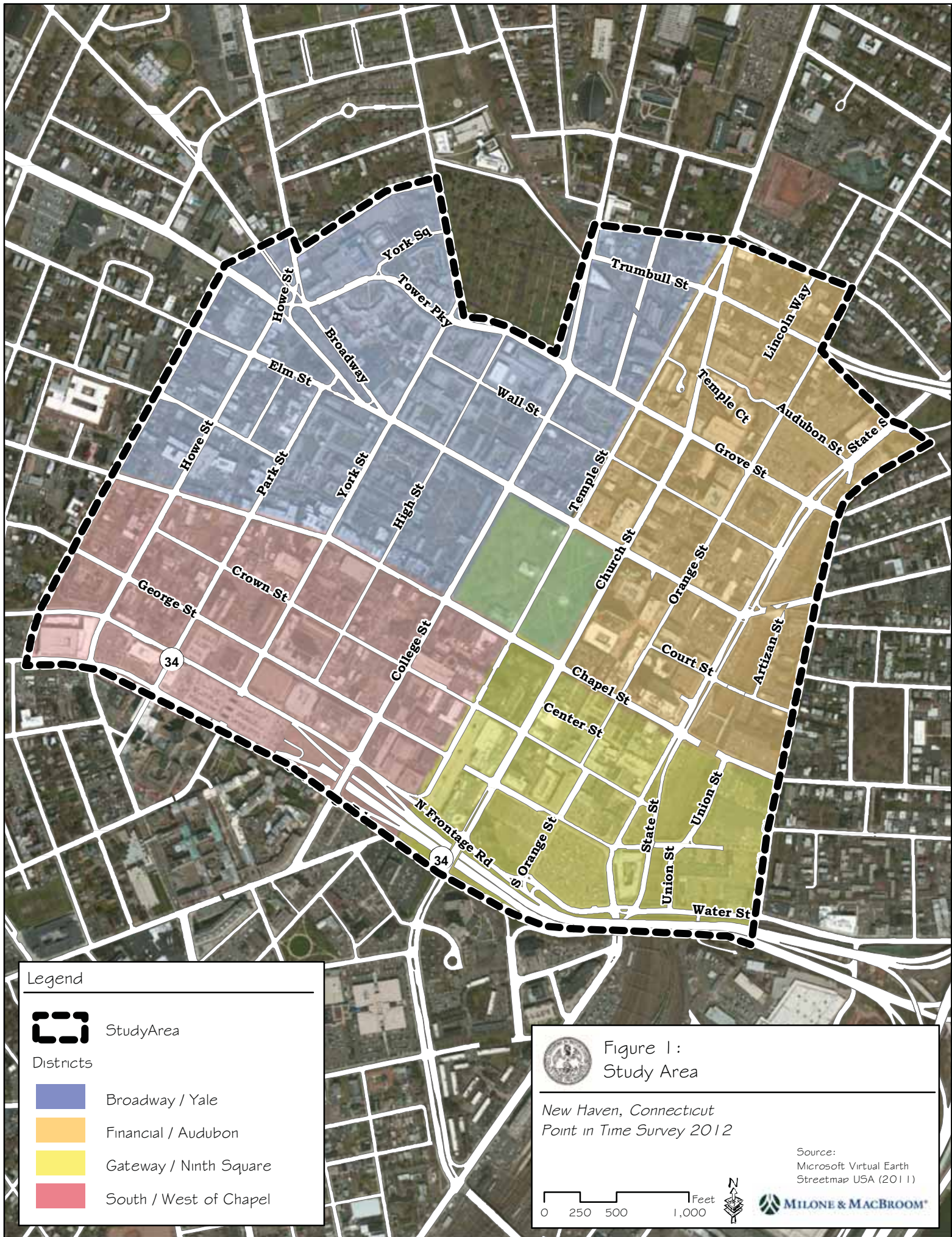
POINT-IN-TIME SURVEY – PARKING

The 2012 Point-in-Time survey of downtown parking facilities is an update to a series of previously conducted studies aimed at monitoring downtown parking activity. The study area and parking zones designated in the initial 2003 report were utilized in this study. The study area encompasses downtown New Haven and is bounded by Dwight Street, South Frontage Road, Olive Street, the Grove Street Cemetery, and the East Rock neighborhood. The study area is subdivided into four districts: Broadway/Yale, Financial/Audubon, Gateway/Ninth Square, and South/West of Chapel. These districts were developed as part of the original 2003 downtown parking study in order to examine how parking utilization may vary within parts of central New Haven and were used in each subsequent update. Figure 1 shows the study area and the above-mentioned districts.


Data Collection and Summary - MMI worked with officials from the NHPA; the Department of Transportation, Traffic & Parking; and the Office of Economic Development to obtain current data on the locations, ownership, operation, and capacity of all publicly accessible parking facilities located within the study area. Figure 2 shows the surface parking lots and parking garages in the study area, and Figure 3 shows the metered on-street parking spaces.

This year's survey included a total of 49 parking areas, an increase over the 45 surveyed in 2011 including the recently opened Gateway Community College garage. Overall, the total number of spaces surveyed increased from 15,904 spaces in 2011 to 16,937 in 2012.





A set of standardized count forms or "tally sheets" were previously developed prior to conducting the parking counts. This was done in order to ensure that all enumerators collected all relevant data in a consistent manner. Separate forms were created for on-street metered parking spaces, surface parking lots, and parking garages. In 2012, professional enumerators were used to count off-street parking lots and garages while City of New Haven meter attendants counted the on-street parking using the standardized count sheets as in years past.




Legend

 Study Area

Districts



-  Broadway / Yale
-  Financial / Audubon
-  Gateway / Ninth Square
-  South / West of Chapel

 **Figure 1:**
Study Area

New Haven, Connecticut
Point in Time Survey 2012

Source:
Microsoft Virtual Earth
Streetmap USA (2011)

0 250 500 1,000 Feet

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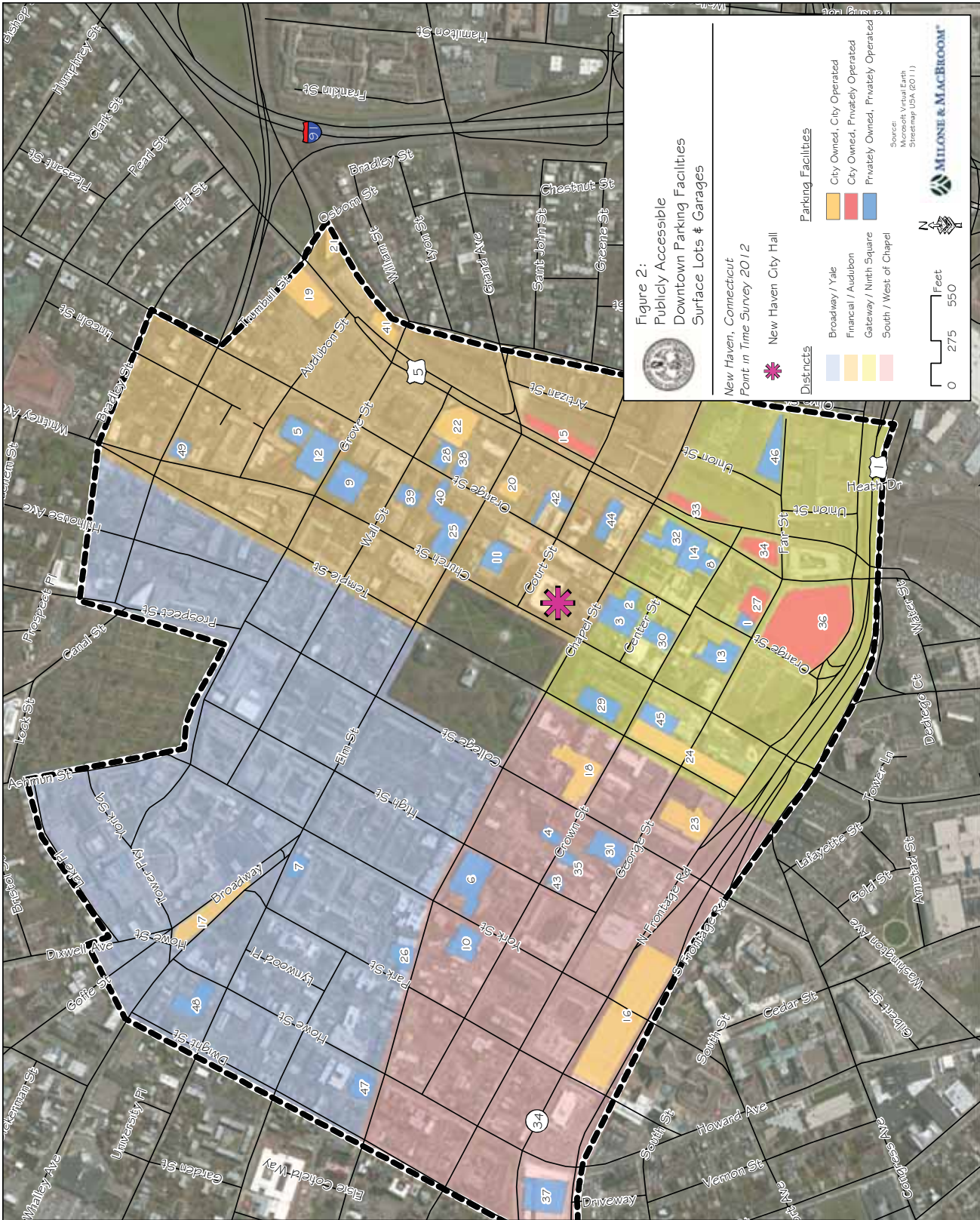


Figure 2:
Publicly Accessible
Downtown Parking Facilities
Surface Lots & Garages
New Haven, Connecticut
Point in Time Survey 2012



New Haven, Connecticut
Point in Time Survey 2012

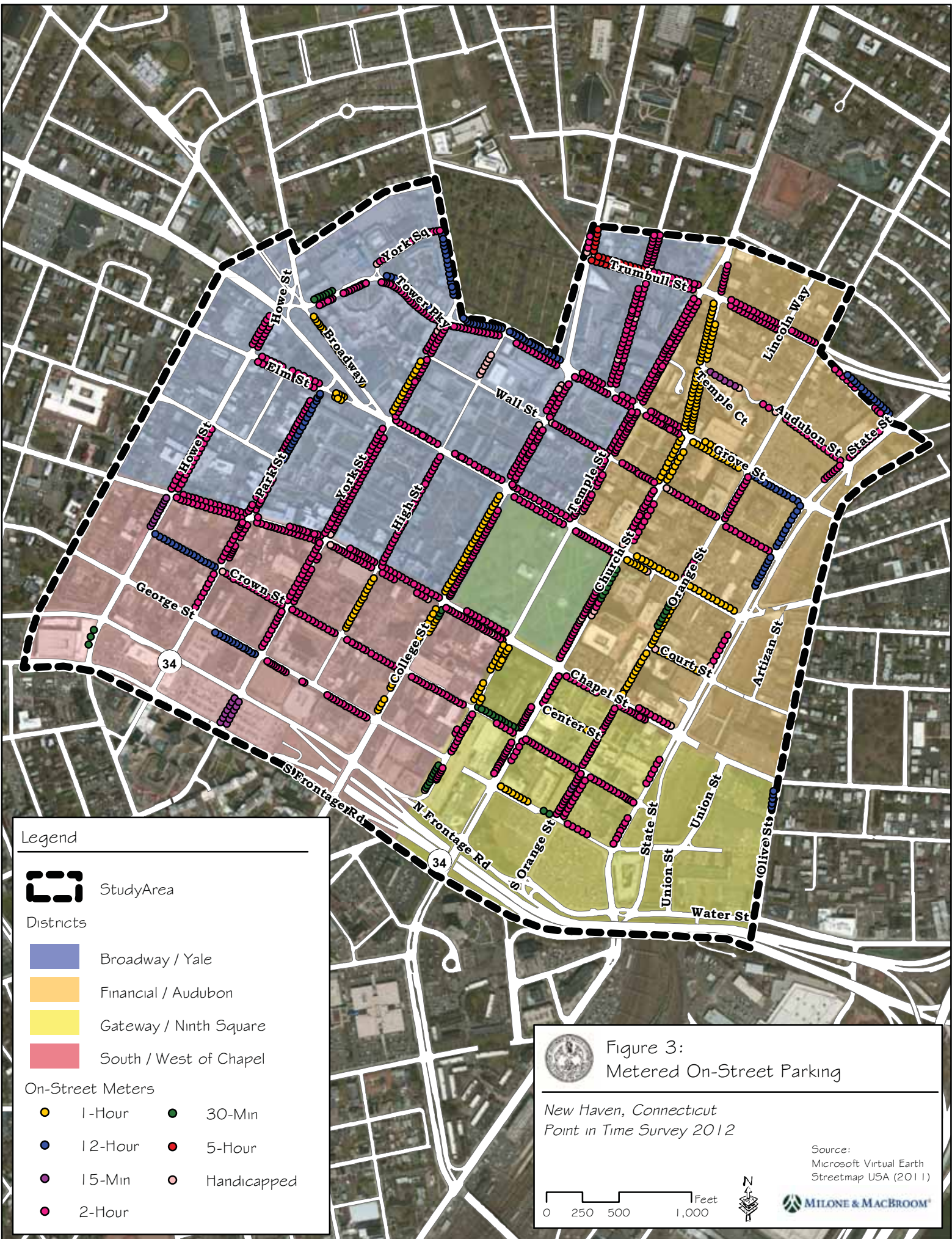
- Districts**
- Broadway / Yale
 - Financial / Audubon
 - Gateway / Ninth Square
 - South / West of Chapel
- Parking Facilities**
- City Owned, City Operated
 - City Owned, Privately Operated
 - Privately Owned, Privately Operated
- Other Symbols:**
- New Haven City Hall

Source: Virtual Earth
Streetscape USA (2011)



0 275 550
Feet

ID	NAME	TYPE	CAPACITY
1	7 Orange Street / 53 George Street	Lot	78
2	Kresge's Garage	Garage	114
3	Kresge's Lot	Lot	65
4	Kirk's Lot	Lot	168
5	Audubon Court Garage	Garage	283
6	Brith A Center	Lot	66
7	Broadway / Elm Lot	Lot	48
8	Bromley Lot	Lot	42
9	Century Garage	Garage	599
10	Chapel / York Garage	Garage	474
11	Financial Center Garage	Garage	668
12	Grove Street Garage	Garage	599
13	Ninth Sq. George Street	Garage	366
14	Ninth Sq. State Street	Garage	266
15	State / Grand Lot	Lot	99
16	Air Rights Garage	Garage	2601
17	Broadway Plaza	Lot	140
18	Crown Street	Garage	720
19	Granite Sq. Garage	Garage	221
20	Orange / Elm Lot	Lot	63
21	State / Olive / Audubon	Lot	35
22	State / Wall	Lot	102
23	Temple George Garage	Garage	371
24	Temple Street Garage	Garage	1235
25	Wachovia Lot	Lot	46
26	The Study Hotel	Garage	64
27	George / Orange Lot	Lot	42
28	Bullard Lot (East Side of Orange St.)	Lot	76
29	Chapel Square Garage	Garage	325
30	First Union Bank	Lot	76
31	Georg. / College Lot	Lot	118
32	Harowitz lot	Lot	60
33	Lot N	Lot	90
34	Lot O	Lot	68
35	Neon Garage	Garage	118
36	NH Coliseum Surface Lot East	Lot	471
37	2 Howe Street	Garage	845
38	Orange Street Lot	Lot	83
39	The Eli	Lot	68
40	250 Orange Street Lot	Lot	48
41	State / Olive Lot	Lot	40
42	Court Street Lot	Lot	38
43	280 Crown St. Garage	Garage	99
44	360 State Street	Garage	467
45	Gateway Garage	Garage	600
46	Fair Parking Lot	Lot	85
47	Chapel Street West	Lot	80
48	Courtyard Marriot	Garage	129
49	Whitney Ave. / Trumbull Street Lot	Lot	42



Legend

Study Area

Districts

- Broadway / Yale
- Financial / Audubon
- Gateway / Ninth Square
- South / West of Chapel

On-Street Meters

1-Hour	30-Min
12-Hour	5-Hour
15-Min	Handicapped
2-Hour	

Figure 3:
Metered On-Street Parking

New Haven, Connecticut
Point in Time Survey 2012

Source:
Microsoft Virtual Earth
Streetmap USA (2011)

0 250 500 1,000 Feet

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For the count of metered on-street spaces, enumerators were asked to count parked vehicles by block, including the number of vehicles parked in legal spaces and the number of vehicles parked outside of legal spaces as well as the number of spaces that were unusable such as those blocked off for construction or maintenance work. For each parking facility and each city block of on-street metered parking spaces, enumerators were asked to note the start and end times of the counts along with weather conditions and approximate temperature.

The parking counts were conducted on Thursday, October 18, 2012, from 11:00 a.m. to 3:00 p.m. and supplemented selectively on November 15, 2012 for verification purposes. This time of year, week, and day was selected by the city to represent a "peak scenario" in terms of downtown parking demand and is consistent with previous Point-in-Time surveys. Midday, midweek, in the fall is known to be among the heaviest periods of parking demand in downtown New Haven due to a number of factors, including educational activities, Union Station travel, and business employee parking. Each facility and each block of metered on-street parking spaces were counted during this period. The results of the survey by facility are provided in Appendix B.

While Union Station is not within the study area, it is a highly utilized parking garage that attracts transit users from outside of the city and contributes to the economic activity in the downtown area. Therefore, it has been included as part of the parking analysis. The parking data is summarized in Tables 1 and 2.

Table 1 shows parking supply, demand, and utilization by facility type. Within downtown New Haven, most publicly accessible parking is provided via parking garages, which account for roughly three-quarters of the publicly accessible spaces. Utilization rates at parking garages and surface lots (82% and 77%, respectively) were higher than those at metered on-street spaces (61%).

TABLE 1
Summary of Parking Utilization by Facility Type

Broadway / Yale	Facility Type	Supply	Utilization	Utilization Rate
	Garages	193	120	62%
	Surface Lots	268	194	72%
	On-Street Spaces	808	422	52%
	Total - Broadway/Yale	1,269	736	58%
Financial / Audubon	Facility Type	Supply	Utilization	Utilization Rate
	Garages	2,837	2,091	74%
	Surface Lots	740	496	67%
	On-Street Spaces	658	487	74%
	Total - Financial /Audubon	4,235	3,074	73%
Gateway / Ninth Square	Facility Type	Supply	Utilization	Utilization Rate
	Garages	2,906	2,267	78%
	Surface Lots	1,077	850	79%
	On-Street Spaces	270	173	64%
	Total - Gateway / Ninth Square	4,253	3,290	77%
South / West of Chapel	Facility Type	Supply	Utilization	Utilization Rate
	Garages	5,228	4,624	88%
	Surface Lots	352	338	96%
	On-Street Spaces	429	231	54%
	Total - South / West of Chapel	6,009	5,193	86%
Union Station	Facility Type	Supply	Utilization	Utilization Rate
	Garages	1,171	1,131	97%
ALL DISTRICTS	Facility Type	Supply	Utilization	Utilization Rate
	Garages	11,164	9,102	82%
	Surface Lots	2,437	1,878	77%
	On-Street Spaces	2,165	1,313	61%
	Total - Districts	15,766	12,293	78%
	Total - Districts and Union Station	16,937	13,424	79%

Note: Data was collected between 11:00 a.m. and 3:00 p.m. on a weekday during the fall.

Compared to the 2011 results, the overall garage occupancy decreased from 92% to 82% in 2012. This is partially attributable to an increase in supply and a decrease in demand. Surface lots utilization went down slightly (77% in 2012 versus 79% in 2011) because the supply of parking spaces surveyed increased by nearly 10%. Utilization of on-street parking remained unchanged at 61%.

The overall utilization rate by district dropped in all cases, apparently due in most part to increases in available parking over the last year. The Broadway/Yale, Gateway/Ninth Square, and Financial/Audubon Districts decreased in utilization by at least 9% in each case. The South/West of Chapel District experienced a minor decrease of approximately 3%.

TABLE 2
Downtown Parking Utilization by Year

District	2003 (Nov)	2006 (Apr)	2007 (Aug)	2008 (Sept)	2009 (Nov)	2010 (Oct)	2011 (Oct)	2012 (Oct)
Financial / Audubon	82%	91%	92%	80%	86%	83%	82%	73%
Gateway / Ninth Square	90%	87%	78%	84%	89%	79%	90%	77%
South / West of Chapel*	87%	88%	91%	88%	91%	86%	89%	86%
Broadway / Yale*	91%	90%	94%	70%	79%	66%	67%	58%
Total	86%	89%	89%	84%	88%	82%	86%	78%

*From 2003 to 2007, the Chapel/York garage was counted in the Broadway/Yale District. From 2008 to 2011, it was counted in the South/West of Chapel District.

Table 2 details annual trends in parking utilization rates at publicly accessible facilities in downtown New Haven. From 2003 to 2011, parking occupancy remained relatively stable, varying from 82% to 89%. In urban areas such as downtown New Haven, parking utilization rates should be between 80% and 90%. Utilization rates below 80% suggest an inefficient parking system, that is, one with an overabundance of parking or overpriced parking. This can result in increased maintenance costs and decreased revenue and opportunity costs associated with using otherwise taxable land. Utilization rates over 90% suggest that the parking supply is either insufficient to meet demand and/or is priced too low to achieve the most efficient use. As utilization rates exceed 90%, motorists also have increasing difficulty in locating the few

remaining available parking spaces. This can result in increased traffic congestion as motorists have to circle the block or drive to several facilities before locating an available space. Additionally, as it becomes increasingly more difficult to locate parking spaces, motorists may choose to avoid a particular area and shift trips to other destinations. Between 2003 and 2011, the peak period parking utilization rates in downtown New Haven have been in the ideal range described. Much of this can be attributed to the careful monitoring of downtown parking activity through the Point-in-Time surveys and the associated studies and recommendations discussed earlier in the report. However, in 2012, parking utilization dropped below 80% suggesting an excess supply of parking spaces.

While parking garages and surface lots often serve individuals parking for longer durations such as employees working downtown, on-street parking is typically intended to serve higher turnover uses such as individuals frequenting retail establishments or restaurants. For this reason, the peak period of parking demand for on-street spaces may, in fact, differ markedly from the overall downtown peak period of parking demand or the peak period of parking demand for downtown surface lots and garages. For example, on-street spaces often experience peak parking demands on weekend evenings while garages and surface lots typically experience highest parking demands during weekday work days. The purpose of this report is to evaluate the overall areawide peak period of downtown parking demand, so a detailed discussion of on-street peak parking demands is beyond the scope of this study.

Even during a national economic recession, downtown New Haven continues to see significant economic development. In some cases, this has meant the elimination of existing surface parking facilities to accommodate new developments while, in some cases, new developments have also increased the parking demand within the downtown core. The challenge therefore is to continue to monitor parking supply and demand and make appropriate adjustments to the parking system in an attempt to maintain optimal utilization rates. A discussion of future parking supply/demand changes that are anticipated follows.

Projected Supply/Demand Ratio 2013 – 2015 - As downtown New Haven continues to expand and develop, the demands on the parking system will change. In 2012, the downtown survey yielded a peak period parking utilization rate of approximately 79% (with Union Station). The Transportation, Traffic & Parking Department; the Office of Economic Development; and the NHPA have developed a projection of anticipated parking based on the latest survey. The forecast is based on a number of factors including:

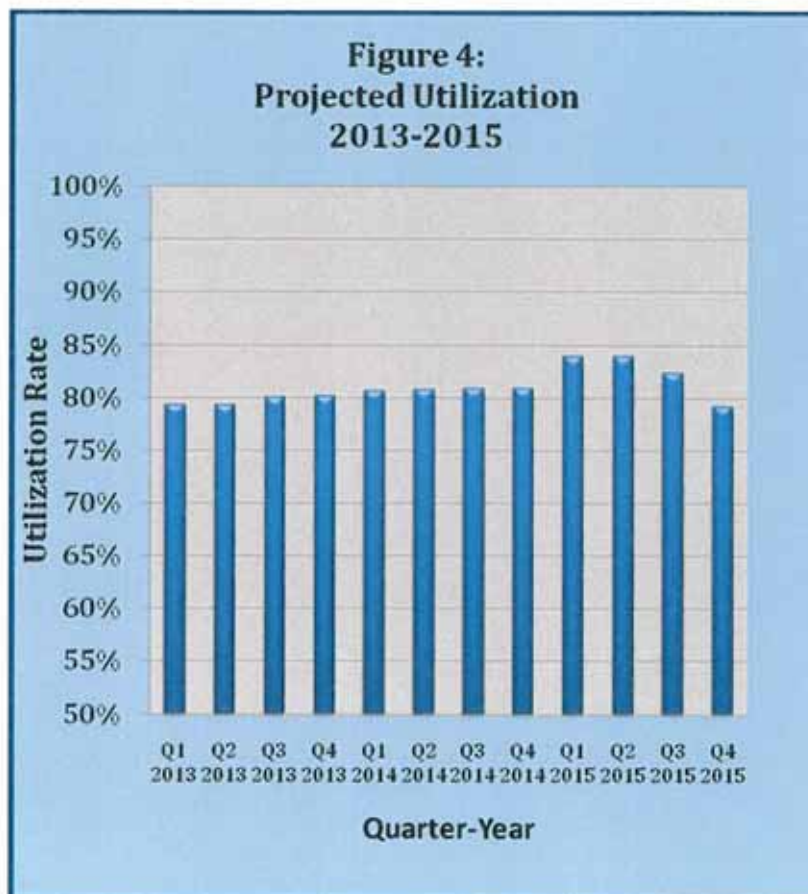
- Current parking supply and utilization
- Anticipated downtown developments and their associated parking demands
- New publicly accessible parking facilities associated with anticipated developments
- Anticipated/planned new publicly owned parking facilities
- The impact of downtown construction projects on parking supply

Over the next three years, downtown New Haven is expected to continue to see development. Table 3 summarizes the expected major changes to parking supply, demand, and utilization from the beginning of 2013 to the end of 2015. Figure 4 illustrates the forecasted overall "peak period" parking utilization over this same time frame. What follows is a brief time line and description of the expected changes to parking supply and demand in downtown New Haven.

It is anticipated that in the third quarter of 2013 the 10 Wall Street lot will come offline due to the sale and new development of the site. The redevelopment of the Coliseum site is projected to come online toward the beginning of 2015 along with the phasing out of 471 parking spaces. The second Union Station garage is expected to come online toward the end of 2015. Development on the Coliseum site is projected to add a demand of 400 parked cars in 2015. Reabsorption of office space in the Financial District and construction associated with redevelopment at 205 Church Street are projected to add parking demands at the end of 2013/beginning of 2014.

**TABLE 3
Projected Developments and Utilization Rate For 2013-2015**

Projected Capacity & Demand		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
District		2013	2013	2013	2013	2014	2014	2014	2014	2015	2015	2015	2015
Anticipated Changes to Capacity													
New Union Station Garage	Ninth Square												700
Remove Coliseum Parking	Ninth Square									-471	-471	-471	-471
New Coliseum Site Garage	Ninth Square									300	300	600	600
Remove 10 Wall Street-New Development				-102	-102	-102	-102	-102	-102	-102	-102	-102	-102
Anticipated Changes to Demand													
Coliseum Site Development	Ninth Square									400	400	400	400
Office Space Re-absorbption	Financial			50	75	100	125	150	150	150	150	150	150
205 Church Street Redevelopment Workers	Financial					50	50	50	50				
Projected Capacity		16,937	16,937	16,835	16,835	16,835	16,835	16,835	16,835	16,664	16,664	16,964	17,664
Projected Utilization		13,424	13,424	13,474	13,499	13,574	13,599	13,624	13,624	13,974	13,974	13,974	13,974
Projected Utilization Rate		79%	79%	80%	80%	81%	81%	81%	81%	84%	84%	82%	79%



Discussion – Parking Utilization/Forecast - If anticipated development moves forward as expected, the city's downtown parking system is shown to operate in the 80-90% optimal utilization range for the length of the projection period through 2015. This is contrary to past results, where a parking "crunch" was forecast. The reason for this is partly due to decreased overall parking demand in this year's survey and an increase of 700 available spaces associated with the new Gateway Community College parking garage.

Caution should be exercised when evaluating the demand decrease. This "snap-shot" survey is essentially a single data point and, as such, reliance on that single survey should be tempered. Demand, in general, has remained relatively stable since 2003. A couple things to also note are that the opening of Gateway Community College could still result in notable increases in parking demands. Free bus passes were provided to Gateway students, potentially reducing what would have otherwise been new added parking demand. That said, encouraging bus ridership as a means to reduce motor vehicle usage is noted to be one such way to manage parking demands.

POINT-IN-TIME SURVEY – BICYCLE AND PEDESTRIAN COUNTS

In 2010, the City of New Haven prepared a *Complete Streets Design Manual*. The manual's purpose is "to ensure that all streets are designed to provide a safe and comfortable environment for all roadway users." To do so, it is important to measure and analyze the roadway as one of the first steps toward service for all users. Measuring bicycle and pedestrian trips annually is part of this. The data obtained from these counts can help public officials and organizations plan for future development and make improvements to the system. It has become a priority of the City of New Haven to focus on all users of the transportation system.

In 2011, the city expanded the Point-in-Time survey's focus to better include pedestrian and bicycle users as part of increased efforts to support complete streets. Past studies analyzed four main intersections: Elm Street at York Street, Elm Street at Orange Street, Chapel Street at College Street, and Chapel Street at Church Street. Six new intersections within the Route 34 corridor were included in the 2011 counts: York Street at North Frontage Road and South Frontage Road, College Street at North Frontage Road and South Frontage Road, and Chapel Street at North Frontage Road and South Frontage Road. In 2012, 15 additional intersections were included: three within the Route 34 corridor (for bicyclists only) and 12 within the Medical District/Union Station area. Below are the added intersections:

- South Orange Street at North Frontage Road
- South Orange Street at South Frontage Road
- George Street at College Street
- South Frontage Road at Howard Avenue
- Howard Avenue at Davenport Avenue
- Congress Avenue at Howard Avenue
- Columbus Avenue at Howard Avenue
- York Street at Cedar Street
- Congress Avenue at Cedar Street

- Congress Avenue at College Street
- Congress Avenue at Lafayette Street
- Columbus Avenue at Church Street South
- Union Avenue at Meadow Street
- Union Avenue at Columbus Avenue
- Union Avenue at Church Street South

These intersections were chosen based on discussions with city staff from the Transportation, Traffic & Parking Department and the Office of Economic Development. The count locations for the downtown area and the Route 34 corridor are shown in Figure 5, and the count locations for the Medical District/Union Station area are shown in Figure 6.

The 2009 and 2010 Point-in-Time surveys measured bicyclists and pedestrians during a single time period - the midday, midweek, generally around lunch time. In 2011, the City of New Haven included bicycle counts for the morning, midweek commute between 8:00 a.m. and 9:00 a.m. to survey those traveling to work and school. In 2012, morning and midday counts were conducted for both pedestrians and bicyclists. These time periods were chosen based upon known high travel times within the city. These may not be individual intersection peaks since data was not collected for the entire day to determine actual time-of-day variations by mode – bicyclists or pedestrians.

Due to the increased number of intersections, the pedestrian and bicyclist counts were conducted on four separate days. The downtown and Route 34 corridor areas were counted on Tuesday, October 16, 2012, and Wednesday, October 17, 2012. Counts for the Medical District were counted on Tuesday, October 23, 2012, and Thursday, October 25, 2012. All four days were midweek with relatively similar weather, providing consistency between the count periods. To verify the data, selective spot counts were conducted the following week. The counts were undertaken primarily by professional enumerators and by a few volunteers recruited by the city and local cycling and traffic safety advocacy groups along with MMI staff.



Intersections

1. College Street at Chapel Street
2. Church Street at Chapel Street
3. Elm Street at York Street
4. Elm Street at Orange Street
5. York Street at North Frontage Road
6. York Street at South Frontage Road
7. College Street at North Frontage Road
8. College Street at South Frontage Road
9. Church Street at North Frontage Road
10. Church Street at South Frontage Road
11. South Orange Street at North Frontage Road
12. South Orange Street at South Frontage Road
13. George Street at College Street

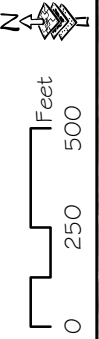


Figure 5:
 Bicycle & Pedestrian Locations
 Downtown & Route 34 Corridor

New Haven, Connecticut
 Point in Time Survey 2012

-  New Haven City Hall
-  Pedestrian & Bicycle Count Locations
-  Bicycle Count Locations Only

Source:
 Microsoft Virtual Earth
 Streetmap USA (2011)



Intersections

1. S. Frontage Rd at Howard Ave
2. Howard Ave at Davenport Ave
3. Congress Ave at Howard Ave
4. Columbus Ave at Howard Ave
5. York St at Cedar St
6. Congress Ave at Cedar St
7. Congress Ave at College St
8. Congress Ave at Lafayette St
9. Columbus Ave at Church St. South
10. Union Ave at Meadow St
11. Union Ave at Columbus Ave
12. Union Ave at Church St. South

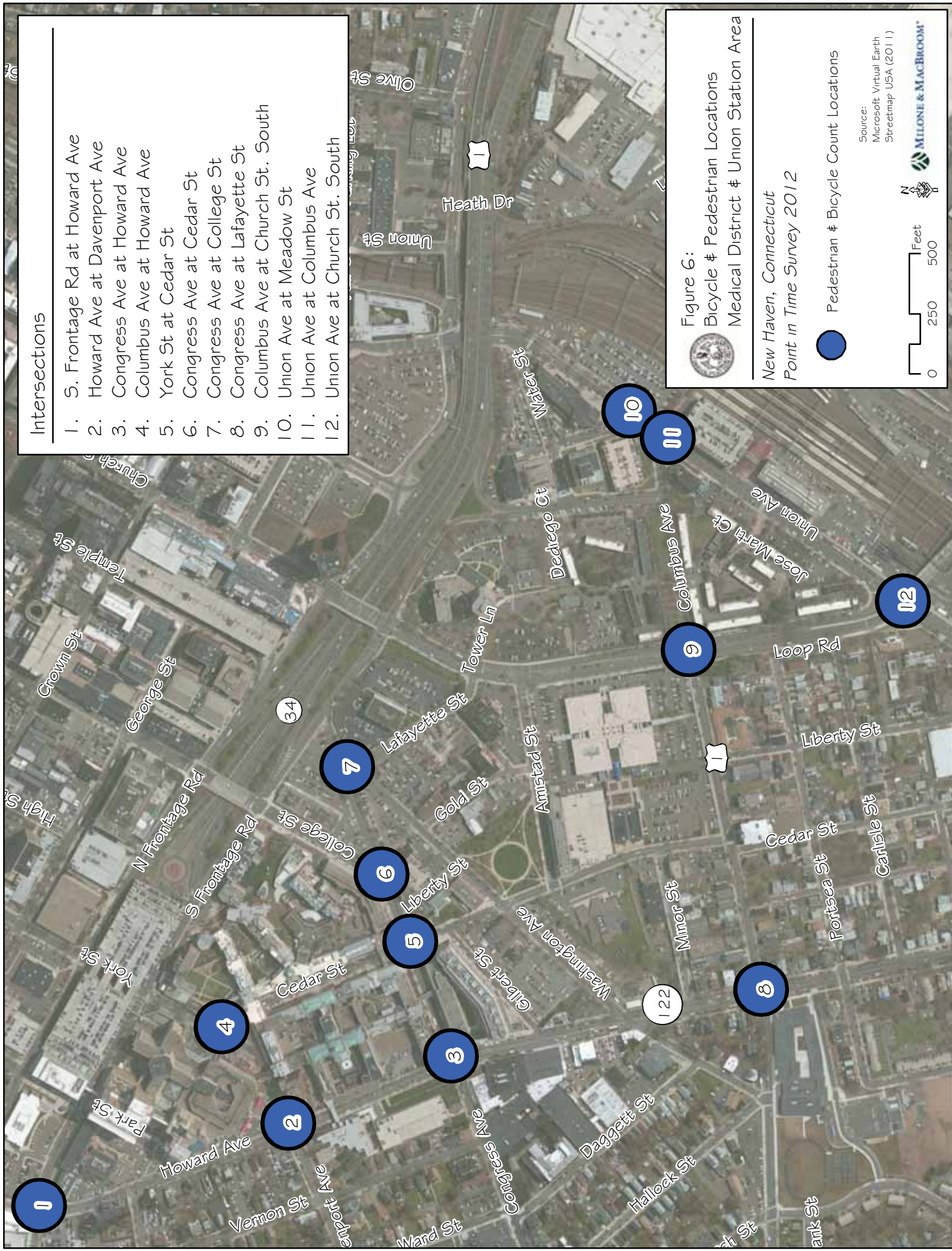


Figure 6:

Bicycle & Pedestrian Locations
 Medical District & Union Station Area

New Haven, Connecticut
 Point in Time Survey 2012



Pedestrian & Bicycle Count Locations

Source:
 Microsoft Virtual Earth
 Streetmap USA (2011)



Bicycle Counts

Bicyclist counts were conducted for the downtown and Route 34 corridor areas on Tuesday, October 16, 2012, and Wednesday, October 17, 2012. Counts for the Medical District/Union Station area were conducted on Tuesday, October 23, 2012, and Thursday, October 25, 2012. Counts were conducted during the morning commute between 8:00 a.m. to 9:00 a.m. and from 11:30 a.m. to 12:30 p.m. during the midday midweek period. Volunteers and professional enumerators were provided with a standardized bicycle intersection count form developed by MMI. The form is based on the methodology utilized by the National Bicycle and Pedestrian Documentation Project¹. A copy of the form can be found in the Appendix. These count periods are intended to provide snapshots of typical morning and midday weekday bicycle activity. Volunteers were asked to record the date and time, weather conditions, and location. Cyclists were enumerated by their turning movement in 15-minute intervals. Cyclists traveling in the wrong direction, making illegal turns, or riding on the sidewalk were included in the counts. The methodology used for each period was identical to that employed in past counts.

Downtown Results - The results of the counting program continue to indicate a significant level of bicycle activity within downtown New Haven. During the 2012 midday midweek period, bicycle traffic volumes remained similar to 2011 levels yet decreased slightly overall by 4% at the original four major intersections as shown in Table 4. However, there was an 11% increase in ridership at the College Street at Chapel Street intersection and a striking 84% increase at the Elm Street at Orange Street intersection. The total 2012 bicycle volumes in the downtown remained higher than 2009 and 2010.

¹ "Standard Bicycle Intersection Count Form," National Bicycle and Pedestrian Documentation Project, <http://bikepeddocumentation.org>

TABLE 4 Downtown Midday Bicyclist Volumes 2009 to 2012					
Intersections	2009	2010	2011	2012	% Change From Prior Year
College at Chapel	57	56	66	73	11%
Church at Chapel	29	34	46	29	-37%
Elm at York	74	84	92	76	-17%
Elm at Orange	15	25	19	35	84%
Total:	175	199	223	213	-4%

Morning bicycle volumes were included in the count program in 2011. Table 5 compares the morning volumes from 2011 to 2012. While the midday commute experienced a slight overall decrease, the morning bicyclist volumes increased overall by 33%. The most noticeable increase occurred at the intersection of Elm Street at York Street.

TABLE 5 Downtown Morning Bicyclist Volumes 2011 to 2012			
Intersections	AM		
	2011	2012	% Change From Prior Year
College at Chapel	81	90	11%
Church at Chapel	27	34	26%
Elm at York	44	87	98%
Elm at Orange	24	23	-4%
Total:	176	234	33%

Figures 7 and 8 illustrate the bicyclist turning movement volumes in downtown during the morning and midday periods, respectively.

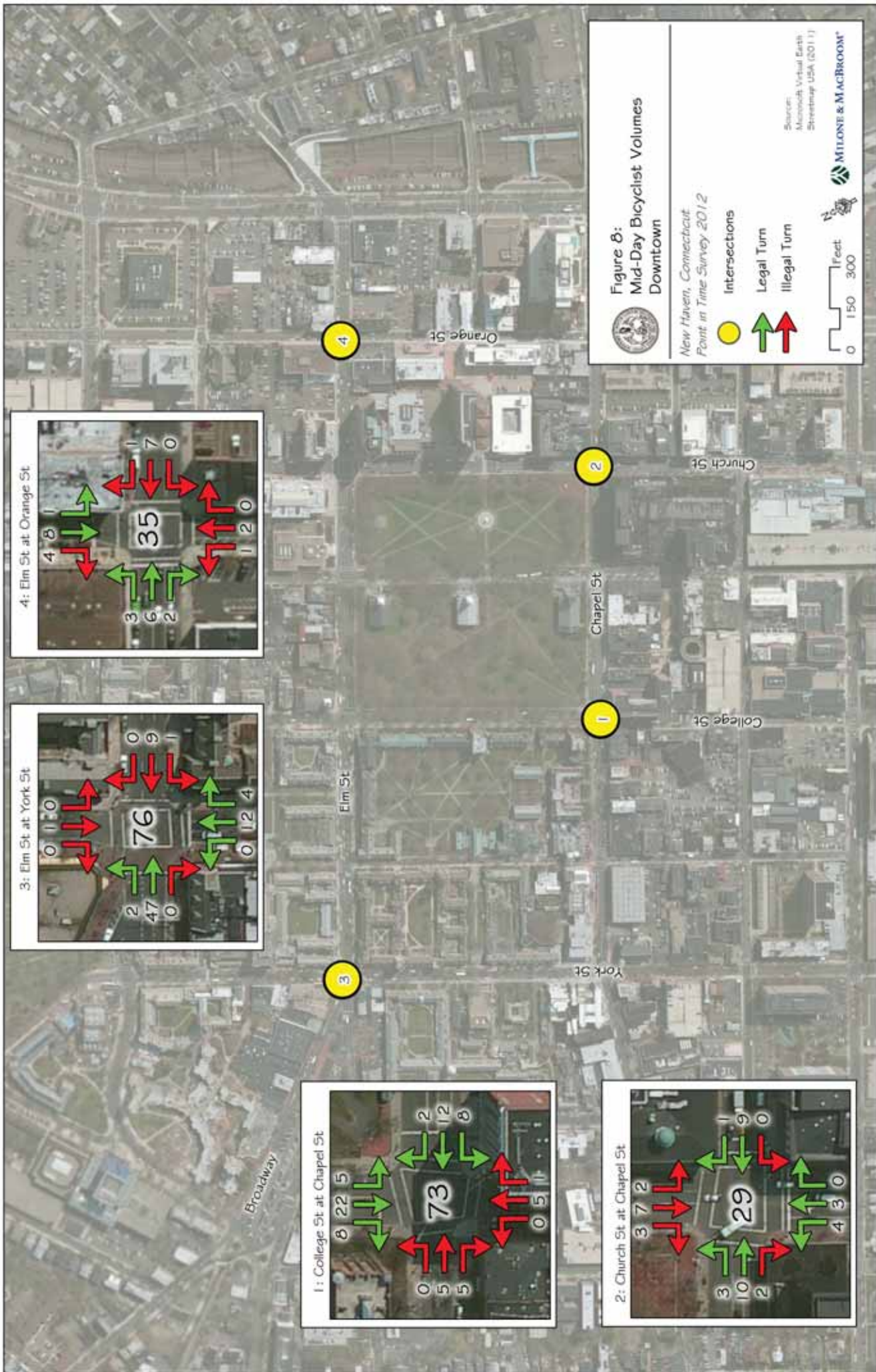


Figure 8:
Mid-Day Bicyclist Volumes
Downtown

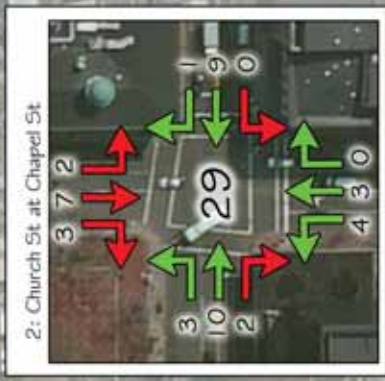
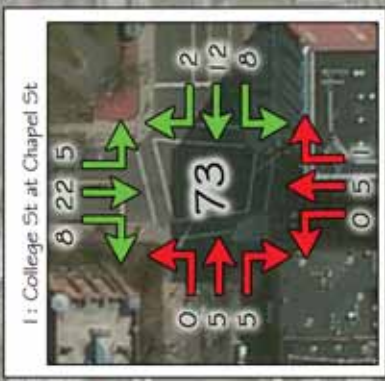
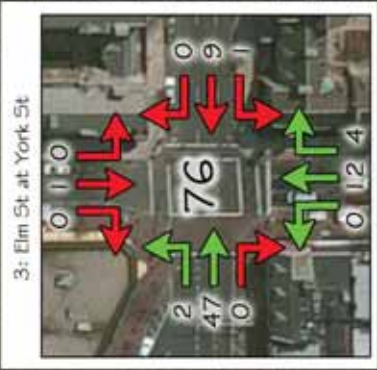
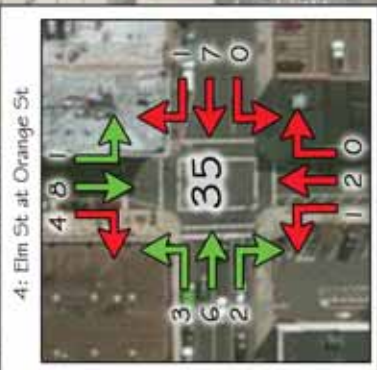
New Haven, Connecticut
Point in Time Survey 2012

- Intersections
- ➡ Legal Turn
- ➡ Illegal Turn

Source:
MassDOT, Virtual Earth
Streetsmap USA (2011)



0 150 300 Feet



Route 34 Corridor Area Results - In 2011, the Route 34 corridor area was included in the study by adding six additional intersections. In 2012, three more intersections were added. Table 6 details a comparison of the counts measured at these intersections in 2011 versus 2012 during the morning and midday periods.

TABLE 6 Route 34 Corridor Bicyclist Volumes 2011 to 2012						
Intersections	AM			Midday		
	2011	2012	% Change	2011	2012	% Change
York at North Frontage	10	14	40%	19	20	5%
York at South Frontage	13	15	15%	17	25	47%
College at North Frontage	65	52	-20%	29	25	-14%
College at South Frontage	40	56	40%	27	24	-11%
Church at North Frontage	11	8	-27%	13	7	-46%
Church at South Frontage	11	10	-9%	13	15	15%
Total:	150	155	3%	118	116	-2%

Data indicates that during both the morning and midday periods total bicyclist volumes remained relatively the same with a 3% increase in the morning and a 2% decrease during the midday. An increase in ridership was experienced at the York Street at North Frontage Road and York Street at South Frontage Road intersections.

Table 7 provides count results for the three intersections that were added in 2012. Data reveals that there is currently little to no bicycle activity at the South Orange Street/North Frontage Road or South Orange Street/South Frontage Road intersections. Figures 9 and 10 detail bicycle movements observed during the morning and midday periods in the Route 34 corridor.

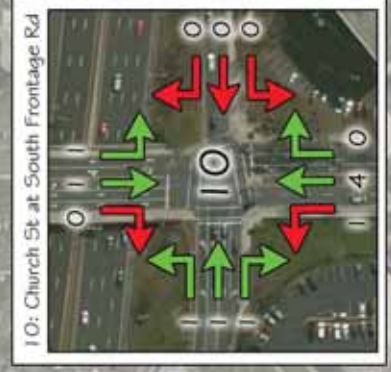
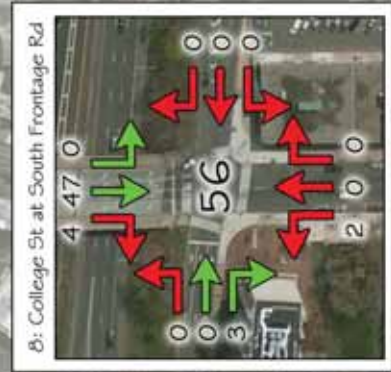
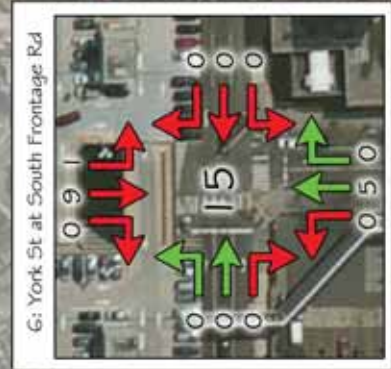
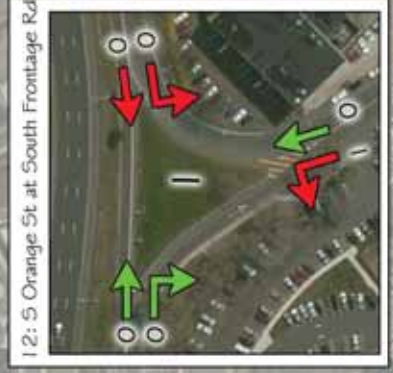
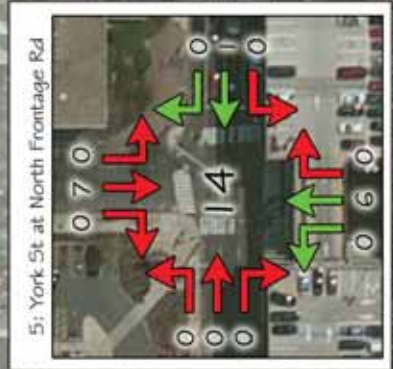
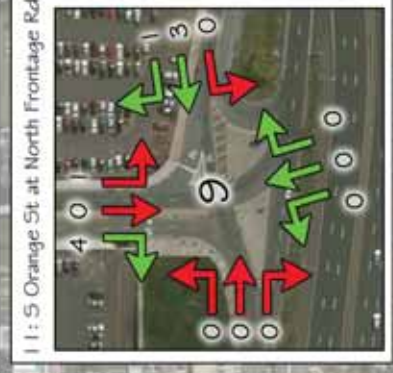
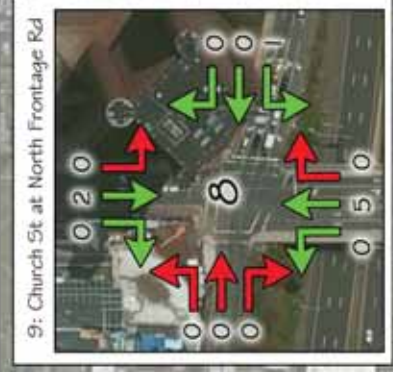
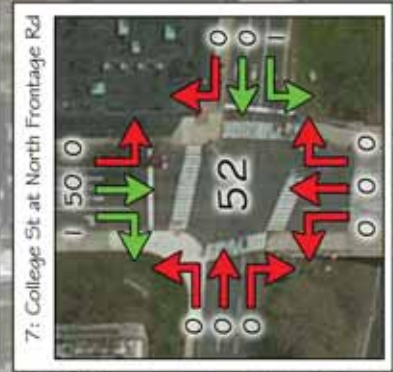
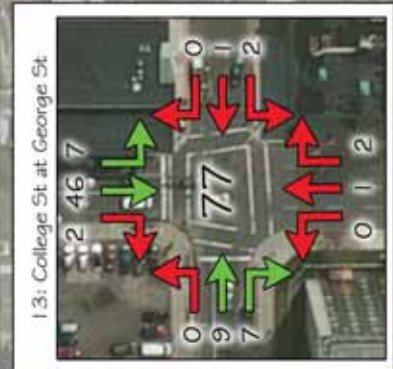


Figure 9:
Morning Bicyclist Volumes
Route 34 Corridor

New Haven, Connecticut
Point in Time Survey 2012

- Intersections
- Legal Turn
- Illegal Turn

0 150 300 Feet

Source:
MapInfo, Virtual Earth
Streetsmap USA (2011)

MILONE & MACBROOM

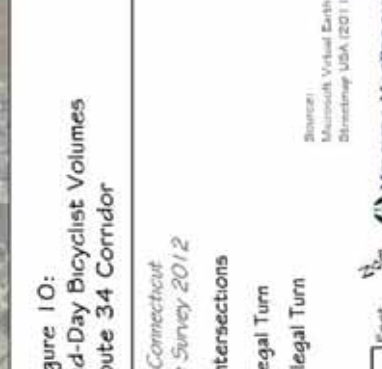
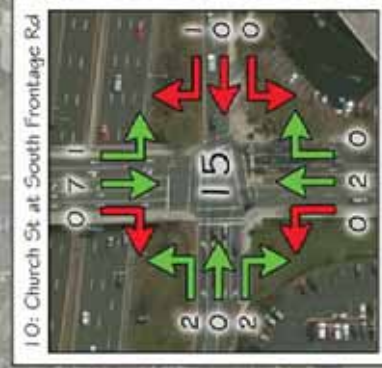
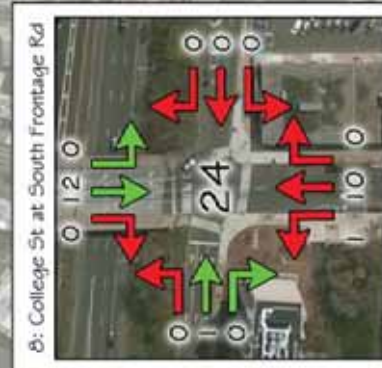
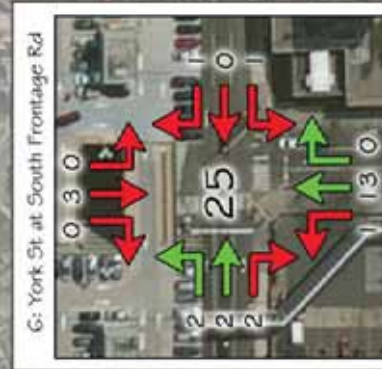
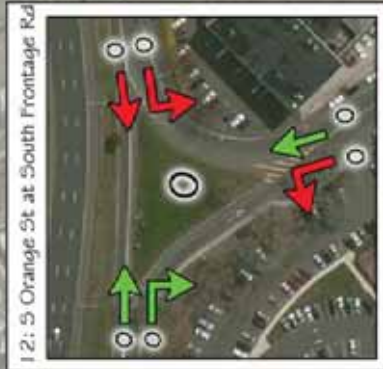
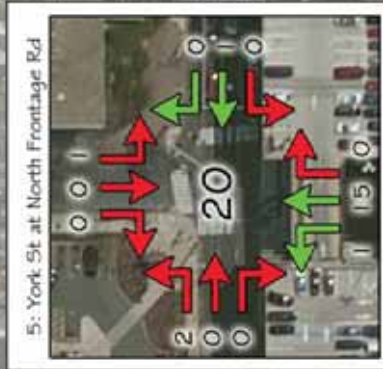
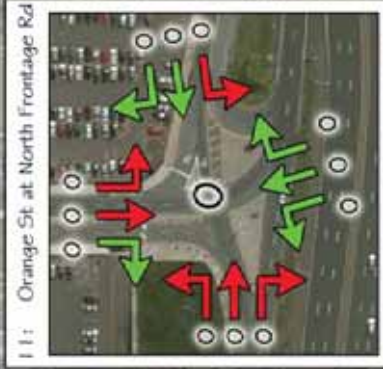
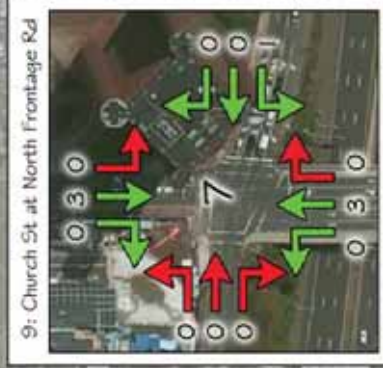
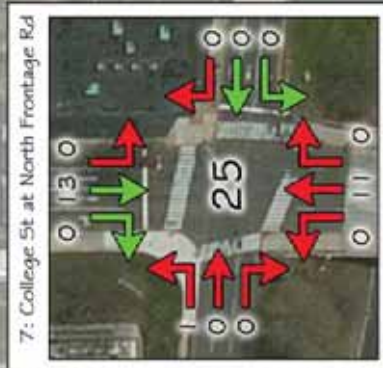
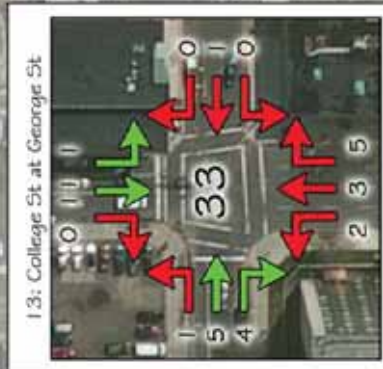


Figure 10:
Mid-Day Bicyclist Volumes
Route 34 Corridor

New Haven, Connecticut
Point in Time Survey 2012



Source:
Massachusetts Virtual Earth
Screenshot USA (2011)



TABLE 7 Route 34 Corridor 2012 Bicyclist Volumes		
Intersections	AM	Midday
Orange Street at North Frontage	9	0
Orange Street at South Frontage	1	0
College at George	77	33
Total:	87	33

Medical District and Union Station Area Results - In 2012, 12 new intersections were included within the Medical District and near Union Station. Since the 12 new intersections were added in 2012, neither potential growth nor comparisons over a one-year period can be made until 2013 data is collected. The Medical District/Union Station area bicycle volumes are summarized in Table 8.

TABLE 8 Medical District/Union Station Area 2012 Bicyclist Volumes			
District	Intersections	AM	Midday
Medical District	S. Frontage at Howard	6	5
	Howard at Davenport	14	11
	Congress at Howard	17	13
	York at Cedar	8	11
	Congress at Cedar	57	22
	Congress at College	50	29
	Congress at Lafayette	13	5
	Subtotal:	165	96
Union Station Area	Columbus at Howard	12	19
	Columbus at Church St South	5	15
	Union at Meadow	13	10
	Union at Columbus	9	11
	Union at Church St South	9	14
	Subtotal:	48	69
Total Area:		213	165

Overall, there were significantly more bicyclists during the morning count period than during the midday count period, particularly in the Medical District near Yale New Haven Hospital. Figures 11 and 12 detail the bicycle turning movements during the respective morning and midday periods in the Medical District. Figures 13 and 14 detail the bicycle turning movements during the respective morning and midday periods in the Union Station area.

Summary - Overall, bicycles continue to be a significant mode of transportation within New Haven. Most of the bicyclists were observed near and between Yale University, Gateway Community College, and the Medical District. Much lower ridership was observed along the easternmost portion of the Route 34 corridor, which is significantly less bicycle friendly. Results for each district's morning and midday counts can be found in the Appendix.

Pedestrian Counts

Pedestrian counts were conducted for the downtown and Route 34 corridor areas on Tuesday, October 16, 2012, and Wednesday, October 17, 2012. Counts for the Medical District and Union Station area were conducted on Tuesday, October 23, 2012, and Thursday, October 25, 2012. The counts were conducted during the morning, midweek commute period between 8:00 a.m. to 9:00 a.m. and from 11:30 a.m. to 12:30 p.m. during the midday, midweek period. The pedestrian counts are intended to provide a snapshot of typical pedestrian activity. The methodology used was identical to that employed in past counts. However, in 2012, morning pedestrian counts were added to the study, and professional enumerators were used, unlike 2011 where volunteers counted pedestrians.

The methodology stayed the same as past years in that the number of pedestrians on both sides of the street walking away from the intersection on each approach was counted in 15-minute intervals. Note that the three new intersections within the Route 34 corridor that were added with this study for bicyclists were not counted for pedestrians.

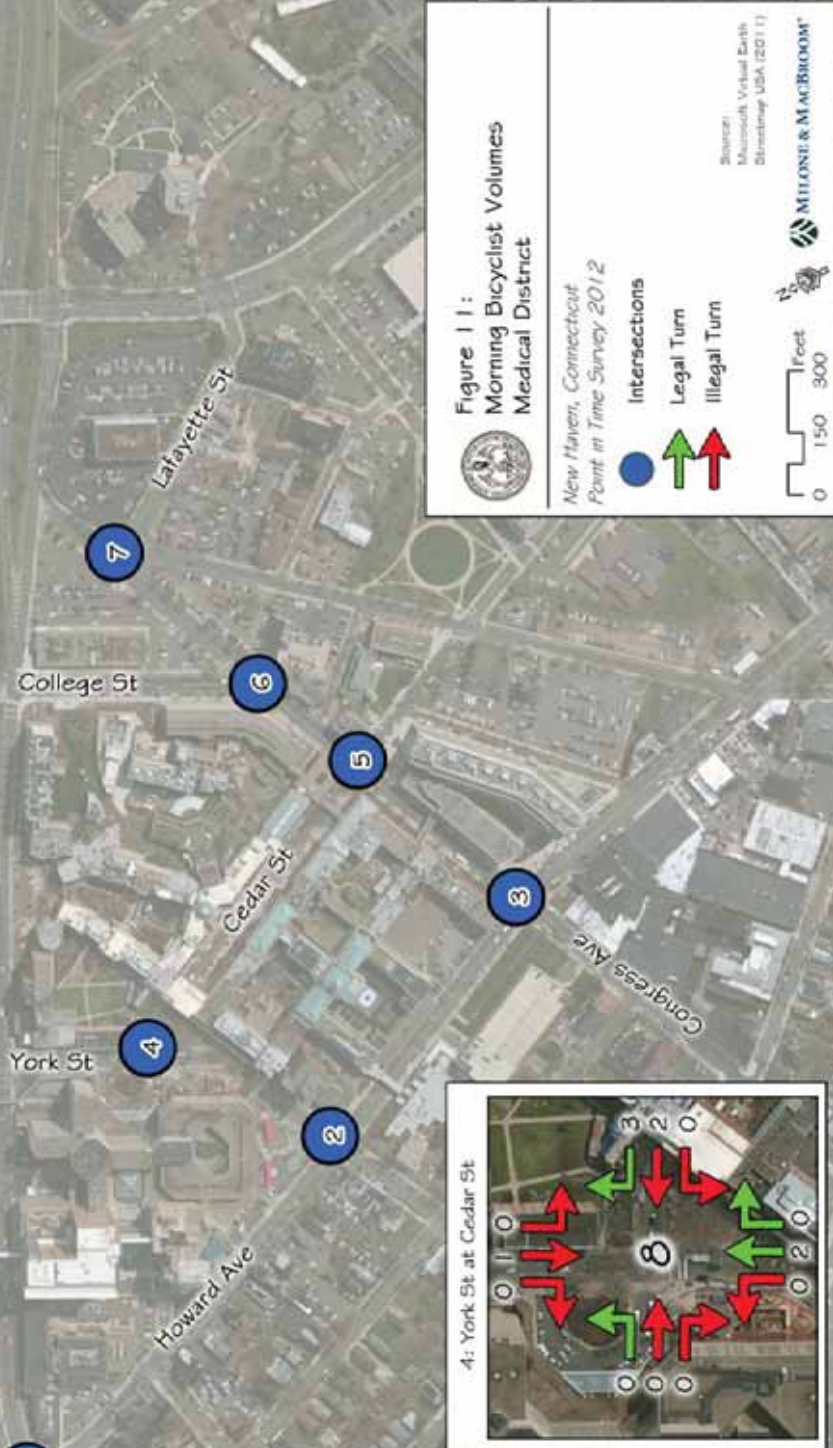
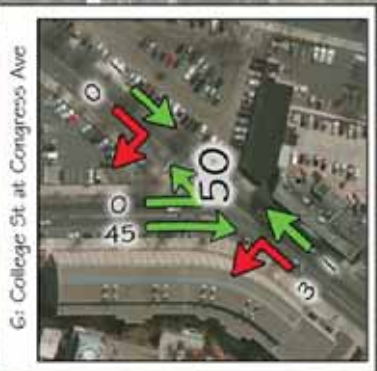
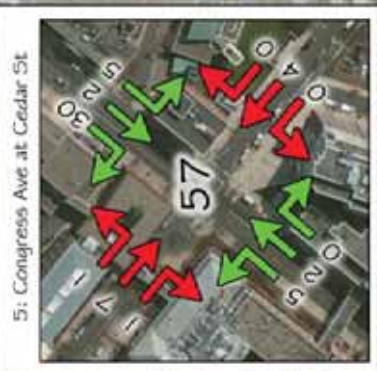


Figure 11:
Morning Bicyclist Volumes
Medical District

New Haven, Connecticut
Point in Time Survey 2012

Intersections
 Legal Turn
 Illegal Turn

Source:
Massouth, Virtual Earth
Microsoft USA (2011)

MILONE & MACBROOM

0 150 300 Feet

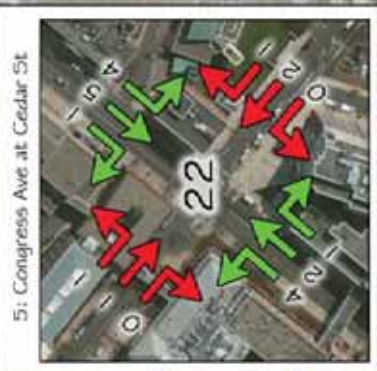


Figure 12:
Mid-Day Bicyclist Volumes
Medical District

New Haven, Connecticut
Point in Time Survey 2012

Intersections
 ● Legal Turn
 ● Illegal Turn

Source:
Massachusetts Virtual Earth
Bromfield USA (2011)

MILONE & MACBROOM

0 150 300 Feet

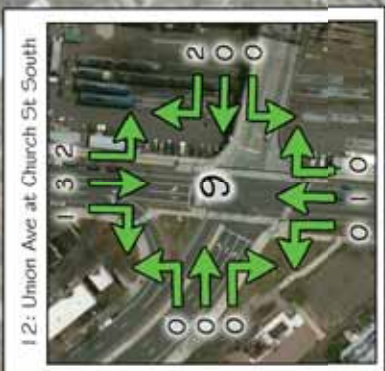
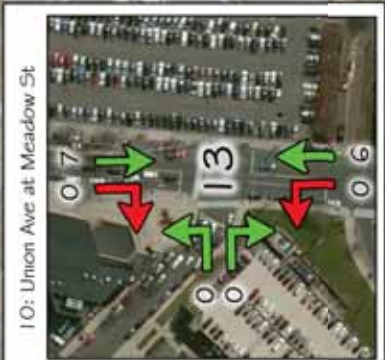
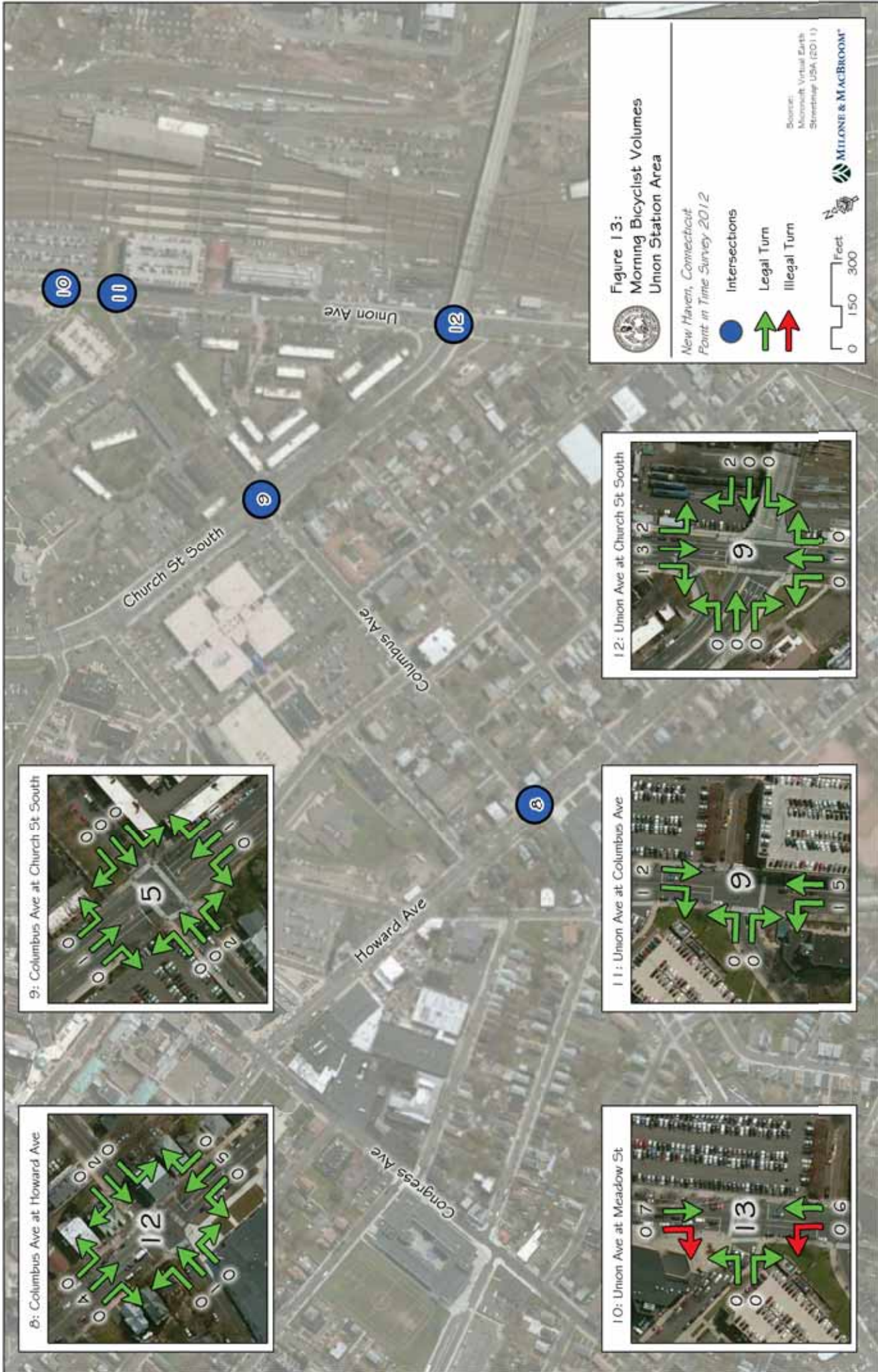


Figure 13:
Morning Bicyclist Volumes
Union Station Area

New Haven, Connecticut
 Point in Time Survey 2012

Source:
 Microsoft Virtual Earth
 Streetmap USA (2011)

Legend:
 Intersections (Blue circle)
 Legal Turn (Green arrow)
 Illegal Turn (Red arrow)

Scale:
 0 150 300 Feet

MILONE & MACBROOM

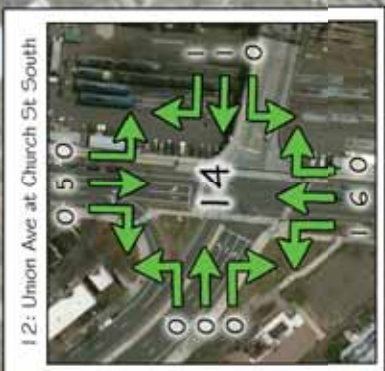
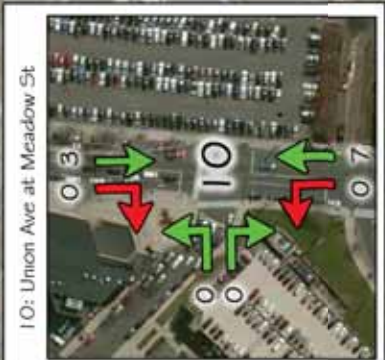
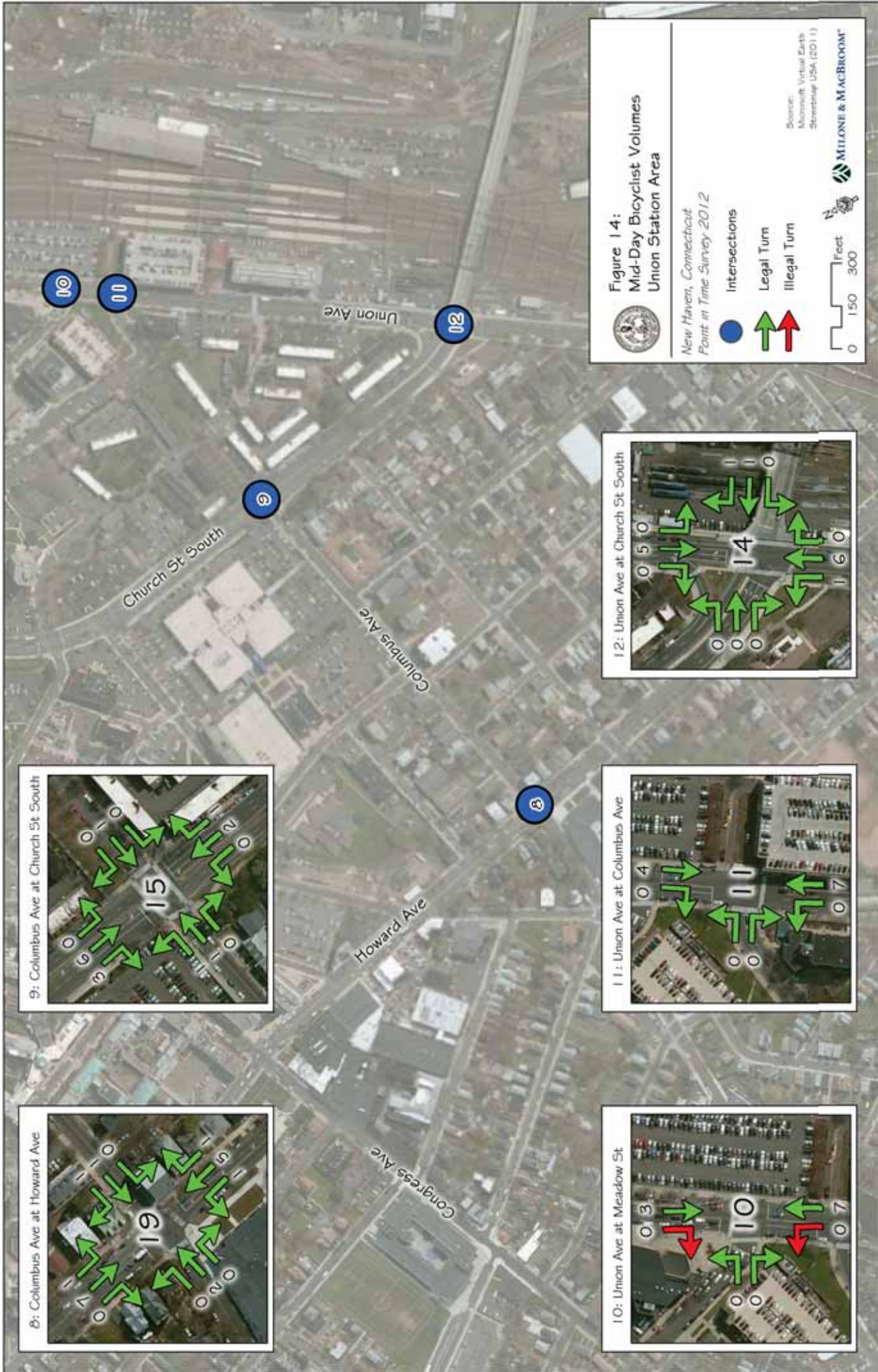


Figure 14:
Mid-Day Bicyclist Volumes
Union Station Area

New Haven, Connecticut
 Point in Time Survey 2012

Source:
 Microsoft Virtual Earth
 Streetmap USA (2011)

Intersections
 Legal Turn
 Illegal Turn

Feet
 0 150 300

MILONE & MACBROOM

Downtown Results - Table 9 shows weekday midday volumes collected at the original four intersections compared to the past three years of survey data. As shown, there was a noticeable overall decrease of 19% from 2010 to 2011 in pedestrian activity. In 2012, the downtown experienced a further 6% overall decrease in pedestrian traffic. This decrease was primarily observed at the Church Street at Chapel Street intersection, which decreased by 23%. It was noted that there was ongoing construction at this location that limited the enumerator's ability to count and pedestrian ability to safely navigate through all portions of this intersection. In 2011, the Elm Street at York Street intersection experienced a 41% decrease from 2010, which was attributed to construction in the area. Even though the 2012 results at this intersection were less than those experienced in 2010, pedestrian volumes increased by 12% at this intersection over the last year. Figures 15 and 16 detail pedestrian movements that were observed during the morning and midday count periods in the downtown.

TABLE 9 Downtown Midday Pedestrian Volumes 2009 to 2012					
Intersections	2009	2010	2011	2012	% Change 2011 to 2012
College at Chapel	852	805	753	712	-5%
Church at Chapel	1,180	1,268	1,274	977	-23%
Elm at York	1,314	1,556	922	1,036	12%
Elm at Orange	431	382	303	333	10%
Total:	3,777	4,011	3,252	3,058	-6%

Route 34 Corridor Area Results - In 2011, data was collected for six intersections during the midday period. In 2012, both morning and midday pedestrian volumes were counted at these same intersections. Comparisons can be made for the midday volumes between 2011 and 2012 and are described in Table 10.

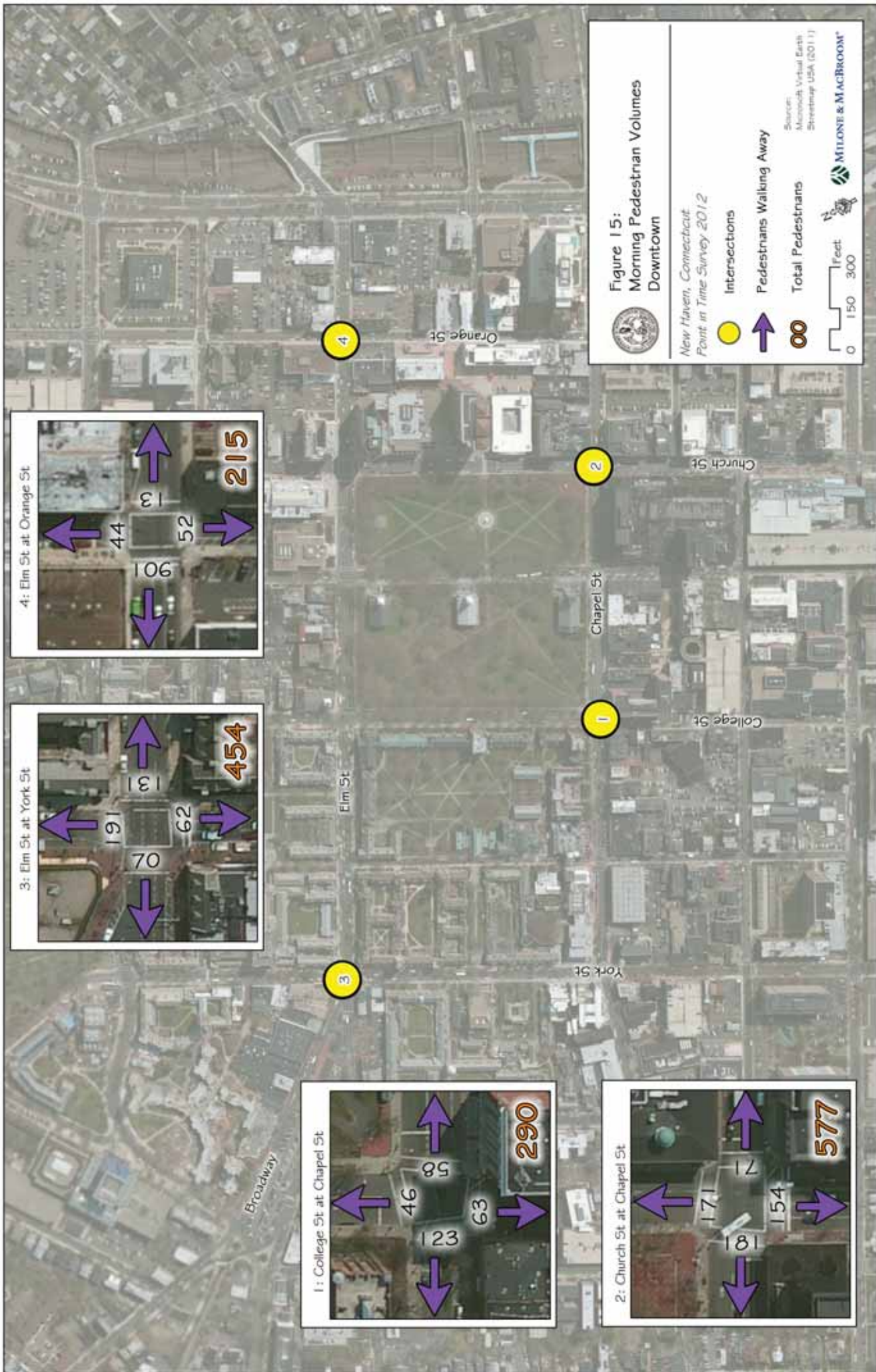



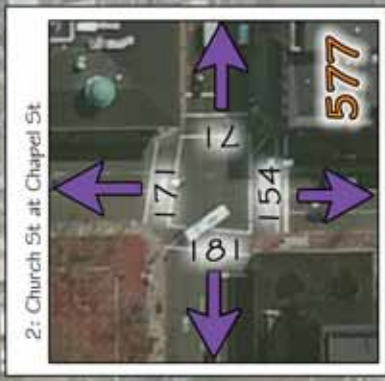
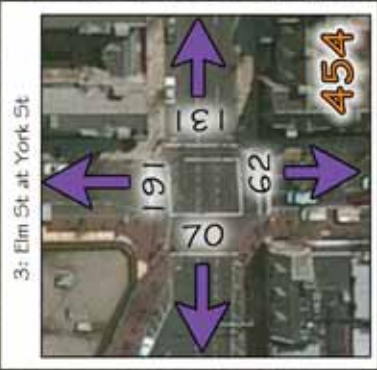
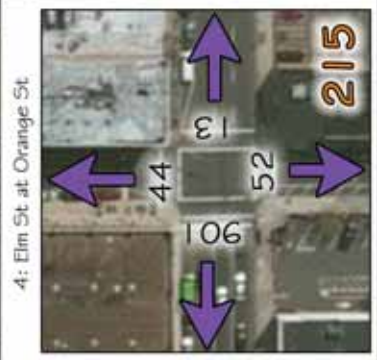


Figure 15:
Morning Pedestrian Volumes
Downtown

New Haven, Connecticut
Point in Time Survey 2012

-  Intersections
-  Pedestrians Walking Away
-  Total Pedestrians

Source:
 Monocle, Virtual Earth
 Streetmap USA (2011)



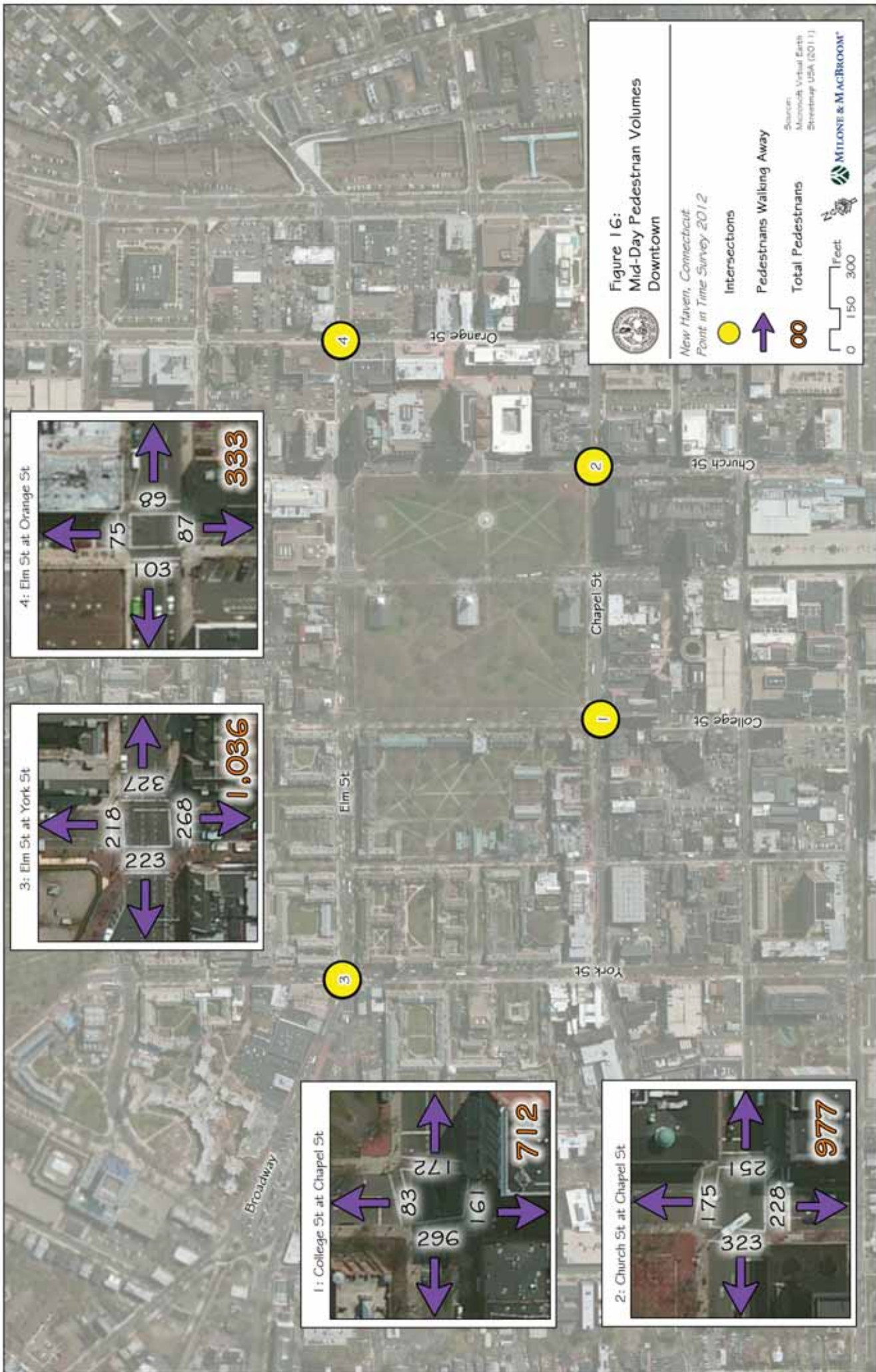


Figure 16:
Mid-Day Pedestrian Volumes
Downtown

New Haven, Connecticut
Point in Time Survey 2012

- Intersections
- ➔ Pedestrians Walking Away
- ∞ Total Pedestrians

Source:
 Monocle Virtual Earth
 Streetmap USA (2011)

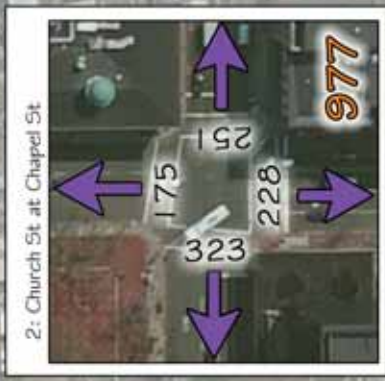
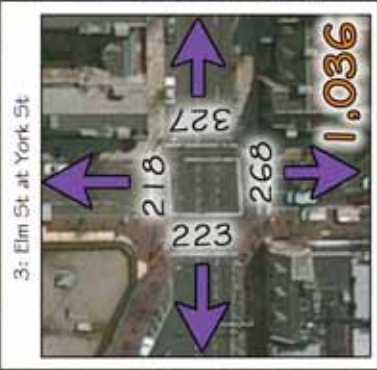
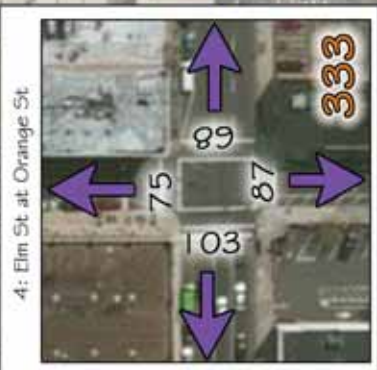


TABLE 10 Route 34 Corridor Midday Pedestrian Volumes 2011 to 2012			
Intersections	Midday		
	2011	2012	% Change
York at North Frontage	481	527	10%
York at South Frontage	652	670	3%
College at North Frontage	409	326	-20%
College at South Frontage	413	345	-16%
Church at North Frontage	127	106	-17%
Church at South Frontage	135	102	-24%
Total:	4,228	4,088	-3%

As shown, the largest number of pedestrians was measured at the York Street at North Frontage Road and the York Street at South Frontage Road intersections. This may be attributed to the Air-Rights Parking Garage located between the two intersections. These two intersections experienced increases in 2012, most noticeably at the York Street at North Frontage Road intersection. The remaining four intersections all decreased by more than 15% each. However, even with these decreases, overall pedestrian volumes only decreased by 3%.

For the morning counts added in 2012, neither potential growth nor comparisons over a one-year period can be made until 2013 data is collected. In Table 11, the volume of pedestrians as observed is summarized. Figures 17 and 18 detail pedestrian movements observed during the morning and midday count periods.

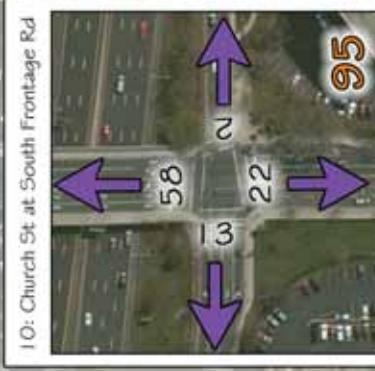
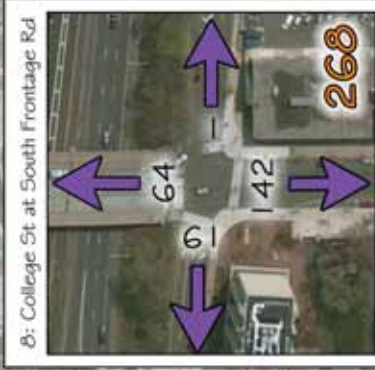
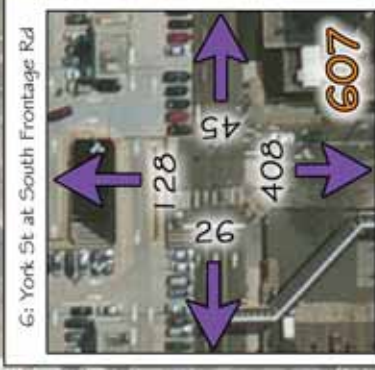
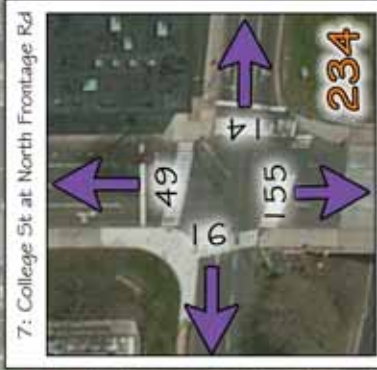
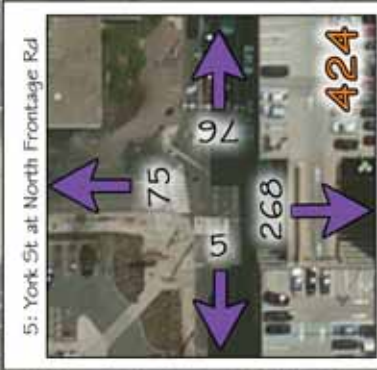
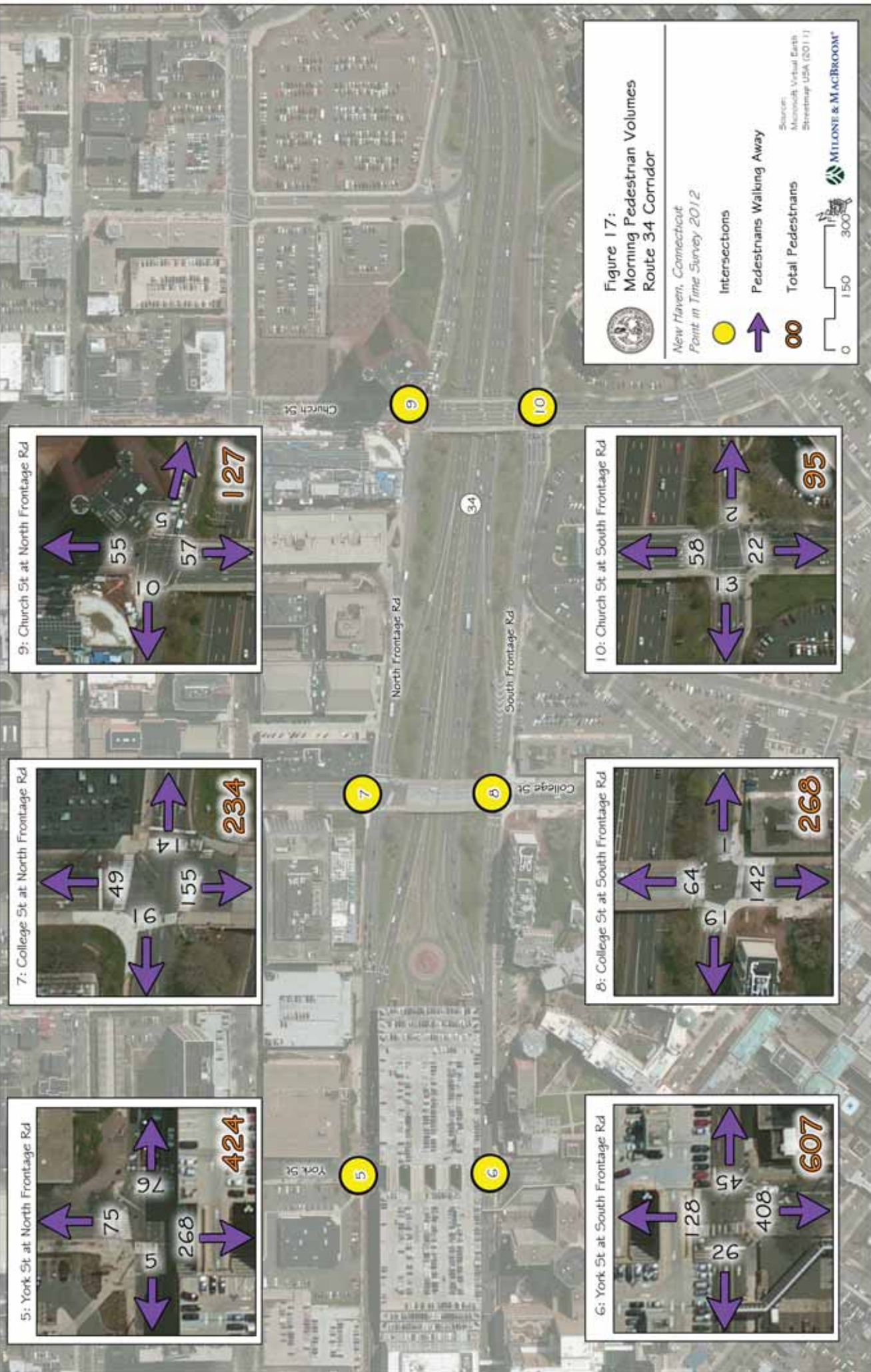


Figure 17:
Morning Pedestrian Volumes
Route 34 Corridor

New Haven, Connecticut
Point in Time Survey 2012

Intersections

Pedestrians Walking Away

Total Pedestrians

Source:
Microdot, Virtual Earth
Streetsmap USA (2011)



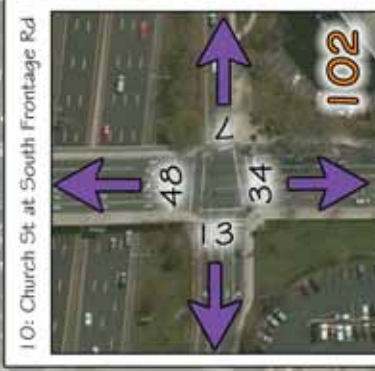
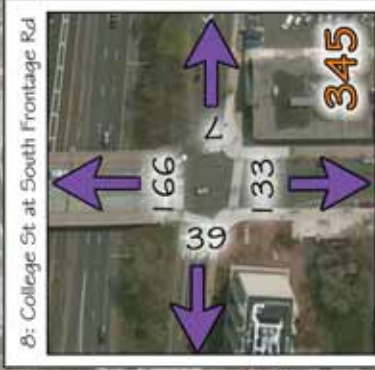
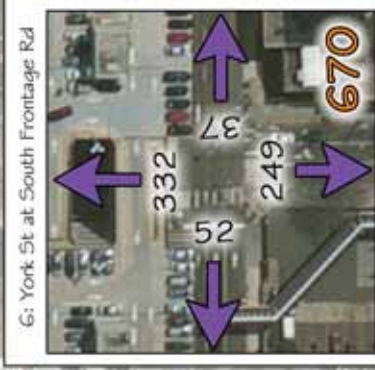
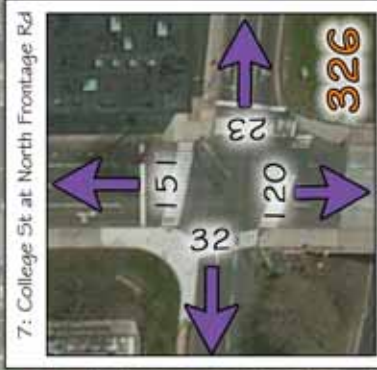
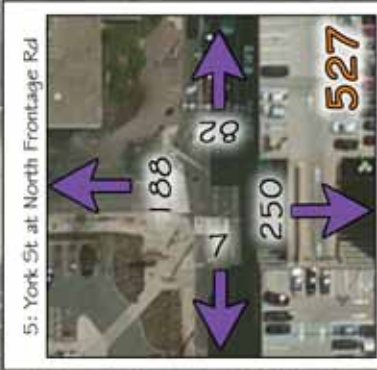
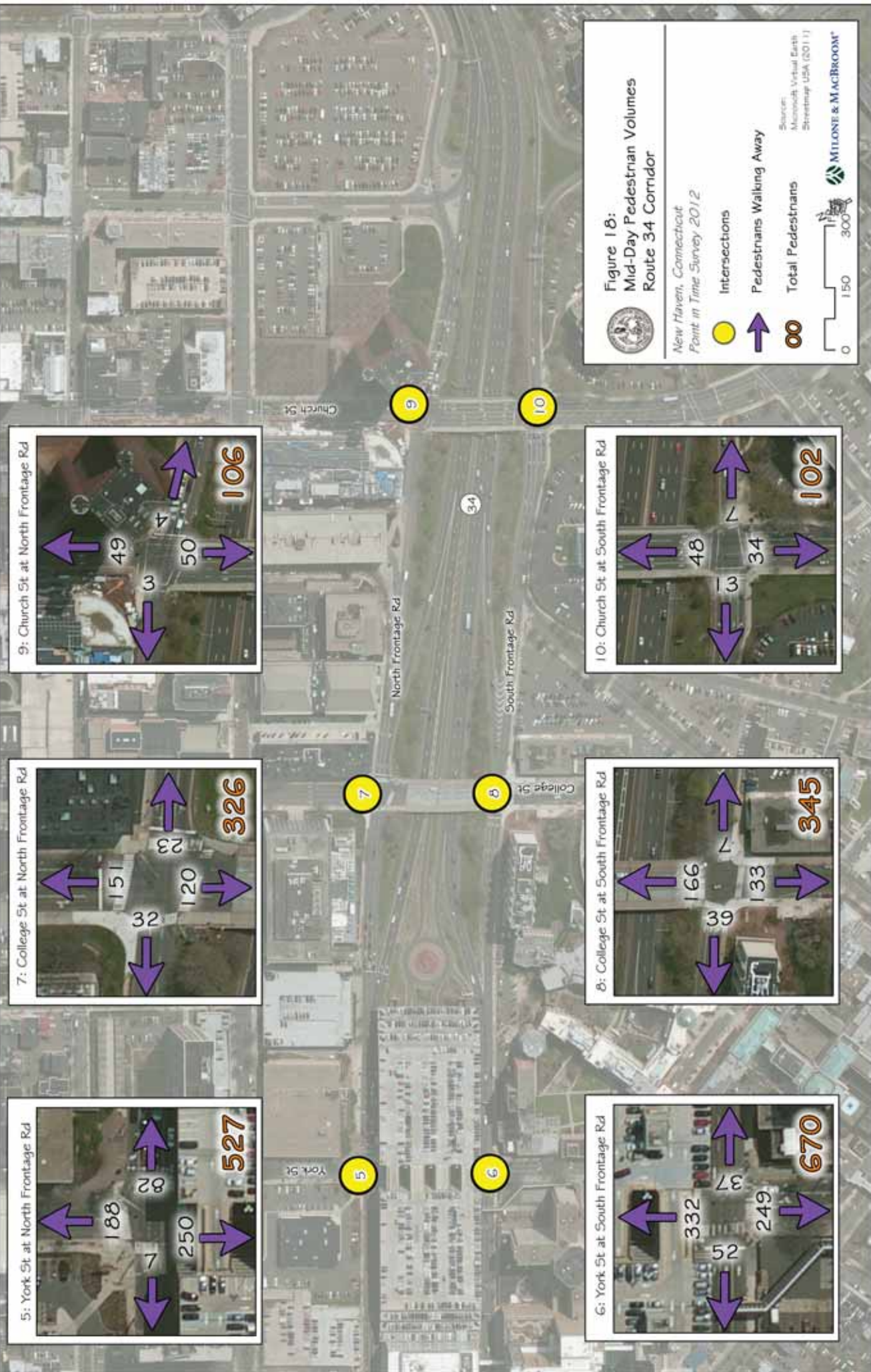


Figure 18:
Mid-Day Pedestrian Volumes
Route 34 Corridor

New Haven, Connecticut
Point in Time Survey 2012

- Intersections
- ➔ Pedestrians Walking Away
- ∞** Total Pedestrians

Source:
Monocle, Virtual Earth
Streetsmap USA (2011)



TABLE 11 Route 34 Corridor 2012 Morning Pedestrian Volumes	
Intersections	2012
York at North Frontage	424
York at South Frontage	607
College at North Frontage	234
College at South Frontage	268
Church at North Frontage	127
Church at South Frontage	95
Total:	3,767

Medical District and Union Station Area Results - In 2012, 12 new intersections were added in the Medical District area around Yale New Haven Hospital and the area near Union Station. Since the 12 new intersections were added in 2012, neither potential growth nor comparisons over a one-year period can be made until 2013 data is collected. The results are summarized in Table 12.

TABLE 12 New Haven Point in Time 2012 Pedestrian Volumes			
District	Intersections	AM	Midday
Medical District	S. Frontage at Howard	273	202
	Howard at Davenport	268	328
	Congress at Howard	252	298
	York at Cedar	523	958
	Congress at Cedar	604	822
	Congress at College	207	274
	Congress at Lafayette	136	112
Union Station Area	Columbus at Howard	129	130
	Columbus at Church St South	134	77
	Union at Meadow	118	152
	Union at Columbus	145	137
	Union at Church St South	49	37
Total Districts:		2,838	3,527

Within the Medical District/Union Station area, high volumes of pedestrians were observed at the York Street at Cedar Street and Congress Street at Cedar Street intersections due to their proximity to Yale New Haven Hospital. Likewise, high volumes were observed at the Union Avenue at Meadow Avenue and Union Avenue at Columbus Avenue intersections due to their proximity to the Union Station train station. High volumes were also observed at the Columbus Avenue at Howard Street intersection that is located adjacent to the Church Street South housing development.

Figures 19 and 20 detail pedestrian movements that were observed during the morning and midday count periods in the Medical District. Figures 21 and 22 detail pedestrian movements that were observed during the morning and midday count periods in the Union Station area.

Summary - Pedestrians continue to be a significant user of the roadway network. With the opening of Gateway Community College, it is believed that patterns have changed and will continue to change as development continues within New Haven.

It is important to put these results in context and recognize the limitations of this study. As mentioned earlier, the Point-in-Time survey represents snapshots of parking, cycling, and pedestrian activity downtown. Any trends identified should be treated as isolated observations that can be confirmed with additional data collection such as spot counts undertaken throughout the year. A more detailed methodology for measuring both bicycle and pedestrian travel activity can be found in the city's *Complete Streets Design Manual*, a copy of which can be found at: <http://www.cityofnewhaven.com/TrafficParking/pdfs/CS-Manual-04-05-10.pdf>.

1: South Frontage Rd at Howard Ave



2: Howard Ave at Davenport Ave



3: Howard Ave at Congress Ave



5: Congress Ave at Cedar St



4: York St at Cedar St



6: College St at Congress Ave



7: Congress Ave at Lafayette St



Figure 19:
Morning Pedestrian Volumes
Medical District

New Haven, Connecticut
Point in Time Survey 2012

- Intersections
- ➔ Pedestrians Walking Away
- 00 Total Pedestrians

Source:
Massachusetts Virtual Earth
Streetmap USA (2011)



1: South Frontage Rd at Howard Ave



2: Howard Ave at Davenport Ave



3: Howard Ave at Congress Ave



5: Congress Ave at Cedar St



4: York St at Cedar St



6: College St at Congress Ave



7: Congress Ave at Lafayette St



Figure 20:
Mid-Day Pedestrian Volumes
Medical District

New Haven, Connecticut
Point in Time Survey 2012

- Intersections
- Pedestrians Walking Away
- Total Pedestrians

Source:
Massachusetts Virtual Earth
Streetmap USA (2011)



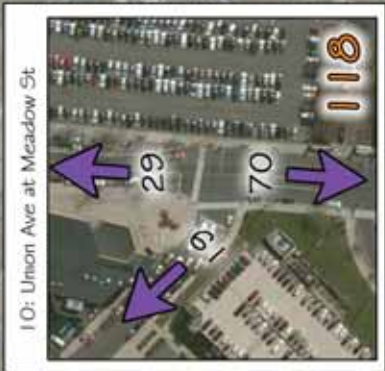
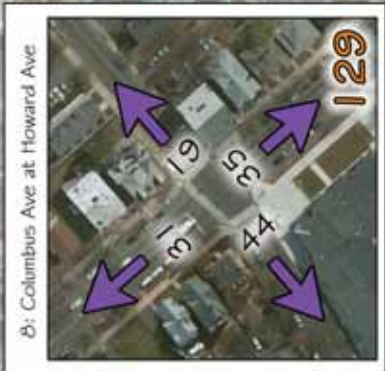
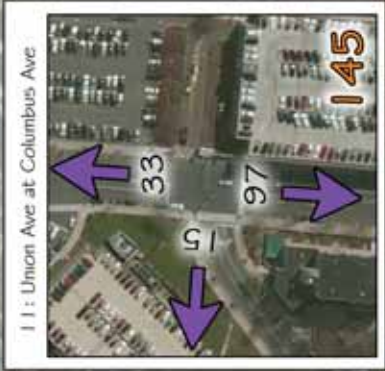


Figure 2 1:
Morning Pedestrian Volumes
Union Station Area

New Haven, Connecticut
 Point in Time Survey 2012

-  Intersections
-  Pedestrians Walking Away
-  Total Pedestrians

Source:
 Monrovia Virtual Earth
 Streetmap USA (2011)



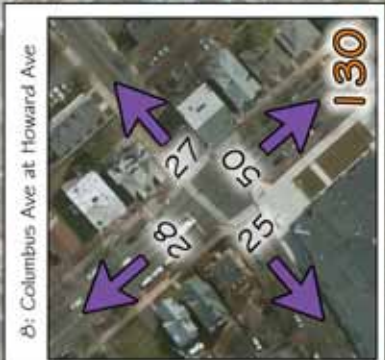


Figure 22:
Mid-Day Pedestrian Volumes
Union Station Area

New Haven, Connecticut
 Point in Time Survey 2012

Source:
 Mantrix Virtual Earth
 Streetmap USA (2011)

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Legend:
 Intersections (Blue circle)
 Pedestrians Walking Away (Purple arrow)
 Total Pedestrians (Orange number)

Scale: 0 150 300 Feet

SUMMARY AND CONCLUSIONS

The following are the key findings of this study:

- The observed overall 2012 parking utilization rate in central New Haven decreased from prior years to 79% when Union Station was included in the analysis. This represents the lowest occupancy rate since this study has been conducted going back to 2003.
- The results indicate an overall decrease in parking utilization rate from 2011 to 2012 from 87% to 79%, respectively. This reflects both an increase in capacity and a decrease in demand.
- Projection of parking utilization at this time indicates that the previously forecasted parking "crunch" is no longer projected.
- Bicycle ridership at previously surveyed locations has been fairly stable, with small decreases from 2011 to 2012.
- Counts of pedestrian activity showed that of the four original downtown intersections counted in previous studies there was an observed decrease of pedestrian traffic of approximately -6% from 2011 to 2012.
- Route 34 corridor pedestrian activity decreased slightly (-4%) from 2011 to 2012.

Going forward, it is recommended that the city continue to monitor parking supply and demand as well as the progression and scheduling of major downtown development projects. More frequent sampling may highlight normal sampling variations. Capacity issues at the Union Station garage suggest that it should remain a city priority and that a second Union Station garage be constructed in a timely manner.

Other proactive measures the city could embrace would be to conduct a series of hourly "spot counts" for selected blocks of metered on-street parking spaces throughout the day and evening to determine time-of-day variations and the peak hour of on-street parking utilization downtown. The city should also consider implementing a Transportation Demand Management program for municipal employees. This would set the framework and standard for private employers in downtown.

Regarding bicyclists and pedestrians, the city should ensure that nonmotorized users are properly accommodated in the downtown, with particular attention to the safety and convenience of crosswalks and pedestrian signals and proper allocation of roadway space. Much of this work has already begun as the city has developed a Complete Streets policy, which entails designing the transportation system such that it accommodates all roadway users. Similarly, the Street Smarts program aimed at developing a culture of mutual respect among roadway users has been largely successful and continues to the present day.

The city should look to increase the proportion/mode split of pedestrians and cyclists as one of many tools available for managing downtown parking demand. Encouraging more residents and workers to walk or bike downtown would reduce future parking demand.

This report provides a snapshot of parking, bicycle, and pedestrian activity within downtown New Haven as well as a forecast of anticipated parking demand through 2015. It includes a number of considerations to maintain a good balance of parking supply relative to demand and to continue to monitor bicycle and pedestrian activity within the city. We hope this report is useful to you in your efforts to continue to promote a livable and economically vibrant city. If you have any questions, or need additional materials, please do not hesitate to contact us.

1621-43-1-mr513-rpt.doc

APPENDIX A

SURFACE LOT PARKING COUNT FORM



Initials: _____

Date: _____

Start Time: _____

End Time: _____

Weather (Circle One) Fair Rainy Warm Very Cold Snow/Sleet

Approx. Temperature: _____

Location

Facility Name: _____

INSTRUCTIONS

- Use one count form per facility
- Fill out the required information on the top of EVERY count sheet
- **COUNT ALL PARKED VEHICLES IN EACH LOT**
- Count the number of vehicles parked outside of legal spaces (i.e. double/tandem parkers, parked in drive aisle)
- Count unusable spaces - i.e. spaces occupied by something other than vehicles (e.g. dumpsters, construction equipment, debris, spaces that have been blocked off, etc.)

Mark Count Results in the Boxes Below

Legally Parked Vehicles	Parked Outside of Legal Space	Unusable Spaces
<p><i>Example</i></p> <p> = 1 parked car</p> <p> = 5 parked cars</p>		

PARKING GARAGE COUNT FORM



Initials: _____

Date: _____

Start Time: _____

End Time: _____

Weather (Circle One) Fair Rainy Warm Very Cold Snow/Sleet

Approx. Temperature: _____

Location

Facility Name: _____

INSTRUCTIONS

- Use one count form per facility
- Fill out the required information on the top of EVERY count sheet
- **Count all UNOCCUPIED spaces in each facility**
- Count the number of vehicles parked outside of legal spaces (i.e. double/tandem parkers, parked in drive aisle)
- Count unusable spaces - i.e. spaces occupied by something other than vehicles (e.g. dumpsters, construction equipment, debris, spaces that have been blocked off, etc.)

Mark Count Results in the Boxes Below

Unoccupied Spaces	Parked Outside of Legal Space	Unusable Spaces
<p><i>Example</i></p> <p> = 1 empty space</p> <p> = 5 empty spaces</p>	<p><i>Example</i></p> <p> = 1 illegally parked car</p> <p> = 5 illegally parked cars</p>	

ON-STREET PARKING COUNT FORM



Initials: _____

Date: _____

Start Time: _____

End Time: _____

Weather (Circle One) Fair Rainy Warm Very Cold Snow/Sleet

Approx. Temperature: _____

Location

Street Name: _____

Between _____ AND _____

Example: Elm Street between College and Temple

INSTRUCTIONS

- Use one count form per block
- Fill out the required information on the top of EVERY count sheet
- Count all parked vehicles on each block on BOTH sides of the street (all vehicles parked at a metered or signed space)
- Count the number of vehicles parked outside of legal spaces (e.g. double parkers, parking by corner, fire hydrant)
- Count unusable spaces - i.e. those occupied by something other than vehicles (e.g. dumpsters, construction equipment, debris, etc.), or bagged meters

Mark Count Results in the Boxes Below

Legally Parked Vehicles	Parked Outside of Legal Space	Unusable Spaces

BICYCLE INTERSECTION COUNT FORM



Name: _____

Location: _____

Date: _____

Start Time: _____

End Time: _____

Weather (Circle One) Fair Rainy Warm Very Cold Snow/Sleet

Approx. Temperature: _____

INSTRUCTIONS

- Count all bicyclists moving through the intersection under the appropriate category on the graphic
- Count for one hour in 15-minute increments
- Use one intersection graphic per 15-minute interval
- Include bicyclists who ride on the sidewalk
- Count the number of people on the bicycle, not the number of bicycles
- Include bicyclists who ride the wrong way
- Do NOT include people walking their bicycles through the intersection

Notes:

Count forms based on "Standard Bicycle Intersection Count Form"

source: National Bicycle and Pedestrian Documentation Project

<http://bikepeddocumentation.org>

BICYCLE INTERSECTION COUNT FORM



A

00-:15

Street:

Street:

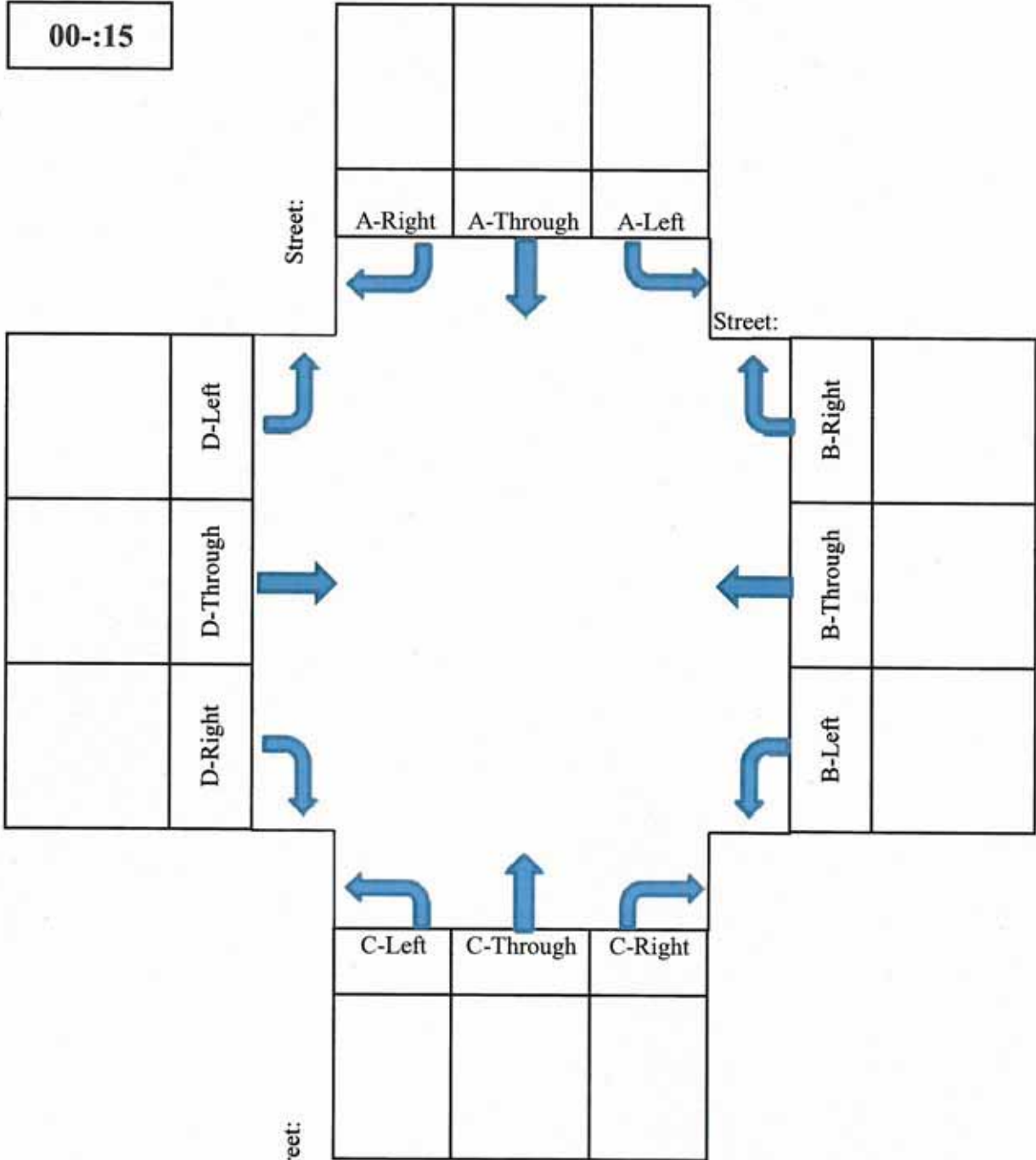
Street:

D

B

Street:

C



BICYCLE INTERSECTION COUNT FORM



15-:30

A

A-Right	A-Through	A-Left

Street:

B

B-Right	B-Through	B-Left

Street:

Street:

D

	D-Left	
	D-Through	
	D-Right	

C

C-Left	C-Through	C-Right

Street:

Street:

BICYCLE INTERSECTION COUNT FORM



30-:45

Street: **A**

A-Right	A-Through	A-Left

Street: **D**

	D-Left	
	D-Through	
	D-Right	

Street: **B**

	B-Right	
	B-Through	
	B-Left	

Street: **C**

C-Left	C-Through	C-Right

BICYCLE INTERSECTION COUNT FORM



45-1:00

A

A-Right	A-Through	A-Left

Street:

B

B-Right	B-Through	B-Left

Street:

D

	D-Left	
	D-Through	
	D-Right	

Street:

C

C-Left	C-Through	C-Right

Street:

PEDESTRIAN COUNT FORM



Name: _____

Location: _____

Date: _____

Assigned Count Leg: (Circle One)

Start Time: _____

see attached map

End Time: _____

A B C D

Weather (Circle One) Fair Rainy Warm Very Cold Snow/Sleet

Approx. Temperature: _____

INSTRUCTIONS

- Count all pedestrians walking AWAY from the intersection for your assigned intersection leg
- Tally pedestrians according to the side of the street they're travelling on
- Count for one hour in 15-minute increments
- Use one intersection graphic per 15-minute interval
- Pedestrians include people in wheelchairs or others using assistive devices, children in strollers, etc.
- Mark skateboarders, rollerbladers and others on recreational devices under the "other" box
- Do NOT count people riding bicycles
- Do NOT count people pacing back and forth (e.g. newspaper vendors, canvassers, etc.)

Notes:

Count Instructions based on screenline count instructions

source: National Bicycle and Pedestrian Documentation Project

<http://bikepeddocumentation.org>

PEDESTRIAN COUNT FORM



00-:15



Empty rectangular box for recording pedestrian count data for area A-1.

A-1



Empty rectangular box for recording pedestrian count data for area A-2.

A-2

Large empty rectangular box for recording pedestrian count data for the main intersection area.

PEDESTRIAN COUNT FORM



15-:30

A large empty rectangular box intended for recording pedestrian count data for station A-1.

A-1

A large empty rectangular box intended for recording pedestrian count data for station A-2.

A-2

A wide horizontal rectangular box spanning the width of the page, likely for recording overall count data or survey information.A vertical rectangular box on the left side of the page, likely for recording additional count data or survey information.A vertical rectangular box on the right side of the page, likely for recording additional count data or survey information.

PEDESTRIAN COUNT FORM



30-:45

A large empty rectangular box for recording pedestrian count data for area A-1.

A-1

A large empty rectangular box for recording pedestrian count data for area A-2.

A-2

A wide horizontal rectangular box spanning the width of the page, intended for recording additional count data or notes.A vertical rectangular box on the left side of the page, intended for recording additional count data or notes.A vertical rectangular box on the right side of the page, intended for recording additional count data or notes.

PEDESTRIAN COUNT FORM



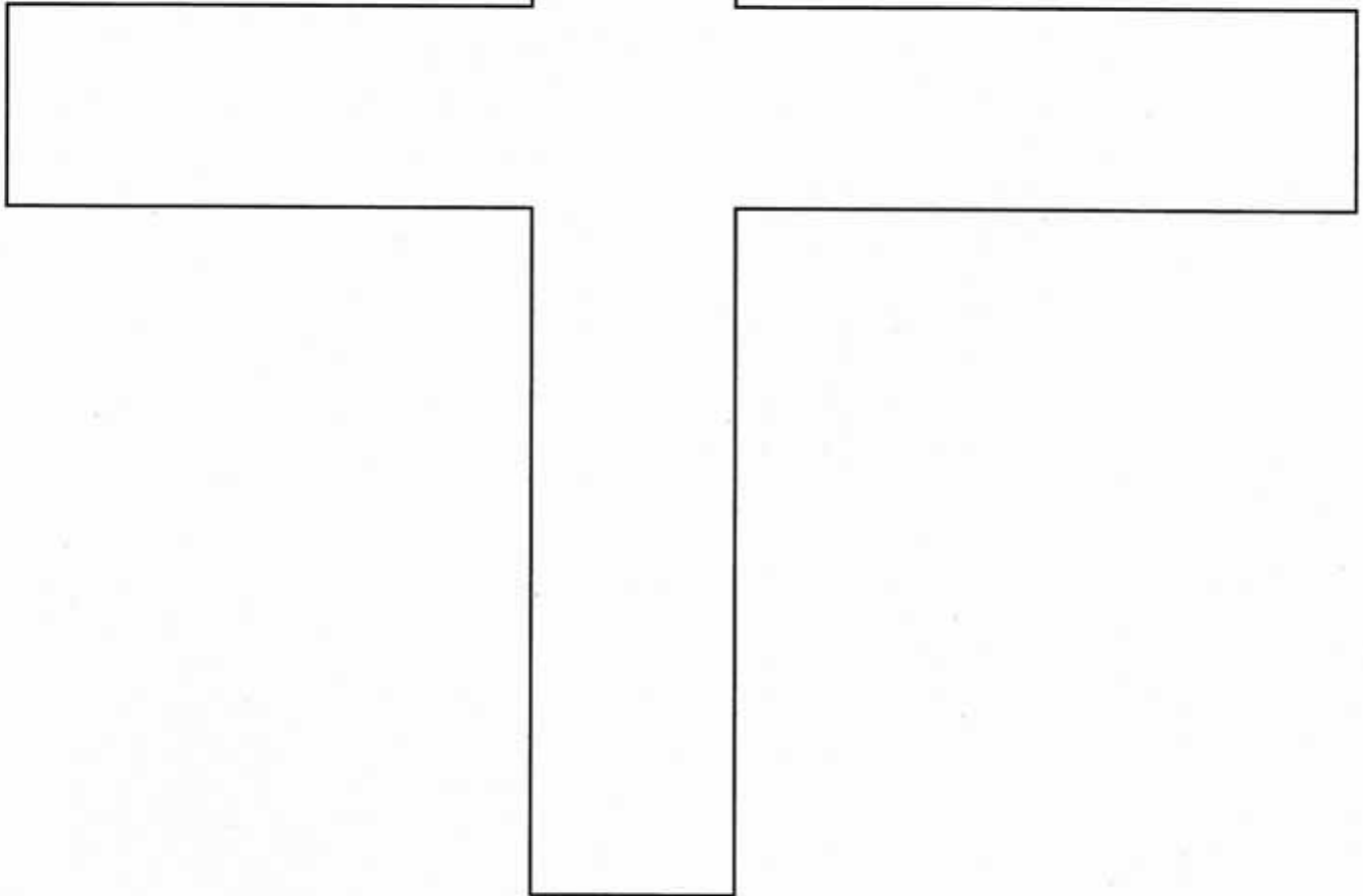
45-1:00

A large, empty rectangular box intended for recording pedestrian count data for station A-1.

A-1

A large, empty rectangular box intended for recording pedestrian count data for station A-2.

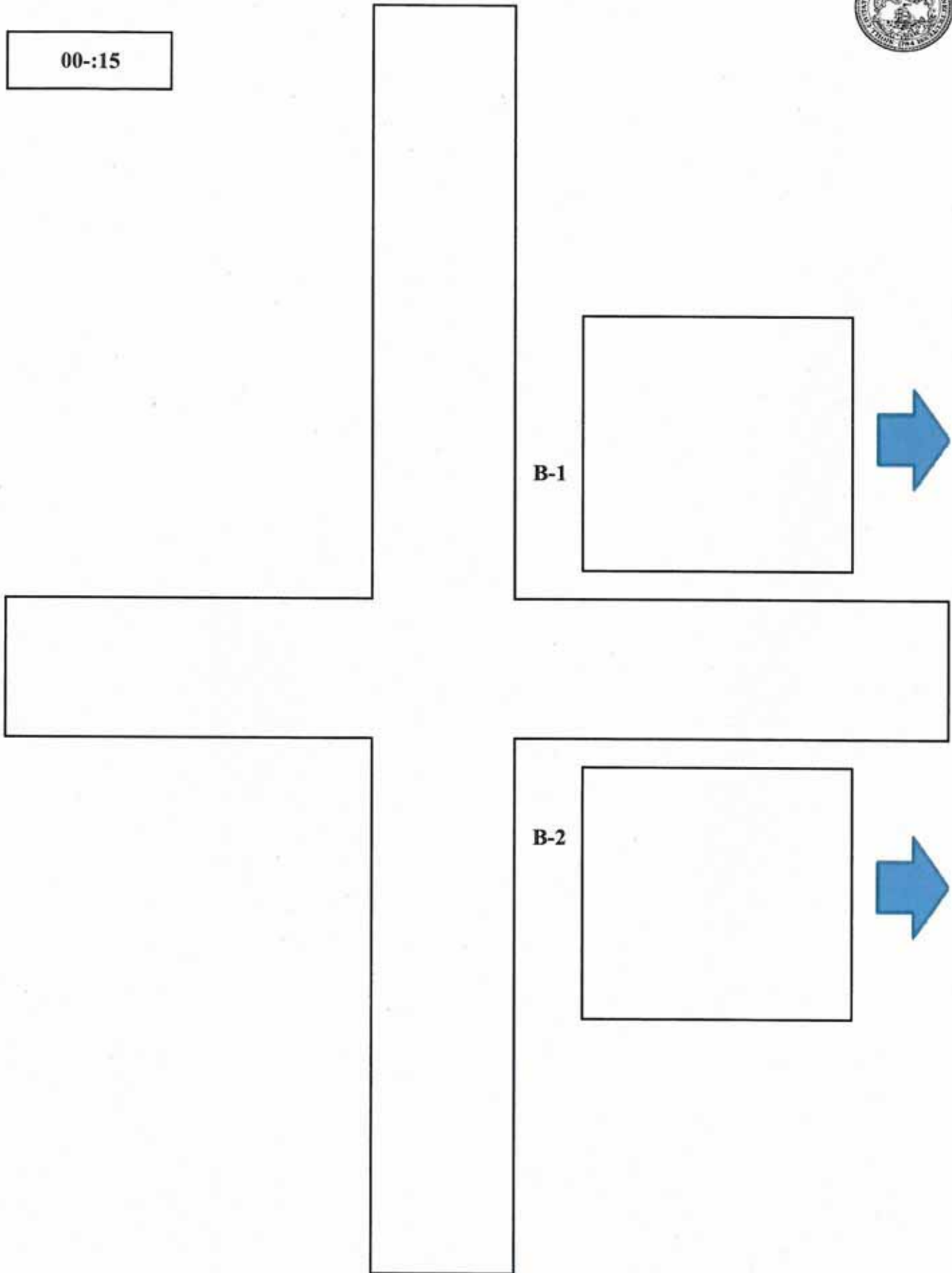
A-2



PEDESTRIAN COUNT FORM



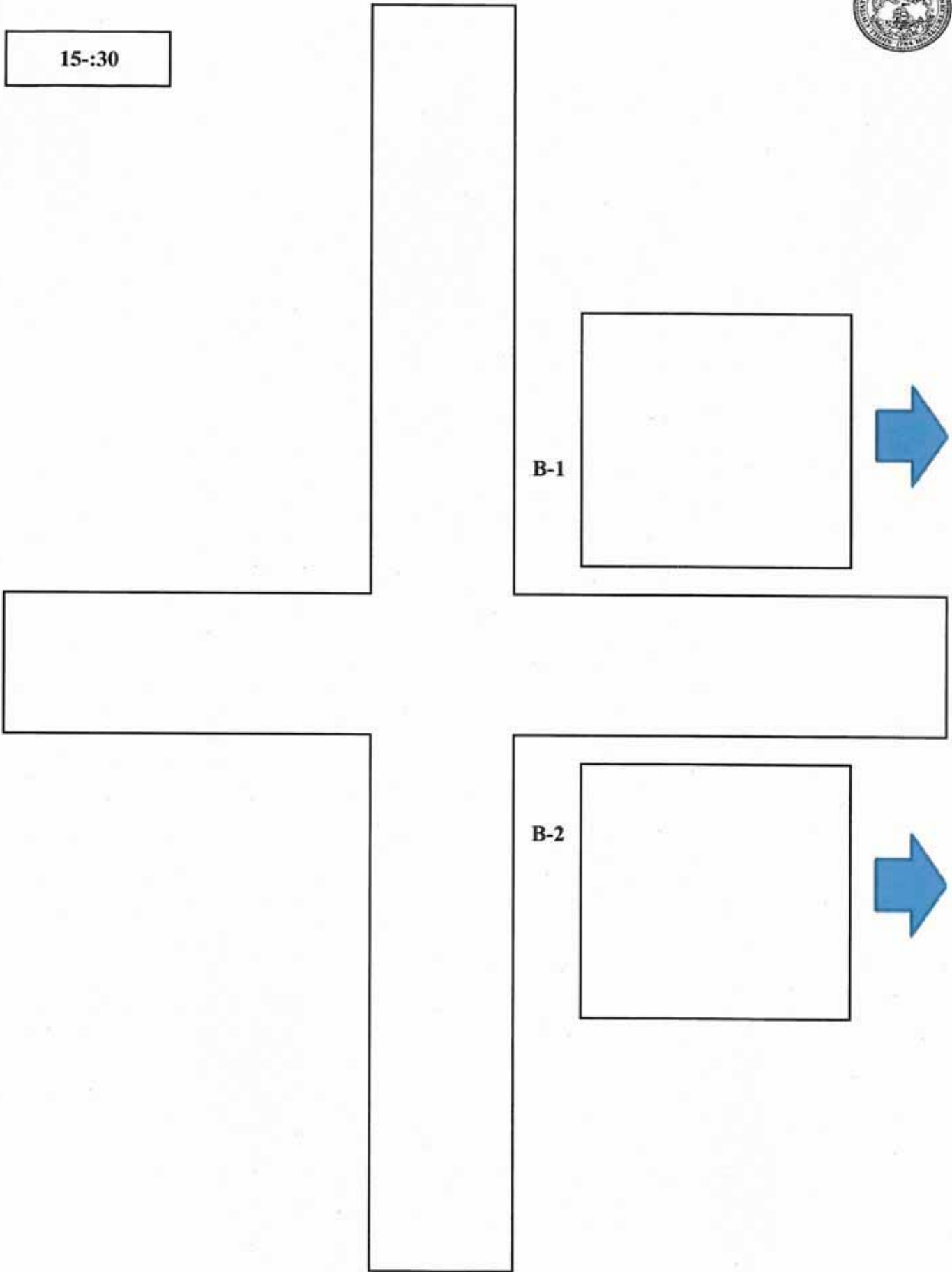
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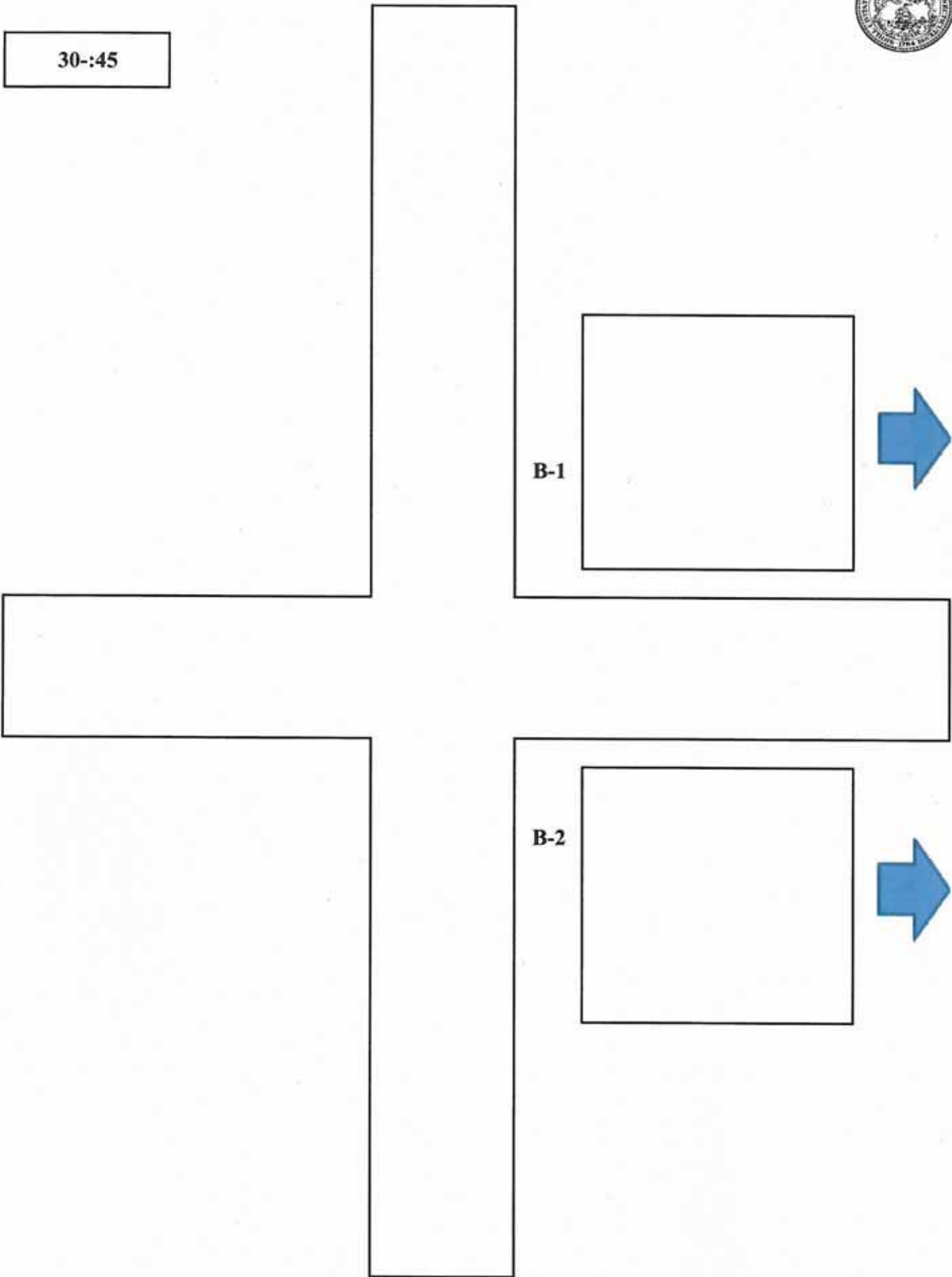
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PEDESTRIAN COUNT FORM



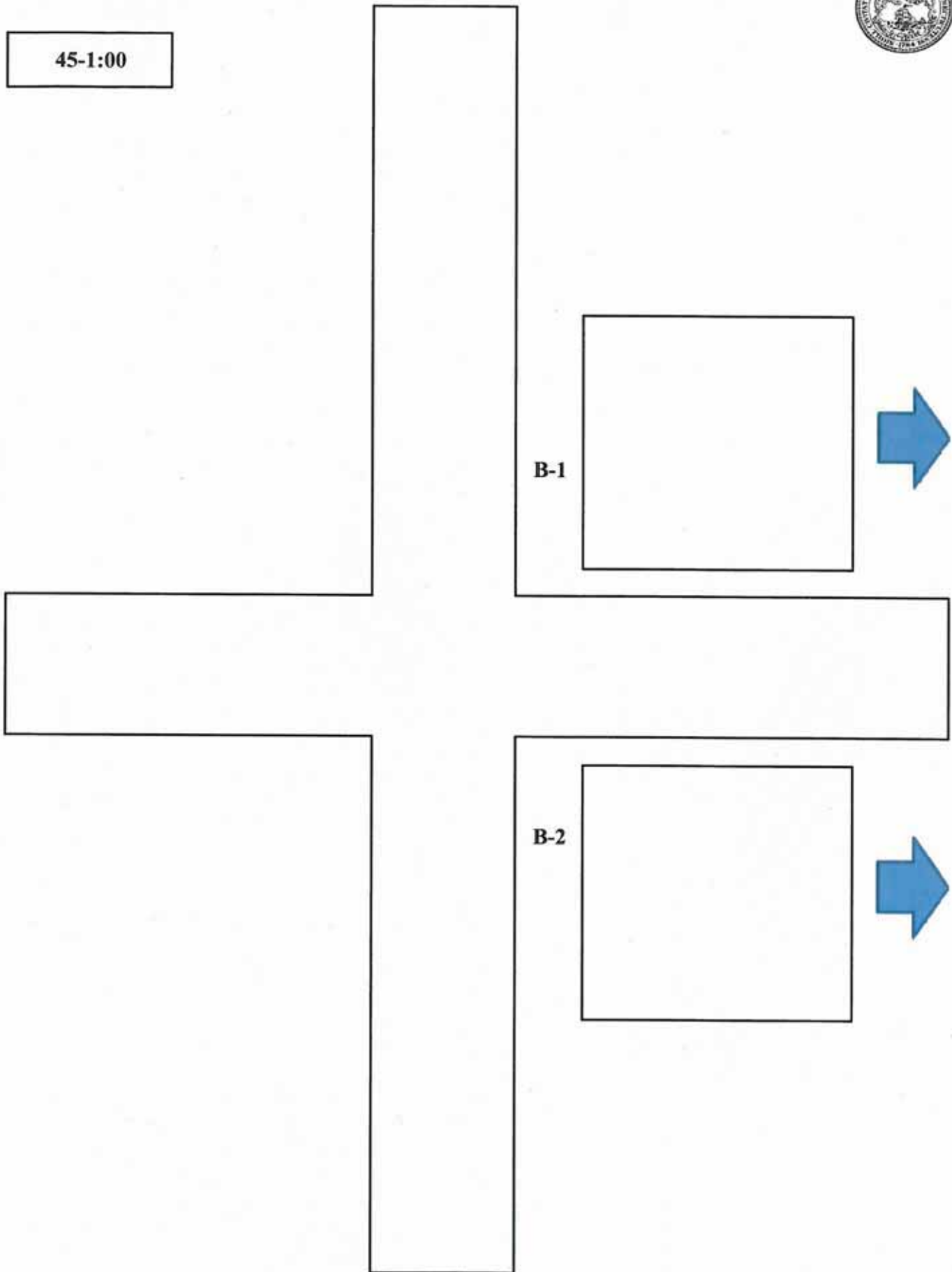
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PEDESTRIAN COUNT FORM



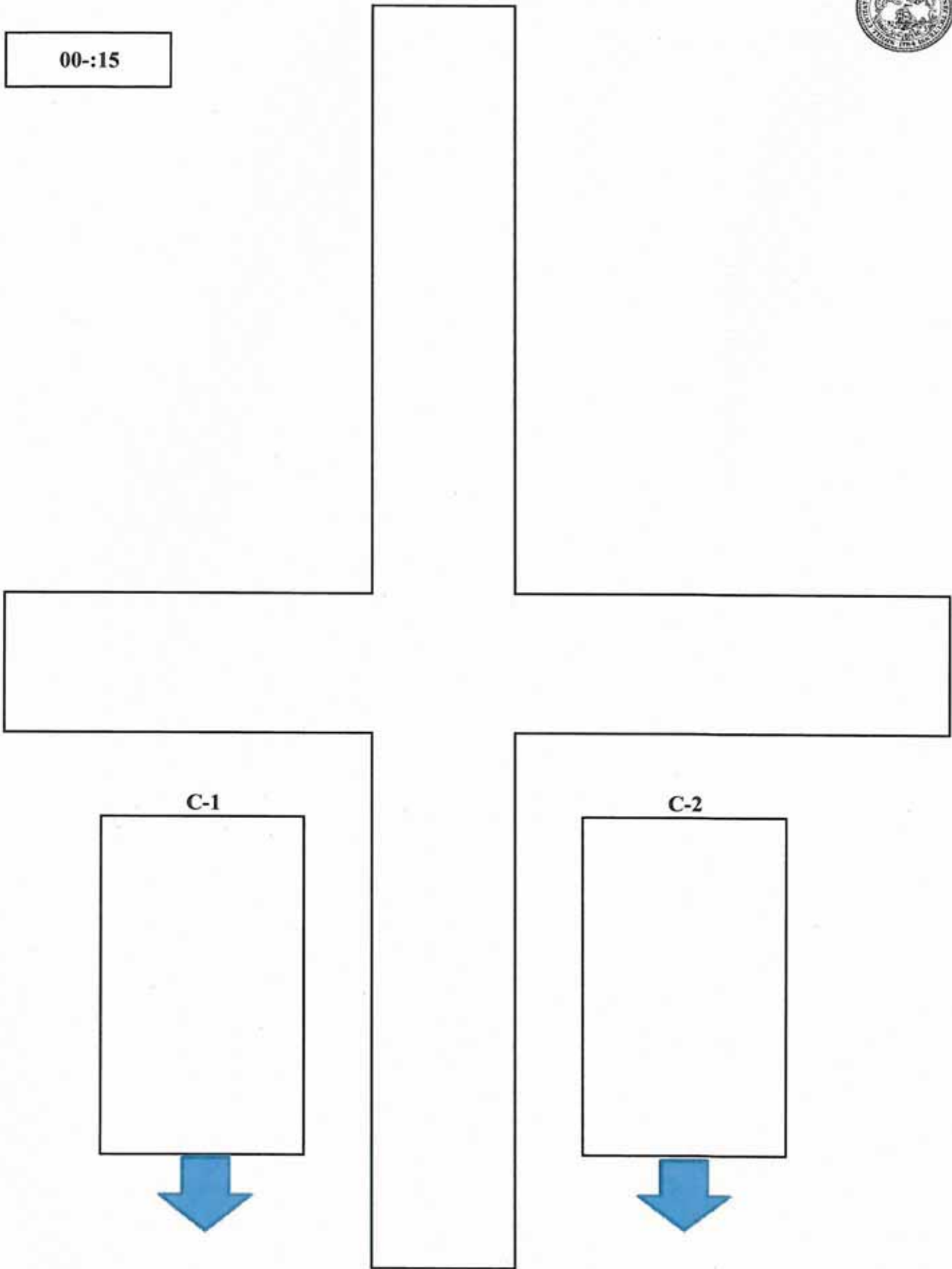
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PEDESTRIAN COUNT FORM



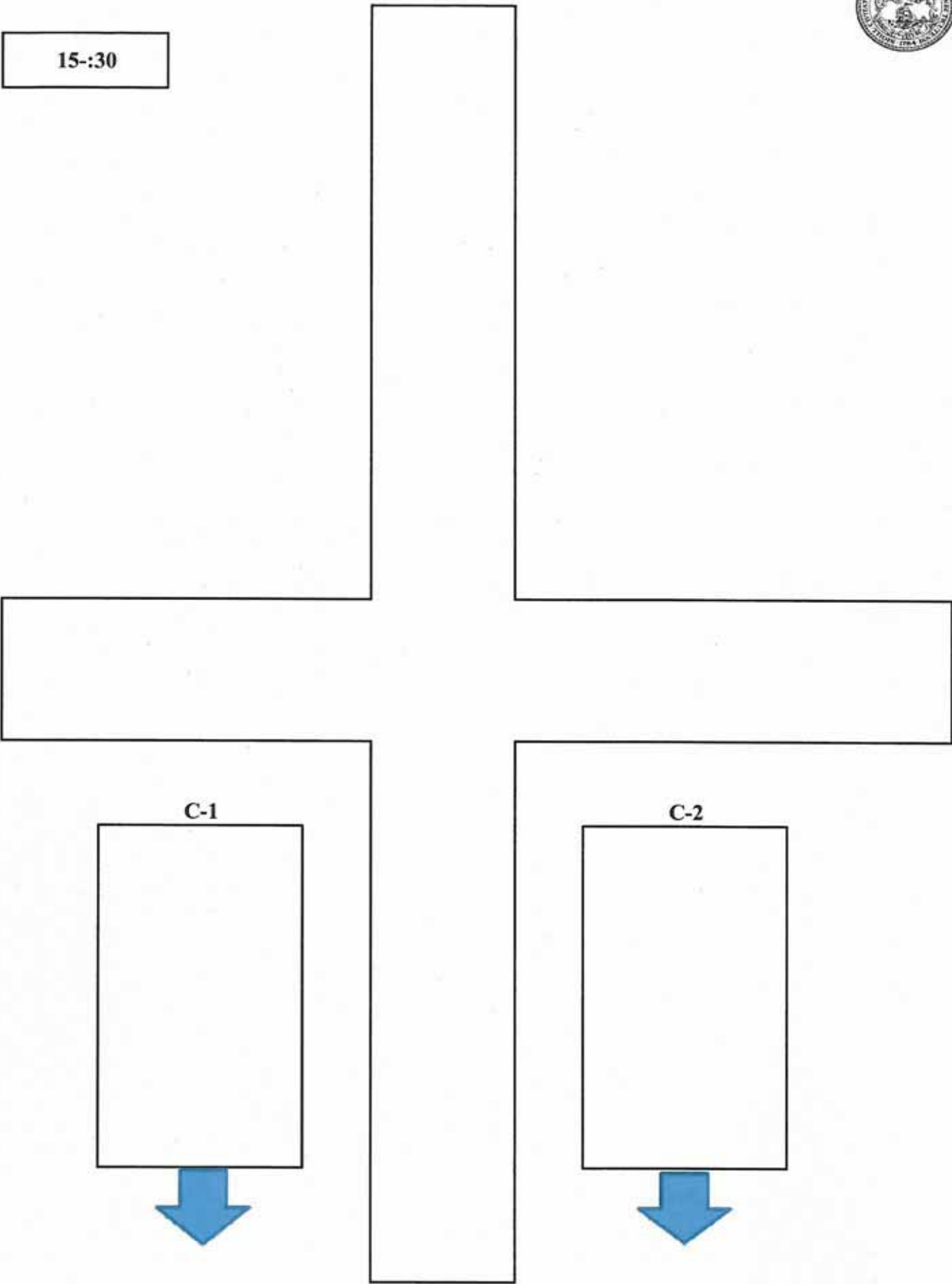
00-:15



PEDESTRIAN COUNT FORM



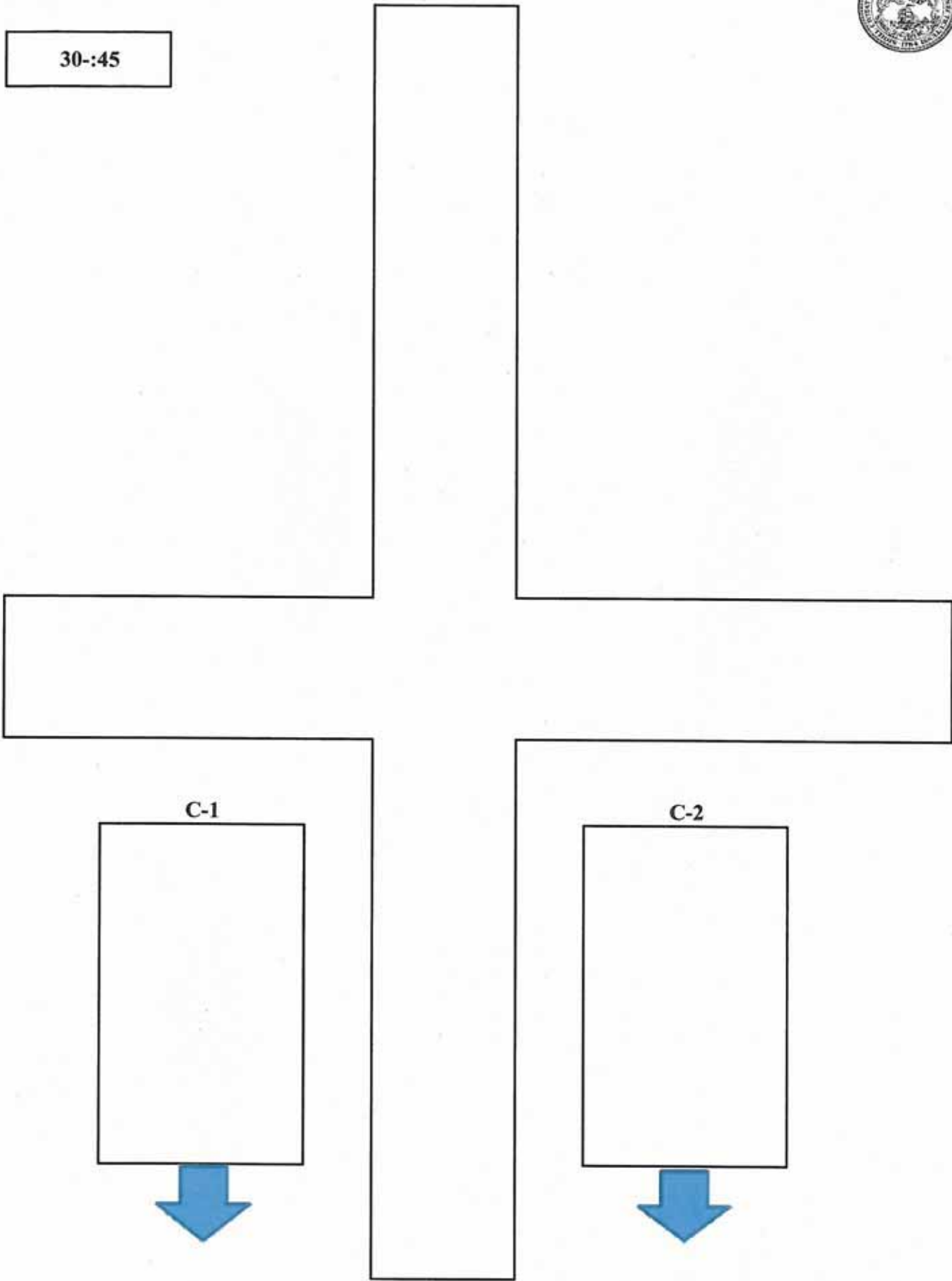
15-:30



PEDESTRIAN COUNT FORM



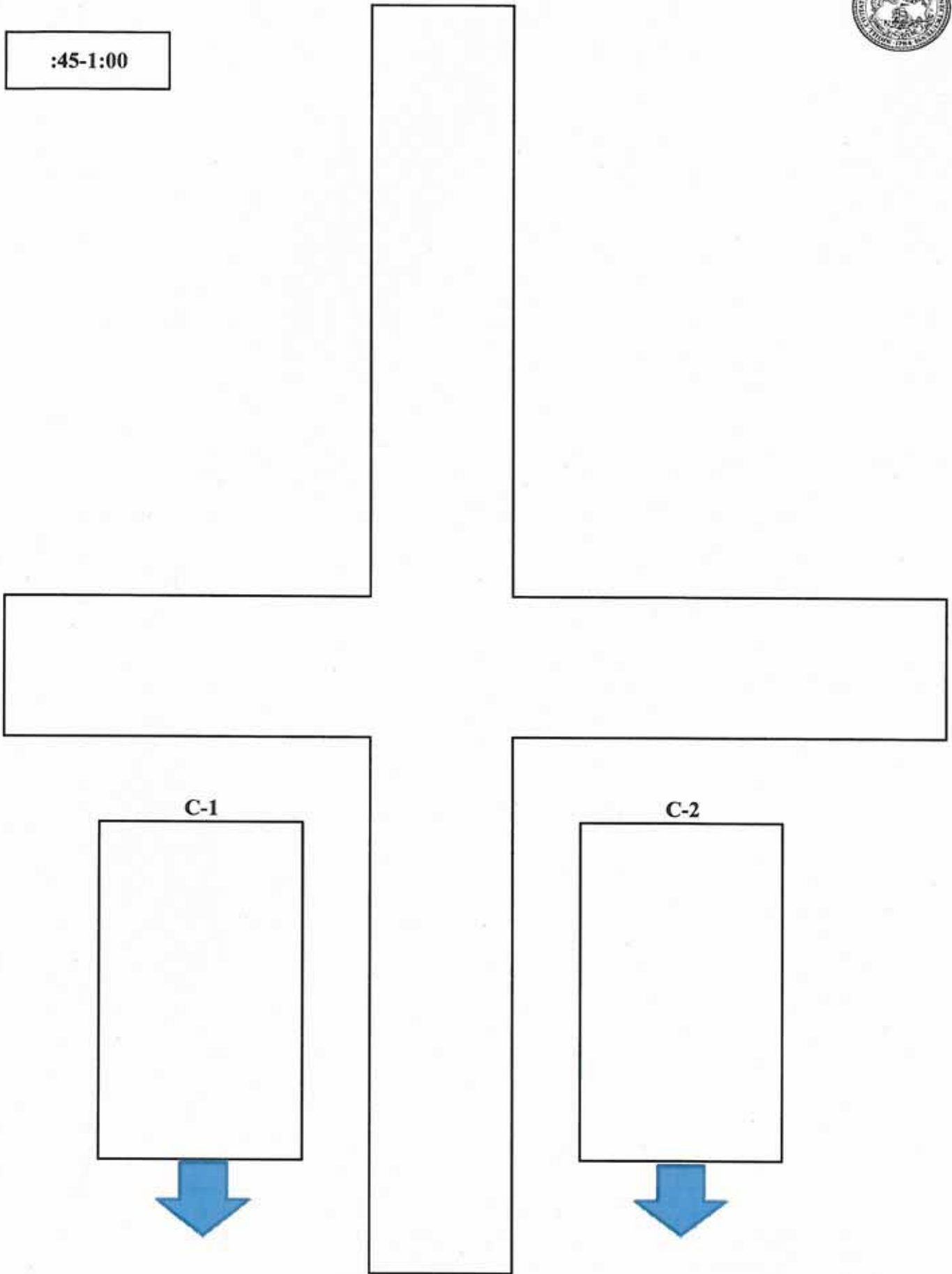
30-:45



PEDESTRIAN COUNT FORM



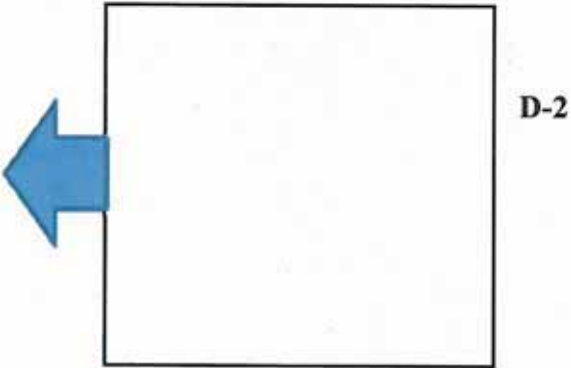
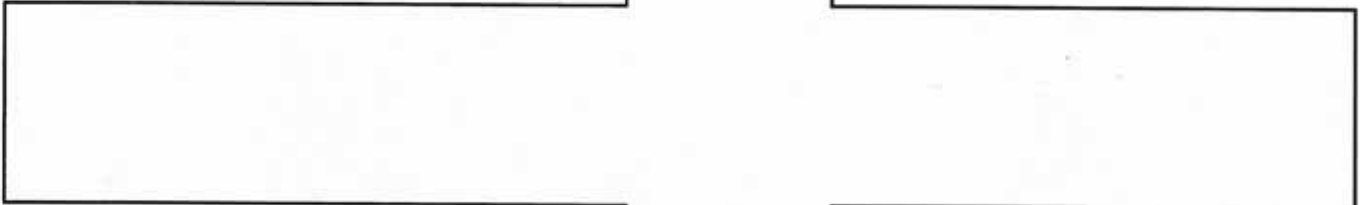
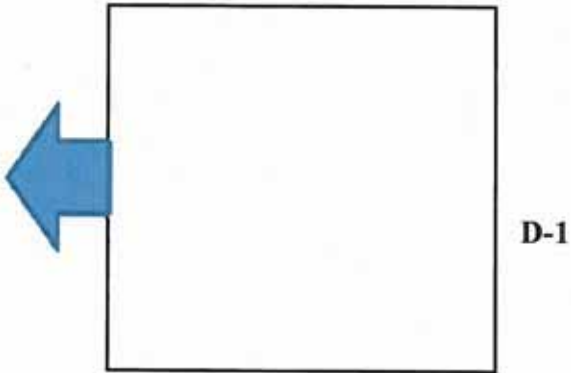
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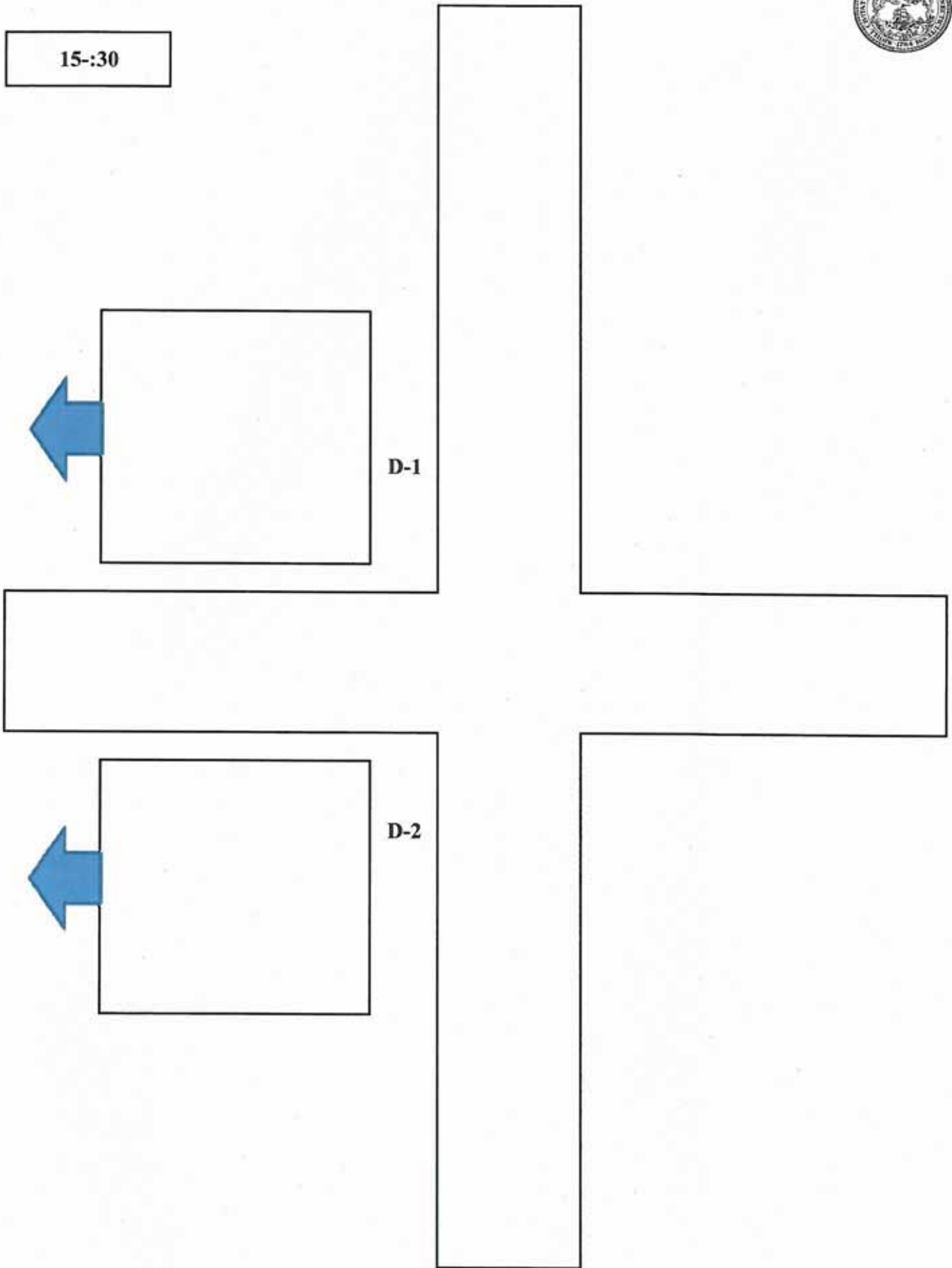
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PEDESTRIAN COUNT FORM



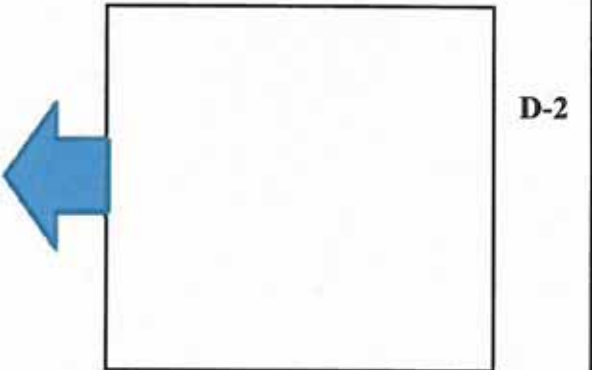
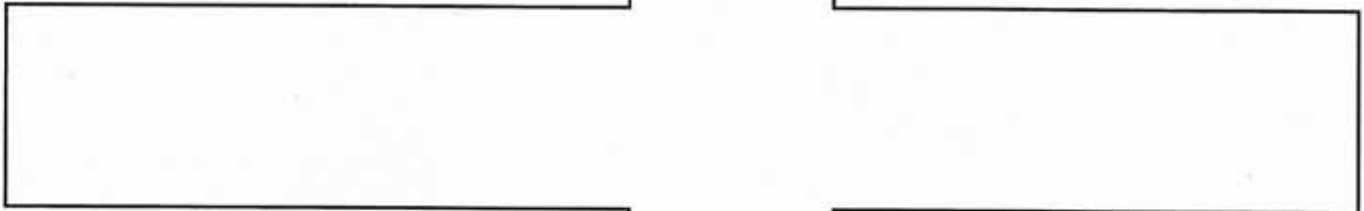
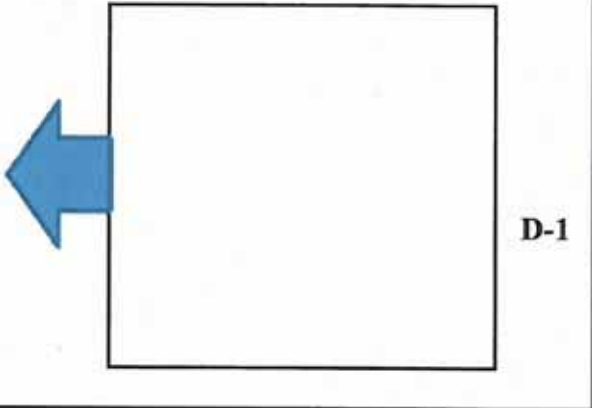
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PEDESTRIAN COUNT FORM



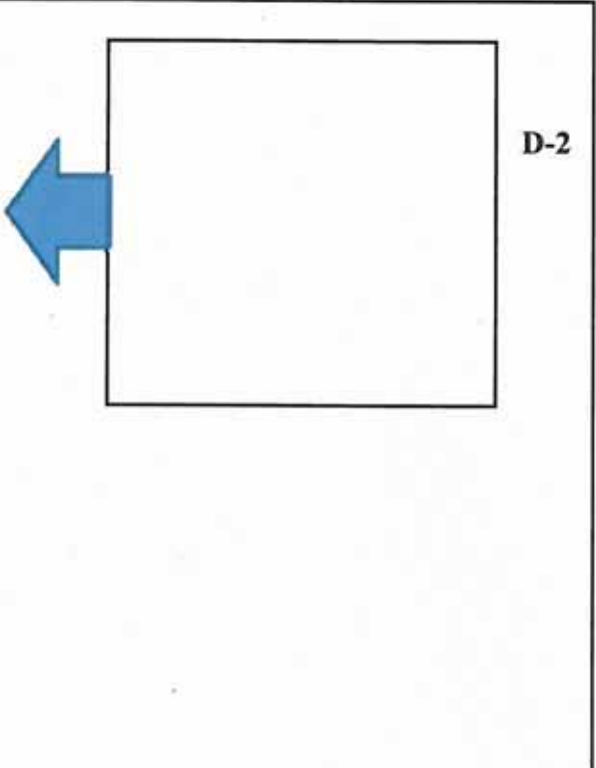
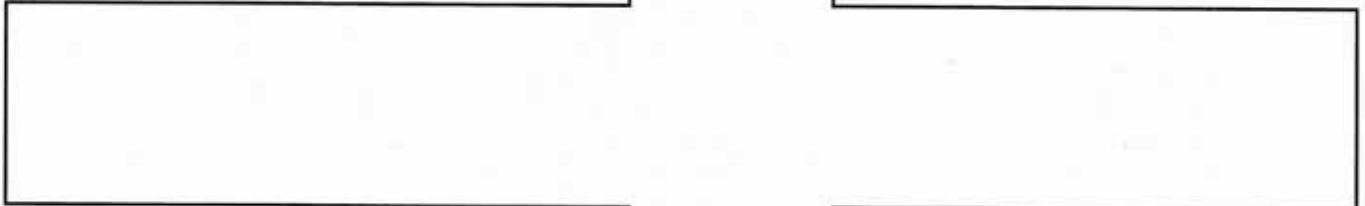
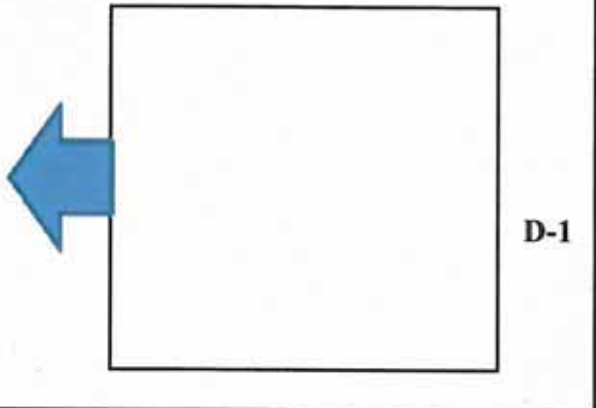
30-:45



PEDESTRIAN COUNT FORM



45-1:00



APPENDIX B

Appendix B: Summary of Parking Utilization by Facility Type

	Facility	Garage/Lot	Ownership	Operator	Supply	Utilization	Utilization Rate
Broadway / Yale	Broadway / Elm Lot	Lot	Private	LAZ	48	28	58%
	Broadway Plaza	Lot	City of New Haven	NHPA	140	89	64%
	The Study Hotel	Garage	Private	Private	64	23	36%
	Chapel Street West	Lot	Private	Propark	80	77	96%
	Courtyard Marriot	Garage	Private	Private	129	97	75%
	On-Street Parking: Broadway/Yale				808	422	52%
	District Sub Total				1,269	736	58%
Financial / Audubon	Audubon Court Garage	Garage	Private	LAZ	283	236	83%
	Century Garage	Garage	Private	LAZ	599	425	71%
	Financial Center Garage	Garage	Private	LAZ	668	469	70%
	Grove Street Garage	Garage	Private	LAZ	599	349	58%
	State / Grand Lot	Lot	City of New Haven	LAZ	99	62	63%
	Granite Square	Garage	City of New Haven	NHPA	221	190	86%
	Orange / Elm Lot	Lot	City of New Haven	NHPA	63	31	49%
	State / Olive / Audubon	Lot	City of New Haven	NHPA	35	35	100%
	State / Wall	Lot	City of New Haven	NHPA	102	82	80%
	Wachovia Lot	Lot	Private	Private	46	44	96%
	Bullard Lot (East Side of Orange St.)	Lot	Private	Propark	76	39	51%
	Orange Street Lot	Lot	Private	Propark	83	33	40%
	The Eli	Lot	Private	Propark	68	56	82%
	250 Orange St Lot	Lot	Private	Propark	48	39	81%
	State / Olive Lot	Lot	City of New Haven	NHPA	40	30	75%
	Court Street Lot	Lot	Private	Private	38	22	58%
	360 State Street	Garage	Private	Private	467	422	90%
	Whitney Ave./ Trumbull Street Lot	Lot	Private	Private	42	23	55%
	On-Street Parking: Financial/Audubon				658	487	74%
	District Sub Total				4,235	3,074	73%

Appendix B: Summary of Parking Utilization by Facility Type (continued)

	Facility	Garage/Lot	Ownership	Operator	Supply	Utilization	Utilization Rate	
Gateway / Ninth Square	7 Orange Street / 53 George Street	Lot	Private	Express/LAZ	78	71	91%	
	Kresege's Garage	Garage	Private	Express	114	75	66%	
	Kresege's Lot	Lot	Private	Express	65	64	98%	
	Bromley Lot	Lot	Private	LAZ	42	29	69%	
	Ninth Sq. George Street	Garage	Private	LAZ	366	302	83%	
	Ninth Sq. State Street	Garage	Private	LAZ	266	249	94%	
	Temple Street Garage	Garage	City of New Haven	NHPA	1,235	776	63%	
	George / Orange Lot	Lot	City of New Haven	Propark	42	28	67%	
	Chapel Square Garage	Garage	Private	Propark	325	295	91%	
	First Union Bank	Lot	Private	Propark	76	64	84%	
	Horowitz Lot	Lot	Private	Propark	60	60	100%	
	Lot N	Lot	City of New Haven	Propark	90	35	39%	
	Lot O	Lot	City of New Haven	Propark	68	38	56%	
	NH Coliseum Surface Lot East	Lot	City of New Haven	Propark	471	406	86%	
	Gateway Garage	Garage	Gateway College	NHPA	600	570	95%	
	Fair Parking Lot	Lot	Private	Private	85	55	65%	
	On-Street Parking: Gateway/Ninth Square				270	173	64%	
	District Sub Total					4,253	3,290	77%
	South / West of Chapel	Kirk's Lot	Lot	Private	Kirk's	168	136	81%
British Art Center		Lot	Private	LAZ	66	66	100%	
Chapel / York Garage		Garage	Private	LAZ	474	446	94%	
Air Rights Garage		Garage	City of New Haven	NHPA	2,601	2,363	91%	
Crown Street Garage		Garage	City of New Haven	NHPA	720	614	85%	
Temple George Garage		Garage	City of New Haven	NHPA	371	363	98%	
George / College Lot		Lot	Private	Propark	118	136	115%	
Neon Garage		Garage	Private	Propark	118	46	39%	
2 Howe Street		Garage	Private	Private	845	752	89%	
280 Crown St. Garage		Garage	Private	Kinney/Central	99	40	40%	
On-Street Parking: South/West Chapel					429	231	54%	
District Sub Total					6,009	5,193	86%	
Union Station	Garage	City of New Haven	NHPA	1,171	1,131	97%		
DISTRICT TOTAL					15,766	12,293	78%	
GRAND TOTAL WITH UNION STATION					16,937	13,424	79%	

Note: Time of the Utilization Rate is midday weekday