




ENGINEERING AND OPERATIONAL SERVICES

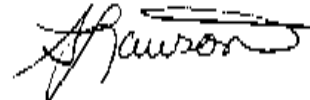
Prepared by R. Smith, C.E.T.

Engineering Technologist / Financial Coordinator 

January 6, 2009

MEMO TO: Chair and Members of Downtown Action Committee

FROM: S. Lawson, P. Eng., General Manager
Engineering & Operational Services



SUBJECT: 2008 DOWNTOWN BRANTFORD PARKING STUDY

A parking study was completed in downtown Brantford to assess the operation of the municipal parking facilities and on-street parking, and to compare existing conditions to the previous study conducted in the Spring of 2007. Bridge Street, Nelson Street, Clarence Street, and Icomm Drive bound the study area. Figure 1 in Appendix "A" shows the study area, number of parking spaces per block and restricted time limit parking zones.

Municipal parking lots studied include the Market Centre Parkade, Darling Street Lot #3, Dalhousie Street Lot #4, and new this year, the Harmony Square Parking Lot. The parking study also included the privately operated parking lot for public use on the west side of Charlotte Street between Dalhousie Street and Colborne Street.

This report also updates the 2007 inventory of on-street parking provided in the 2007 Downtown Parking Study Memorandum to the Downtown Action Committee dated June 7, 2008. Table 1 below shows the location and dates of the parking surveys. A Glossary containing some of the terminology used in this memorandum is also attached in Appendix "A".

Table 1: Data Collection Locations and Dates

Parking Survey Location	Study Date(s)
Downtown On-Street	Thursday, November 6, 2008
Market Centre Parkade	Thursday, November 13, 2008
Darling Street Lot #3	Tuesday, November 18, 2008
Dalhousie Street Lot #4	Tuesday, November 18, 2008
Harmony Square Parking Lot	Tuesday, November 18, 2008
Charlotte Street Parking Lot	Tuesday, November 18, 2008

ON STREET PARKING

Downtown Brantford has approximately four hundred ninety (490) on-street parking spaces, including ten (13) accessible parking spaces. The number of spaces per block is shown in Figure 1 in Appendix "A".

There is a two-hour time limit on parking in the downtown area with the exception of the street sections listed in Table 2.

Table 2: Summary of Exceptions to the 2 Hour Parking Limit

Street	Section	Side	Spaces	Time Limit
Wellington Street	Market Street to Queen Street	North	6	15 minute
Wellington Street	Market Street to Queen Street	South	3	15 minute
Darling Street	King Street to Queen Street	North	2	15 minute loading zone
Dalhousie Street	Queen Street to Market Street	South	5	15 minute loading zone
Dalhousie Street	George Street to Market Street	North	2	30 minute
Dalhousie Street	Queen Street easterly 6 spaces	North	6	30 minute
King Street	Darling Street to Dalhousie Street	East	3	30 minute
Queen Street	Dalhousie Street to Darling Street	East	9	30 minute
Colborne Street	Queen Street to Market St. walkway	North	2	30 minute
Colborne Street	Market St. walkway to Charlotte Street	North	10	30 minute
Charlotte Street	Darling Street to Wellington Street	East	5	3 hour
Charlotte Street	Darling Street to Wellington Street	West	7	3 hour
Darling Street	George Street to Charlotte Street	North	11	3 hour
Darling Street	George Street to Charlotte Street	South	7	3 hour
George Street	Darling Street to Dalhousie Street	East	7	3 hour
George Street	Darling Street to Dalhousie Street	West	10	3 hour
Wellington Street	George Street to Charlotte Street	South	8	3 hour

MUNICIPAL PARKING LOTS

Four (4) municipal parking lots have a total of 1,181 parking spaces for public use. This includes the Harmony Square Parking Lot (16 public spaces, 18 private spaces), Darling Street Lot #3, Dalhousie Street Lot # 4 and the Market Centre Parkade. Table 3 below shows the number of parking spaces in each parking lot.

Table 3: Parking Supply in Municipal Parking Lots

Parking Lot	Number of Spaces
Harmony Square Parking Lot	16
Darling Street Lot No. 3 (Between Market and Queen)	160
Dalhousie Lot No. 4 (East of King Street)	55
Market Centre Parkade (Lot No.1)	950
Total	1181

PRIVATE PARKING LOTS FOR PUBLIC USE

Only one (1) private lot is available for public use, located on the west side of Charlotte Street between Dalhousie Street and Colborne Street. The Charlotte Street parking lot has one hundred (100) parking spaces, and a \$3.00 exit fee is paid upon departure from the lot.

ON STREET PARKING ANALYSIS

Analysis of the on-street parking conditions in the downtown area was completed on a block-face-by-block-face basis. This was done in order to determine the exact locations where parking is in high demand, and where parking time limit violations are occurring. Figure 2 in Appendix "A" shows the existing occupancy and turnover rate per block. For comparison purposes, Figure 3 in Appendix "A" shows the parking conditions in 2007.

The parking standards used to analyze the parking conditions in the previous report were also used. Practical capacity of a facility is 85%, based on the maximum occupancy during the study period. The turnover rate of each facility is also an indication of how many vehicles are served by the parking spaces. High turnover indicates that more vehicles can be served by a single parking space. A parking turnover rate of *less than five (5) vehicles* per space on any block face with a time limit of 2 hours, during the nine (9) hour study duration, is an indication of long-term on-street parking and is *not desirable* for a downtown commercial area. A parking turnover rate of *less than three (3) vehicles* per space on any block face with a time limit of 3 hours, during the nine (9) hour study duration, is an indication of *less than desirable conditions*.

To illustrate which block faces were operating at practical capacity for extended periods of time, the average occupancy of block faces was also calculated. Block faces with an average occupancy equal to or greater than 80% that were also a problem in 2007 are shown in Table 4. Block faces that had an average occupancy equal to or greater than 80% that were less than 80% in 2007 are shown in Table 5. All problem areas by block faces are highlighted in red in Figure 2 in Appendix "A".

Table 4
Block Faces with Average Occupancy at or Beyond 80% in both 2007 and 2008

Block Description			Number of Spaces	Turnover Rate (vehicles in 9 hrs.)	Average Occupancy
Street	Section	Side			
Bain Street	Colborne Street to Wharfe Street	West	4	7.3	83%
Colborne Street	Queen Street to walkway	North	5	10.6	87%
	Queen Street to walkway	South	8	8.1	82%
Dalhousie Street	Market Street to George Street	North	6	8.0	91%
Darling Street	Market Street to George Street	North	8	6.3	86%
	Market Street to Queen Street	North	4	6.5	86%
	George Street to Charlotte Street	North	11	3.9	90%
George Street	Wellington Street to Darling Street	West	10	4.5	96%
	Wellington Street to Darling Street	East	7	3.9	88%
	Darling Street to Dalhousie Street	West	8	6.6	87%
Market Street	Darling Street to Dalhousie Street	West	3	7.7	91%
	Darling Street to Dalhousie Street	East	3	5.3	93%

Table 5
Block Faces with Average Occupancy at or Beyond 80% that were Less than 80% in 2007.

Block Description			Number of Spaces	Turnover Rate (vehicles in 9 hrs.)	Average Occupancy
Street	Section	Side			
Market Street	Wellington Street to Darling Street	West	6	6.5	89%
Charlotte Street	Wellington Street to Darling Street	West	7	3.4	80%
Darling Street	George Street to Charlotte Street	South	7	3.7	82%
Colborne Street	Market Street walkway to Bain St.	South	10	9.0	82%

There are sixteen (16) blocks with an average occupancy at or greater than 80%. In the 2007 study, there were seventeen (17) block faces that had an average occupancy at or greater than 80%. There was little change in demand for on-street parking since 2007. A total of 2,356 vehicles were

observed parking on-street in 2007, whereas in 2008, a total of 2,351 vehicles were recorded during the study period, a difference of 5 vehicles.

While conducting the parking study, staff observed numerous vehicles being re-parked after occupying a parking space for two hours. Employees working in the downtown were observed moving their vehicle up one parking space, moving across the street or around the block and parking on a different street, driving around the block to remove the chalk line from their tire placed their by bylaw enforcement officers, or simply rubbing off the chalk.

Re-parking greatly impacts the study results because if one vehicle occupies two or more parking spaces at different times during the study, the vehicle is recorded each time it occupies a different parking space. Therefore, the turnover rate calculated is much higher than in actuality. Employees parking on-street represent a large proportion of the parking utilization in the downtown area. Staff also observed several vehicles being parked for longer than the permitted time limit. This year however, no block faces had greater than 20% of the vehicles in violation of the restricted time limit parking. In 2007, there were six block faces that had a high occurrence of parking violations.

MUNICIPAL PARKING LOT ANALYSIS

Four (4) municipal parking lots including Lot #3 (Darling Street), Lot #4 (Dalhousie Street east of King Street), Harmony Square Parking Lot, and the Market Centre Parkade were included in the parking study.

1) LOT #3 – Darling Street between Queen Street and Market Street

Lot #3 has 160 spaces. The average duration is 203 minutes, has a maximum occupancy of 100% at 10:00 a.m., and an average turnover rate of 1.94 vehicles in nine (9) hours. The previous study conducted in 2007 resulted in an average duration of 204 minutes, maximum occupancy of 64% at 10:00 a.m., and the average turnover rate was 1.16 vehicles in nine (9) hours. The utilization of this lot has increased since 2007, and the turnover rate has improved.

Of the 311 vehicles using this lot, the majority (31%) were parked for over four (4) hours. This lot accommodates employees working in the downtown, including City employees of the Transit Terminal and Sanderson Centre. Figure 4 in Appendix "A" shows the occupancy plotted versus time in 2004, 2007 and 2008 for Lot #3, as well as a graph showing the parking duration levels.

2) LOT #4 - Dalhousie Street east of King Street

This parking lot has 55 spaces. The average duration is 182 minutes, has a maximum occupancy of 45% at 12:30 a.m., and has an average turnover rate of 0.93 vehicles in nine (9) hours. In the 2007 study, the average duration was 225 minutes, maximum occupancy was 40% at 11:30 a.m. and 12:30 pm, and the average turnover rate was 0.78 vehicles/space.

Out of the fifty-one (51) vehicles that utilized this lot, 29% were parked for approximately thirty (30) minutes to one (1) hour and 25% parked for over four (4) hours. Figure 5 in Appendix "A" shows the occupancy plotted versus time in 2004, 2007 and 2008 for Lot No. 4, as well as a graph showing the parking duration levels.

3) Harmony Square Parking Lot

The Harmony Square Parking Lot has 34 spaces. The average parking duration in this lot is 247 minutes, the maximum occupancy was 68% at 1:30 p.m., and the average turnover rate was 1.35 vehicles in nine (9) hours. The Harmony Square parking lot was not open in 2007, therefore, no comparison data is available for this report.

Of the 46 vehicles using this lot, the majority (37%) were parked for over four (4) hours. Figure 6 in Appendix "A" shows the occupancy plotted versus time for the Harmony Square Parking Lot, as well as a graph showing the parking duration levels.

4) Market Centre Parkade

Reports from the ticket dispenser and pass card software were analyzed to determine the occupancy levels in the Market Centre Parkade over a twenty-four (24) hour period. The analysis was conducted on Thursday, November 13, 2008.

Figure 7 in Appendix "A" shows the occupancy levels on Thursday, November 13, 2008. Peak occupancy of 63% occurred at 11:15 a.m. The average turnover rate was calculated to be approximately 1.15 vehicles/space in a 24-hour period. The low turnover rate is the result of the majority of vehicles parking in the parkade being employees parking long-term. There is a large increase in occupancy at the Market Centre Parkade in the morning between 8:00 a.m. and 11:00 a.m., and decreases drastically after 4:00 p.m. Table 6 below shows the peak occupancy in the parkade in the past five (5) years.

Table 6: Market Centre Parkade Peak Occupancy

Study Year	Peak Occupancy
2008	63%
2007	77%
2006	77%
2005	89%
2004	79%

Figure 8 in Appendix "A" shows a comparison of the occupancy in the Market Centre Parkade over the past five (5) years.

PRIVATE PARKING LOT ANALYSIS

Charlotte Street Parking Lot (Charlotte Street between Dalhousie Street and Colborne Street)

The Charlotte Street Parking Lot, privately owned, was analyzed for the first time in the 2007 parking study. This parking lot has a total of 100 spaces. The average parking duration is 267 minutes, maximum occupancy is 70% at 11:00 a.m., and the average turnover rate was 1.11 vehicles/space in 9 hours. In 2007 the average parking duration was 277 minutes, maximum occupancy was 70% at 11:30 a.m., and the average turnover rate was 1.12 vehicles/space in 9 hours. Forty-six percent (46%) of the vehicles were parked for over four (4) hours. This indicates that the majority of vehicles using this lot are long-term employees and student parking. Figure 9 in Appendix "A" shows the occupancy plotted versus time for the Charlotte Street Parking Lot, as well as a graph showing the parking duration levels.

CONCLUSION

- Darling Street Lot #3 reached capacity at 10:00 a.m., however for most of the day the occupancy is in the 75% to 80% range.
- Dalhousie Street Parking Lot #4 is operating under capacity. A minimum of thirty (30) parking spaces is available throughout the day. The underutilization of this parking lot may be the direct result of the poor condition and appearance of the parking lot. This parking lot is scheduled for reconstruction in 2009, subject to City Council approval.
- The peak occupancy recorded at the Market Centre Parkade in 2006 and 2007 was 77%. The peak occupancy has dropped to 63% in 2008. It is anticipated that the occupancy will drop further when the call centre located in the Market Square relocates out of the downtown at the end of 2008.
- Re-parking continues to be a problem for on-street parking in the downtown. Many of the vehicles parking on the street belong to students, and employees working in the downtown. In order to avoid being ticketed for parking over the two (2) hour maximum time limit, several people were observed re-parking their vehicle in different parking spaces throughout the study period. Re-parking also negatively impacts the turnover rates calculated per block, artificially showing a higher turnover rate than in actuality.
- The number of occurrences of on-street parking time limit violations has decreased since the previous study in 2007. No block faces had a greater than 20% of the vehicles parked violating the time limit.
- There are several block faces that were observed to be at capacity at some point during the parking study. All potential problems are illustrated in Figure 2 in Appendix "A". There were sixteen (16) block faces that continued to be at capacity throughout the duration of the study. In the previous year's study, there were seventeen (17) block faces that experienced an average occupancy equal to or greater than 80%. The demand for on-street parking is roughly the same as it was in 2007. Most of the block faces that have an average capacity equal to or greater than 80% are centrally located in the downtown.
- Low turnover rate continues to be a problem in the eastern and western fringes of the downtown. This indicates that vehicles are parking for long periods of time, which is not desirable for a downtown commercial area.

If you have any questions, please contact either myself or Mike Bradley, C.E.T, Director of Fleet and Operational Services at 519-759-1350.

SL:RS:lf

Attachments - Appendix A

cc: R. Loukes, P. Eng., PTOE - Director of Transportation Services
M. Bradley, C.E.T., Director of Fleet and Operational Services

1. 2008 DOWNTOWN BRANFFORD PARKING STUDY

LIST OF FIGURES

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FIGURE 9	CHARLOTTE STREET PRIVATE LOT OCCUPANCY AND DURATION

GLOSSARY

GLOSSARY

Maximum Occupancy

A percentage that represents the maximum observed number of cars parked at one time divided by the number of spaces available. For example, if a block has 10 parking spaces and the maximum number of vehicles parked at one time throughout the duration of the study period was 8 out of the 10 parking spaces, the maximum occupancy would be 80%.

A maximum occupancy of greater than 85% indicates that the area in question is operating at its practical capacity. During the peak parking hours, motorists will find it difficult to obtain a parking space.

Average Occupancy

A percentage that represents the average observed number of cars parked at one time divided by the number of spaces available. For example, if a block has 10 parking spaces and the average number of vehicles parked at one time throughout the duration of the study period was 7 out of the 10 parking spaces, the average occupancy would be 70%.

Average Turnover Rate

A rate that represents the number of different vehicles that parked on a block or in a parking lot divided by the number of spaces on that same block or in a parking lot. For example, if there was a total of 10 different vehicles parked over the duration of the study (9 hours) on a block with 5 parking spaces, the average turnover rate for the block would be 2.0 vehicles/space.

Turnover rates that are less than 5.0 indicate that either vehicles are parking for extended periods of time (greater than the 2 hour time limit in downtown Brantford) or that the area in question has a low occupancy.

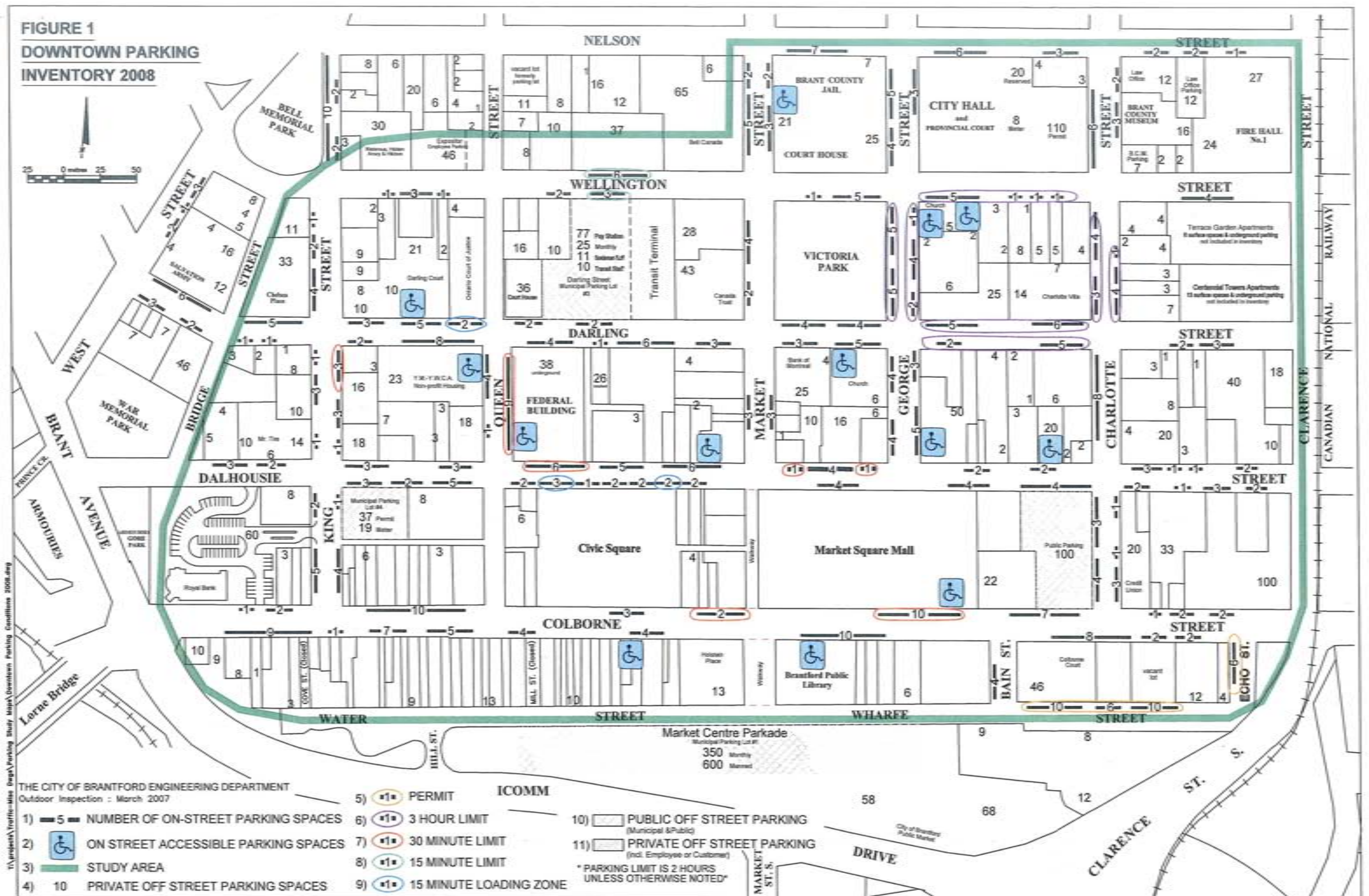
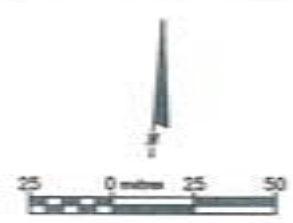
Potential Problem Block Face

A block face that is either operating at its practical parking capacity (80% maximum occupancy) or where vehicles are parked for longer than is permitted.

Average Duration

The mean time for which vehicles were parked on a given facility.

FIGURE 1
DOWNTOWN PARKING
INVENTORY 2008



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 THE CITY OF BRANTFORD ENGINEERING DEPARTMENT
 Outdoor Inspection : March 2007

- 1) 5 NUMBER OF ON-STREET PARKING SPACES
- 2) ON STREET ACCESSIBLE PARKING SPACES
- 3) STUDY AREA
- 4) 10 PRIVATE OFF STREET PARKING SPACES

- 5) PERMIT
- 6) 3 HOUR LIMIT
- 7) 30 MINUTE LIMIT
- 8) 15 MINUTE LIMIT
- 9) 15 MINUTE LOADING ZONE

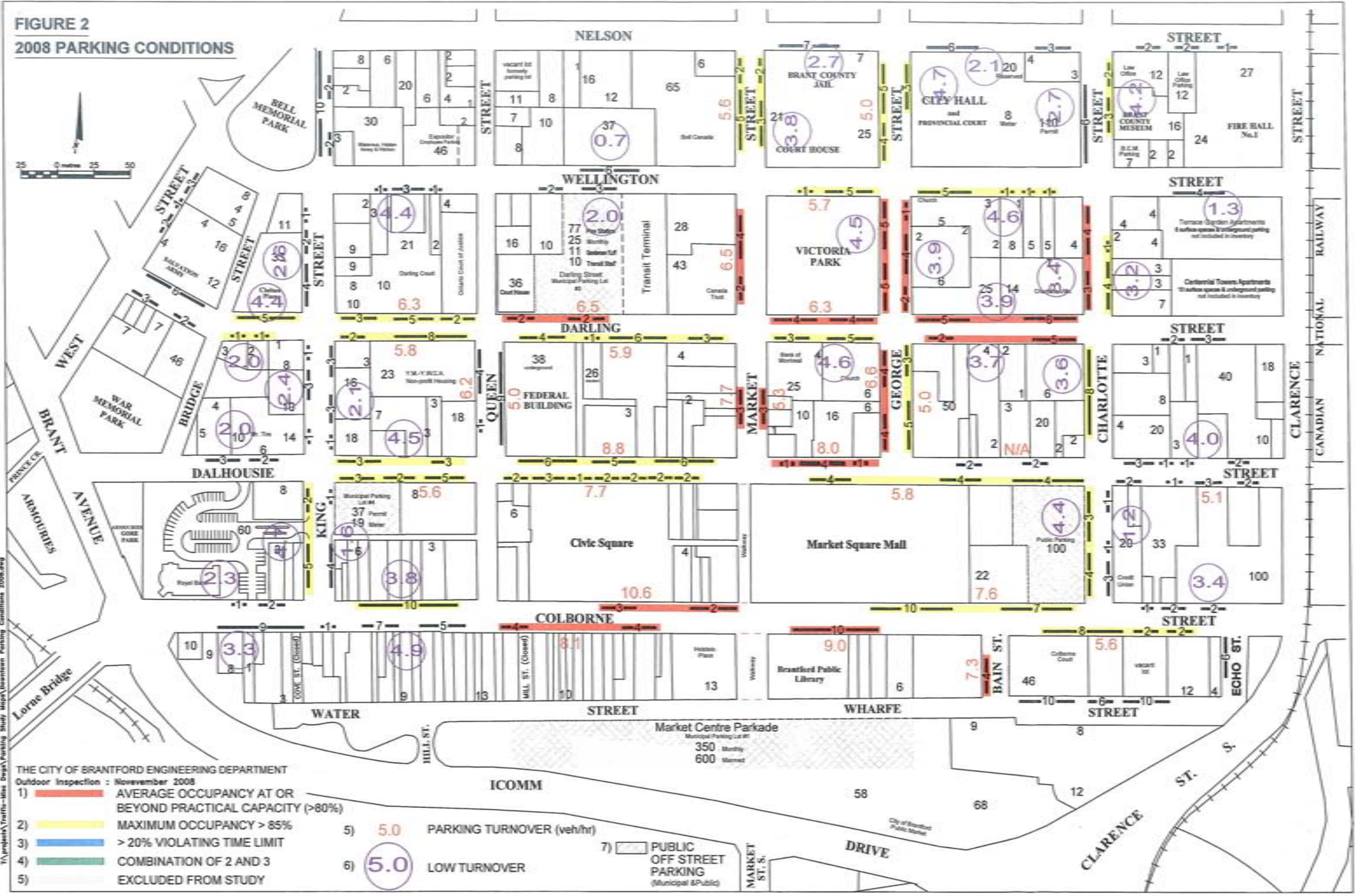
- 10) PUBLIC OFF STREET PARKING (Municipal & Public)
 - 11) PRIVATE OFF STREET PARKING (incl. Employee or Customer)
- * PARKING LIMIT IS 2 HOURS UNLESS OTHERWISE NOTED*

ICOMM

Market Centre Parkade
 Municipal Parking Lot #1
 350 Monthly
 600 Metered

58
68
12
CLARENCE ST.
DRIVE
BAIN ST.
ECHO ST.

FIGURE 2
2008 PARKING CONDITIONS



THE CITY OF BRANTFORD ENGINEERING DEPARTMENT
Outdoor Inspection : November 2008

- 1) █ AVERAGE OCCUPANCY AT OR BEYOND PRACTICAL CAPACITY (>80%)
- 2) █ MAXIMUM OCCUPANCY > 85%
- 3) █ > 20% VIOLATING TIME LIMIT
- 4) █ COMBINATION OF 2 AND 3
- 5) █ EXCLUDED FROM STUDY
- 5) 5.0 PARKING TURNOVER (veh/hr)
- 6) 5.0 LOW TURNOVER
- 7) PUBLIC OFF STREET PARKING (Municipal & Public)

FIGURE 3
2007 PARKING CONDITIONS



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Figure 4 – Lot No. 3 Occupancy and Duration

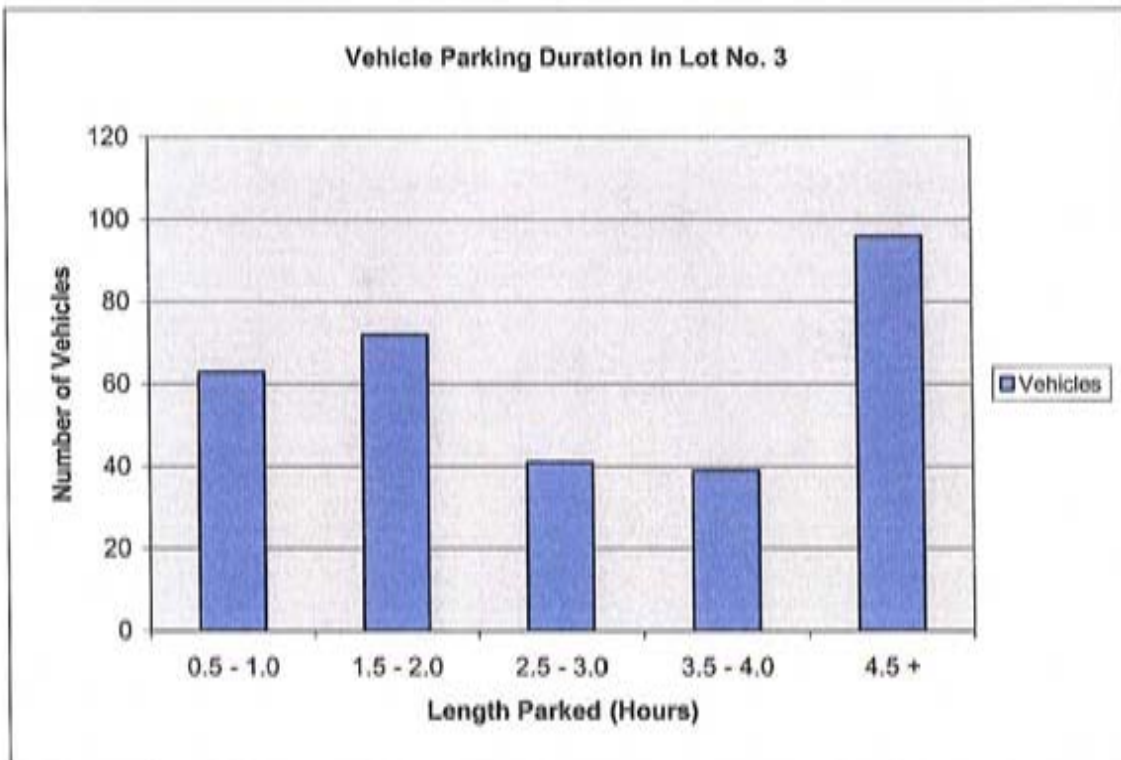
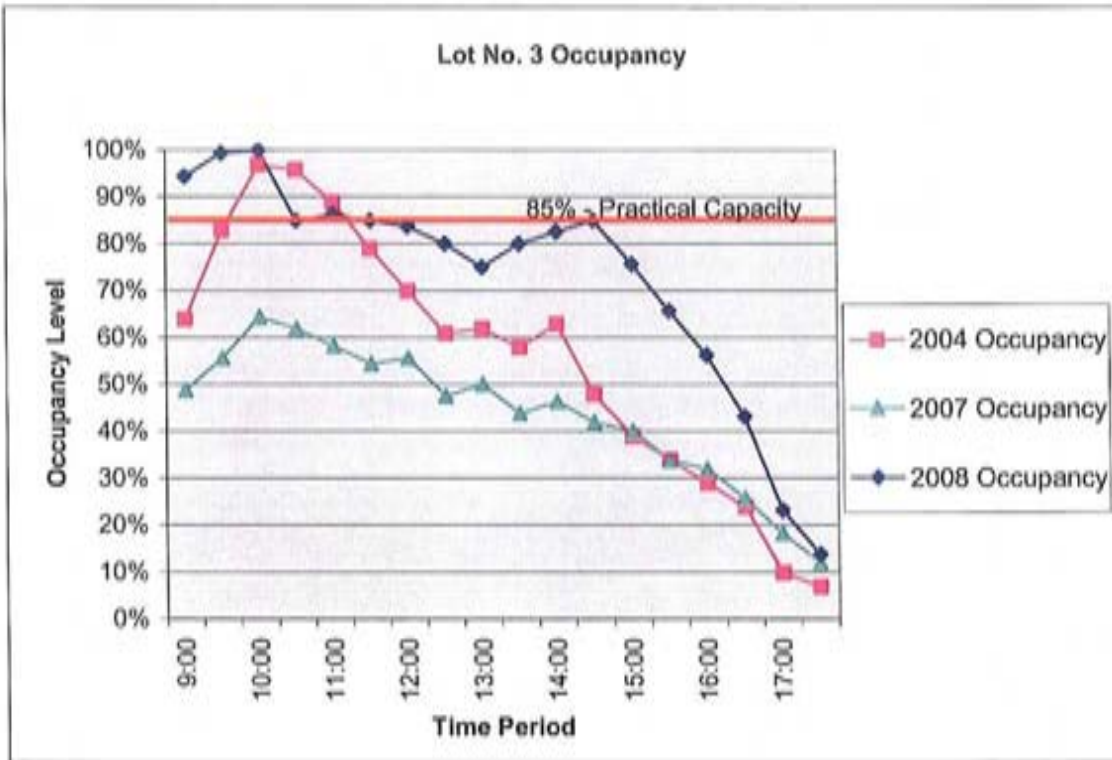


Figure 5 – Lot No. 4 Occupancy and Duration

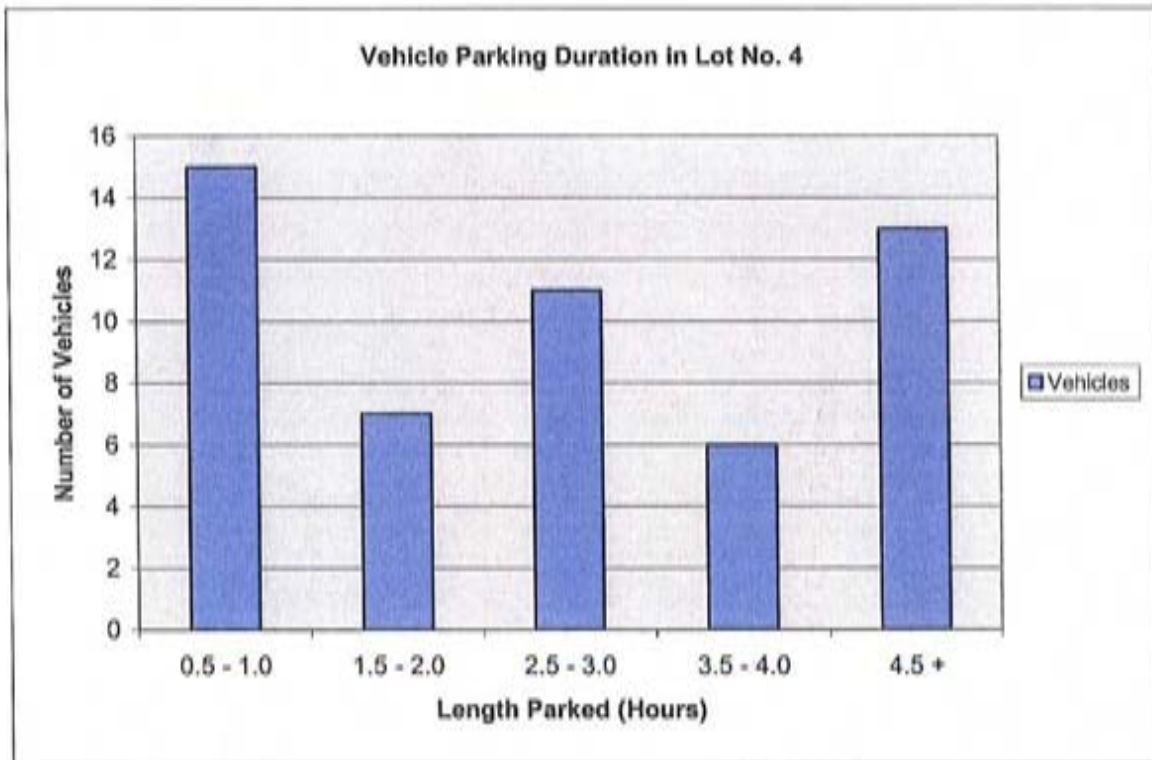
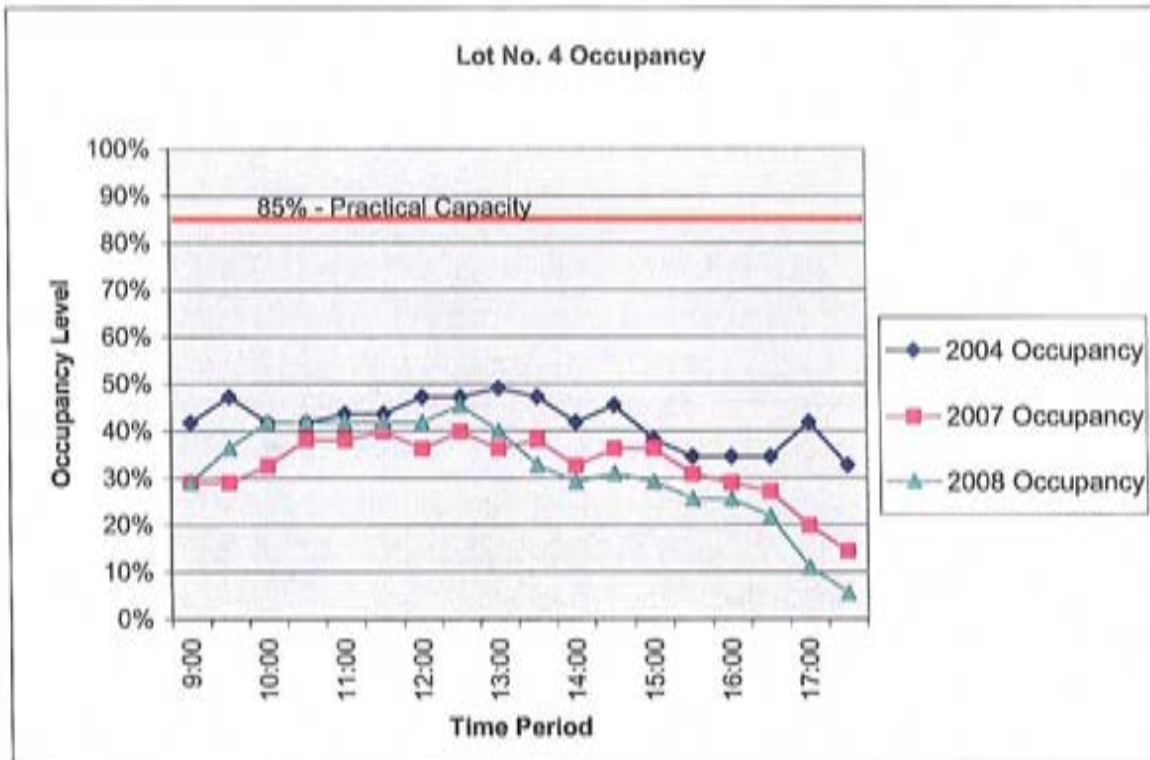


Figure 6 – Harmony Square Parking Lot Occupancy and Duration

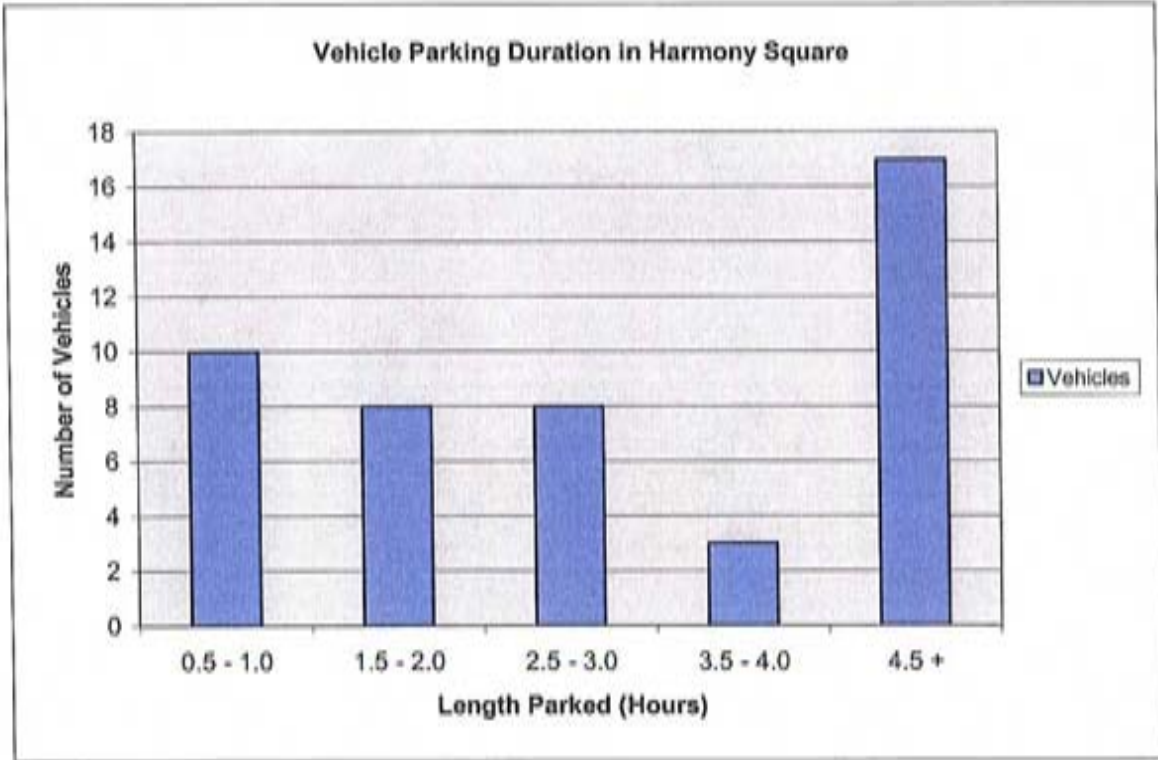
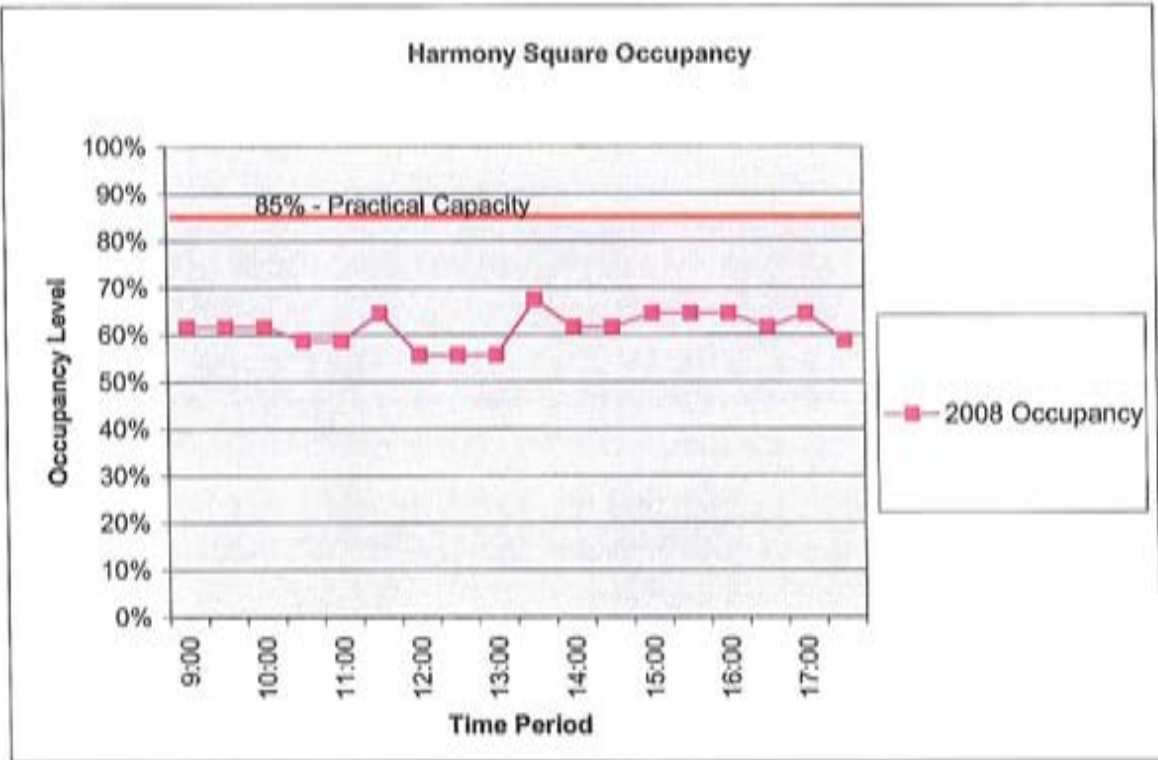


Figure 7: Market Centre Parkade Occupancy - Thursday, November 13, 2008

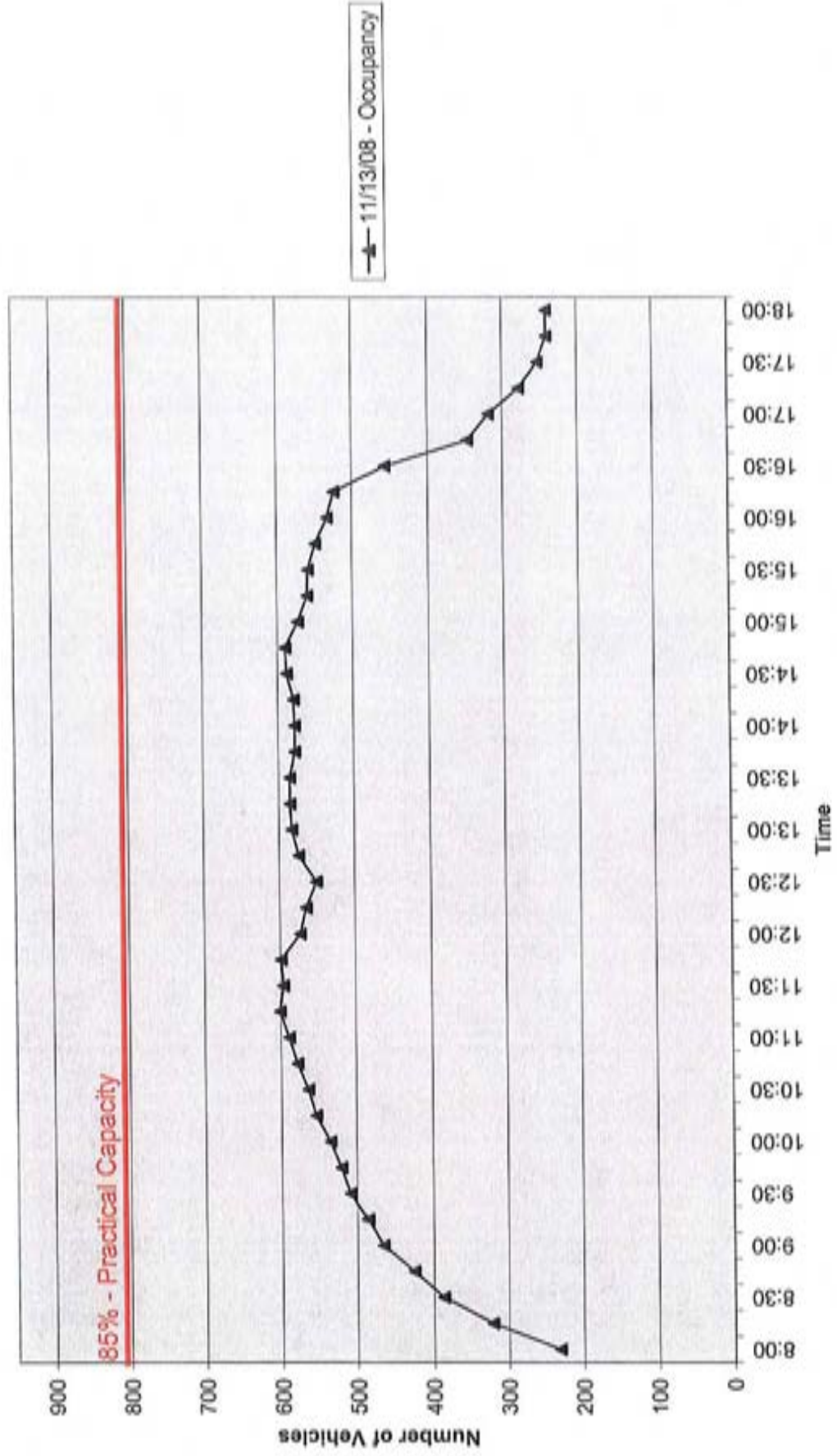


Figure 8 - Market Centre Parkade Occupancy Five Year Comparison

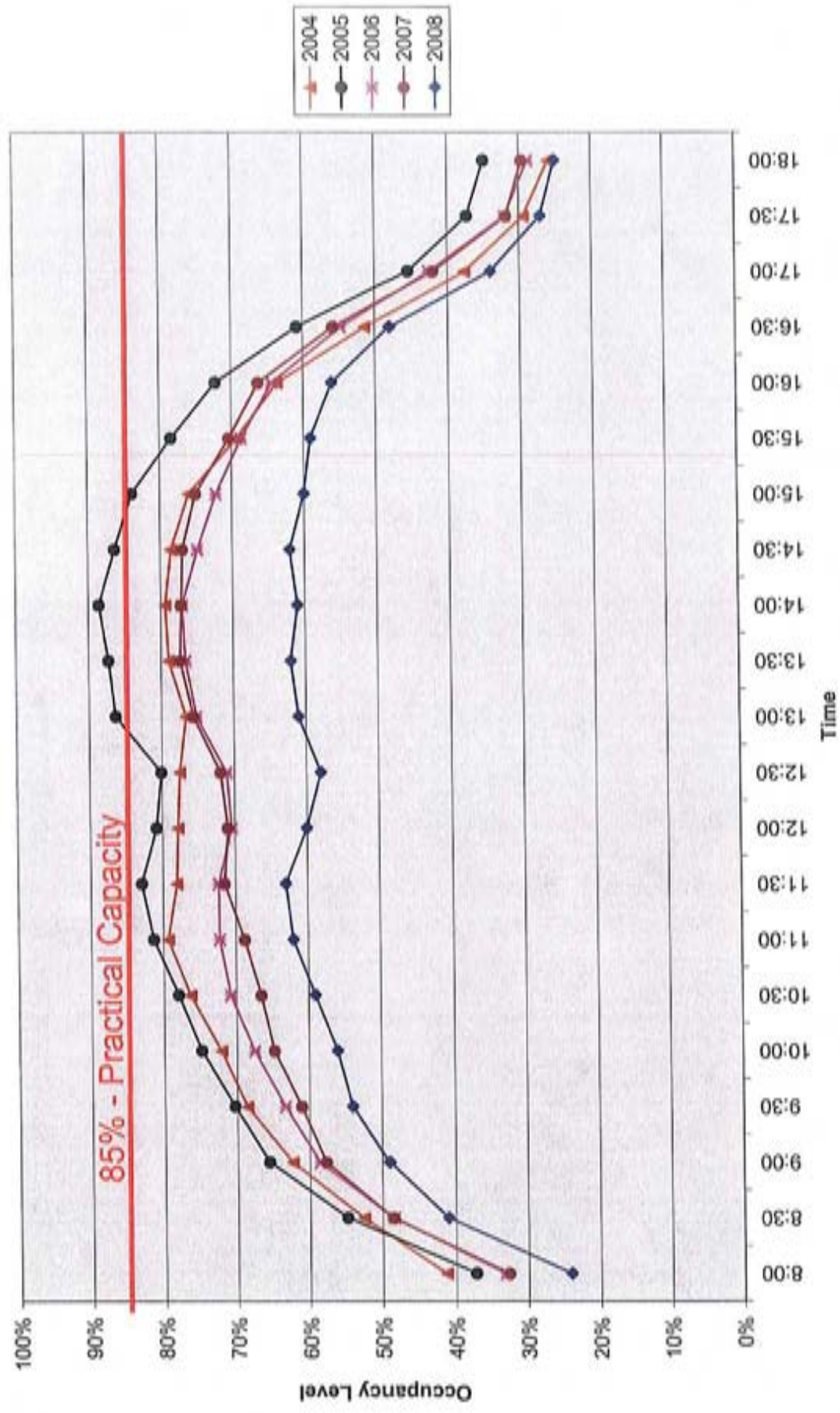


Figure 9 – Charlotte Street Private Parking Lot Occupancy and Duration

