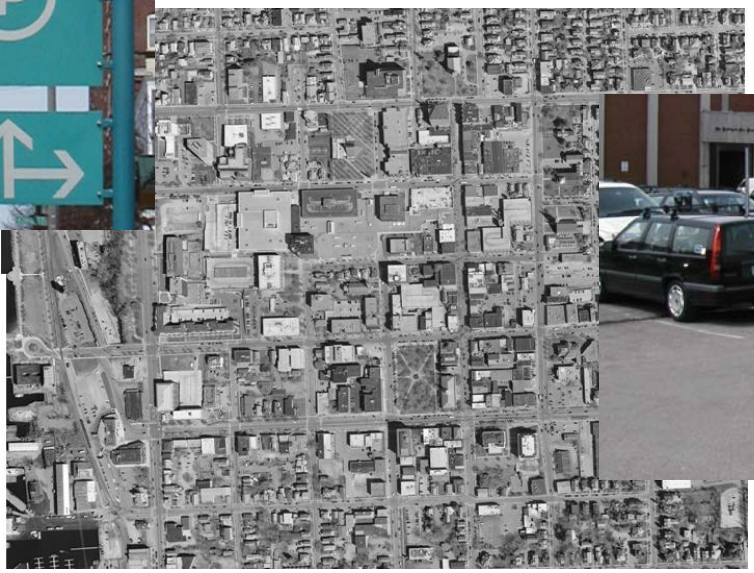
Downtown Burlington Parking Study



Final Report

March 2003

ENGINEERS
PLANNERS
ECONOMISTS

Wilbur Smith Associates

50 Years

Prepared for the City of Burlington, VT
Department of Public Works

by Wilbur Smith Associates
Shelburne, Vermont

With Funding Support from the
Chittenden County Metropolitan
Planning Organization

TABLE OF CONTENTS

Executive Summary ES-1

Introduction 1

Parking Supply Inventory and Characteristics 6

Parking Accumulation Survey 23

Existing and Future Parking Demand 41

Evaluation of Parking Strategies 63

Summary 72

References and Resources 73

Tables:

Table 1. Study Area Parking Supply....3
Table 2. Parking Garage Supply....6
Table 3. Characteristics of Garages....6
Table 4. Summary of Total, Leased and Transient Garage Spaces....7
Table 5. Garage Parking Fees....8
Table 6. Surface Lot Parking Supply....10
Table 7. DPW Surface Lot Characteristics....11
Table 8. Surface Lot Monthly Parking Fees....11
Table 9. On-Street Parking Supply....13
Table 10. City of Burlington Parking Meter Rates....14
Table 11. 1990 On-Street and Municipal Lot Parking Space Supply Inventory per "Downtown Burlington Employee Parking Study", June 1990 McDonough & Skully, Inc.....18
Table 12. 2002 On-Street and Municipal Surface Lot Parking Space Supply per WSA June 2002 Inventory....18
Table 13. Change in On-Street and Municipal Lot Parking Supply 1990 to 2002....18
Table 14. Comparison Between 1990 and 2002 Inventories of Parking Spaces Located in Off-Street Private Lots....19
Table 15. Comparison Between 1990 and 2002 Inventories of Parking Garage Spaces....21
Table 16. Comparison Between 1990 and 2002 Parking Garage Spaces by 2002 Parking Study Zone....22
Table 17. Comparison Between 1990 and 2002 Inventory of Leased and Transient Parking Spaces Within Parking Garages for the Entire Study Area....22
Table 18. Survey Schedule....23
Table 19. Parking Accumulation Data Collected....24
Table 20. Total Study Area Parking Accumulation Survey Results For Facilities Where the Full Survey Was Conducted....30
Table 21. Zone 1 Parking Accumulation Survey Results for Facilities Where the Full Survey Was Conducted....31
Table 22. Zone 2 Parking Accumulation Survey Results for Facilities Where the Full Survey Was Conducted....32
Table 23. Zone 3 Parking Accumulation Survey Results for Facilities Where the Full Survey Was Conducted....33
Table 24. Zone 4 Parking Accumulation Survey Results for Facilities Where the Full Survey Was Conducted....34
Table 25. Total Study Area Survey Results for Facilities Where the Select Survey Was Conducted....35
Table 26. Zone 1 Survey Results for Facilities Where the Select Survey Was Conducted....35

Table 27. Zone 2 Survey Results for Facilities Where the Select Survey Was Conducted....35
Table 28. Zone 3 Survey Results For Facilities Where the Select Survey Was Conducted....36
Table 29. Zone 4 Survey Results For Facilities Where the Select Survey Was Conducted....36
Table 30. Peak Period Parking Usage on Friday, June 28, 2002 From 1:00 PM-3:00 PM for all Full Survey and Select Survey Parking Facilities....37
Table 31. Methodology Notes and Assumptions....44
Table 32. Weighted Average Parking Space Requirements for Existing Non-Residential Land Use at 100% Occupancy Based on Burlington Zoning....46
Table 33. Weekday Peak Parking Demand Rates Based on Friday, June 28, 2002 Parking Accumulation Survey....47
Table 34. Comparison of Burlington Zoning Parking Requirements, National Parking Publications' Weekday Parking Rates, and WSA Estimated Weekday Peak Parking Rates....48
Table 35. Weighted Average Parking Space Requirements for Existing Non-Residential Land Use at 100% Occupancy Based on WSA Estimated Peak Parking Demand Rates....49
Table 36. Comparison Between Spaces Required for Existing Non-Residential Land Use at 100% Occupancy Based on Burlington Zoning and WSA Estimated Peak Parking Demand Rates by Land Use Type....50
Table 37. Estimate of Existing Non-Residential Parking Space Supply....51
Table 38. Estimate of Non-Residential Space Usage for Friday June 28, 2002 1-3 PM....51
Table 39. Weekday Non-Residential Parking Space Usage and Non-Residential Parking Supply Percent Occupancy for Friday June 28, 2002 (1-3 PM)....52
Table 40. Weekday Non-Residential Parking Spaces Required By Burlington Zoning for Existing Land Use at 100% Occupancy....53
Table 41. Weekday Non-Residential Parking Spaces Required for Existing Land Use at 100% Occupancy Based on WSA Estimate of Peak Parking Demand Rates....54
Table 42. Weekday Non-Residential Parking Spaces Required for Existing Land Use at 94% Occupancy (1) Based on WSA Estimate of Peak Parking Demand Rates....55
Table 43. Existing and Buildout Non-Residential Land Use by Study Area and Zone....56
Table 44. Non-Residential Land Use Build-Out Capacity for the Study Area and Each Study Zone....56
Table 45. Estimated 2020 Study Area Non-Residential Land Use Assuming a Percent Growth Equal to Projected Growth in

Chittenden County Employment Compared to the Growth in Non-Residential Land Use Associated with the Downtown Improvement District Buildout Study 57
Table 46. Anticipated Study Area Non-Residential Land Use for 2020 Planning Horizon (42.2% Growth).....58
Table 47. Non-Residential Parking Spaces Required for 2020 Land Use at 100% Occupancy Based on WSA Estimated Peak Parking Demand Rate with Spillover Demand From Waterfront.....59
Table 48. Anticipated Changes to the Off-Street Non-Residential Parking Supply.....60
Table 49. Estimated Parking Space Supply Excess or (Deficiency) in 2020 with Anticipated Changes to the Parking Supply and Spillover Demand from the Waterfront.....61
Table 50. Parking Space Excess or (Deficiency). Comparison Between Existing Land Use at 94% Occupancy, Existing Land Use at 100% Occupancy and 2020 Land Use at 100% Occupancy 62
Table 51. Parking Space Excess or (Deficiency). Comparison Between Existing Land Use at 94% Occupancy, Existing Land Use at 100% Occupancy and 2020 Land Use at 100% Occupancy 63
Table 52. Potential Parking Satellite Lot or Garage Locations and Spaces Available for Downtown Burlington.....65
Table 53. Potential Effect of Parking Efficiency, TDM, and Satellite Parking Strategies on Study Area Weekday Peak Parking Demand and Parking Space Excess or (Deficiency) 67
Table 54. Change in Study Area Weekday Peak Parking Demand Due to Parking Efficiency Strategies, TDM Programs, and Satellite Parking Facilities 68
Table 55. Parking Space Excess or (Deficiency) by Zone Assuming Implementation of Efficiency, TDM and Satellite Parking Strategies with Existing Non-Residential Land Use at 100% Occupancy 69
Table 56. Parking Space Excess or (Deficiency) by Zone Assuming Implementation of Efficiency, TDM and Satellite Parking Strategies with Existing Non-Residential Land Use at 94% Occupancy.....70

Table 57. Parking Space Excess or (Deficiency) by Zone Assuming Implementation of Efficiency, TDM, and Satellite Parking Strategies with 2020 Non-Residential Land Use at 100% Occupancy, Spillover Demand from the Waterfront, and Anticipated Changes to the Parking Supply.....71

Figures:

Figure 1. Study Area 4
Figure 2. Parking Supply Inventory Summary.....5

Figure 3. Parking Garages 9
Figure 4. Surface Lots 12
Figure 5. On-Street Parking 15
Figure 6. 1990 and 2002 Private Surface Lot Space Inventories 20
Figure 7. Parking Garage Survey Schedule 25
Figure 8. Surface Lot Survey Schedule 26
Figure 9. Parking Garages Percent Occupancy 38
Figure 10. Surface Lot Percent Occupancy 39
Figure 11. On-Street Parking Percent Occupancy 40
Figure 12. Available Land Use Data Within Parking Study Area 45

Appendices:

Appendix A. Surface Lot Inventory 74
Appendix B. On-Street Parking Inventory 74

Executive Summary

This study was conducted by Wilbur Smith Associates (WSA) for the City of Burlington's Public Works Department and was funded with support from the Chittenden County Metropolitan Planning Organization. It evaluates existing and future parking supply and demand for non-residential land use within the City of Burlington's downtown area. The goals of the study are to:

1. Provide a programmatic review of parking issues in the study area;

2. Inventory the existing parking supply, conduct a survey of existing usage, and forecast demand for existing and future conditions;

3. Identify existing and future parking supply deficiencies (if any);

4. Recommend effective parking management strategies to address parking supply deficiencies consistent with Burlington's Municipal Plan and the Legacy Action Plan that support transit and vital business and residential areas;

5. Identify strategies to compensate for parking spaces that may be lost to redevelopment at the Browns Court, Elmwood Avenue, and Main Street/South Winooski municipal lots and the private lot at the corner of Cherry and Battery Streets; and

6. Develop and provide an electronic database of the parking supply inventory and results of the parking supply usage survey. The database will support development of a Downtown parking GIS coverage.

The study area focuses on Burlington's downtown area as shown in **Figure E-1**. The study area has been divided into four zones. The zones have been sized to match parking facilities with the destinations they would likely serve and takes into account circulation barriers and general land use types.

Past Parking Studies

This study incorporates the relevant findings from the Waterfront Study titled "Burlington Transportation Center Parking, Pedestrian and Circulation Study", completed in March of 2000 by Resource Systems Group, Inc. In 1990, the firm of McDonough & Scully completed the "Downtown Employee Parking Study, Burlington Vermont" which focused on the potential impact of implementing a residential parking permit program in and around the Downtown. The 2002 Downtown Burlington Parking Study is different from the 1990 study because (1) it focuses on non-residential land use, (2) is based on estimated parking demand as well as actual usage, and (3) analyzes parking demand and supply for existing and twenty-year time frames.

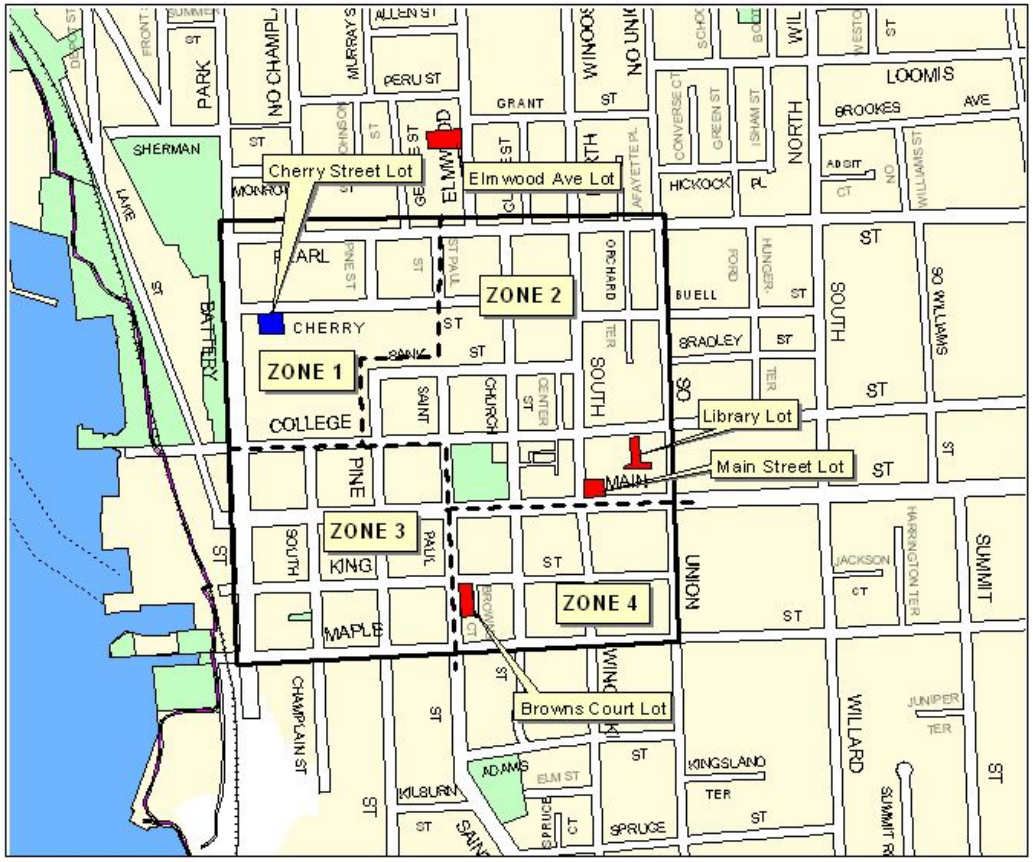


FIGURE E-1

STUDY AREA

Downtown Burlington
Parking Study

- Study Area
- Study Zone Boundary
- DPW Surface Lots That May Be Redeveloped For Other Uses
- Private Lot That May Be Redeveloped For Other Uses

Wilbur Smith Associates

Parking Supply Inventory

The study area contains approximately 6,570 parking spaces located on-street, in surface lots, and in parking garages. More than half of these spaces are located in parking garages. Approximately 60% of the parking supply is available to the general public in publicly owned facilities available for public parking (public/public) or privately owned facilities also available for public parking (private/public). The balance of the parking supply is privately owned with parking restricted to employees, customers, residents, or visitors to the building(s) the lot serves.

Table E-1. Study Area Parking Supply Summary

Area	On Street Parking	Public Owned Available for Public Parking		Privately Owned Available for Public Parking		Privately Owned Restricted to Private Parking		Total
		Lots	Garages	Lots	Garages	Lots	Garages	
Zone 1	152	78	861	60	567	272	-	1,990
Zone 2	425	123	401	-	460	571	442	2,422
Zone 3	338	-	-	-	-	674	307	1,319
Zone 4	238	44	-	-	216	339	-	837
Study Area	**1,153**	**245**	**1,262**	**60**	**1,243**	**1,856**	**749**	**6,568**

Parking Accumulation Survey

Parking accumulation surveys were conducted on Friday, June 28th and Saturday, June 29th, 2002 of all on-street and off-street parking facilities in the study area. Additional surveys were conducted on Friday, July 12th and Saturday, July 13th, 2002 at the three City-owned parking garages and the three parking garages managed by Champlain Parking in the study area. The data collected include number of parked cars for every two hours at each surface lot, parking garage, and block with on-street parking. The parking accumulation survey measures actual parking usage for a particular day. The data collected are useful in quantifying variation in demand over the course of a day, identifying the peak period, and comparing the relative usage among different facility types and the four study zones.

Key Findings

- Peak parking usage in the study area occurred on Friday between 1:00 PM and 3:00 PM. This peak period was consistent among all four zones. Parking usage was significantly less on Saturday

- During the Friday 1:00 P.M. – 3:00 PM peak period, Zone 2 had the highest percent occupancy of the four zones studied (77%). Many of the significant public\public and private\public parking facilities in Zone 2 were at or near

capacity including the Main Street\South Winooski lot, YMCA lot, Library lot, Market Place garage, and Corporate Plaza garage.

- During the Friday 1:00 P.M. – 3:00 PM peak period, the parking facilities available to the general public were 80% occupied while the parking facilities limited to private use were 60% occupied. The excess capacity at the private\private facilities is an opportunity to address shortfalls in the public supply if arrangements are possible with the owners of the private lots.

Peak Parking Demand for Existing and Future Conditions

The analysis of parking space excesses or deficiencies is based on estimated demand. The demand is estimated by factoring the usage measured in the accumulation survey by factors for seasonal variation, inefficiencies associated with searching for, entering and leaving parking facilities, and the synergy for a downtown with a balanced combination of office and retail land uses. The result is a peak parking demand rate in terms of spaces required per 1,000 square feet of non-residential land use. The peak parking rate is applied to existing and future non-residential land use data to estimate the total peak parking demand in the study area and for each zone.

Based on information provided by the City, there is 2,778,429 gross square feet of non-residential land use in the parking study area. Peak parking demand has been estimated for this existing land use at its assumed occupancy rate of 94% and assuming 100% occupancy. The numbers of spaces required by the Burlington Zoning Regulations, assuming no waivers are granted, for the existing non-residential land use at 100% occupancy has also been estimated. An additional 1,303,940 square feet of non-residential land use is assumed in the study area over the next twenty years. This increase is based on the projected growth of employment in Chittenden County and includes the proposed Super Block project, a mixed use commercial redevelopment project being studied by the City for the block that contains Memorial Auditorium.

Table E-2 compares the number of spaces required per Burlington's zoning ordinance, to the estimated demand for the entire study area. This comparison shows that the zoning regulations, if applied without waivers, require too much parking for non-residential land use.

Peak parking demand for the existing non-residential land use at 94% and 100% occupancy is compared to the existing non-residential parking supply in each zone in **Table E-3** and **Figure E-2**. For 2020, the peak parking demand is compared to a non-residential parking supply that incorporates anticipated changes. The changes include decreases in supply resulting from closing and redeveloping the Browns Court, Elmwood Avenue, South Winooski/Main, and Cherry Street surface lots; and increases resulting from additional levels added to City garages and new parking structures proposed as part of redevelopment projects. Overall, these changes result in a net increase of 755 spaces.

Table E-2. Comparison Between Spaces Required by Burlington Zoning and WSA Estimated Demand for Existing Non-Residential Land Use at 100% Occupancy by Land Use

Land Use Type	Spaces Required Based on Burlington Zoning Regulations (1)	Spaces Required Based on WSA Developed Peak Parking Demand Rates
Retail - General	5,800	2,661
Office - General	4,524	3,559
Manufacturing	463	463
Public/Instit.	387	387
Total	11,174	7,070

(1) Assumes no parking waivers are granted

Table E-3. Parking Space Excess or (Deficiency) for Existing and Future Non-Residential Land Use

Area	Parking Supply Excess or (Deficiency) for Existing Land Use at 94% Occupancy (1)	Parking Supply Excess or (Deficiency) for Existing Land Use at 100% Occupancy (1)	Parking Supply Excess or (Deficiency) for 2020 Land Use at 100% Occupancy and Demand From Waterfront (2)
Zone 1	128	13	(915)
Zone 2	(743)	(940)	(2,066)
Zone 3	94	24	(525)
Zone 4	122	81	19
Study Area	(399)	(822)	(3,487)

(1) Assumes existing non-residential parking supply.
(2) Assumes existing non-residential parking supply plus anticipated changes to the parking supply.

Key Findings

- The City's current zoning regulations require too much parking for non-residential land uses when applied without waivers.

- The existing peak parking demand for non-residential land use exceeds the existing parking supply. Although the existing parking supply deficiency is limited to Zone 2, the deficit is large enough to create an overall parking supply deficiency in the study area during the peak period of approximately 400 spaces. If the existing buildings were fully occupied, the deficit would increase to 820 spaces.

- The excess demand of approximately 400 spaces may be partially served by the intercept parking lot on Lakeside Avenue with shuttle service to Downtown and by people parking outside of the study area and walking in. This excess demand also consists of people who decide not to go Downtown because of a lack of parking.

- In the short term, spaces lost due to closing the Browns Court and the Elmwood Avenue lots could be absorbed by other nearby parking facilities. Both of these lots are located in study zones with some excess parking capacity.

- The spaces that may be lost at the South Winooski/Main Street and Library lot would be replaced by new spaces in the 400-500 space parking structure envisioned as part of the Super Block project. Providing an additional 400-500 space parking garage at this site could help off-set some of the existing parking space deficiency in Zone 2.

- The anticipated increase of 755 spaces in the study area's overall parking supply is not enough to meet future demand. Demand for approximately 3,500 additional spaces will need to be addressed if Downtown Burlington grows at the same rate as the rest of Chittenden County.

Strategies to Address Parking Space Deficiencies

In keeping with goals established in the City's Municipal Plan and the Legacy Action Plan, strategies which increase efficiency and reduce demand were evaluated first. Efficiency strategies include providing real-time information on parking availability, and sharing parking among land uses with different peak parking times. Also included are satellite parking lots with shuttle service to Downtown. For existing conditions, 300 spaces are assumed to be available for Downtown employees at a 500-600 space garage currently planned for Lakeside Avenue. For future conditions, 600 spaces are assumed available for Downtown employees at facilities near Exit 14 and the Northern Connector near the Colchester Town Line. **Table E-4** and **Figure E-3** show parking supply excess or deficiency assuming these strategies are implemented.

Key Findings

- These strategies have the potential to eliminate the existing parking space deficiency and to cut in half the projected deficiency in 2020 from 3,500 spaces to 1,540 spaces.

- In order for these efficiency and transportation demand management strategies to be effective, a Downtown Transportation Management Association (TMA) should

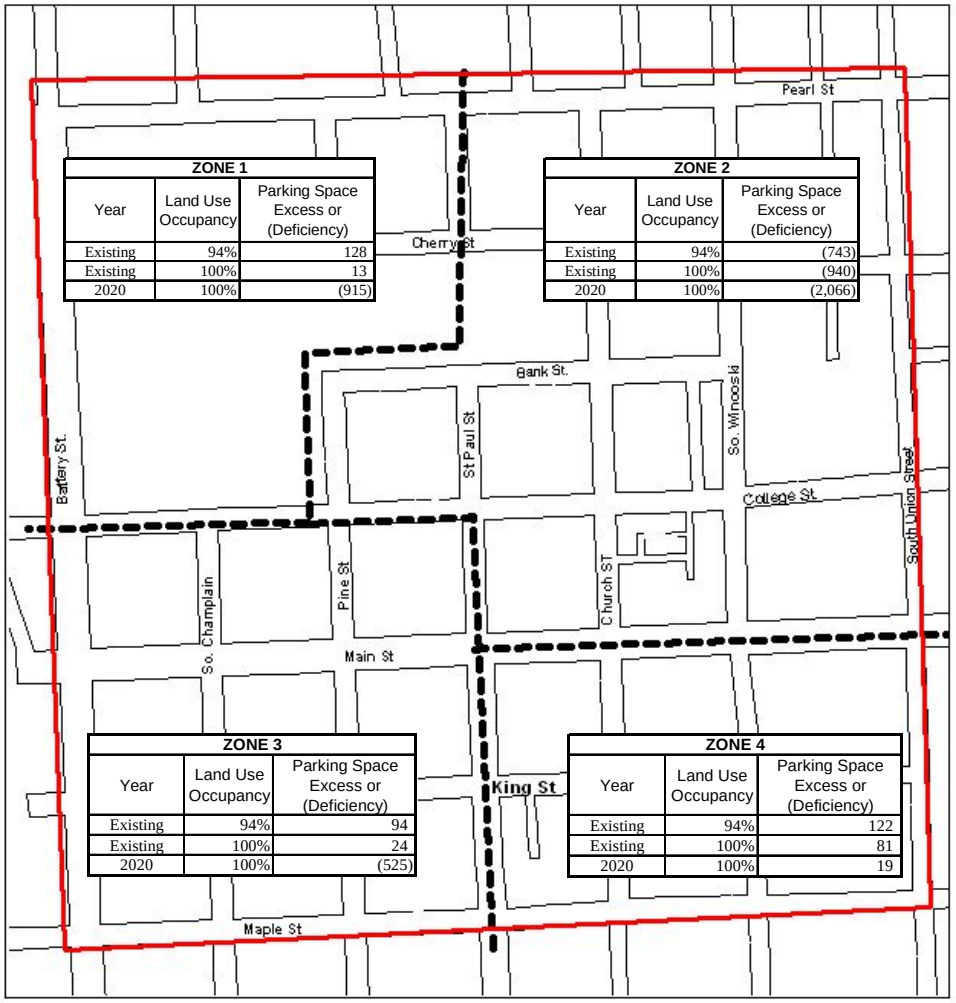
be established. Given the diverse number and size of employers in the Downtown area, a TMA is necessary to create and coordinate the critical mass of employees necessary to make transportation demand management programs effective.

- Structured parking to accommodate demand for an additional 1,540 spaces will be required within the study area over the next twenty years. The largest demand for additional parking is Zone 2 which will require approximately 1,200 additional spaces.

Table E-4. Parking Space Excess or (Deficiency) for Existing and Future Land Use Assuming Implementation of Efficiency, TDM, and Satellite Parking Facility Strategies

Area	Parking Supply Excess or (Deficiency) for Existing Land Use at 94% Occupancy (1)	Parking Supply Excess or (Deficiency) for Existing Land Use at 100% Occupancy (1)	Parking Supply Excess or (Deficiency) for 2020 Land Use at 100% Occupancy and Demand From Waterfront (2)
Zone 1	658	543	(311)
Zone 2	168	(29)	(1,169)
Zone 3	416	346	(206)
Zone 4	308	268	148
Study Area	1,550	1,127	(1,538)

(1) Assumes existing non-residential parking supply.
(2) Assumes existing non-residential parking supply plus anticipated changes to the parking supply.



ZONE 1

Year	Land Use Occupancy	Parking Space Excess or (Deficiency)
Existing	94%	128
Existing	100%	13
2020	100%	(915)

ZONE 2

Year	Land Use Occupancy	Parking Space Excess or (Deficiency)
Existing	94%	(743)
Existing	100%	(940)
2020	100%	(2,066)

ZONE 3

Year	Land Use Occupancy	Parking Space Excess or (Deficiency)
Existing	94%	94
Existing	100%	24
2020	100%	(525)

ZONE 4

Year	Land Use Occupancy	Parking Space Excess or (Deficiency)
Existing	94%	122
Existing	100%	81
2020	100%	19

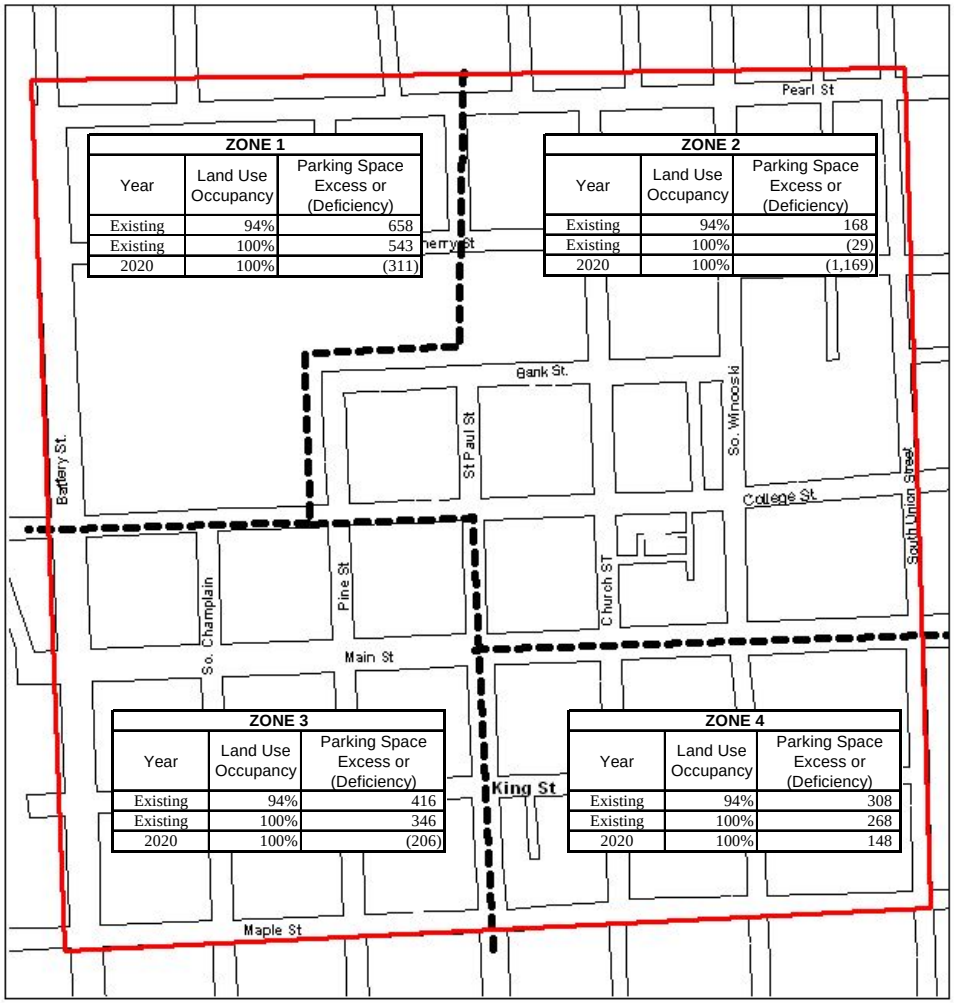
FIGURE E-2

PARKING SPACE EXCESS OR DEFICIENCY WITHOUT TDM and SATELLITE LOTS

Downtown Burlington Parking Study

Study Area
Zone Boundaries

Wilbur Smith Associates



ZONE 1

Year	Land Use Occupancy	Parking Space Excess or (Deficiency)
Existing	94%	658
Existing	100%	543
2020	100%	(311)

ZONE 2

Year	Land Use Occupancy	Parking Space Excess or (Deficiency)
Existing	94%	168
Existing	100%	(29)
2020	100%	(1,169)

ZONE 3

Year	Land Use Occupancy	Parking Space Excess or (Deficiency)
Existing	94%	416
Existing	100%	346
2020	100%	(206)

ZONE 4

Year	Land Use Occupancy	Parking Space Excess or (Deficiency)
Existing	94%	308
Existing	100%	268
2020	100%	148

FIGURE E-3

PARKING SPACE EXCESS OR (DEFICIENCY) ASSUMING TDM and SATELLITE LOTS ARE IMPLEMENTED

Downtown Burlington Parking Study

Study Area
Zone Boundaries

Wilbur Smith Associates

Introduction

This study evaluates existing and future parking supply and demand for non-residential land use within the City of Burlington's downtown area, identifies parking supply excesses and deficiencies, and recommends general areas for additional structured parking over the next twenty years. The study area is shown in **Figure 1**.

This study includes an inventory of the existing parking supply, a parking accumulation survey which measures usage on a Friday and Saturday, an estimate of the existing and 2020 weekday peak parking demand based on data collected in the accumulation survey and on the non-residential land use data provided by the City, an assessment of strategies designed to reduce parking demand in the study area, and an estimate of the number of additional parking spaces required in the study area in 2020 assuming the strategies are effective at reducing demand.

This study also evaluates the short term impact of loosing four City owned public parking lots and one private lot, which also provides parking to the general public, to redevelopment for other uses. The parking lots which may be redeveloped are identified in **Figure 1** and include:

- The **Browns Court lot** is located at the corner of King and Saint Paul streets. This lot currently provides 42 long-term metered (10 hour maximum) parking spaces. Long term redevelopment plans are for housing. Preliminary redevelopment concepts include a lower level parking structure, accessible from Saint Paul Street, that may include public parking.

- The **Main Street lot** is located at the corner of Main Street and South Winooski Avenue and the **Library lot**, is located in the same block. These lots provide a total of 77 spaces with a mix of short-term metered (3 hours or less maximum), long-term metered, and monthly lease spaces. Redevelopment concepts include the multi-use "Super Block" project with a 400-500 space parking structure. A massing and site plan study is currently underway evaluating how a parking structure could fit within the block.

- The **Elmwood Avenue lot** is located on Elmwood Avenue north of the study area boundary. This lot is included in this study because people currently parking there will likely seek other parking within the study area if the lot is lost to redevelopment. This lot provides 78 spaces which are leased on a monthly basis. All of the spaces are currently leased to individuals. The Department of Public Works (DPW) assumes that most of the spaces are leased to Federal employees working in the Federal Building at the corner of Elmwood Avenue and Pearl streets. Due to security reasons, parking at the Federal Building is restricted to certain types of employees (FBI, Federal Court), leaving the balance of employees to find parking on their own. Redevelopment plans for the Elmwood Avenue lot include housing which would provide parking for residents but no parking for the general public. A past proposal for housing at the site was put on-hold in part due to the impact on parking.

- The **Cherry Street lot** is located at the corner of Battery and Cherry streets. This private lot provides approximately 60 monthly lease spaces and is managed by Champlain Parking. Preliminary redevelopment plans include housing and a hotel. A parking structure with approximately 290 spaces is included in the preliminary plan. Of these spaces, 50-100 would be available to the general public with the balance being leased to the hotel and residents.

Study Area Zones

All data are presented for the entire study area and the four zones identified in **Figure 1**. The zones have been structured to match parking facilities with the destinations they would likely serve and take into account barriers and general land use types. The study area is approximately ½ mile square, resulting in four zones approximately ¼ mile square. Since most people are willing to walk a ¼ of a mile from parking to a final destination, this size provides a reasonable starting point for comparing parking supply with demand.

Parking Facility Types, Ownership, and Use

The study area includes off street parking, in garages and surface lots, and on-street parking adjacent to the street curb. Detailed information on each is provided in the next section. All on-street parking is publicly owned and available to and used by the general public. Parking garages and surface lots fall within three categories of ownership and use. The following naming convention is used throughout the study to describe these categories:

Public/Public: Publicly owned garage or lot with parking available for general public use. All on-street parking is public/public.

Private/Public: Privately owned garage or lot with parking available for the general public.

Private/Private: Privately owned garage or lot with parking restricted to private use only. Parking may only be used by employees, customers, residents, or visitors to the building(s) the lot serves.

Table 1 summarizes the total parking supply in the study area by facility type, ownership, and use. The entire study area contains approximately 6,570 parking spaces. More than half of these spaces are located in parking garages. Approximately 60% of the parking supply is contained in public/public or private/public parking facilities. **Figure 2** provides a summary of the parking supply by zone.

Table 1. Study Area Parking Supply

Area	On Street Parking	Public / Public		Private / Public		Private / Private		Total
		Lots	Garages	Lots	Garages	Lots	Garages	
Zone 1	152	78	861	60	567	272	-	1,990
Zone 2	425	123	401	-	460	571	442	2,422
Zone 3	338	-	-	-	-	674	307	1,319
Zone 4	238	44	-	-	216	339	-	837
Study Area	**1,153**	**245**	**1,262**	**60**	**1,243**	**1,856**	**749**	**6,568**

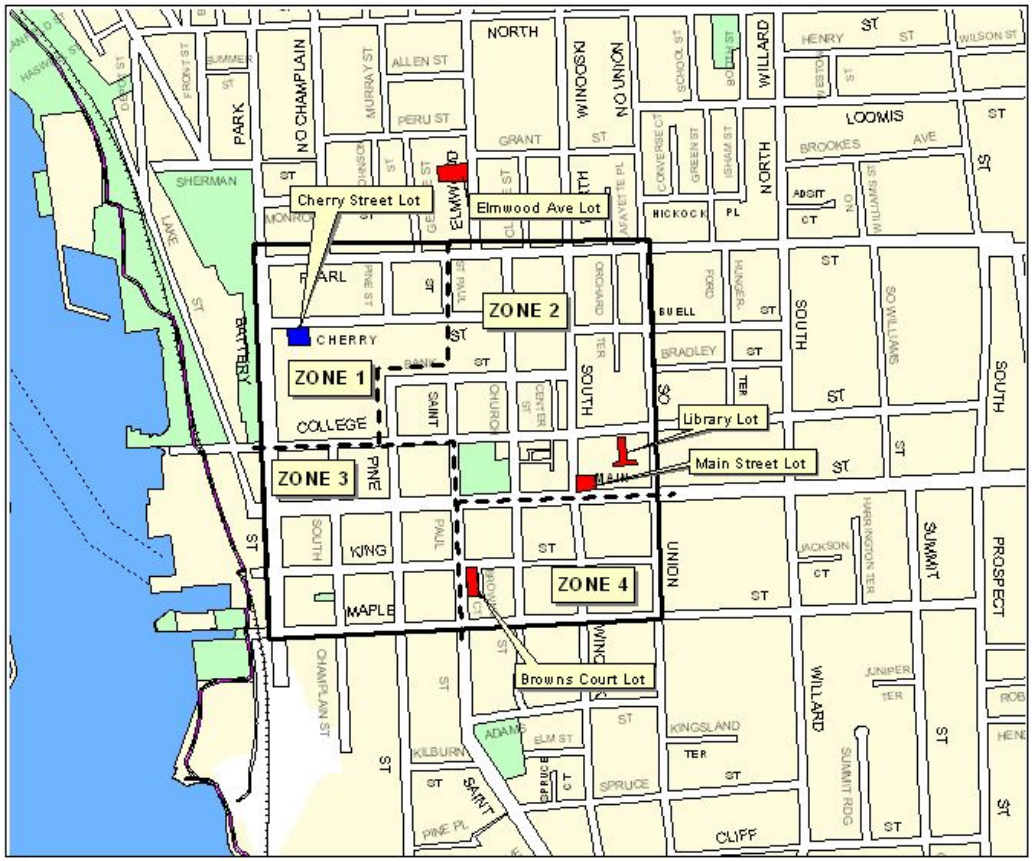


FIGURE 1

STUDY AREA

Downtown Burlington
Parking Study

- Study Area
- Study Zone Boundary
- DPW Surface Lots That May Be Redeveloped For Other Uses
- Private Lot That May Be Redeveloped For Other Uses

Wilbur Smith Associates

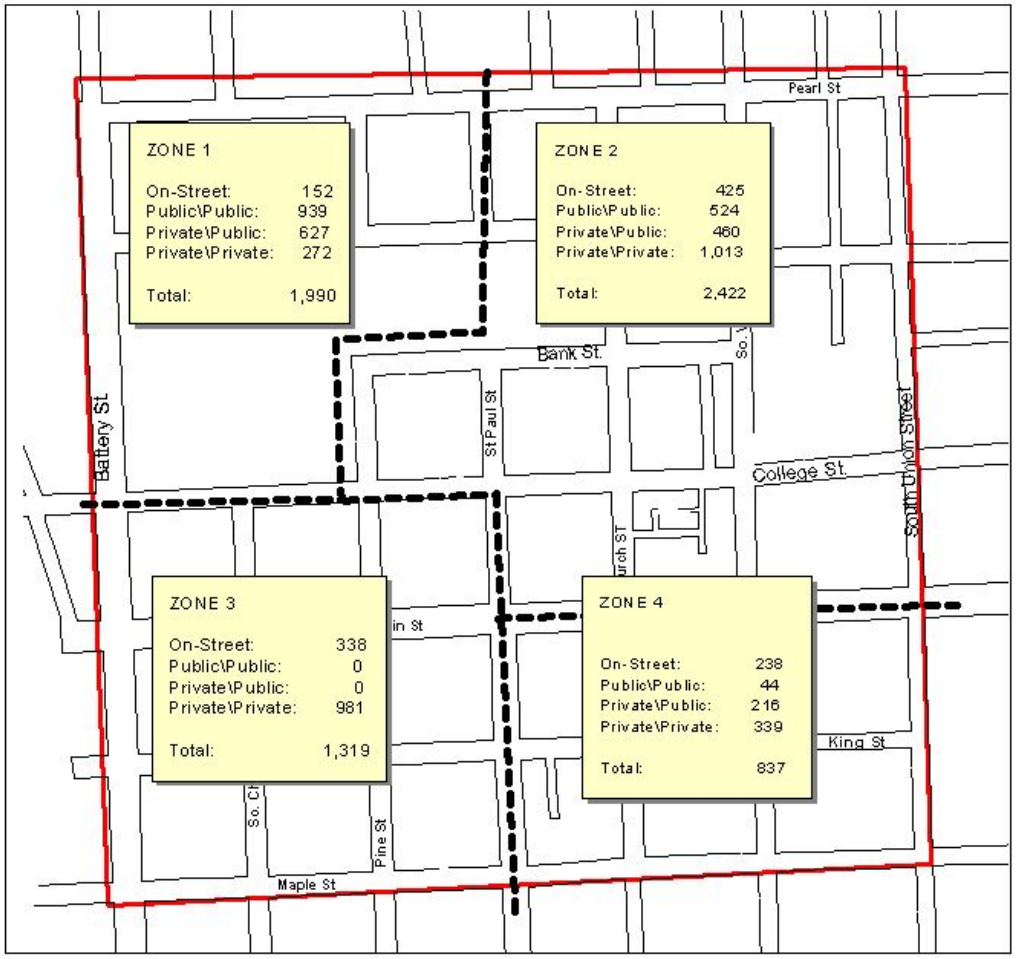


FIGURE 2

PARKING SUPPLY INVENTORY SUMMARY

Downtown Burlington
Parking Study

Zone Boundaries

Study Area

Wilbur Smith Associates

Parking Supply Inventory and Characteristics

Parking Garages

Parking garages provide approximately half of the parking supply in the study area. **Table 2** summarizes the parking garage spaces by ownership/use categories and zone. **Figure 3** on page 9 shows the location and total number of spaces available at each garage.

Table 2. Parking Garage Supply[1]

Area	Public / Public	Private / Public	Private / Private	Total
Zone 1	861	567	-	1,428
Zone 2	401	460	442	1,303
Zone 3	-	-	307	307
Zone 4	-	216	-	216
Study Area	**1,262**	**1,243**	**749**	**3,254**

Specific characteristics of each garage are listed in **Table 3** below. Eight of the ten garages listed make parking available to the general public and also lease spaces to various businesses and individuals on a monthly basis. As indicated in **Table 3**, the number of leased and transient (available with a one-time parking ticket) spaces is different on weekdays and weekends. **Table 4** on the following page summarizes the transient and leased spaces by study zone. The Park Plaza garage is unique. All of the parking spaces at Park Plaza are leased between the hours of 7:00 AM to 5:00 PM, Monday through Friday. It is necessary to use an electronic card to enter the garage during those time periods. Between the hours of 5:00 PM and 7:00 AM, Monday through Friday, and all weekend long, the Park Plaza garage is open to the general public for free. The Howard Community Services garage serves only employees in that building while the VT State Office Building garage provides parking for state office employees, visitors, and for Community College students and faculty.

Table 3. Characteristics of Garages

Zone	Garage Name	Ownership / Use	Operator	Total Spaces	Weekday		Saturday	
					Leased	Transient	Leased	Transient
1	DPW College St Garage	Public/Public	DPW	460	460	0	360	100
1	DPW Lakeview	Public/Public	DPW	401	173	228	130	271
1	Town Center	Private/Public	Champlain Parking	567	250	317	100	467
2	DPW Marketplace Garage	Public/Public	DPW	401	62	339	62	339
2	Park Plaza	Private/Private	ICV	106	106	0	0	106
2	Corporate Plaza	Private/Public	Champlain Parking	354	254	100	50	304
2	Howard Community Services Senter	Private/Private	Howard Center	54	54	0	54	0
2	VT State Office Building	Private/Private	State of VT	388	388		388	
3	Gateway Square	Private/Private	ICV	307	297	30	297	30
4	Courthouse Plaza	Private/Public	Champlain Parking	216	128	88	128	88

[1] The inventory and survey do not include the garages serving Chittenden Superior Court and the College St/Battery Street condos.

Table 4. Summary of Total, Leased, and Transient Garage Spaces by Study Zone

Area	Total Spaces	Weekday		Saturday	
		Leased	Transient	Leased	Transient
Zone 1	1428	883	545	590	838
Zone 2	1303	864	439	554	749
Zone 3	307	297	30	297	30
Zone 4	216	128	88	128	88
Study Area	**3254**	**2172**	**1102**	**1569**	**1705**

Table 5 on the following page presents the current parking fees for the garages accessible to the general public. With the exception of Gateway Square, all of the garages use time stamped tickets and have an attendant collecting payment from transient parkers. At Gateway Square, the general public must purchase a $4.00 token for the entire day. A gate opens automatically when vehicles enter the Gateway Square garage. The token is necessary to open the gate when exiting. Free parking is available at the three DPW garages and at the Town Center garage for up to two hours. The monthly lease fees range from a low of $30 a high of $95 per month. The lower end of this range is for second shift employees and spaces under contract for an annual flat fee at the College Street garage. The leases have been purchased by a mix of businesses for use by their customers and employees and by individual employees.

Table 5. Garage Parking Fees

Garage	Transient Parking Rates			Monthly Lease Fees
	Duration (Hours)	**Rate**	**Maximum 24 Hour Fee**	
College Street	0 – 2.0	***Free***	$5.50	$63 - $70 for regular shift employees $30 for second shift employees $30-$35 based on annual flat rate contracts[2]
	2.0 – 5.5	$0.75 per ½ hour		
	5.5 – 6.0	$0.25 per ½ hour		
	6.0 – 24.0	No Additional Charge		
Lake View	0 – 2.0	***Free***	$5.50	$63 - $80 for private sector employees $40 for city employees
	2.0 – 5.5	$0.75 per ½ hour		
	5.5 – 6.0	$0.25 per ½ hour		
	6.0 – 24.0	No Additional Charge		
Market Place	0 – 2.0	***Free***	$5.50	$70 - $80
	2.0 – 5.5	$0.75 per ½ hour		
	5.5 – 6.0	$0.25 per ½ hour		
	6.0 – 24.0	No Additional Charge		
Town Center	0 – 2.0	***Free***	$9.00	$90
	2.0 – 6.0	$0.75 per ½ hour		
	6.0 – 24.0	No Additional Charge		
Courthouse Plaza	0.0 – 4.0	$0.75 per ½ hour	$6.00	$65
	4.0 – 24.0	No Additional Charge		
Corporate Plaza	0.0 – 7.0	$0.50 per ½ hour	$7.00	$90 for tenants $95 for non-tenants
	7.0 – 24.0	No Additional Charge		
Gateway Square	No hourly rate		$4.00 per day	$70 (Sold quarterly for $210)
Park Plaza	No hourly rate			$70 (Sold quarterly for $210)

[2] This range of monthly rates is based on the annual flat fee that Radisson Hotel and Fletcher Allen Hospital pay for leasing 300 and 175 spaces respectively at the College Street garage.

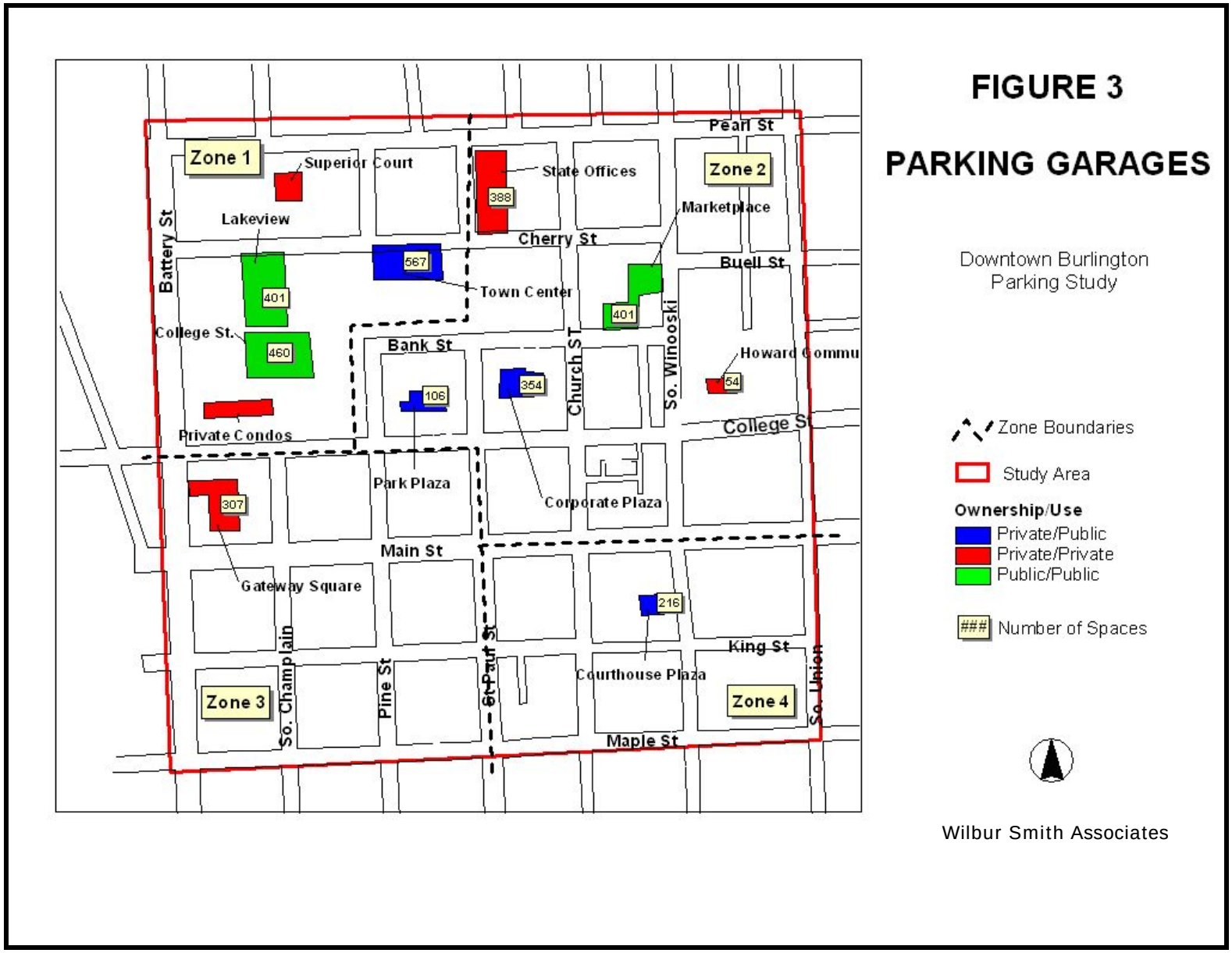


FIGURE 3
PARKING GARAGES
Downtown Burlington Parking Study
Zone 1
Zone 2
Zone 3
Zone 4
Superior Court
State Offices
388
Pearl St
Marketplace
Lakeview
Battery St
Cherry St
567
Town Center
Buell St
401
401
College St.
460
Bank St
Church ST
So. Winooski
Howard Commu
54
106
354
Private Condos
College St
Park Plaza
Corporate Plaza
307
Main St
Gateway Square
216
King St
Courthouse Plaza
So. Champlain
Pine St
St Paul St
So. Union
Maple St
Zone Boundaries
Study Area
Ownership/Use
Private/Public
Private/Private
Public/Public
Number of Spaces
Wilbur Smith Associates

Surface Lots

Surface lots provide approximately one-third of the study area parking supply. **Table 6** summarizes the surface lot parking supply and **Figure 4** shows the location, ownership, use, and number of spaces for each surface lot. A detailed inventory is contained in **Appendix A.** All of the public/public surface lots are owned and managed by the DPW. The one privately owned lot available for public use is managed by Champlain Parking and is located at the corner of Battery and Cherry streets. Eight-five percent of the surface lot parking spaces are located in privately owned lots available only for private parking. These lots provide parking for a wide variety of land uses including office, retail, residential, and entertainment. In general, parking is only available at these lots for employees, customers, visitors, or residents of the buildings they were built to serve.

Table 6. Surface Lot Parking Supply

Area	Public / Public	Private / Public	Private / Private	Total
Zone 1	78	60	272	410
Zone 2	123	-	571	694
Zone 3	-	-	674	674
Zone 4	44	-	339	383
Study Area	**245**	**60**	**1,856**	**2,161**

As noted in the introduction, redevelopment may affect five of the six DPW lots listed in **Table 7**. Other uses are being considered for all but the YMCA lot potentially impacting 223 parking spaces. The DPW lots provide a mixture of short-term, long-term, and monthly leased spaces.

Table 8 summarizes the costs for monthly leases or long-term metered spaces. All of the DPW lots provide long-term parking spaces typically used by employees either in the form of monthly leases or through spaces with ten-hour meters. Monthly leases are also available at the privately owned Cherry St/Battery Street lot. All of the surface lot monthly leases are purchased by individual employees rather than employers. The cost for an employee using a 10-hour meter space five days a week for an entire month is $43.

Table 7. DPW Surface Lot Characteristics

Zone	Description	Metered Spaces			Handicap	Monthly Lease	Total
		Blue - 3 Hour	Red - 2 Hour	Brown - 10 Hour			
1	Elmwood Ave Lot				3	75	78
2	So. Winooski/Main Lot Meters	30		11	2		43
2	So. Winooski/Main Lot Leased					12	12
2	Library Lot		16	26	2	2	46
2	YMCA Lot		9	11	2		22
4	Browns Court Lot			42	2		44
	Totals	**30**	**25**	**90**	**11**	**89**	**245**

Table 8. Surface Lot Monthly Parking Fees

Lot	Number of Leased or Long-term Metered Spaces	Monthly Lease or Meter Fee
Elmwood Avenue	75	$40- $45
South Winooski/ Main Street Lease Lot	12	$50
South Winooski/Main Street Metered Lot	11	$43
Library Lot	26	$43
YMCA Lot	11	$43
Cherry/Battery Street Lot	60	$65

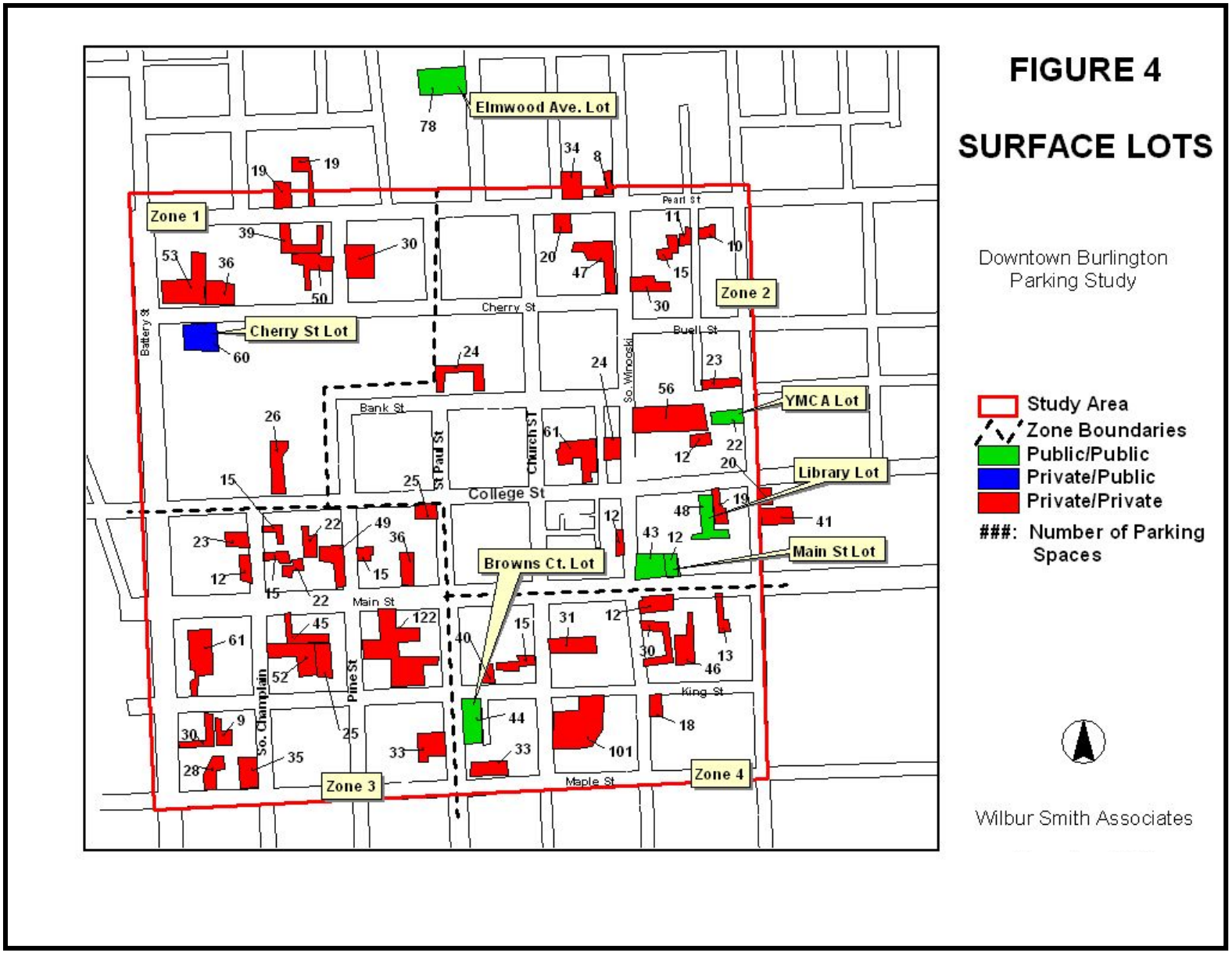


FIGURE 4
SURFACE LOTS
Downtown Burlington Parking Study
Elmwood Ave. Lot
Cherry St Lot
YMC A Lot
Library Lot
Main St Lot
Browns Ct. Lot
Zone 1
Zone 2
Zone 3
Zone 4
Cherry St
Bank St
College St
Main St
Pearl St
Buell St
King St
Maple St
Battery St
So. Winooski
St Paul St
Church ST
Pine St
So. Champlain
Study Area
Zone Boundaries
Public/Public
Private/Public
Private/Private
###: Number of Parking Spaces
Wilbur Smith Associates

On Street Parking

Table 9 summarizes the types of on-street parking available in the study area. The top of each meter is color coded based on the maximum duration. Approximately 70% (823) of the 1,153 on-street spaces are metered. Of the metered spaces, only 57 are long term (10 hour meters). Two-hour meters are the most common type of on-street parking space.

Table 9. On-Street Parking Supply

Area	Metered Spaces						Un-metered Spaces				Totals
	Yellow - 15 Minute	Yellow - 30 Minute	Gray - 1 Hour	Blue - 2 Hour	Red - 3 Hour	Brown - 10 Hour	Handicap	Unrestricted	Residential Parking Permit	15 Minute	
Zone 1	0	5	0	82	35	13	4	12	0	1	152
Zone 2	23	3	2	306	0	0	18	51	20	2	425
Zone 3	1	8	0	182	31	17	8	69	20	2	338
Zone 4	0	3	0	85	0	27	8	112	0	3	238
Study Area	**24**	**19**	**2**	**655**	**66**	**57**	**38**	**244**	**40**	**8**	**1153**

The total number of on-street parking spaces available along each block face is shown in **Figure 5**. Figure 5 also shows the predominant type of parking (short-term meter, long-term meter, unrestricted, residential permit, and no-parking) available along each block face. The ten-hour metered spaces are classified as long term. All other metered spaces are classified as short term. Many of the block faces have a mixture of on-street parking types. The map shows only the dominate type of on-street parking for each block face. A detailed inventory for each block face is contained in **Appendix B**.

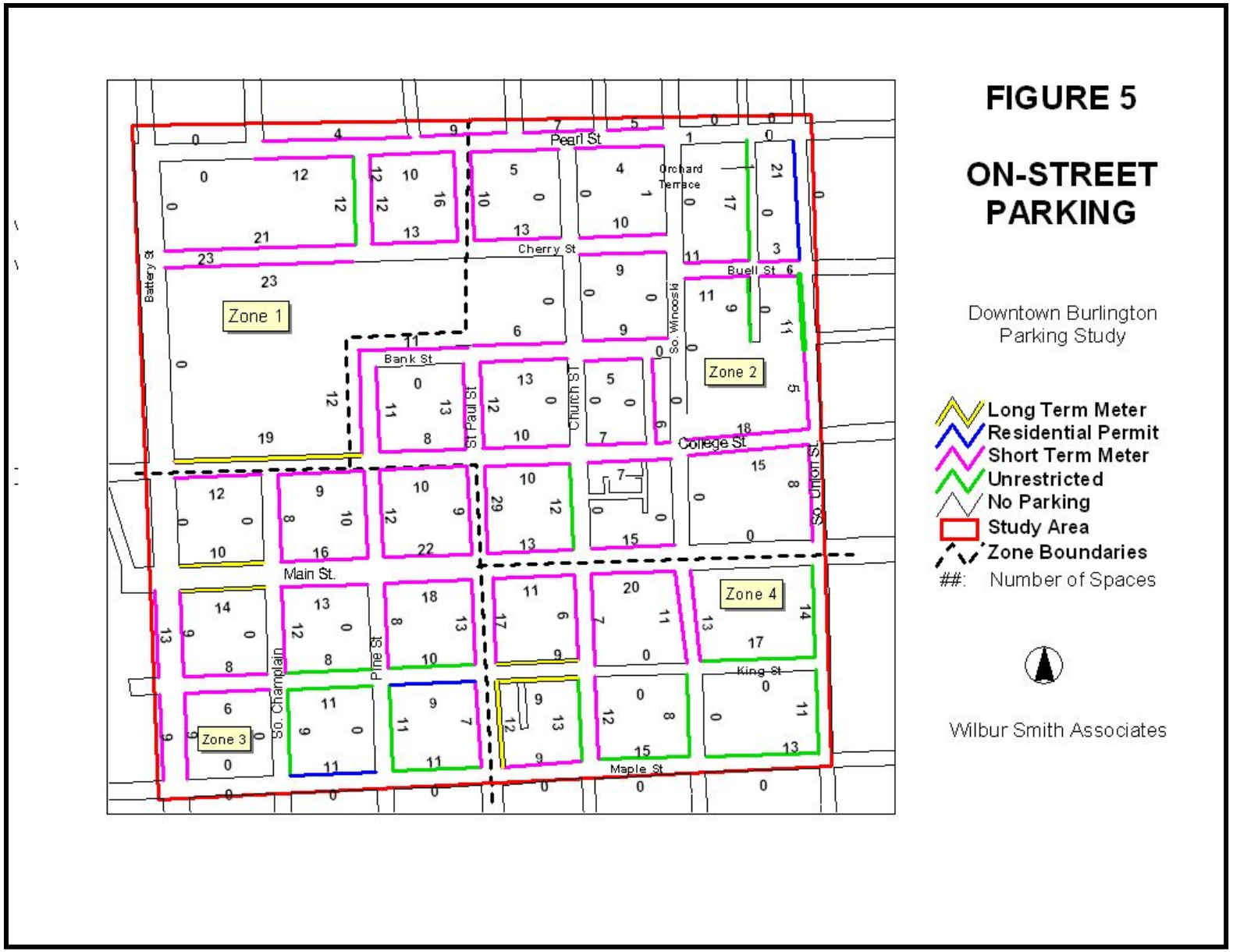
The hours of operation for the parking meters are 8:00 AM to 6:00 PM, Monday through Saturday. **Table 10** on the following page summarizes the parking fees for the metered spaces. Parking is free for all other times of the day, all day Sunday and on Holidays.

The following observations can be made regarding the on-street parking supply in the study area:

- Short-term metered spaces dominate the study area.
- Long-term metered spaces are located along the periphery of the study area.
- Unrestricted parking is located in the southern part of study area in the vicinity of Maple and King Streets and in the north east corner along South Union and Orchard Terrace. These spaces are primarily used by residents. Other unrestricted paring is located on Church Street in front of City Hall and the northern most section of Pine Street.
- Residential permit parking is available along one block of Maple and one block of King Streets.

Table 10. City of Burlington Parking Meter Rates

Color of Meter Head	Duration (Minutes)	Rate	Maximum Time Limit	Maximum Charge
Yellow	15	$ 0.25	15 Minutes	$ 0.25
	6	$ 0.10		
	3	$ 0.05		
Yellow	30	$ 0.25	30 Minutes	$ 0.25
	12	$ 0.10		
	6	$ 0.05		
Gray	30	$ 0.25	1 Hour	$ 0.50
	12	$ 0.10		
	6	$ 0.05		
Blue	20	$ 0.25	2 Hours	$ 1.50
	8	$ 0.10		
	4	$ 0.05		
Red	30	$ 0.25	3 Hours	$ 1.50
	12	$ 0.10		
	6	$ 0.05		
Brown	75	$ 0.25	10 Hours	$ 2.00
	30	$ 0.10		


Pearl St
Cherry St
Bank St
Main St.
College St
King St
Maple St
Battery St
So. Winooski
St Paul St
Church St
So. Union St
St Paul
So. Champlain
Orchard Terrace
Buell St
Zone 1
Zone 2
Zone 3
Zone 4
FIGURE 5
ON-STREET PARKING
Downtown Burlington Parking Study
Long Term Meter
Residential Permit
Short Term Meter
Unrestricted
No Parking
Study Area
Zone Boundaries
##: Number of Spaces
Wilbur Smith Associates

Comparison Between 1990 and 2002 Parking Supply Inventories

This section compares the inventory of parking spaces conducted in 1990 to the inventory conducted in 2002 by Wilbur Smith Associates. The 1990 inventory is taken from the "Downtown Burlington Employee Parking Study, Burlington, Vermont" (McDonough and Scully) completed for the City of Burlington in June of 1990.

The 1990 inventory combined on-street spaces with the off-street spaces located in municipal lots. In order to present a direct comparison, the 2002 inventory has been summarized in the same manner. It was also necessary, for comparison purposes, to subtract the on-street spaces along the west side of Battery Street and the north side of Pearl Street from the 2002 inventory. **Tables 11-13** present the on-street parking spaces and spaces located in municipal lots within the 2002 Downtown Burlington Parking study area for 1990 and 2002. The 1990 and 2002 inventories are summarized for the study area and by zone. Information on parking duration is provided. **Table 13** shows the differences between the two inventories by zone and by parking duration. The total number of on-street spaces and spaces in municipal lots has remained nearly constant. The biggest shift in parking duration has been from 1-hour meter to 2-hour meter spaces. There has also been a shift from unrestricted spaces to spaces requiring residential parking permits in zones 2 and 3 and to metered spaces in zone 4.

Table 14 compares the 1990 and 2002 inventories of spaces located in private off-street lots within the study area and by zone. In order to make a direct comparison to the 1990 inventory:

1. Parking spaces in off-street lots located north of Pearl Street have been subtracted from the 2002 inventory;

2. The 106 spaces in the Park Plaza garage located in the Bank/St Paul/College/Pine block are considered off-street surface lot spaces and have been added to the 2002 inventory of surface lots; and

3. The 54 spaces located in the Howard Community Services garage located in the College/So. Union/Main/So. Winooski block are considered off-street surface lot spaces and have been added to the 2002 inventory of surface lots.

Table 14 suggests there has been a decrease of 968 off-street private spaces between 1990 and 2002 in the study area. **Figure 6** shows the difference for each block in the study area. The largest single decrease is 325 spaces in the College/Pearl/Church/Battery streets block. These surface lot spaces have been replaced by structured parking as part of redevelopment projects. The remaining difference can be explained by the fact that the 2002 inventory and study focus on non-residential parking lots while the 1990 inventory includes many of the smaller, off-street residential lots.

Table 15 compares the 1990 and 2002 inventories of spaces located in parking garages by facility name. **Table 16** summarizes the number of parking spaces located in parking

garages by zone for the 1990 and 2002 inventory. Although there has been an overall increase in the number of parking garage spaces, the comparison indicates that the number of spaces has decreased within some of the specific garages. **Table 17** compares the 1990 and 2002 inventories of leased and transient spaces available in parking garages for the entire study area. **Table 17** indicates that there has been a decrease in the number of transient spaces available within parking garages and an increase in the number of leased or long term spaces.

Table 11. 1990 On-Street and Municipal Lot Parking Space Supply Inventory per "Downtown Burlington Employee Parking Study", June 1990 McDonough & Skully, Inc.

Zone	Spaces Requiring Residential Parking Permits	Unrestricted Parking	Handicapped Spaces	15 min Parking	30 min Parking	1 hour meter	2 hour meter	3 hour meter	10 hour meter	Total
Zone 1	-	15	5	1	6	7	100	40	11	185
Zone 2	-	55	10	10	13	163	131	-	96	478
Zone 3	-	106	8	13	3	22	115	28	17	312
Zone 4	-	143	6	2	2	23	70	-	42	288
Totals	-	319	29	26	24	215	416	68	166	1,263

Table 12. 2002 On-Street and Municipal Surface Lot Parking Space Supply per WSA June 2002 Inventory

Zone	Spaces Requiring Residential Parking Permits	Unrestricted Spaces	Handicapped Spaces	15 min Parking	30 min Parking	1 hour meter	2 hour meter	3 hour meter	10 hour meter	Total
Zone 1	0	12	5	1	0	0	105	35	24	182
Zone 2	20	51	20	25	3	2	294	9	11	435
Zone 3	20	69	8	3	8	0	162	47	43	360
Zone 4	0	112	10	3	3	0	85	0	69	282
Totals	40	244	43	32	14	2	646	91	147	1259

Table 13. Change in On-Street and Municipal Lot Parking Supply 1990 to 2002

Zone	Spaces Requiring Residential Parking Permits	Unrestricted Spaces	Handicapped Spaces	15 min Parking	30 min Parking	1 hour meter	2 hour meter	3 hour meter	10 hour meter	Total
Zone 1	0	-3	0	0	-6	-7	5	-5	13	-3
Zone 2	20	-4	10	15	-10	-161	163	9	-85	-43
Zone 3	20	-37	0	-10	5	-22	47	19	26	48
Zone 4	0	-31	4	1	1	-23	15	0	27	-6
Totals	40	-75	14	6	-10	-213	230	23	-19	-4

Table 14. Comparison Between 1990 and 2002 Inventories of Parking Spaces Located In Off-Street Private Lots

Area	Private Off-Street Spaces Included in 1990 Inventory	Private Off-Street Spaces Included in 2002 Inventory	Change
Zone 1	657	318	-339
Zone 2	715	500	-215
Zone 3	914	637	-277
Zone 4	476	339	-137
Study Area	2762	1794	-968

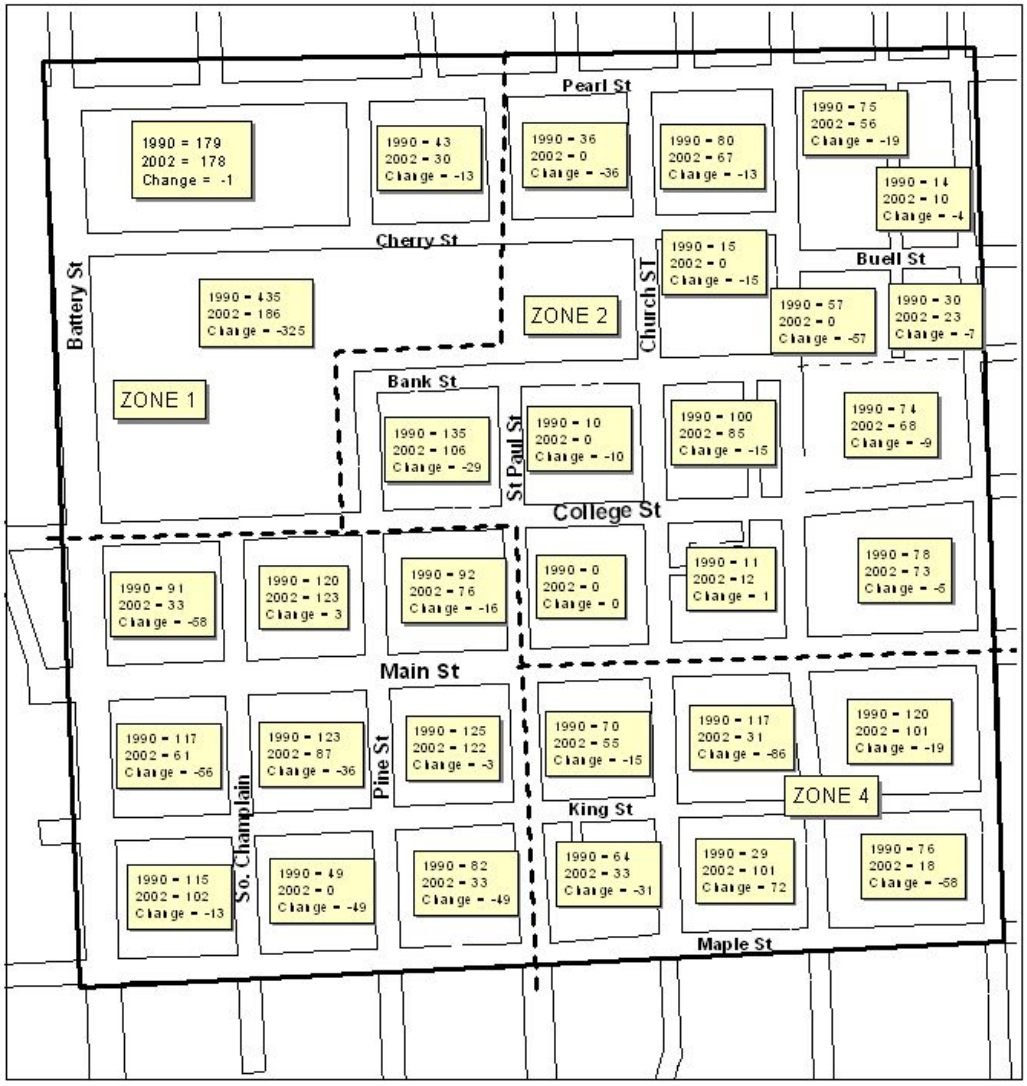


FIGURE 6

1990 and 2002 PRIVATE SURFACE LOT SPACE INVENTORIES

Downtown Burlington
Parking Study

Source for 1990 Spaces:
"Downtown Employee Parking Study"
McDonough and Scully, June 1990

2002 Spaces surveyd by
Wilbur Smith Associates

1990 = Number of Spaces
2002 = Number of Spaces
Change = 2002 - 1990 Spaces

2002 Parking Study Area

2002 Parking Study Area Zone Bounary

Wilbur Smith Associates

Table 15. Comparison Between 1990 and 2002 Inventories of Parking Garage Spaces

2002 Study Area Zone	Garage Name	Spaces per 1990 Inventory	Spaces per 2002 Inventory
1	Town Center and College Street Garage (1)	1,091	1,027
1	Lake View Garage	Did Not Exist	401
2	John Zamperli State Office Building Garage	450	388
2	Marketplace Garage	401	401
2	Corporate Plaza Garage	370	354
3	Gateway Square	Did Not Exist	307
4	Courthouse Plaza	295	216
	Total Parking Garage Spaces	2,607	3,094

(1) The number of parking spaces within each of these garages is not provided separately in the 1990 study.

Table 16. Comparison Between 1990 and 2002 Parking Garage Spaces by 2002 Parking Study Zone

Area	Spaces per 1990 Inventory	Spaces per 2002 Inventory	Difference Between 2002 and 1990 Inventories
Zone 1	1,091	1,428	337
Zone 2	1,221	1,143	-78
Zone 3	-	307	307
Zone 4	295	216	-79
Study Area	2,607	3,094	487

Table 17. Comparison Between 1990 and 2002 Inventory of Leased and Transient Parking Spaces Within Parking Garages for the Entire Study Area

	Spaces per 1990 Inventory	Spaces per 2002 Inventory	Difference Between 2002 an 1990 Inventories
Leased Spaces	1,225	2,012	787
Transient Spaces	1,382	1,082	-300
Total Spaces	2,607	3,094	487

Parking Accumulation Survey

Methodology

A parking accumulation survey was conducted on Friday, June 28th and Saturday, June 29th, 2002 of all on-street and off-street parking facilities in the study area. Additional surveys were also conducted on Friday, July 12th and Saturday, July 13th, 2002 at the three DPW garages and the three garages managed by Champlain Parking. Wilbur Smith Associates, the Department of Public Works, and Champlain Parking participated in the data collection effort. Full and select surveys were conducted as described in **Table 18**.

Table 18. Survey Schedule

Survey	Friday	Saturday
Full Survey	• 7:00 am to 11:00 pm • Every two hours	• 10:00 am to 8:00 pm • Every two hours
Select Survey	• Once between 9:30 am to 11:30 am • Once between 1:30 pm and 3:30 pm	• Once between 1:30 pm and 3:30 pm

A full survey was conducted for all of the on-street parking, the Park Plaza garage, the DPW garages, the Champlain Parking garages, and most of the surface lots. Select surveys were conducted at the Gateway Square, Howard Community Service, and State Office Building garages. **Figures 7 and 6** indicate the survey schedule for each garage and surface lot in the study area. **Table 19** summarizes the data collected by parking facility type.

Table 19. Parking Accumulation Data Collected

Parking Facility Type	Data Collected
On-street parking	• Total parked cars • Illegally parked cars • Cars parked at long term meters (10 hours) • Cars parked at short term meters (all other meters) • Short and long term meter violations • Cars parked in unrestricted spaces • Cars parked in handicap spaces • Cars parked in residential permit areas • Cars parked in 15 minute signed spaces
DPW surface lots	• Total parked cars • Cars parked at short term meters • Cars parked at long term meters • Cars parked in leased spaces • Cars parked in handicap spaces • Illegally parked vehicles
Private Surface Lots	• Total parked cars • Cars parked in unrestricted spaces • Illegal parked cars • Cars parked in handicap spaces
DPW garages	• Total parked cars
Champlain Parking Garages	• Total Parked Cars • Leased Cars • Parked cars purchasing ticket
Gateway Square, Park Plaza, State Office Building and Howard Community Service garages.	• Total parked cars • Cars parked in handicap spaces

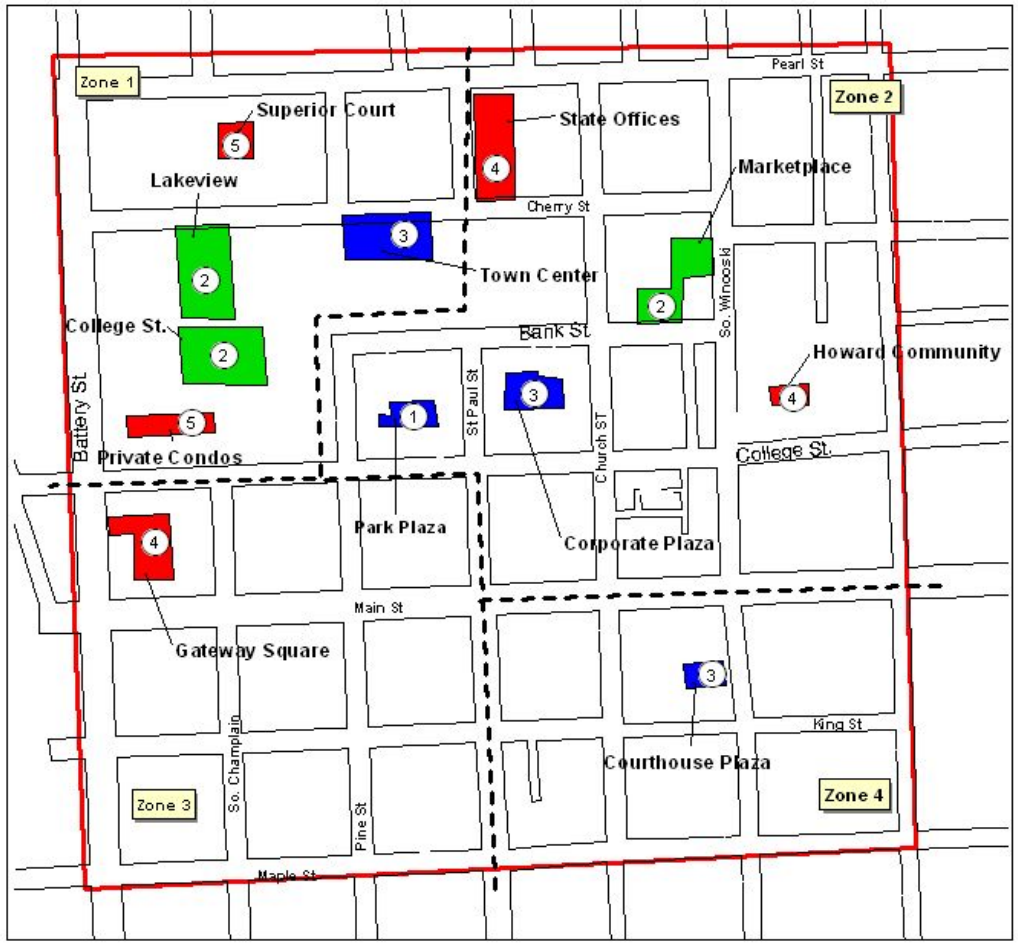


FIGURE 7

PARKING GARAGE SURVEY SCHEDULE

Downtown Burlington
Parking Study

Zone Boundaries
Study Area

Survey By and Type
1: WSA Full Survey
2: DPW Full Survey
3: Champlain Parking Full Survey
4: WSA Select Survey
5: No Survey

Ownership\Use
Private\Private
Private\Public
Public\Public

Full Survey: Friday, June 28 and July 12, 2002 - Every 2 Hours 7:00 AM to 11:00 PM
Saturday, June 29 and July 13, 2002 - Every Two Hours 10:00 AM to 8:00 PM

Select Survey: Friday, June 28, 2002 - 9:30 AM to 11:30 AM and 1:30 PM to 3:30 PM
Saturday, June 29, 2002 - 1:30 PM to 3:30 PM

Wilbur Smith Associates

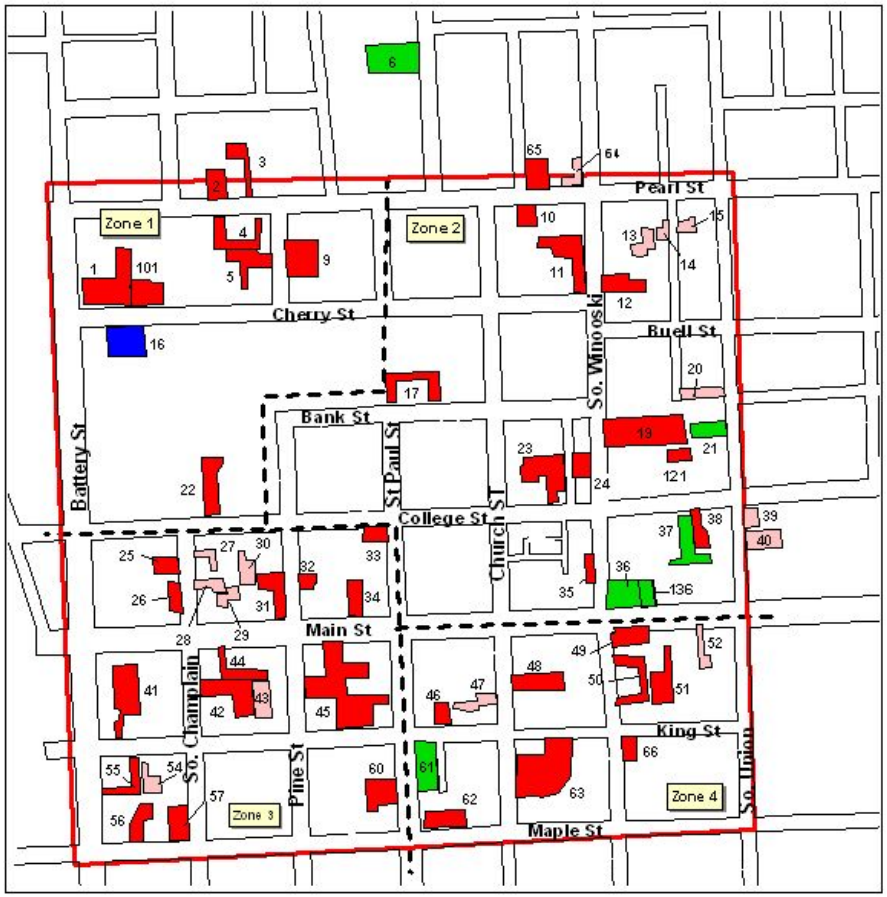


FIGURE 8

SURFACE LOT SURVEY SCHEDULE

Downtown Burlington
Parking Study

- Public\Public - WSA Full Survey
- Private\Public - WSA Select Survey
- Private\Private - WSA Full Survey
- Private\Private - Select Survey
- Study Area
- Zone Boundaries

##: Lot ID Number. See Appendix A.

Full Survey: Friday, June 28 and July 12, 2002 - Every 2 Hours 7:00 AM to 11:00 PM
Saturday, June 29 and July 13, 2002 - Every Two Hours 10:00 AM to 8:00 PM

Select Survey: Friday, June 28, 2002 - 9:30 AM to 11:30 AM and 1:30 PM to 3:30 PM
Saturday, June 29, 2002 - 1:30 PM to 3:30 PM

Wilbur Smith Associates

Parking Accumulation Survey Results

The observations listed below refer to the parking accumulation tables presented on pages 30 - 38. **Tables 20 - 24** present the parking accumulation results for all of the full survey facilities. Data are presented for each time period on Friday and Saturday for the entire study area (Table 20) and for each zone (Tables 21-24). **Tables 25 - 29** present the parking accumulation survey results for the select survey locations for the two time periods surveyed on Friday and the one time period surveyed on Saturday. Data are presented for the entire study area and for each zone. **Table 30** combines the data from the full survey during the 1:00P.M. – 3:00 P.M. time period with the data from the select survey during the 1:30 P.M.-3:30 P.M time period**.** The percent occupancy for garages, surface lots, and on-street parking during the Friday peak period of 1:00 P.M. to 3:00 P.M. is shown in **Figures 9, 10, and 11** respectively. These figures provide specific occupancy ratios for each facility in the study area.

The following observations can be made from reviewing **Tables 25-29** and **Figures 9-11**:

- The peak parking usage for the entire study area occurred on Friday between 1:00 P.M. and 3:00 P.M. During this time period, 72% of the parking spaces in the study area were occupied. This peak period was, for the most part, consistent in all four zones. The actual peak period for Zone 3, which falls between 11:00 A.M. and 1:00 PM, only exceeds the 1:00 – 3:00 P.M. time period by twenty parked vehicles.

- Parking usage was significantly less on Saturday. On Saturday, parking usage peaked between 12:00 noon and 2:00 PM for the entire study area. During this time period, 40% percent of the study area parking spaces were occupied.

- Sixty percent of the parking spaces in the study area are located within public\public and private\public parking facilities. These parking facilities are available to the general public for a fee (leases and meters) and for free (unrestricted on-street parking). The peak period occupancy for these spaces is 80%, compared to 60% for the private/private spaces.

Total Study Area	Supply	Friday Peak Demand	Percent Occupancy
Public/Public and Private\Public	3,963	3,139	80%
Private/Private	2,605	1,572	60%

- During the Friday 1:00 P.M. – 3:00 PM peak period, Zone 2 had the highest percent occupancy of the four zones studied (77%). Many of the significant public\public and private\public parking facilities in Zone 2 were at or near capacity including the Main Street\South Winooski lot, YMCA lot, Library lot, Market Place garage, and Corporate Plaza garage. In addition, twenty-five of the thirty-seven block faces in Zone 2 where on-street parking is provided were over 85% full.

- The occupancy rate in Zone 1 was also higher than the entire study area during the Friday 1:00 PM – 3:00 PM peak period. Zone 1 has the least amount of on-street

parking of the four zones and the largest amount of garage spaces provided in public\public and private\public garages. The three garages in Zone 1, College Street, Lake View, and Town Center, were all between 76% and 78% occupied during the Friday peak period. Many of the spaces are leased in these garages and parking is free for up to two hours for transient parking. These two factors will keep occupancy high at these garages and in Zone 1 overall.

- Zones 3 and 4 had the smallest percent occupancy during the Friday parking peak period at 65% and 64% respectively. Both of these zones have more residential land uses, with parking demand peaking at different times of the day, and a large number of private\private off-street surface lots. Some of these lots are large and underutilized including the Banknorth and Hood Plant lots (see number lot #45 and #63 in Appendix A) which were both approximately 60% full during the Friday peak period.

- The one noteworthy deviation from the Friday 1:00 P.M. to 3:00 P.M. peak period is for on-street parking. The peak period for on-street parking occurs between the hours of 7:00 P.M. to 11:00 PM on Friday. This peak period is consistent across Zones 2, 3, and 4 for on-street parking. Occupancy rates for on-street parking during these hours ranged from 85 to 95%. During these same hours the public\public and private\public garages are about 60% full.

Observations and Preliminary Recommendations Regarding Lost Parking

Browns Court Lot. This lot contains 42 long-term metered spaces and two handicap spaces. Parking peaked at this lot between 11:00 A.M. and 1:00 P.M. on Friday when occupancy was 98%. The occupancy remained above 85% for most of Friday. Parking at this lot is significantly less on Saturday. According to the Community and Economic Development Office (CEDO), long term concepts for this site include housing with a parking garage located below, accessible from Saint Paul Street. A public parking garage and housing may be incompatible. However, since this lot provides only long-term parking which would be primarily used by employees, the mix is not as objectionable. Other parking opportunities exist within two blocks of the Browns Court lot, assuming arrangements are possible with owners of two private/private lots. The Hood plant on King Street and the Banknorth lot on Saint Paul Street were approximately 60% full during the Friday peak period. Approximately 40 spaces were available at the Hood lot and 50 spaces at the Banknorth lot.

Main Street/South Winooski and Library Lots. Together, these lots provide a total of 101 spaces. Approximately ½ are short-term metered spaces and ½ are long-term metered or monthly leased spaces. The occupancy remained above 70% for most of Friday and Saturday at the Main Street/South Winooski lot. Occupancy exceeded 90% during several of the time periods. At the Library lot, occupancy remained above 70% for most of Friday with usage exceeding capacity between 1:00 P.M. and 3:00 PM on Friday. Usage at the Library lot dropped significantly on Saturday. According to CEDO, the multi-use Super Block redevelopment project at this block include a 400-500 space

parking garage. Given that Zone 2 has the highest demand and percent occupancy in the study area, and that these two public/public lots, which may be lost due to redevelopment, are highly utilized, a parking structure located in this block is reasonable and necessary to preserve the public parking supply. The potential new garage could also provide relief to the Market Place garage which was at capacity on Friday between 1:00 P.M. and 5:00 P.M..

Elmwood Avenue Lot. The Elmwood Avenue lot provides 75 leased and 3 handicap spaces. Based on the parking accumulation survey conducted, this lot had the lowest occupancy rate of all of the DPW surface lots. The maximum occupancy rate was 51% between 9:00 A.M. and 11:00 A.M. on Friday. According to DPW, all of the spaces in this lot are currently leased. Therefore, replacement options should provide for approximately 80 long-term spaces. This lot may be lost to housing redevelopment which would not provide public parking. DPW assumes that most of the individuals leasing spaces at the Elmwood Avenue lot work in the Federal Building at the corner of Pearl and Elmwood Avenue. The John J. Zampieri State Office Building is directly across the street from the Federal Building and contains a 388 space parking garage. Based on the select survey, 64% of these spaces were occupied, suggesting a reserve capacity of approximately 140 spaces. This garage serves employees and visitors to the state office building and also contains spaces leased to Community College which suggests leasing arrangements are a possibility. The Town Center garage is also nearby, but is a less attractive option for displaced Elmwood Avenue parkers. It contains 567 spaces and had a Friday peak period occupancy of 77% suggesting a reserve capacity of 130 spaces. However, the monthly lease fee of $90 is twice the lease rate of the Elmwood Avenue lot, and Holiday season parking may limit the number of spaces available during certain times of the year.

Cherry/Battery Street Lot. This lot contains approximately 60 long-term spaces leased monthly. During the study area's Friday peak period, it was approximately 60% full. According to CEDO, the current hotel and residential redevelopment plans for this site include a 288 space parking garage. Fifty to one-hundred of these spaces would be available for public parking with the balance leased to the hotel and residents. This potential new garage could accommodate the approximately 40 long-tem parkers displaced when the Cherry/Battery street lot is closed.

Table 20. Total Study Area Parking Accumulation Survey Results for Facilities Where the Full Survey Was Conducted

Total Study Area		On-Street Parking		DPW Surface Lots											
				Elmwood Ave Lot		So. Winooski / Main Lot Metered		So. Winooski/Main Lot Leased		Library Lot		Browns Court Lot		YMCA Lot	
		Total	Percent Occupancy	Total	Percent Occupancy	Total	Percent Occupancy	Total	Percent Occupancy	Total	Percent Occupancy	Total	Percent Occupancy	Total	Percent Occupancy
	Supply:	**1153**		**78**		**43**		**12**		**46**		**44**		**22**	
Friday Usage	7:00 am-9:00 am	467	41%	9	12%	16	37%	2	17%	15	33%	6	14%	19	86%
	9:00 am-11:00 am	730	63%	40	51%	29	67%	7	58%	33	72%	40	91%	20	91%
	11:00 am-1:00 pm	899	78%	36	46%	24	56%	8	67%	44	96%	43	98%	16	73%
	1:00 pm-3:00 pm	939	81%	31	40%	39	91%	10	83%	47	102%	37	84%	21	95%
	3:00 pm-5:00 pm	853	74%	25	32%	33	77%	8	67%	31	67%	34	77%	16	73%
	5:00 pm-7:00 pm	877	76%	6	8%	37	86%	5	42%	29	63%	29	66%	16	73%
	7:00 pm -9:00 pm	1027	89%	2	3%	40	93%	3	25%	40	87%	37	84%	18	82%
	9:00 pm -11:00 pm	1018	88%	3	4%	40	93%	5	42%	39	85%	39	89%	19	86%
	Supply	**1153**		**78**		**43**		**12**		**46**		**44**		**22**	
Saturday Usage	10:00 am- 12:00 noon	777	67%	3	4%	27	63%	2	17%	48	104%	6	14%	20	91%
	12:00 noon - 2:00 pm	822	71%	**3**	**4%**	**41**	**95%**	1	8%	28	61%	**10**	**23%**	**13**	**59%**
	2:00 pm - 4:00 pm	805	70%	2	3%	36	84%	**3**	**25%**	**20**	**43%**	9	20%	11	50%
	4:00 pm - 6:00 pm	735	64%	2	3%	35	81%	**3**	**25%**	**20**	**43%**	**10**	**23%**	8	36%
	6:00 pm -8:00 pm	**908**	**79%**	0	0%	40	93%	1	8%	20	43%	19	43%	2	9%

Total Study Area		Public/Public Garages - DPW				Private/Public Garges - Champlain Parking				Park Plaza		Private Lots		All Facilities	
		Monthly Lease	Transient	Total	Percent Occupancy	Monthly Lease	Transient	Total	Percent Occupancy	Total	Percent Occupancy	Total	Percent Occupancy	Total	Percent Occupancy
	Supply:	**695**	**567**	**1262**		**632**	**505**	**1137**		**106**		**1592**		**5495**	
Friday Usage	7:00 am-9:00 am	Not Available		338	27%	56	55	111	10%	34	32%	369	23%	1386	25%
	9:00 am-11:00 am	Not Available		839	66%	395	108	503	44%	75	71%	881	55%	3197	58%
	11:00 am-1:00 pm	Not Available		972	77%	487	284	771	68%	71	67%	973	61%	3857	70%
	1:00 pm-3:00 pm	Not Available		1039	82%	486	380	866	76%	75	71%	963	60%	4067	74%
	3:00 pm-5:00 pm	Not Available		1043	83%	529	379	908	80%	61	58%	821	52%	3833	70%
	5:00 pm-7:00 pm	Not Available		740	59%	383	363	746	66%	68	64%	587	37%	3140	57%
	7:00 pm -9:00 pm	Not Available		624	49%	182	280	462	41%	104	98%	475	30%	2832	52%
	9:00 pm -11:00 pm	Not Available		545	43%	51	177	228	20%	106	100%	436	27%	2478	45%
	Supply	**552**	**710**	**1262**		**278**	**859**	**1137**		**106**		**1592**		**5495**	
Saturday Usage	10:00 am- 12:00 noon	Not Available		580	46%	124	257	381	34%	74	70%	409	26%	2327	42%
	12:00 noon - 2:00 pm	Not Available		670	53%	113	310	423	37%	80	75%	442	28%	2533	46%
	2:00 pm - 4:00 pm	Not Available		678	54%	98	375	473	42%	85	80%	387	24%	2509	46%
	4:00 pm - 6:00 pm	Not Available		614	49%	79	258	337	30%	66	62%	426	27%	2256	41%
	6:00 pm -8:00 pm	Not Available		567	45%	59	221	280	25%	67	63%	310	19%	2214	40%

Table 21. Zone 1 Parking Accumulation Survey Results for Facilities Where the Full Survey Was Conducted

Zone 1		On Street Parking		DPW Surface Lots		Public/Public Garages - DPW				Private/Public Garges - Champlain Parking				Private Lots		All Zone 1 Facilities	
				Elmwood Ave Lot		Monthly Lease	Transient	Total	Percent Occupied	Monthly Lease	Transient	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied
		Total	Percent Occupied	Total	Percent Occupied												
	Supply:	**152**		**78**		**633**	**228**	**861**		**250**	**317**	**567**		**272**		**1930**	
Friday Usage	7:00 am-9:00 am	47	31%	9	12%	Not Available		235	27%	18	19	37	7%	131	8%	459	24%
	9:00 am-11:00 am	94	62%	40	51%	Not Available		540	63%	165	2	167	29%	164	10%	1005	52%
	11:00 am-1:00 pm	122	80%	36	46%	Not Available		635	74%	209	158	367	65%	183	11%	1343	70%
	1:00 pm-3:00 pm	135	89%	31	40%	Not Available		638	74%	190	247	437	77%	177	11%	1418	73%
	3:00 pm-5:00 pm	112	74%	25	32%	Not Available		642	75%	206	251	457	81%	132	8%	1368	71%
	5:00 pm-7:00 pm	105	69%	6	8%	Not Available		409	48%	138	264	402	71%	86	5%	1008	52%
	7:00 pm -9:00 pm	128	84%	2	3%	Not Available		238	28%	77	190	267	47%	86	5%	721	37%
	9:00 pm -11:00 pm	121	80%	3	4%	Not Available		201	23%	21	36	57	10%	66	4%	448	23%

	Supply:	**152**		**78**		**490**	**371**	**861**		**100**	**467**	**567**		**272**		**1930**	
Saturday Usage	10:00 am- 12:00 noon	83	55%	3	4%	Not Available		239	28%	78	188	266	47%	72	5%	663	34%
	12:00 noon - 2:00 pm	103	68%	3	4%	Not Available		284	33%	65	206	271	48%	73	5%	734	38%
	2:00 pm - 4:00 pm	99	65%	2	3%	Not Available		288	33%	53	235	288	51%	62	4%	739	38%
	4:00 pm - 6:00 pm	91	60%	2	3%	Not Available		245	28%	44	181	225	40%	112	7%	675	35%
	6:00 pm -8:00 pm	109	72%	0	0%	Not Available		207	24%	29	130	159	28%	56	4%	531	28%

Table 22. Zone 2 Parking Accumulation Survey Results Facilities Where the Full Survey Was Conducted

Zone 2		On Street Parking		DPW Surface Lots								Public/Public Garages - DPW			
				So. Winooski / Main Lot Metered		So. Winooski/Main Lot Leased		Library Lot		YMCA Lot		Monthly Lease	Transient	Total	Percent Occupied
		Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied				
	Supply:	**425**		**43**		**12**		**46**		**22**		**62**	**339**	**401**	
Friday Usage	7:00 am-9:00 am	181	43%	16	37%	2	17%	15	33%	19	86%	Not Available		103	26%
	9:00 am-11:00 am	285	67%	29	67%	7	58%	33	72%	20	91%	Not Available		299	75%
	11:00 am-1:00 pm	354	83%	24	56%	8	67%	44	96%	16	73%	Not Available		337	84%
	1:00 pm-3:00 pm	370	87%	39	91%	10	83%	47	102%	21	95%	Not Available		401	100%
	3:00 pm-5:00 pm	345	81%	33	77%	8	67%	31	67%	16	73%	Not Available		401	100%
	5:00 pm-7:00 pm	352	83%	37	86%	5	42%	29	63%	16	73%	Not Available		331	83%
	7:00 pm -9:00 pm	410	96%	40	93%	3	25%	40	87%	18	82%	Not Available		386	96%
	9:00 pm -11:00 pm	413	97%	40	93%	5	42%	39	85%	19	86%	Not Available		344	86%
	Supply:	**425**		**43**		**12**		**46**		**22**		**62**	**339**	**401**	
Saturday Usage	10:00 am- 12:00 noon	348	82%	27	63%	2	17%	48	104%	20	91%	0	341	341	85%
	12:00 noon - 2:00 pm	339	80%	41	95%	1	8%	28	61%	13	59%	0	386	386	96%
	2:00 pm - 4:00 pm	331	78%	36	84%	3	25%	20	43%	11	50%	0	390	390	97%
	4:00 pm - 6:00 pm	318	75%	35	81%	3	25%	20	43%	8	36%	0	369	369	92%
	6:00 pm -8:00 pm	366	86%	40	93%	1	8%	20	43%	2	9%	0	360	360	90%

Zone 2		Private/Public Garges - Champlain Parking				Park Place		Private Lots		All Zone 2 Facilities	
		Monthly Lease	Transient	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied
	Supply:	**254**	**100**	**354**		**106**		**443**		**1852**	
Friday Usage	7:00 am-9:00 am	31	19	50	14%	34	32%	85	19%	505	27%
	9:00 am-11:00 am	192	63	255	72%	75	71%	230	52%	1233	67%
	11:00 am-1:00 pm	202	78	280	79%	71	67%	252	57%	1386	75%
	1:00 pm-3:00 pm	220	81	301	85%	75	71%	258	58%	1522	82%
	3:00 pm-5:00 pm	234	73	307	87%	61	58%	203	46%	1405	76%
	5:00 pm-7:00 pm	198	59	257	73%	68	64%	181	41%	1276	69%
	7:00 pm -9:00 pm	96	57	153	43%	104	98%	182	41%	1336	72%
	9:00 pm -11:00 pm	24	98	122	34%	106	100%	153	35%	1241	67%
	Supply:	**50**	**304**	**354**		**106**		**443**		**1852**	
Saturday Usage	10:00 am- 12:00 noon	15	56	71	20%	74	70%	164	37%	1095	59%
	12:00 noon - 2:00 pm	16	65	81	23%	80	75%	183	41%	1152	62%
	2:00 pm - 4:00 pm	14	94	108	31%	85	80%	152	34%	1136	61%
	4:00 pm - 6:00 pm	8	49	57	16%	66	62%	160	36%	1036	56%
	6:00 pm -8:00 pm	6	54	60	17%	67	63%	116	26%	1032	56%

Table 23. Zone 3 Parking Accumulation Survey Results for Facilities Where the Full Survey Was Conducted

Zone 3		On Street Parking		Private Lots		All Zone 3 Facilities	
		Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied
	Supply:	**338**		**566**		**904**	
Friday Usage	7:00 am-9:00 am	134	40%	68	12%	202	22%
	9:00 am-11:00 am	196	58%	342	60%	538	60%
	11:00 am-1:00 pm	249	74%	377	67%	626	69%
	1:00 pm-3:00 pm	251	74%	355	63%	606	67%
	3:00 pm-5:00 pm	222	66%	321	57%	543	60%
	5:00 pm-7:00 pm	249	74%	200	35%	449	50%
	7:00 pm -9:00 pm	298	88%	113	20%	411	45%
	9:00 pm -11:00 pm	288	85%	109	19%	397	44%
	Supply:	**338**		**566**		**904**	
Saturday Usage	10:00 am- 12:00 noon	193	57%	93	16%	286	32%
	12:00 noon - 2:00 pm	216	64%	91	16%	307	34%
	2:00 pm - 4:00 pm	221	65%	72	13%	293	32%
	4:00 pm - 6:00 pm	168	50%	58	10%	226	25%
	6:00 pm -8:00 pm	258	76%	44	8%	302	33%

Table 24. Zone 4 Parking Accumulation Survey Results for Facilities Where the Full Survey Was Conducted

Zone 4		On Street Parking		DPW Surface Lots		Private/Public Garges - Champlain Parking				Priv. Lots		All Zone 4 Facilities	
				Browns Court Lot		Monthly Lease	Transient	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied
		Total	Percent Occupied	Total	Percent Occupied								
	Supply:	**238**		**44**		**128**	**88**	**216**		**311**		**809**	
Friday Usage	7:00 am-9:00 am	105	44%	6	14%	7	17	24	11%	85	27%	220	27%
	9:00 am-11:00 am	155	65%	40	91%	38	43	81	38%	145	47%	421	52%
	11:00 am-1:00 pm	174	73%	43	98%	76	48	124	57%	161	52%	502	62%
	1:00 pm-3:00 pm	183	77%	37	84%	76	52	128	59%	173	56%	521	64%
	3:00 pm-5:00 pm	174	73%	34	77%	89	55	144	67%	165	53%	517	64%
	5:00 pm-7:00 pm	171	72%	29	66%	47	40	87	40%	120	39%	407	50%
	7:00 pm -9:00 pm	191	80%	37	84%	9	33	42	19%	94	30%	364	45%
	9:00 pm -11:00 pm	196	82%	39	89%	6	43	49	23%	108	35%	392	48%

	Supply:	**238**		**44**		**128**	**88**	**216**		**311**		**809**	
Saturday Usage	10:00 am- 12:00 noon	153	64%	6	14%	31	13	44	20%	80	26%	283	35%
	12:00 noon - 2:00 pm	164	69%	10	23%	32	39	71	33%	95	31%	340	42%
	2:00 pm - 4:00 pm	154	65%	9	20%	31	46	77	36%	101	32%	341	42%
	4:00 pm - 6:00 pm	158	66%	10	23%	27	28	55	25%	96	31%	319	39%
	6:00 pm -8:00 pm	175	74%	19	43%	24	37	61	28%	94	30%	349	43%

Table 25. Total Study Area Survey Results For Facilities Where the Select Survey Was Conducted

Total Study Area		Private - Private Lot		Private - Public Lot		Private - Private Garages		Total	
		Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied
	Supply	**264**		**60**		**749**		**1073**	
Friday Usage	9:30 am-11:00 am	120	45%	38	63%	599	80%	757	71%
	1:30 pm - 3:30 pm	134	51%	35	58%	475	63%	644	60%
Saturday Usage	1:30 pm - 3:30 pm	70	27%	7	12%	19	3%	96	9%

Table 26. Zone 1 Survey Results For Facilities Where the Select Survey Was Conducted

Zone 1		Private - Private Lot		Private - Public Lot		Private - Private Garages		Total	
		Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied
	Supply	**0**		**60**		**0**		**60**	
Friday Usage	9:30 am-11:00 am	0	--	38	63%	0	--	38	63%
	1:30 pm - 3:30 pm	0	--	35	58%	0	--	35	58%
Saturday Usage	1:30 pm - 3:30 pm	0	--	7	12%	0	--	7	12%

Table 27. Zone 2 Survey Results For Facilities Where the Select Survey Was Conducted

Zone 2		Private - Private Lot		Private - Public Lot		Private - Private Garages		Total	
		Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied
	Supply	**128**		**0**		**442**		**570**	
Friday Usage	9:30 am-11:00 am	58	45%	0	--	368	83%	426	75%
	1:30 pm - 3:30 pm	62	48%	0	--	284	64%	346	61%
Saturday Usage	1:30 pm - 3:30 pm	35	27%	0	--	2	0%	37	6%

Table 28. Zone 3 Survey Results For Facilities Where the Select Survey Was Conducted

Zone 3		Private - Private Lot		Private - Public Lot		Private - Private Garages		Total	
		Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied
	Supply	**108**		**0**		**307**		**415**	
Friday Usage	9:30 am-11:00 am	51	47%	0	--	231	75%	282	68%
	1:30 pm - 3:30 pm	59	55%	0	--	191	62%	250	60%
Saturday Usage	1:30 pm - 3:30 pm	24	22%	0	--	17	6%	41	10%

Table 29. Zone 4 Survey Results For Facilities Where the Select Survey Was Conducted

Zone 4		Private - Private Lot		Private - Public Lot		Private - Private Garages		Total	
		Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied
	Supply	**28**		**0**		**0**		**28**	
Friday Usage	9:30 am-11:00 am	11	39%	0	--	0	--	11	39%
	1:30 pm - 3:30 pm	13	46%	0	--	0	--	13	46%
Saturday Usage	1:30 pm - 3:30 pm	11	39%	0	--	0	--	11	39%

Table 30. Peak Period Parking Usage on Friday, June 28, 2002 from 1:00 PM – 3:00 PM for all Full Survey and Select Survey Parking Facilities

		On Street Parking		Public / Public Lots (DPW Surface Lots)											
				Elmwood Ave Lot		So. Winooski / Main		So. Winooski/Main Lot		Library Lot		Browns Court Lot		YMCA Lot	
		Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied
Total Study Area	Supply	1153		78		43		12		46		44		22	
	Usage	939	81%	31	40%	39	91%	10	83%	47	102%	37	84%	21	95%
Zone 1	Supply	152		78											
	Usage	135	89%	31	40%										
Zone 2	Supply	425				43		12		46				22	
	Usage	370	87%			39	91%	10	83%	47	102%			21	95%
Zone 3	Supply	338													
	Usage	251	74%												
Zone 4	Supply	238										44			
	Usage	183	77%									37	84%		

		Public/Public Garages		Private/Public Garages		Park Place		Private/Private Garages		Private/Public Lot - Cherry St		Priate/Private Lots		All Facilities	
		Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied	Total	Percent Occupied
Total Study Area	Supply	1262		1137		106		749		60		1856		6568	
	Usage	1039	82%	866	76%	75	71%	475	63%	35	58%	1097	60%	4711	72%
Zone 1	Supply	861		567				0		60		272		1990	
	Usage	638	74%	437	77%			0		35	58%	177	37%	1453	73%
Zone 2	Supply	401		354		106		442		0		571		2422	
	Usage	401	100%	301	85%	75	71%	284	64%	0		320	56%	1868	77%
Zone 3	Supply							307		0		674		1319	
	Usage							191	62%	0		414	61%	856	65%
Zone 4	Supply			216				0		0		339		837	
	Usage			128	59%			0		0		186	55%	534	64%

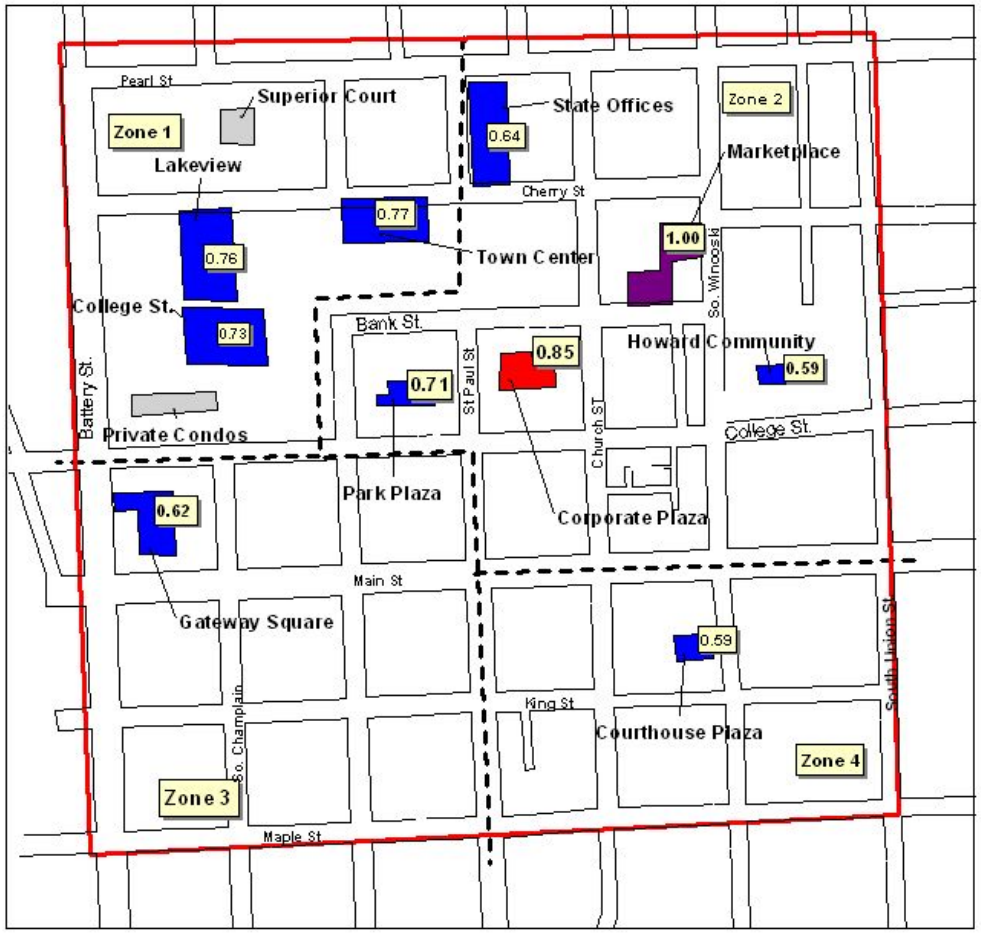


FIGURE 9

Parking Garages Percent Occupancy

1:00 - 3:00 PM
Friday, June 28, 2002

Dowtown Burlington
Parking Study

Percent Ocupancy
- No Survey
- 1 - 50%
- 50 - 84%
- 85 - 99%
- 100%
- Study Area
- Zone Boundaries
- #.## Occupancy Ratio

Wilbur Smith Associates

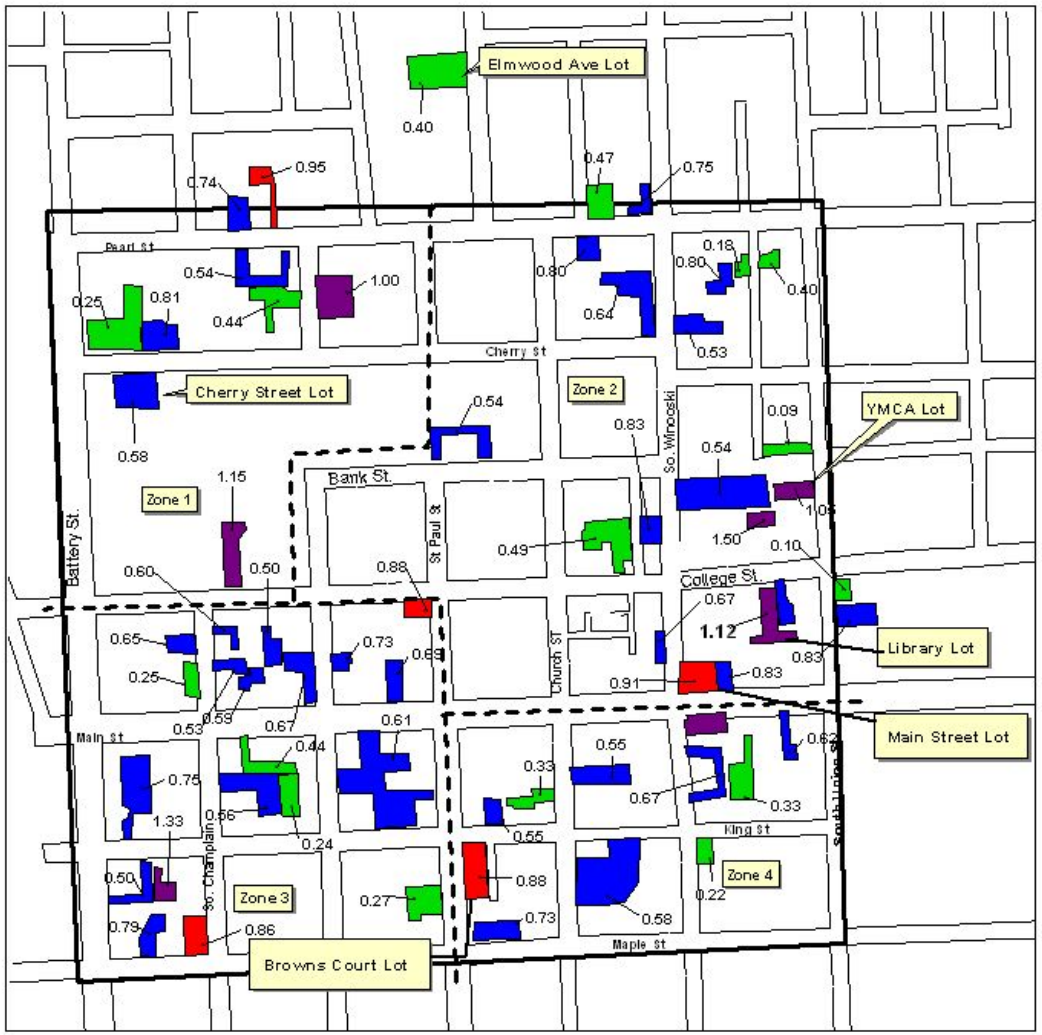


FIGURE 10

Surface Lot Percent Occupancy

1:00 - 3:00 PM
Friday, June 28, 2002

Dowtown Burlington Parking Study

Percent Ocupancy
- < 50%
- 50-84%
- 85-99%
- Equalto or Greater Than 100%
- Study AreaStudy Area
- Zone Boundaries

#.## Occupancy Ratio

Wilbur Smith Associates

FIGURE 11

On-Street Parking Percent Occupancy

1:00 - 3:00 PM
Friday, June 28, 2002

Dowtown Burlington Parking Study

Occupancy 1-3 PM
- 0 %
- < 50 %
- 50-84 %
- 85-99 %
- > 100 %
- No Parking
- Study Area
- Zone Boundaries

#.## Occupancy Ratio

Wilbur Smith Associates

Existing and Future Parking Demand

This section of the Downtown Burlington Parking Study presents the analysis of existing and future weekday peak parking demand, compares the estimated parking demand to the existing and anticipated parking supply, and identifies parking space excess or deficiency for the entire study area and by zone.

The analysis is presented in **Tables 31-50** as follows:

Table 31: Methodology notes;

Tables 32-35: Development of weekday peak parking rates for non-residential land use;

Tables 36-42: Estimate of spaces required by Burlington Zoning, estimate of spaces required for the existing weekday peak parking demand, a summary of the non-residential parking space supply, and the resulting parking space excess or deficiency for existing land use at 94% and 100% occupancy;

Tables 43-49: Estimate of 2020 weekday peak parking demand, a summary of existing plus anticipated changes to the non-residential parking space supply, and the resulting parking space excess or deficiency; and

Table 50: Summary of existing and 2020 non-residential parking space supply excess or deficiency.

The number of spaces required by Burlington Zoning and the estimated weekday peak parking demand for each study zone are estimated under existing and future conditions using weighted averages. The weighted averages are based on the existing mix of retail, office, manufacturing, and public/institutional land uses within the parking study area as provided in the "City of Burlington Downtown Improvement District Buildout Analysis, Final Report" (DID Buildout Study)[3]. Use of weighted averages is necessary because the DID Buildout study does not provide information on land use type for each parking study zone or for future conditions. As a result, this parking study assumes that the same mix of retail, office, manufacturing, and public/institutional land uses is constant among the four study zones and will remain constant for future conditions.

Burlington's zoning ordinance includes a section that allows a reduction in the number of parking spaces under certain circumstances. Parking waivers may be granted by the development review board if the applicant can demonstrate that the proposed development has parking demand during unique times, shares parking with other uses, is accessible by alternative transportation modes, or anticipates a reduction in vehicle ownership that may be associated with affordable housing. The analysis in this study assumes that no waivers are granted.

[3] David Spitz, Land Planner, May 2002

The existing non-residential land use is assumed to be 94% occupied based on an annual survey of vacancy rates for Downtown Burlington published in the 2002 Allen and Brook Report. Estimates of the existing peak parking demand are presented assuming 94% occupancy and 100% occupancy. This approach allows the quantification of additional demand should the existing non-residential square footage reach its full capacity.

Table 32 presents the total number of parking spaces required for existing non-residential land use at 100% occupancy in the study area based on parking requirements included in the City of Burlington's zoning regulations (assuming no wavers are granted). **Table 32** also presents the weighted average parking space requirements according to Burlington zoning regulations for non-residential land use in the study area.

Tables 33-35 show how the weighted average weekday peak parking demand rate for non-residential land use is developed for this study. **Table 33** presents the Wilbur Smith Associate (WSA) estimate of weekday peak parking demand rates for retail and office land uses based on the parking accumulation survey conducted on Friday, June 28, 2002. The sites were chosen because they have parking facilities that serve specific land uses. **Table 34** demonstrates that the WSA estimated rates are reasonable when compared to rates available in national publications. **Table 35** shows the total number of parking spaces required for the study area using WSA estimated weekday peak parking rates for existing non-residential land use. **Table 35** also presents the WSA recommended weighted average weekday peak parking rate for non-residential land use.

Table 36 compares the total number of spaces required in the study area based on Burlington zoning regulations (assuming no waivers are granted) and the number of spaces required based on WSA's estimated peak parking demand rates. **Table 36** indicates that the Burlington zoning regulations require more spaces than are necessary to accommodate weekday peak parking demand.

Tables 37-39 show how the existing non-residential parking space supply was estimated, usage of non-residential spaces based on the June 28, 2002 survey, and percent occupancy of non-residential spaces by study area and zone.

Tables 40-42 compare the number of non-residential spaces required to the number of non-residential spaces available for the study area and each zone. **Table 40** compares the number of spaces required according to Burlington zoning regulations (no waivers) to available spaces, assuming 100% occupancy of the study area's non-residential land use. **Table 40** shows that an additional 4,938 spaces would be necessary to satisfy the existing Burlington zoning regulations if the parking requirements were applied to all of the existing non-residential land use in the study area. **Table 41** compares the number of spaces required to available spaces based on WSA's estimate of weekday peak parking demand assuming 100% occupancy of the study area's non-residential land use. **Table 42** compares the number of spaces required to available spaces based on WSA's estimate of weekday peak parking demand and existing non-residential land use at 94% and 100% occupancy. **Tables 41 and 42** indicate that existing parking space deficiencies are currently limited to Zone 2.

Tables 43-46 show how the 2020 non-residential land use was developed for each of the four study zones using information provided in the DID Build Out Study. As shown in **Table 43**, if full build-out is achieved, non-residential land use would increase by 55% in the study area resulting in an additional 1,524,860 square feet. This increase can be described as the total build-out capacity of the study area. **Table 44** shows the proportion of total study area build-out capacity within each of the parking study zones. For example, 41.4% of the study area's build-out capacity is located in Zone 1. It is unlikely that the study area will reach full build-out capacity within the 20 year planning horizon. **Table 45** shows that the projected increase in the study area's non-residential land use is 1,166,940 square feet assuming it grows at the same a rate as employment in Chittenden County between 2000 and 2020. The total anticipated increase of 1,166,940 square feet in non-residential land use is distributed to the parking study zones in **Table 46** in proportion to each zone's remaining build-out capacity. **Table 46** also includes the addition of 137,000 square feet in Zone 2 to account for the Super Block project which was not included in the DID Build-Out Study.

Table 47 presents the number of non-residential parking spaces required for 2020 non-residential land use based on the WSA estimated weekday peak parking rate. **Table 47** assumes the land use is 100% occupied. At the City's direction, an additional demand of 100 spaces is added to Zone 1 to account for projected spillover from the Waterfront. Parking space excess or deficiency is provided for each zone based on the existing number of non-residential parking spaces.

Table 48 lists anticipated changes to the non-residential parking supply in the study area as provided by the City. **Table 49**, accounts for the anticipated change in the parking supply, and presents the projected excess or deficiency of the non-residential parking supply in 2020. **Table 50** summarizes and compares non-residential parking space excess or deficiency for existing land use at 94% and 100% occupancy and 2020 land use at 100% occupancy.

Table 31. Methodology Notes and Assumptions

1. All existing land use information is taken from the "City of Burlington Downtown Improvement District Buildout Analysis, Final Report" (David Spitz, Land Planner, May 2002). The parking study includes all of the non-residential land use within the Central Business District (CBD), Central Business District Transitional (CBDT) and a portion of the Residential High Density (RH) zoning districts as presented in the Downtown Improvement District Buildout Study. As indicated in Figure 1, there is land use within the parking study area which was not provided in the "Downtown Improvement District Buildout Analysis". By observation, the land use not provided is primarily residential.

2. This study assumes the same proportions of retail, office, manufacturing, and public/institutional land uses for each study area zone.

3. The number of spaces estimated to satisfy Burlington zoning regulations assumes that no waivers are granted.

4. WSA's estimates of peak parking rates presented in Table 33 are based on the following:

    a. An estimate of weekday peak hour demand rates for retail and office land uses based on the parking accumulation data collected on June 28, 2002 by WSA assuming 100% occupancy;
    b. A seasonal adjustment factor based on revenue data collected by the City of Burlington between July 2001 and June 2002 at the Lakeview, College Street, and Marketplace parking garages which are all located in the study area and managed by the City;
    c. A 10% parking efficiency factor. The parking efficiency factor accounts for the reality that downtown spaces are usually never 100% filled. The reasons include – spaces may be too remote from people's final destination, the availability of spaces is not readily apparent or obstructed by poorly parked vehicles or, delays associated with entering or leaving parking facilities. As a result, the maximum effective CBD parking supply is about 85 to 90 percent of the total (Source "Parking", Robert A. Weant and Herbert S. Levinson); and
    d. A reduction of 15% applied to the retail rate to account for the shared parking effect of employees who both work and shop in downtown.

5. The number of non-residential parking spaces is assumed to include (1) all off-street parking spaces, excluding surface lots which serve only residential land uses and (2) on-street parking, excluding blocks where residential parking permits are required and blocks with unrestricted parking that are primarily used by residents.

6. The vacancy rate for downtown Burlington is estimated at 6% (94% occupancy) based on the Allen and Brook Report, June 2002 Edition. This vacancy rate is low compared with WSA's experiences with other downtown parking studies.

7. The planning horizon for this study is 2020. The growth of non-residential land use in the study area is assumed to equal the projected growth of 42.2% in Chittenden County employment between 2000 and 2020 as presented in the "Economic and Demographic Forecast, Northwest Vermont and Chittenden County 2000 to 2035 and Beyond" (Economic and Policy Resources, Inc., September 2000) completed for the Chittenden County Regional Planning Commission and Metropolitan Planning Organization.

8. Between 2000 and 2020, the total increase in non-residential land use in the study area is projected to equal 1,166,940 square feet. This increase has been distributed to each study zone in proportion to each zone's build-out capacity as determined in the "Downtown Improvement District Buildout Analysis"

9. The final 2020 land use in the parking study includes an additional 137,000 square feet of non-residential land use to account for the potential "super block" project being discussed for the South Union/South Winooski/Main Street/College Street block. As shown in Figure 1, the "Downtown Improvement District Buildout Analysis" did not include the super block project.

10. The final parking demand estimate for 2020 includes an additional 100 spaces in Zone 1 to accommodate spillover demand from the Waterfront. This spillover demand was identified in a separate study for the Waterfront ("Burlington Waterfront Study", Resource Systems Group, August 24, 2002) which considered parking and traffic needs under a build-out scenario.

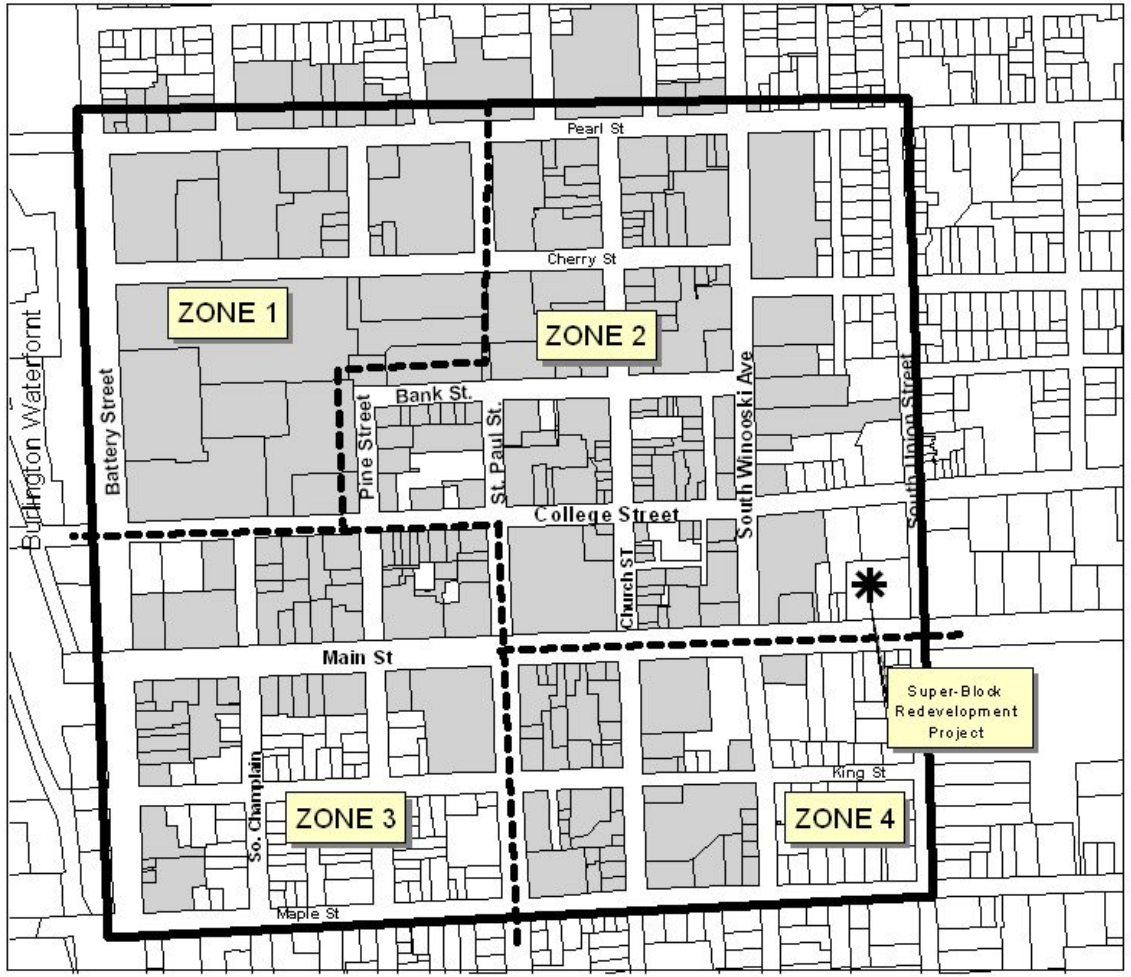


FIGURE 12

AVAILABLE LAND USE DATA WITHIN PARKING STUDY AREA

Downtown Burlington Parking Study

Land Use Data Available Within Parking Study Area from "Downtown Improvement District Build-Out Study", by David Spitz - Land Planner, May 2002

Parcel with Land Use Data Available

Parcel without Land Use Data Available

Parking Study Area

Parking Study Zone Boundary

Wilbur Smith Associates

Table 32. Weighted Average Parking Space Requirements for Existing Non-Residential Land Use at 100% Occupancy Based on Burlington Zoning (2)

Existing Non-Residential Land Use in the Central Business District (CBD), Central Business District Transitional (CBDT), and a portion of the Residential High Density (RH) Zoning Districts (Gross Square Feet)			Burlington Zoning Minimum Off-Street Parking Requirements per 1,000 GSF	Spaces Required
Type	Quantity	Percent		
Retail	869,582	31%	6.67	5,800
Office	1,358,370	49%	3.33	4,524
Manufacturing	370,447	13%	1.25	463
Public/Instit.	180,030	6%	2.15	387
Total	2,778,429	100%		11,174
Weighted Average for Non-Residential Land Use			4.0216	

(1) All land use information from "City of Burlington Downtown Improvement District Buildout Analysis, Final Report", May 2002, David Spitz, Land Planner.
(2) Assumes no waivers are granted.

Table 33. Weekday Peak Parking Demand Rates Based on Friday, June 28 2002 Parking Accumulation Survey

Land Use Type	Location	Description	Gross Floor Area (GFA) (1)	Available Spaces	Friday Peak Parking	Friday Peak Hour Usage / 1000 GFA	Seasonal Adjustment Factor (2)	Parking Efficiency Adjustment Factor (3)	Shared Parking Factor (4)	Weekday Peak Hour Demand
Retail	Lot #11	Brooks Pharmacy	9,950	45	31	3.12	1.05	1.10	0.85	3.06
Office	Parking Garage	John Zamperli State Office Building	110,933	388	252	2.27	1.05	1.10	-	2.62

(1) Assumes 100% Occupancy.
(2) Based on revenue data between July 2001 and June 2002 for parking garages managed by the City of Burlington in the study area.
(3) Accounts for inefficiencies associated with searching for, entering, and exiting a parking space.
(4) A reduction applied to the retail parking rate to account for the shared parking effect of employees that work and shop in downtown.

Table 34. Comparison of Burlington Zoning Parking Requirements, National Parking Publications' Weekday Parking Rates, and WSA Estimated Weekday Peak Parking Rates

Land Use Type	Burlington Zoning Minimum Off- Street Parking Requirements (1)	Institute of Transportation Engineer's "Parking Generation" Peak Hour Parking Demand	ENO Foundation (2) "Parking" Peak Parking Demand Indices	Urban Land Institute "Shared Parking" Peak Parking Ratios	WSA Estimated Peak Parking Rate Based On June 2002 Parking Accumulation Survey
	Spaces per 1,000 GSF	Spaces Per 1,000 GSF	Spaces Per 1,000 GLA	Spaces Per 1,000 GLA	Spaces Per 1,000 GSF
Retail	6.7	Not Available	2.4	3.1	3.06
Office	3.3	2.9	2.6	2.5	2.62

(1) Assumes no waivers are granted.

(2) The ENO Transportation Foundation is a nonprofit organization, founded by William Phelps ENO in 1921, dedicated to improving all modes of transportation.

Table 35. Weighted Average Parking Space Requirements for Existing Non-Residential Land Use at 100% Occupancy Based on WSA Estimated Peak Parking Demand Rates

Existing Non-Residential Land Use in the Central Business District (CBD), Central Business District Transitional (CBDT), and a portion of the Residential High Density (RH) Zoning Districts (Gross Square Feet)			Peak Parking Rates (Spaces per 1,000 Occupied SF)	Spaces Required
Type	Quantity	Percent		
Retail - General	869,582	31%	3.06 (1)	2,661
Office - General	1,358,370	49%	2.62 (1)	3,559
Manufacturing	370,447	13%	1.25 (2)	463
Public/Instit.	180,030	6%	2.15 (2)	387
Total	2,778,429	100%		7,070
Weighted Average Peak Parking Rate for Non-Residential Land Use			2.545	

(1) Per WSA Estimate in Table 34

(2) Per Burlington Zoning Requirements - See Table 32

Table 36. Comparison Between Spaces Required for Existing Non-Residential Land Use at 100% Occupancy Based on Burlington Zoning and WSA Estimated Peak Parking Demand Rates by Land Use Type

Land Use Type	Spaces Required Based on Burlington Zoning Regulations (1)	Spaces Required Based on WSA Developed Peak Parking Demand Rates
Retail - General	5,800	2,661
Office - General	4,524	3,559
Manufacturing	463	463
Public/Instit.	387	387
Total	11,174	7,070

(1) Assumes no parking waivers are granted

Table 37. Estimate of Existing Non-Residential Parking Space Supply

Zone	On-Street Spaces				Off-Street Spaces			Total Non-Residential Spaces
	Total On-Street Spaces	Residential On-Street Spaces Requiring Residential Parking Permit	Residential On-Street Spaces Not Requiring A Residential Parking Permit	Non-Residential On-Street Spaces	Total Off-Street Spaces	Off-Street Residential Spaces	Non-Residential Off-Street Spaces	
1	152	-	-	152	1,838	55	1,783	1,935
2	425	20	26	379	1,997	12	1,985	2,364
3	338	20	61	257	981	47	934	1,191
4	238	-	79	159	599	-	599	758
Study Area	1,153	40	166	947	5,415	114	5,301	6,248

Table 38. Estimate of Non-Residential Space Usage for Friday June 28, 2002 1-3 PM

Zone	On-Street Usage Friday June 28, 2002 1-3 PM				Off-Street Usage Fri June 28, 2002 1-3 PM			Total Non-Residential Usage
	Total On-Street Usage	Usage at Residential On-Street Spaces Requiring Residential Parking Permit	Usage at Residential On-Street Spaces Not Requiring A Residential Parking Permit	Non-Residential On-Street Usage	Total Off Street Usage	Usage in Residential Lots	Usage in Non-Residential Off-Street Lots and Garages	
1	135	0	0	135	1318	29	1289	1424
2	370	7	24	339	1498	32	1466	1805
3	251	11	50	190	605	17	588	778
4	183	0	39	144	351	0	351	495
Study Area	939	18	113	808	3772	78	3694	4502

Table 39. Weekday Non-Residential Parking Space Usage and Non-Residential Parking Supply Percent Occupancy for Friday June 28, 2002 (1-3 PM)

Zone	Non-Residential Parking Supply			Non-Residential Parking Space Usage Friday June 28, 2002 1-3 PM					
				On-Street Spaces		Off-Street Spaces		All Spaces	
	On-Street Spaces	Off-Street Spaces	All Spaces	Usage	Percent Occupied	Usage	Percent Occupied	Usage	Percent Occupied
1	152	1,783	1,935	135	89%	1,289	72%	1,424	74%
2	379	1,985	2,364	339	89%	1,466	74%	1,805	76%
3	257	934	1,191	190	74%	588	63%	778	65%
4	159	599	758	144	91%	351	59%	495	65%
Study Area	947	5,301	6,248	808	85%	3,694	59%	4,502	72%

Table 40. Weekday Non-Residential Parking Spaces Required By Burlington Zoning for Existing Land Use at 100% Occupancy

Area	Existing Non-Residential Land Use (Gross Square Feet)	Spaces Required Per Burlington Zoning (1)	Existing Non-Residential Parking Space Supply			Parking Space Excess or (Deficiency)
			On-Street Spaces	Off-Street Spaces	Total Spaces	
Zone 1	755,288	3,037	152	1,783	1,935	(1,102)
Zone 2	1,298,702	5,223	379	1,985	2,364	(2,859)
Zone 3	458,449	1,844	257	934	1,191	(653)
Zone 4	265,990	1,070	159	599	758	(312)
Study Area	2,778,429	11,174	947	5,301	6,248	(4,926)

(1) Based on a weighted average of 4.0216 spaces per 1,000 sf of non-residential land uses.

Table 41. Weekday Non-Residential Parking Spaces Required for Existing Land Use at 100% Occupancy Based on WSA Estimate of Peak Parking Demand Rates

Area	Existing Non-Residential Land Use (Gross Square Feet)	Spaces Required Per WSA Estimate (1)	Existing Non-Residential Parking Space Supply			Parking Space Excess or (Deficiency)
			On-Street Spaces	Off-Street Spaces	Total Spaces	
Zone 1	755,288	1,922	152	1,783	1,935	13
Zone 2	1,298,702	3,304	379	1,985	2,364	(940)
Zone 3	458,449	1,167	257	934	1,191	24
Zone 4	265,990	677	159	599	758	81
Study Area	2,778,429	7,070	947	5,301	6,248	(822)

(1) Based on a weighted average peak parking demand rate per 1,000 square feet for non-residential land use of 2.545

Table 42. Weekday Non-Residential Parking Spaces Required for Existing Land Use at 94% Occupancy (1) Based on WSA Estimate of Peak Parking Demand Rates

Area	Existing Non-Residential Land Use at 94% Occupancy (Gross Square Feet)	Spaces Required Per WSA Estimate (2)	Existing Non-Residential Parking Space Supply			Parking Space Excess or (Deficiency)
			On-Street Spaces	Off-Street Spaces	Total Spaces	
Zone 1	709,971	1,807	152	1,783	1,935	128
Zone 2	1,220,780	3,107	379	1,985	2,364	(743)
Zone 3	430,942	1,097	257	934	1,191	94
Zone 4	250,031	636	159	599	758	122
Study Area	2,611,723	6,647	947	5,301	6,248	(399)

(1) The existing occupancy rate in the study area is 94% based on the "Allen and Brook Report", June 2002 Edition

(2) Based on a weighted average peak parking demand rate per 1,000 square feet for non-residential land use of 2.545

Table 43. Existing and Buildout Non-Residential Land Use by Study Area and Zone

Area	Existing Non-Residential Land Use (Gross Square Feet)	Build-Out Non-Residential Land Use (Gross Square Feet)	Absolute Difference	Percent Increase
Zone 1	755,288	1,386,557	631,269	84%
Zone 2	1,298,702	1,900,562	601,860	46%
Zone 3	458,449	741,031	282,582	62%
Zone 4	265,990	275,139	9,149	3%
Study Area	2,778,429	4,303,289	1,524,860	55%

(1) All land use information from "City of Burlington Downtown Improvement District Buildout Analysis, Final Report", May 2002, David Spitz, Land Planner

Table 44. Non-Residential Land Use Build-Out Capacity for the Study Area and Each Study Zone

Area	Existing Non-Residential Land Use (Gross Square Feet)	Total Build-Out Non-Residential Land Use (Gross Square Feet)	Absolute Difference & Non-Residential Land Use Build-Out Capacity	Proportion of Total Study Area Non-Residential Land Use Build-Out Capacity
Zone 1	755,288	1,386,557	631,269	41.4%
Zone 2	1,298,702	1,900,562	601,860	39.5%
Zone 3	458,449	741,031	282,582	18.5%
Zone 4	265,990	275,139	9,149	0.6%
Study Area	2,778,429	4,303,289	1,524,860	100%

Table 45. Estimated 2020 Study Area Non-Residential Land Use Assuming a Percent Growth Equal to Projected Growth in Chittenden County Employment Compared to the Growth in Non-Residential Land Use Associated with the Downtown Improvement District Buildout Study

	Existing Non-Residential Land Use (Gross Square Feet)	Percent Increase In Non-Residential Land Use	Absolute Difference between Future and Existing Non-Residential Land Use	Future Non-Residential Land Use
Downtown Improvement District Buildout Study	2,778,429	54.9%	1,524,860	4,303,289
2000-2020 Based on Projected Growth of Employment in Chittenden County (1)	2,778,429	42.2%	1,166,940	3,945,369

(1) Non-Residential Land Use in the study area is assumed to grow at the same rate as employment in Chittenden County. Employment in Chittenden County is projected to grow by 42.2% between 2000 and 2020 according to the Chittenden County Regional Planning Commission and Metropolitan Planning Organization.

Table 46. Anticipated Study Area Non-Residential Land Use for 2020 Planning Horizon (42.2% Growth)

Area	Existing Non-Residential Land Use (Gross Square Feet)	Proportion of Total Study Area Non-Residential Land Use Build-Out Capacity	Distribution of 2000 - 2020 Increase in Non-Residential Land Use to Each Zone	South Winooski/Main Street Super Block Development (1)	Recommended Total 2020 Non-Residential Land Use (Gross Square Feet)
Zone 1	755,288	41.4%	483,113		1,238,401
Zone 2	1,298,702	39.5%	460,941	137,000	1,896,643
Zone 3	458,449	18.5%	215,884		674,333
Zone 4	265,990	0.6%	7,002		272,992
Study Area	2,778,429	100%	1,166,940	137,000	4,082,369

(1) The superblock project is located on the corner of So. Union and Main Streets. It is a commercial redevelopment project but is not included in the build-out land use developed in the Buildout Study completed by David Spitz. The estimated size of the superblock project was provided by the City of Burlington.

Table 47. Non-Residential Parking Spaces Required for 2020 Land Use at 100% Occupancy Based on WSA Estimated Peak Parking Demand Rate with Demand From Waterfront

Area	2020 Non-Residential Land Use	Spaces Required Per WSA Estimate (1) plus Parking Demand From the Waterfront	Existing Non-Residential Parking Space Supply			Parking Space Excess or (Deficiency)
			On-Street Spaces	Off-Street Spaces	Total Spaces	
Zone 1	1,238,401	3,152 + 100 = 3,252	152	1,783	1,935	(1,217)
Zone 2	1,896,643	4,827	379	1,985	2,364	(2,463)
Zone 3	674,333	1,716	257	934	1,191	(525)
Zone 4	272,992	695	159	599	758	63
Study Area	4,082,369	10,490	947	5,301	6,248	(4,242)

(1) Based on a weighted average peak parking rate per 1,000 square feet for non-residential land use of 2.545

(2) Per the City's direction, an additional 100 spaces is added to Zone 1 to account for projected spillover demand from the Waterfront as estimated in the "Burlington Waterfront Study", Resource Systems Group, August 24, 2000.

Table 48. Anticipated Changes to the Off-Street Non-Residential Parking Supply

Zone 1 Parking Projects	Anticipated Spaces
New Cherry Street / Battery Street Redevelopment Garage	290
Add deck to College St Garage	150
Add deck to Lakeview garage	100
Close Elmwood Ave Lot	-78
Close Cherry Street/Battery Street Surface Lot	-60
Net Change Zone 1	***402***

Zone 2 Parking Projects	Anticipated Spaces
New Main/Winooski Parking Garage	500
Close Main/Winooski Surface Lots	-55
Close Library Lot	-48
Net Change Zone 2	***397***

Zone 3 Parking Projects	Anticipated Spaces
No Changes Currently Anticipated	0
Net Change Zone 3	***0***

Zone 4 Parking Projects	Anticipated Spaces
Close Browns Court Lot	-44
Net Change Zone 4	***-44***

Total Study Area Anticipated Parking Supply Change	755

Table 49. Estimated Parking Space Supply Excess or (Deficiency) in 2020 with Anticipated Changes to the Parking Supply and Demand from the Waterfront

Area	2020 Parking Demand Per WSA Estimate and Waterfront	Existing Non-Residential Parking Supply	Anticipated Changes in Non-Residential Parking Space Supply	Existing Plus Anticipated Non-Residential Parking Supply	Estimated 2020 Parking Space Excess or (Deficiency)
Zone 1	3,252	1,935	402	2,337	(915)
Zone 2	4,827	2,364	397	2,761	(2,066)
Zone 3	1,716	1,191	0	1,191	(525)
Zone 4	695	758	-44	714	19
Study Area	10,490	6,248	755	7003	(3,487)

Table 50. Parking Space Excess or (Deficiency). Comparison Between Existing Land Use at 94% Occupancy, Existing Land Use at 100% Occupancy and 2020 Land Use at 100% Occupancy

Area	Parking Supply Excess or (Deficiency) for Existing Land Use at 94% Occupancy (1)	Parking Supply Excess or (Deficiency) for Existing Land Use at 100% Occupancy (1)	Parking Supply Excess or (Deficiency) for 2020 Land Use at 100% Occupancy and Spillover Demand From Waterfront (2)
Zone 1	128	13	(915)
Zone 2	(743)	(940)	(2,066)
Zone 3	94	24	(525)
Zone 4	122	81	19
Study Area	(399)	(822)	(3,487)

(1) Assumes existing non-residential parking supply.
(2) Assumes existing non-residential parking supply plus anticipated changes to the parking supply.

Evaluation of Parking Strategies

This section of the Downtown Burlington Parking Study presents strategies to address the existing and projected parking space deficiencies identified in the previous section and summarized again in **Table 51** below.

Table 51. Parking Space Excess or (Deficiency). Comparison Between Existing Land Use at 94% Occupancy, Existing Land Use at 100% Occupancy and 2020 Land Use at 100% Occupancy

Area	Parking Supply Excess or (Deficiency) for Existing Land Use at 94% Occupancy (1)	Parking Supply Excess or (Deficiency) for Existing Land Use at 100% Occupancy (1)	Parking Supply Excess or (Deficiency) for 2020 Land Use at 100% Occupancy and Spillover Demand From Waterfront (2)
Zone 1	128	13	(915)
Zone 2	(743)	(940)	(2,066)
Zone 3	94	24	(525)
Zone 4	122	81	19
Study Area	(399)	(822)	(3,487)

(1) Assumes existing non-residential parking supply.
(2) Assumes existing non-residential parking supply plus anticipated changes to the parking supply.

The City's Municipal Development Plan and the Legacy Project Action Plan have clear statements regarding parking. Both emphasize the need to manage parking demand and to use existing facilities more efficiently. The Municipal Plan points out that providing structured parking is expensive and encourages the continued dominance of the automobile but also acknowledges that providing some parking is necessary for the economic well being of the City.

Recognizing the policies established in the City's plans, this analysis first determines to what extent efficiency programs, reduction of parking demand through Transportation Demand Management programs, and establishment of satellite parking facilities are able to reduce parking demand and the need for additional structured parking in the study area. Secondly, this analysis identifies by study zone, if and where additional structured parking will be required in 2020 assuming the management and efficiency strategies are effective at reducing demand.

Strategies to Use Parking Facilities More Efficiently

Parking facilities are seldom 100% occupied. The reasons include – spaces may be too remote from people's final destination, the availability of spaces is not readily apparent or obstructed by poorly parked vehicles or, delays associated with entering or leaving parking facilities. Examples of strategies that increase the efficient use of parking facilities include:

- Providing real-time information on the location of available parking spaces;

- Sharing parking among a group of employees or residents, rather than assigning spaces to specific individuals or businesses; and

- Sharing parking between sites that have different peaking periods such as banks and theatres.

To account for the inefficient use of parking facilities, WSA's estimate of peak parking demand includes a parking efficiency factor of 10%. This factor increases the estimated demand by 10%. This analysis assumes that implementation of the various efficiency strategies, such as those listed above, will reduce the efficiency factor from 10 to 5%, resulting in a 5% reduction in demand.

Transportation Demand Management Strategies

Transportation Demand Management (TDM) strategies could reduce the number of vehicles traveling to Downtown, and the parking spaces they require, by shifting person trips from single occupancy vehicles to transit, car-pools, van-pools, or other rideshare services. Examples of TDM strategies designed to reduce demand for parking include:

- Commuter benefits such as parking cash-out, which pays an employee for not using a parking space;

- Traveler allowance, which the employee must use to pay for parking or may decide to use for other modes such as transit;

- Reduced cost or free parking for rideshare vehicles; and

- "Un-bundled" parking costs from the rent so consumers can choose how much parking they wish to pay for when leasing a residential unit or space for a business.

TDM programs focus on the journey to work trip. Examples of successful reductions in work trips following implementation of TDM programs range from 16 to 39%.[4] A reasonable assumption therefore is a 20% reduction in single occupant vehicle journey to work trips if a successful TDM program is implemented in Downtown Burlington. The journey to work trip accounts for 25% of all trips made[5]. Therefore, the total reduction in trips is equal to 20% multiplied by 25%, or 5%.

Satellite Parking Lots

The use of satellite parking facilities is another option encouraged in the Municipal Development Plan and the Legacy Action Plan. The City currently operates a 350 space

[4] Victoria Transport Policy Institute, TDM Encyclopedia. http://www.vtpi.org/tdm/tdm12.htm.
[5] 1998 Chittenden County Household Diary Survey

commuter parking lot on Lakeside Avenue with shuttle service to Downtown. The City is working with a developer to replace the existing surface lot with a 500-600 space parking garage. According to the City, approximately half of these spaces will be available for employees located in the parking study area. The other half will be utilized by employees of the Hill Institutions. In the short term, the City will be providing commuter shuttle service to 50 temporary spaces at the Elks Club in the New North End. In the long term, the City anticipates commuter lots near Exit 14 and on the Northern Connector near the Colchester town line (which will replace the Elks club lot). According to the City, these commuter lots would also provide 500-600 spaces each that would be shared equally by downtown employees and other users as shown in **Table 52**.

Table 52. Potential Parking Satellite Lot or Garage Locations and Spaces Available for Downtown Burlington

Satellite Lot or Garage Location	Potential Spaces	Spaces to be made available for Downtown Parking Study Area
Lakeside Garage	600	300
Exit 14	600	300
Northern Connector	600	300
Total Spaces	1,800	900

Successful implementation of the TDM and satellite parking strategies will depend on an effective transit system. Both the current CCMPO Long Range Transportation Plan, and the update to that plan currently underway, include expansion of transit service in the County.

Implementing the various TDM and parking management strategies will also require cooperation and coordination between the City, Chittenden County Transit Authority (CCTA), businesses, and institutions in the study area. A Downtown Transportation Management Association (TMA) is recommended to manage and implement the programs. TMAs are:

> *… private, non-profit, member-controlled organizations that provide transportation services in a particular area, such as a commercial district, mall, medical center or industrial park.... TMAs provide an institutional framework for TDM Programs. They are usually more cost effective than programs managed by individual businesses. TMAs allow small employers to provide Commute Trip Reduction services comparable to those offered by large companies. They avoid problems that may be associated with government-run TDM programs, since they are controlled by members*[6].

The Burlington area already has a successful TMA. The Campus Area Transportation Management Association (CATMA) which includes Champlain College, Fletcher Allen Health Care (FAHC), the University of Vermont (UVM) and the City of Burlington.

[6] Victoria Transport Policy Institute, TDM Encyclopedia. http://www.vtpi.org/tdm/tdm12.htm.

Through their participation in CATMA, these institutions share resources as well as jointly plan, develop and manage all transportation and parking programs, infrastructure, and associated facilities. CATMA has initiated and instituted several TDM programs including[7]:

- carpool/vanpool incentives;
- staggered work and class scheduling;
- a joint ridesharing program;
- mass transit subsidies;
- pedestrian walkways and a bikeway system;
- flex time policies;
- a guaranteed ride home program; and
- bike/walk incentives.

Tables 53-57 on the following pages show the potential impact of implementing the parking efficiency, TDM, and satellite parking strategies for existing and 2020 land use for the entire study area and each zone.

Table 53 shows the effect of implementing the parking efficiency, TDM, and satellite parking strategies on the non-residential peak parking demand in the study area for existing land use at 100% and 94% occupancy, and 2020 land use at 100% occupancy. Total study area parking space excess or deficiency is also summarized in **Table 53**. **Table 53** demonstrates that implementation of these strategies could eliminate the parking space deficiencies for existing conditions. For 2020, a deficit of 1,540 non-residential parking spaces is projected even with implementation of these strategies and the additional parking spaces currently anticipated in the study area.

Table 54 presents the total and percent change in demand assuming the parking efficiency, TDM, and satellite parking strategies are effective. **Tables 55 and 56** show the resulting reduction in peak parking demand for each zone with existing land use at 100% and 94% occupancy. **Tables 55 and 56** demonstrate that these strategies essentially eliminate deficiencies within all of the zones with existing non-residential land use at 100% or 94% occupancy.

Table 57 shows parking space excess or deficiency by zone in 2020 assuming the efficiency, TDM, and satellite parking strategies have been implemented. The 2020 non-residential parking supply includes the anticipated changes to the parking supply. **Table 57** demonstrates that Zones 1, 2 and 3 will require additional structured parking above and beyond changes in the parking supply that are already anticipated.

[7] CATMA Website http://www.uvm.edu/~catma/

Table 53. Potential Effect of Parking Efficiency, TDM, and Satellite Parking Strategies on Study Area Weekday Peak Parking Demand and Parking Space Excess or (Deficiency)

	Existing Land Use at 94% Occupancy	Existing Land Use at 100% Occupancy	2020 Land Use at 100% Occupancy
Study Area Non-Residential Weekday Peak Parking Demand	6,647	7,070	10,490
Reduction in Study Area Demand due to Parking Efficiency Strategies (5% Reduction)	-332	-354	-525
Reduction in Study Area Demand due to Implementation of TDM Programs (5% Reduction)	-332	-354	-525
Parking Demand Served by Satellite Parking Facilities	-300 (1)	-300 (1)	-900 (2)
Study Area Demand Assuming Implementation of Efficiency, TDM and Satellite Parking Strategies	5,682	6,063	8,541
Non-Residential Parking Space Supply in The Study Area	6,248	6,248	7,003 (3)
Parking Supply Excess or (Deficiency) Within the Study Area	566	185	(1,538)

(1) Assumes Lakeside Avenue parking structure has 300 spaces available for downtown

(2) Assumes Lakeside Avenue parking structure, and satellite facilities at Exit 14 and the Northern Connector

(3) Includes anticipated changes to the parking supply. See Table 48.

Table 54. Change in Study Area Weekday Peak Parking Demand Due to Parking Efficiency Strategies, TDM Programs, and Satellite Parking Facilities

	Existing Land Use at 94% Occupancy	Existing Land Use at 100% Occupancy	2020 Land Use at 100% Occupancy
Study Area Non-Residential Weekday Peak Parking Demand	6,647	7,070	10,490
Study Area Peak Parking Demand Assuming Implementation of Efficiency, TDM, and Satellite Parking Strategies	5,682	6,063	8,541
Change In Study Area Weekday Peak Parking Demand	-965	-1007	-1949
Percent Change in Weekday Peak Parking Demand	-15%	-14%	-19%

Table 55. Parking Space Excess or (Deficiency) by Zone Assuming Implementation of Efficiency, TDM and Satellite Parking Strategies with Existing Non-Residential Land Use at 100% Occupancy

Area	Existing Peak Parking Demand with Land Use at 100% Occupancy	Percent Share of Total Study Area Demand	Assumed Reduction in Demand with TDM, Efficiency and Satellite Parking Strategies	Revised Total Non-Residential Peak Parking Demand	Existing Non-Residential Parking Supply	Parking Space Excess or (Deficiency)
Zone 1	1,922	27%	(530)	1,392	1,935	543
Zone 2	3,304	47%	(911)	2,393	2,364	(29)
Zone 3	1,167	17%	(322)	845	1,191	346
Zone 4	677	10%	(187)	490	758	268
Study Area	7,070	100%	(1,007)	5,121	6,248	1,127

Table 56. Parking Space Excess or (Deficiency) by Zone Assuming Implementation of Efficiency, TDM and Satellite Parking Strategies with Existing Non-Residential Land Use at 94% Occupancy

Area	Existing Peak Parking Demand with Land Use at 94% Occupancy	Percent Share of Total Study Area Demand	Assumed Reduction in Demand with TDM, Efficiency and Satellite Parking Strategies	Revised Total Non-Residential Peak Parking Demand	Existing Non-Residential Parking Supply	Parking Space Excess or (Deficiency)
Zone 1	1,807	27%	(530)	1,277	1,935	658
Zone 2	3,107	47%	(911)	2,196	2,364	168
Zone 3	1,097	17%	(322)	775	1,191	416
Zone 4	636	10%	(186)	450	758	308
Study Area	6,647	100%	(965)	4,698	6,248	1,550

Table 57. Parking Space Excess or (Deficiency) by Zone Assuming Implementation of Efficiency, TDM, and Satellite Parking Strategies with 2020 Non-Residential Land Use at 100% Occupancy, Spillover Demand from the Waterfront, and Anticipated Changes to the Parking Supply

Area	2020 Non-Residential Peak Parking Demand	Percent Share of Total Study Area Demand	Assumed Reduction in Demand with TDM, Efficiency and Satellite Parking Strategies	Revised Total 2020 Non-Residential Demand	Existing Plus Anticipated Non-Residential Parking Supply	Parking Space Excess or Deficiency by Zone
Zone 1	3,252	31%	(604)	2,648	2,337	(311)
Zone 2	4,827	46%	(897)	3,930	2,761	(1,169)
Zone 3	1,716	16%	(319)	1,397	1,191	(206)
Zone 4	695	7%	(129)	566	714	148
Study Area	10,490	100%	(1,949)	8,541	7,003	(1,538)

Summary

Peak usage occurs in the study area on Friday afternoon between 1:00 PM and 3:00 PM. Usage on Saturday is significantly less. The parking facilities available to the general public were measured at 80% occupancy while the facilities restricted to private use only were 60% occupied

If the existing non-residential buildings in Downtown were required to provide off-street parking in conformance with the City of Burlington's zoning regulations, approximately 5,000 additional spaces would be needed assuming no parking waivers were granted.

The existing peak parking demand for non-residential land use exceeds the existing parking supply. Although the existing parking supply deficiency is limited to Zone 2, the deficit is large enough to create an overall parking supply deficiency in the study area during the peak period of approximately 400 spaces. If the existing buildings were fully occupied, the deficit would increase to 820 spaces.

The excess demand of approximately 400 spaces may be partially served by the intercept parking lot on Lakeside Avenue with shuttle service to Downtown and by people parking outside of the study area and walking in. This excess demand also consists of people who decide not to go Downtown because of a lack of parking.

In the short term, spaces lost due to closing the Browns Court and the Elmwood Avenue lots could be absorbed by other nearby parking facilities. Both of these lots are located in study zones with some excess capacity. The spaces that may be lost at the South Winooski/Main Street and Library lot will be replaced by new spaces in the 400-500 space parking structure envisioned as part of the Super Block project. Providing an additional 400-500 space parking garage at this site could help off set some of the existing parking space deficiency in Zone 2. The degree to which this new parking structure can help address demand for more parking in Zone 2 will depend on the types of uses included in the Super Block project.

Under future conditions there will be a need to accommodate demand for an additional 3,500 parking spaces if employment in Downtown Burlington grows at the same rate as the rest of Chittenden County.

Strategies designed to make the parking system more efficient, reduce demand, and divert parking to satellite lots, could eliminate the existing deficiency in the parking supply and could cut in half the projected deficiency in 2020. In order for these efficiency and transportation demand management strategies to be effective, a Downtown Transportation Management association should be established. Given the diverse number and size of employers in the Downtown area, a TMA is necessary to create and coordinate the critical mass of employees necessary to make transportation demand management programs effective.

Even with effective TDM programs, 1,540 additional parking spaces will be necessary in the Downtown area. The most critical need will be in Zone 2.

References and Resources

Burlington Legacy Action Plan: Becoming a Sustainable Community, Burlington Legacy Project, May 2000.

Burlington Waterfront Study, Resources Systems Group, Inc., August 2002.

Burlington Zoning Ordinance On-Line, Burlington Department of Planning and Zoning, Updated through July 2002.

City of Burlington DID Buildout Analysis, Final Report, David H. Spitz Land Planner, May 30, 2002.

City of Burlington, VT 2001 Municipal Plan, Burlington Department of Planning and Zoning, June 2001.

Downtown Burlington Parking Study Burlington, Vermont, McDonough and Schully, Inc., July 1990.

Economic and Demographic Forecast, Northwest Vermont and Chittenden County 2000 to 2025 and Beyond, Economic and Policy Resources, Inc, September 2000.

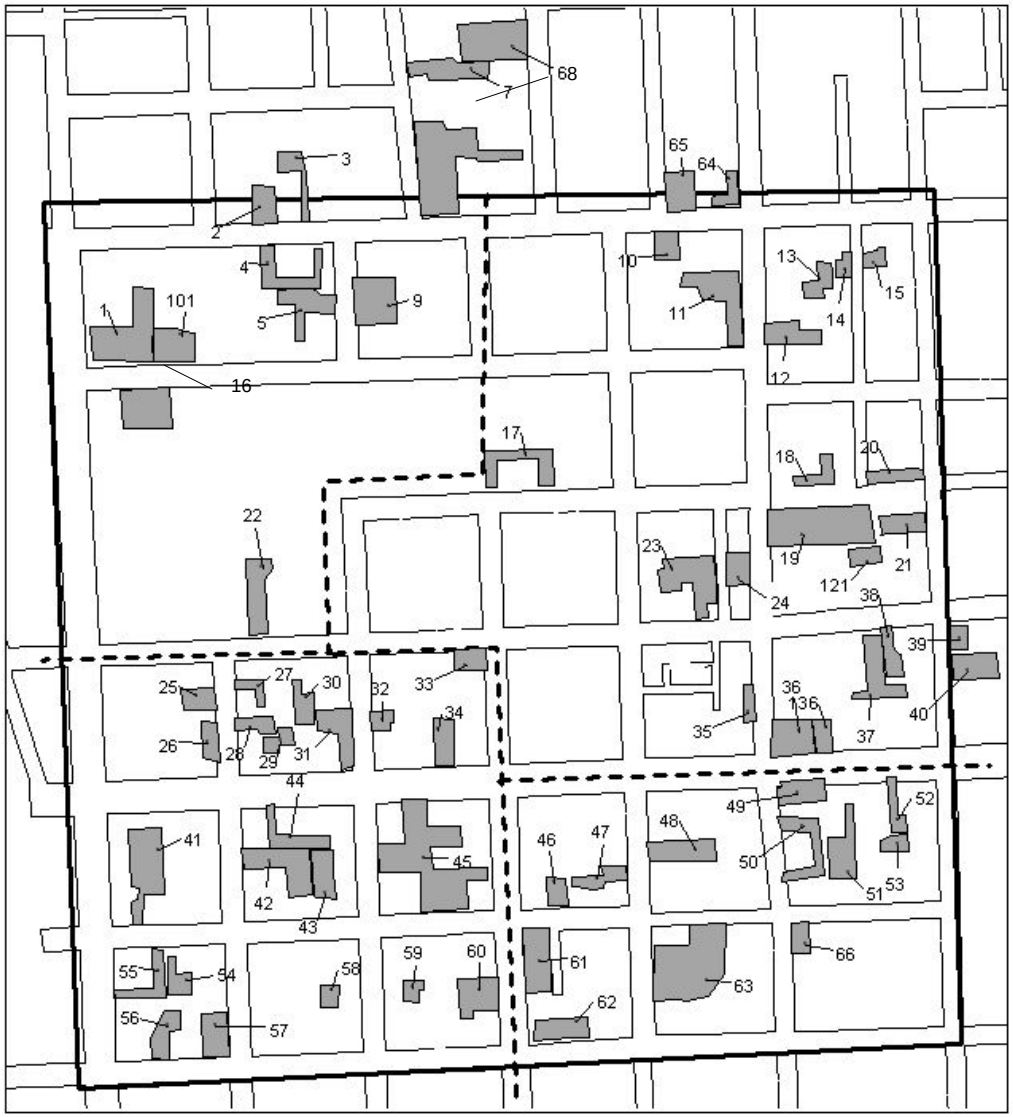
Parking, Robert A. Weant and Herbert S. Levinson, 1990.

Shared Parking, The Urban Land Institute, 1983.

TDM Encyclopedia, Victoria Transport Policy Institute,. http://www.vtpi.org/tdm/tdm12.htm.

APPENDIX A

SURFACE LOT INVENTORY



SURFACE LOTS

ID NUMBERS

APPENDIX A

Downtown Burlington Parking Study

Study Area
Zone Boundaries

Wilbur Smith Associates

Lot #	Study Zone	Entrance Location	Description	Land Use	Ownership	Metered Spaces	Leased Spaces at Public Lots	Private Lot Spaces	Handicap Space	Other Spaces	Total Spaces	Remarks
1	1	SW corner Cherry/Battery	Cathedral Church of Saint Paul	Church	Private/Private			51	2		53	
2	1	Pearl St	Burlington Housing Auhtority Senior Housing	Residential	Private/Private			17	2		19	
3	1	Pearl St	Social Security Office	Office	Private/Private			19			19	
4	1	Pearl St	VT DET Office	Office	Private/Private			36	3		39	
5	1	Pine St	VT Dep. Of Corrections	Office	Private/Private			48	2		50	
6	1	Elmwood Ave	DPW Elmwood Ave Lot	General	Public/Public		75		3		78	
7	NA	George Street	Mackenzie Retirement	Residential	Private/Private			26	10		36	Not part of study
8	NA	George Street	Federal Building	Office	Private/Private		103				103	Not part of study
9	1	Pine St	Cathedral of the Immaculate Conception	Church	Private/Private			30			30	Approximate number
10	2	Pearl St	Richardson Place Lot	Office/Retail	Private/Private			20			20	Employee parking mostly
11	2	So. Winooski Ave	Brooks Pharmacy	Retail	Private/Private			45	2		47	Some spaces are faded and difficvult to count
12	2	So. Winooski Ave	First Congregational Church	Church	Private/Private			26	4		30	Service at 8:00 and 10:00 am on Sunday
13	2	So. Winooski Ave	Ronald McDonald House	Residential	Private/Private			15			15	
14	2	Orchard Terrace	No. VT Oral Surgery	Office	Private/Private			11			11	
15	2	Orchard Terrace	Medical Offices and Apprtments	Office/Residential	Private/Private			10			10	
16	1	Cherry Street	Monthly Parking Lot	??	Private/Public			60			60	
17	2	Bank Street	Chittenden Bank Branch Office	Office	Private/Public			23	1		24	
18	2	So. Winooski Ave	Mailbox Etc and Offices	Office/Retail	Private/Private			7	2		72	7 of the spaces are reserved for the First United Meth. Church
19	2	So. Winooski Ave	City Market	Retail	Private/Private			54		2	56	Inlcudes 1 electric car space & recharge location, and 1 Van Pool Space
20	2	So. Union	Corbin & Palney	Funeral Home	Private/Private			23			23	
21	2	So. Union	DPW YMCA Lot	Public Lot	Public	20			2		22	11 Brown, 9 Red
22	1	College St	Chittenden Bank Office Building and Bank	Office	Private/Private			20	6		26	
23	2	Center St	Daily Planet, Church St Businesses Lot	Office/Retail	Private/Private			61			61	Permit Required
24	2	So. Winooski Ave	The Hall Block	Office	Private/Private			24			24	
25	3	So. Champlain	Pomerleau Mansion - Realestate	Office	Private/Private			23			23	
26	3	So. Champlain	Chamber of Commerce	Office	Private/Private			11	1		12	
27	3	So. Champlain	Galleger & Flynn	Office/Residential	Private/Private			15			15	
28	3	So. Champlain	Salvation Army	Instititutional	Private/Private			15			15	

Lot #	Study Zone	Entrance Location	Description	Land Use	Ownership	Metered Spaces	Leased Spaces at Public Lots	Private Lot Spaces	Handicap Space	Other Spaces	Total Spaces	Remarks
29	3	Main St	Offices 72 and 74 Main	Office	Private/Private			22			22	
30	3	College St	South Square Apprtments (101 College)	Residential	Private/Private			21		1	22	
31	3	Pine St	Burlington Place and Pavilion	Office	Private/Private			49			49	31 for Burl Place, 18 for Pavilion
32	3	Pine St	120 Pine St	Office	Private/Private			15			15	Includes Lake Champlain Committee
33	3	College St	Old Ben & Jerry's Lot	Office/Retail	Private/Private			25			25	Permit Required
34	3	Main St	Behind Wine Works	Office/Retail/ Residential	Private/Private			36			36	Permit Required
35	2	So. Winooski Ave	Burlington Free Press	Office	Private/Private			11		1	12	1 Truck dock
36	2	Main St	DPW So. Winooski/Main Lot	Retail	Public	41			2		43	30 Blue, 11 Brown
37	2	College St	DPW Library Lot	Retail/Office	Public	44			2	2	48	26 Brown, 16 Red, 2 HC, 2 Mem Hall Staff spaces
38	2	College St	United Christ Church	Church	Private/Private			18	1		19	Sunday service at 10:00 am
39	2	So. Union St	278 College	Office	Private/Private			20			20	
40	2	So. Union St	Nynex	Office	Private/Private			39		2	41	
41	3	King Street	Battery St Block - King to Main	Office/Retail	Private/Private			60	1		61	
42	3	So. Champlain	150 So. Champlain	Office	Private/Private			52			52	
43	3	Pine St	Bteween 157 & 155 Pine	Resindetial	Private/Private			25			25	
44	3	Main & Pine	Ski Rack, Vitamin Connection, Oasis	Retail	Private/Private			45			45	3 different lots that are all merged together
45	3	Main/St Paul/King	Banknorth	Office	Private/Private			122			122	gated in the evening and on weekends. 3 entrances
46	4	King Street	VHFA	Office	Private/Private			40			40	2 Level garage
47	4	Church St	Behind "The Wilson"	Retail	Private/Private			15			15	
48	4	Church St	Chittenden Superior Court	Office	Private/Private			29	2		31	Surface lot on top of Courthouse Garage - Only accessible through Lot #48
49	4	Main/Church	Champlain Farms	Retail	Private/Private			12			12	Informal parking - does not appear to be restricted to customers only
50	4	Church St	VFW and office	Retail/Office	Private/Private			27	3		30	21 spaces for VFW, 6 spaces for adjacent office bldg
51	4	Main St	Bard Flooring	Retail	Private/Private			43	3		46	Gated
52	4	Main St	Obrian Beauty Salon	Retail	Private/Private			13			13	
54	3	King Street	Gideion King House	Office	Private/Private			9			9	
55	3	Battery/King	196 Battery St	Office/Retail	Private/Private			30			30	
56	3	Maple St	Battery St Block - King to Maple	Office/Retail	Private/Private			28			28	

Lot #	Study Zone	Entrance Location	Description	Land Use	Ownership	Metered Spaces	Leased Spaces at Public Lots	Private Lot Spaces	Handicap Space	Other Spaces	Total Spaces	Remarks
29	3	Main St	Offices 72 and 74 Main	Office	Private/Private			22			22	
30	3	College St	South Square Apprtments (101 College)	Residential	Private/Private			21		1	22	
31	3	Pine St	Burlington Place and Pavilion	Office	Private/Private			49			49	31 for Burl Place, 18 for Pavilion
32	3	Pine St	120 Pine St	Office	Private/Private			15			15	Includes Lake Champlain Committee
33	3	College St	Old Ben & Jerry's Lot	Office/Retail	Private/Private			25			25	Permit Required
57	3	So. Champlain	NW Corner So. Champlain/Maple	Office/Retail	Private/Private			35			35	Across form Handy's Diner
60	3	St. Paul	181-187 St Paul	Offices	Private/Private			32	1		33	
61	4	King Street	DPW-Browns Court Lot	General	Public	42			2		44	All Brown Meters
62	4	Maple St	Eagles Club	Instititutional	Private/Private			33			33	
63	4	King Street	Hood Plant	Industrial	Private/Private			99	2		101	Gated?
64	2	Pearl St	Howard Center Bridge Program	Office	Private/Private			8			8	
65	2	Pearl St	SE Corner Pear/Clark	Office	Private/Private			34			34	
66	4	King Street	SE Corner King/So. Winooski	Office	Private/Private			18			18	
101	1	SW corner Cherry/Battery	3 Cathedral Square Senior Housing	Residential	Private/Private			34	2		36	Shares entrance with Church
121	2	So. Union	Lot for Church St Residents next to YMCA on Colleger ST	Residential	Private/Private			12			12	
136	2	Main St	DPW So. Winooski/Main Lot	Retail/Office	Public/Permit		12				12	No meters, all permit parking
148	2	Church St	Chittenden Superior Court	Office	Private/Private			32			32	Top of Courthouse Garage - only accessible from Church St
	1	So. Winooski Ave	Simons Conv. Store					13			13	Not shown on map
	1	Pearl St	Pearl St Night Club, NECI, and State Office					30			30	Not shown on map

APPENDIX B

ON-STREET PARKING INVENTORY

ON-STREET PARKING

BLOCK FACE ID NUMBERS

APPENDIX B

Downtown Burlington
Parking Study

Study Area
Zone Boundaries

Wilbur Smith Associates

Block Face #	Study Zone	Street	From Street	To Street	Travel Direction	Metered Spaces - Maximum Duration						Un-Metered Spaces				Sepcial Use Spaces		
						Yellow 30 Minute	Yellow 15 Minute	Gray 1 Hour	Blue 2 Hour	Red 3 Hour	Brown 10 Hour	HC	Un - restricted	Res. Parking Permit	15 Minute Signed	Taxi	Bus Stop	Loading and Other
1	1	Pearl St.	Battery	So. Champlain	WB													
2	1	Battery St.	Pearl	Cherry	NB													
3	1	Pearl St.	Battery	So. Champlain	EB													
4	1	Battery St.	Cherry	College	NB													
5	1	Pearl St.	So. Champlain	George	WB				3			1						1 NPHTC, 1 NPTSpace, 1 NPBS, 1 No parking police only
6	3	Battery St.	College	Main	NB													
7	1	Pearl St.	So. Champlain	Pine	EB				11			1						
8	3	Battery St.	Main	King	NB	1			6			2			1			1 NPTS
9	1	Pearl St.	George	Elmwood	WB	5			4									
10	3	Battery St.	King	Maple	NB				8				1					
11	1	Pearl St.	Pine	St. Paul	EB				10						1			1 LUZ
12	3	So. Champlain St.	College	Main	SB													
13	2	Pearl St.	St. Paul	Church	EB				5									1 LUZ
14	3	So. Champlain St.	College	Main	NB	2			6									
15	2	Pearl St.	Elmwood	Clark	WB				7									
16	3	So. Champlain St.	Main	King	SB													
17	2	Pearl St.	Church	So. Winooski	EB		2	2										1 TLZ
18	3	So. Champlain St.	Main	King	NB				5				7		1			1 NPHTC
19	2	Pearl St.	Clark	So. Wonooski	WB				5									
20	3	So. Champlain St.	King	Maple	SB													
21	2	Pearl St.	So. Winooski	LaFayette	WB													
22	3	So. Champlain St.	King	Maple	NB								9					
23	2	Pearl St.	So. Winooski	Orchard Terrace	EB												1	
24	1	Pine St.	Pearl	Cherry	SB								12					
25	2	Pearl St.	LaFayette	So. Union	WB													
26	1	Pine St.	Pearl	Cherry	NB				12									
27	2	Pearl St.	Orchard Terrace	So. Union	EB													
28	2	Pine St.	Bank	College	SB				10			2						
29	1	Cherry St.	Battery	Pine	WB				8	12		1						
30	2	Pine St.	Bank	College	NB				10			1						
31	1	Cherry St.	Battery	Pine	EB					23								
32	3	Pine St.	College	Main	SB				10									
33	1	Cherry St.	Pine	St. Paul	WB				13									
34	3	Pine St.	College	Main	NB				11			1						
35	1	Cherry St.	Pine	Church	EB												7	
36	3	Pine St.	Main	King	SB													
37	2	Cherry St.	St. Paul	Church	WB				11			1				1		
38	3	Pine St.	Main	King	NB				8									
39	2	Cherry St.	Church	So. Winooski	WB				10						1			1 TLZ
40	3	Pine St.	King	Maple	SB													
41	2	Cherry St.	Church	So. Winooski	EB				9									1 TLZ, 1 NPBS, 1 NPHTC
42	3	Pine St.	King	Maple	NB								11					
43	2	Buell St.	So. Winooski	Orchard Terrace	WB				11									
44	1	Saint Paul St.	Pearl	Cherry	SB				16									
45	2	Buell St.	So. Winooski	Orchard Terrace	EB				11									
46	2	Saint Paul St.	Pearl	Cherry	NB				7			3						1 NPTS
47	2	Buell St.	Orchard Terrace	So. Union	WB				3									
48	2	Saint Paul St.	Bank	College	SB		1		12									
49	2	Buell St.	Orchard Terrace	So. Union	EB				6									
50	2	Saint Paul St.	Bank	College	NB				12									

Block Face #	Study Zone	Street	From Street	To Street	Travel Direction	Metered Spaces - Maximum Duration						Un-Metered Spaces				Sepcial Use Spaces		
						Yellow 30 Minute	Yellow 15 Minute	Gray 1 Hour	Blue 2 Hour	Red 3 Hour	Brown 10 Hour	HC	Un - restricted	Res. Parking Permit	15 Minute Signed	Taxi	Bus Stop	Loading and Other
51	2	Bank St.	Pine	St. Paul	WB				11									2 NPAT, 1 TLULZ
52	3	Saint Paul St.	College	Main	SB		1		7			1						1 NPTLZ
53	2	Bank St.	Pine	St. Paul	EB													
54	2	Saint Paul St.	College	Main	NB				29									1 NPHTC, 1 Motorcycle Prkg
55	2	Bank St.	St. Paul	Church	WB		2		9			1				1		
56	3	Saint Paul St.	Main	King	SB				13									
57	2	Bank St.	St. Paul	Church	EB		2		6			1				1		2-TLZ-30 min
58	4	Saint Paul St.	Main	King	NB				17									1 NPTLZ, 1 NPTS
59	2	Bank St.	Church	So. Winooski	WB				8			1						1 NPHTC
60	3	Saint Paul St.	King	Maple	SB					6		1						
61	2	Bank St.	Church	Center	EB				5									1 TLZ
62	4	Saint Paul St.	King	Maple	NB						12							
63	1	College St.	Battery	Pine	WB				5		13	1						1 TLZ
64	2	Church St.	Pearl	Cherry	SB													
65	3	College St.	Battery	So Champlain	EB	1			5	6								
66	2	Church St.	Pearl	Cherry	NB													
67	3	College St.	So. Champlain	Pine	EB				9									2 NPTS, 1 NPLZ, 2 VLAU
68	2	Church St.	Cherry	Bank	SB													
69	2	College St.	Pine	St. Paul	WB		1		6			1						
70	2	Church St.	Cherry	Bank	NB													
71	3	College St.	Pine	St. Paul	EB	2			6			1				1		
72	2	Church St.	Bank	College	SB													
73	2	College St.	St. Paul	Church	WB	1	2		6			1						
74	2	Church St.	Bank	College	NB													
75	2	College St.	St. Paul	Church	EB				10									1 TLZ, 1 police only
76	2	Church St.	College	Main	SB								15					
77	2	College St.	Church	Center	WB				7						1			1 NPBS
78	2	Church St.	College	Main	NB													
79	2	College St.	Church	So. Winooski	EB				7									2 VLUL
80	4	Church St.	Main	King	SB				6									1 NPAT
81	2	College St.	Center	So. Winooski	WB				2									
82	4	Church St.	Main	King	NB				6			1						1 TLZ, 1 NPAT, 1 NPHTC
83	2	College St.	So. Winooski	So. Union	WB		3		14								1	1 VLUL, 1 NPTS
84	4	Church St.	King	Maple	SB							1	13					
85	2	College St.	So. Winooski	So. Union	EB		3		11			1						
86	4	Church St.	King	Maple	NB	1			1				10					
87	3	Main St.	Battery	So Champlain	WB						10							1 NPTS
88	2	So. Winooski Ave	Pearl	Cherry	SB												1	
89	3	Main St.	Battery	So Champlain	EB					7	7							
90	2	So. Winooski Ave	Pearl	Buell	NB													
91	3	Main St.	So. Champlain	Pine	WB				16									
92	2	So. Winooski Ave	Cherry	Bank	SB													
93	3	Main St.	So. Champlain	Pine	EB				13									
94	2	So. Winooski Ave	Bank	College	SB													
95	3	Main St.	Pine	St. Paul	WB				21							1		
96	2	So. Winooski Ave	Buell	College	NB													
97	3	Main St.	Pine	St. Paul	EB				18									
98	2	So. Winooski Ave	College	Main	SB													
99	2	Main St.	St. Paul	Church	WB		4		6			2				1		1 Mayor Only
100	2	So. Winooski Ave	College	Main	NB													

Block Face #	Study Zone	Street	From Street	To Street	Travel Direction	Metered Spaces - Maximum Duration						Un-Metered Spaces				Sepcial Use Spaces		
						Yellow 30 Minute	Yellow 15 Minute	Gray 1 Hour	Blue 2 Hour	Red 3 Hour	Brown 10 Hour	HC	Un - restricted	Res. Parking Permit	15 Minute Signed	Taxi	Bus Stop	Loading and Other
101	4	Main St.	St. Paul	Church	EB				9			2						1 LAUZ
102	4	So. Winooski Ave	Main	King	SB	2			8			1			2			
103	2	Main St.	Church	So. Winooski	WB		3		12									1 TL
104	4	So. Winooski Ave	Main	King	NB				13									
105	4	Main St.	Church	So. Winooski	EB				20									
106	4	So. Winooski Ave	King	Maple	SB								8		1		1	no lines
107	2	Main St.	So. Winooski	So. Union	WB													
108	4	So. Winooski Ave	King	Maple	NB													
109	4	Main St.	So. Winooski	So. Union	EB							1					1	
110	2	Orchard Terrace	Pearl	Buell	SB								17					
111	3	King St.	Battery	So Champlain	WB	2				6								
112	2	Orchard Terrace	Pearl	Buell	NB													
113	3	King St.	Battery	So Champlain	EB					6								
114	2	Orchard Terrace	Buell	Parking Lot	SB							1	8					
115	3	King St.	So. Champlain	Pine	WB								8					
116	2	Orchard Terrace	Buell	Parking Lot	NB													
117	3	King St.	So. Champlain	Pine	EB								11					
118	2	So. Union St.	Pearl	Buell	SB							1		20				
119	3	King St.	Pine	St. Paul	WB								11					
120	2	So. Union St.	Pearl	Buell	NB													
121	3	King St.	Pine	St. Paul	EB									9				
122	2	So. Union St.	Buell	College	SB				5				11					2 VLUL
123	4	King St.	St. Paul	Church	WB						9	2						
124	2	So. Union St.	Buell	College	NB													
125	4	King St.	St. Paul	Church	EB				3		6							
126	2	So. Union St.	College	Main	SB				7			1						2 LZ, 3 TLZ
127	4	King St.	Church	So. Winooski	WB													
128	2	So. Union St.	College	Main	NB													
129	4	King St.	Church	So. Winooski	EB													
130	4	So. Union St.	Main	King	SB								14					
131	4	King St.	So. Winooski	So. Union	WB								17					
132	4	So. Union St.	King	Maple	SB								11					
133	4	King St.	So. Winooski	So. Union	EB													
134	4	So. Union St.	Main	Maple	NB													
135	3	Maple St.	Battery	So Champlain	WB													
136	2	Center St.	Bank	College	SB													
137	3	Maple St.	Battery	So Champlain	EB													
138	2	Center St.	Bank	College	NB	2			16									
139	3	Maple St.	So. Champlain	Pine	WB									11	3			
140	2	Bank St.	Center	So. Winooski	EB													
141	3	Maple St.	So. Champlain	Pine	EB													
142	3	Battery	Main	King	SB				12			1						
143	3	Maple St.	Pine	St. Paul	WB								11					
144	3	Battery	King	Maple	SB				8			1						
145	3	Maple St.	Pine	St. Paul	EB													
147	4	Maple St.	St. Paul	Church	WB				2				10					
149	4	Maple St.	St. Paul	Church	EB													
151	4	Maple St.	Church	So. Winooski	WB								15					
153	4	Maple St.	Church	So. Winooski	EB													
155	4	Maple St.	So. Winooski	So. Union	WB								14					
157	4	Maple St.	So. Winooski	So. Union	EB													