McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

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MEMORANDUM

TO: SARAH RAPOSA, AICP

FROM: CHRISTINE APICELLA, AICP

SUBJECT: DOWNTOWN MEDFIELD PARKING UTILIZATION

DATE: JUNE 30, 2014

The Town of Medfield retained the services of McMahon Associates (McMahon), transportation planning and engineering consultants, to prepare an evaluation of the current parking supply in downtown Medfield, Massachusetts.

Study Purpose

The Town of Medfield seeks to study parking utilization patterns of existing parking in its downtown in an effort to begin to explore strategies to manage the parking supply to meet present and future demand. The Town has developed a Downtown Parking District Special Permit area to manage the parking demands associated with downtown's continued vitality. On-street parking is somewhat regulated, and off-street parking exists behind many Main Street establishments. However, several factors are contributing to the need to re-evaluate parking policy within the downtown.

- As development continues in the vicinity of Main Street, parking may be displaced while parking demand increases. Medfield is taking a proactive approach to this trend, by seeking to understand and direct this growth to benefit all of downtown.

- Medfield's Downtown Study Committee has continued to evaluate streetscape improvements and associated efforts that can contribute to a "park once and walk" environment that ultimately results in better use of a limited parking supply. This approach should be evaluated in the context of new development and future development plans.

- The Town of Medfield will welcome a new grocery store and will review development plans for adaptive reuse of an historic building (with no dedicated parking) on Janes Avenue. The potential for an increase in parking demand in the short-term associated with new development has raised localized concerns and prompted a larger conversation about parking throughout the downtown.

The parking utilization analysis completed by McMahon is intended to provide a better understanding of the parking and circulation challenges facing the downtown, and serve as the basis for refining an effective parking management strategy for downtown Medfield.

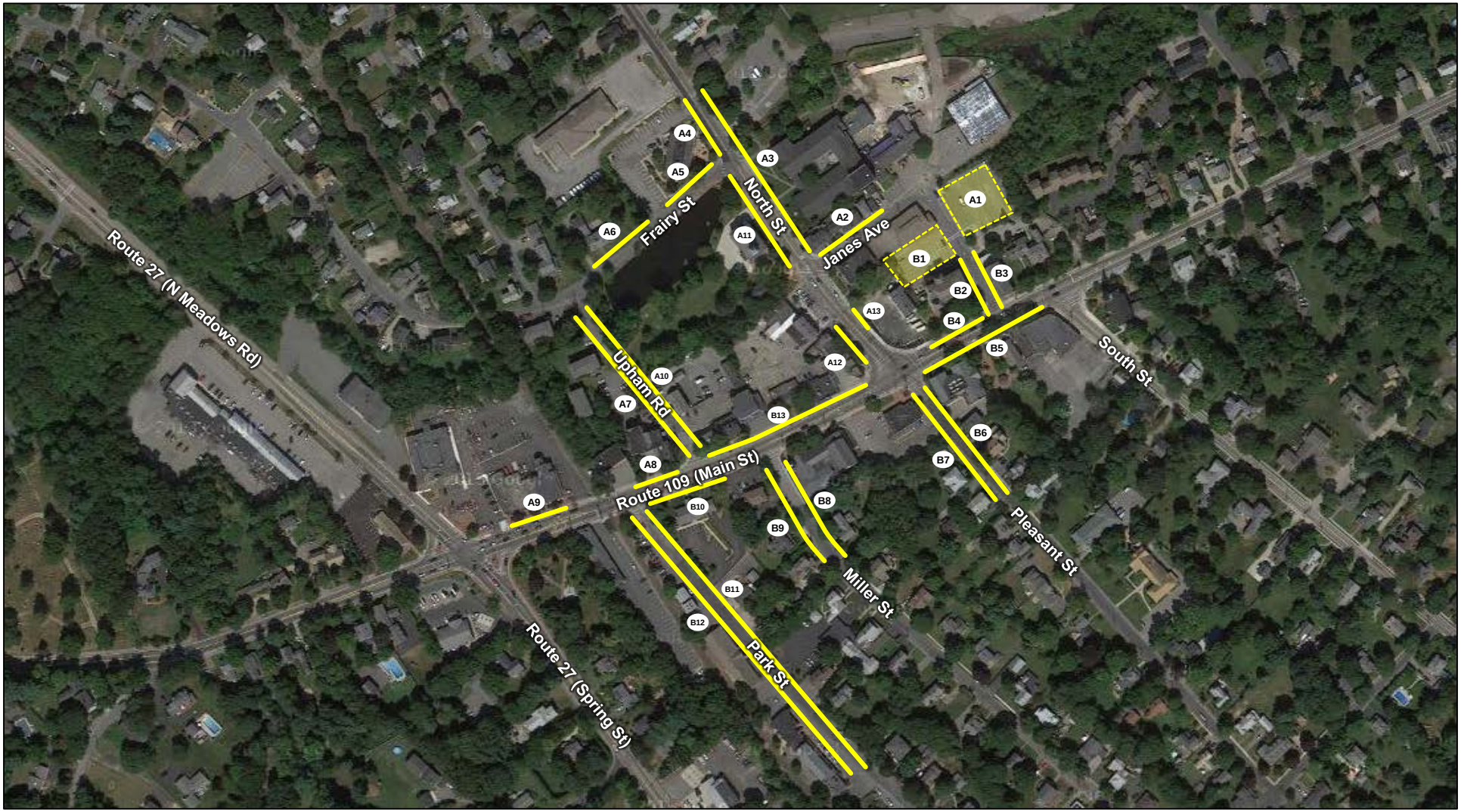
Study Area
The study area is defined as Main Street (Route 109) and associated side-streets between North Meadows Road (Route 27) and South Street. Existing downtown on-street public parking consists of spaces along Main Street, Upham Road, North Street, Janes Avenue, Park Street, Miller Street and Pleasant Street. Public off-street lots are provided in the vicinity of the municipal Town House. The study area was divided into two zones – A (one off-street lot, and on-street generally northwest of North and Main Streets) and B (one off-street lot, on-street parking near the Town House offices, and south of Main Street) – to facilitate data collection. Each block face or off-street lot was assigned a key code corresponding to data collection sheets for each parking location (see Exhibit A).

Parking Supply
A total of 212 public parking spaces were inventoried and observed in the study area. Of these, 144 are on-street spaces (marked and unmarked) and the remaining 68 spaces are located in two off-street parking lots in the vicinity of the Town House offices.

For the most part, on-street parking is available as an unregulated curbside use. On-street parking spaces on Main Street (Route 109) and some of the side-streets are demarcated with striping. However, for streets without marked parking spaces and no regulatory signage specifically prohibiting parking (primarily side streets south of Route 109), an estimate of the number of parking spaces was determined by block face. The estimates are based on a desktop analysis of the physical curbside space available, assuming 20 linear feet per sparking space. Adjustments were made, to the extent possible, to account for driveway locations and setbacks from intersecting streets.

In instances where there was illegal parking in segments marked “no parking” or “no stopping”, etc., we did not include these numbers in the supply.

Downtown Medfield Parking Study Area
EXHIBIT A



Public On-Street and Off-Street Spaces

6/3/2014

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Parking Utilization

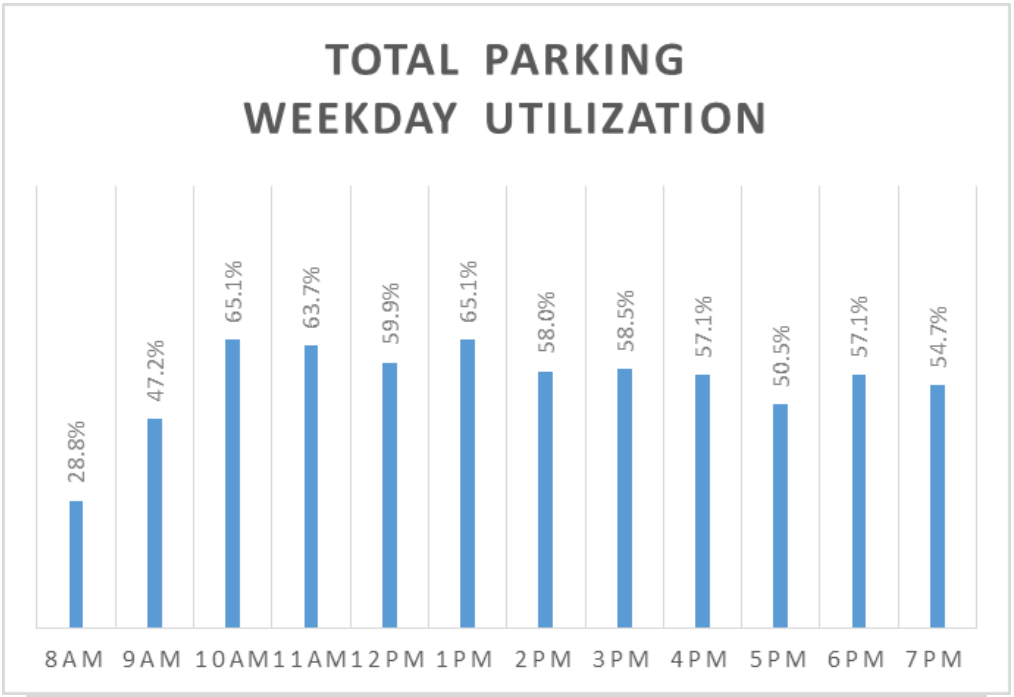
Parking utilization data was collected between the hours of 8:00 AM and 8:00 PM on Thursday, June 5, 2014 and Saturday, June 7, 2014. Thursday, June 5 was a rainy day but represented typical weekday parking demand with both Medfield Public Schools and the Montrose School in session, and the Town House offices open extended hours. Saturday, June 7, 2014 provided dry, fair weather conditions and typical downtown activities prior to the start of the summer season when parking demand may be lower.

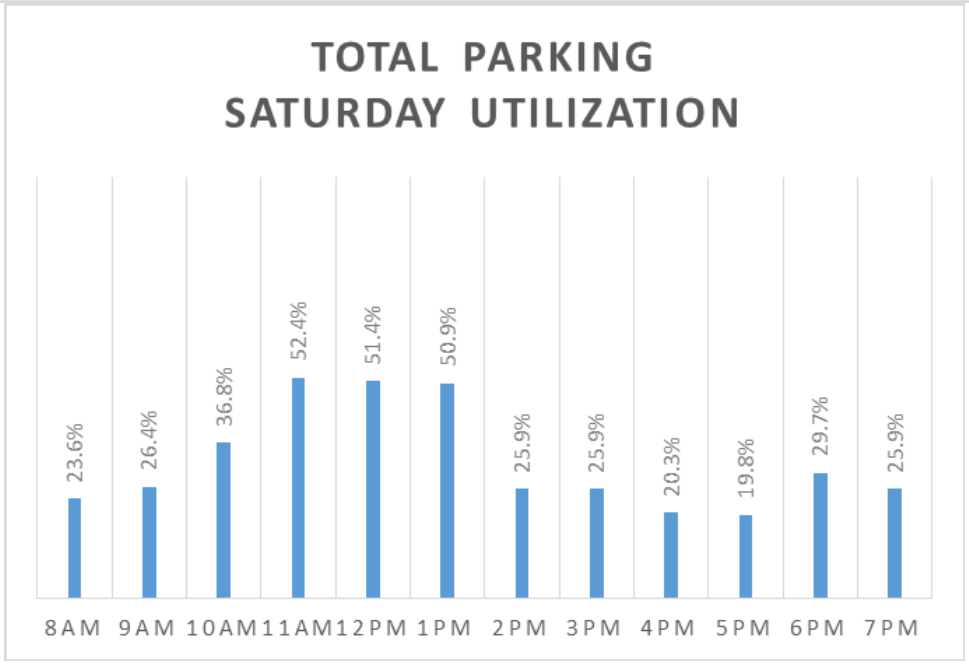
These dates and time periods were established in an effort to capture utilization patterns during the downtown's typical weekday peak demand and the likely peak demand for downtown restaurant and retail establishments in the evenings and Saturdays. Occupancy for each space was recorded in increments of 1-hour throughout the observation periods. Study area utilization maps for the weekday analysis period are provided in Attachment A; Saturday analysis maps in Attachment B; and the utilization database is provided in Attachment C.

The data was collected to determine if parking demand is nearing capacity. Parking occupancy of 85% is considered the "effective capacity" for parking systems. At 85% occupancy, some parking (about 1 in 8 spaces) is available, so that drivers can reasonably find a space and turnover can be accommodated. However, at 85% occupancy of an overall parking study area, some drivers struggle to find remaining spaces and will leave an area, or circulate to find a space, increasing traffic.[1]

Weekday parking utilization for all spaces peaks at approximately 65% at 10:00 AM and 1:00 PM. Saturday parking utilization for all spaces peaks at 52% at 11:00 AM. While there are some locations in the study area that reach 100% occupancy, *overall* results indicate occupancy is less than 85% in downtown Medfield for the study area as a whole. Late morning and early afternoon have the highest utilization for the study area overall.

[1] Donald Shroup, professor at the University of California, Los Angeles (UCLA), is credited with popularizing this rule of thumb beginning with the book, *The High Cost of Free Parking*, 2005.

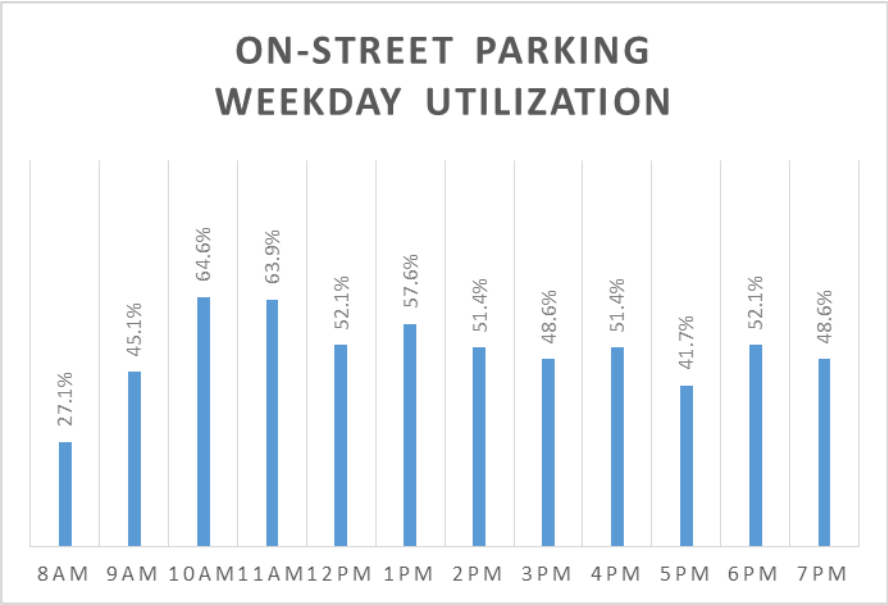


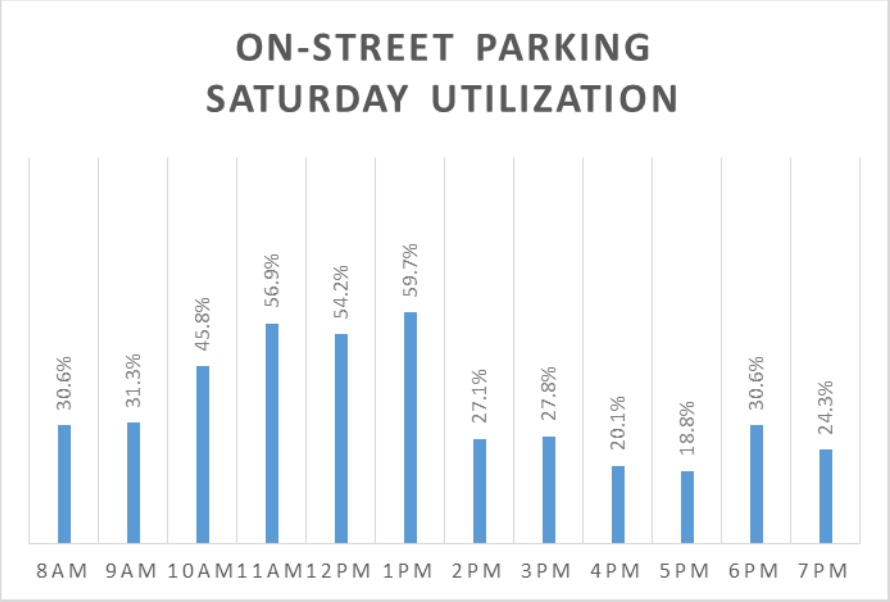


The utilization data was organized into sub-groups in order to help answer key questions about parking utilization patterns in the downtown, which in turn can be used to inform parking management strategies for the future. The key findings of these sub-groups are provided below.

On-Street Parking

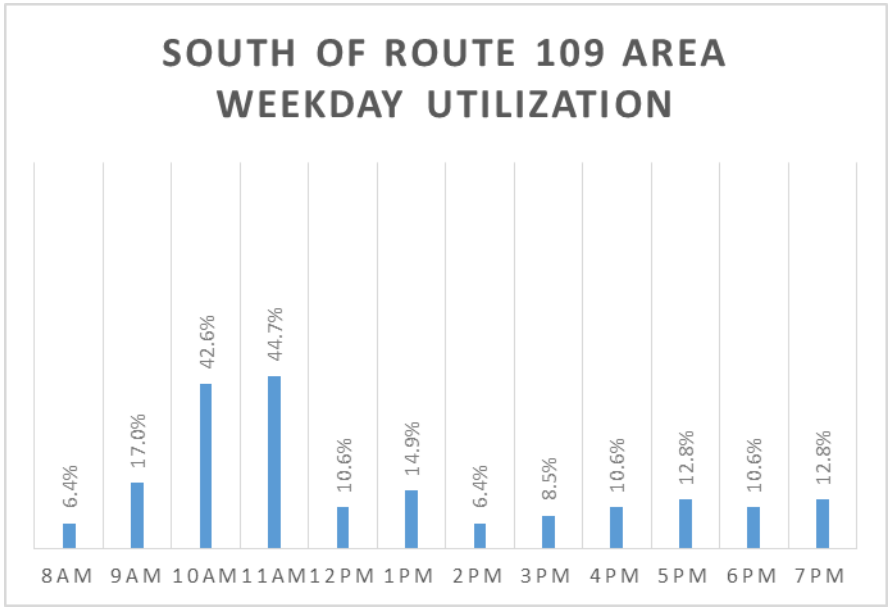
- Utilization of the 144 on-street spaces peaks at 10:00 AM on the weekday with approximately 65% utilization, and at 60% at 1:00 PM on Saturday.

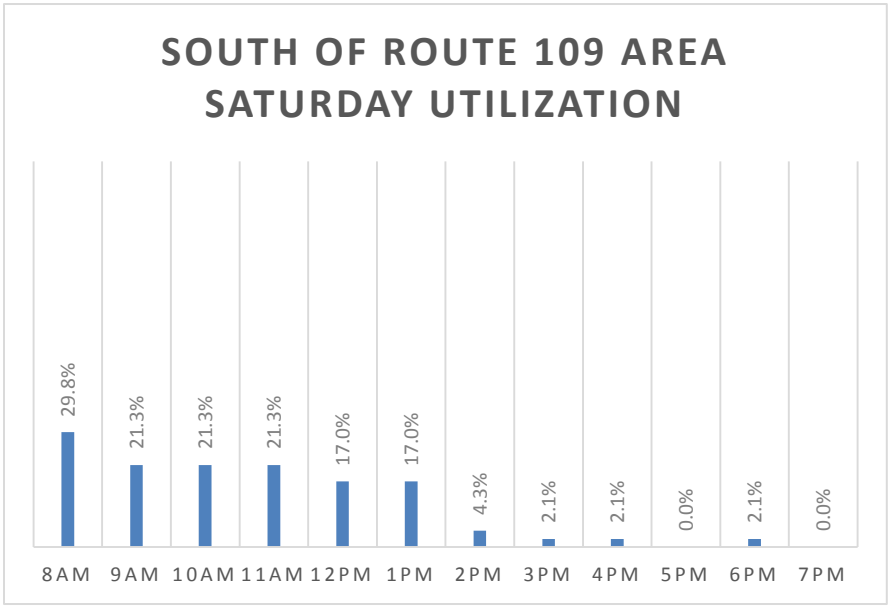




- The 47 on-street parking spaces south of Route 109 (Main Street) are underutilized throughout the day, never exceeding 50% utilization, with less than 20% utilization during most of the weekday. Peak utilization south of Route 109 (Main Street) is 45% at 11:00 AM on the weekday. Saturday utilization peaks at about 30% at 8:00 AM, then

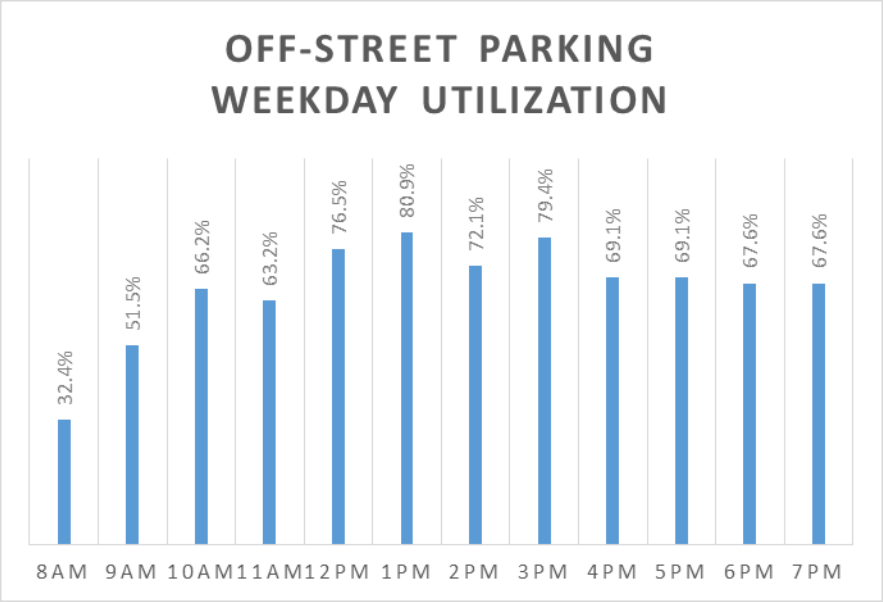
continues to decrease throughout the day with less than 10% utilization from 2:00 PM through the end of the observation period.

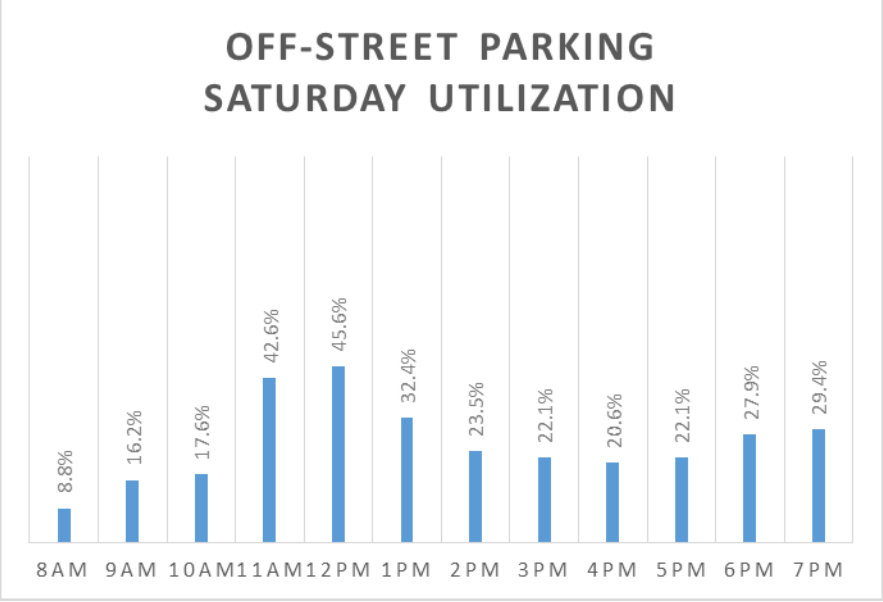




Off-Street Parking

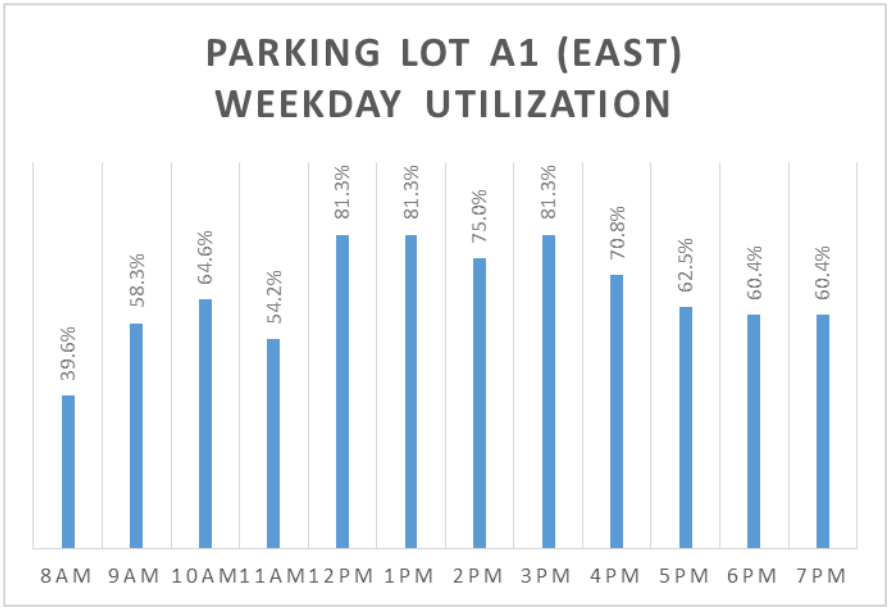
- Utilization of the 68 off-street spaces peaks at approximately 81% at 1:00 PM on the weekday, and at 46% at 12:00 PM on Saturday.
- Except for early morning (8:00 AM), the off-street lots are well utilized throughout the weekday but are usually below 75% full, indicating some excess capacity.

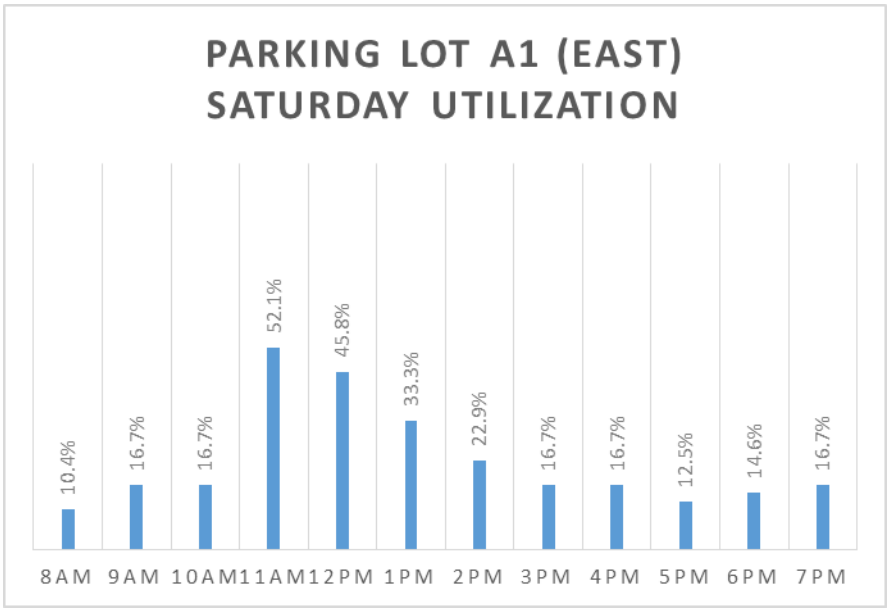


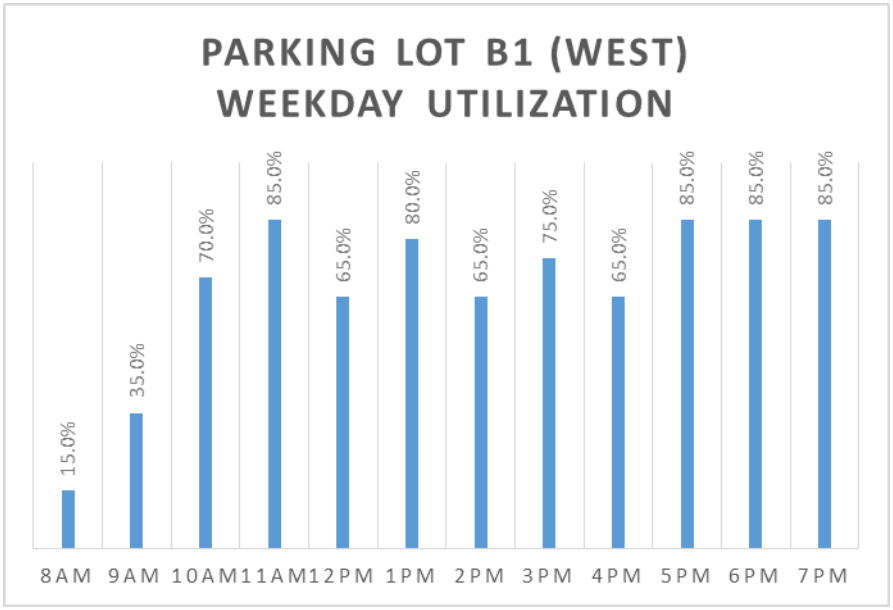


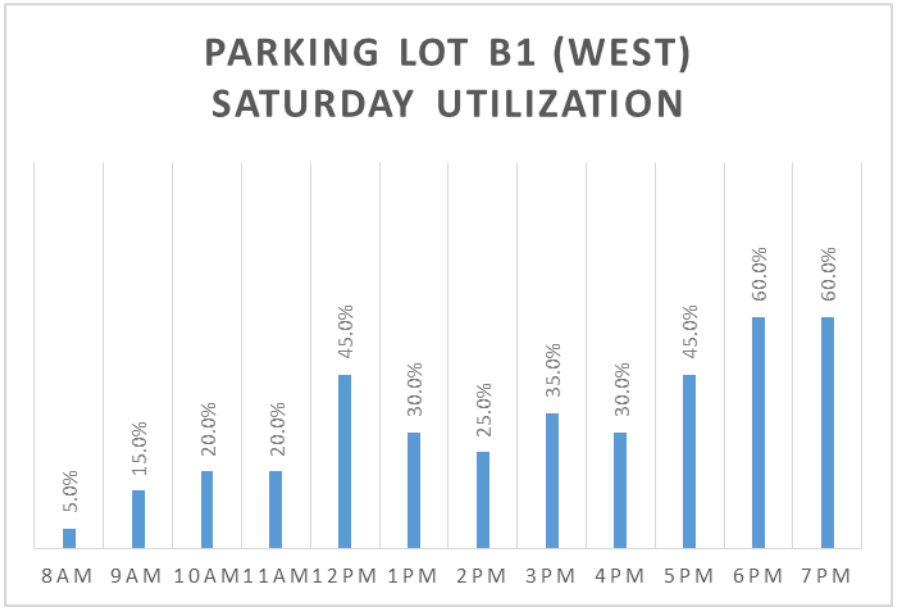
- Utilization patterns for the two off-street lots differ: on weekdays, lot A1 (east) peaks at 81% from 12:00 PM to 1:00 PM and again at 3:00 PM, while lot B1 (west – behind the

Town House offices) peaks at 85% at 11:00 AM, dips through the afternoon before peaking again at 85% from 5:00 PM to 7:00 PM when the Town House was open for extended Thursday hours. Utilization follows a similar but much less pronounced pattern on Saturday, peaking at 52% for lot A1 and 60% for lot B1.



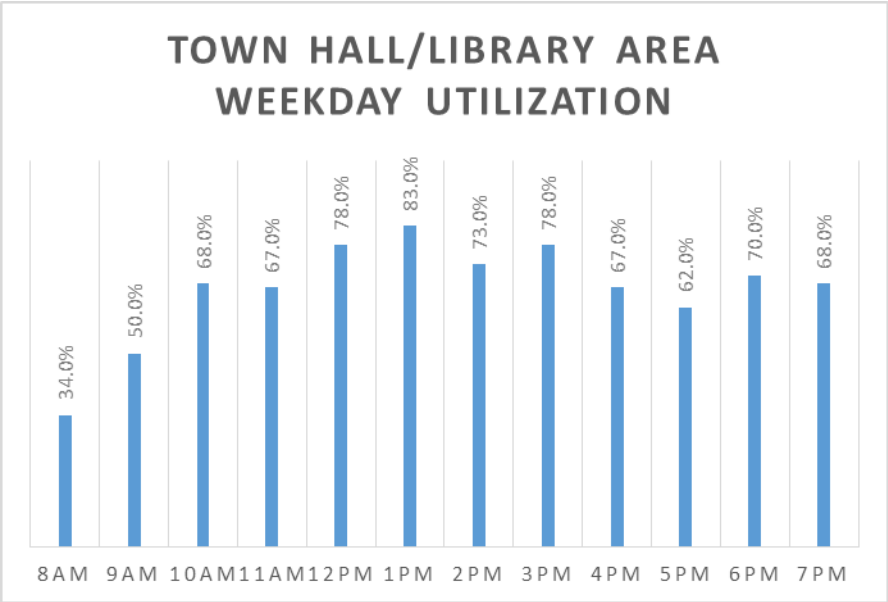


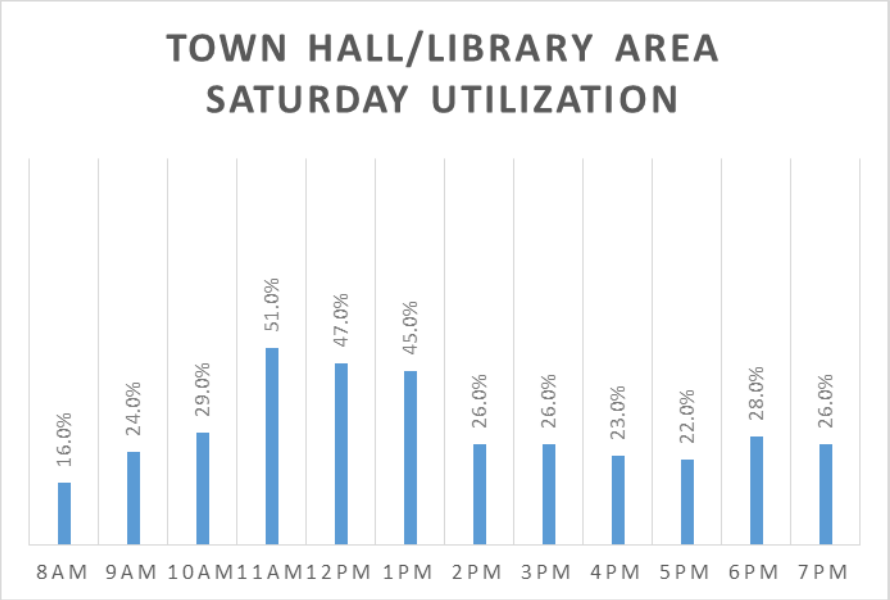

PARKING LOT B1 (WEST)
WEEKDAY UTILIZATION
15.0%
35.0%
70.0%
85.0%
65.0%
80.0%
65.0%
75.0%
65.0%
85.0%
85.0%
85.0%
8AM 9AM 10AM 11AM 12PM 1PM 2PM 3PM 4PM 5PM 6PM 7PM


PARKING LOT B1 (WEST)
SATURDAY UTILIZATION
5.0%
15.0%
20.0%
20.0%
45.0%
30.0%
25.0%
35.0%
30.0%
45.0%
60.0%
60.0%
8AM 9AM 10AM 11AM 12PM 1PM 2PM 3PM 4PM 5PM 6PM 7PM

Town Hall/Library Area

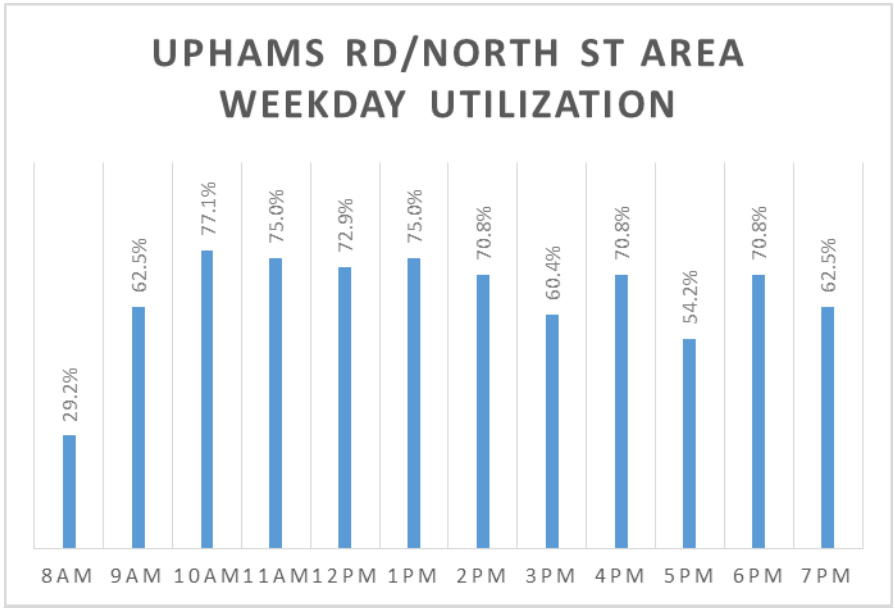
- There are several proposed developments in the vicinity of the Town House offices that may seek to reduce their on-site parking requirements through the Town's Downtown Parking District Special Permit process. Therefore, the current parking utilization of this sub-area is of particular interest to the Town. This sub-area consists of the Town controlled off-street lots and on-street spaces on Jane's Avenue and Main Street (Route 109) west of North Street/Pleasant Street (parking utilization categories A1, A2, B1, B2, B3, B4, B5). There are 100 parking spaces included in this sub-area.
- Parking utilization in this sub-area peaks at approximately 83% at 1:00 PM on the weekday, and at 51% at 11:00 AM on Saturday.
- Weekday utilization builds gradually throughout the morning from less than 50% at 8:00AM to a peak of 83% at 1:00 PM, followed by utilization ranging from 60% and 75% for the remainder of the observation period. From 10:00 AM through 7:00 PM, parking is more than 60% utilized.
- Saturday utilization follows a similar but less pronounced pattern, growing from 16% at 8:00 AM to a peak of 51% at 11:00 AM, followed by 22-26% utilization from 2:00 PM to 7:00 PM.
- While peak utilization is just below the 85% utilization threshold, parking on Jane's Avenue reaches 100% utilization and demand is steady in the sub-area throughout the day, particularly on the weekday.

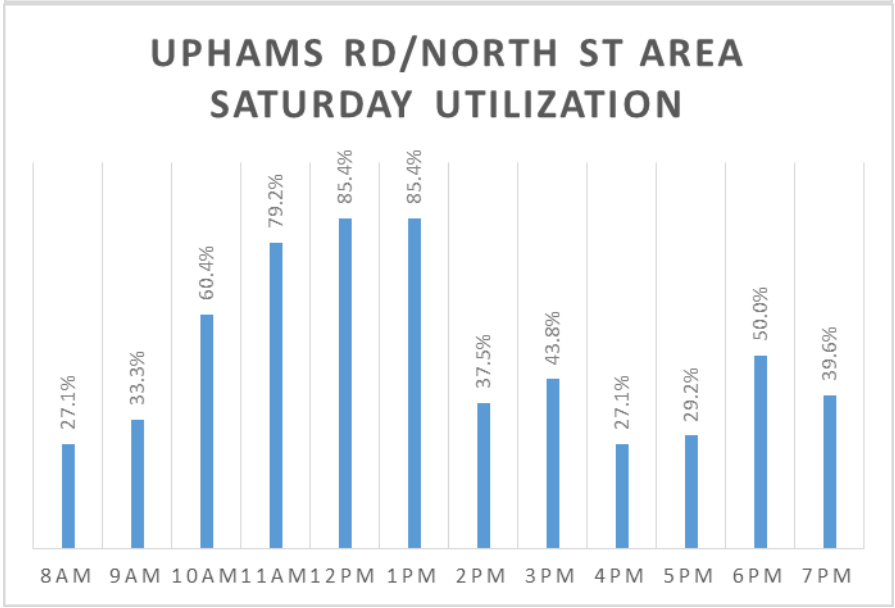




Upham Road/North Street Block

- This sub-area consists of the 48 on-street parking spaces on Upham Road, North Street, and Main Street between North Meadows Road/Route 27 and North Street (parking utilization areas A3, A4, A7, A8, A9, A10, B10, B13, A12, A13).
- Parking utilization in this sub-area peaks at approximately 77% at 10:00 AM on the weekday, and at 85% from noon to 1:00 PM on Saturday. Utilization during the weekday is 29% at 8AM, and remains over 60% for much of the day, with the exception of a slight dip to 54% at 5:00 PM. Utilization on Saturday follows a similar pattern during the morning, with a substantial drop in utilization by 2:00 PM.





- High utilization (over 85%) of on-street spaces on Upham Road may be attributed to overflow parking from adjacent land uses. These are among the only spaces that are highly utilized at 8:00 AM on weekdays with 100% utilization along the west block face, while utilization is less intensive on Saturdays. It is also one of the only areas that experiences over 85% utilization on Saturday (from noon to 1:00 PM), although utilization is less than 50% for the balance of the Saturday afternoon. As a result, there is some speculation that the parking may be associated with the Nursing Care facility that could have early morning employee shifts, and a stream of professional and resident visitors throughout the day.

- Much of the parking on Main Street between Upham Road and North Street, as well as North Street itself, reaches 100% utilization at noon, 2:00 PM, and 6:00 PM.
- Due to the amount of private, off-street parking in this sub-area (not evaluated for utilization through this study), potential reconfiguration of parking lots and shared parking arrangements may be desirable to manage parking demand.

Recommendations and Next Steps

The findings of this utilization analysis imply there is currently capacity for some growth in parking demand within downtown Medfield. However, the Town Hall/Library sub-area is approaching capacity during peak periods and is the focal point of future development. This parking utilization analysis was focused on existing conditions to better understand the parking and circulation challenges facing the downtown. Parking analysis, by necessity, is of the moment, and allows the community to better understand if there is a true "parking problem" or if improved parking management can enhance the perception of the existing parking supply.

Optimal use of the existing parking supply requires that parking regulations are managed efficiently. A comprehensive parking management plan that accommodates future growth is far more effective than constructing new parking facilities, with the average construction cost of $25,000 to $50,000 per parking space for a typical downtown parking garage.[2] The overall parking management strategy should maximize the available parking supply, which is a limited resource. It's important to recognize that parking strategies are part of an integrated system that should be implemented simultaneously for the most effective outcomes. It takes only small changes in use to shift the way parking operates or is perceived in an area.

One potential management approach is to prioritize convenient, short-term parking for customers and to prioritize locations where frequent turnover is desired. Longer-term parking, such as for employees, could be shifted to underutilized locations. This could potentially encourage a shift of longer-term parkers from high utilization areas to parking with additional capacity. For example, when on-street spaces on Main Street and North Avenue are highly utilized (over 85%), especially at 2:00 PM and 6:00 PM, there are many available spaces in the off-street lots as well as on the streets south of Main Street. The evening peak utilization may be caused by customers at restaurants who are seeking parking close to the business entrances, and are either unaware or unwilling to walk from off-street lots and other locations. It's also important to consider wayfinding between parking locations and key attractions, and the pedestrian environment with amenities such as consistent sidewalks, high-quality lighting and landscaping.

[2] "Smart Parking Revisited", *Planning Magazine*, May/June 2012

A parking pricing program can also assist with parking management. A tiered pricing program such as a higher price for "premium" locations (such as on-street on Main Street), combined with free or modestly priced parking permits for longer-term parking in off-street lots, could free up parking in desirable locations where the spaces are most needed.

It is important to note that shifting some of the parking demand from Route 109 and the Town lots to on-street spaces in underutilized areas will require coordination between the Town and abutting property owners. There could be some resistance from abutters as currently unregulated spaces are converted to encourage longer-term parking solutions. Direct in-person and telephone conversations with key business owners, government partners and institutional stakeholders is a valuable method for determining the sensitivity to parking management changes, as well as determining existing parking practices and preferences. Typically, the largest user groups should be consulted to understand their impacts. It is also useful to gather information from a number of stakeholders to determine the extent to which there is any disparity between collected data and "understood" parking issues.

The Town of Medfield anticipates future development in the downtown area, and therefore a potential increase in parking demand. The overall downtown parking management plan and supporting policies should be flexible and adaptable to carry through downtown's future. A parking plan that is flexible and adaptable can be responsive to the ever changing use patterns that will continually emerge in Medfield. Strategies to accommodate that future growth while preserving the character of Medfield will support that parking is rarely a simple question of supply, but rather must involve setting up a system that will allow all uses to seek a balance within downtown. The Commonwealth's *Smart Growth/Smart Energy Toolkit*'s Smart Parking Model Bylaw in Attachment D provides sample zoning regulations, shared parking arrangements, and development guidelines that could be considered by Medfield.

The Town could begin to understand future demand for parking based on current development plans, projections from existing or proposed zoning ("buildout" scenarios), and potential demand scenarios that consider changes to development or parking policies. Peak parking and employment demand can be calculated both independently and using the latest shared parking methodology. For example, McMahon is experienced at applying both Institute of Transportation Engineers (ITE) Parking Generation data as well as Urban Land Institute (ULI) Shared Parking methodologies to real-world observations of parking preference. Future parking demand factors can be based on these variables and applied to future scenarios.

Finally, if it is determined that additional parking supply is needed to meet future development needs, fees-in-lieu of parking can be used to reduce the amount of parking required for private developments in a defined area. The intent is that fees are used for construction of new parking that meet the needs of the entire district the parking is intended to serve. Municipal finance laws and regulations for development mitigation need to be considered with this approach. Additional details and information are provided in the Commonwealth's *Smart Growth/Smart*

Energy Toolkit's Smart Parking Model Bylaw in Attachment D. Business Improvement Districts (BIDs) and Parking Betterment Districts are also strategies that allow for parking fees from meters and permits to be re-invested in a designated area generating that revenue.

It has been a pleasure working with the Town of Medfield on this assignment. Please do not hesitate to contact me at 508-823-2245, extension 3003 or capicella@mcmahonassociates.com if we can be of additional assistance in refining the Town's approach to parking management.

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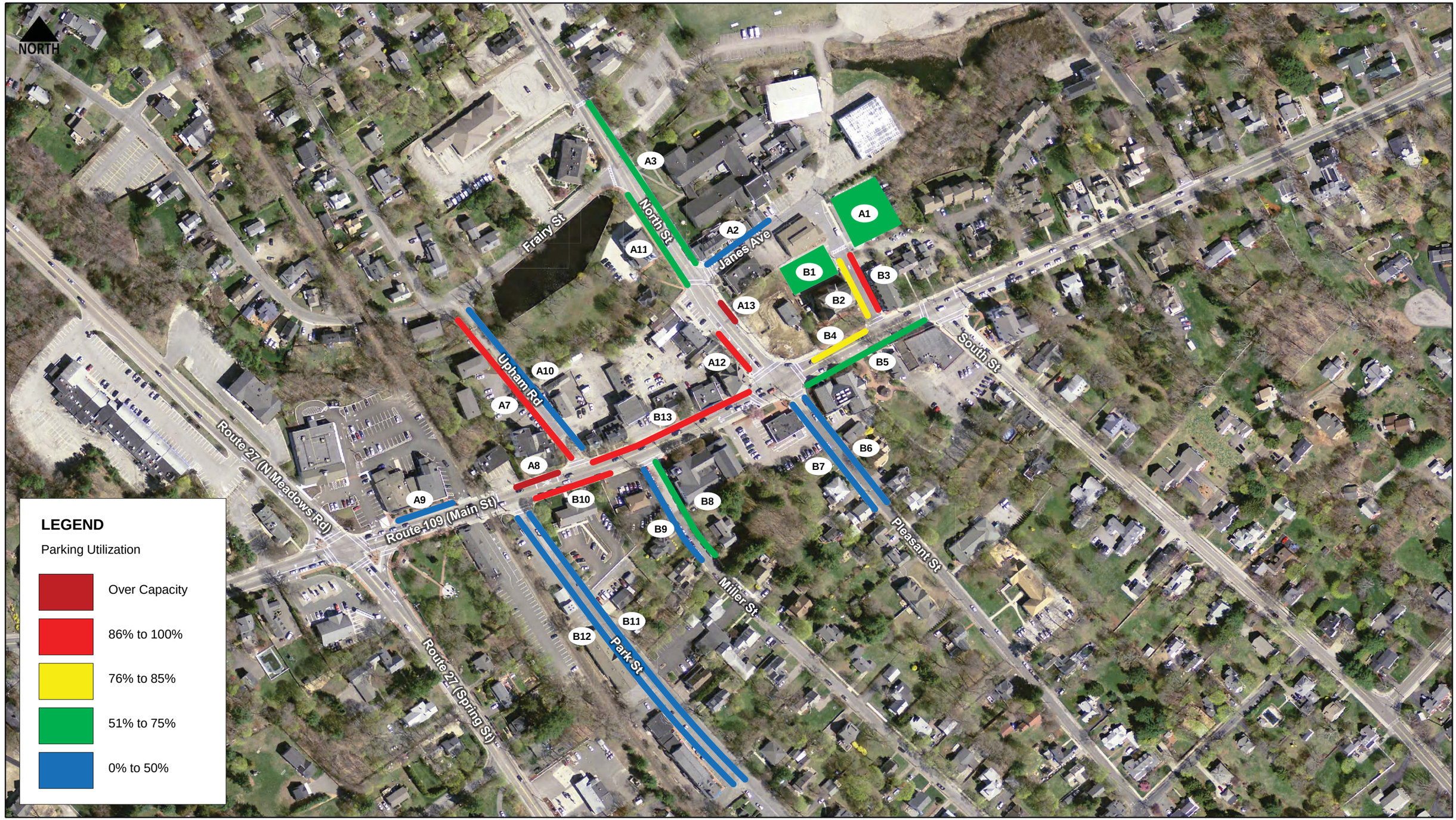
Downtown Medfield Parking Utilization
WEEKDAY 8:00 AM

6/23/2014

McMAHON TRANSPORTATION ENGINEERS & PLANNERS



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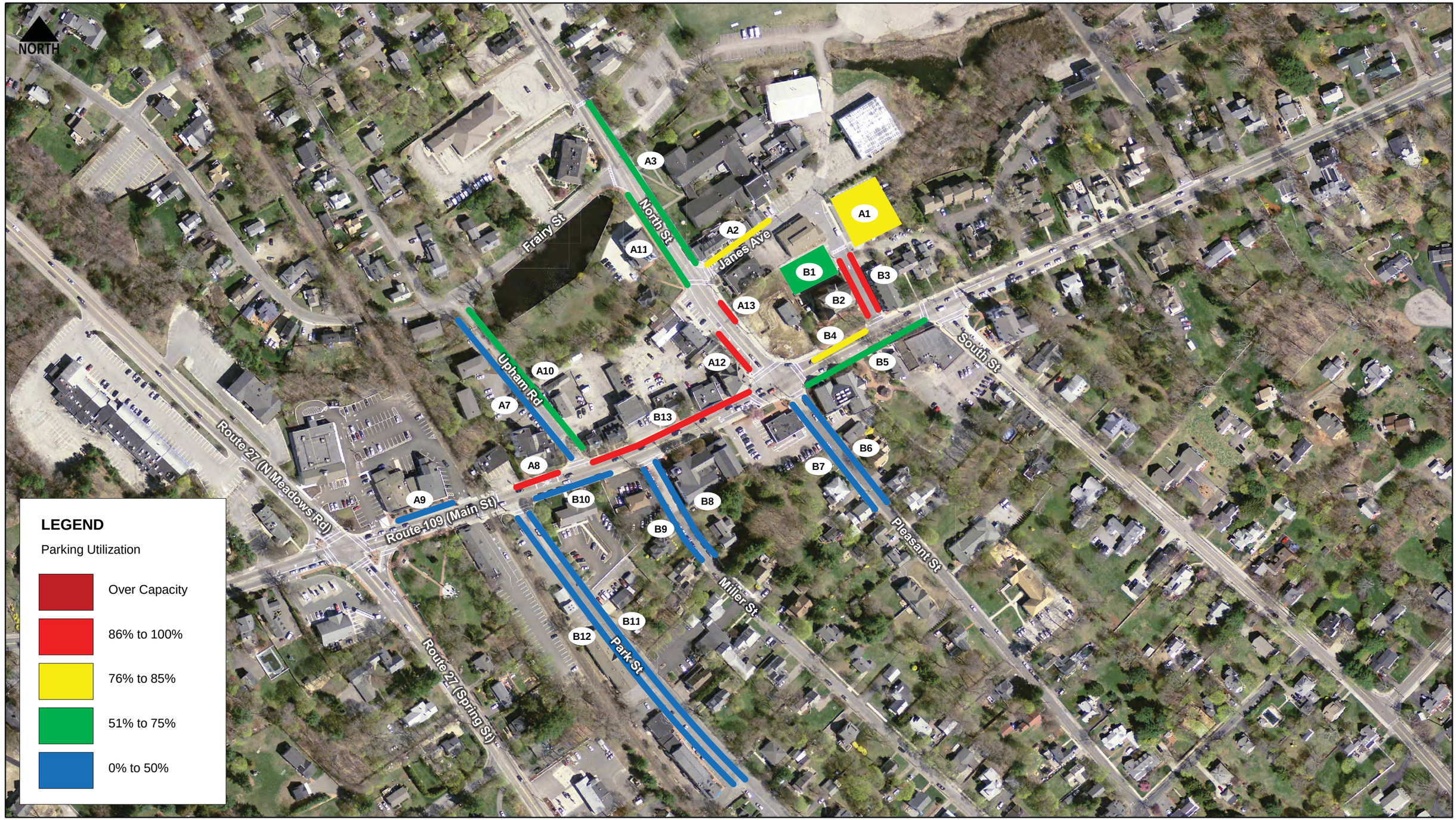
Downtown Medfield Parking Utilization
WEEKDAY 10:00 AM

6/23/2014

McMAHON TRANSPORTATION ENGINEERS & PLANNERS



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Downtown Medfield Parking Utilization
WEEKDAY 12:00 PM

6/23/2014

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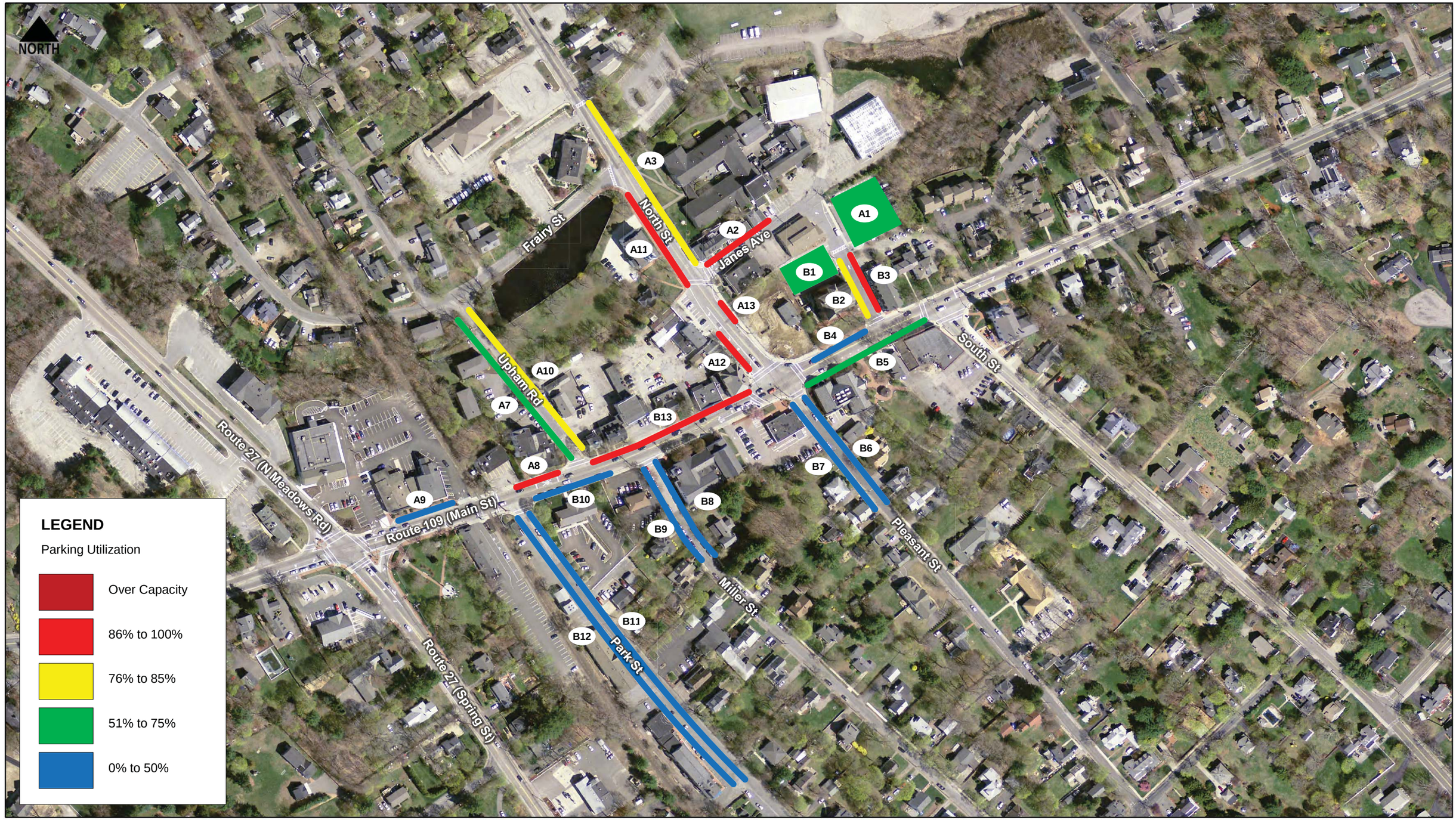

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Downtown Medfield Parking Utilization
WEEKDAY 2:00 PM

6/23/2014

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Downtown Medfield Parking Utilization
WEEKDAY 4:00 PM

6/23/2014

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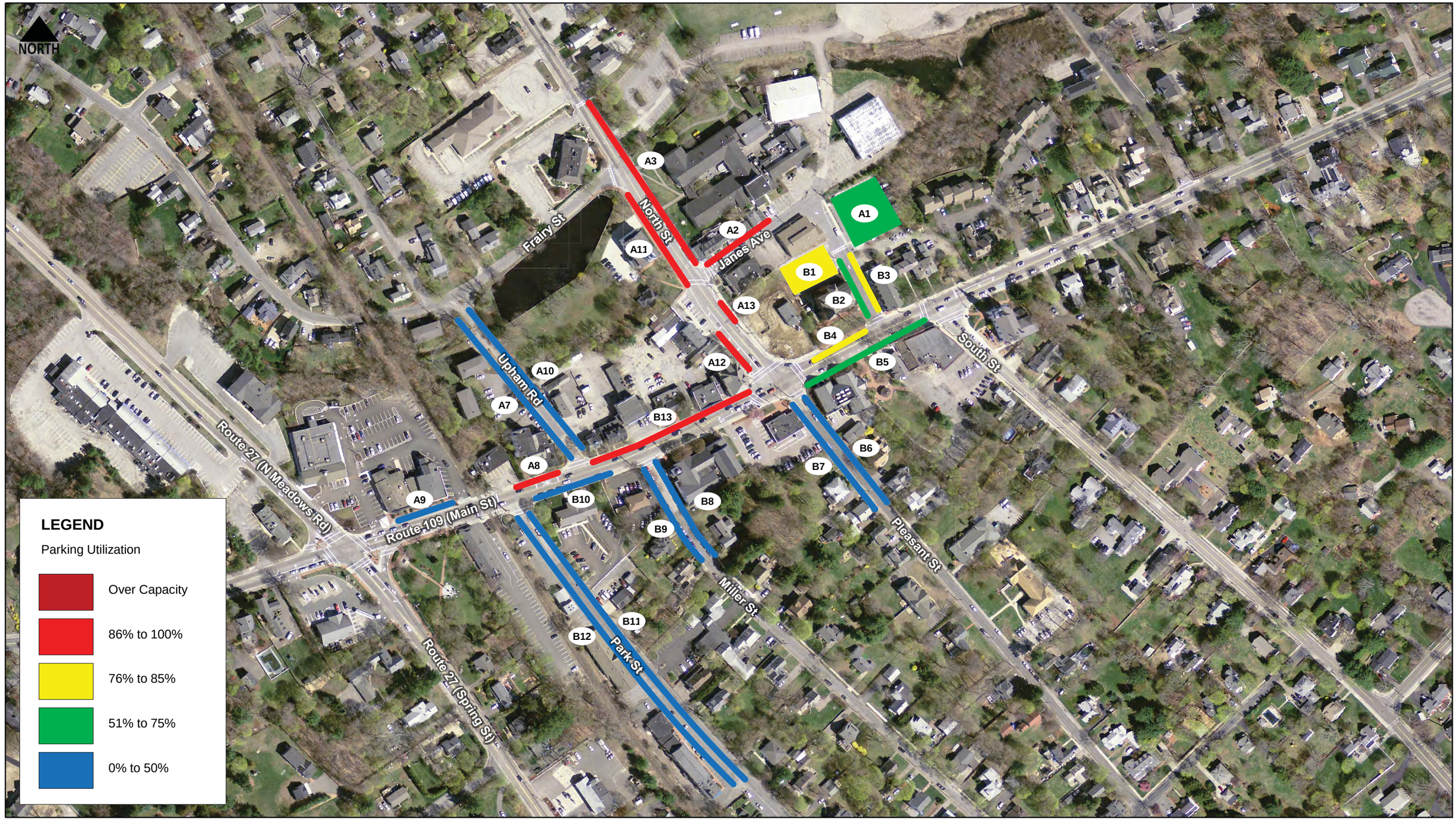

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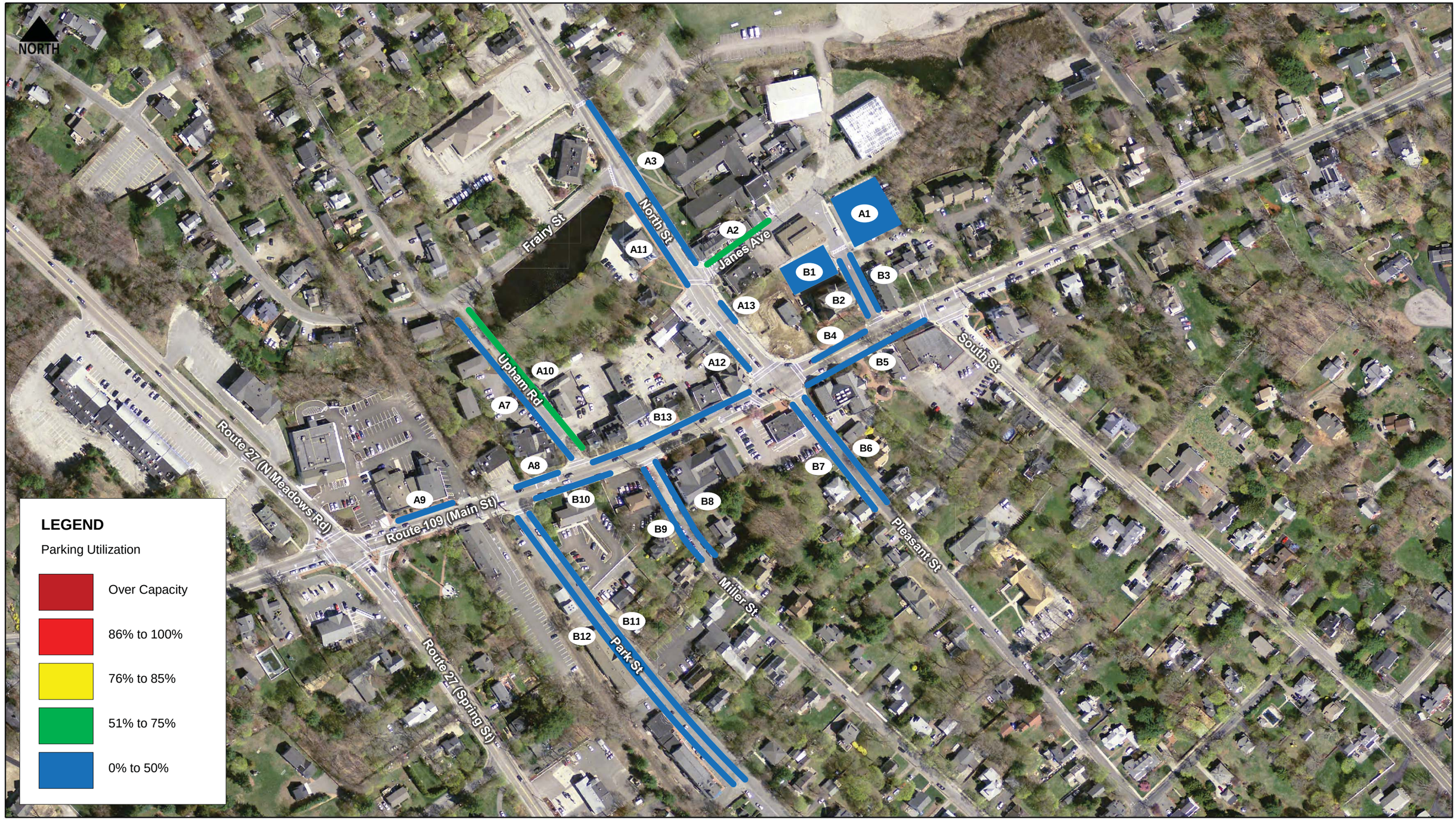
Downtown Medfield Parking Utilization
WEEKDAY 6:00 PM

6/23/2014

McMAHON TRANSPORTATION ENGINEERS & PLANNERS



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Downtown Medfield Parking Utilization
SATURDAY 8:00 AM

6/23/2014

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Downtown Medfield Parking Utilization
SATURDAY 10:00 AM

6/23/2014

McMAHON
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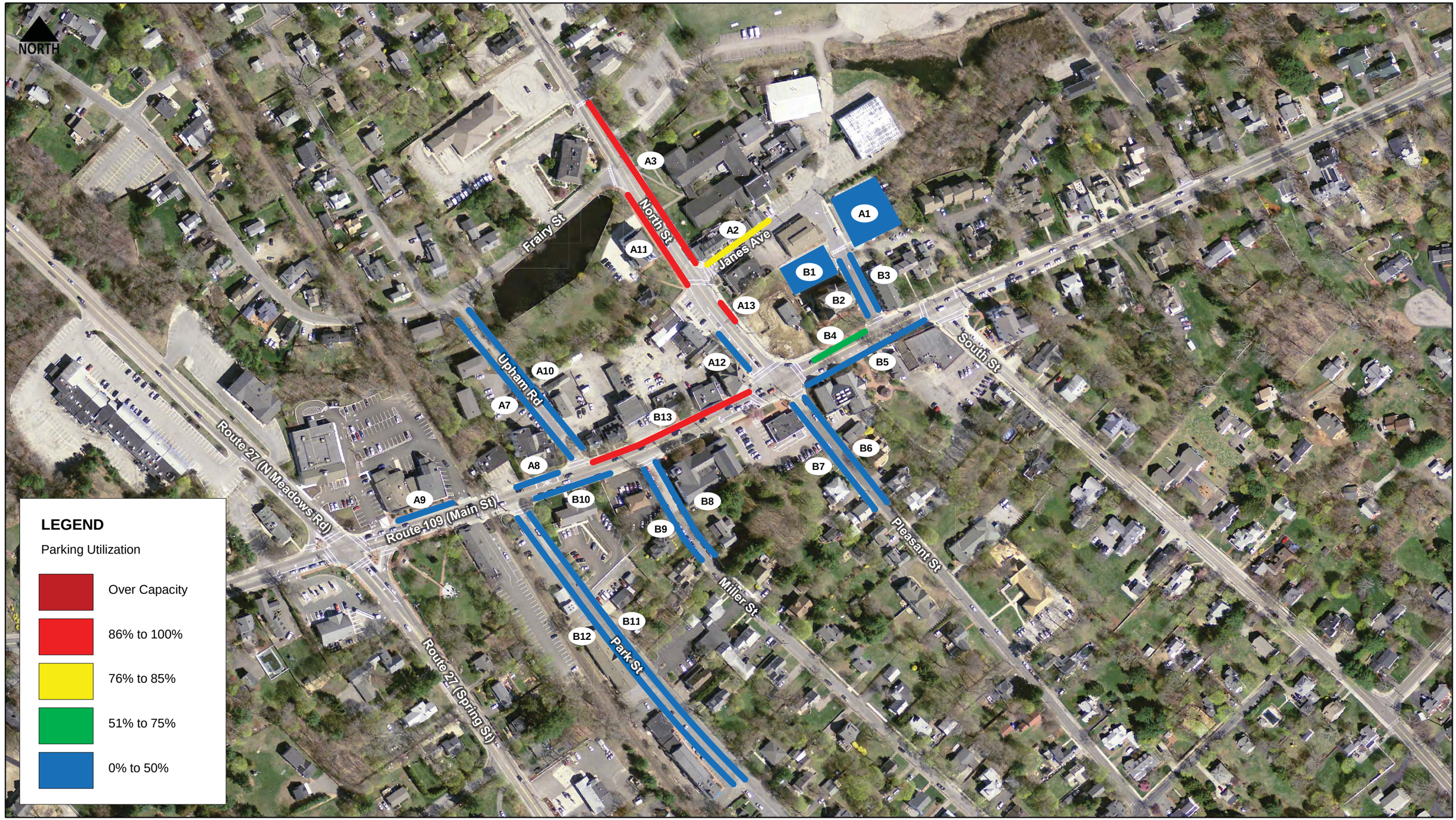

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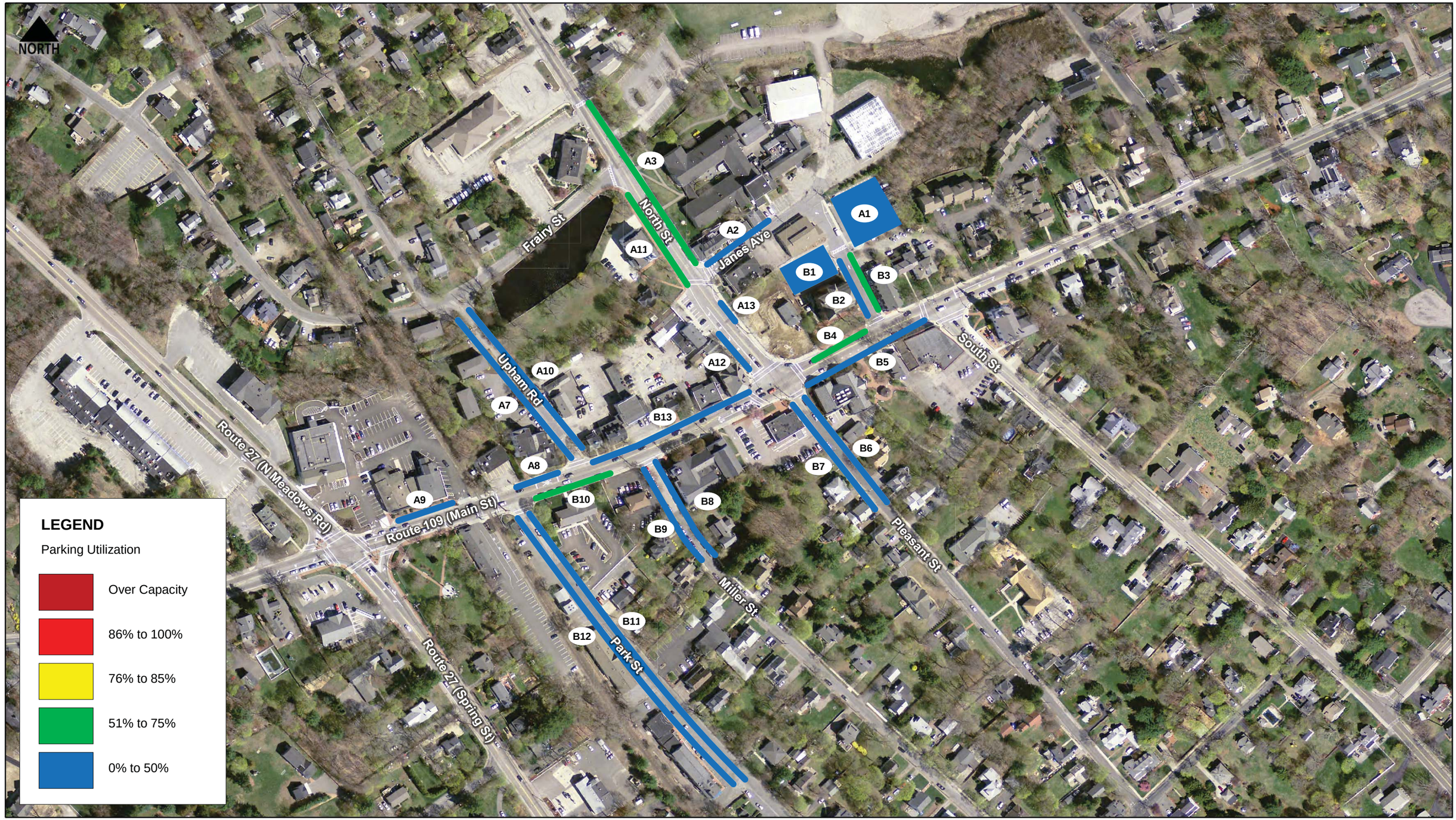
Downtown Medfield Parking Utilization
SATURDAY 12:00 PM

6/23/2014

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS



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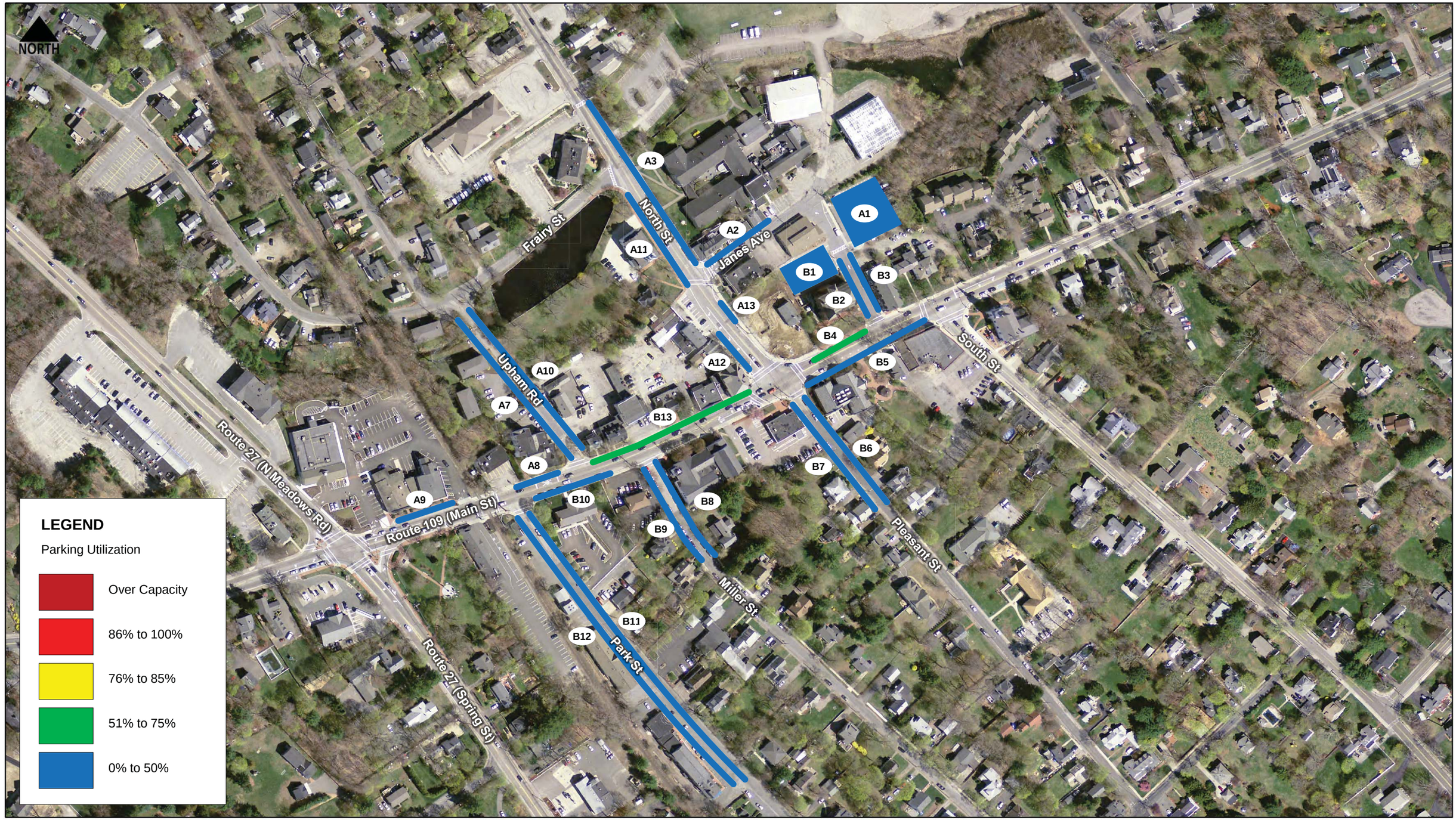
Downtown Medfield Parking Utilization
SATURDAY 2:00 PM

6/23/2014

McMAHON TRANSPORTATION ENGINEERS & PLANNERS



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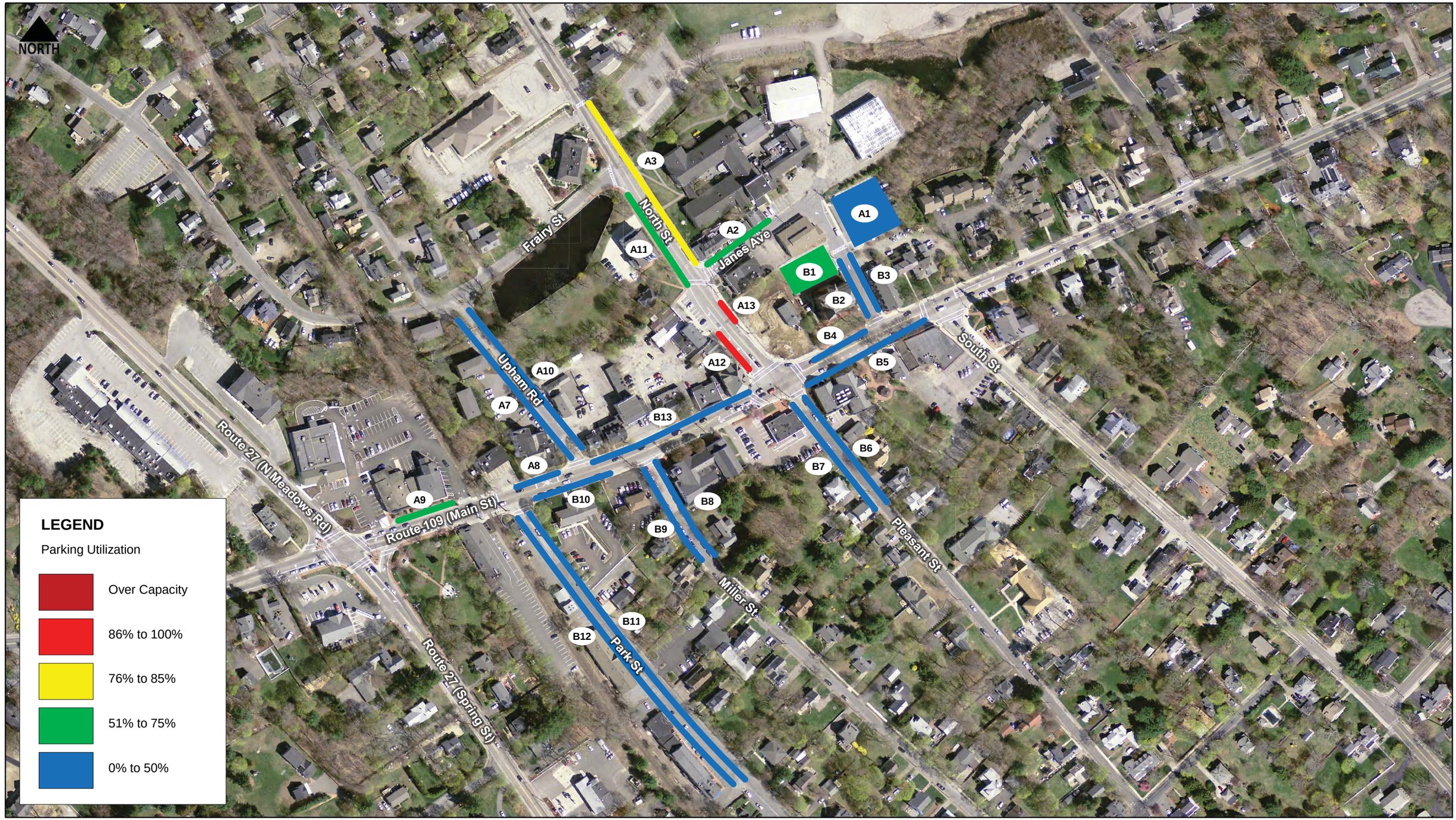
Feet

Downtown Medfield Parking Utilization
SATURDAY 4:00 PM

6/23/2014

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS



0 50 100 200 Feet

Downtown Medfield Parking Utilization
SATURDAY 6:00 PM

6/23/2014

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

Weekday Data & Utilization

Description	ID	Spaces	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM
East Lot	A1	48	19	28	31	26	39	39	36	39	34	30	29	29
			39.6%	58.3%	64.6%	54.2%	81.3%	81.3%	75.0%	81.3%	70.8%	62.5%	60.4%	60.4%
Janes Ave	A2	6	6	2	3	2	5	7	6	3	3	3	6	4
			100.0%	33.3%	50.0%	33.3%	83.3%	116.7%	100.0%	50.0%	50.0%	50.0%	100.0%	66.7%
North St	A3	11	1	5	6	6	8	11	9	9	6	8	11	12
			9.1%	45.5%	54.5%	54.5%	72.7%	100.0%	81.8%	81.8%	54.5%	72.7%	100.0%	109.1%
North St	A4	0	0	0	0	0	0	0	0	0	0	0	0	0
No Parking Anytime														
Frairy St	A5	0	0	0	0	0	0	0	0	0	0	0	2	3
No Parking Anytime														
Frairy St	A6	0	0	0	0	0	0	0	0	0	0	0	0	0
No Parking Anytime														
Upham Rd	A7	8	8	7	7	6	4	5	5	7	6	5	3	3
			100.0%	87.5%	87.5%	75.0%	50.0%	62.5%	62.5%	87.5%	75.0%	62.5%	37.5%	37.5%
Main St	A8*	2	1	2	3	3	2	1	2	0	3	2	2	2
			50.0%	100.0%	150.0%	150.0%	100.0%	50.0%	100.0%	0.0%	150.0%	100.0%	100.0%	100.0%
Main St	A9	6	1	1	3	3	3	3	2	1	3	2	1	0
			16.7%	16.7%	50.0%	50.0%	50.0%	50.0%	33.3%	16.7%	50.0%	33.3%	16.7%	0.0%
Upham Rd	A10	10	6	6	5	6	7	6	8	6	7	4	4	2
			60.0%	60.0%	50.0%	60.0%	70.0%	60.0%	80.0%	60.0%	70.0%	40.0%	40.0%	20.0%
North St	A11	9	2	5	6	5	5	7	8	6	9	8	9	9
			22.2%	55.6%	66.7%	55.6%	55.6%	77.8%	88.9%	66.7%	100.0%	88.9%	100.0%	100.0%
North St	A12	4	1	4	4	3	4	4	4	4	3	2	4	4
			25.0%	100.0%	100.0%	75.0%	100.0%	100.0%	100.0%	100.0%	75.0%	50.0%	100.0%	100.0%
North St	A13	2	2	2	3	3	2	2	2	1	3	3	2	2
			100.0%	100.0%	150.0%	150.0%	100.0%	100.0%	100.0%	50.0%	150.0%	150.0%	100.0%	100.0%
West Lot	B1	20	3	7	14	17	13	16	13	15	13	17	17	17
			15.0%	35.0%	70.0%	85.0%	65.0%	80.0%	65.0%	75.0%	65.0%	85.0%	85.0%	85.0%
Janes Ave	B2	5	1	4	4	5	5	4	4	5	4	2	3	4
			20.0%	80.0%	80.0%	100.0%	100.0%	80.0%	80.0%	100.0%	80.0%	40.0%	60.0%	80.0%
Janes Ave	B3**	5	2	4	5	5	5	5	5	6	3	3	4	4
			40.0%	80.0%	100.0%	100.0%	100.0%	100.0%	100.0%	120.0%	60.0%	60.0%	80.0%	80.0%
Main St	B4	5	3	3	4	5	4	5	2	3	2	2	4	2
			60.0%	60.0%	80.0%	100.0%	80.0%	100.0%	40.0%	60.0%	40.0%	40.0%	80.0%	40.0%
Main St	B5	11	0	2	7	7	7	7	7	7	8	5	7	8
			0.0%	18.2%	63.6%	63.6%	63.6%	63.6%	63.6%	63.6%	72.7%	45.5%	63.6%	72.7%
Pleasant St	B6	7	0	0	0	1	0	2	1	1	0	1	1	0
			0.0%	0.0%	0.0%	14.3%	0.0%	28.6%	14.3%	14.3%	0.0%	14.3%	14.3%	0.0%
Pleasant St	B7	6	1	1	1	1	2	1	0	0	0	0	1	2
			16.7%	16.7%	16.7%	16.7%	33.3%	16.7%	0.0%	0.0%	0.0%	0.0%	16.7%	33.3%
Miller St	B8	12	2	3	9	8	0	1	0	3	2	2	1	4
			16.7%	25.0%	75.0%	66.7%	0.0%	8.3%	0.0%	25.0%	16.7%	16.7%	8.3%	33.3%
Miller St	B9	12	0	2	6	7	2	3	1	0	1	2	2	0
			0.0%	16.7%	50.0%	58.3%	16.7%	25.0%	8.3%	0.0%	8.3%	16.7%	16.7%	0.0%
Main St	B10	5	1	4	5	5	2	1	0	1	4	1	1	1
			20.0%	80.0%	100.0%	100.0%	40.0%	20.0%	0.0%	20.0%	80.0%	20.0%	20.0%	20.0%
Park St	B11	10	0	2	4	4	1	0	0	0	2	1	0	0
			0.0%	20.0%	40.0%	40.0%	10.0%	0.0%	0.0%	0.0%	20.0%	10.0%	0.0%	0.0%
Park St	B12	0	0	0	0	0	0	0	1	0	0	0	0	0
Main St	B13	8	1	6	8	7	7	8	7	7	5	4	7	4
			12.5%	75.0%	100.0%	87.5%	87.5%	100.0%	87.5%	87.5%	62.5%	50.0%	87.5%	50.0%

*A8 has two marked spaces. During some observations, a third vehicle was observed parked in an illegitimate space. This results in utilization over 100% for those observation periods.

**A13 has two marked spaces. During some observations, a third vehicle was observed parked in an illegitimate space. This results in utilization over 100% for those observation periods.

***B3 has 5 marked spaces. During some observations, a sixth vehicle was observed parked in an illegitimate space. This results in utilization over 100% for those observation periods.

Weekday Data & Utilization

		Spaces	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM
TOTAL		212	61	100	138	135	127	138	123	124	121	107	121	116
			28.8%	47.2%	65.1%	63.7%	59.9%	65.1%	58.0%	58.5%	57.1%	50.5%	57.1%	54.7%
ON-STREET		144	39	65	93	92	75	83	74	70	74	60	75	70
			27.1%	45.1%	64.6%	63.9%	52.1%	57.6%	51.4%	48.6%	51.4%	41.7%	52.1%	48.6%
OFF-STREET		68	22	35	45	43	52	55	49	54	47	47	46	46
			32.4%	51.5%	66.2%	63.2%	76.5%	80.9%	72.1%	79.4%	69.1%	69.1%	67.6%	67.6%
Town Hall/Library Area		100	34	50	68	67	78	83	73	78	67	62	70	68
			34.0%	50.0%	68.0%	67.0%	78.0%	83.0%	73.0%	78.0%	67.0%	62.0%	70.0%	68.0%
Uphams Rd/North St Area		48	14	30	37	36	35	36	34	29	34	26	34	30
includes A4, A5, A6			29.2%	62.5%	77.1%	75.0%	72.9%	75.0%	70.8%	60.4%	70.8%	54.2%	70.8%	62.5%
South of Route 109		47	3	8	20	21	5	7	3	4	5	6	5	6
			6.4%	17.0%	42.6%	44.7%	10.6%	14.9%	6.4%	8.5%	10.6%	12.8%	10.6%	12.8%

Description	ID	Spaces	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM
East Lot	A1	48	5	8	8	25	22	16	11	8	8	6	7	8
			10.4%	16.7%	16.7%	52.1%	45.8%	33.3%	22.9%	16.7%	16.7%	12.5%	14.6%	16.7%
Janes Ave	A2	6	4	4	3	5	5	5	3	3	2	2	4	3
			66.7%	66.7%	50.0%	83.3%	83.3%	83.3%	50.0%	50.0%	33.3%	33.3%	66.7%	50.0%
North St	A3	11	3	2	8	11	11	10	6	6	2	1	9	8
			27.3%	18.2%	72.7%	100.0%	100.0%	90.9%	54.5%	54.5%	18.2%	9.1%	81.8%	72.7%
North St	A4	0	0	0	0	0	0	0	0	0	0	0	0	0
No Parking Anytime														
Frairy St	A5	0	0	0	0	0	0	0	0	0	0	0	0	0
No Parking Anytime														
Frairy St	A6	0	0	0	0	0	12	10	0	0	0	0	0	0
No Parking Anytime														
Upham Rd	A7	8	4	3	3	3	4	5	4	3	4	4	4	4
			50.0%	37.5%	37.5%	37.5%	50.0%	62.5%	50.0%	37.5%	50.0%	50.0%	50.0%	50.0%
Main St	A8	2	0	0	1	2	0	2	1	1	0	0	0	0
			0.0%	0.0%	50.0%	100.0%	0.0%	100.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%
Main St	A9	6	0	0	1	3	3	1	0	1	2	1	4	1
			0.0%	0.0%	16.7%	50.0%	50.0%	16.7%	0.0%	16.7%	33.3%	16.7%	66.7%	16.7%
Upham Rd	A10	10	6	5	5	5	3	3	2	3	1	1	1	1
			60.0%	50.0%	50.0%	50.0%	30.0%	30.0%	20.0%	30.0%	10.0%	10.0%	10.0%	10.0%
North St	A11	9	3	3	7	9	9	9	5	4	2	2	6	6
			33.3%	33.3%	77.8%	100.0%	100.0%	100.0%	55.6%	44.4%	22.2%	22.2%	66.7%	66.7%
North St	A12	4	0	2	4	3	1	4	1	2	1	4	4	3
			0.0%	50.0%	100.0%	75.0%	25.0%	100.0%	25.0%	50.0%	25.0%	100.0%	100.0%	75.0%
North St	A13	2	1	1	1	2	2	2	1	1	0	1	2	2
			50.0%	50.0%	50.0%	100.0%	100.0%	100.0%	50.0%	50.0%	0.0%	50.0%	100.0%	100.0%
West Lot	B1	20	1	3	4	4	9	6	5	7	6	9	12	12
			5.0%	15.0%	20.0%	20.0%	45.0%	30.0%	25.0%	35.0%	30.0%	45.0%	60.0%	60.0%
Janes Ave	B2	5	1	0	3	4	2	3	1	1	1	0	0	0
			20.0%	0.0%	60.0%	80.0%	40.0%	60.0%	20.0%	20.0%	20.0%	0.0%	0.0%	0.0%
Janes Ave	B3	5	1	2	4	4	2	3	3	2	1	1	1	1
			20.0%	40.0%	80.0%	80.0%	40.0%	60.0%	60.0%	40.0%	20.0%	20.0%	20.0%	20.0%
Main St	B4	5	1	3	3	5	3	5	3	3	3	4	2	1
			20.0%	60.0%	60.0%	100.0%	60.0%	100.0%	60.0%	60.0%	60.0%	80.0%	40.0%	20.0%
Main St	B5	11	3	4	4	4	4	7	0	2	2	0	2	1
			27.3%	36.4%	36.4%	36.4%	36.4%	63.6%	0.0%	18.2%	18.2%	0.0%	18.2%	9.1%
Pleasant St	B6	7	0	1	1	2	2	2	1	1	1	0	0	0
			0.0%	14.3%	14.3%	28.6%	28.6%	28.6%	14.3%	14.3%	14.3%	0.0%	0.0%	0.0%
Pleasant St	B7	6	2	0	0	0	1	0	0	0	0	0	0	0
			33.3%	0.0%	0.0%	0.0%	16.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Miller St	B8	12	3	2	2	1	0	1	0	0	0	0	1	0
			25.0%	16.7%	16.7%	8.3%	0.0%	8.3%	0.0%	0.0%	0.0%	0.0%	8.3%	0.0%
Miller St	B9	12	4	1	1	0	0	0	1	0	0	0	0	0
			33.3%	8.3%	8.3%	0.0%	0.0%	0.0%	8.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Main St	B10	5	0	0	1	4	2	1	3	2	2	2	1	1
			0.0%	0.0%	20.0%	80.0%	40.0%	20.0%	60.0%	40.0%	40.0%	40.0%	20.0%	20.0%
Park St	B11	10	3	4	3	4	3	4	0	0	0	0	0	0
			30.0%	40.0%	30.0%	40.0%	30.0%	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Park St	B12	0	2	2	3	3	2	1	0	0	0	0	0	0
Main St	B13	8	3	6	8	8	7	8	4	5	5	4	3	3
			37.5%	75.0%	100.0%	100.0%	87.5%	100.0%	50.0%	62.5%	62.5%	50.0%	37.5%	37.5%

Saturday Data & Utilization

		Spaces	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM
TOTAL		212	50	56	78	111	109	108	55	55	43	42	63	55
			23.6%	26.4%	36.8%	52.4%	51.4%	50.9%	25.9%	25.9%	20.3%	19.8%	29.7%	25.9%
ON-STREET		144	44	45	66	82	78	86	39	40	29	27	44	35
			30.6%	31.3%	45.8%	56.9%	54.2%	59.7%	27.1%	27.8%	20.1%	18.8%	30.6%	24.3%
OFF-STREET		68	6	11	12	29	31	22	16	15	14	15	19	20
			8.8%	16.2%	17.6%	42.6%	45.6%	32.4%	23.5%	22.1%	20.6%	22.1%	27.9%	29.4%
Town Hall/Library Area		100	16	24	29	51	47	45	26	26	23	22	28	26
			16.0%	24.0%	29.0%	51.0%	47.0%	45.0%	26.0%	26.0%	23.0%	22.0%	28.0%	26.0%
Uphams Rd/North St Area		48	13	16	29	38	41	41	18	21	13	14	24	19
includes A4, A5, A6			27.1%	33.3%	60.4%	79.2%	85.4%	85.4%	37.5%	43.8%	27.1%	29.2%	50.0%	39.6%
South of Route 109		47	14	10	10	10	8	8	2	1	1	0	1	0
			29.8%	21.3%	21.3%	21.3%	17.0%	17.0%	4.3%	2.1%	2.1%	0.0%	2.1%	0.0%

Weekday Data & Utilization

Description	ID	Spaces	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM
East Lot	A1	48	19	28	31	26	39	39	36	39	34	30	29	29
			39.6%	58.3%	64.6%	54.2%	81.3%	81.3%	75.0%	81.3%	70.8%	62.5%	60.4%	60.4%
Janes Ave	A2	6	6	2	3	2	5	7	6	3	3	3	6	4
			100.0%	33.3%	50.0%	33.3%	83.3%	116.7%	100.0%	50.0%	50.0%	50.0%	100.0%	66.7%
North St	A3	11	1	5	6	6	8	11	9	9	6	8	11	12
			9.1%	45.5%	54.5%	54.5%	72.7%	100.0%	81.8%	81.8%	54.5%	72.7%	100.0%	109.1%
North St	A4	0	0	0	0	0	0	0	0	0	0	0	0	0
No Parking Anytime														
Frairy St	A5	0	0	0	0	0	0	0	0	0	0	0	2	3
No Parking Anytime														
Frairy St	A6	0	0	0	0	0	0	0	0	0	0	0	0	0
No Parking Anytime														
Upham Rd	A7	8	8	7	7	6	4	5	5	7	6	5	3	3
			100.0%	87.5%	87.5%	75.0%	50.0%	62.5%	62.5%	87.5%	75.0%	62.5%	37.5%	37.5%
Main St	A8*	2	1	2	3	3	2	1	2	0	3	2	2	2
			50.0%	100.0%	150.0%	150.0%	100.0%	50.0%	100.0%	0.0%	150.0%	100.0%	100.0%	100.0%
Main St	A9	6	1	1	3	3	3	3	2	1	3	2	1	0
			16.7%	16.7%	50.0%	50.0%	50.0%	50.0%	33.3%	16.7%	50.0%	33.3%	16.7%	0.0%
Upham Rd	A10	10	6	6	5	6	7	6	8	6	7	4	4	2
			60.0%	60.0%	50.0%	60.0%	70.0%	60.0%	80.0%	60.0%	70.0%	40.0%	40.0%	20.0%
North St	A11	9	2	5	6	5	5	7	8	6	9	8	9	9
			22.2%	55.6%	66.7%	55.6%	55.6%	77.8%	88.9%	66.7%	100.0%	88.9%	100.0%	100.0%
North St	A12	4	1	4	4	3	4	4	4	4	3	2	4	4
			25.0%	100.0%	100.0%	75.0%	100.0%	100.0%	100.0%	100.0%	75.0%	50.0%	100.0%	100.0%
North St	A13	2	2	2	3	3	2	2	2	1	3	3	2	2
			100.0%	100.0%	150.0%	150.0%	100.0%	100.0%	100.0%	50.0%	150.0%	150.0%	100.0%	100.0%
West Lot	B1	20	3	7	14	17	13	16	13	15	13	17	17	17
			15.0%	35.0%	70.0%	85.0%	65.0%	80.0%	65.0%	75.0%	65.0%	85.0%	85.0%	85.0%
Janes Ave	B2	5	1	4	4	5	5	4	4	5	4	2	3	4
			20.0%	80.0%	80.0%	100.0%	100.0%	80.0%	80.0%	100.0%	80.0%	40.0%	60.0%	80.0%
Janes Ave	B3**	5	2	4	5	5	5	5	5	6	3	3	4	4
			40.0%	80.0%	100.0%	100.0%	100.0%	100.0%	100.0%	120.0%	60.0%	60.0%	80.0%	80.0%
Main St	B4	5	3	3	4	5	4	5	2	3	2	2	4	2
			60.0%	60.0%	80.0%	100.0%	80.0%	100.0%	40.0%	60.0%	40.0%	40.0%	80.0%	40.0%
Main St	B5	11	0	2	7	7	7	7	7	7	8	5	7	8
			0.0%	18.2%	63.6%	63.6%	63.6%	63.6%	63.6%	63.6%	72.7%	45.5%	63.6%	72.7%
Pleasant St	B6	7	0	0	0	1	0	2	1	1	0	1	1	0
			0.0%	0.0%	0.0%	14.3%	0.0%	28.6%	14.3%	14.3%	0.0%	14.3%	14.3%	0.0%
Pleasant St	B7	6	1	1	1	1	2	1	0	0	0	0	1	2
			16.7%	16.7%	16.7%	16.7%	33.3%	16.7%	0.0%	0.0%	0.0%	0.0%	16.7%	33.3%
Miller St	B8	12	2	3	9	8	0	1	0	3	2	2	1	4
			16.7%	25.0%	75.0%	66.7%	0.0%	8.3%	0.0%	25.0%	16.7%	16.7%	8.3%	33.3%
Miller St	B9	12	0	2	6	7	2	3	1	0	1	2	2	0
			0.0%	16.7%	50.0%	58.3%	16.7%	25.0%	8.3%	0.0%	8.3%	16.7%	16.7%	0.0%
Main St	B10	5	1	4	5	5	2	1	0	1	4	1	1	1
			20.0%	80.0%	100.0%	100.0%	40.0%	20.0%	0.0%	20.0%	80.0%	20.0%	20.0%	20.0%
Park St	B11	10	0	2	4	4	1	0	0	0	2	1	0	0
			0.0%	20.0%	40.0%	40.0%	10.0%	0.0%	0.0%	0.0%	20.0%	10.0%	0.0%	0.0%
Park St	B12	0	0	0	0	0	0	0	1	0	0	0	0	0
Main St	B13	8	1	6	8	7	7	8	7	7	5	4	7	4
			12.5%	75.0%	100.0%	87.5%	87.5%	100.0%	87.5%	87.5%	62.5%	50.0%	87.5%	50.0%

*A8 has two marked spaces. During some observations, a third vehicle was observed parked in an illegitimate space. This results in utilization over 100% for those observation periods.

**A13 has two marked spaces. During some observations, a third vehicle was observed parked in an illegitimate space. This results in utilization over 100% for those observation periods.

***B3 has 5 marked spaces. During some observations, a sixth vehicle was observed parked in an illegitimate space. This results in utilization over 100% for those observation periods.

Weekday Data & Utilization

		Spaces	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM
TOTAL		212	61	100	138	135	127	138	123	124	121	107	121	116
			28.8%	47.2%	65.1%	63.7%	59.9%	65.1%	58.0%	58.5%	57.1%	50.5%	57.1%	54.7%
ON-STREET		144	39	65	93	92	75	83	74	70	74	60	75	70
			27.1%	45.1%	64.6%	63.9%	52.1%	57.6%	51.4%	48.6%	51.4%	41.7%	52.1%	48.6%
OFF-STREET		68	22	35	45	43	52	55	49	54	47	47	46	46
			32.4%	51.5%	66.2%	63.2%	76.5%	80.9%	72.1%	79.4%	69.1%	69.1%	67.6%	67.6%
Town Hall/Library Area		100	34	50	68	67	78	83	73	78	67	62	70	68
			34.0%	50.0%	68.0%	67.0%	78.0%	83.0%	73.0%	78.0%	67.0%	62.0%	70.0%	68.0%
Uphams Rd/North St Area		48	14	30	37	36	35	36	34	29	34	26	34	30
includes A4, A5, A6			29.2%	62.5%	77.1%	75.0%	72.9%	75.0%	70.8%	60.4%	70.8%	54.2%	70.8%	62.5%
South of Route 109		47	3	8	20	21	5	7	3	4	5	6	5	6
			6.4%	17.0%	42.6%	44.7%	10.6%	14.9%	6.4%	8.5%	10.6%	12.8%	10.6%	12.8%

Saturday Data & Utilization

Description	ID	Spaces	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM
East Lot	A1	48	5	8	8	25	22	16	11	8	8	6	7	8
			10.4%	16.7%	16.7%	52.1%	45.8%	33.3%	22.9%	16.7%	16.7%	12.5%	14.6%	16.7%
Janes Ave	A2	6	4	4	3	5	5	5	3	3	2	2	4	3
			66.7%	66.7%	50.0%	83.3%	83.3%	83.3%	50.0%	50.0%	33.3%	33.3%	66.7%	50.0%
North St	A3	11	3	2	8	11	11	10	6	6	2	1	9	8
			27.3%	18.2%	72.7%	100.0%	100.0%	90.9%	54.5%	54.5%	18.2%	9.1%	81.8%	72.7%
North St	A4	0	0	0	0	0	0	0	0	0	0	0	0	0
No Parking Anytime														
Frairy St	A5	0	0	0	0	0	0	0	0	0	0	0	0	0
No Parking Anytime														
Frairy St	A6	0	0	0	0	0	12	10	0	0	0	0	0	0
No Parking Anytime														
Upham Rd	A7	8	4	3	3	3	4	5	4	3	4	4	4	4
			50.0%	37.5%	37.5%	37.5%	50.0%	62.5%	50.0%	37.5%	50.0%	50.0%	50.0%	50.0%
Main St	A8	2	0	0	1	2	0	2	1	1	0	0	0	0
			0.0%	0.0%	50.0%	100.0%	0.0%	100.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%
Main St	A9	6	0	0	1	3	3	1	0	1	2	1	4	1
			0.0%	0.0%	16.7%	50.0%	50.0%	16.7%	0.0%	16.7%	33.3%	16.7%	66.7%	16.7%
Upham Rd	A10	10	6	5	5	5	3	3	2	3	1	1	1	1
			60.0%	50.0%	50.0%	50.0%	30.0%	30.0%	20.0%	30.0%	10.0%	10.0%	10.0%	10.0%
North St	A11	9	3	3	7	9	9	9	5	4	2	2	6	6
			33.3%	33.3%	77.8%	100.0%	100.0%	100.0%	55.6%	44.4%	22.2%	22.2%	66.7%	66.7%
North St	A12	4	0	2	4	3	1	4	1	2	1	4	4	3
			0.0%	50.0%	100.0%	75.0%	25.0%	100.0%	25.0%	50.0%	25.0%	100.0%	100.0%	75.0%
North St	A13	2	1	1	1	2	2	2	1	1	0	1	2	2
			50.0%	50.0%	50.0%	100.0%	100.0%	100.0%	50.0%	50.0%	0.0%	50.0%	100.0%	100.0%
West Lot	B1	20	1	3	4	4	9	6	5	7	6	9	12	12
			5.0%	15.0%	20.0%	20.0%	45.0%	30.0%	25.0%	35.0%	30.0%	45.0%	60.0%	60.0%
Janes Ave	B2	5	1	0	3	4	2	3	1	1	1	0	0	0
			20.0%	0.0%	60.0%	80.0%	40.0%	60.0%	20.0%	20.0%	20.0%	0.0%	0.0%	0.0%
Janes Ave	B3	5	1	2	4	4	2	3	3	2	1	1	1	1
			20.0%	40.0%	80.0%	80.0%	40.0%	60.0%	60.0%	40.0%	20.0%	20.0%	20.0%	20.0%
Main St	B4	5	1	3	3	5	3	5	3	3	3	4	2	1
			20.0%	60.0%	60.0%	100.0%	60.0%	100.0%	60.0%	60.0%	60.0%	80.0%	40.0%	20.0%
Main St	B5	11	3	4	4	4	4	7	0	2	2	0	2	1
			27.3%	36.4%	36.4%	36.4%	36.4%	63.6%	0.0%	18.2%	18.2%	0.0%	18.2%	9.1%
Pleasant St	B6	7	0	1	1	2	2	2	1	1	1	0	0	0
			0.0%	14.3%	14.3%	28.6%	28.6%	28.6%	14.3%	14.3%	14.3%	0.0%	0.0%	0.0%
Pleasant St	B7	6	2	0	0	0	1	0	0	0	0	0	0	0
			33.3%	0.0%	0.0%	0.0%	16.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Miller St	B8	12	3	2	2	1	0	1	0	0	0	0	1	0
			25.0%	16.7%	16.7%	8.3%	0.0%	8.3%	0.0%	0.0%	0.0%	0.0%	8.3%	0.0%
Miller St	B9	12	4	1	1	0	0	0	1	0	0	0	0	0
			33.3%	8.3%	8.3%	0.0%	0.0%	0.0%	8.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Main St	B10	5	0	0	1	4	2	1	3	2	2	2	1	1
			0.0%	0.0%	20.0%	80.0%	40.0%	20.0%	60.0%	40.0%	40.0%	40.0%	20.0%	20.0%
Park St	B11	10	3	4	3	4	3	4	0	0	0	0	0	0
			30.0%	40.0%	30.0%	40.0%	30.0%	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Park St	B12	0	2	2	3	3	2	1	0	0	0	0	0	0
Main St	B13	8	3	6	8	8	7	8	4	5	5	4	3	3
			37.5%	75.0%	100.0%	100.0%	87.5%	100.0%	50.0%	62.5%	62.5%	50.0%	37.5%	37.5%

Saturday Data & Utilization

		Spaces	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM
TOTAL		212	50	56	78	111	109	108	55	55	43	42	63	55
			23.6%	26.4%	36.8%	52.4%	51.4%	50.9%	25.9%	25.9%	20.3%	19.8%	29.7%	25.9%
ON-STREET		144	44	45	66	82	78	86	39	40	29	27	44	35
			30.6%	31.3%	45.8%	56.9%	54.2%	59.7%	27.1%	27.8%	20.1%	18.8%	30.6%	24.3%
OFF-STREET		68	6	11	12	29	31	22	16	15	14	15	19	20
			8.8%	16.2%	17.6%	42.6%	45.6%	32.4%	23.5%	22.1%	20.6%	22.1%	27.9%	29.4%
Town Hall/Library Area		100	16	24	29	51	47	45	26	26	23	22	28	26
			16.0%	24.0%	29.0%	51.0%	47.0%	45.0%	26.0%	26.0%	23.0%	22.0%	28.0%	26.0%
Uphams Rd/North St Area		48	13	16	29	38	41	41	18	21	13	14	24	19
includes A4, A5, A6			27.1%	33.3%	60.4%	79.2%	85.4%	85.4%	37.5%	43.8%	27.1%	29.2%	50.0%	39.6%
South of Route 109		47	14	10	10	10	8	8	2	1	1	0	1	0
			29.8%	21.3%	21.3%	21.3%	17.0%	17.0%	4.3%	2.1%	2.1%	0.0%	2.1%	0.0%

Smart Parking Model Bylaw

The following bylaw provisions for implementing smart parking strategies are designed to address three distinct issues relative to off-street parking: 1) Reducing the standards for required parking; 2) Providing innovative solutions for shared and off-site parking; and 3) Parking area design.

The language for reducing parking requirements relies on two strategies. The first is to establish maximum parking requirements that closely mirror or are slightly less than what many communities use as their minimum parking requirements. The second strategy is to provide a minimum parking requirement that is anywhere from 20-80% of the maximum depending on the associated use. Using a minimum and maximum effectively creates a range of acceptable parking requirements thereby providing the development community a chance to be more flexible and efficient in their design.

The language provided in this bylaw for shared parking uses three strategies. The first focuses on opportunities to share parking between competing and non-competing uses on the same site (mixed use). The second strategy focuses on locating parking off-site on other privately owned lots or public parking facilities. Finally, language for using a "fee-in-lieu" approach is also included for those communities serious about using private contributions to support public parking facilities, programs, and strategies.

Parking lot design considerations are divided into two categories with the thought that some communities would be primarily interested in aesthetic improvements while others would be more interested in implementing aesthetic improvements along with Low Impact Development (LID) techniques to reduce stormwater runoff and associated water contamination. The model bylaw therefore provides two distinct sets of standards depending on what a community wishes to accomplish in regard to parking lot design. This particular model bylaw structure requires LID implementation, but allows an applicant to demonstrate that LID techniques are not feasible under certain physical constraints.

In the parking lot design provisions, this bylaw uses Site Plan Review as the primary review mechanism. These provisions can be used in conjunction with an existing Site Plan Review process in any community as long as the triggers for the review are consistent. In this model, development of more than 10 parking spaces requires Site Plan Review.

DEFINITIONS:

Angled Parking: Any parking space that is not parallel or perpendicular to the curb or aisle.
Bikeway: Any road, street, path, or way, all of a portion of which is in some manner specifically designated for bicycle travel, regardless of whether such facilities are designed for the exclusive use of bicycles or are to be shared with other transportation modes.
Large Scale Retail: Single retail sales facility that has greater than 20,000 square feet of gross floor area and is contained in a single building.
BMPs (Best Management Practices): structural, vegetative, or managerial practices designed to treat, prevent, or reduce degradation of water quality due to stormwater runoff and snow-melt.
Free Standing Retail: Single retail sales facility of up to 20,000 square feet in size that is situated independently on a building lot and for which associated parking serves exclusively that facility.
Greenscapes: a developed landscape that incorporates a compilation of practices to reduce water usage, encourage groundwater recharge, protect water supplies and reduce stormwater pollution.
Gross Floor Area: The total floor area of a building.
Impervious Surface: A ground cover such as cement, asphalt, or packed clay or rock through which water cannot penetrate.
Indoor Recreation Facilities: Uses such as bowling alleys, billiard parlors, and skating rinks.
Industrial Plant: Structure or complex of structures used for manufacturing, assembling, fabricating, warehousing, and related activities.
Low Impact Development: An approach to environmentally friendly land use planning. It includes a suite of landscaping and design techniques that attempt to maintain the natural, pre-developed ability of a site to manage rainfall. LID techniques capture water on site, filter it through vegetation, and let it soak into the ground where it can recharge the local water table rather than being lost as surface runoff.
Mixed Use: A development that provides multiple compatible uses in close proximity to one another. It also refers to a land use pattern that seeks to increase concentrations of population and employment in well-defined areas with a mix of diverse and compatible land uses.
Off-Street Parking: Parking spaces provided outside of the right-of-way of a street or highway.
On-Street Parking: Parking spaces provided within the right-of-way of a street or highway.
Outdoor Recreation Facilities: Uses such as golf courses, amusement parks, miniature golf courses, and water slide parks.
Parking Area: That portion of a lot set aside, marked, posted, or intended for parking. This includes circulation areas, loading and unloading areas, parking spaces and aisles, landscaped areas, bikeways, and walkways.
Parking Stall or Space: A space in which a single car may be parked.

Personal Services: Establishments primarily engaged in providing services involving the care of a person or a person's personal goods or apparel. This category includes uses such as barber shops, beauty salons, shoe repair shops, and dry cleaners.
Pervious Surface: Ground cover through which water can penetrate at a rate comparable to that of water through undisturbed soils.
Shared Parking: When parking spaces are shared among different structures or uses, or among mixed uses, and can include properties with different owners.
Sight Distance: The distance visible to a driver from his/her position to other objects or vehicles, when at a point of turning or when stopping a vehicle.
Travel Lane: The driving portion of the parking area. The aisle provides access to each space.
Walkway: Any path or way, which is specifically designated primarily for pedestrian travel.

These definitions can be added in the body of this section or can be incorporated into the larger "Definitions" section found in most bylaws/ordinances.

1. Purpose

The purpose of this Article is to establish standards ensuring the availability and safe use of parking areas. It is intended that any use of land involving the arrival, departure, or temporary storage of motor vehicles, and all structures and uses requiring the delivery or shipment of goods as part of their function, be designed and operated to:

A. Promote traffic safety by assuring adequate places for storing of motor vehicles off the street, and for their orderly access and egress to and from the public street;
B. Prevent the creation of surplus amounts of parking spaces contributing to unnecessary development and additional generation of vehicle trips, resulting in traffic congestion and traffic service level deterioration on roadways;
C. Reduce hazards to pedestrians and increase pedestrian connectivity between and within sites;
D. Reduce unnecessary amounts of impervious surface areas from being created;
E. Protect adjoining lots and the general public from nuisances and hazards such as:

    1) noise, glare of headlights, dust and fumes resulting from the operation of motor vehicles;
    2) glare and heat from parking lots; and
    3) lack of visual relief from expanses of paving.

F. Increase the mobility and safety for bicyclists; and
G. Reduce other negative impacts such as carbon output.

2. Applicability

No building permit or certificate of occupancy shall be issued for the erection of a new building, the enlargement or increase in the net floor area of an existing building, the development of a use not located in a building, or the change from one type of use to another, unless off-street parking spaces, loading bays and bicycle parking are provided in accordance with this bylaw.

3. Off-Street and On-Site Parking Calculations

Calculations for off-street parking requirements may involve two basic calculations. First, a baseline number of parking spaces shall be calculated in accordance with the parking schedule found in Section 5. Second, the number of off-street parking spaces and/or on-site spaces required under Section 5 may be reduced through any individual technique or combination of techniques found in Section 6. Proposed reductions in the baseline number of spaces to be provided off-street and/or on-site may be approved or required by the Planning Board in connection with the approval of a Site Plan under [INSERT LOCAL SITE PLAN REVIEW SECTION REFERENCE] and Section 4.

This model is designed to be used with a relatively comprehensive administrative Site Plan Approval process applicable to all or nearly all non-residential and mixed use developments.

4. Site Plan Review Standards for On-Site Parking

To ensure the overall efficiency of parking development in [CITY/TOWN/DISTRICT] Applicants proposing more than [ten (10)] spaces associated with non-residential, residential or mixed-use developments shall include with their applications for Site Plan Approval under [INSERT EXISITNG SITE PLAN REVIEW SECTION REFERENCE] an analysis of the opportunities to reduce parking requirements using any of the applicable reduction strategies in Section 6, the design specifications in Section 7, and landscaping design standards pursuant to Section 8. The Planning Board may approve these submittals according to the following provisions:

A. The Planning Board shall require the maximum reduction available under Section 6.A. unless it determines that:

   1) A surplus of spaces on a particular site will benefit the District as a whole by providing off-site sharing opportunities for other sites in the District; or
   2) The techniques for reduction of the number of off-street or on-site parking spaces available to the applicant are infeasible or would impose an undue hardship on the applicant.

B. The Planning Board shall require that all applicable design criteria are followed for LID Parking Area Design as defined in Sections 8.B of this

bylaw unless it determines, upon petition from the applicant, that the successful implementation of a LID Parking Area Design is infeasible or would impose an undue hardship on the applicant. Where the Planning Board determines that LID Parking Area Design is infeasible, applicant shall comply with those specifications for Conventional Parking Area Design listed in Subsection 8.A. Evidence that may be used by an applicant to demonstrate the infeasibility of implementing LID techniques on a site may include, without limitation:

1) The presence of subsurface geologic conditions such as ledge or large quantities of poor fill;

2) Applicant does not own existing lot to be used for off-site parking allowances;

3) The presence of soil contamination; and/or

4) Existing topography or site geometry.

5. Baseline Number of Required Parking Spaces

Parking requirement calculations shall be made in the amounts specified in the Parking Schedule per 1,000 square foot (sf) of Gross Floor Area (GFA) unless otherwise indicated. Where mixed use developments are proposed, the baseline parking requirement shall be calculated as the sum of the requirements for each use. Reductions in the overall number of required off-street on-site spaces can be calculated using the standards in Section 6 of this bylaw.

Parking Schedule

Land Use	Maximum	Minimum
Bank	3	2
Large Scale Retail	4	2
Drive-Thru Restaurant	6	2
Free Standing Retail	3	1
General Office Building	4	2
Industrial Plant	2	1
Medical Office Building	8	2
Nursing Home	3	2
Restaurants	10	6
Shopping Centers	4	3

Bed and Breakfast	1.2 spaces per guest room or suite	1 space per guest room or suite
Personal Services	3	2
Day Care Centers	1 space per 4 children at max. capacity	1 space per 8 children at max. capacity
Churches and Places of Worship	1 space per 3 seats in portion of the building used for services	1 space per 5 seats in the portion of the building used for services
Museums and Libraries	2	1
Social, Fraternal Clubs and Organizations	4	3
Public and Private Educational Institutions	1 space per 3 seats in the classroom	1 space per 5 seats in the classroom

Provision of all off-street parking areas shall comply with the latest standards associated with the Americans with Disabilities Act (ADA).

The table above is by no means an exhaustive list of parking requirements as they relate to various land uses. Indeed, many communities have several pages of minimum parking standards in their Zoning Bylaws to account for the wide variety of uses in their Land Use Table. The table should provide a representative sampling of the more common land uses and how they might apply a minimum and maximum value. The most important issues illustrated in the Table above are:

1. *Providing a range of parking requirements allows developers to apply their experience with a particular use to the permitting process. Many developers will welcome the chance to build a smaller number of spaces as this can significantly increase the development potential of their site.*
2. *Providing a maximum number of parking spaces keeps developers from creating enormous surpluses of parking and associated impervious surfaces.*
3. *The minimum parking requirements that many communities use today often represent the maximum amount of parking a particular use could ever need. Today's parking requirements are therefore using "worst case" scenarios to design for everyday needs. Communities should feel confident in using many so-called "minimum" standards as a maximum and, subsequently, using 1/3 to 1/2 of that number for the new minimum value as a rule of thumb.*

6. Special Off-Street Parking Provisions

A. Shared Parking

1) Shared On-Site Parking

To implement shared on-site parking, the applicant shall provided analyses as part of Site Plan Review to demonstrate that proposed uses are either competing or non-competing.

a) Non-competing Uses. In mixed-use developments, applicants may propose a reduction in parking requirements based on an analysis of peak demands for non-competing uses. Up to [75%] of the requirements for the predominant use may be waived by the Planning Board if the applicant can demonstrate that the peak demands for two uses do not overlap. An applicant may use the latest peak demand analyses published by the Institute of Traffic Engineers (ITE) or other source acceptable to the [Planning Board].

Peak use analysis is a common technique for determining if proposed uses in a mixed use context can share parking. The specificity of these analyses can differ depending on how precise the permitting authority wishes to be. An example of a more sophisticated approach can be found in the Zoning Ordinance for the City of Lowell (http://www.lowellma.gov/depts/dpd/permitting).

b) Competing Uses. In mixed-use developments, applicants may propose a reduction in parking requirements where peak demands do overlap. In these cases, the Planning Board may reduce the parking requirements of the predominant use by up to [30%].

2) Off-Site Parking

Separate from, or in conjunction with Shared Parking provisions, an applicant may use off-site parking to satisfy their parking requirements. As part of Site Plan Review, the applicant shall provide the necessary information to comply with the following standards:

a) Off-site parking shall be within [five hundred (500)] feet of the property for which it is being requested.

Standards for how far away off-site allowances should be will differ depending on existing conditions and the political climate of a particular municipality. Typical values in existing codes range from 350 to 1,000 feet.

b) Off-site parking may only be provided if the off-site lot has an excess number of spaces or if the applicant can demonstrate that the on-site and off-site uses have non-competing peak demands.

c) The amount of required parking spaces being reduced on-site shall be equal to the amount being provided off-site and can account for up to 100% of the minimum required on-site parking.

d) Off-site parking spaces provided by a separate private property owner shall be subject to a legally binding agreement that will be presented to the Planning Board during the Site Plan Review process or as a condition of approval. If the conditions for shared parking become null and void and the shared parking arrangement is discontinued, this will constitute a zoning violation for any use approved expressly with shared parking. The applicant or property owner must then provide written notification of the change to the Zoning Enforcement Official and, within 60 days of that notice, provide a remedy satisfactory to the Commission to provide adequate parking.

e) Off-site parking provided by means of a public parking facility shall be limited to [50%] of the overall parking requirement [for daytime peak uses].

The amount of public parking allowed to count toward private requirements will be a direct function of the community's capacity to provide that parking. If a community has plans to develop a parking structure, then this percentage could be as high as 100%. If public parking is limited to a few small pocket lots throughout a district, then this number will need to be much lower.

f) On-street parking spaces that [intersect or] are completely contained within the frontage of the property may be counted toward the minimum parking requirements.

g) Uses sharing a parking facility shall provide for safe, convenient walking between uses and parking, including safe, well marked pedestrian crossings, signage, and adequate lighting.

B. Fees-In-Lieu of Parking

If the [CITY/TOWN/DISTRICT] has established a Reserve Account or Revolving Fund to be used for expenses (land acquisition,

design/engineering services and construction costs, but not maintenance costs) related to adding parking spaces, improving the utilization of existing parking spaces, or reducing the need for new parking to serve the [CITY/TOWN/DISTRICT], an applicant may pay a fee-in-lieu of parking space development for a portion or all off-street on-site parking. The fee to be paid shall be [$2,000] per parking space, and shall be paid into such Fund.

This technique for providing fees-in-lieu of parking is generally best suited to an existing downtown or village center. This approach offers an alternative to providing parking on-site and thus facilitates the infill development of oddly shaped or constrained lots. The funds accumulated through fees-in-lieu of parking can be used for construction of strategically located parking lots that best meet the overall downtown or village center needs as opposed to meeting parking needs for one business at a time.

The primary benefit of this system is the enhanced ability of the community to incorporate parking into the downtown or village center in a manner that is consistent with desired goals for the character of the area. In addition, there is a greater level of municipal control over the cumulative area of impervious parking surface in the community. The challenges associated with this technique include the need for a coordinated parking plan for the community to make use of the accumulated fee, and uncertainty about when a municipal parking facility can be constructed. It may be that the development providing a fee-in-lieu of parking will have an immediate need that cannot be met by existing parking available or planned for near term construction elsewhere.

An additional challenge to this strategy is that municipal finance laws impose strict limits on the circumstances in which receipts may be dedicated to special accounts without appropriation by the city's or town's legislative body. In the case of revolving funds established under G.L. c. 44, § 53E½, the fund must be reauthorized annually. For that reason, the above provision is written to be inoperative unless there is an authorized special revenue fund in place at the time of the application.

7. Parking Lot Design

A. Compact Cars

Applicant may design up to 30% of their parking spaces for compact cars in accordance with the dimensions listed in Section 7.B of this bylaw. Compact car spaces shall be grouped together to the greatest possible extent in areas clearly designated for compact cars. Parking lots shall have a system of signs beginning at the entrance that clearly indicates the location of compact car spaces.

B. Parking Space and Travel Lane Dimensions

For the purposes of this bylaw, minimum parking space width shall be measured perpendicular to the center line of the parking space. For standard cars the minimum parking space width shall be nine (9) feet. For compact cars, the minimum parking space width shall be eight (8) feet. Travel lanes and associated module widths shall conform to the following minimum standards;

Parking Angle	Parking Stall Width[1]		Travel Lane (one way)		Travel Lane (two way)	
	Standard Space	Compact Car	Standard Space	Compact Car	Standard Space	Compact Car
Parallel	9’	8’	12’	12’	24’	22’
45°	18’	16’	14’	12’	24’	22’
60°	21’	17.5’	16’	14’	24’	22’
75°	22’	19’	19’	16’	24’	22’
90°	20’	17’	22’	19’	24’	22’

[1] Measured from the inner most point on the parking space centerline perpendicular to the edge of the Travel Lane.

The requirements for parking lot design included here are drawn from professional publications and common requirements found in a wide range of existing zoning regulations. Many bylaws and subdivision codes researched for this model included several specifications for angles of parking not included above. Although adding angles (e.g. 30, 55, 70, etc.) may provide some site specific benefits, engineering practices have demonstrated that 90-degree and 60-degree are generally the most efficient configurations.

The ratio of parking space angles to aisle widths and flow are drawn from The Parking Handbook for Small Communities (J. Edwards, National Trust for Historic Preservation, 1994). The specifications in the zoning regulations for parking lot design should be accompanied by language under the section on Site Plan requirements requiring the applicant to show all proposed parking lot design features on the site plan including surface types, all parking space and aisle dimensions and slope, access drives, landscaping, stormwater management system, sidewalks, bicycle access and parking, handicap parking, loading areas, and transit stop areas.

8. Landscaping Standards for Parking Lot Stormwater Management:

Landscaping is required for all parking lots and may be designed in one of two ways as related to stormwater management pursuant to the requirements in Section 4: 1) Low Impact Development (LID) Parking Area Design; or 2) Conventional Parking Area Design. LID Landscaping Plans shall denote a drainage design where [75% or more] of

the [first half inch] of stormwater runoff from impervious surfaces is treated for water quality by a combination of LID techniques in accordance with the most recent version of the *Massachusetts DEP Stormwater Management Manual*. Conventional Parking Area Design shall denote a parking lot landscape design that does not meet the criteria for LID Parking Area Design.

Acceptable LID techniques shall include vegetated swales, rain gardens or bioretention facilities, permeable pavers, infiltration facilities and constructed wetlands. Cisterns and grey water systems that recycle stormwater runoff may also be included in these calculations.

For parking areas that will contain fewer than [ten (10)] spaces, compliance with the design standards set forth in this bylaw shall be determined by the Zoning Enforcement Officer.

A. Conventional Parking Area Design Standards

The landscaping requirements in this section are intended to provide a baseline set of standards toward reducing the visual impacts of large areas of pavement, improving the overall environment or parking areas by providing areas for shade and heat reduction, and enhancing the overall aesthetic appeal of parking areas. The following standards shall apply to all Conventional Parking Lot Design as defined in this bylaw.

1) Amount. Developments with proposed parking areas of [ten (10)] spaces or more shall provide a minimum of 10% of the total parking area as landscaped open space.

2) Buffers. Landscaping shall be required between non-residential uses or mixed use developments and existing or future residential development areas. Buffer zones shall be a minimum of [twelve (12) feet] in width and shall substantively screen the site from view through the use of evergreen vegetation at least six feet in height. Fences may be used as part of screening but shall not include chain link fences. These requirements shall not apply to non-residential or mixed use development that are designed to integrate existing or future neighboring residences into the site through the use of walkways, bicycle paths or other pedestrian amenities.

3) Parking Lot Entrances. Parking lot entrances shall be landscaped minimally with a combination of trees and shrubs. These areas may also be used for signage in compliance with [INSERT REFERENCE TO SIGNAGE SECTION OF BYLAW]. No trees or shrubs shall be planted in a way to obstruct sight lines of motorists.

4) Parking Aisles. The ends of parking aisles that are more than [fifteen (15) spaces] in length shall incorporate landscape islands at either end of the row. Where the length of parking aisles exceeds [twenty-five (25)] spaces, an intermediary landscaped island shall be installed a regular intervals. This interval shall not be more than every [thirteen (13)] spaces. Landscape islands used at the end of parking aisles shall enclose. The width of landscaped islands at their ends shall not be less than [four (4)] feet and not less than [eight (8)] feet at their midpoint.

5) Plant Selection. No tree, shrub or plant shall be proposed for use within a parking area that has been identified as an Invasive Species by the Massachusetts Plant Advisory Group in the latest version of *The Evaluation of Non-Native Plant Species for Invasiveness in Massachusetts (with annotated list),* has been identified as invasive or banned on the *Massachusetts Prohibited Plant List* as periodically updated by the Massachusetts Department of Agricultural Resources, or in any other reputable scientific publication that may be acceptable to the Board. All size and location design elements shall comply with the following specifications:

a) Shade or canopy trees shall be three (3) inches DBH with a height of not less than twelve (12) feet above grade;
b) Small or minor shade trees shall be two and one-half (2.5) inches DBH with a height of not less than nine (9) feet above grade;
c) Ornamental or flowering fruit trees shall be two (2) inches DBH with a height of not less than seven (7) feet above grade;
d) Evergreen trees used for screening shall be not less than six (6) feet in height above grade. Fencing may be used in conjunction with vegetated screening [but chain link fence shall not be allowed];
e) Shrubs shall be not less than one and one-half (1.5) feet in height above grade.
f) Turf may be used but shall not be installed in strips less than six (6) feet in width.

B. LID Parking Area Design Standards

The purpose of these standards is provide the Zoning Enforcement Officer or the parties involved with Site Plan Review the opportunity to review plans for a lower impact approach to managing stormwater in parking areas. The following information is therefore required of an applicant choosing to treat any portion of a parking lot with LID stormwater management techniques. This information

shall be prepared by a Massachusetts registered Professional Engineer and shall comply with the design and implementation guidelines provided in the latest version of the *Massachusetts DEP Stormwater Management Manual.* Where portions of the parking lot are not using acceptable LID techniques, the standards for Conventional Parking Lot Design in Section 8.A shall apply.

1) Delineation of all drainage areas inclusive of areas outside of the parking envelope that will contribute stormwater runoff to the parking area;

2) Proposed topography at two-foot contour intervals;

3) Site Plan showing drainage pathways and locations of proposed BMPs;

4) Typical profiles of BMPs;

5) Sizing calculations for BMPs that demonstrate adequate conveyance and/or water quality treatment of the [first half inch of stormwater runoff from impervious surfaces];

6) Sizing calculations for BMPs that illustrating proposed management of runoff resulting from 2-year, 10-year, and 100-year event;

7) List of plantings associated with vegetated BMPs;

8) Location of areas reserved for snow storage;

9) Location of any screening between residential and non-residential properties. Buffer zones shall be a minimum of [six (6) feet] in width and shall substantively screen the site from view through the use of evergreen vegetation at least six feet in height. Fences may be used as part of screening but shall not include chain link fences. These requirements shall not apply to non-residential or mixed use development that are designed to integrate existing or future neighboring residences into the site through the use of walkways, bicycle paths or other pedestrian amenities.

10) Location of test pits, depth to seasonal high ground water and soil percolation rates for those areas designated for recharge;

11) Schematic diagrams of any gray water or cistern systems proposed for the parking area;

12) An Operation and Maintenance (O&M) Plan shall be submitted by the applicant to the Zoning Enforcement Officer or the [Planning Board] that conforms to the standards for O&M Plans detailed in the most recent version of the *Massachusetts DEP Stormwater Management Manual.*

The LID requirements listed above are designed to mirror the Massachusetts stormwater policy. It should be noted that the Massachusetts Stormwater Policy requires the first one inch of runoff to be treated in critical areas such as drinking water supply zones or recharge areas to shellfish beds. Depending on where these standards are being applied, the language of the bylaw may need to reflect this increased level of treatment.

It should be noted that the LID requirements deal almost exclusively with plan submittal requirements and far less with aesthetic standards than the conventional standards in Section 8.A. This approach acknowledges that overly-prescriptive landscaping standards may make it difficult for engineers to site vegetative BMPs while trying to comply with the standards listed in the bylaw. Engineers need the flexibility to optimally site LID practices in way that maximizes their capture of sheet flow and enhances their overall effectiveness. These designs may require asymmetrical landscaping patterns that will often not comply with more standardized approaches to parking lot landscaping.

9. Severability

If any provision of this bylaw is held invalid by a court of competent jurisdiction, the remainder of the bylaw shall not be affected thereby.

Memorandum

To: Board of Selectmen

From: Sarah Raposa

Date: July 15, 2014

Re: Downtown Parking Study Findings & Recommendations

Purpose: To have a better understand if there is a true "parking problem" in Downtown Medfield and to gather a baseline study to analyze the impact of future development (of Brothers Market and the Ords Building).

Study Area: Main Street from North Meadows Road to South Street, including on street parking along Upham Road, Frairy Street, North Street, Janes Avenue, Pleasant Street, Miller Street, and Park Street.

Parking Supply: There are a total of 212 public parking spaces, inclusing 68 located in the public lots behind Town Hall and off Janes Avenue.

Data Collection: Date collection occurred from 8 am – 8 pm on Thursday, June 5th and Saturday, June 7th, 2014. The dates and times were selected to capture utilization patterns for typical weekday and Saturday demands.

Primary Findings: For parking utilization review, parking is typically considered functionally full when occupancy reaches 85%, rather than 100%. At 85% occupancy, some parking (about 1 in 8 spaces) is available, so that drivers can reasonably find a space and turnover of spaces can be accommodated. Late morning and early afternoon tended to be the peak utilization periods.

Weekday parking utilization for all spaces peaks at approximately 65% at 10 am and 1 pm. Saturday parking utilization for all spaces peaks at 52% at 11 am. While there are some locations in the study area that reach 100% occupancy (particularly near Main Street/Janes Avenue area), overall results indicate occupancy is less than 85% in downtown Medfield for the study area as a whole.

Recommendations and Next Steps:

- There is currently capacity for some growth in parking demand within downtown Medfield and we should manage on street parking better (i.e. ensure on street parking is available to customers rather than employees, particularly mid-day on weekdays).
- Consider wayfinding between parking locations and key attractions, and the pedestrian environment with amenities such as consistent sidewalks, high-quality lighting and landscaping.
- A tiered pricing program such as a higher price for "premium" locations (such as on-street on Main Street), combined with free or modestly priced parking permits for longer-term parking in off-street lots, could free up parking in desirable locations where the spaces are most needed.
- Review the Downtown Parking Special Permit
- Perform a study to understand future demand for parking based on current development plans, projections from existing or proposed zoning ("buildout" scenarios), and potential demand scenarios that consider changes to development or parking policies.
- If it is determined that additional parking supply is needed to meet future development needs, fees-in-lieu of parking can be used to reduce the amount of parking required for private developments in a defined area. The intent is that fees are used for construction of new parking that meet the needs of the entire district the parking is intended to serve. Municipal finance laws and regulations for development mitigation need to be considered with this approach.
- Business Improvement Districts (BIDs) and Parking Betterment Districts are also strategies that allow for parking fees from meters and permits to be re-invested in a designated area generating that revenue.