Bethesda
Parking Study

Parking Supply and Demand Study for Bethesda Lot 10 and Lot 24

March 7, 2022 | Final Report

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Executive Summary

This report provides a general overview of parking habits in the Bethesda study area and specifically responds to a potential redevelopment of the Lot 10 and Lot 24 sites. The redevelopment will increase and diversify Bethesda land use density, create open space opportunities, and, potentially, relocate parking to an underground facility. This report identifies the existing and future potential future parking demand in the study area and the parking demand that is or would be specifically satisfied by Lots 10 and 24, calculates the resulting deficit in parking supply that occurs when Lot 10 and 24 are removed, and calculates the amount of replacement parking needed to offset the loss of Lot 10 and 24.

Existing parking occupancy findings show that the 90 parking spaces in Lot 10 experience peak occupancy of 72 percent on Thursday and 89 percent on Saturday, leaving 10 to 25 parking spaces regularly available for public use in Lot 10. The 216 parking spaces in Lot 24 experience peak occupancy of 48 percent on Thursday and 92 percent on Saturday, leaving 18 to 108 parking spaces regularly available for public use in Lot 24.

By contrast, in the October 2017 PLD parking study, peak occupancy for Lot 10 was reported as 111 percent and peak occupancy for Lot 24 was reported as 100 percent on Saturday. This demonstrates that Covid-19 has had a pronounced impact on the current occupancy of Garage and the overall study area.

Two scenarios were evaluated using the calibrated land use-based parking ratios: existing land use (Scenario A) and future land uses assuming 50 percent less vacancy (Scenario B). Existing vacancy rates and future land uses were retiming using the County's Costar real estate database and were confirmed with County Staff.

If Lots 10 and 24 were to remain, each scenario would demonstrate a surplus in public parking provided by Montgomery County in the overall study area during the peak period (of approximately 391 to 552 in existing conditions and of approximately 354 to 510 spaces in the future less vacancy). For Zone 1, where Lots 10 and 24 are located, there would be a small surplus (32 to 95 spaces) in public parking based on existing demand and a small surplus (10 to 87 spaces) in public parking based on future demand. Even in the condition where Lots 10 and 24 were to remain, the demand for public parking is nearing the effective supply.

Public parking surpluses and deficits in Zone 1 (rounded to the nearest 50 spaces) without the supply of Lots 10 and 24 are shown in the Table 1. For Zone 1, where Lots 10 and 24 are located, there would be a deficit (180 to 243 spaces) in public parking based on existing demand and a deficit (188 to 265 spaces) in public parking based on future demand. Even in the condition where Lots 10 and 24 were to remain, the demand for public parking is nearing the effective supply.

The Zone 1 parking deficits would put stress on the Bethesda parking system. As such, it is useful to identify an amount of replacement parking to offset the loss of Lots 10 and 24 and to satisfy the anticipated demand. To right-size parking, an assumption was made that 35 to 50 percent of parking deficits in Zone 1 that were previously served by Lots 10 and 24 could be served by Garage 31 in Zone 2. The remaining Zone 1 deficit represents the amount of replacement parking that would be needed to satisfy parking demand at the convenience level currently offered (i.e. free weekend parking to the east of Wisconsin Avenue).

TABLE 1: REPLACEMENT PARKING EVALUATION

Scenario Generated Parking Demand	Zone 3 Parking Supply Surplus/Deficit *without Lots 10 and 24 Supply*					
	Full Zone 1 Surplus/Deficit		With 35% of Zone 1 parking deficit absorbed by Zone 2 (Garage 31)		With 50% of Zone 1 parking deficit absorbed by Zone 2 (Garage 31)	
	Thursday	Saturday	Thursday	Saturday	Thursday	Saturday
2021 Current Study Occupancy Counts	+115	+33	-	-	-	-
Scenario A Land Use Existing Parking Demand	-180	-243	-117	-158	-90	-122
Scenario B Land Use Future Parking Demand	-188	**-265**	-122	**-172**	-94	-133

After review of the resulting parking deficits, Kimley-Horn recommends **175 to 275 replacement parking spaces** are needed to offset the removal of Lots 10 and 24.

This range provides sufficient parking to immediately satisfy existing parking demand without any parking demand being shifted to Zone 2. Given that it will likely take some time for these shifts to occur or for other parking strategies to be implemented, this range assures that Zone 1 parking can be satisfied entirely within Zone 1. This range would also satisfy future scenarios where Bethesda is denser and more occupied, though at that time a deliberate strategy to encourage more parking in Zone 2 (Garage 31) elsewhere in the Bethesda PLD will be necessary.

A detailed summary of the analysis and documentation of all assumptions can be found in the main text of the report.

1 Introduction

Kimley-Horn was retained by the Montgomery County Department of Transportation, Division of Parking Management, to conduct an analysis of parking supply and demand in a portion of the Bethesda Parking Lot District (PLD). The study area for this parking supply and demand study, as illustrated in Figure 1, is bounded by Hampden Lane and Elm Street to the north, Woodmont Avenue and Wisconsin Avenue to the west, Bradley Boulevard/Bradley Lane to the south, and West Avenue and 46th Street to the East. The Division of Parking Management currently employs a block numbering system for the blocks located within the PLD. The same block numbering system was used in this study and is consistent with the most recent parking study prepared for the entire PLD (dated October 2017 by MCV Associates, Inc. and DESMAN).

This study provides a general overview of parking habits in the study area and responds to the potential of new construction and redevelopment activity to change the relationship of parking supply to parking demand in Montgomery County's various Parking Lot Districts or PLDs. Specifically, in the Bethesda PLD, the land occupied by Parking Lot 10 and Lot 24 continue to offer development opportunities given the value of those properties to the County and to prospective private sector development partners. However, existing and offices, retail shops, and residents use the parking supply that these two lots provide and if those lots were to be redeveloped, the County and/or developer would likely be required/encouraged to provide replacement parking spaces. This need for replacement parking in the absence of Lot 10 and/or Lot 24 would be heightened given the additional parking demand generated by known, proposed, or potential development in the vicinity of Lot 10 and given the County's long history of providing and managing publicly accessible parking in the Bethesda the County's other PLDs.

Based on the understanding of background issues, the primary goals of this study were to determine the future parking surplus or deficit at a block, zone, and study area level in the scenario Lot 10 and Lot 24 area no longer available as public parking locations and to identify the amount of replacement parking needed to satisfy any parking deficits resulting from this scenario. Additional tasks that were completed include:

- Confirm the inventory all public and private, on- and off-street space
- Conduct sample parking occupancy surveys during a typical weekday and weekend day
- Identify the influence of Covid-19 on on-street and off-street parking demand in the study area
- Develop a set of land-use based parking ratios that connect development densities (square footage, dwelling units, rooms, etc.) to observed and forecast parking demand
- Determine if there is an existing parking supply surplus or deficit at a block, zone, and study area level with respect to peak period parking demands
- Quantify future parking demand that reflects the continued influence of Covid-19, anticipated study area vacancy changes, and planned future development.
- Determine if there is a future parking supply surplus or deficit at a block, zone, and study area level with respect to forecast peak period parking demands

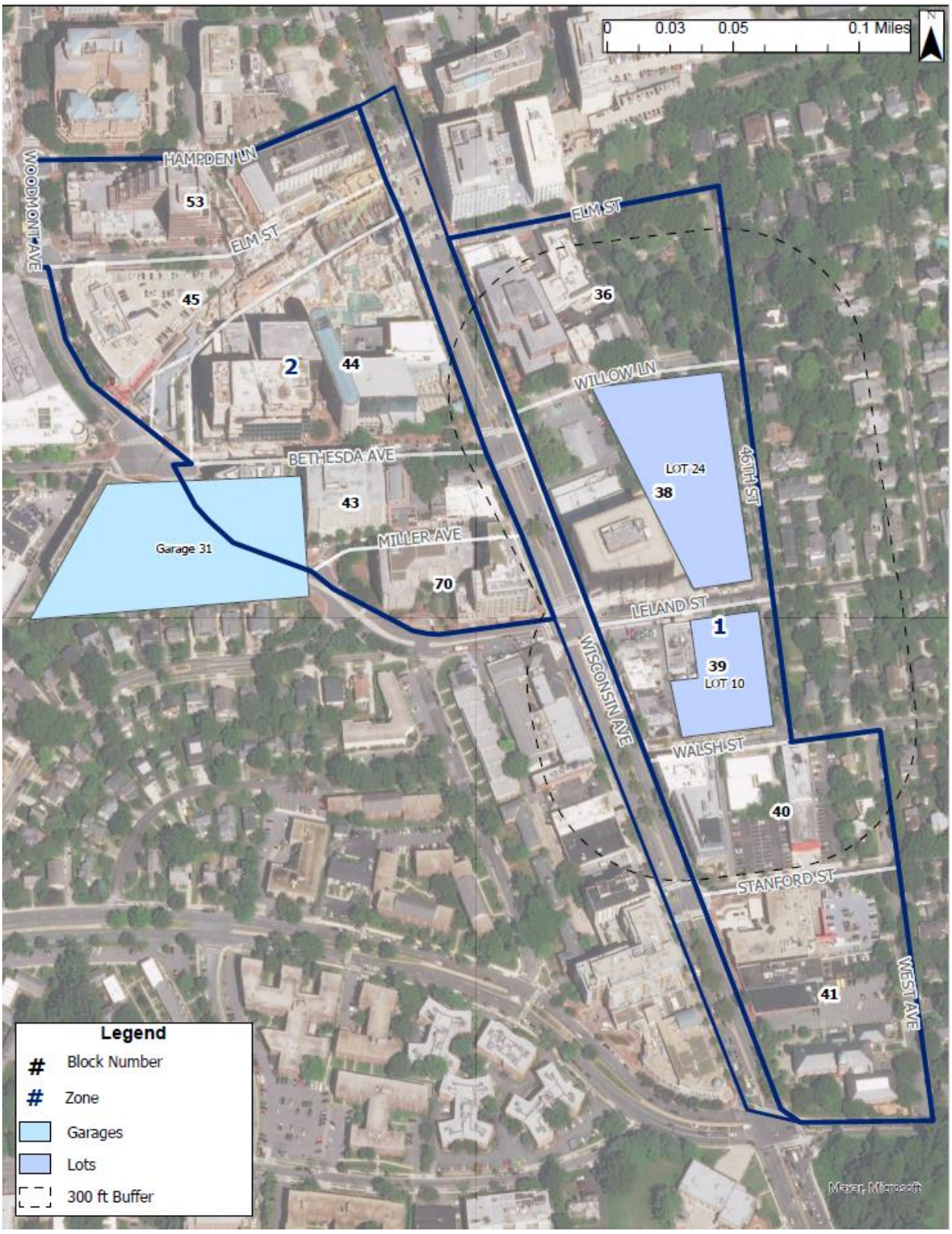

FIGURE 1: BETHESDA STUDY AREA

As shown in Figure 1, Wisconsin Avenue serves as major traffic corridors that are not easily crossed by pedestrians and other active transportation users; as such, the availability of parking on the west side of Wisconsin Avenue may not necessarily satisfy the demand for parking generated on the east side of Wisconsin Avenue if people cannot or are unwilling to park and then cross this major corridor. Reflecting the impact that Wisconsin Avenue could have as a barrier to "park and walk" behaviors, the study area was segregated into two distinct parking zones.

- Zone 1 is bounded by Wisconsin Avenue, Elm Street, 46th Street, West Avenue, and Bradley Lane and contains Parking Lot 10 (located in Block 38 with approximately 90 parking spaces) and Parking Lot 24 (located in Block 38 with approximately 216 parking spaces)
- Zone 2 is bounded by Wisconsin Avenue, Hampden Lane, Woodmont Avenue, and Bradley Boulevard, and contains Garage 31 (located in Blocks 43/46 with approximately 984 parking spaces)

2 Assessment of Existing Conditions

Phase I of the study included an analysis of the existing parking supply and demand during a typical weekday and a typical Saturday. Throughout this section and the entire report data and results will be presented at a block, zonal, and study area level. Zone 1 will be spotlighted throughout as it contains Parking Lots 10 and 24.

2.1 Parking Supply

The public parking supply in this study area consists of parking spaces in County-owned and operated off-street facilities, County owned and managed on-street curbspace, and privately owned/operated off-street garages and lots

Within the study area, there are a total of 205 on-street parking spaces and 1,290 parking spaces in County lots and garages. There are also approximately 2,518 parking spaces in privately owned/operated off-street garages and lots that are available to the general public (for a fee), and 3,755 parking spaces in privately owned/operated off-street garages and lots that directly serve specific users and land uses and are not generally accessible to the public. Table 2 provides a summary of spaces by type and block while Figure 2 illustrates their location.

TABLE 2: CURRENT INVENTORY OF ON- AND OFF-STREET PUBLIC AND PRIVATE PARKING SPACES BY BLOCK

Zone	Block	On-Street	Public Off-Street	Total Public	Private with Public use	Private Only	Total Private	Total Parking Supply
1	**36**	23	0	23	227	**238**	465	488
1	**38**	27	216	243	483	**225**	708	951
1	**39**	17	90	107	10	**10**	20	127
1	**40**	49	0	49	53	**106**	159	208
1	**41**	35	0	35	216	**219**	435	470
2	**43**	13	984	997	25	205	230	1227
2	**44**	10	0	10	915	1678	2,593	2,603
2	**45**	7	0	7	60	490	550	557
2	**53**	24	0	24	529	584	1,113	1,137
Total		**205**	**1290**	**1495**	**2,518**	**3,755**	**6,273**	**7,768**
Percent of Public		14%	86%	100%				
Percentage of Total		3%	17%	20%	32%	48%	80%	100%

There are 457 public parking spaces in Zone 1 (33 percent or 151 parking spaces are on-street, 20 percent or 90 parking spaces are contained in Parking Lot 10, and 47 percent or 216 spaces are contained in Parking Lot 24). There are also approximately 989 privately managed, but publicly available parking spaces in Zone 1 and another 798 private parking spaces that are generally unavailable to the public.

2.1.1 Typical Parking Demand

Kimley-Horn in partnership with Penn Parking staff conducted parking demand surveys in all County owned and managed parking facilities and curbside areas and in a sampling of publicly accessible private facilities within the study area. This data was gathered on Thursday, October 7th, 2021 between 10:00 AM and 9:00 PM and Saturday, October 9th, 2021 between 11:00 AM and 10:00 PM, as approved by County staff. The purposes of this data collection effort were to establish the current "typical" parking demand (occupancy and utilization percentages) for the various facilities within the study area and to identify the peak periods of parking demand. The data was also used to develop land use-based parking demand ratios (as discussed in subsequent sections of this report).

The surveyed parking areas are shown in Table 3 and Figure 2.

The data collection effort sampled all public Montgomery County owned and managed facilitates and 85 percent of privately owned/operated but publicly accessible off-street garages and lots. Combined with a small sampling of private facilities for use by private users only (8 percent) this accounts for a 56 percent data collection coverage of the study area.

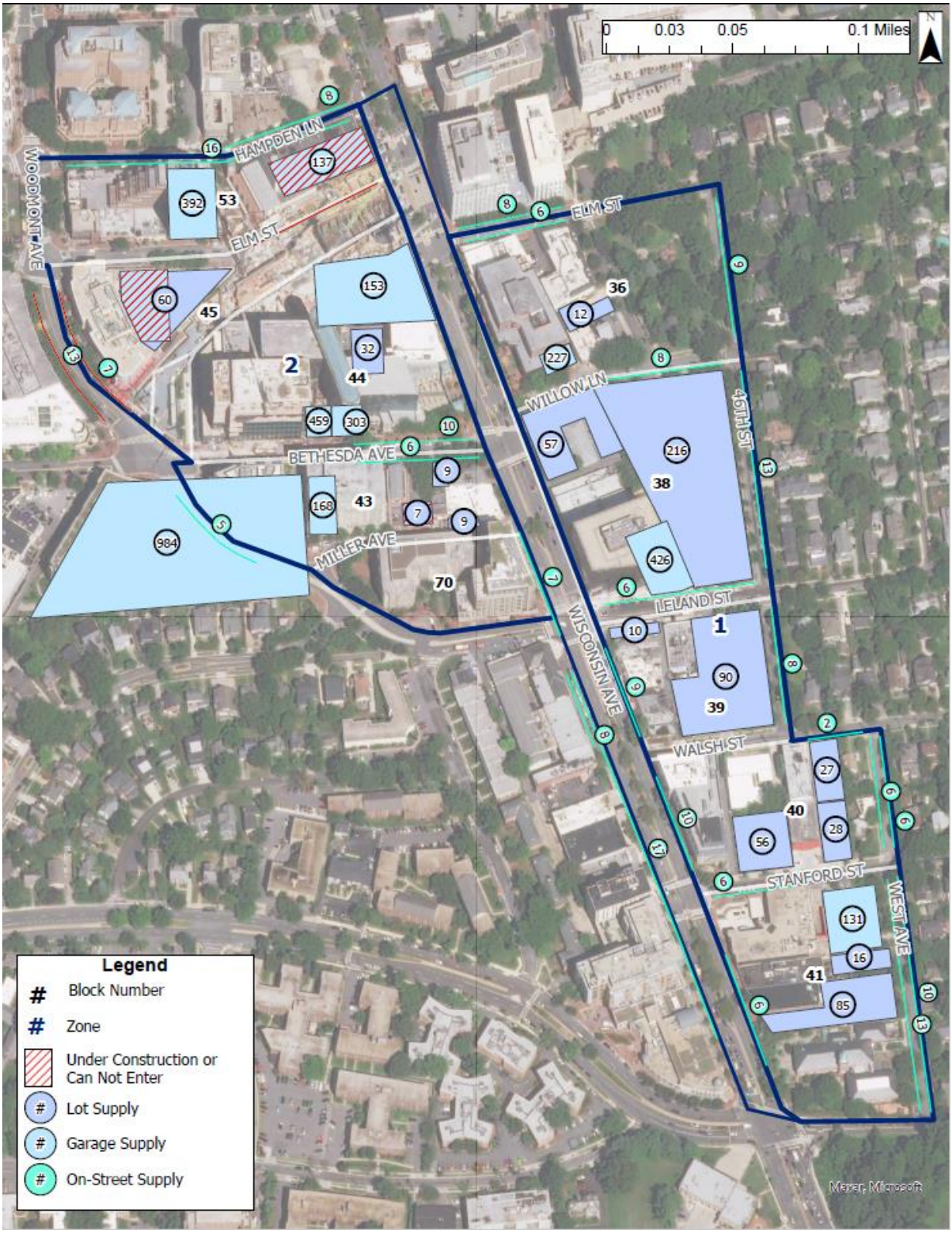

FIGURE 2: SURVEYED ON- AND OFF-STREET PUBLIC AND PRIVATE PARKING SPACES BY BLOCK

TABLE 3: SURVEYED ON- AND OFF-STREET PUBLIC AND PRIVATE PARKING SPACES BY BLOCK

Zone	Block	On-Street Spaces	Off-Street Public Spaces	Total Public Spaces	Off-Street Private (Accessible)	Off-Street Private (Restricted)	Total
1	**36**	23	0	23	227	12	262
1	**38**	27	216	243	483	0	726
1	**39**	17	90	107	10	0	117
1	**40**	49	0	49	53	83	185
1	**41**	35	0	35	216	16	267
2	**43**	13	984	997	25	168	1,190
2	**44**	10	0	10	915	32	957
2	**45**	7	0	7	60	0	67
2	**53**	24	0	24	529	0	553
Total		205	1,290	1,495	2,518	311	4,324
Surveyed Percent of Total Supply		100%	100%	100%	100%	8%	56%

It is noted that the Bethesda Row Arts Festival was held on Saturday, October 9th, 2021 from 11:00 AM to 6:00 PM. During festival hours, portions of Woodmont Avenue, Bethesda Avenue, and Elm Street were closed to traffic and inaccessible for parking. Based on field observations and a review of previous parking studies, typical parking behaviors in Parking Lots 10 and 24 and Garage 31 were not impacted by this event. It is noted, however, that private garages on Block 36, 38, and 53 and the private lot on Block 45 were inaccessible during the festival.

There are also a few blocks currently under construction and as a result some of the typical on-street parking areas within Block 45 and 51 were inaccessible. Table 4 summarizes the weekday parking demand survey results by block while Table 5 summarizes the results of the Saturday parking demand surveys. In the overall study area, the peak parking occupancy and utilization of the study area occurred during the 1:00 PM to 3:00 PM survey period on a typical observed weekday with a total of 1,754 (40 percent) parking spaces occupied and during the 2:00 PM to 4:00 PM period on a typical Saturday when 1,311 (30 percent) parking spaces were occupied.

Off-street and on-street parking occupancy differed from block-to-block, based on the types of land uses found within each block. In the overall study area, during the peak periods, off-street spaces experienced utilizations of 1,634 (39 percent) on Thursday and of 1,201 (29 percent) on Saturday. In the overall study area, during the peak periods, on-street spaces experienced utilizations of 120 (54 percent) on Thursday and of 110 (49 percent) on Saturday. Specific data tables for on- and off-street facilities are provided in the Appendix.

TABLE 4: TOTAL OCCUPANCY BY BLOCK ON WEEKDAY

Zone	Block #	Demand | Occupancy			
		10:00 AM - 12:00 PM	1:00 PM - 3:00 PM	4:00 PM - 6:00 PM	7:00 PM - 9:00 PM
1	36	79 | 31.1%	71 | 28.0%	57 | 22.4%	7 | 2.8%
1	38	210 | 28.9%	278 | 38.3%	187 | 25.8%	68 | 9.4%
1	39	48 | 41.0%	74 | 63.2%	47 | 40.2%	61 | 52.1%
1	40	32 | 23.7%	45 | 33.3%	39 | 28.9%	24 | 17.8%
1	41	125 | 46.8%	121 | 45.3%	150 | 56.2%	103 | 38.6%
2	43	426 | 36.0%	431 | 36.4%	318 | 26.9%	195 | 16.5%
2	44	482 | 50.4%	456 | 47.6%	333 | 34.8%	99 | 10.3%
2	45	22 | 32.8%	21 | 31.3%	16 | 23.9%	2 | 3.0%
2	53	182 | 30.3%	193 | 32.2%	137 | 22.8%	56 | 9.3%
Total		1,659 | 37.7%	1,754 | 39.9%	1,322 | 30.1%	657 | 14.9%

TABLE 5: TOTAL OCCUPANCY BY BLOCK ON SATURDAY

Zone	Block #	Demand | Occupancy			
		10:00 AM - 12:00 PM	1:00 PM - 3:00 PM	4:00 PM - 6:00 PM	7:00 PM - 9:00 PM
1	36	12 | 4.7%	11 | 4.3%	7 | 2.8%	9 | 3.5%
1	38	187 | 25.8%	236 | 32.5%	138 | 19.0%	149 | 20.5%
1	39	78 | 66.7%	91 | 77.8%	55 | 47.0%	50 | 42.7%
1	40	16 | 11.9%	21 | 15.6%	12 | 8.9%	6 | 4.4%
1	41	161 | 60.3%	140 | 52.4%	107 | 40.1%	61 | 22.8%
2	43	591 | 50.0%	646 | 54.6%	492 | 41.6%	426 | 36.0%
2	44	55 | 5.7%	60 | 6.3%	40 | 4.2%	39 | 4.1%
2	45	0 | 0.0%	0 | 0.0%	0 | 0.0%	0 | 0.0%
2	53	58 | 9.7%	58 | 9.7%	52 | 8.7%	38 | 6.3%
Total		**1200 | 27.3%**	**1311 | 29.8%**	**939 | 21.4%**	**808 | 18.4%**

Table 6 and Table 7 show the parking demand and utilization in Montgomery County parking lots garages for Thursday and Saturday, respectively. Parking Lot 24 experiences peak occupancy of 48 percent on Thursday and 91 percent on Saturday. This leaves 112 parking spaces regularly available for public use during peak weekday conditions and 18 parking spaces regularly available for public use during peak Saturday conditions in Parking Lot 24. Parking Lot 10 experiences peak occupancy of 72 percent on Thursday and 89 percent on Saturday. This leaves 25 parking spaces regularly available for public use during peak weekday conditions and 10 parking spaces regularly available for public use during peak Saturday conditions in Parking Lot 10. Garage 31 experiences peak occupancy of 32 percent on Thursday and 55 percent on Saturday. This leaves 665 parking spaces regularly available for public use during peak weekday conditions and 438 parking spaces regularly available for public use during peak Saturday conditions in Garage 31. By contrast, in the October 2017 PLD parking study, peak occupancy for Parking Lot 24 was reported as 72 and 100 percent on Thursday and Saturday, respectively, and peak occupancy for Parking Lot 10 was reported as 80 and 111 percent on Thursday and Saturday, respectively. Garage 31 experienced peak occupancy of 58 percent on Thursday and 68 percent on Saturday. This demonstrates that Covid-19 has had an impact on the use of county parking facilities.

TABLE 6: TOTAL OCCUPANCY BY BLOCK ON WEEKDAY

Zone	Block #	Demand | Occupancy			
		10:00 AM - 12:00 PM	1:00 PM - 3:00 PM	4:00 PM - 6:00 PM	7:00 PM - 9:00 PM
1	38 (Lot 24)	47 | 21.8%	104 | 48.1%	75 | 34.7%	51 | 23.6%
1	39 (Lot 10)	36 | 40.0%	65 | 72.2%	40 | 44.4%	46 | 51.1%
2	43 (Garage 31)	306 | 31.1%	319 | 32.4%	209 | 21.2%	184 | 18.7%
Total		**389 | 30.2%**	**488 | 37.8%**	**324 | 25.1%**	**281 | 21.8%**

TABLE 7: TOTAL OCCUPANCY BY BLOCK ON SATURDAY

Zone	Block #	Demand | Occupancy			
		11:00 AM - 1:00 PM	2:00 PM - 4:00 PM	5:00 PM - 7:00 PM	8:00 PM - 10:00 PM
1	38 (Lot 24)	148 | 68.5%	198 | 91.7%	123 | 56.9%	136 | 63.0%
1	39 (Lot 10)	72 | 80.0%	80 | 88.9%	45 | 50.0%	44 | 48.9%
2	43 (Garage 31)	485 | 49.3%	546 | 55.5%	396 | 40.2%	331 | 33.6%
Total		**705 | 54.7%**	**824 | 63.9%**	**564 | 43.7%**	**511 | 39.6%**

2.1.2 Parking Surplus/Deficit by Block

To accurately assess the stress on the parking system in relation to parking demand, the concept of practical capacity needs to be discussed. The level of utilization within a facility, block or study area may reach a point where potential parkers become frustrated when trying to locate an available space and they perceive the facility as full. For the purposes of this study, a practical capacity factor of 90% was used to analyze the parking conditions in the study area. For example, if a one hundred space parking lot has ninety-five parked vehicles during the peak hour, then a practical deficit of five spaces would exist.

Tables in the Appendix illustrate the practical parking surpluses/deficits on a typical weekday and Saturday. On a typical Thursday, considering only those parking facilities that were publicly accessible, there is a practical surplus of 80 on-street spaces and 2,122 off-street spaces (2,202 total) in the study area. This means that 47 percent of spaces in the study area are available during peak weekday conditions. On a typical Saturday, there is a practical surplus of 90 on-street spaces and 2,555 off-street spaces (2,645 total) in the study area. This means that 36 percent of spaces are available during peak Saturday conditions.

Specific to Lot 10, there is a parking surplus of 16 and 1 parking spaces for Thursday and Saturday, respectively. Specific to Lot 24, there is a parking surplus of 90 spaces on Thursday and a parking deficit of 4 spaces on Saturday.

Figure 3 and Figure 4 further illustrate the current surplus/deficit conditions by color coding based on the amount of surplus or deficit within each block. Green indicates that the block is experiencing a surplus of parking and red indicates that the block is experiencing a deficit of parking. The lighter shade of green represents blocks with a surplus of less than 50 spaces during the peak period and the darker shade represents blocks with 500 or more spaces available during the peak period. The lighter shade of red represents blocks with a deficit of less than 50 spaces during the peak period and the darker shade represents blocks with a deficit of 500 or more spaces during the peak period.

Due the combination of County-owned and managed parking facilities and privately parking facilities that are available for public use (for a fee), most of the study area is operating at a parking surplus. There is ample parking supply to satisfy the needs of visitors, employees, residents, and retail patrons in the area. The demand for county-provided (and free on weekends) parking is nearing capacity on the weekend. This duality suggests that County facilities undergo a specific stress related to their pricing structure and remain high demand parking locations.

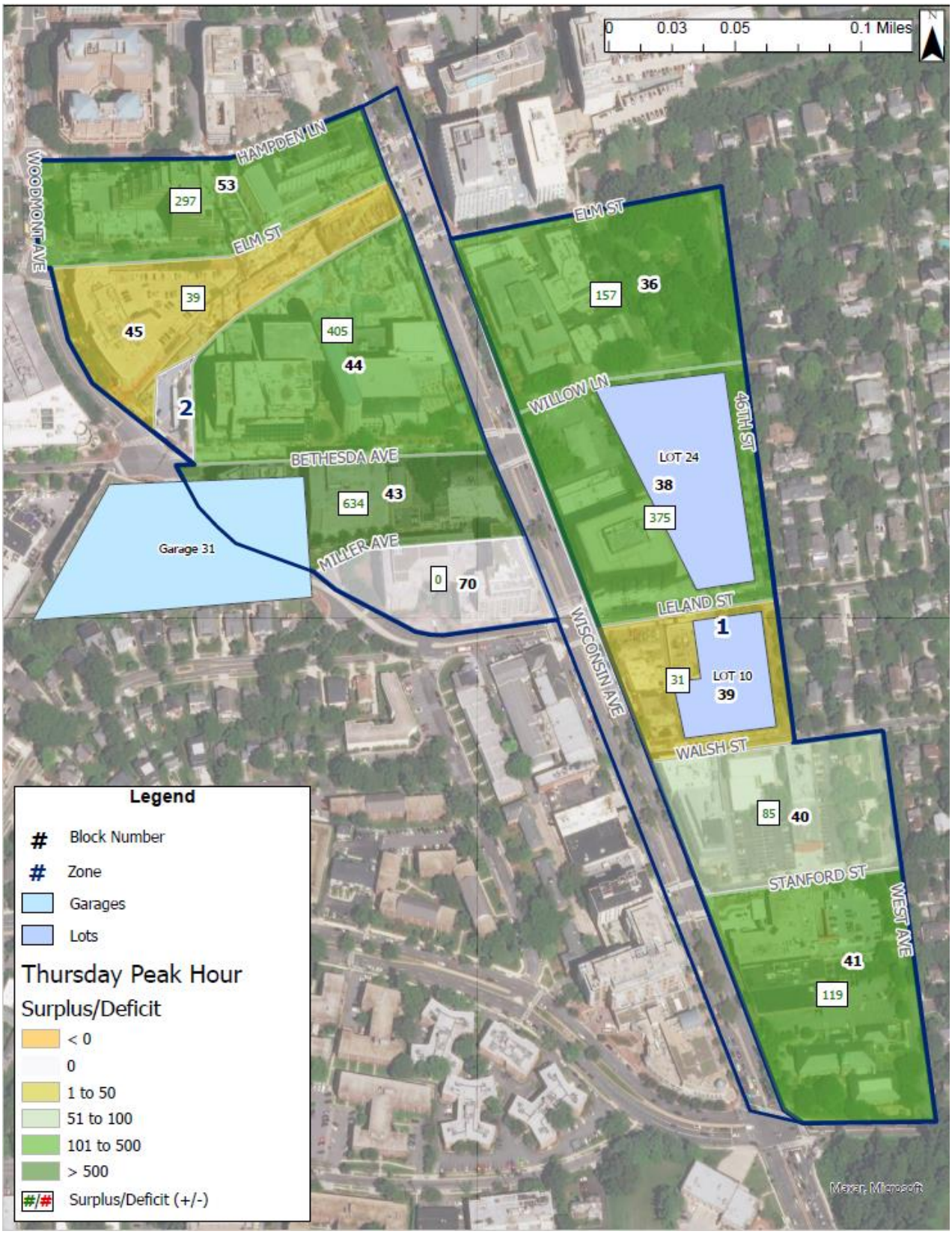

FIGURE 3: PEAK WEEKDAY PUBLIC AND PRIVATE AVAILABLE ON- AND OFF-STREET SURPLUS/DEFICIT BY BLOCK

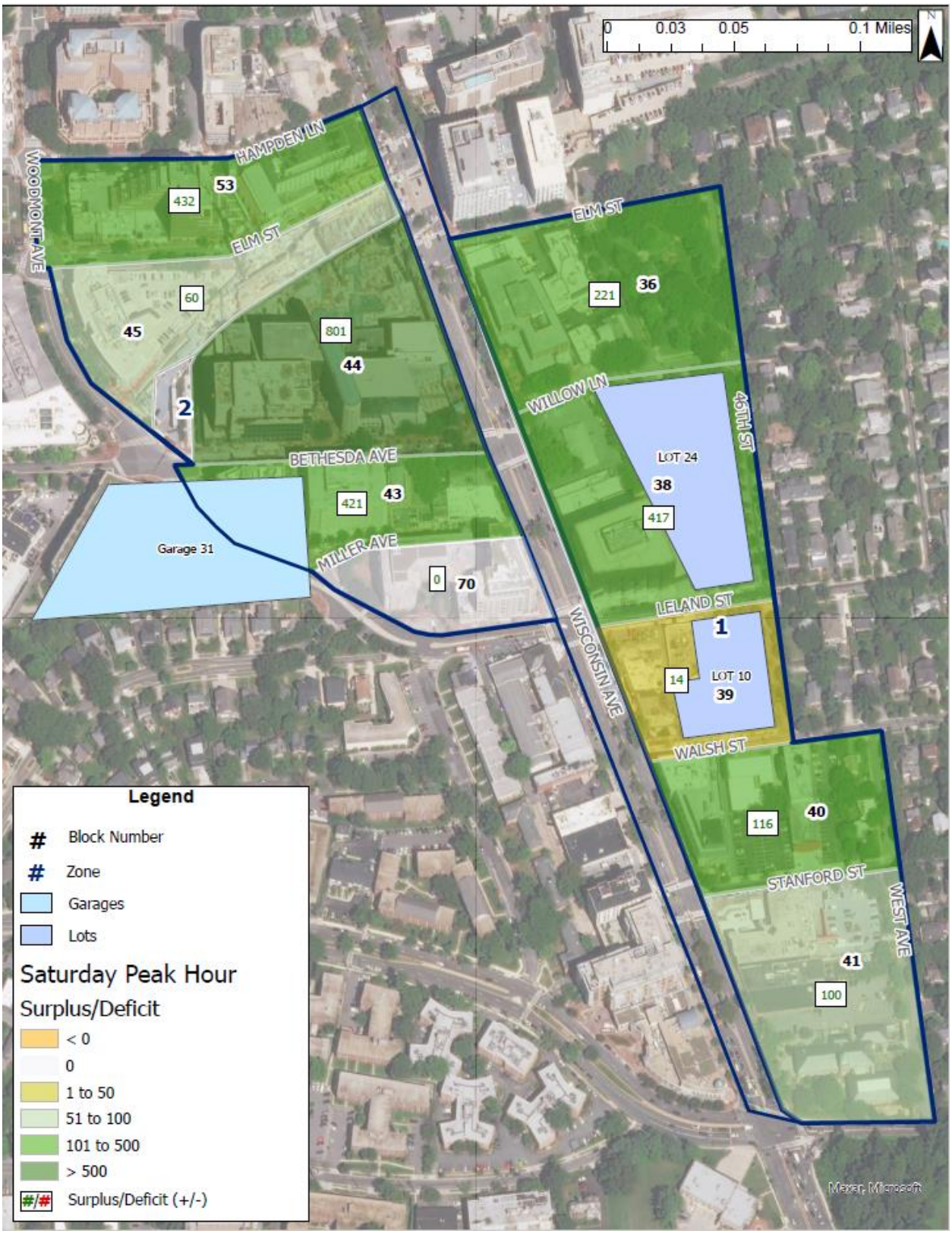

FIGURE 4: PEAK SATURDAY PUBLIC AND PRIVATE AVAILABLE ON- AND OFF-STREET SURPLUS/DEFICIT BY BLOCK

2.2 Land Use Based Parking Demand Model

The preceding analyses provided a snapshot of the study area parking demand based on a limited set of data. To assess the adequacy of the total amount of parking within the study area and related to the specific existing land uses, the concept of parking demand factors needs to be introduced.

Land use-based parking demand factors or ratios are per-unit measures of peak hour parking generation. By applying these factors to the density of various land uses (office, retail, residential, etc.), the weekday and weekend parking activity associated with those developments can be estimated. Kimley-Horn compiled and summarized the land use data for each block as provided by the County through its CoStar commercial real estate database.

Kimley-Horn summarized land uses as either office, commercial (including both retail and restaurants), live theatre, residential, hotel, and health club. It is recognized that there are many specific land use types within these general groupings, however the groupings allow for the development of parking ratios which reflect the mix of parking demand and travel behaviors that is satisfied within the sturdy area.

Based on this summarization and the peak peaking observed for each block, Kimley-Horn developed, and calibrated land-use based parking ratios for a typical weekday and Saturday in Bethesda. The calibrated parking ratios are shown in

Table 8 and Table 9. For example, for each occupied 1,000 SF of commercial space within the study area today, roughly 1.22 parking spaces would be needed during the typical weekday peak period to satisfy the parking demand generated by this land use.

These ratios, however, are below those currently published by the Urban Land Institute and the Institute of Transportation Engineers. This suggests that although the intensity of existing office, residential, retail, and restaurant land use activity in the Bethesda study area is the same as what may be experienced in other town center environments, the proximity and ease of access to public transportation results in a lower parking demand ratio. These additional factors of auto use and internal capture or synergy, which considers patrons visiting multiple land uses, are considered to determine the appropriate ratio for parking needs in Bethesda. The auto use and synergy factors originate from the October2017 PLD study and have been used in this current report for consistency with past analyses. It is noted that the specific impacts of the Covid-19 public health emergency have contributed to the uniquely calibrated parking ratios shown in Table 7 and Table 8.

TABLE 8: BETHESDA STUDY AREA SPECIFIC WEEKDAY PARKING RATIO CALIBRATION

Land Use Category	Bethesda Specific Weekday Parking Ratios					
	Unit	ITE or ULI Parking Ratio	Auto Use	Internal Capture / Synergy	Base Parking Ratio (Oct 2017)	Calibrated Parking Ratio (October 2021)
Retail	Per 1k gsf	3.50	70%	50%	1.23	1.1
Restaurant		12.00	60%	30%	5.04	
Residential	Per dwelling unit	1.50	60%	0%	0.90	1.2
Hotel	Per room	1.20	60%	0%	0.72	0.1
Office	Per 1k gsf	3.50	45%	0%	1.58	0.82
Movie Theater	Per seat	0.33	75%	10%	.22	
Specialty	Per 1k gsf	-	-	-	-	1.1

TABLE 9: BETHESDA STUDY AREA SPECIFIC SATURDAY PARKING RATIO CALIBRATION

Land Use Category	Bethesda Specific Saturday Parking Ratios					
	Unit	ULI Parking Ratio	Auto Use	Internal Capture / Synergy	Base Parking Ratio (October 2017)	Calibrated Parking Ratio (October 2021)
Retail	Per 1k gsf	3.50	100%	0%	3.50	3.3
Restaurant		12.00	100%	0%	12.00	
Residential	Per dwelling unit	1.5	74%	0%	1.11	1.5
Hotel	Per room	**1.2**	70%	0%	0.84	0.6
Office	Per 1k gsf	**0.35**	90%	0%	0.32	0.1
Movie Theater	Per seat	**0.33**	95%	10%	0.28	0.3
Specialty	Per 1k gsf	**-**	-	-	-	1.1

Table 10 illustrates the total occupied square footage of each land use category by block as provided by the County through its CoStar commercial real estate database. Note that this initial analysis focuses on occupied property (i.e. it excludes vacant uses as they do not generate any parking demand). For context, the study area has an office vacancy of 5 percent, a commercial vacancy of 11 percent, and a residential vacancy of 8 percent.

TABLE 10: BETHESDA OCCUPIED LAND USE DENSITIES

Zone	Block #	Land Use Type and Density/Units					
		Office (gsf)	Commercial (gsf)	Residential (units)	Theater (seats)	Hotel (rooms)	United Therapeutics (gsf)
36	1	181,030	23,210	-	-	-	-
38	1	231,702	19,369	-	-	-	-
39	1	-	22,874	-	-	-	-
40	1	62,951	14,105	-	-	-	-
41	1	-	72,332	-	-	-	21,159
43	2	-	30,068	330	-	-	-
44	2	661,050	15,728	480	-	-	-
45	2	94,203	-	-	1,905	-	-
53	2	239,401	14,766	-	-	-	-
70	2	-	-	209	-	-	-
Total		1,810,805	218,249	1,152	1,905	0	21,159

There are 1,810,805 square feet of occupied office space within the study area. Considering a parking ratio of 0.82, the office land use generates a demand for 1,484 parking spaces during a weekday peak period at 1:00 PM based on the total amount of square feet. The peak demand generated by 1,152 residential dwelling units at 1:00 PM on the weekday was calculated at 1,382 spaces, using an adjusted ratio of 1.3 spaces per unit. It is noted that during the Covid-19 public health emergency there is a higher than typical remote work trend. This results in a residential parking demand ratio that is higher and an office parking demand ratio that is lower than previous analysis years.

2.2.1 Methodology

The methodology to determine parking surplus or deficit by block, zone, and total study area is as follows:

- Multiply the parking ratios in Table 7 and Table 8 by the land use densities in Table 9 to result in preliminary land use-based parking demand
- Remove the parking supply associated with Lots 10 and 24
- Compare the calculated land-use based parking demand to effective parking supply (total parking supply without Lots 10 and 24 multiplied by 0.90) to result in preliminary parking surpluses and deficits.
- Develop public and private components of parking demand based on table below:

Assumed Amount of Parking Demand satisfied by Public Versus Private facilities						
Supply	Office	Commercial	Residential	Theater	Hotel	Health Club
Public	0.4	0.6	0.1	0.1	0.1	0
Private	0.6	0.4	0.9	0.9	0.9	1

- At a Zonal level, compare the private parking demand to the private parking supply. If there is a deficit in private parking supply, convert 85 percent of that deficit to be additional public parking demand (i.e., it is assumed that 85 percent of unmet private parking demand will become public parking demand and 15 percent will be met by other means [TDM, transit, rideshare, etc.])
- Compare the public demand to the effective public supply to result in public parking surplus/deficits
- Using the assumption that Garage 31 can attract 35 to 50 percent of any parking deficit in Zone 1, calculate the final remaining deficit in Zone 1. This represents the amount of replacement parking needed to offset the loss of Lots 10 and 24.

Two land use scenarios were developed to demonstrate the impacts of the removal of Lots 10 and 24: existing conditions (Scenario A) and future conditions including planned development and reduced study area vacancy rates (Scenario B). Two parking model spreadsheets have been prepared as supplemental attachments to this report, documenting the parking demand, surplus, and deficits of each of the two scenarios. One spreadsheet considered the situation where Lots 10 and 24 remain in the parking supply and other spreadsheet considers the situation where Lots 10 and 24 are removed from the parking supply. For the remainder of this report, however, only the results where Lots 10 and 24 are removed are specifically detailed.

2.2.2 Existing Parking Surplus and Deficit (Scenario A)

Overall, considering both private and public parking demand, there is a weekday parking demand of 3,319 parking spaces and a Saturday demand of 3,5-4 parking spaces in the study area. Without Lots 10 and 24, this represents a study area surplus of 1,360 and 1,465 parking spaces on a weekday and Saturday, respectively. Only up to 20 percent of this surplus Is contained in Montgomery County owned and managed facilities. The rest of the surplus is located in private facilities that cannot be specifically relied on to satisfy parking demand. At the Zonal level, on a weekday, there is a surplus of 376 spaces in Zone 1 and Zone 2 has a surplus of 984 spaces. At the Zonal level, on a Saturday, there is a surplus of 385 spaces in Zone 1 and Zone 2 has a surplus of 1,071 spaces.

Considering only public parking demand applied to Montgomery County facilities, there is an adjusted public surplus of 116 spaces on a weekday and 277 spaces on a Saturday. At the Zonal level, on a weekday, there is a deficit of 180 spaces in Zone 1 and Zone 2 has a surplus of 296 spaces. At the Zonal level, on a Saturday, there is a deficit of 243 spaces in Zone 1 and Zone 2 has a surplus of 520 spaces.

Figure 5 and Figure 6 illustrate the total land use-based public parking surplus/deficit by block for each daily demand scenario and conform to the color code scheme introduced earlier in this report.

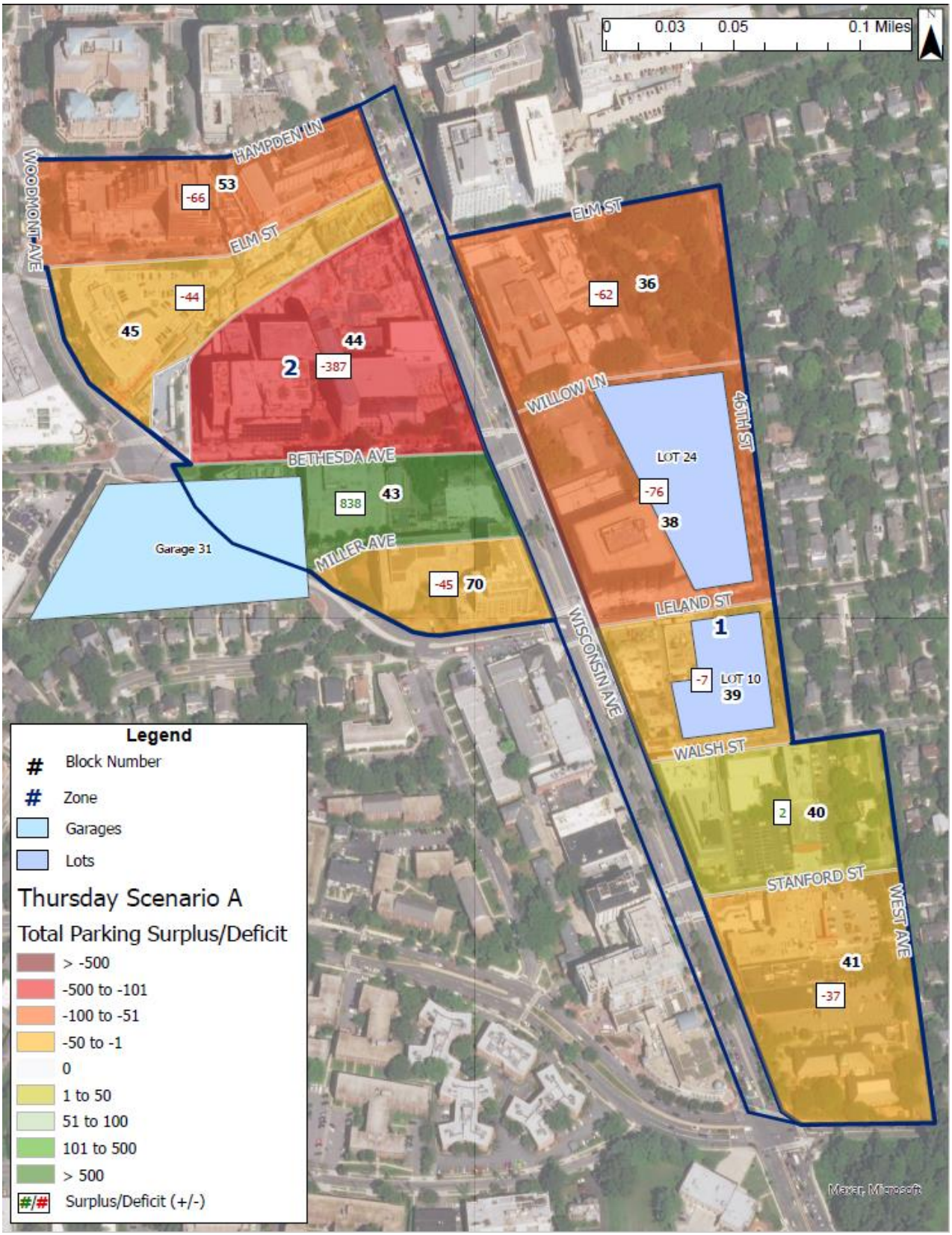

FIGURE 5: EXISTING CONDITIONS WEEKDAY LAND-USE BASED PUBLIC PARKING SURPLUS AND DEFICITS (SCENARIO A)

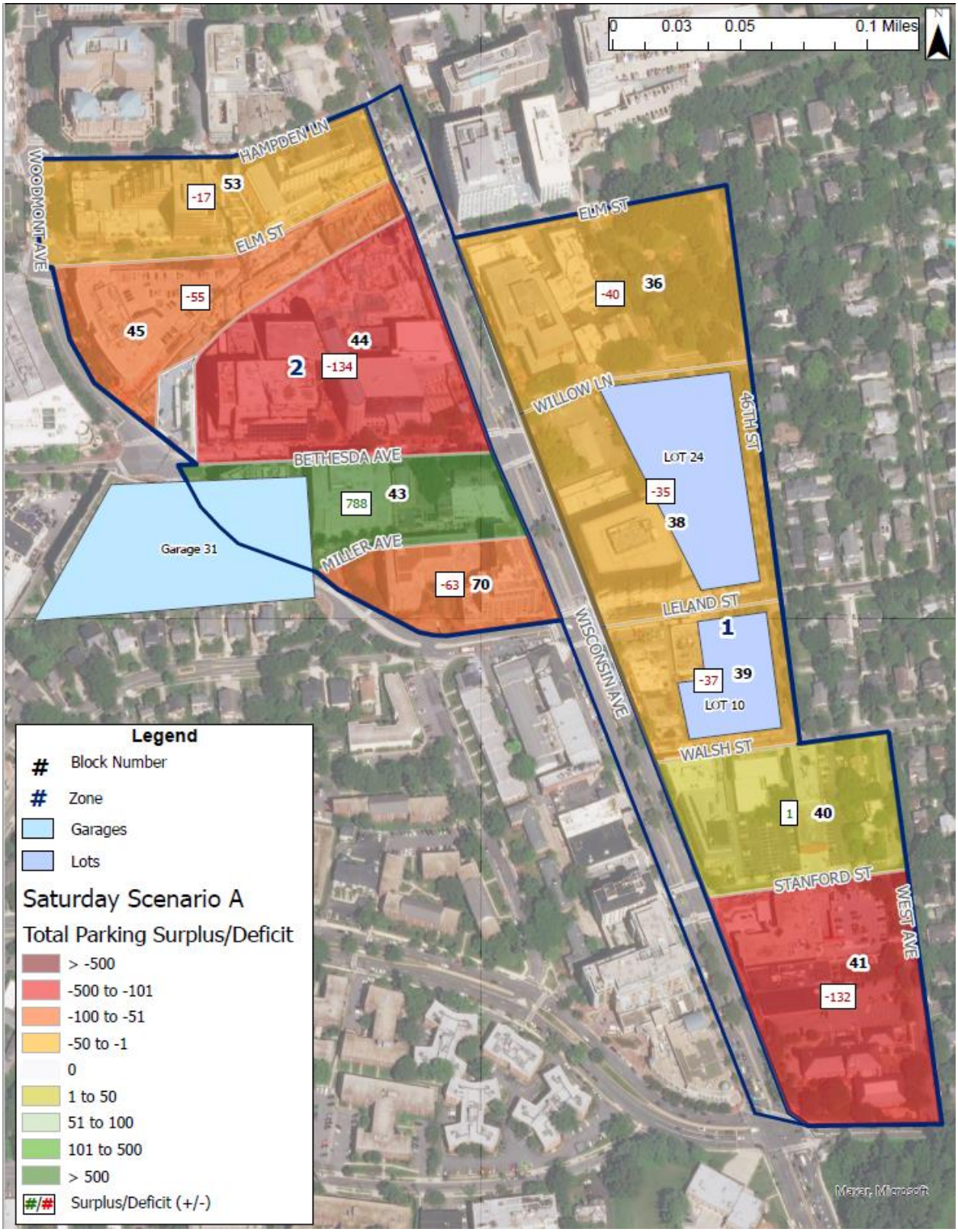

FIGURE 6: EXISTING CONDITIONS SATURDAY LAND-USE BASED PUBLIC PARKING SURPLUS AND DEFICITS (SCENARIO A)

The analysis of existing conditions demonstrates that there is a significant study area parking surplus, however much of it is locked away in private parking facilities. This results in public parking deficits in nearly every block within the study area. Given the scenario where Lot 10 and 24 are removed from the parking supply, there will be a need to replace 180 to 243 parking spaces to satisfy existing parking demands. Assuming that Garage 31 could attract 35 to 50 percent of the unsatisfied parking demand this replacement parking range reduces to 90 to 158 parking spaces.

2.3 Future Development and Redevelopment Projects

Field surveys of parking utilization cannot by themselves determine if or when Bethesda has ample parking to support the loss of Lots 10 and 24. The need for parking is generated by occupied and vibrant commercial, institutional, and residential buildings and without an understanding of land use activity an analysis of parking need is incomplete. Future development and redevelopment projects will have an impact on the demand for and availability of parking. To quantify possible future changes in the supply of and demand for parking, Montgomery County staff provided information regarding recent, proposed and/or potential developments within the Bethesda study area. The sites are mapped in Figure 7. The information provided included the location, size, and proposed uses of the projects as well as the number of available parking spaces within each development as shown below:

- 7272 Wisconsin Avenue. Project complete. Comprised of 480 multi-family units and 360K SF of office with 700 parking spaces provided on-site.
- Artery Plaza. Project complete. This was just a reconfiguration of a public plaza.
- 7100 Wisconsin Avenue. Project complete. Comprised of 145 multi-family units and 6500 SF of restaurant space with 86 parking spaces provided on-site.
- 7000 Wisconsin Avenue. Under construction. Will include 200 multi-family units and 10K SF of commercial retail space with 139 parking spaces proposed on-site.

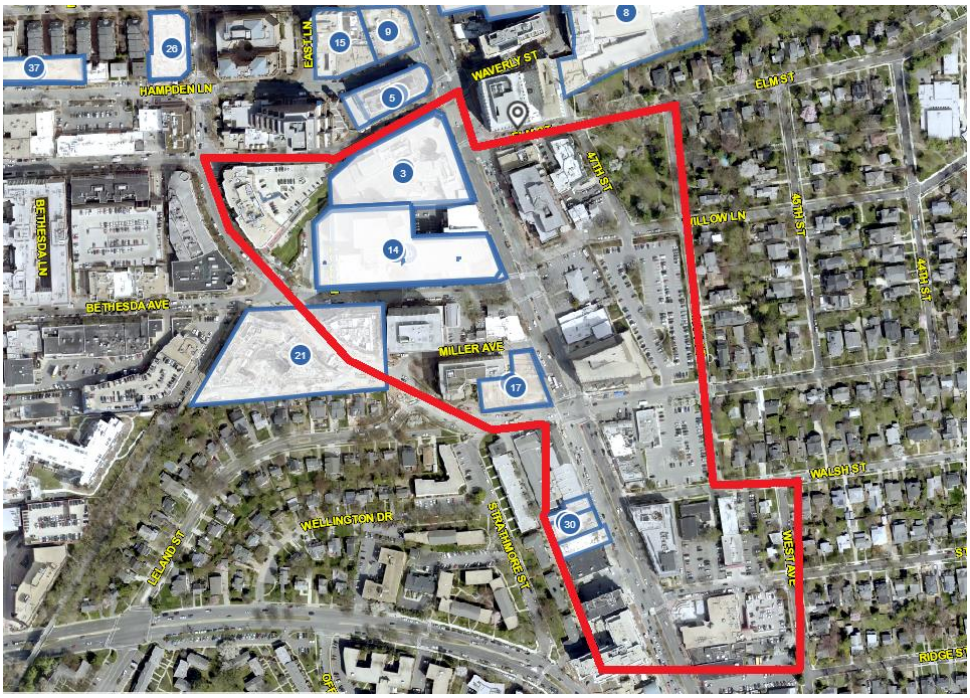

FIGURE 7: PROPOSED DEVELOPMENT MAP

2.3.1 Methodology

To create a conservative estimate of future parking needs, the analysis assumes that the study area will be occupied at a great use than current conditions. Accordingly the existing study area vacancy was reduced by 50 percent. This allows for the analysis of parking surpluses and deficits to conservatively consider future additions or alterations to the parking supply or changes to Montgomery County's parking management program. All other steps to the methodology outside of the additional of future land use occupancy assumptions and associated parking supply are consistent with the steps outlined for existing conditions.

2.3.2 Future Parking Surplus and Deficit (Scenario B)

According to the Co-Star database, 23,690 square feet of commercial space is vacant, 99,304 square feet of office space is vacant, and 217 residential units are vacant. A scenario was developed to determine the amount of replacement parking that would be needed if 50 percent of this study area vacancy could be reduced and converted to occupied uses. This is a conservative analysis twill allow Montgomery County to better understand replacement parking needs given a higher level of economic activity in the Bethesda study area (either as a direct result of these reduced vacancies or because of a return to pre-Covid-19 travel and parking behaviors).

Under this scenario, considering both private and public parking demand, there is a weekday parking demand of 3,504 parking spaces and a Saturday demand of 3,429 parking spaces in the study area. Without Lots 10 and 24, this represents a study area surplus of 1,175 and 1,250 parking spaces on a weekday and Saturday, respectively. Consistent with existing condition, only up to 20 percent of this surplus is contained in Montgomery County owned and managed facilities. The rest of the surplus is located in private facilities that cannot be specifically relied on to satisfy parking demand.

At the Zonal level, on a weekday, there is a surplus of 361 spaces in Zone 1 and Zone 2 has a surplus of 814 spaces. At the Zonal level, on a Saturday, there is a surplus of 348 spaces in Zone 1 and Zone 2 has a surplus of 902 spaces.

Considering only public parking demand applied to Montgomery County facilities, there is an adjusted public surplus of 116 spaces on a weekday and 277 spaces on a Saturday. At the Zonal level, on a weekday, there is a deficit of 188 spaces in Zone 1 and Zone 2 has a surplus of 267 spaces. At the Zonal level, on a Saturday, there is a deficit of 265 spaces in Zone 1 and Zone 2 has a surplus of 501 spaces.

The analysis of future conditions demonstrates that there is a significant study area parking surplus, however much of it is locked away in private parking facilities. This results in public parking deficits in nearly every block within the study area. Given the scenario where Lot 10 and 24 are removed from the parking supply ad study area vacancies reduce (or parking demand returns to pre-Covid-19 conditions), there will be a need to replace 188 to 265 parking spaces to satisfy future parking demands. Assuming that Garage 31 could attract 35 to 50 percent of the unsatisfied parking demand this replacement parking range reduces to 94 to 172 parking spaces.

Figure 8 and Figure 9 illustrate the rounded land use-based parking surplus/deficit by block and zone for each daily demand scenario and conform to the color code scheme introduced earlier in this report.

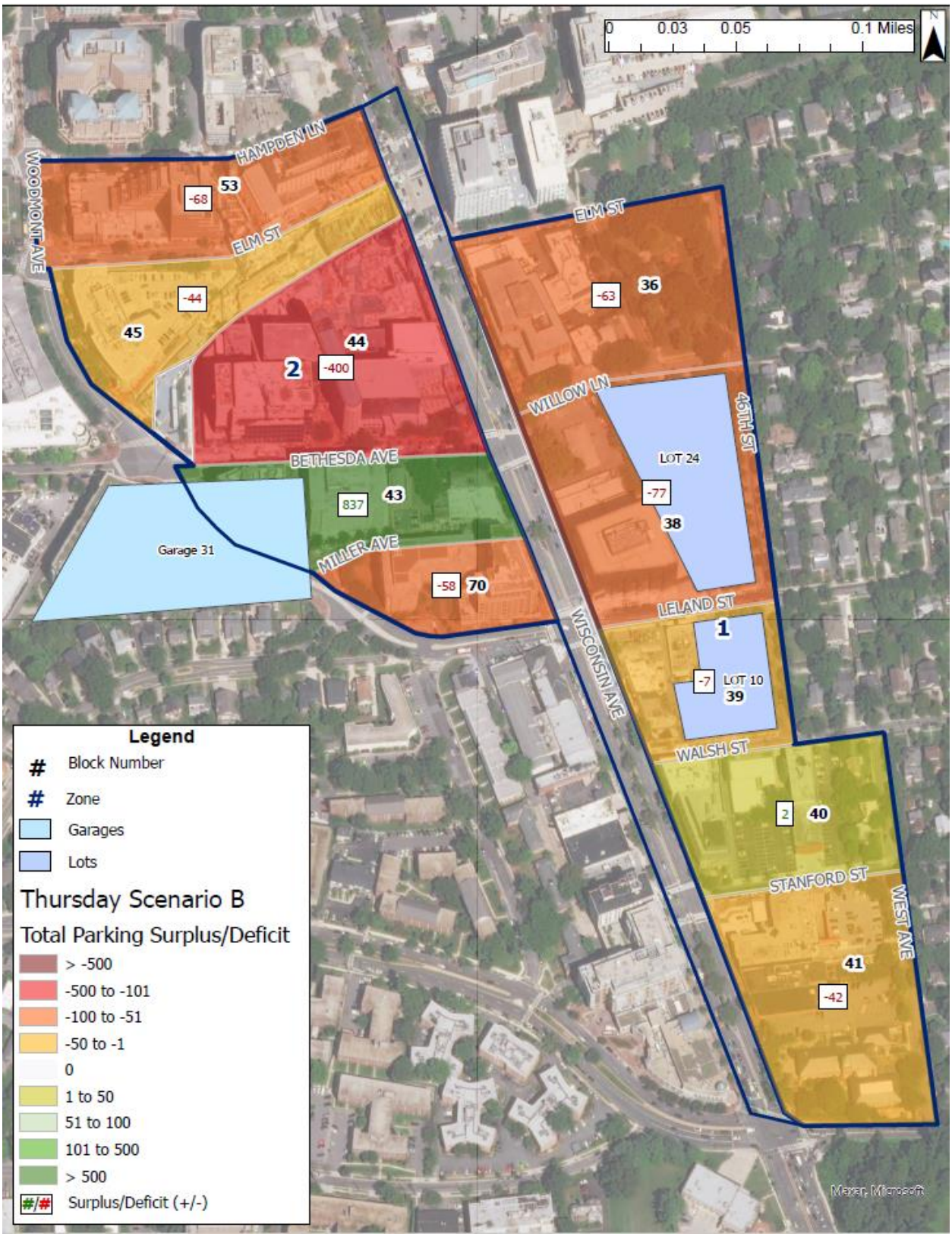

FIGURE 8: FUTURE CONDITIONS WEEKDAY LAND-USE BASED PUBLIC PARKING SURPLUS AND DEFICITS (SCENARIO B)

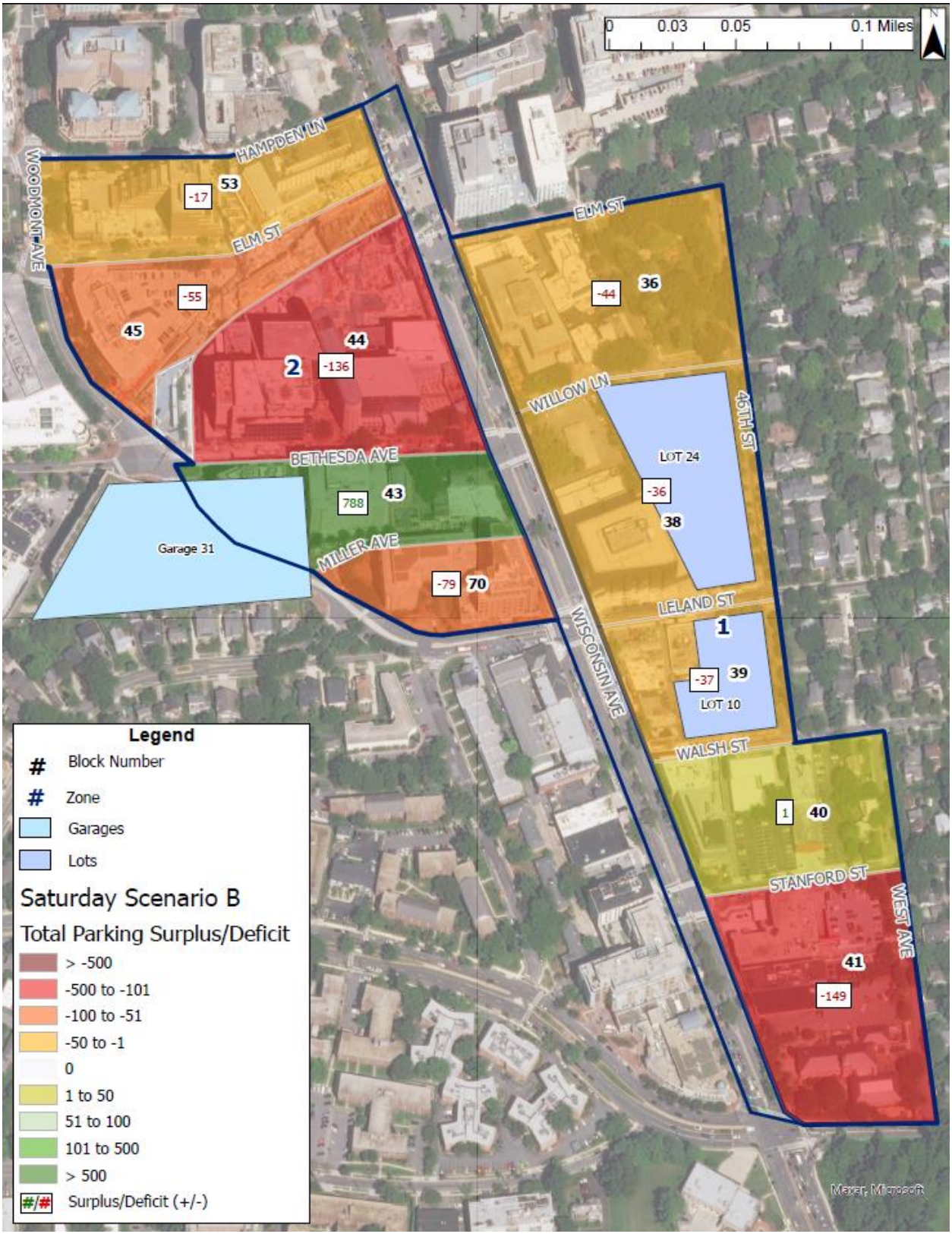

FIGURE 9: FUTURE CONDITIONS SATURDAY LAND-USE BASED PUBLIC PARKING SURPLUS AND DEFICITS (SCENARIO B)

3 Conclusion

This study evaluated the existing and future parking demand in Bethesda. The existing parking demand is still under the influence of the Covid-19 public health emergency. This influence has resulted in less overall parking demand as employers continue to offer remote work options and the community has generally reduced the amount of non-essential trips.

This study provides a general overview of parking habits in the study area and specifically responds to the potential replacement of Parking Lots 10 and 24 with consolidated below grade parking (to provide for redevelopment potential and open space amenities). This would result in the loss of 306 parking spaces

Given Montgomery County's traditional role and responsibility in managing much of the demand for parking in PLDs, the primary goals of this study were to determine the future parking surplus or deficit at a block, zone, and study area level in the scenario where Parking Lots 10 and 24 are no longer available as a public parking location and to identify the amount of replacement parking to right-size the parking supply and satisfy any parking deficits resulting from this scenario.

3.1 Findings

Data collected in October 2021 suggests that the study area lots were occupied at 80 to 90 percent on the weekend. Despite the abundance of private parking opportunities in Bethesda, county owned facilities experience a high parking demand because of the pricing structure (free). As such the study area parking surplus of over 2,000 space is less attractive to people who are used to parking in convenient locations for a convenient price. The loss of Lots 10 and 24 will ask people to make a value judgment on location (i.e. parking at Garage 31 or the same pricing) or cost (parking in a private facility in proximity to Lots 10 and 24 for a fee).

Parking supply is often determined in relation to the land uses that parking facilities serve; land use-based parking ratios were developed and calibrated to represent the amount of parking typically needed to satisfy occupied and economically healthy office, commercial, and residential land uses in Silver Spring. The parking ratios were calibrate using the October 2021 data and as such represent anticipated parking needs in the new normal of Covid-19 travel conditions.

Two scenarios were evaluated using the calibrated land use-based parking ratios: existing land use (Scenario A) and future land use assuming 50 percent less vacancy (Scenario B).

If Lots 10 and 24 were to remain, each scenario would demonstrate a surplus in public parking provided by Montgomery County in the overall study area during the peak period (of approximately 391 to 552 in existing conditions and of approximately 354 to 510 spaces in the future less vacancy). For Zone 1, where Lots 10 and 24 are located, there would be a small surplus (32 to 95 spaces) in public parking based on existing demand and a small surplus (10 to 87 spaces) in public parking based on future demand. Even in the condition where Lots 10 and 24 were to remain, the demand for public parking is nearing the effective supply.

The above findings were performed assuming the 306 parking spaces were still in place. Under the assumption that Lots 10 and 24 are no longer available, there will be a smaller surplus (180 to 277 spaces) in the overall study area Montgomery County provided public parking based on existing demand and a smaller surplus (79 to 235 spaces) in the overall study area Montgomery County provided public parking

based on future demands assuming less vacancy). For Zone 3 specifically, where Garage 2 is located, each scenario demonstrates that there will be a deficit in public parking during the peak period (of 618 spaces in existing conditions, of 1,140 spaces in the future, and of 1,279 spaces in the future assuming less vacancy). For Zone 1, where Lots 10 and 24 are located, there would be a deficit (180 to 243 spaces) in public parking based on existing demand and a deficit (188 to 265 spaces) in public parking based on future demand. Even in the condition where Lots 10 and 24 were to remain, the demand for public parking is nearing the effective supply.

The Zone 1 parking deficits would put stress on the Bethesda parking system. As such, it is useful to identify an amount of replacement parking to offset the loss of Lots 10 and 24 and to satisfy the anticipated demand. To right-size parking, an assumption was made that 35 to 50 percent of parking deficits in Zone 1 that were previously served by Lots 10 and 24 could be served by Garage 31 in Zone 2. The remaining Zone 1 deficit represents the amount of replacement parking that would be needed to satisfy parking demand at the convenience level currently offered (i.e. free weekend parking to the east of Wisconsin Avenue).

3.2 Recommendations

After review of the resulting parking deficits in all scenarios, Kimley-Horn recommends the following range of replacement parking: a **175 to 275 parking spaces** when Parking Lots 10 and 24 are removed.

This range provides sufficient parking to immediately satisfy existing parking demand (Scenario A) without any parking demand being shifted to Zone 2. Given that it will likely take some time for these shifts to occur or for other parking strategies to be implemented, this range assures that Zone 1 parking can be satisfied entirely within Zone 1.

This range would also satisfy future scenarios (Scenario B) where Bethesda is denser and more occupied, though at that time a deliberate strategy to encourage a gradual shift in parking towards Zone 2 (Garage 31) or elsewhere in the Bethesda PLD in combination with additional TDM strategies to reduce the dependance on personal vehicles may be necessary.