FINAL REPORT

HANOVER DOWNTOWN PARKING PLAN UPDATE

SUBMITTED ON THE 15TH DAY OF MARCH, 2019

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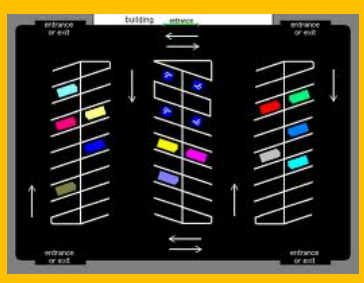

HANOVER DOWNTOWN PARKING PLAN UPDATE

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1. Executive Summary

Based on conversations between DESMAN and the Town of Hanover, it was determined that the study area for this assignment should be bounded by Wheelock Street to the north, School Street to the west, Ripley Road and Dorrance Place to the south, and Sanborn Road and Crosby Street to the east. In addition, the Town requested that DESMAN include Lebanon Street from Crosby Street to South Park Street, the Thompson Lot, and the permit parking along Hovey Lane in the study area.

Within the study area, there are currently 2,203 striped parking spaces, 81% (1,781 spaces) of which are located in off-street facilities, with the remaining 19% (422 spaces) located on-street. Of the total parking inventory, 52% of the spaces are restricted for specific users (e.g. patrons/employees of certain businesses, residents, etc.), 17% are reserved for holders of Town parking permits, and 30% are open to the general public.

Despite the fact that DESMAN did not identify an overall parking shortage downtown, much of the Town's public parking supply was found to be overutilized; the much lower utilization of many of the private, off-street parking facilities brought down utilization in the study area as a whole. In aggregate, utilization across the study area peaked at 84% of the *effective supply* at 1:00 PM on the days the surveys were performed. However, at the same time of day, the Town's permit parking spaces were utilized at 102% of their *effective supply* and on-street metered parking spaces were utilized at 104% of their *effective supply*. Many facilities and block faces downtown became full multiple times during the course of DESMAN's field observations, but when this occurred there was always available capacity within a block of the shortfall. Unfortunately, that available capacity was generally reserved for specific users, especially at peak periods, hence the general perception of an overall parking shortage.

In addition to general utilization patterns across the entire study area, DESMAN also noted that drivers occupied the curbside spaces along South Main Street, Crosby Street, Lebanon Street, Allen Street, and South Street consistently from 9:00 AM to at least 7:00 PM. Through a "Length of Stay" survey, staff found that, while the average vehicle remained parked for 1.8 hours on the surveyed portion of South Main Street, 31 of the 137 cars observed (23%) remained parked in excess of 2 hours at the 2-hour meters, ignoring posted parking meter time limits and/or feeding the meters. While each space served about 6 unique parkers over the survey period, if the frequency with which parkers overstay the posted time limit was reduced, each space could serve even more parkers throughout the course of the day.

To supplement the parking utilization and turnover data collected in the field, DESMAN also conducted a series of meetings with various groups of downtown stakeholders including restaurateurs, retailers, Dartmouth College staff, property owners, and the Police Department/Parking Enforcement Division. During these meetings, DESMAN staff sought to gather first-hand information related to ongoing parking issues and user experiences from the people who encounter them on a daily basis. As a result, the stakeholders highlighted a number of existing issues related to parking downtown, including the value of existing alternative transportation options, the availability of public parking near popular destinations, the positives and negatives of parking enforcement, and the price of parking for low-wage workers.

To ensure that any recommendations put forth would address not only today's parking issues but would also account for anticipated growth in parking demand, DESMAN sought to project future demand in downtown Hanover. Given the number of ongoing or planned developments within and near the study

area, DESMAN applied a growth factor to the observed levels of parking demand in an attempt to model future peak parking demand conditions at the Town's parking facilities. The results of the analysis indicate that the Town's parking facilities will likely experience regular shortages of parking during peak hours beginning in 2021, which will continue to grow unless new parking capacity is added or the existing capacity is utilized more efficiently.

To address existing and anticipated future parking shortfalls, pricing imbalances among the various types of parking spaces downtown, and the concerns raised by stakeholders, DESMAN recommended various short- and long-term solutions that the Town can execute over the next 10 years to address these issues.

2. INTRODUCTION

In 2012, DESMAN performed a study of parking in downtown Hanover. The engagement included analyzing existing conditions, evaluating employee parking needs, engaging with stakeholders, and recommending actions to address current and future needs. The final report, which was delivered in June 2013, included the following recommendations:

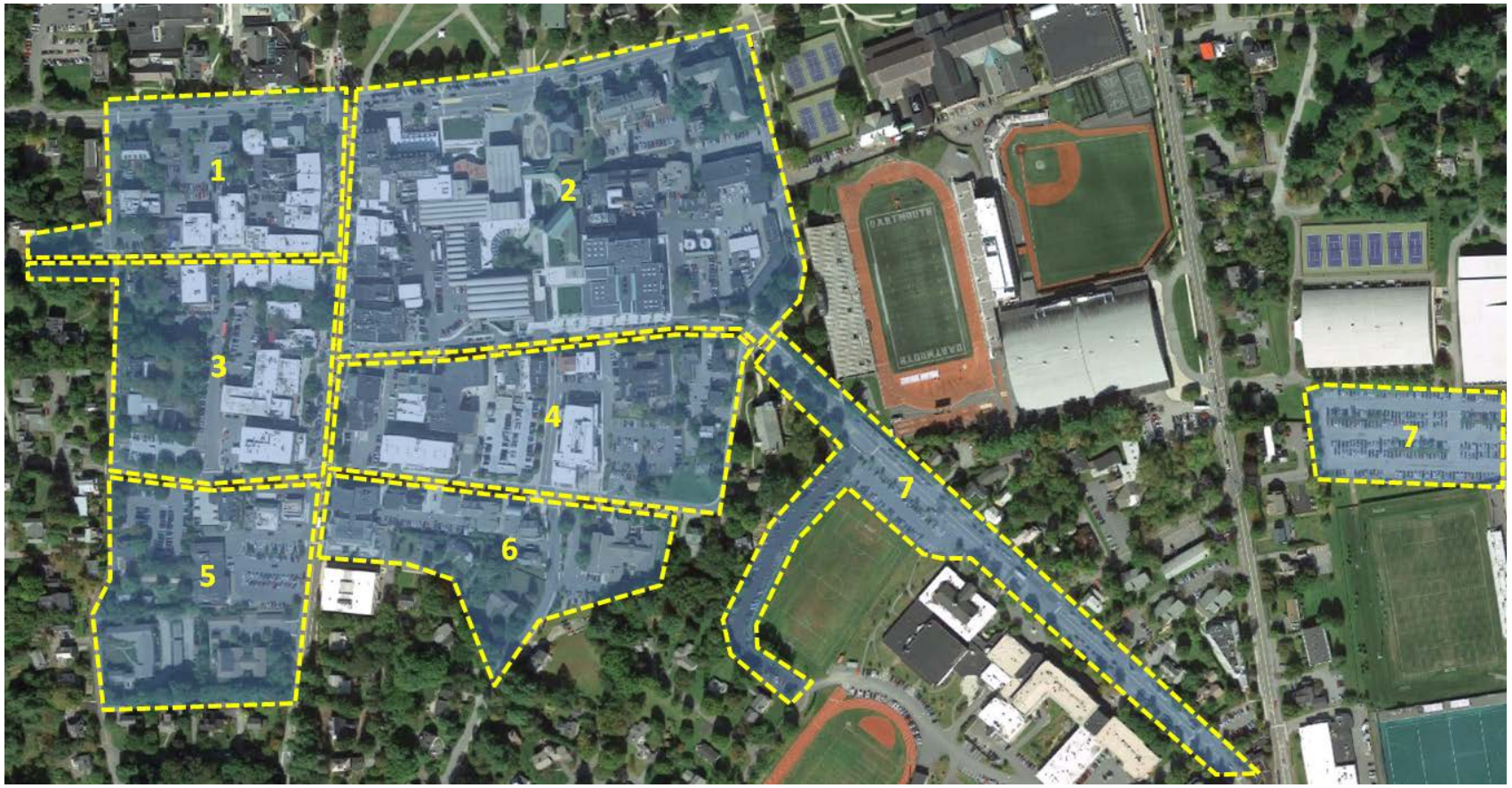
- Offer employees day passes to take advantage of unused capacity in the Lebanon Street Garage;
- Reconfigure remote facility parking permits;
- Adjust pricing and fine rates to increase turnover in high demand spaces and incentivize use of low demand facilities, and;
- Undertake efforts to promote alternative transportation modes.

In the years since the report was issued, many of DESMAN's recommendations were adopted and implemented. However, downtown has also continued to grow and develop to the point where the majority of downtown parking facilities are operating near capacity on a regular basis. The purpose of this study is to update the prior study and to produce a set of recommendations to address current issues and challenges.

The study area for this project was based on conversations between DESMAN and the Town of Hanover and was determined to be the area bounded by Wheelock Street to the north, School Street to the west, Ripley Road and Dorrance Place to the south, and Sanborn Road and Crosby Street to the east. In addition, the Town requested that DESMAN include Lebanon Street from Crosby Street to South Park Street, the Thompson Lot, and the permit parking along Hovey Lane in the study area.

Figure 1 is an aerial photograph of downtown Hanover showing the boundaries of the study area, including the seven blocks within the study area that were used during the data collection to define where the parking inventory was located. It should be noted that, while not physically contiguous, the Thompson Lot was included in Block 7 for the purposes of this analysis.

Figure 1: Downtown Parking Study Area and Block Designations



3. Existing Parking Inventory

DESMAN divided the downtown study area into seven blocks and recorded detailed information on each block's existing parking assets. Staff inventoried all parking spaces within each block, identified each as either on- or off-street and determined which user(s) each space is designated for. In total, there are 2,203 parking spaces within the defined study area[1]. A detailed, facility-by-facility inventory can be found in the **Appendix** to this report.

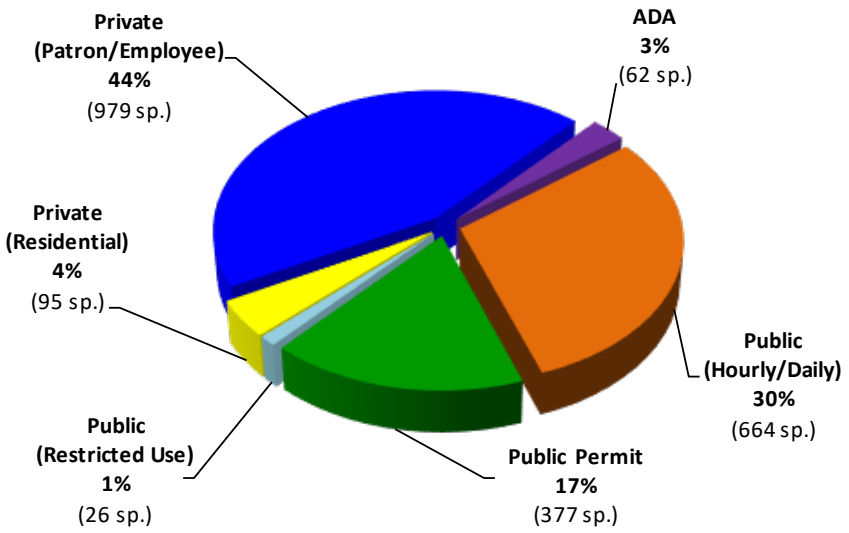
On-street parking is made up of curbside parking spaces, typically aligned parallel to the street, and subject to some form of assigned time limit and/or regulated by a parking meter. Staff presumed all on-street spaces to be open for use by the general public, unless designated otherwise. Off-street facilities are surface parking lots and parking structures (e.g. garages) which may be for public or private use.

For the bulk of parking within the study area, DESMAN categorized the spaces as either metered, reserved for Town permit holders, residential, patron/employee, or reserved for ADA permit holders. Staff also identified 5 motorcycle spaces, 13 library patron spaces, and 9 restricted use spaces on streets within the study area.

Within the downtown study area, off-street parking spaces make up 81% (1,781 spaces) of the total parking supply, while on-street spaces make up the remaining 19% (422 spaces). Of the total parking spaces in downtown, only 30% (664 spaces) are available to the general public on an hourly or daily basis, while the remaining 70% (1,539 spaces) are designated for a specific user, whether that be a patron, an employee, a resident, a motorcyclist, or a driver with a Town parking permit.

Chart 1 below shows the distribution of the total parking inventory according to designated user.

Chart 1: Distribution of Parking Inventory by Specified User

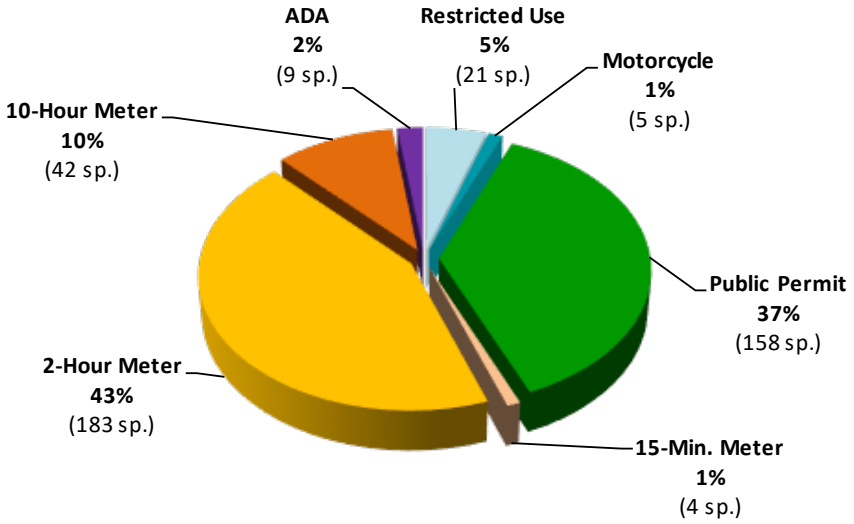


[1] The inventory and occupancy data in this report does not include the parking lot behind 23 South Main Street. This facility was under construction during the study and is being replaced with an automated stacked parking facility that will result in a different number of total spaces than the existing surface lot.

On-Street Inventory

The on-street parking supply within the study area consists of 422 spaces – 229 metered spaces of varying duration, 158 Town permit spaces and 35 restricted, motorcycle or ADA spaces. As shown in **Chart 2**, below, 43% (183 spaces) of the on-street parking inventory is comprised of 2-hour metered spaces, with a majority of that located on South Main, Lebanon and Wheelock Streets. This concentration of 2-hour parking is meant to provide convenient access for customers of downtown businesses. The 42 10-hour metered spaces are located on the edges of downtown and are intended for longer customer visits and for use by employees who do not have an on-street Town permit or permit for an off-street facility. There are also 4 15-minute metered spaces in front of Stinson's on Allen Street for customers running quick errands.

Chart 2: Distribution of On-Street Supply by Restriction



Tables 1 – 3 present the detailed inventories of on-street metered spaces, Town permit spaces and restricted use spaces, respectively.

The locations of the existing on-street parking inventory are shown in detail on the aerial in **Figure 2**.

Table 1: Inventory of On-Street Metered Parking

BLK #	STREET NAME	15-Min. Meter	2-Hour Meter	10-Hour Meter	TOTAL
1-North	W. Wheelock Street		17		17
1-East	S. Main Street		12		12
2-North	E. Wheelock Street		39		39
2-East	Crosby Street		11	6	17
2-South	Lebanon Street		14	5	19
2-West	S. Main Street		28		28
3-North	Allen Street	4	5	7	16
3-East	S. Main Street		16		16
3-West	School Street			14	14
4-North	Lebanon Street		17		17
6-North	South Street		15		15
6-South	Dorrance Place		3		3
6-West	S. Main Street		2		2
7-North	Lebanon Street		4	10	14
TOTAL		**4**	**183**	**42**	**229**

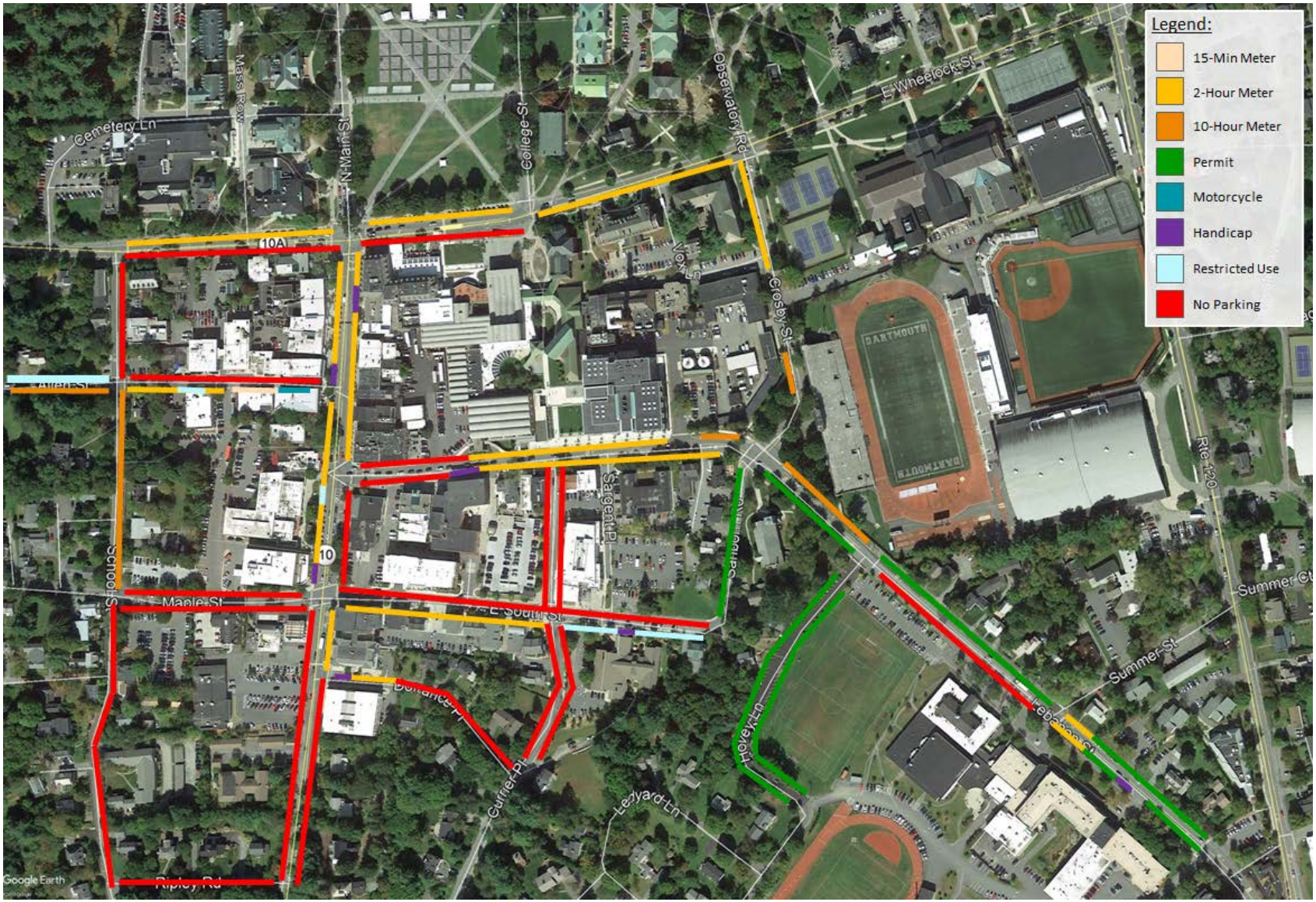
Table 2: Inventory of On-Street Town Permit Parking

BLK #	STREET NAME	Public Permit
4-East	Sanborn Road	8
7-North	Lebanon Street	52
7-West	Hovey Lane	98
TOTAL		**158**

Table 3: Inventory of On-Street Restricted Use Parking

BLK #	STREET NAME	Public Restricted Use	Public Motorcycle	ADA	TOTAL
1-East	S. Main Street			1	1
1-South	Allen Street	7			7
2-North	E. Wheelock Street			2	2
2-West	S. Main Street			1	1
3-North	Allen Street	1	5		6
3-East	S. Main Street	1		1	2
4-North	Lebanon Street			1	1
6-North	South Street	12		1	13
6-South	Dorrance Place			1	1
7-North	Lebanon Street			1	1
TOTAL		**21**	**5**	**9**	**35**

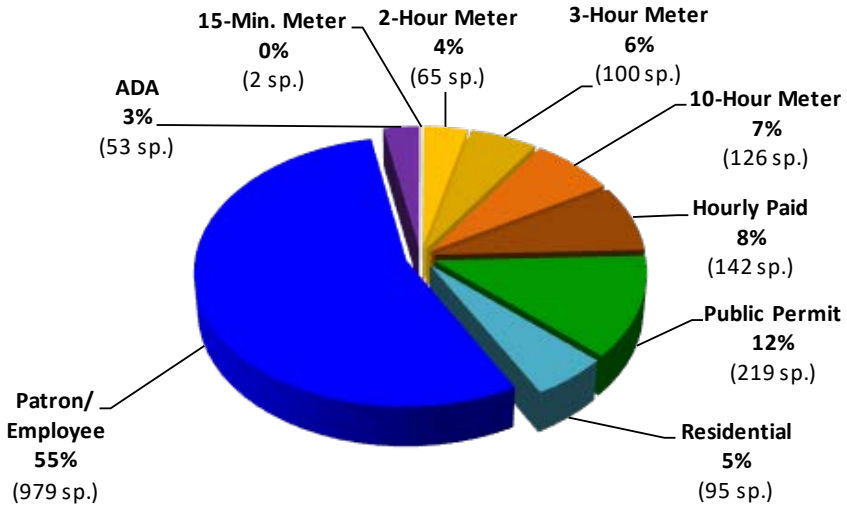
Figure 2: Locations of the On-Street Parking Inventory



Off-Street Inventory

DESMAN identified 54 off-street parking facilities within the study area, containing a total of 1,781 parking spaces. As shown in **Chart 3**, 55% (979 spaces) of the off-street supply is reserved for use by patrons and/or employees of particular businesses and is privately-owned/controlled, as are 30 of the ADA spaces. The Town of Hanover controls nearly 38% of the off-street parking supply in the study area – a total of 673 spaces in 10 facilities – including 293 metered spaces, 142 hourly paid spaces in the Hanover Parking Garage, 219 permit spaces, and 19 ADA spaces. The remaining 5% of the parking supply (95 spaces) is designated for use by downtown residents, as are 4 ADA spaces.

Chart 3: Distribution of Off-Street Supply by Restriction



Tables 4 – 6 present the detailed inventories of off-street metered and hourly paid spaces, Town permit spaces and patron/employee/resident spaces, respectively. The "Facility ID" assigned to the entries in the tables can be used to identify the location of each parking facility in the aerial photograph, labeled **Figure 3**.

Table 4: Inventory of Off-Street Metered and Hourly Public Parking

FACILITY ID	NAME/DESCRIPTION	Public 15-Min. Meter	Public 2-Hour Meter	Public 3-Hour Meter	Public 10-Hour Meter	Public Hourly Paid	ADA	TOTAL
1-E	Buskey Lot		14					14
1-G	Municipal Lot 5		5				1	6
2-D	Municipal Lot 7				29		2	31
2-E	Municipal Lot 3	2	7					9
2-F	Municipal Lot 6		24				2	26
3-C	Municipal Lot 1			84			4	88
3-E	SM-63 Garage			16	16			32
4-C	Hanover Parking Garage					142	7	149
5-A	Marshall Lot				81		2	83
6-A	South Block Lot		15				1	16
TOTAL		**2**	**65**	**100**	**126**	**142**	**19**	**454**

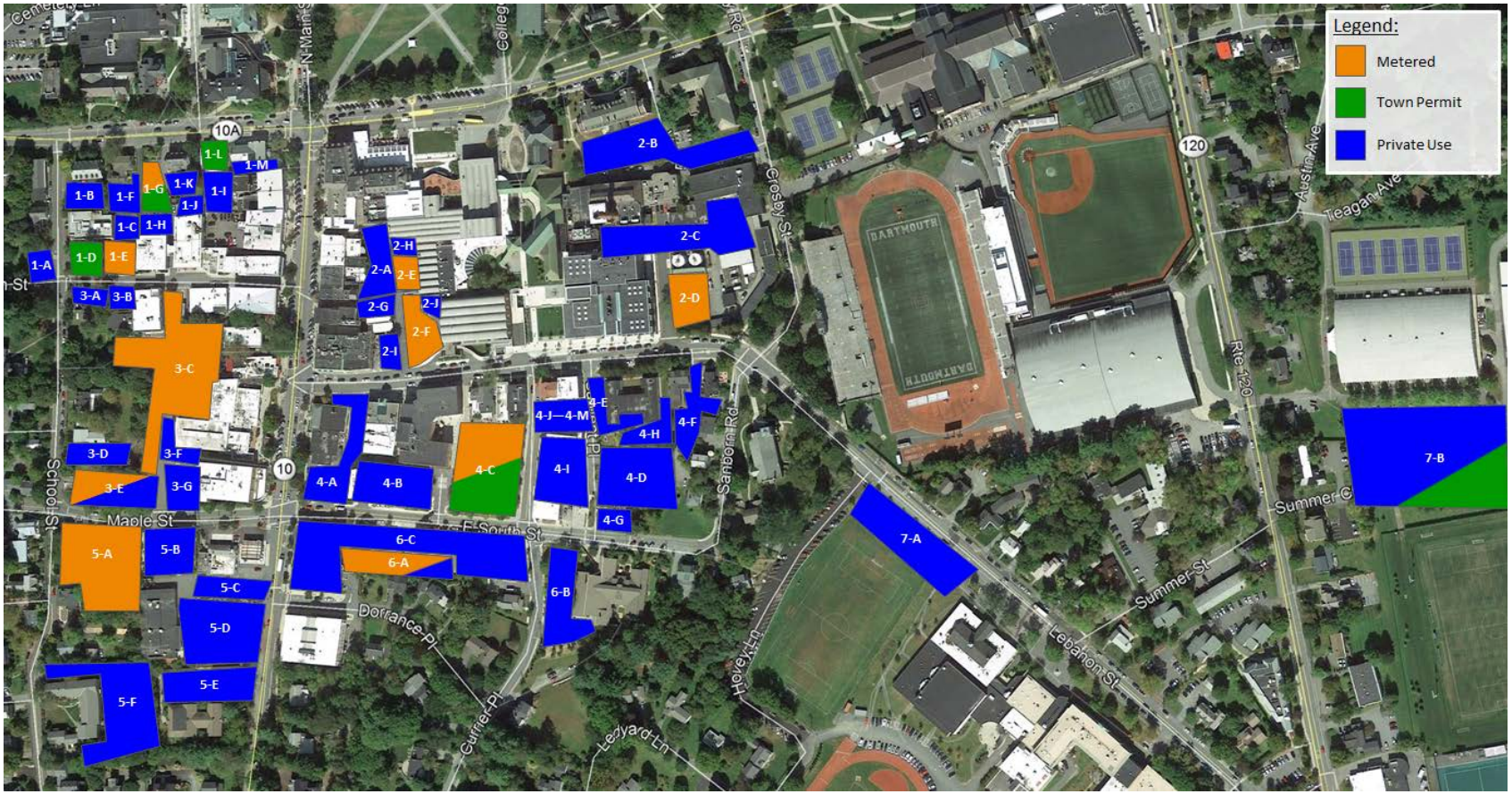
Table 5: Inventory of Off-Street Town Permit Parking

FACILITY ID	NAME/DESCRIPTION	Public Permit
1-D	Allen Lot	16
1-G	Municipal Lot 5	9
1-L	Banwell Lot	8
4-C	Hanover Parking Garage	136
7-B	Thompson Lot	50
TOTAL		**219**

Table 6: Inventory of Off-Street Patron/Employee/Resident Parking

FACILITY ID	NAME/DESCRIPTION	Private Residential	Private Patron/ Employee	ADA	TOTAL
1-A	3 School St Lot	3			3
1-B	Sigma Delta Lot	5			5
1-C	Consolidated Comms. Lot		8		8
1-F	Coldwell Banker Lot		17	1	18
1-H	Seven Allen Lot		15		15
1-I	Davison Block Lot		17		17
1-J	Five Allen Lot		10		10
1-K	Wheelock House Apts Lot	5			5
1-M	Casque & Gauntlet Alley	3			3
2-A	South Main Street Condos		25		25
2-B	Vox Lane Lots		43		43
2-C	Power Station Lot		35		35
2-G	Roger Clarkson Lot		5		5
2-H	Dartmouth Mail Lot		1	1	2
2-I	Campion Building Lot		3	1	4
2-J	The Hopkins Center Lot		3		3
3-A	8 School St Lot	5			5
3-B	Gilberte Design Lot		8		8
3-C	Municipal Lot 1		5		5
3-D	Edgerton House Lot	13	4		17
3-E	SM-63 Garage		30		30
3-F	Nugget Theater Lot		6		6
3-G	Bank of America Lot		5		5
4-A	Post Office Lot		27	1	28
4-B	Six South St. Hotel		42		42
4-D	Sargent Place Lot		65	2	67
4-E	Lodge Lot	16			16
4-F	Jewel of India Lot	9	6	2	17
4-G	Library Lot		8		8
4-H	Enterprise Rent-a-Car Lot		14		14
4-I	4 Currier Garage		20	1	21
4-J	4 Currier Lot		5		5
4-K	Sotheby's Lot		5		5
4-L	C&A Pizza Lot		4		4
4-M	17 Lebanon St Apts Lot	2		1	3
5-B	Ledyard Financial Garage		32	1	33
5-C	Circle K Lot		12	1	13
5-D	CVS Lot		44	2	46
5-E	85 S. Main Street Lot	7		3	10
5-F	24 School Street Lot	27			27
6-A	South Block Lot		4		4
6-B	Library Lot		30	2	32
6-C	South Block Garage		92	3	95
7-A	Hanover High School Lot		51	4	55
7-B	Thompson Lot		278	8	286
TOTAL		**95**	**979**	**34**	**1,108**

Figure 3: Locations of the Off-Street Parking Inventory



Effective Parking Supply

Effective parking supply is a planning concept that proposes parking facilities are perceived as full before they actually reach capacity. For example, on-street parking spaces seem unavailable to the casual observer if 85% or more of the spaces are occupied – even though at least one space is available – because of the difficulty the driver experiences locating those last remaining spaces. Planners also use the effective supply concept to account for circumstances which may temporarily reduce the capacity of a facility, such as snow cover or a misparked vehicle occupying multiple spots.

For this analysis, DESMAN reduced the number of general parking spaces by 10% in all off-street parking lots and by 5% in all parking structures. For general on-street spaces, DESMAN applied a 15% reduction factor. DESMAN did not subject reserved and handicapped spaces to these adjustments because drivers who use those spaces are generally aware of where they are located.

These adjustments result in an *effective supply* of 1,999 parking spaces, a reduction of 204 spaces from the actual supply of 2,203 spaces.

A detailed, facility-by-facility inventory of the effective parking supply can be found in the Appendix.

The concept of effective parking supply will factor into the analysis of the existing parking demand in downtown Hanover, presented in the next section.

4. Existing Parking Demand

To establish an understanding of existing demand conditions, DESMAN recorded vehicle occupancy for all on- and off-street parking facilities within the downtown study area. For the utilization surveys, staff recorded the number of parked vehicles along block faces and within the off-street parking facilities once every hour beginning at 9:00 AM and concluding at 9:00 PM over the course of a typical weekday. For the length of stay surveys, team members documented the license plate number of each vehicle that parked in each space within the selected facilities and street segments on an hourly basis.

In the analysis which follows, the number of parked vehicles has been compared to the effective supply of parking downtown, as opposed to the actual supply. As mentioned previously, this method for analyzing parking demand focuses on the user's perspective of parking space availability. While a parking facility whose effective supply of spaces is 100% occupied will have a few actual spaces available, the facility will seem completely full to the average driver.

Weekday Observations

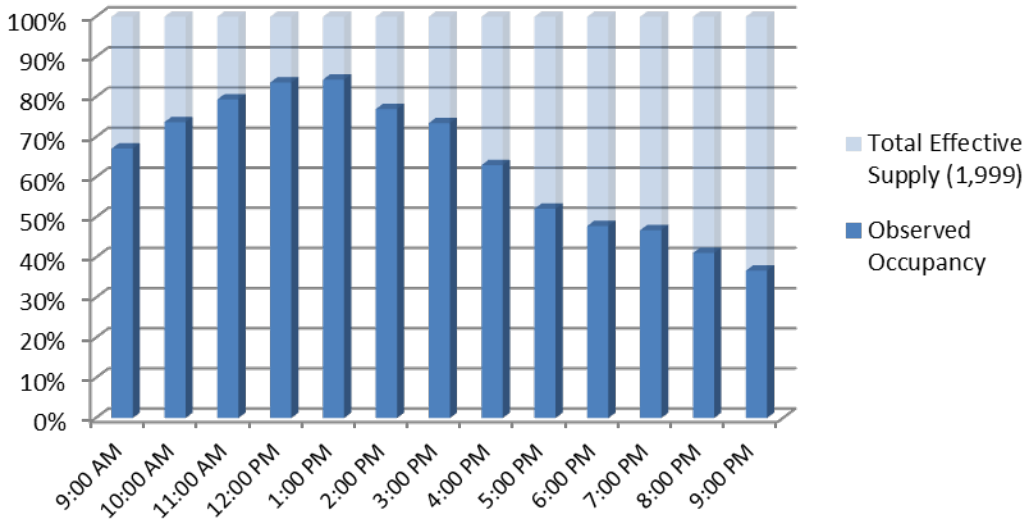
DESMAN conducted the initial weekday occupancy counts on Wednesday, May 16, 2018. This day was chosen to capture parking demand conditions prior to end of the Dartmouth College spring term and the Final Examination period, when local resident, student, and employee populations were expected to be high. Weather conditions on the survey day were fair and clear.

After discussions with the Town regarding the parking dynamics in certain facilities, DESMAN personnel returned to Hanover to conduct a second set of occupancy counts on Wednesday, December 12, 2018. Due to the fact that Dartmouth was not in session during the second survey day, the Town provided

DESMAN with occupancy data for the Hanover Parking Garage and the on-street spaces on West Wheelock Street gathered on Wednesday, January 16, 2019, to reflect conditions when Dartmouth is in session.

Based on the survey data gathered by both DESMAN and Town personnel, average total occupancy of the effective parking supply during the course of the weekday observations was 64% across the study area. However, area-wide utilization peaked at 1:00 PM when drivers occupied 84% of the effective supply (1,686 vehicles parked in 1,999 spaces). **Chart 4** shows how the supply of parking in the downtown study area was utilized over the course of the weekday survey day.

Chart 4: Occupancy of the Downtown Parking Supply by Hour



Despite the fact that, as a whole, the downtown parking supply was not fully utilized, even during the peak period, there were many times throughout the day that individual block faces or off-street parking facilities experienced greater than 100% utilization.

Existing Utilization of On-Street Parking

DESMAN observed that the on-street spaces within the downtown study area were consistently more highly utilized than the off-street spaces. Given the visibility of on-street parking and the convenience of those spaces to the front doors of street-fronting businesses, it stands to reason that these spaces would be the most desired and most highly utilized.

On average, vehicles occupied 78% of the effective supply of on-street spaces over the course of the survey day. However, like the study area as a whole, utilization of the on-street parking inventory peaked at 1:00 PM, reaching 107% of the effective supply. During this time, 384 vehicles were parked on-street, compared to the effective supply of 359 spaces. As shown in **Table 7**, on-street occupancy also exceeded the effective supply of parking during the 12:00 PM hour. The cells highlighted in pink indicate the greatest number of vehicles recorded in any given parking area.

Table 7: Occupancy of the Effective On-Street Parking Supply

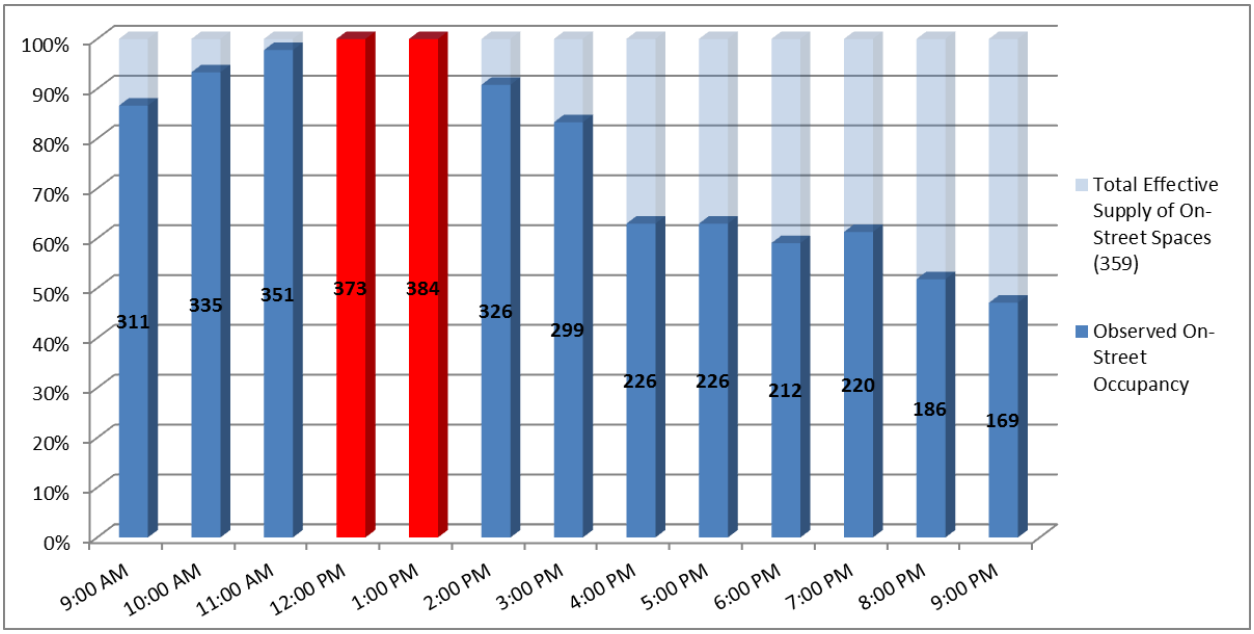
BLK #	STREET NAME	SPACE TYPE	Actual Supply	*Effective Supply*	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	Highest Occupancy	Peak % of Effective Supply Occupied
1-East	S. Main St	Public 2-Hour Meters	13	*11*	13	11	13	13	13	11	12	12	13	10	13	13	10	13	118%
1-North	W. Wheelock St	Public 2-Hour Meters	17	*14*	11	17	17	17	16	17	16	17	11	9	11	9	9	17	121%
1-South	Allen St	Restricted Use	7	*6*	2	5	8	5	6	3	4	3	1	0	0	0	0	8	133%
2-North	E. Wheelock St	Public 2-Hour Meters	41	*35*	14	14	17	30	33	23	22	16	35	39	38	24	25	39	111%
2-East	Crosby St	Public 2-Hour Meters	11	*9*	10	6	6	6	7	6	5	7	6	11	11	6	6	11	122%
2-East	Crosby St	Public 10-Hour Meters	6	*5*	4	6	6	6	6	6	5	5	4	4	4	1	1	6	120%
2-South	Lebanon St	Public 2-Hour Meters	14	*12*	13	10	13	14	12	13	11	11	11	14	13	14	12	14	117%
2-South	Lebanon St	Public 10-Hour Meters	5	*4*	5	5	5	5	4	5	4	4	3	5	5	3	3	5	125%
2-West	S. Main St	Public 2-Hour Meters	29	*25*	23	27	22	22	26	24	25	20	28	22	24	26	25	28	112%
3-North	Allen St	Restricted Use	1	*1*	0	0	1	0	1	1	0	0	0	0	0	0	0	1	100%
3-North	Allen St	Public Motorcycle	5	*4*	0	0	0	0	1	1	1	1	1	0	0	0	0	1	25%
3-North	Allen St	Public 15-Min Meters	4	*3*	0	1	2	3	2	3	3	1	1	4	3	2	3	4	133%
3-North	Allen St	Public 2-Hour Meters	5	*4*	5	4	4	5	5	4	4	3	3	4	4	3	1	5	125%
3-North	Allen St	Public 10-Hour Meters	7	*6*	5	6	6	6	6	7	7	5	5	2	0	0	0	7	117%
3-East	S. Main St	Public 2-Hour Meters	18	*16*	14	13	16	17	16	16	15	12	16	15	16	16	13	17	106%
3-West	School St	Public 10-Hour Meters	14	*12*	13	13	14	14	11	14	11	10	3	3	8	7	7	14	117%
4-North	Lebanon St	Public 2-Hour Meters	18	*15*	12	15	16	19	20	17	18	17	17	12	18	19	20	20	133%
4-East	Sanborn Rd	Public Permit	8	*7*	7	8	8	7	7	6	7	4	2	3	3	2	1	8	114%
6-North	South St	Restricted Use	13	*11*	1	6	6	10	9	6	12	9	8	9	7	2	1	12	109%
6-North	South St	Public 2-Hour Meters	15	*13*	11	11	15	14	15	10	12	12	13	14	14	13	12	15	115%
6-South	Dorrance Pl	Public 2-Hour Meters	4	*4*	1	2	3	4	4	2	2	2	3	2	3	2	1	4	100%
6-West	S. Main St	Public 2-Hour Meters	2	*2*	1	1	2	2	2	1	1	2	2	2	2	2	1	2	100%
7-North	Lebanon St	Public 2-Hour Meters	5	*4*	2	3	1	4	5	4	3	1	1	1	0	0	0	5	125%
7-North	Lebanon St	Public 10-Hour Meters	10	*9*	10	10	10	10	9	5	6	2	5	6	6	5	3	10	111%
7-North	Lebanon St	Public Permit	52	*44*	46	48	47	46	50	33	33	15	9	13	12	12	10	50	114%
7-West	Hovey Ln	Public Permit	98	*83*	88	93	93	94	98	88	60	35	25	8	5	5	5	98	118%
Grand Total			**422**	***359***	**311**	**335**	**351**	**373**	**384**	**326**	**299**	**226**	**226**	**212**	**220**	**186**	**169**	**414**	**115%**
% Effective Supply Used					**87%**	**93%**	**98%**	**104%**	**107%**	**91%**	**83%**	**63%**	**63%**	**59%**	**61%**	**52%**	**47%**		= Highest Occupancy

In addition to the on-street occupancy exceeding the effective supply of spaces twice during the survey day, as shown in the righthand column of the table, every street segment, aside from the motorcycle spaces on Allen Street, experienced greater than 100% utilization at some point during the survey day, with many areas exceeding 100% utilization several times.

From a user perspective, this data indicates that it would have been very difficult, if not impossible, for a driver looking for an available on-street parking space to actually find one, depending on the time of day and the street that they were searching.

Chart 5 demonstrates how the supply of on-street parking was utilized over the course of the weekday survey day, with spaces quickly filling during the morning hours to their peak at 1:00 PM and activity levels gradually falling in the afternoon and evening hours.

Chart 5: Occupancy of the Effective On-Street Parking Supply by Hour



Tables 8 – 10 show the detailed on-street occupancy data broken down by metered spaces, Town permit spaces and restricted use spaces, respectively.

Table 8: Occupancy of On-Street Metered Parking

BLK #	STREET NAME	SPACE TYPE	Actual Supply	*Effective Supply*	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	Highest Occupancy	Peak % of Effective Supply Occupied
1-East	S. Main St	Public 2-Hour Meters	13	*11*	13	11	13	13	13	11	12	12	13	10	13	13	10	13	118%
1-North	W. Wheelock St	Public 2-Hour Meters	17	*14*	11	17	17	17	16	17	16	17	11	9	11	9	9	17	121%
2-North	E. Wheelock St	Public 2-Hour Meters	41	*35*	14	14	17	30	33	23	22	16	35	39	38	24	25	39	111%
2-East	Crosby St	Public 2-Hour Meters	11	*9*	10	6	6	6	7	6	5	7	6	11	11	6	6	11	122%
2-East	Crosby St	Public 10-Hour Meters	6	*5*	4	6	6	6	6	6	5	5	4	4	4	1	1	6	120%
2-South	Lebanon St	Public 2-Hour Meters	14	*12*	13	10	13	14	12	13	11	11	11	14	13	14	12	14	117%
2-South	Lebanon St	Public 10-Hour Meters	5	*4*	5	5	5	5	4	5	4	4	3	5	5	3	3	5	125%
2-West	S. Main St	Public 2-Hour Meters	29	*25*	23	27	22	22	26	24	25	20	28	22	24	26	25	28	112%
3-North	Allen St	Public 15-Min Meters	4	*3*	0	1	2	3	2	3	3	1	1	4	3	2	3	4	133%
3-North	Allen St	Public 2-Hour Meters	5	*4*	5	4	4	5	5	4	4	3	3	4	4	3	1	5	125%
3-North	Allen St	Public 10-Hour Meters	7	*6*	5	6	6	6	6	7	7	5	5	2	0	0	0	7	117%
3-East	S. Main St	Public 2-Hour Meters	18	*16*	14	13	16	17	16	16	15	12	16	15	16	16	13	17	106%
3-West	School St	Public 10-Hour Meters	14	*12*	13	13	14	14	11	14	11	10	3	3	8	7	7	14	117%
4-North	Lebanon St	Public 2-Hour Meters	18	*15*	12	15	16	19	20	17	18	17	17	12	18	19	20	20	133%
6-North	South St	Public 2-Hour Meters	15	*13*	11	11	15	14	15	10	12	12	13	14	14	13	12	15	115%
6-South	Dorrance Pl	Public 2-Hour Meters	4	*4*	1	2	3	4	4	2	2	2	3	2	3	2	1	4	100%
6-West	S. Main St	Public 2-Hour Meters	2	*2*	1	1	2	2	2	1	1	2	2	2	2	2	1	2	100%
7-North	Lebanon St	Public 2-Hour Meters	5	*4*	2	3	1	4	5	4	3	1	1	1	0	0	0	5	125%
7-North	Lebanon St	Public 10-Hour Meters	10	*9*	10	10	10	10	9	5	6	2	5	6	6	5	3	10	111%
Grand Total			**238**	***203***	**167**	**175**	**188**	**211**	**212**	**188**	**182**	**159**	**180**	**179**	**193**	**165**	**152**	**236**	**116%**
% Effective Supply Used					**82%**	**86%**	**93%**	**104%**	**104%**	**93%**	**90%**	**78%**	**89%**	**88%**	**95%**	**81%**	**75%**		= Highest Occupancy

Table 9: Occupancy of On-Street Town Permit Parking

BLK #	STREET NAME	SPACE TYPE	Actual Supply	*Effective Supply*	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	Highest Occupancy	Peak % of Effective Supply Occupied
4-East	Sanborn Rd	Public Permit	8	*7*	7	8	8	7	7	6	7	4	2	3	3	2	1	8	114%
7-North	Lebanon St	Public Permit	52	*44*	46	48	47	46	50	33	33	15	9	13	12	12	10	50	114%
7-West	Hovey Ln	Public Permit	98	*83*	88	93	93	94	98	88	60	35	25	8	5	5	5	98	118%
Grand Total			158	*134*	141	149	148	147	155	127	100	54	36	24	20	19	16	156	116%
% Effective Supply Used					105%	111%	110%	110%	116%	95%	75%	40%	27%	18%	15%	14%	12%		= Highest Occupancy

Table 10: Occupancy of On-Street Restricted Use Parking

BLK #	STREET NAME	SPACE TYPE	Actual Supply	*Effective Supply*	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	Highest Occupancy	Peak % of Effective Supply Occupied
1-South	Allen St	Restricted Use	7	*6*	2	5	8	5	6	3	4	3	1	0	0	0	0	8	133%
3-North	Allen St	Restricted Use	1	*1*	0	0	1	0	1	1	0	0	0	0	0	0	0	1	100%
3-North	Allen St	Public Motorcycle	5	*4*	0	0	0	0	1	1	1	1	1	0	0	0	0	1	25%
6-North	South St	Restricted Use	13	*11*	1	6	6	10	9	6	12	9	8	9	7	2	1	12	109%
Grand Total			26	*22*	3	11	15	15	17	11	17	13	10	9	7	2	1	22	100%
% Effective Supply Used					14%	50%	68%	68%	77%	50%	77%	59%	45%	41%	32%	9%	5%		= Highest Occupancy

As shown in Table 9, Town permit spaces were in high demand in the morning and early afternoon, but demand dropped around 4:00 PM, which corresponds with the end of normal business hours. This suggests that a significant portion of Town permit holders parking on-street do not work evening jobs and that these spaces, or a portion of these spaces, could be used to accommodate nighttime and weekend demand.

Existing Utilization of Off-Street Parking

While the overall utilization of off-street parking in downtown Hanover is lower than the utilization of on-street parking, there were still a number of off-street facilities that exceeded 100% utilization on the survey day. However, even at the peak hour, DESMAN observed significant availability in the off-street parking supply, particularly in the private patron/employee parking facilities. Given that this excess capacity exists, there may be opportunities to use these facilities to mitigate the demand for the on-street parking supply during the day and to help accommodate anticipated future demand growth (to be discussed later in this report).

Over the course of the survey day, on average, vehicles occupied 61% of the effective supply of off-street parking. Like the study area as a whole, overall utilization of the off-street parking supply peaked at 1:00 PM when 79% of the effective parking supply was utilized.

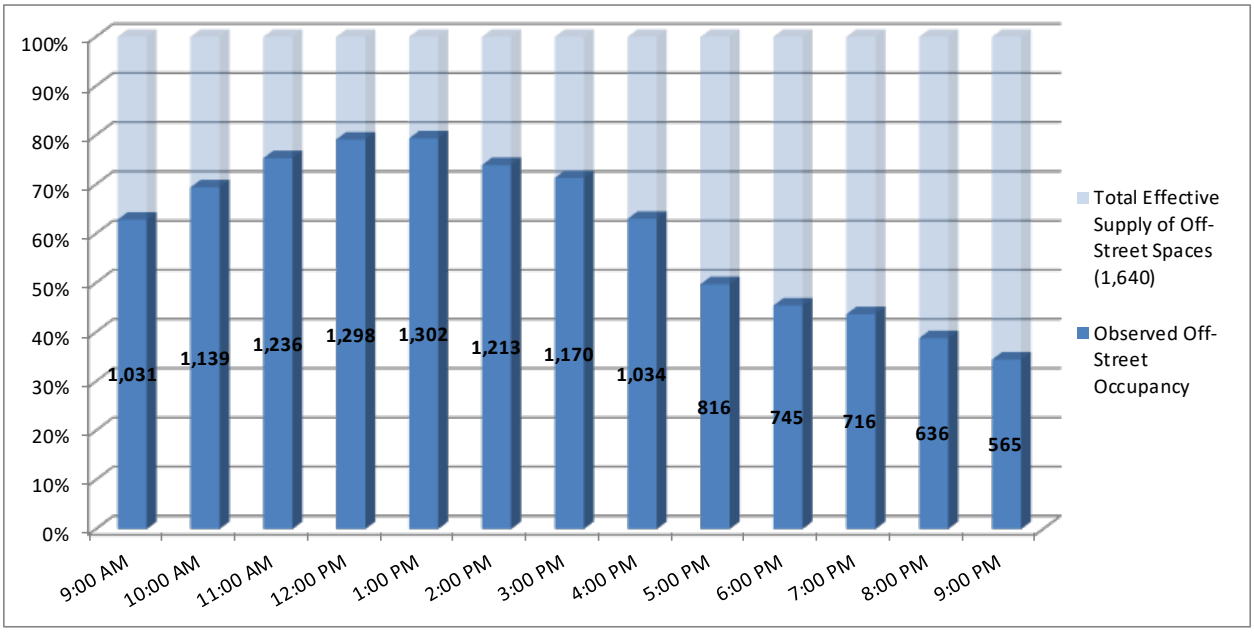
Table 11 shows the detailed occupancy data gathered at the off-street parking facilities over the course of the survey day. The cells in the table highlighted in pink indicate the greatest number of vehicles recorded in any given parking facility. Similar to the on-street occupancy table, the righthand column of Table 11 shows that a significant number of the off-street parking facilities in downtown experienced greater than 100% utilization at some point during the survey day, with 19 parking facilities exceeding 100% utilization several times.

Table 11: Occupancy of the Effective Off-Street Parking Supply

FACILITY ID	NAME/DESCRIPTION	Type of Parking	Actual Supply	*Effective Supply*	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	Highest Occupancy	Peak % of Effective Supply Occupied
1-A	3 School St Lot	Private Residential	3	*3*	1	1	1	1	0	0	0	0	0	1	2	2	2	2	67%
1-B	Sigma Delta Lot	Private Residential	5	*5*	4	4	5	5	4	4	4	4	5	5	3	3	3	5	100%
1-C	Consolidated Comms. Lot	Private Patron/Employee	8	*7*	1	1	1	5	1	1	1	2	1	1	1	1	1	5	71%
1-D	Allen Lot	Public Permit	16	*14*	10	12	12	13	12	9	4	5	3	1	1	8	8	13	93%
1-E	Buskey Lot	Public 2-Hour Meters	14	*13*	3	4	3	7	11	13	10	11	2	5	5	3	1	13	100%
1-F	Coldwell Banker Lot	Private Patron/Employee	18	*16*	16	10	12	10	12	9	12	8	8	7	5	5	5	16	100%
1-G	Municipal Lot 5	Public Permit	9	*8*	3	4	4	4	5	4	4	2	3	2	2	1	1	5	63%
1-G	Municipal Lot 5	Public 2-Hour Meters	6	*6*	0	3	4	4	5	3	1	4	5	5	5	4	4	5	83%
1-H	Seven Allen Lot	Private Patron/Employee	15	*14*	6	7	7	6	6	5	7	4	0	0	0	2	2	7	50%
1-I	Davison Block Lot	Private Patron/Employee	17	*15*	6	9	11	13	14	13	11	10	11	4	7	7	7	14	93%
1-J	Five Allen Lot	Private Patron/Employee	10	*9*	1	0	0	1	1	0	0	0	0	0	0	0	0	1	11%
1-K	Wheelock House Apts Lot	Private Residential	5	*5*	1	1	1	1	1	2	1	1	0	0	0	0	0	2	40%
1-L	Banwell Lot	Public Permit	8	*7*	3	3	3	3	3	4	3	3	1	2	0	0	0	4	57%
1-M	Casque & Gauntlet Alley	Private Residential	3	*3*	1	1	2	1	1	1	1	0	0	0	0	0	0	2	67%
2-A	South Main Street Condos	Private Patron/Employee	25	*23*	14	20	20	19	22	20	17	16	15	8	7	4	5	22	96%
2-B	Vox Lane Lots	Private Patron/Employee	43	*39*	36	38	41	41	36	38	36	27	29	30	28	23	21	41	105%
2-C	Power Station Lot	Private Patron/Employee	35	*32*	28	30	25	35	36	27	32	33	33	34	35	31	30	36	113%
2-D	Municipal Lot 7	Public 10-Hour Meters	31	*28*	28	30	30	30	30	29	22	18	16	16	16	17	15	30	107%
2-E	Municipal Lot 3	Public Meters	9	*8*	6	7	6	7	6	9	7	9	8	8	8	8	8	9	113%
2-F	Municipal Lot 6	Public 2-Hour Meters	26	*24*	13	16	19	25	24	22	22	25	24	25	26	24	21	26	108%
2-G	Roger Clarkson Lot	Private Patron/Employee	5	*5*	5	4	2	6	6	5	4	5	5	4	5	2	1	6	120%
2-H	Dartmouth Mail Lot	Private Patron/Employee	2	*2*	0	1	1	0	1	1	1	1	1	1	1	0	0	1	50%
2-I	Campion Building Lot	Private Patron/Employee	4	*4*	3	3	5	5	3	4	4	3	3	5	4	2	3	5	125%
2-J	The Hopkins Center Lot	Private Patron/Employee	3	*3*	2	2	2	1	2	2	2	2	1	3	3	2	3	3	100%
3-A	8 School St Lot	Private Residential	5	*5*	4	4	4	4	4	4	4	4	4	4	4	4	4	4	80%
3-B	Gilberte Design Lot	Private Patron/Employee	8	*7*	3	4	3	2	5	7	7	6	2	3	4	2	2	7	100%
3-C	Municipal Lot 1	Public 3-Hour Meters + P/E	93	*85*	22	44	60	81	76	62	65	76	74	85	83	62	44	85	100%
3-D	Edgerton House Lot	Private Residential	17	*16*	9	9	15	15	9	11	5	5	7	8	7	7	7	15	94%
3-E	SM-63 Garage	Public 3-Hour Meters	16	*14*	4	4	6	14	13	11	11	7	7	8	11	6	5	14	100%
3-E	SM-63 Garage	Public 10-Hour Meters	16	*14*	16	16	16	15	15	16	15	12	10	9	12	8	8	16	114%
3-E	SM-63 Garage	Private Patron/Employee	30	*29*	16	17	18	19	21	20	19	7	7	1	0	0	0	21	72%
3-F	Nugget Theater Lot	Private Patron/Employee	6	*5*	5	6	4	5	5	5	6	1	1	2	1	2	2	6	120%
3-G	Bank of America Lot	Private Patron/Employee	5	*5*	1	1	2	5	2	2	4	2	2	5	5	4	3	5	100%
4-A	Post Office Lot	Private Patron/Employee	28	*25*	16	21	18	17	14	11	14	10	9	6	5	5	5	21	84%
4-B	Six South St. Hotel	Private Patron/Employee	42	*40*	16	16	13	13	15	15	15	14	15	14	14	16	16	16	40%
4-C	Hanover Parking Garage	Public Unlimited Paid	149	*142*	94	119	124	129	126	123	111	117	97	77	89	73	64	129	91%
4-C	Hanover Parking Garage	Public Permit	136	*129*	89	98	105	108	111	107	96	80	69	41	38	37	31	111	86%
4-D	Sargent Place Lot	Private Patron/Employee	67	*61*	16	17	19	17	18	18	17	15	14	13	15	8	5	19	31%
4-E	Lodge Lot	Private Residential	16	*14*	11	11	10	10	9	7	9	10	10	10	10	10	10	11	79%
4-F	Jewel of India Lot	Private Patron/Employee	17	*15*	9	7	12	16	13	8	8	8	9	8	6	8	9	16	107%
4-G	Library Lot	Private Patron/Employee	8	*7*	2	4	4	6	7	8	8	8	8	6	8	8	8	8	114%
4-H	Enterprise Rent-a-Car Lot	Private Patron/Employee	14	*13*	9	7	7	7	7	5	6	6	6	7	7	7	7	9	69%
4-I	4 Currier Garage	Private Patron/Employee	21	*20*	14	14	18	18	18	20	20	16	12	3	1	1	1	20	100%
4-J	4 Currier Lot	Private Patron/Employee	5	*5*	3	3	3	3	4	4	4	4	4	4	3	2	1	4	80%
4-K	Sotheby's Lot	Private Patron/Employee	5	*5*	0	2	3	3	5	3	3	3	3	5	5	3	3	5	100%
4-L	C&A Pizza Lot	Private Patron/Employee	4	*4*	3	4	3	3	4	4	4	4	4	4	4	4	3	4	100%
4-M	17 Lebanon St Apts Lot	Private Residential	3	*3*	1	0	2	2	1	2	2	2	3	2	3	4	3	4	133%
5-A	Marshall Lot	Public 10-Hour Meters	83	*75*	77	78	81	81	79	76	65	60	31	28	35	35	33	81	108%
5-B	Ledyard Financial Garage	Private Patron/Employee	33	*31*	10	12	14	16	18	17	16	15	6	8	6	6	4	18	58%
5-C	Circle K Lot	Private Patron/Employee	13	*12*	7	13	9	13	10	6	11	9	10	9	10	8	6	13	108%
5-D	CVS Lot	Private Patron/Employee	46	*42*	28	16	34	35	43	41	41	33	33	33	17	26	21	43	102%
5-E	85 S. Main Street Lot	Private Residential	10	*9*	5	4	3	2	5	4	3	2	4	3	3	3	3	5	56%
5-F	24 School Street Lot	Private Residential	27	*24*	13	13	11	10	8	7	8	9	8	8	11	12	13	13	54%
6-A	South Block Lot	Private Patron/Employee	4	*4*	1	3	1	3	4	3	4	4	4	2	1	2	1	4	100%
6-A	South Block Lot	Public 2-Hour Meters	16	*15*	12	11	16	16	17	9	10	13	15	16	13	11	9	17	113%
6-B	Library Lot	Private Patron/Employee	32	*29*	7	12	30	27	26	22	35	28	22	23	21	18	6	35	121%
6-C	South Block Garage	Private Patron/Employee	95	*90*	46	46	47	44	45	47	51	39	28	25	26	24	23	51	57%
7-A	Hanover High School Lot	Private Patron/Employee	55	*50*	48	50	49	51	51	44	38	18	10	9	2	2	2	51	102%
7-B	Thompson Lot	Public Permit	50	*45*	29	36	38	37	37	33	32	30	19	14	5	4	4	38	84%
7-B	Thompson Lot	Private Patron/Employee	286	*258*	194	206	217	208	215	206	197	164	75	75	67	55	58	217	84%
Grand Total			**1,781**	***1,640***	**1,031**	**1,139**	**1,236**	**1,298**	**1,302**	**1,213**	**1,170**	**1,034**	**816**	**745**	**716**	**636**	**565**	**1,409**	**86%**
% of Effective Supply Occupied					**63%**	**69%**	**75%**	**79%**	**79%**	**74%**	**71%**	**63%**	**50%**	**45%**	**44%**	**39%**	**34%**		= Highest Occupancy

As shown in **Chart 6**, the off-street parking inventory experienced a similar pattern of demand to the on-street inventory over the course of the survey day. The off-street parking facilities filled gradually during the morning hours to their peak at 1:00 PM and then utilization fell gradually in the afternoon and evening hours.

Chart 6: Occupancy of the Effective Off-Street Parking Supply by Hour



Despite the fact that there was an effective supply surplus of 338 spaces at peak across all off-street parking facilities in downtown, when we examine the utilization of paid public parking, Town permit parking and private parking separately, the shortage of off-street public parking becomes evident.

Table 12 presents the detailed occupancy data gathered at the Town of Hanover's metered off-street parking facilities and the paid visitor spaces in the Hanover Parking Garage (this data excludes spaces in these facilities that are reserved for Town permit holders or for patrons/employees of private businesses). **Table 13** provides the detailed occupancy data gathered at the Town of Hanover's permit parking spaces and **Table 14** presents the data for the private patron/employee/resident parking facilities.

Table 12: Occupancy of Off-Street Paid Public Parking

FACILITY ID	NAME/DESCRIPTION	Type of Parking	Actual Supply	*Effective Supply*	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	Highest Occupancy	Peak % of Effective Supply Occupied
1-E	Buskey Lot	Public 2-Hour Meters	14	*13*	3	4	3	7	11	13	10	11	2	5	5	3	1	13	100%
1-G	Municipal Lot 5	Public 2-Hour Meters	6	*6*	0	3	4	4	5	3	1	4	5	5	5	4	4	5	83%
2-D	Municipal Lot 7	Public 10-Hour Meters	31	*28*	28	30	30	30	30	29	22	18	16	16	16	17	15	30	107%
2-E	Municipal Lot 3	Public Meters	9	*8*	6	7	6	7	6	9	7	9	8	8	8	8	8	9	113%
2-F	Municipal Lot 6	Public 2-Hour Meters	26	*24*	13	16	19	25	24	22	22	25	24	25	26	24	21	26	108%
3-C	Municipal Lot 1	Public 3-Hour Meters	88	*80*	19	39	55	76	72	57	60	73	72	83	81	61	43	83	104%
3-E	SM-63 Garage	Public 3-Hour Meters	16	*14*	4	4	6	14	13	11	11	7	7	8	11	6	5	14	100%
3-E	SM-63 Garage	Public 10-Hour Meters	16	*14*	16	16	16	15	15	16	15	12	10	9	12	8	8	16	114%
4-C	Hanover Parking Garage	Public Unlimited Paid	149	*142*	94	119	124	129	126	123	111	117	97	77	89	73	64	129	91%
5-A	Marshall Lot	Public 10-Hour Meters	83	*75*	77	78	81	81	79	76	65	60	31	28	35	35	33	81	108%
6-A	South Block Lot	Public 2-Hour Meters	16	*15*	12	11	16	16	17	9	10	13	15	16	13	11	9	17	113%
Grand Total			**454**	***419***	**272**	**327**	**360**	**404**	**398**	**368**	**334**	**349**	**287**	**280**	**301**	**250**	**211**	**423**	**101%**
% of Effective Supply Occupied					**65%**	**78%**	**86%**	**96%**	**95%**	**88%**	**80%**	**83%**	**68%**	**67%**	**72%**	**60%**	**50%**		= Highest Occupancy

Table 13: Occupancy of Off-Street Town Permit Parking

FACILITY ID	NAME/DESCRIPTION	Type of Parking	Actual Supply	*Effective Supply*	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	Highest Occupancy	Peak % of Effective Supply Occupied
1-D	Allen Lot	Public Permit	16	*14*	10	12	12	13	12	9	4	5	3	1	1	8	8	13	93%
1-G	Municipal Lot 5 Permit	Public Permit	9	*8*	3	4	4	4	5	4	4	2	3	2	2	1	1	5	63%
1-L	Banwell Lot	Public Permit	8	*7*	3	3	3	3	3	4	3	3	1	2	0	0	0	4	57%
4-C	Hanover Parking Garage	Public Permit	136	*129*	89	98	105	108	111	107	96	80	69	41	38	37	31	111	86%
7-B	Thompson Lot Permit	Public Permit	50	*45*	29	36	38	37	37	33	32	30	19	14	5	4	4	38	84%
Grand Total			**219**	***203***	**134**	**153**	**162**	**165**	**168**	**157**	**139**	**120**	**95**	**60**	**46**	**50**	**44**	**171**	**84%**
% of Effective Supply Occupied					**66%**	**75%**	**80%**	**81%**	**83%**	**77%**	**68%**	**59%**	**47%**	**30%**	**23%**	**25%**	**22%**		= Highest Occupancy

Table 14: Occupancy of Off-Street Patron/Employee/Resident Parking

FACILITY ID	NAME/DESCRIPTION	Type of Parking	Actual Supply	*Effective Supply*	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	Highest Occupancy	Peak % of Effective Supply Occupied
1-A	3 School St Lot	Private Residential	3	*3*	1	1	1	1	0	0	0	0	0	1	2	2	2	2	67%
1-B	Sigma Delta Lot	Private Residential	5	*5*	4	4	5	5	4	4	4	4	5	5	3	3	3	5	100%
1-C	Consolidated Comms. Lot	Private Patron/Employee	8	*7*	1	1	1	5	1	1	1	2	1	1	1	1	1	5	71%
1-F	Coldwell Banker Lot	Private Patron/Employee	18	*16*	16	10	12	10	12	9	12	8	8	7	5	5	5	16	100%
1-H	Seven Allen Lot	Private Patron/Employee	15	*14*	6	7	7	6	6	5	7	4	0	0	0	2	2	7	50%
1-I	Davison Block Lot	Private Patron/Employee	17	*15*	6	9	11	13	14	13	11	10	11	4	7	7	7	14	93%
1-J	Five Allen Lot	Private Patron/Employee	10	*9*	1	0	0	1	1	0	0	0	0	0	0	0	0	1	11%
1-K	Wheelock House Apts Lot	Private Residential	5	*5*	1	1	1	1	1	2	1	1	0	0	0	0	0	2	40%
1-M	Casque & Gauntlet Alley	Private Residential	3	*3*	1	1	2	1	1	1	1	0	0	0	0	0	0	2	67%
2-A	South Main Street Condos	Private Patron/Employee	25	*23*	14	20	20	19	22	20	17	16	15	8	7	4	5	22	96%
2-B	Vox Lane Lots	Private Patron/Employee	43	*39*	36	38	41	41	36	38	36	27	29	30	28	23	21	41	105%
2-C	Power Station Lot	Private Patron/Employee	35	*32*	28	30	25	35	36	27	32	33	33	34	35	31	30	36	113%
2-G	Roger Clarkson Lot	Private Patron/Employee	5	*5*	5	4	2	6	6	5	4	5	5	4	5	2	1	6	120%
2-H	Dartmouth Mail Lot	Private Patron/Employee	2	*2*	0	1	1	0	1	1	1	1	1	1	1	0	0	1	50%
2-I	Campion Building Lot	Private Patron/Employee	4	*4*	3	3	5	5	3	4	4	3	3	5	4	2	3	5	125%
2-J	The Hopkins Center Lot	Private Patron/Employee	3	*3*	2	2	2	1	2	2	2	2	1	3	3	2	3	3	100%
3-A	8 School St Lot	Private Residential	5	*5*	4	4	4	4	4	4	4	4	4	4	4	4	4	4	80%
3-B	Gilberte Design Lot	Private Patron/Employee	8	*7*	3	4	3	2	5	7	7	6	2	3	4	2	2	7	100%
3-C	Municipal Lot 1	Private Patron/Employee	5	*5*	3	5	5	5	4	5	5	3	2	2	2	2	2	5	100%
3-D	Edgerton House Lot	Private Residential	17	*16*	9	9	15	15	9	11	5	5	7	8	7	7	7	15	94%
3-E	SM-63 Garage P/E	Private Patron/Employee	30	*29*	16	17	18	19	21	20	19	7	7	1	0	0	0	21	72%
3-F	Nugget Theater Lot	Private Patron/Employee	6	*5*	5	6	4	5	5	5	6	1	1	2	1	2	2	6	120%
3-G	Bank of America Lot	Private Patron/Employee	5	*5*	1	1	2	5	2	2	4	2	2	5	5	4	3	5	100%
4-A	Post Office Lot	Private Patron/Employee	28	*25*	16	21	18	17	14	11	14	10	9	6	5	5	5	21	84%
4-B	Six South St. Hotel	Private Patron/Employee	42	*40*	16	16	13	13	15	15	15	14	15	14	14	16	16	16	40%
4-D	Sargent Place Lot	Private Patron/Employee	67	*61*	16	17	19	17	18	18	17	15	14	13	15	8	5	19	31%
4-E	Lodge Lot	Private Residential	16	*14*	11	11	10	10	9	7	9	10	10	10	10	10	10	11	79%
4-F	Jewel of India Lot	Private Patron/Employee	17	*15*	9	7	12	16	13	8	8	8	9	8	6	8	9	16	107%
4-G	Library Lot	Private Patron/Employee	8	*7*	2	4	4	6	7	8	8	8	8	6	8	8	8	8	114%
4-H	Enterprise Rent-a-Car Lot	Private Patron/Employee	14	*13*	9	7	7	7	7	5	6	6	6	7	7	7	7	9	69%
4-I	4 Currier Garage	Private Patron/Employee	21	*20*	14	14	18	18	18	20	20	16	12	3	1	1	1	20	100%
4-J	4 Currier Lot	Private Patron/Employee	5	*5*	3	3	3	3	4	4	4	4	4	4	3	2	1	4	80%
4-K	Sotheby's Lot	Private Patron/Employee	5	*5*	0	2	3	3	5	3	3	3	3	5	5	3	3	5	100%
4-L	C&A Pizza Lot	Private Patron/Employee	4	*4*	3	4	3	3	4	4	4	4	4	4	4	4	3	4	100%
4-M	17 Lebanon St Apts Lot	Private Residential	3	*3*	1	0	2	2	1	2	2	2	3	2	3	4	3	4	133%
5-B	Ledyard Financial Garage	Private Patron/Employee	33	*31*	10	12	14	16	18	17	16	15	6	8	6	6	4	18	58%
5-C	Circle K Lot	Private Patron/Employee	13	*12*	7	13	9	13	10	6	11	9	10	9	10	8	6	13	108%
5-D	CVS Lot	Private Patron/Employee	46	*42*	28	16	34	35	43	41	41	33	33	33	17	26	21	43	102%
5-E	85 S. Main Street Lot	Private Residential	10	*9*	5	4	3	2	5	4	3	2	4	3	3	3	3	5	56%
5-F	24 School Street Lot	Private Residential	27	*24*	13	13	11	10	8	7	8	9	8	8	11	12	13	13	54%
6-A	South Block Lot P/E	Private Patron/Employee	4	*4*	1	3	1	3	4	3	4	4	4	2	1	2	1	4	100%
6-B	Library Lot	Private Patron/Employee	32	*29*	7	12	30	27	26	22	35	28	22	23	21	18	6	35	121%
6-C	South Block Garage	Private Patron/Employee	95	*90*	46	46	47	44	45	47	51	39	28	25	26	24	23	51	57%
7-A	Hanover High School Lot	Private Patron/Employee	55	*50*	48	50	49	51	51	44	38	18	10	9	2	2	2	51	102%
7-B	Thompson Lot P/E	Private Patron/Employee	286	*258*	194	206	217	208	215	206	197	164	75	75	67	55	58	217	84%
Grand Total			1,108	*1,018*	625	659	714	729	736	688	697	565	434	405	369	337	311	818	80%
% of Effective Supply Occupied					61%	65%	70%	72%	72%	68%	68%	56%	43%	40%	36%	33%	31%		= Highest Occupancy

As shown in Table 12, the effective supply of parking in paid public facilities – either metered spaces or paid spaces in the Hanover Parking Garage – was 95% occupied during the 1:00 PM downtown peak hour. This compares to 79% peak hour occupancy for the off-street parking inventory as a whole. Of the 338 spaces available at peak across all off-street parking facilities in downtown, only 21 of those spaces were available for general public parking. In addition, 9 of the 11 paid public parking facilities reached 100% utilization or greater during the course of the survey day. This data indicates that, despite significant available off-street parking capacity in the downtown study area, very little of that capacity is available for use by the general public during times of peak activity.

When looking at Town permit parking, the supply of spaces was not as constrained as the supply of public spaces available for hourly or daily parking. Data from the surveys of the Town's permit parking spaces, seen in Table 13, indicates that the effective supply of parking was 83% occupied during the area-wide peak hour. Additionally, none of the Town permit parking facilities/areas reached 100% occupancy during the survey day and only the Allen Lot exceeded 90% utilization. While this analysis is based on a single days' worth of surveys, the data seems to indicate that there may be room to adjust the parking space mix in the public facilities, in order to provide more hourly and daily parking capacity in exchange for a reduction in Town permit parking capacity. Another alternative is to oversell permits in the less-occupied facilities, in order to provide parking to more individual users.

The data indicates that off-street parking facilities dedicated to patrons and employees of downtown businesses and downtown residents are the least well-utilized off-street facilities. As shown in Table 14, utilization of these facilities peaked at 72% during the 1:00 PM hour. At this time, only 7 of the 45 private parking facilities/areas reached 100% utilization of their effective parking supply; 22 of the 45 reached 100% utilization at some point during the survey day. Based on the observed utilization of these facilities, this supply of parking presents the greatest opportunity to ease the existing burdens on the public parking supply, aside from building additional parking.

Length of Stay Observations

Aside from the occupancy data collected for all of the on- and off-street spaces within the study area, DESMAN also conducted license plate inventories of select parking spaces in order to identify length of stay and turnover patterns within downtown. On Wednesday, May 16, 2018, DESMAN documented the license plates of all vehicles parked in Municipal Lot 1, the Marshall Lot and the west side of South Main Street from Maple to Wheelock on an hourly basis from 9:00 AM to 8:00 PM. This data shows how long each vehicle remained parked in each space surveyed (length of stay), as well as the number of different vehicles that used each space throughout the course of the day (turnover). The length of stay information allows us to determine if parkers are complying with posted time limits, while the turnover data gives an indication of how effective the short-term parking spaces are at serving customers of the downtown's retail stores and restaurants.

Signage in Municipal Lot 1 specifies that drivers are not permitted to occupy a space for more than three consecutive hours. The Marshall Lot, with its 10-hour meters, is intended for use by downtown employees and is signed for a maximum stay of 10 hours. The on-street spaces on the west side of South Main Street have a posted time limit of two hours and are intended for use by people running errands, shopping and dining in downtown.

DESMAN surveyed 50 of the 84 metered spaces in Municipal Lot 1 and observed 244 unique vehicles park in those spaces throughout the day. This translates into an average turnover of five cars per space during the survey period. Based on the data gathered, staff calculated that the average length of stay in Municipal Lot 1 during the survey day was 2.1 hours, as shown in **Table 15**.

Table 15: Municipal Lot 1 Length of Stay and Turnover

Municipal Lot 1 (50 Spaces)														
Length of Stay (hrs.)	1	2	3	4	5	6	7	8	9	10	11	12	Total	Average Stay
# of Cars	112	81	18	15	5	5	4	2	0	1	0	1	244	**2.1 Hours**
Hours Occupied	**112**	**162**	**54**	**60**	**25**	**30**	**28**	**16**	**0**	**10**	**0**	**12**	**509**	

While the average length of stay was less than the posted 3-hour time limit, 33 of the 244 vehicles that used Lot 1 (14%) remained parked in excess of 3 hours. This inevitably reduced the potential for other, short-term parkers to park in these spaces. Additionally, this violates Part C of the Town's existing Parking Ordinance (Ordinance #6), which prohibits parking in excess of the maximum time on a parking meter.

At the Marshall Lot, DESMAN recorded data for 25 of the 83 spaces in the Lot and observed 55 unique vehicles park in those spaces throughout the survey period. Given the Marshall Lot's 10-hour time limit, it is reasonable that each surveyed space only served roughly 2 drivers a piece during the 11-hour survey period, compared to the higher turnover in the short-term Municipal Lot 1. As shown in **Table 16**, drivers who parked their vehicles in the Marshall Lot did so for an average of 3.9 hours.

Table 16: Marshall Lot Length of Stay and Turnover

Marshall Lot (25 Spaces)														
Length of Stay (hrs.)	1	2	3	4	5	6	7	8	9	10	11	12	Total	Average Stay
# of Cars	15	6	5	6	5	8	6	3	0	0	0	1	55	**3.9 Hours**
Hours Occupied	**15**	**12**	**15**	**24**	**25**	**48**	**42**	**24**	**0**	**0**	**0**	**12**	**217**	

Despite the fact that one vehicle was observed parking in excess of the 10-hour time limit in the Marshall Lot, this vehicle may not have been parked in violation of the Town's Parking Ordinance. The Town's enforcement hours of 9:00 AM to 5:00 PM, Monday-Saturday, mean that parking meter regulations are enforced eight hours per day. If a driver who parks at a 10-hour meter pays for the maximum time allowed, that person would not need to feed the meter in order to extend their time, as enforcement would have ended before the end of their initial parking session.

On South Main Street, DESMAN selected for its survey 25 consecutive on-street spaces beginning at the corner of South Main and Maple Streets. Over the course of the 11-hour survey period, these spaces were used by 137 unique vehicles, an average of almost 6 vehicles per space. Staff calculated that the average length of stay per vehicle was 1.8 hours, as shown in **Table 17**.

Table 17: West Side of S. Main Street between Maple Street and W. Wheelock Street

West Side of S. Main from Maple toward W. Wheelock (25 Spaces)										
Length of Stay (hrs.)	1	2	3	4	5	6	7	8	Total	Average Stay
# of Cars	78	28	19	6	5	0	0	1	137	**1.8 Hours**
Hours Occupied	**78**	**56**	**57**	**24**	**25**	**0**	**0**	**8**	**248**	

While, on average, vehicles in the 2-hour metered spaces remained parked for less than 2 hours, 31 of the 137 vehicles (23%) parked in excess of the posted time limit. This means that nearly one quarter of the

vehicles on this section of South Main Street on the survey day were parked in violation of the existing Parking Ordinance. In fact, one driver even left his or her vehicle in the same space for eight hours, making that space unavailable to other potential parkers for nearly the entire day.

Existing Parking Demand Conclusions

At present, there is minimal excess parking capacity on-street within the downtown study area during periods of peak demand. The effective supply of on-street parking in downtown was 107% utilized during the 1:00 PM peak period and nearly every street segment experienced at least 100% utilization at some point during the survey day. While one or two parking spaces may be available on certain block faces at peak times, the high utilization of on-street spaces makes it seem to drivers that all of the spaces are occupied.

Off-street, public metered and hourly parking facilities were the most highly utilized, with Town permit parking facilities and private patron/employee/resident parking facilities less well utilized. On the survey day, the Town's off-street paid public parking facilities were 95% utilized at the 1:00 PM peak hour, while the Town's permit parking spaces were 83% utilized and the private parking facilities were 72% utilized. These levels of utilization translate to 79% utilization of the total effective off-street parking supply during the peak demand period.

Although most block faces and half of the off-street facilities were at capacity during the 1:00 PM peak demand period on the survey day, there were still a number of privately-owned, mid-sized or large parking lots and structures downtown that went underutilized (under 80% occupancy of the effective supply). A sample of these facilities include:

- The Sargent Place Lot (a minimum of 48 available spaces on Wednesday, May 16)
- South Block Garage (a minimum of 44 available spaces on Wednesday, December 12)[2]
- The Thompson lot (a minimum of 69 available non-Town spaces on Wednesday, December 12)[3]
- The Ledyard Financial garage (a minimum of 15 available spaces on Wednesday, May 16)
- SM-63 Garage (a minimum of 9 available non-metered spaces on Wednesday, December 12)

In addition to the private parking facilities, the Town's Hanover Parking Garage had a surplus of at least 25 Town permit spaces over the course of the survey day.

Based on the results of DESMAN's analysis of the average length of stay of parked vehicles and the turnover of spaces, as a whole, drivers are adhering to the Town's existing Parking Ordinance which prohibits overstaying the posted time limits and meter feeding. However, there are a significant number of parkers who ignore posted parking meter time limits and feed the meters, especially in the shorter-term off-street spaces and the 2-hour on-street spaces. In addition to being illegal per the Town's existing Parking Ordinance, this practice also limits the turnover of the most in-demand spaces, reducing the opportunities for visitors and patrons to find a convenient available parking space in downtown Hanover.

[2] [3] Dartmouth College was not in session when these numbers were recorded, which may be the cause of the low utilization rates mentioned above.

5. Current Parking Fees and Fines

The parking situation in Hanover is changing and has become more dynamic due to significant growth in the daytime workforce in recent years. As a result, there is now greater demand for the same, limited parking resources. As part of this assignment, the Town was interested in determining whether or not the fines and fees currently being charged match the growth in parking demand downtown and if they are effective in influencing parking behavior. Additionally, the Town wished to determine if their parking fees are appropriate when compared to those charged in comparable communities and the parking rates charged by various property owners in town.

The Town of Hanover currently charges different hourly rates for public parking based on the time limit associated with the space and, to a lesser-degree, the location of the space. For permit parking, monthly rates vary depending on the proximity of the facility to the core of downtown and between on-street, surface lot and garage parking. In addition, free permit parking is available in the Thompson Lot and discounted daily parking is available in the Hanover Parking Garage for employees working in the central business district.

Table 18 presents a summary of the current on- and off-street parking meter rates charged by the Town of Hanover, **Table 19** shows the rate schedule for the Hanover Parking Garage and **Table 20** presents Town permit and employee parking rates.

Table 18: Town of Hanover Parking Meter Rates

On-Street Meters			Off-Street Meters				Meter Overtime Fine	Meter Feeding Fine
15-min.	2-hour	10-hour*	15-min.	2-hour	3-hour	10-hour*		
$0.75/hour	***$0.75/hour*** *(except S. Main St.)* ***$1.00/hour*** *(S. Main St.)*	***$0.35/hour***	***$0.75/hour***	***$0.75/hour***	***$0.75/hour*** *(except Muni. Lot 1)* ***$1.00/hour*** *(Municipal Lot 1)*	***$0.35/hour***	*$10.00*	*$20.00*

*Despite the existence of 10-hour meters, the meters are enforced for a maximum of 8-hours per day (9AM-5PM).

Table 19: Hanover Parking Garage Rate Schedule

Hanover Parking Garage	
Duration	**Parking Cost**
Under 10 Min.	Free
10 - 30 Min.	$0.25
31 - 60 Min.	$0.50
1 - 2 Hours	$1.25
2 - 3 Hours	$2.25
3 - 4 Hours	$4.25
4 - 5 Hours	$6.75
5 - 6 Hours	$9.25
6 - 7 Hours	$13.00
7 - 24 Hours	$15.00

Table 20: Hanover Town Permit and Downtown Employee Parking Rates

Permit Type/ Location	Monthly Rate
Thompson Lot*	Free
On-Street	$37.50
Surface Lot	$82.50
Hanover Garage Levels 3 & 4	$110.00
Hanover Garage Level 2	$154.00
Hanover Garage Max. of 50 daily*	$2.00/day after 8:30 AM

*Restricted to employees of the central business district, with other restrictions.

As shown in Table 18, metered parking is available in downtown Hanover with time limits of 15 minutes, 2 hours, 3 hours, and 10 hours, at costs ranging from $0.35/hour at the 10-hour meters to $1.00/hour at the 2-hour meters on South Main Street. Despite the greater convenience of on-street versus off-street metered parking, there is not a significant price differential between the two types of parking, other than slightly higher rates on South Main Street and in Municipal Lot 1. As is a best practice in the parking industry, the most highly sought-after parking, in this case metered parking on South Main Street and in Municipal Lot 1, is the most expensive at $1.00/hour.

While not less expensive than parking at a 10-hour meter, the Hanover Parking Garage provides a lower-cost option for people looking to park in a convenient location for less than two or three hours, while providing the added benefit of covered parking. Whereas two hours of on-street parking at a meter will cost $1.50-$2.00, parking for the same period in the Hanover Garage will cost $1.25. Additionally, three hours of parking in the Garage will cost $2.25 versus $2.25-$3.00 in a metered surface parking lot with no protection from the weather.

In addition to the 10-hour parking meters, employees of downtown businesses have several permit parking options available, as well as a few ultra-low-cost options for daily parking in downtown. On-street permit parking is available on the periphery of downtown at a cost of $37.50/month ($75.00 for 2 months), while closer-in surface lot and garage parking ranges from $82.50-$154.00/month. For very cost-conscious downtown employees, there is free permit parking available in the Thompson Lot and $2.00/day parking in the Hanover Parking Garage, but these facilities are available on a first-come, first-served basis, with no guarantee of an available space. It should be noted that, at $2.00/day, downtown employee parking in the Hanover Parking Garage is actually less expensive than parking at a 10-hour meter for the 8-hour enforcement period (8 hours x $0.35/hour = $2.80 per day).

Parking Fee and Fine Comparison

While Hanover's parking situation is unique, given the fact that Dartmouth is directly adjacent to and, in some cases, intermingled with the downtown, it was important for DESMAN to compare parking rates in

downtown Hanover with other communities in New England. Although this type of comparison will not dictate the rates that the Town of Hanover should be charging, it will provide insight into parking rates in other downtowns that likely deal with some of the same employee and patron parking issues as Hanover.

For comparisons' sake, DESMAN chose Keene and Plymouth, NH, Brattleboro, Burlington, and Montpelier, VT and Northampton and Amherst, MA. These cities were chosen due to their similarities with Hanover, whether that be the presence of a college or university in close proximity to the downtown or the fact that the cities and towns have relatively low populations but vibrant downtowns.

DESMAN contacted each of the seven towns and cities in order to gather information related to their number of public parking spaces, on- and off-street parking rates, fines for overtime and meter feeding violations, and their history of parking rate increases. **Table 21** presents a summary of the parking-related information DESMAN was able to gather from each community, as well as the comparable parking information for Hanover.

Table 21: Parking Fees and Fines in Seven Comparable Communities

City	State	Population[1]	On-Street Meter/Permit Spaces	Off-Street Spaces	Rates			Meter Overtime Fine	Meter Feeding Fine	Rates Last Increased	Future Plans to Increase Rates?
					On-Street (hourly)	Off-Street (hourly)	Permit Parking (monthly)				
Keene	NH	22,949	208	729	2-hour: $0.85 3-hour: $0.85	3-hour: $0.85 4-hour: $0.85 10-hour: $0.35	Emerald St.: $48.33 Surface Lot: $48.33 Garage: $66.67	$10.00	$10.00	Rates: 2002 Fines: 2019	No
Plymouth	NH	6,752	180	30	2-hour: $0.25 10-hour: $0.25	No Limit: $0.25	Surface Lot: $35.00	$15.00	$15.00	15+ years ago	Considering, but no concrete plans
Brattleboro	VT	11,487	194	715	30-min: $0.70 2-hour: $1.00	30-min: $0.70 2-hour: $1.00 3-hour: $0.50-$1.00 10-hour: $0.40	Surface Lot: $18.33 or $33.33 Garage: $41.67 or $66.67	$10.00	$20.00	2019; previously 10+ years ago	No
Burlington	VT	42,239	1,227	1,614	No Limit: $1.50 30-min: $1.00 3-hour: $1.00 9-hour: $0.40	Various Time Limits: $0.40-$4.00	Surface Lot: $55.00 or $65.00 Garage M-F: $80.00 Garage M-S: $96.00	$15.00	N/A	2014	No
Montpelier	VT	7,484	307	299	2-hour: $1.00	No Time Limits: $0.50 or $0.75	Surface Lot: $60.00 or $100.00	$10.00	$15.00	10+ years ago	No
Northampton	MA	28,593	1,500 total spaces		2-hour: $0.75 or $1.00 10-hour: $0.50	Garage: $0.75 3-hour: $0.75 10-hour: $0.25	Surface Lot: $45.00 Garage: $90.00	$15.00	$15.00	Rates: 2015 Fines: 2013	Potentially garage permit rates
Amherst	MA	40,046	131	432	2-hour: $1.00 4-hour: $0.50	20-min: $1.00 4-hour: $0.50 or $1.00 8-hour: $0.50	Garage: $83.33	$15.00	$15.00	2017	No
Hanover	*NH*	*11,485*	*463*	*673*	*15-min: $0.75* *2-hour: $0.75 or $1.00* *10-hour: $0.35*	*Garage: $0.50-$3.75; max. $15.00* *15-min: $0.75* *2-hour: $0.75* *3-hour: $0.75 or $1.00* *10-hour: $0.35*	*Street: $37.50* *Surface Lot: $82.50* *Garage: $110.00 or $154.00*	*$10.00*	*$20.00*	*2013*	*N/A*
Rate/Fine Range (excluding Hanover)					**2/3-hour: $0.25-$1.50** **9/10-hour: $0.25-$0.50**	**Garage: $0.75-$1.50; max. $20.00** **2/3-hour: $0.70** **8-hour+: $0.43**	**Street: $48.33** **Surface Lot: $18.33-$100.00** **Garage: $41.67-$96.00**	**$10.00-$15.00**	**$10.00-$20.00**		

(1) Population information taken from the U.S. Census Bureau, 2017 Population Estimate

Table 21 shows that the on- and off-street hourly parking rates currently being charged in Hanover are within the range of what is being charged in these other communities. The same is true for the fine amounts for overtime parking at a meter or feeding a meter, where applicable. For monthly permit parking, Hanover's on-street rates are lower than the rate charged in Keene, NH (the only other community with an on-street employee permit), while the surface lot permit rates are within the range

of the other communities. Only the monthly permit rates charged in the Hanover Parking Garage are outside the range of the rates charged for garage parking in the other towns and cities.

As mentioned previously, the Town of Hanover is a unique community because, while the downtown is relatively small, it is a significant employment center and is hugely influenced by Dartmouth College. This differs from the other communities DESMAN studied, even those that also have colleges or universities in close proximity to their downtowns – the University of Vermont is not immediately adjacent to downtown Burlington, Plymouth is not as large or dense as Hanover and Smith College in Northampton is a much smaller institution. Furthermore, places like Keene and Brattleboro are land-rich, whereas Hanover is not. Finally, in towns like Hanover where the college or university is gradually acquiring properties and building off-campus, the institution's decisions affect the parking demand and supply throughout town considerably. These unique characteristics make it difficult to compare Hanover's fees and fines with those of other nearby towns and cities.

For these reasons, DESMAN also compared the fees and fines the Town charges with those charged by Dartmouth College and other private property owners in Hanover. **Table 22** presents the rates charged by several private property owners in Hanover, including Dartmouth, and compares those rates to the Town's parking rates.

Table 22: Parking Fees and Fines for Privately-Owned Parking Facilities in Hanover

Parking Facility	Property Owner/ Manager	Rates per Month or Hourly Meter Rates	Incorrect or Lack of Permit	Meter Overtime Fine	Meter Feeding Fine
5 Allen Lot	Buskey Family	$82.50	Towing	N/A	N/A
7 Allen Lot	Buskey Family	$82.50	Towing	N/A	N/A
A-Lot	Dartmouth	$7.74 - $26.52	$20 - $50	N/A	N/A
Dewey Lot	Dartmouth	$5.13 - $33.95	$20 - $50	N/A	N/A
Ledyard Lot	Dartmouth	$6.81 - $33.95	$20 - $50	N/A	N/A
Thompson Lot	Dartmouth	$5.13 - $33.95	$20 - $50	N/A	N/A
Metered Spaces	Dartmouth	$1.50/hour	N/A	$20.00	$20.00
Sargent Place Lot	Dartmouth REO*	$85.00	Towing	N/A	N/A
4 Currier Garage	Dartmouth REO*	$130.00	Towing	N/A	N/A
South Block Garage	Dartmouth REO*	$130.00	Towing	N/A	N/A
63 SM Garage	Dartmouth REO*	$125.00	Towing	N/A	N/A
Hanover Parking Garage	***Town of Hanover***	***$110.00 - $154.00***	***$30.00***	***N/A***	***N/A***
Banwell, Allen, ML5	***Town of Hanover***	***$82.50***	***$30.00***	***N/A***	***N/A***
Lebanon St, Hovey Ln	***Town of Hanover***	***$37.50***	***$30.00***	***N/A***	***N/A***
Metered Spaces	***Town of Hanover***	***$0.35 - $1.00/hour***	***N/A***	***$10.00***	***$25.00***

*Only Dartmouth employees and tenants can rent spaces managed by the Dartmouth REO.

While the monthly cost of a permit to park in a Dartmouth parking facility is less than the cost of most Town of Hanover permits, it is not uncommon for higher education institutions to subsidize the cost of parking for their students, faculty and staff. Additionally, Dartmouth's parking facilities are almost entirely located on the far periphery of campus, making them much less convenient to downtown and the core of the campus than the Town's parking facilities. However, for the most convenient spaces on campus, the metered spaces controlled by Dartmouth, the hourly cost to park ($1.50) actually exceeds the maximum rate charged by the Town of Hanover at its meters ($1.00).

In addition to higher hourly rates at its parking meters, Dartmouth also charges $20.00 for all infractions at metered spaces, while the Town charges a $10.00 overtime fine and a $25.00 meter feeding fine. Furthermore, Dartmouth charges $20.00 for not displaying a permit in a permit space and $50.00 for parking in the incorrect permit space or for not having a permit at all, whereas the Town only charges $30.00 for the same infractions.

According to the Buskey's, they have agreed to charge their tenants $82.50 per month to park in their two lots off Allen Street – the same as the permit spaces in Municipal Lot 5 and the Banwell and Allen Lots – so as not to compete with the Town's facilities. However, the Dartmouth Real Estate Office charges Dartmouth employees and tenants $85.00 to park in the Sargent Place Lot, which is farther from Main Street. Furthermore, the Dartmouth Real Estate Office charges more for permits in all three of the garages listed in Table 22 than the Town does for many of its permit spaces in the Hanover Parking Garage.

Parking Fee and Fine Conclusions

Current on-street metered parking rates charged by the Town of Hanover are not significantly higher than the rates off-street, creating little incentive for more cost-conscious and longer-term parkers to move to off-street facilities. Additionally, the current penalty for overstaying the posted time limit or meter feeding does not seem to be discouraging these practices and may need to be increased, along with the enforcement of these rules. There is also a strange dynamic in the Town's pricing of long-term metered parking in surface lots versus employee parking in the Hanover Parking Garage, where the cost to park at a 10-hour meter for the duration of the 8-hour enforcement period ($2.80) actually exceeds the cost to park in the Garage ($2.00).

The unique dynamics in play between downtown Hanover and Dartmouth College make it difficult to compare the parking pricing and policies in Hanover with other towns and cities in New England. However, when examining a handful of other towns and cities that share similar characteristics to Hanover, the Town's parking rates are generally in line with the other communities. In some instances, the Town of Hanover's parking rates and fines are actually below those of similar communities, despite the vibrancy of downtown and the constrained nature of the Town's public parking inventory.

When comparing the Town's parking rates and fines to those charged by the owners of private parking facilities in Hanover, there appears to be precedent for the Town to increase some of its parking meter and permit rates, as well as fines for certain parking violations.

6. Public Outreach

As part of this engagement, DESMAN sought out opinions, input and perspectives from downtown stakeholders through focus group meetings. This feedback from the everyday users of the parking system and those whose business interests rely heavily on the Town's parking assets is a crucial source of data for DESMAN, especially when it comes time to formulate our recommendations.

In Hanover, DESMAN met with the following groups of people:

- Restaurateurs
- Retailers
- Dartmouth College staff

- Property owners
- Police Department/Parking Enforcement Division personnel

Based on our discussions with the downtown stakeholders, the following set of common concerns and opinions were identified:

- General
    - Residents, employees, employers, customers, etc. are not made aware of new initiatives or newly opened parking lots and garages
    - The Marshall Lot is over 90% occupied after 8:00 AM until 3:00 PM because it is too cheap
    - On-street spaces are more convenient so everyone wants them
    - The Winter Parking Ban hours negatively affect evening and late-night workers
    - There are not enough Town-reserved spaces for employees in the Thompson Lot
    - Residents think that the parking situation downtown is bad year-round, but do not realize it ebbs and flows depending upon the Dartmouth schedule
    - Parking spaces are least available on weekdays at mid-day
    - Many employees come from distant towns (New London, NH; East Corinth, VT; Northern MA)
    - The CVS parking lot gets used as a free parking lot for those in the southern part of town

- Hanover Parking Garage
    - Drivers do not want to/cannot park in the bottom level of the garage due to flooding
    - Dartmouth students leave their cars in the garage all quarter without moving them

- Enforcement
    - Drivers who receive a parking ticket leave their car for the whole day because they know they will not receive another ticket that day
    - Parking tickets only cost $10, which is very low for many people in/around Hanover
    - Enforcement is too harsh with parking tickets

- Shuttle Service
    - The Advance Transit Dartmouth/Downtown shuttle bus operating hours are not beneficial for evening and late-night workers (restaurants, bars, Dartmouth)
    - Employees with cash wages feel unsafe walking to the Thompson Lot late at night

The stakeholders also had a number of suggestions for how to change/improve parking in downtown Hanover, including:

- General
    - The Town should raise the cost of parking on-street and in the Marshall Lot because Dartmouth and others charge so much more, causing Dartmouth employees to pay for Town permits and daily meter parking
    - Create more 15-minute on-street parking downtown for picking up and dropping off
    - The Winter Parking Ban should be changed to begin at 2:30 AM, not midnight

- Impose a tax on businesses downtown for improving the parking situation
- The Town should market the downtown's nightlife more because there is more available customer parking in the evenings
- The Town should buy the house adjacent to the Marshall Lot to build a parking structure
- The Town should remove/consolidate irrelevant signage on Lebanon Street between South Park Street and downtown to make the parking signs more noticeable
- The Town should make the pay-for-parking kiosks more noticeable
- The Town should collaborate with hotels to improve shuttle service and reduce duplication of service
- Allow delivery trucks to park on South Main Street between South and Lebanon Streets
- A valet program of any kind would help to mitigate issues
- Shops should stay open later
- Dartmouth should eliminate their free parking permits for students to discourage bringing cars from home
- The Dewey Lot (Dartmouth facility) should be converted into a parking structure

- Hanover Parking Garage
  - Add 2-3 stories of parking to the Hanover Parking Garage for employees (customers will not be willing to drive up five stories to park)
  - The Garages needs to be better operated so that drivers are more aware of available spaces inside
  - Signage on the exterior of the Garage needs to be bigger/more noticeable

- Enforcement
  - The Town should enforce 2-hour parking and meter feeding much more diligently
  - The revenue generated from parking meters and enforcement should only be directed towards improving the parking supply and increasing the number of parking spaces
  - Allow on-street parking to be free for three hours and enforce aggressively with costly parking tickets following that period
  - Include instructions on parking tickets for how to appeal the charge or provide "validated" parking for drivers who send in photos of time-dated receipts for items bought in downtown

- Shuttle Service
  - The Advance Transit Dartmouth/Downtown shuttle bus should run at least hourly until 1:00 AM
  - Advanced Transit should add more stops to their routes (including satellite lots)
  - A lot at the Sachem Fields with shuttle service to downtown would be beneficial for residents in that area, as well as employees from out of town
  - Employees are willing to pay $15 each per month for a shuttle service between a free satellite parking lot and downtown

- Employers
  - All employers should provide parking directions and rules for each new hire before they begin work and enforce these rules regularly
  - Employers should pay for Hovey Lane parking permits for their employees

It is important to note that, while input from downtown stakeholders is an important part of the process, the recommendations developed by DESMAN are not based solely on this input, but rather on a balanced approach which considers the needs of all downtown parking users.

7. Future Parking Demand

The Town of Hanover also tasked DESMAN with projecting the anticipated future demand for parking in downtown, based on anticipated future development. To that end, DESMAN was provided the following list of confirmed and potential future developments by the Town's Department of Planning and Zoning.

- 23 South Main Street addition with an automated stacked parking facility (ongoing)
- 4-6 Allen Street redevelopment
- Eleazar Wheelock House redevelopment
- Allen Street Lot redevelopment
- School and Maple structure redevelopment
- Dartmouth College Heating Plant redevelopment
- Dartmouth College's The Lodge redevelopment
- Thayer Engineering and Computer Science expansion
- Arthur L. Irving Institute for Energy and Society building
- New Dartmouth Indoor Practice Facility
- New streetscape for West Wheelock Street
- New Dartmouth College dormitories

While the specific sizes and land uses contained within each project were not known at the time of this assignment, DESMAN attempted to translate these projects into estimates of additional future parking demand in downtown.

To estimate the future utilization of the Town's public and permit parking, DESMAN applied a 2% annual growth factor to the existing weekday parking utilization data recorded during this project. As a baseline, **Table 23** was created to summarize the existing utilization of each of the 40 public parking facilities and on-street metered/permit parking areas within the downtown study area.

Table 23: Existing Occupancy of the Effective Supply of Downtown Public Parking

FACILITY ID or BLK #	STREET NAME or FACILITY NAME/DESCRIPTION	Actual Supply	*Effective Supply*	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM
1-East	S. Main Street	13	*11*	13	11	13	13	13	11	12	12	13	10	13	13	10
1-North	W. Wheelock Street	17	*14*	11	17	17	17	16	17	16	17	11	9	11	9	9
1-South	Allen Street	7	*6*	2	5	8	5	6	3	4	3	1	0	0	0	0
1-D	Allen Lot	16	*14*	10	12	12	13	12	9	4	5	3	1	1	8	8
1-E	Buskey Lot	14	*13*	3	4	3	7	11	13	10	11	2	5	5	3	1
1-G	Municipal Lot 5 Permit	9	*8*	3	4	4	4	5	4	4	2	3	2	2	1	1
1-G	Municipal Lot 5 2-hr	6	*6*	0	3	4	4	5	3	1	4	5	5	5	4	4
1-L	Banwell Lot	8	*7*	3	3	3	3	3	4	3	3	1	2	0	0	0
2-North	E. Wheelock Street	41	*35*	14	14	17	30	33	23	22	16	35	39	38	24	25
2-East	Crosby Street 2-hr	11	*9*	10	6	6	6	7	6	5	7	6	11	11	6	6
2-East	Crosby Street 10-hr	6	*5*	4	6	6	6	6	6	5	5	4	4	4	1	1
2-South	Lebanon Street 2-hr	14	*12*	13	10	13	14	12	13	11	11	11	14	13	14	12
2-South	Lebanon Street 10-hr	5	*4*	5	5	5	5	4	5	4	4	3	5	5	3	3
2-West	S. Main Street	29	*25*	23	27	22	22	26	24	25	20	28	22	24	26	25
2-D	Municipal Lot 7	31	*28*	28	30	30	30	30	29	22	18	16	16	16	17	15
2-E	Municipal Lot 3	9	*8*	6	7	6	7	6	9	7	9	8	8	8	8	8
2-F	Municipal Lot 6	26	*24*	13	16	19	25	24	22	22	25	24	25	26	24	21
3-North	Allen Street Motorcycle	5	*4*	0	0	0	0	1	1	1	1	1	0	0	0	0
3-North	Allen Street 15-min	4	*3*	0	1	2	3	2	3	3	1	1	4	3	2	3
3-North	Allen Street 2-hr	5	*4*	5	4	4	5	5	4	4	3	3	4	4	3	1
3-North	Allen Street 10-hr	7	*6*	5	6	6	6	6	7	7	5	5	2	0	0	0
3-East	S. Main Street	18	*16*	14	13	16	17	16	16	15	12	16	15	16	16	13
3-West	School Street	14	*12*	13	13	14	14	11	14	11	10	3	3	8	7	7
3-C	Municipal Lot 1	88	*80*	19	39	55	76	72	57	60	73	72	83	81	61	43
3-E	SM-63 Garage 3-hr	16	*14*	4	4	6	14	13	11	11	7	7	8	11	6	5
3-E	SM-63 Garage 10-hr	16	*14*	16	16	16	15	15	16	15	12	10	9	12	8	8
4-North	Lebanon Street	18	*15*	12	15	16	19	20	17	18	17	17	12	18	19	20
4-East	Sanborn Road	8	*7*	7	8	8	7	7	6	7	4	2	3	3	2	1
4-C	Hanover Parking Garage	285	*271*	183	217	229	237	237	230	207	197	166	118	127	110	95
5-A	Marshall Lot	83	*75*	77	78	81	81	79	76	65	60	31	28	35	35	33
6-North	South Street Restricted	13	*11*	1	6	6	10	9	6	12	9	8	9	7	2	1
6-North	South Street 2-hr	15	*13*	11	11	15	14	15	10	12	12	13	14	14	13	12
6-South	Dorrance Place	4	*4*	1	2	3	4	4	2	2	2	3	2	3	2	1
6-West	S. Main Street	2	*2*	1	1	2	2	2	1	1	2	2	2	2	2	1
6-A	South Block Lot 2-hr	16	*15*	12	11	16	16	17	9	10	13	15	16	13	11	9
7-North	Lebanon Street 2-hr	5	*4*	2	3	1	4	5	4	3	1	1	1	0	0	0
7-North	Lebanon Street 10-hr	10	*9*	10	10	10	10	9	5	6	2	5	6	6	5	3
7-North	Lebanon Street Permit	52	*44*	46	48	47	46	50	33	33	15	9	13	12	12	10
7-West	Hovey Lane	98	*83*	88	93	93	94	98	88	60	35	25	8	5	5	5
7-B	Thompson Lot Permit	50	*45*	29	36	38	37	37	33	32	30	19	14	5	4	4
GRAND TOTAL		1,094	980	717	815	872	942	949	850	772	695	608	552	567	486	424
% of Effective Supply Occupied				73%	83%	89%	96%	97%	87%	79%	71%	62%	56%	58%	50%	43%

By applying the 2% annual growth factor to the total occupancy data presented in Table 23, DESMAN estimates that the peak demand for public parking in downtown Hanover will exceed the effective supply of parking beginning in 2020, as highlighted in yellow in **Table 24**.

Table 24: Projected Future Demand for Public and Town Permit Parking

Year	*Effective Supply*	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM
2019	*980*	731	831	889	961	968	867	787	709	620	563	578	496	432
2020	*980*	746	848	907	980	987	884	803	723	633	574	590	506	441
2021	*980*	761	865	925	1,000	1,007	902	819	738	645	586	602	516	450
2022	*980*	776	882	944	1,020	1,027	920	836	752	658	598	614	526	459
2023	*980*	792	900	963	1,040	1,048	938	852	767	671	609	626	537	468
2024	*980*	807	918	982	1,061	1,069	957	869	783	685	622	639	547	477
2025	*980*	824	936	1,002	1,082	1,090	976	887	798	698	634	651	558	487
2026	*980*	840	955	1,022	***1,104***	***1,112***	996	905	814	712	647	664	569	497
2027	*980*	857	974	1,042	***1,126***	***1,134***	1,016	923	831	727	660	678	581	507
2028	*980*	874	993	1,063	***1,148***	***1,157***	1,036	941	847	741	673	691	592	517

As you move farther into the future, the shortfall in public parking will be experienced during more and more hours of the day. Additionally, beginning in 2026, it is estimated that the peak demand for public parking will exceed the **actual supply of parking**, not just the effective supply of parking, as highlighted in red.

If these projections hold true, the Town will eventually need to build or provide additional public parking in order to accommodate downtown parking demand. Given the absence of vacant lots in downtown Hanover, the Town will need to use its existing assets, such as the Marshall Lot, or acquire others to build more parking spaces in a central and convenient location. The other alternative is to provide additional remote parking and shuttle those parkers into downtown, much like occurs at the Thompson Lot today.

8. Downtown Hanover Parking Recommendations

DESMAN has developed a series of recommendations aimed at optimizing the utilization, pricing and enforcement of the public parking supply in downtown Hanover. These recommendations were developed based on the utilization data gathered during this project, an evaluation of the current pricing structures and operating methodologies employed by the Town of Hanover, conversations with downtown stakeholders, including the Town employees in charge of Hanover's public parking, and DESMAN's past experience in cities and towns throughout the country.

The recommendations have been grouped into short-term (next 2 years), medium-term (3-5 years) and long-term (6-10 years) timeframes, with the understanding that some changes will take longer to implement and will be costlier than others. The short-term recommendations are intended to: more-efficiently distribute the existing demand among the Town's public parking facilities; make more short-term spaces available for customer and visitor parking, while moving employees and business-owners to long-term parking; reduce the prevalence of illegal meter feeding, and; improve the financial health of the Town's parking system. The medium-term recommendations are focused on increasing the supply of on-street spaces in downtown, while also improving the pedestrian connections between the core of downtown and more peripheral parking facilities. Finally, the long-term recommendations are centered around how to satisfy the anticipated need for significant additional public parking capacity in downtown in the future.

If and when the Town chooses to implement any of the following recommendations, it is crucial to keep the public informed. Well in advance of implementation, the public should be made aware of any planned changes to parking in downtown, the anticipated impact of those changes and when the changes will be implemented. Putting energy into public outreach prior to the implementation of the recommendations, especially those related to parking rates and fines, should allow the parking system's users time to prepare for the coming changes and, hopefully, reduce the negative public reaction to any changes.

Short-Term Recommendations (Next 2 Years)

1. **Add 15-minute metered spaces to South Main Street.** DESMAN recommends converting one or two spaces per block on South Main Street to 15-minute spaces, this will increase the visibility of the spaces to drivers and make them more convenient to a host of businesses downtown. In addition to the existing 15-minute spaces on Allen Street, these spaces should provide more than enough on-street capacity for people making very short trips downtown. It is further recommended that the new 15-minute spaces be located at the ends of the blocks on South Main Street, as opposed to mid-block, to reduce the chances of drivers pulling into a 15-minute space when they want to park in a 2-hour space.

If and when the Town creates 15-minute metered spaces on South Main Street, the spaces should be sufficiently signed to indicate to drivers the shorter-duration of these spaces versus the rest of the spaces on South Main Street. Identifying these spaces could also be accomplished through the use of a different color meter head than the 2-hour and 10-hour meters, a practice which is currently in place in Lawrence, KS and Northampton, MA.

2. **Convert the Marshall Lot to flat rate, Downtown Employee-only parking.** DESMAN recommends that the Marshall Lot be converted from pay-per-hour to a flat rate and that only Downtown Employee Permit-holders be allowed to park on weekdays during the daytime. Based on the utilization data gathered by DESMAN, as well as conversations with the Town, the Marshall Lot is one of the most sought-after long-term employee parking facilities in downtown. The 10-hour metered spaces in this facility are often fully occupied by 9:00 or 10:00 AM on weekdays. By converting from pay-per-hour to a flat rate, drivers will know how much they will pay to park, regardless of their length of stay, and the Town will be able to enforce this facility with much less effort. Instead of enforcing the facility on an hourly basis, Town personnel will be able to check the vehicles in the Lot once it is full, say around 10:00 AM, and only return to enforce the Lot periodically throughout the day, if at all.

   For longer-term parkers who may not need to park for the length of a full work day, there are still 10-hour metered spaces in the SM-63 Garage across South Street from the Marshall Lot. For shorter-term parkers, there are on-street parking meters and several off-street hourly parking facilities within one block of the Marshall Lot.

   Requiring that vehicles display a Downtown Employee Permit during the day on weekdays will free-up valuable spaces in the Lot that are currently occupied by holders of Dartmouth permits.

   In conjunction with the conversion from pay-per-hour to flat rate, DESMAN recommends that the daily cost to park in the Marshall Lot be increased to $4.00. At present, a person who parks in the Marshall Lot for the duration of the 8-hour enforcement period pays $2.80; even if they pay for a full 10 hours, the total cost is $3.50. The increase to $4.00 per day will bring the cost of parking in this lot in line with the daily cost of a Town parking permit in a proximate downtown parking lot (assuming 22 working days per month, the daily cost of an $85.00/month permit is ~$3.86). More price-sensitive parkers still have the option of purchasing a less-expensive Town permit on Lower Lebanon Street or Hovey Lane or parking for free in the Thompson Lot.

   In order to provide a reasonably-priced parking option for second shift workers, it is further recommended that parking in the Marshall Lot be free-of-charge after 2:00 PM. This change will encourage second shift employees to park in the Lot as capacity becomes available in the facility, leaving the more-convenient on-street and off-street spaces in the core of Downtown available for customers and visitors. Additionally, lifting the restrictions on the Marshall Lot after 2:00 PM will eliminate the need for the Town to enforce the facility later in the day, allowing their enforcement efforts to be focused elsewhere.

3. **Convert the Marshall Lot to pay-by-cell only.** According to the Hanover Police Department, in April or May 2019, parkers will have the ability to pay for parking in the Marshall Lot using the ParkMobile smartphone application. This app will allow parkers to link their vehicle's license plate

and a credit card to their account to pay for parking in this facility, instead of paying at the existing multi-space payment kiosk.

If the Marshall Lot is converted to a flat rate, employee-only facility as recommended by DESMAN, once ParkMobile becomes available, it is likely that the existing payment kiosk in the Lot will see very little use. It is anticipated that the employees who use this facility will prefer the convenience of paying for parking via their smartphone, instead of having to pay at the kiosk every day. New employees applying for a Downtown Employee Permit can be made aware that the facility is pay-by-cell only, so as not to catch users off guard.

For these reasons, DESMAN recommends that the Marshall Lot be converted to pay-by-cell only, once ParkMobile is up and running. This will allow the existing payment kiosk in the facility to be redeployed to another location in Downtown.

4. **Increase the cost of daily employee parking in the Hanover Parking Garage.** As noted in the above document, the current cost for a downtown employee to park in the Hanover Parking Garage is $2.00 per day, assuming they have a Downtown Employee Permit (this equates to $44.00 per month, assuming 22 working days per month). This amount is significantly less than an employee pays to park all day at a 10-hour meter ($2.80) or one who purchases a regular monthly permit in the Garage ($110.00 - $154.00 per month). In addition, employees who park in the Garage get the added benefit of parking in a covered parking facility, unlike those who park in the surface lots or on-street.

   In order to rectify these existing pricing discrepancies and to generate additional funds that can be set aside for future parking infrastructure improvements, DESMAN recommends increasing the cost of daily employee parking in the Hanover Parking Garage from $2.00 to $5.00. For any employee who works less than full-time, this daily cost will still equate to less than the cost of the least expensive regular Garage parking permit. In addition, more price-sensitive parkers have the option of parking in the Marshall Lot or a 10-hour meter space, purchasing a Town permit in a surface lot, on Lower Lebanon Street or on Hovey Lane, or parking for free in the Thompson Lot.

5. **Normalize the regular hourly cost to park in the Hanover Parking Garage.** For the casual parker, the current hourly rate structure in the Hanover Parking Garage may be confusing. With rates ranging from $0.50 to $3.75 per hour, it is very difficult for the average, occasional parker to know what they will pay when exiting the Garage. In order to simplify the rate structure, while also encouraging longer-term visitors to park in the Garage and discouraging an excessive number of downtown employees from parking, DESMAN proposes the rate schedule shown in **Table 25** for the Hanover Parking Garage:

Table 25: Proposed Hanover Parking Garage Rate Schedule

Hanover Parking Garage		
Duration	**Current Cost**	**Proposed Cost**
Under 10 Min.	Free	Free
10 - 30 Min.	$0.25	$0.50
31 - 60 Min.	$0.50	$1.00
1 - 2 Hours	$1.25	$2.00
2 - 3 Hours	$2.25	$3.00
3 - 4 Hours	$4.25	$6.00
4 - 5 Hours	$6.75	$9.00
5 - 6 Hours	$9.25	$12.00
6 - 7 Hours	$13.00	$15.00
7 - 24 Hours	$15.00	$20.00

This proposed rate schedule allows regular visitors to pay a lower hourly rate than at the 2-hour on-street meters in downtown for up to three hours of parking (see Recommendation #6). Additionally, merchants in Hanover can continue to lower the rates paid by their customers by providing validations for the Garage.

To discourage non-permit-holding employees from occupying all the spaces in the Garage, the rate after three hours increases significantly, with the daily maximum reaching $20.00 after 7 hours of parking. This will encourage downtown employees to purchase daily or monthly permits for the Garage or to seek lower-cost parking options in other parking facilities, leaving the bulk of the spaces available for visitors to downtown. Additionally, increasing the maximum daily rate will help reduce long-term vehicle storage in the Garage.

The proposed changes to the hourly parking rates in the Hanover Parking Garage still keep the facility in line with the rates charged by peer communities for garage parking, as shown in Table 21.

6. **Adjust on-street parking meter rates to help manage demand and account for inflation.** To help encourage more turnover of the most convenient spaces, to limit employee parking in 2-hour on-street spaces and to ensure that parking revenues keep pace with the ever-growing costs of operating and maintaining the Town's parking system, DESMAN recommends increasing on-street parking meter rates. In order to account for the fact that they are often the most convenient options and to match the rates currently charged by Dartmouth for its metered parking, DESMAN recommends increasing the rate at 2-hour on-street parking meters to $1.50/hour. This will encourage turnover of these spaces and, hopefully, limit the number of Dartmouth students, faculty and staff who park in these spaces (especially on Wheelock Street) and walk to campus.

   While DESMAN's study area for this assignment did not encompass all of the on-street parking meters in Hanover, there is justification for the hourly parking rates at the 2-hour spaces outside the study area to be increased to $1.50/hour as well. These metered spaces, located on N. Main, College, Maynard, and E. Wheelock streets, are also highly utilized on a regular basis and subject to meter feeding and stays in excess of the 2-hour time limit, per the Police Department. Additionally, increasing the hourly rate to $1.50 would bring the Town's rates in line with those currently being charged by Dartmouth at their metered spaces.

DESMAN further recommends that the cost to park at 10-hour on-street meters be increased from $0.35/hour to $0.50/hour to match the proposed daily rates at the Marshall Lot. Despite the fact that these spaces are located on the periphery of downtown, they are still a convenient alternative for employee parking, especially as compared to the Thompson Lot. Adjusting the 10-hour on-street meter rates will redistribute demand for these spaces, all of which reached 100% utilization at several points throughout the survey day, to other, more peripheral parking facilities or will encourage more carpooling or alternative modes of transportation.

The increases in rates will also help the Town pay the growing costs associated with its parking system, including any necessary future expansions of the public parking supply.

7. **Adjust off-street parking meter rates to help manage demand and account for inflation.** Like the on-street meter rates, it is recommended that changes be made to some of the off-street meter rates in order to help manage demand and cover the Town's operating costs. Off-street, DESMAN recommends that the rates at 2- and 3-hour meters be increased from $0.75/hour to $1.00/hour in all facilities. This proposed rate is less than the $1.50/hour rate at 2-hour on-street meters, encouraging more drivers to seek out off-street spaces versus on-street spaces. Additionally, this should result in less meter feeding in the shorter-term off-street facilities, as drivers are encouraged to park in the Hanover Parking Garage for longer durations of stay at the same hourly rate.

   In Municipal Lot 1, it is recommended that rates be increased from $1.00/hour to $1.50/hour, matching the 2-hour on-street meter rate. The high demand for and convenient location of this facility justifies a higher rate being charged here than at the other off-street lots in Downtown. Additionally, the higher hourly rate will help to discourage employees of Downtown businesses from parking in Lot 1, making more spaces available for patrons and visitors.

   DESMAN further recommends that the price for the 10-hour meters in the SM-63 Garage be increased from $0.35/hour to $0.50/hour. This rate matches the equivalent hourly rate proposed in the Marshall Lot, providing downtown employees parking for less than eight hours a less expensive alternative than the $4.00 flat rate in the Marshall Lot. This rate also matches the proposed hourly rate for the 10-hour on-street metered spaces on nearby School and Allen Streets.

8. **Increase the cost of an expired meter ticket to $15.** According to the stakeholders we spoke with, the current $10.00 fine for an expired parking meter is not high enough to discourage people from parking beyond their paid time. In order to further discourage this behavior, DESMAN recommends increasing the fine for parking at an expired meter to $15.00. This amount is in line with the peer communities surveyed (see Table 21) and less than the fine assessed by Dartmouth for this violation (see Table 22). This fine increase, along with the change proposed in Recommendation #9, should decrease the number of vehicles that remain parked beyond their paid time, increasing the number of spaces available for use by other drivers.

9. **Intensify enforcement of the prohibitions against meter feeding and overtime parking at on-street spaces.** Given the importance of on-street parking space availability to the success of downtown Hanover's businesses, DESMAN recommends that enforcement of the existing prohibitions against meter feeding and overtime parking be intensified, particularly at 2-hour on-

street spaces. It is vitally important that visitors and potential patrons coming to downtown Hanover do not regularly encounter a situation where all of the most convenient, on-street parking is full. While the proposed increase in rates at the 2-hour meters should help to reduce the frequency of these offenses, the Town also needs to be diligent in its enforcement of the regulations that are currently on the books. This includes not only the rules against meter feeding and overtime parking, but also the provisions that allow multiple violations to be issued to the same vehicle for each event of non-compliance.

According to stakeholders we spoke with, drivers who receive a parking ticket will regularly leave their car parked in the same space for the remainder of the day because they know they will not receive another ticket that day. For drivers who can afford a $10.00 ticket, the Parking Enforcement Division being lenient and not issuing additional citations only encourages them to continue this behavior. If, instead, additional violations were issued, as allowed in the Parking Ordinance, this would discourage drivers from leaving their vehicles parked after receiving a citation.

As mentioned previously, although currently allowed by the Parking Ordinance, because intensified enforcement would be a change for the users of the parking system, the Town should publicize that enforcement will be stepped-up, prior to doing so. In addition to publicizing the change, the Town could also issue warning tickets for these violations or second and third infractions in a day for some period of time, prior to beginning full enforcement. A process similar to this was implemented successfully in Morgantown, WV when they began enforcing their parking time limits downtown.

10. **Periodically adjust the mix of hourly versus Town permit spaces in the Hanover Parking Garage to reflect the observed demand for each type of parking.** In order to ensure that the Hanover Parking Garage is effectively serving the prevailing demand for parking in downtown, DESMAN recommends that the Town regularly track the utilization of the permit and hourly parking spaces in the facility to ensure the proper mix of each type of space. Based on the results of DESMAN's surveys of downtown parking utilization, it appears as though there is an excess of permit parking available in the Garage and a shortage of hourly parking. However, as parking demand patterns change and development occurs in downtown, the typical utilization of the Garage could change. Additionally, the parking rates proposed by DESMAN could also alter the mix of users of the Garage, if they are implemented.

    Parking demand patterns and preferences, especially in a dense and vibrant downtown like Hanover's, are constantly changing. It is important that the Town regularly monitor these patterns and activity levels in their parking facilities, in order to ensure that the parking system can adapt to meet its user's needs.

11. **Include meter costs and time limits by location, as well as permit prices, on the Town's online Public Parking Map.** Based on feedback received during the stakeholder outreach, the general public is confused about where and when to park downtown. Adding more detailed information to the existing Public Parking Map on the Town of Hanover's website, such as the cost of parking on certain streets and their time limits, will help to clarify that confusion. This has been successfully implemented in many communities, including Nashua, NH and Syracuse, NY.

12. **Work with property owners to rent underutilized spaces for public use and/or connect employers in need of parking spaces with property owners who have excess parking capacity.** One of the simplest and, potentially, least expensive solutions for augmenting capacity in an area experiencing a shortage of parking supply is to open up existing spaces that are going underutilized. In downtown Hanover, this means working with the owners of private parking facilities to try and make use of their existing spaces, at times when they have availability. Based on the results of DESMAN's utilization surveys, there were a number of private parking facilities that had excess capacity during the study area-wide 1:00 PM weekday peak hour.

    Much like with Dartmouth's Thompson Lot, the Town could enter into arrangements with private property owner to rent spaces, which could then be used for free or reduced-rate public parking. The more cost-effective alternative for the Town is to help connect employers or individual employees seeking parking accommodations with owners of private parking facilities, allowing those parties to come to an agreement on their own.

    While the owners of private parking facilities in downtown Hanover may not be willing to allow public parking in their facilities, given the high cost of building additional public parking capacity, it is well worth the Town's time to investigate the potential viability of this solution.

13. **Evaluate the need to improve parking and wayfinding signage in downtown.** One of the most common problems that communities have related to public parking is that drivers cannot find the parking facilities. While there may be an ample supply of spaces in a downtown, the impression is that there is no parking because drivers do not know where to look. In Hanover, while there is not always an abundance of available spaces, making it easier for infrequent visitors to find a public parking facility will improve their perception of the availability of parking in downtown, even if the number of spaces does not increase.

    In order to ensure that infrequent visitors to downtown Hanover can find the existing public parking facilities, DESMAN recommends that the Town undertake a study of the parking and wayfinding signage in downtown. A well-designed system of parking and wayfinding signage will make it easy for any driver to identify the Town's public parking facilities and to find their way to one with a minimum of confusion and frustration.

14. **Implement a policy of periodic rate and fine increases to ensure revenues keep pace with inflation.** One of the most difficult parts of managing a parking system is convincing the public and governing entities of the value of regularly increasing parking rates. Because it is difficult politically, the decision to increase rates is generally deferred until financial need dictates. For this reason, DESMAN recommends that regular rate increases be part of the Town's plan of operation in the future. These increases should at least keep pace with cost of living increases (inflation), in order to ensure that expenses do not grow faster than the revenues that pay for them.

Medium-Term Recommendations (3 to 5 Years)

1. **Where possible, add on-street spaces to streets wide enough to support one or two lanes of parallel parking.** Despite State standards and the prevalence of curb cuts in downtown, DESMAN recommends that an earnest effort be undertaken to add on-street spaces wherever possible, given the current demand for parking. It may be possible to add on-street parking to streets that

were previously considered too narrow. Recently, in Stamford, CT, the City's new transportation chief was able to convince the Administration, as well as ConnDOT, to allow on-street parking in order to support street-fronting businesses and to calm traffic. This has also been done in similarly high-profile dense communities such as Georgetown, Old Town Alexandria and the North End of Boston.

Based on initial observations, potential locations for added on-street parking capacity include, but are not limited to: the north side of Maple Street along the façade of 63 South Main Street; both sides of South Main Street between Maple Street and 85 South Main; the east side of School Street between Allen and West Wheelock Streets, and; the south side of West Wheelock Street between School Street and the entrance to the Banwell Lot.

Town permit parking could be added to the north side of Allen Street west of School Street, joining the existing seven Town-reserved spaces. This would help to alleviate demand for the existing 10-hour spaces in the Marshall Lot and elsewhere.

Currier Place could also feasibly become a one-way street allowing only northbound traffic, enabling the addition of at least 10 new parking spaces on the east side of the street. If existing travel and parking lane width standards can be overlooked, Currier Place is wide enough (24 feet) to allow another parking lane on the west side of the street with approximately eight spaces.

2. **Improve pedestrian infrastructure including human-scale street lighting.** Parking utilization is low in facilities farthest from the main streets of downtown. To encourage drivers to park in distant spaces *and* incentivize downtown residents to walk to their destinations, the Town should continue working to widen sidewalks, install bump-outs at intersections, widen crosswalks, install curb ramps, reduce pedestrian delays at signalized intersections, and install pedestrian-focused street lamps for safer and more comfortable streets. A portion of the revenue from parking meters, permits, and enforcement could help to fund this capital project.

3. **Install parking space availability technology in the Hanover Parking Garage.** Customer service can be improved by providing the number of available spaces in the Hanover Parking Garage, prior to a patron entering the facility. Systems of this type typically include signs at the entrances to a garage indicating the number of available spaces, as well as making this information available online. By automatically counting the available spaces within the Garage, the Town will be able to reduce the labor involved with manual parking counts, while also alerting drivers to the presence of available parking spaces as they pass the Garage's entrance.

4. **Explore the potential for satellite employee parking locations along Route 120.** Driving into downtown Hanover from the south along Route 120 there are number of hotels, restaurants, and businesses, many with underutilized parking. DESMAN recommends that the Town explore the potential for satellite employee parking with these property owners, given the availability of spaces and their location along one of the main routes from I-89 into downtown. Additionally, the Advance Transit Blue Route currently runs along this corridor, so it may be possible to add a stop or stops to this route in order to pick up employees who work downtown. This would obviously need to be negotiated with Advance Transit, but would likely not add significant cost to their current operation.

Long-Term Recommendations (6 to 10 Years)

1. **Study the feasibility of building additional levels atop the Hanover Parking Garage for dedicated employee parking.**

2. **Work with Dartmouth College to assess the potential to build a parking structure where the existing Lodge, Jewel of India, and Sargent Place lots are located along Sanborn Road.**

3. **Consider acquiring 20 School Street to build a parking structure atop the existing Marshall Lot or acquire the SM-63 garage and build a structure that connects above Maple Street.**

4. **Study the feasibility of constructing an automated parking facility on Town-owned property in downtown.**

APPENDIX

Table A1: Downtown Parking Inventory by Facility and Block Face

BLK #	NAME/DESCRIPTION	OFF-STREET FACILITIES									*Subtotal*	ON-STREET SPACES							*Subtotal*	GRAND TOTAL
		Public 15-Min. Meter	Public 2-Hour Meter	Public 3-Hour Meter	Public 10-Hour Meter	Public Hourly Paid	Public Permit	Private Residential	Private Patron/ Employee	ADA		Public Restricted Use	Public Motorcycle	Public Permit	Public 15-Min. Meter	Public 2-Hour Meter	Public 10-Hour Meter	ADA		
1-North	W. Wheelock Street										*0*					17			*17*	**17**
1-East	S. Main Street										*0*					12		1	*13*	**13**
1-South	Allen Street										*0*	7							*7*	**7**
1-West	School Street										*0*								*0*	**0**
1-A	3 School St Lot							3			*3*								*0*	**3**
1-B	Sigma Delta Lot							5			*5*								*0*	**5**
1-C	Consolidated Comms. Lot								8		*8*								*0*	**8**
1-D	Allen Lot						16				*16*								*0*	**16**
1-E	Buskey Lot		14								*14*								*0*	**14**
1-F	Coldwell Banker Lot								17	1	*18*								*0*	**18**
1-G	Municipal Lot 5		5				9			1	*15*								*0*	**15**
1-H	Seven Allen Lot								15		*15*								*0*	**15**
1-I	Davison Block Lot								17		*17*								*0*	**17**
1-J	Five Allen Lot								10		*10*								*0*	**10**
1-K	Wheelock House Apts Lot							5			*5*								*0*	**5**
1-L	Banwell Lot						8				*8*								*0*	**8**
1-M	Casque & Gauntlet Alley							3			*3*								*0*	**3**
2-North	E. Wheelock Street										*0*					39		2	*41*	**41**
2-East	Crosby Street										*0*					11	6		*17*	**17**
2-South	Lebanon Street										*0*					14	5		*19*	**19**
2-West	S. Main Street										*0*					28		1	*29*	**29**
2-A	South Main Street Condos								25		*25*								*0*	**25**
2-B	Vox Lane Lots								43		*43*								*0*	**43**
2-C	Power Station Lot								35		*35*								*0*	**35**
2-D	Municipal Lot 7				29					2	*31*								*0*	**31**
2-E	Municipal Lot 3	2	7								*9*								*0*	**9**
2-F	Municipal Lot 6		24							2	*26*								*0*	**26**
2-G	Roger Clarkson Lot								5		*5*								*0*	**5**
2-H	Dartmouth Mail Lot								1	1	*2*								*0*	**2**
2-I	Campion Building Lot								3	1	*4*								*0*	**4**
2-J	The Hopkins Center Lot								3		*3*								*0*	**3**
3-North	Allen Street										*0*	1	5		4	5	7		*22*	**22**
3-East	S. Main Street										*0*	1				16		1	*18*	**18**
3-South	Maple Street										*0*								*0*	**0**
3-West	School Street										*0*						14		*14*	**14**
3-A	8 School St Lot							5			*5*								*0*	**5**
3-B	Gilberte Design Lot								8		*8*								*0*	**8**
3-C	Municipal Lot 1			84					5	4	*93*								*0*	**93**
3-D	Edgerton House Lot							13	4		*17*								*0*	**17**
3-E	SM-63 Garage			16	16				30		*62*								*0*	**62**
3-F	Nugget Theater Lot								6		*6*								*0*	**6**
3-G	Bank of America Lot								5		*5*								*0*	**5**
4-North	Lebanon Street										*0*					17		1	*18*	**18**
4-East	Sanborn Road										*0*			8					*8*	**8**
4-South	South Street										*0*								*0*	**0**
4-West	S. Main Street										*0*								*0*	**0**
4-A	Post Office Lot								27	1	*28*								*0*	**28**
4-B	Six South St. Hotel								42		*42*								*0*	**42**
4-C	7 Lebanon Street Garage					142	136			7	*285*								*0*	**285**
4-D	Sargent Place Lot								65	2	*67*								*0*	**67**
4-E	Lodge Lot							16			*16*								*0*	**16**
4-F	Jewel of India Lot							9	6	2	*17*								*0*	**17**
4-G	Library Lot								8		*8*								*0*	**8**
4-H	Enterprise Rent-a-Car Lot								14		*14*								*0*	**14**
4-I	4 Currier Garage								20	1	*21*								*0*	**21**
4-J	4 Currier Lot								5		*5*								*0*	**5**
4-K	Sotheby's Lot								5		*5*								*0*	**5**
4-L	C&A Pizza Lot								4		*4*								*0*	**4**
4-M	17 Lebanon St Apts Lot							2		1	*3*								*0*	**3**
5-North	Maple Street										*0*								*0*	**0**
5-East	S. Main Street										*0*								*0*	**0**
5-South	Ripley Road										*0*								*0*	**0**
5-West	School Street										*0*								*0*	**0**
5-A	Marshall Lot				81					2	*83*								*0*	**83**
5-B	Ledyard Financial Garage								32	1	*33*								*0*	**33**
5-C	Circle K Lot								12	1	*13*								*0*	**13**
5-D	CVS Lot								44	2	*46*								*0*	**46**
5-E	85 S. Main Street Lot							7		3	*10*								*0*	**10**
5-F	24 School Street Lot							27			*27*								*0*	**27**
6-North	South Street										*0*	12				15		1	*28*	**28**
6-East	Currier Place										*0*								*0*	**0**
6-South	Dorrance Place										*0*					3		1	*4*	**4**
6-West	S. Main Street										*0*					2			*2*	**2**
6-A	South Block Lot		15						4	1	*20*								*0*	**20**
6-B	Library Lot								30	2	*32*								*0*	**32**
6-C	South Block Garage								92	3	*95*								*0*	**95**
7-North	Lebanon Street										*0*			52		4	10	1	*67*	**67**
7-West	Hovey Lane										*0*			98					*98*	**98**
7-A	Hanover High School Lot								51	4	*55*								*0*	**55**
7-B	Thompson Lot						50		278	8	*336*								*0*	**336**
TOTAL		**2**	**65**	**100**	**126**	**142**	**219**	**95**	**979**	**53**	**1,781**	**21**	**5**	**158**	**4**	**183**	**42**	**9**	**422**	**2,203**

Table A2: Downtown Parking Inventory by Facility and Block Face w/ Effective Supply Factor

BLK #	NAME/DESCRIPTION	OFF-STREET FACILITIES									*Subtotal*	ON-STREET SPACES							*Subtotal*	GRAND TOTAL
		Public 15-Min. Meter	Public 2-Hour Meter	Public 3-Hour Meter	Public 10-Hour Meter	Public Hourly Paid	Public Permit	Private Residential	Private Patron/ Employee	ADA		Public Restricted Use	Public Motorcycle	Public Permit	Public 15-Min. Meter	Public 2-Hour Meter	Public 10-Hour Meter	ADA		
1-North	W. Wheelock Street										*0*					14			*14*	**14**
1-East	S. Main Street										*0*					10		1	*11*	**11**
1-South	Allen Street										*0*	6							*6*	**6**
1-West	School Street										*0*								*0*	**0**
1-A	3 School St Lot							3			*3*								*0*	**3**
1-B	Sigma Delta Lot							5			*5*								*0*	**5**
1-C	Consolidated Comms. Lot								7		*7*								*0*	**7**
1-D	Allen Lot						14				*14*								*0*	**14**
1-E	Buskey Lot		13								*13*								*0*	**13**
1-F	Coldwell Banker Lot								15	1	*16*								*0*	**16**
1-G	Municipal Lot 5		5				8			1	*14*								*0*	**14**
1-H	Seven Allen Lot								14		*14*								*0*	**14**
1-I	Davison Block Lot								15		*15*								*0*	**15**
1-J	Five Allen Lot								9		*9*								*0*	**9**
1-K	Wheelock House Apts Lot							5			*5*								*0*	**5**
1-L	Banwell Lot						7				*7*								*0*	**7**
1-M	Casque & Gauntlet Alley							3			*3*								*0*	**3**
2-North	E. Wheelock Street										*0*					33		2	*35*	**35**
2-East	Crosby Street										*0*					9	5		*14*	**14**
2-South	Lebanon Street										*0*					12	4		*16*	**16**
2-West	S. Main Street										*0*					24		1	*25*	**25**
2-A	South Main Street Condos								23		*23*								*0*	**23**
2-B	Vox Lane Lots								39		*39*								*0*	**39**
2-C	Power Station Lot								32		*32*								*0*	**32**
2-D	Municipal Lot 7				26					2	*28*								*0*	**28**
2-E	Municipal Lot 3	2	6								*8*								*0*	**8**
2-F	Municipal Lot 6		22							2	*24*								*0*	**24**
2-G	Roger Clarkson Lot								5		*5*								*0*	**5**
2-H	Dartmouth Mail Lot								1	1	*2*								*0*	**2**
2-I	Campion Building Lot								3	1	*4*								*0*	**4**
2-J	The Hopkins Center Lot								3		*3*								*0*	**3**
3-North	Allen Street										*0*	1	4		3	4	6		*18*	**18**
3-East	S. Main Street										*0*	1				14		1	*16*	**16**
3-South	Maple Street										*0*								*0*	**0**
3-West	School Street										*0*						12		*12*	**12**
3-A	8 School St Lot							5			*5*								*0*	**5**
3-B	Gilberte Design Lot								7		*7*								*0*	**7**
3-C	Municipal Lot 1			76					5	4	*85*								*0*	**85**
3-D	Edgerton House Lot							12	4		*16*								*0*	**16**
3-E	SM-63 Garage			14	14				29		*57*								*0*	**57**
3-F	Nugget Theater Lot								5		*5*								*0*	**5**
3-G	Bank of America Lot								5		*5*								*0*	**5**
4-North	Lebanon Street										*0*					14		1	*15*	**15**
4-East	Sanborn Road										*0*			7					*7*	**7**
4-South	South Street										*0*								*0*	**0**
4-West	S. Main Street										*0*								*0*	**0**
4-A	Post Office Lot								24	1	*25*								*0*	**25**
4-B	Six South St. Hotel								40		*40*								*0*	**40**
4-C	7 Lebanon Street Garage					135	129			7	*271*								*0*	**271**
4-D	Sargent Place Lot								59	2	*61*								*0*	**61**
4-E	Lodge Lot							14			*14*								*0*	**14**
4-F	Jewel of India Lot							8	5	2	*15*								*0*	**15**
4-G	Library Lot								7		*7*								*0*	**7**
4-H	Enterprise Rent-a-Car Lot								13		*13*								*0*	**13**
4-I	4 Currier Garage								19	1	*20*								*0*	**20**
4-J	4 Currier Lot								5		*5*								*0*	**5**
4-K	Sotheby's Lot								5		*5*								*0*	**5**
4-L	C&A Pizza Lot								4		*4*								*0*	**4**
4-M	17 Lebanon St Apts Lot							2		1	*3*								*0*	**3**
5-North	Maple Street										*0*								*0*	**0**
5-East	S. Main Street										*0*								*0*	**0**
5-South	Ripley Road										*0*								*0*	**0**
5-West	School Street										*0*								*0*	**0**
5-A	Marshall Lot				73					2	*75*								*0*	**75**
5-B	Ledyard Financial Garage								30	1	*31*								*0*	**31**
5-C	Circle K Lot								11	1	*12*								*0*	**12**
5-D	CVS Lot								40	2	*42*								*0*	**42**
5-E	85 S. Main Street Lot							6		3	*9*								*0*	**9**
5-F	24 School Street Lot							24			*24*								*0*	**24**
6-North	South Street										*0*	10				13		1	*24*	**24**
6-East	Currier Place										*0*								*0*	**0**
6-South	Dorrance Place										*0*					3		1	*4*	**4**
6-West	S. Main Street										*0*					2			*2*	**2**
6-A	South Block Lot		14						4	1	*19*								*0*	**19**
6-B	Library Lot								27	2	*29*								*0*	**29**
6-C	South Block Garage								87	3	*90*								*0*	**90**
7-North	Lebanon Street										*0*			44		3	9	1	*57*	**57**
7-West	Hovey Lane										*0*			83					*83*	**83**
7-A	Hanover High School Lot								46	4	*50*								*0*	**50**
7-B	Thompson Lot						45		250	8	*303*								*0*	**303**
TOTAL		**2**	**60**	**90**	**113**	**135**	**203**	**87**	**897**	**53**	**1,640**	**18**	**4**	**134**	**3**	**155**	**36**	**9**	**359**	**1,999**