

## MEMORANDUM

**TO:** Jeremy Souders - Montgomery County Government, DOT-Division of Parking Management

**FROM:** Michael Connor, Faye Dastgheib - DESMAN Associates

**DATE:** 08/05/2010

**RE:** Silver Spring Parking Demand Study

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### INTRODUCTION

DESMAN Associates has been retained by the Montgomery County Department of Transportation to perform a Parking Demand Assessment Study of the Silver Spring Parking Lot District (PLD). The goals of the study are to document the existing parking conditions in Silver Spring and to assess the impact of future development on the parking system. More specifically, questions to be answered include but are not limited to:

- Is current parking system under or over-built in the Silver Spring PLD?
- What is the impact of new development on the current parking system?

To achieve the goals of the study, the project methodology has been designed to be completed in the following three Phases:

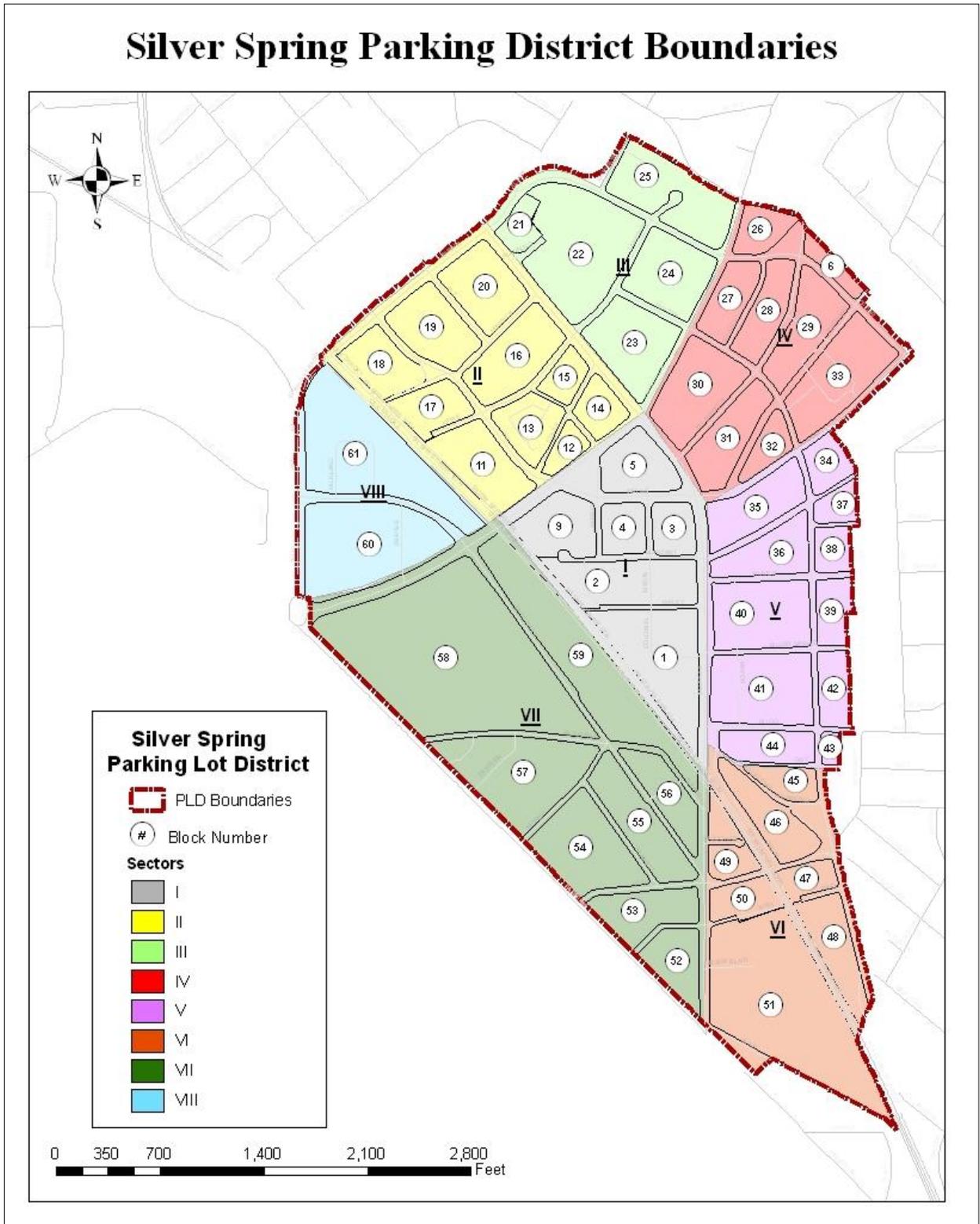
- Phase I – Assessment of Existing Conditions
- Phase II – Existing Land Use (GIS) Analysis
- Phase III – Development Impact Analysis

### PHASE I – ASSESMENT OF EXISTING CONDITIONS

#### 1.0 STUDY AREA:

The downtown study area, as illustrated in Exhibit A, is bounded by Spring Street to the North West, Cedar Street and Fairview Street to the north east, Eastern Avenue to the southwest and Fenton Street and a center block line between Fenton and Grove Street to the East. The Department of Parking Management currently employs a sector and block numbering system for the blocks located within the PLD. For the purpose of this study, DESMAN used the same block numbering system in order to illustrate the areas that are currently experiencing a surplus or deficit of parking spaces as well as specific blocks which have the potential to absorb additional future parking demand. Exhibit A illustrates the PLD boundaries and the existing sector and block numbering system.

*Exhibit A: Silver Spring Parking Lot District boundaries and block groups*



## **2.0 EXISTING PARKING CONDITIONS**

### **Parking Supply:**

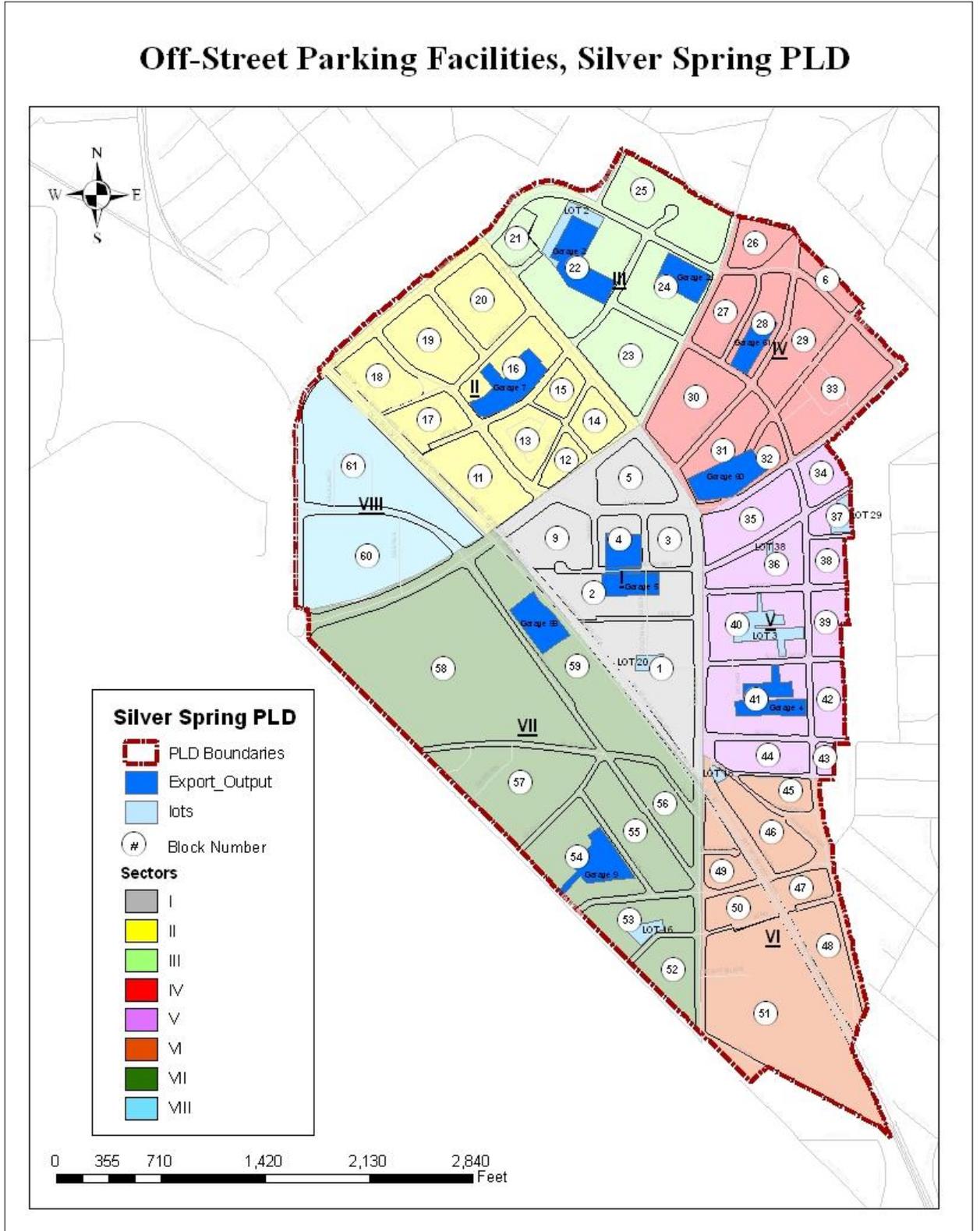
The public parking supply in the PLD consists of publicly available off-street and on-street spaces. Table 1a in the Appendix illustrates the inventory of Public Parking by type and block. There are 11,763 publicly available on- and off-street parking spaces in the Silver spring PLD of if which 10,318 spaces (88%) are located within public parking garages, 430 (3%) are located within public parking lots and 1,015 (9%) are on-street spaces.

Exhibit B identifies the location of the off-street public parking facilities located within the PLD boundaries. Table 1b in the Appendix illustrates the current inventory of publicly-available off-street spaces by block. The Silver Spring PLD includes 10,748 publicly-available parking spaces of which 10,318 (96%) are contained in 9 public parking structures and 430 (4%) which are scattered in 7 surface parking lots. .

There are a total of 1,015 on-street parking spaces within the PLD which equates to 9% of the total supply of public parking: 415 (41%) spaces are dedicated to 1-hour parking, 536 (53%) spaces to 2-hour, 11 (1%) spaces to 3-hour and 233 (23%) spaces to 9-hour parking. (See Table 1d in the Appendix for a complete breakdown of the parking spaces by block face)

In addition to the inventory of public parking spaces, DESMAN also collected an inventory of private spaces. There are approximately 18,244 private spaces within the PLD (Table 1c in the Appendix). It should be noted that private parking spaces are not available to the general public, are restricted for use only by specific user groups, and can not be counted on to satisfy the parking needs of the general public. As such, the first phase of this study will focus on assessing the existing and future conditions of only publicly-available parking spaces both on- and off-street. It should also be noted that as some of the private parking facilities are access restricted, the inventory relied on web-based research and/or conversations with property managers.

Exhibit B: Location of the publicly available off-street facilities



**Parking Utilization:**

DESMAN conducted hourly parking utilization and turnover and duration of stay surveys in all County parking facilities and curbside areas within the Silver Spring PLD during the course of a typical weekday between 9 AM and 6 PM and on a typical Saturday between 12 PM and 7 PM.

Tables 2a and 2b illustrate the weekday and weekend hourly utilization of publicly-available off-street parking by facility type and block. The peak utilization of off-street public facilities occurred at 12 PM on the weekday during which 5,957 (55%) out of 10,748 publicly-available off-street parking spaces were occupied. On the weekend, off-street public facility utilization peaked at 2:00 PM when 3,053 (32%) out of 10,748 publicly-available off-street parking spaces were occupied.

The on-street peak utilization occurred at 1:00 PM on the weekday and 12:00 PM on the weekend when 677 (66%) and 773 out of 1,015 (76%) spaces were occupied respectively (See Tables 2c and 2d).

Tables 2e and 2f in the Appendix summarize the utilization of public on- and off-street spaces observed during the weekend and weekday survey periods. System-wide, public on- and off-street parking utilization peaked at 1:00 PM when 6,607 (56%) and 3,755 (32%) out of 11,763 spaces were occupied on the weekday and weekend, respectively.

**Parking Surplus/Deficit:**

In order 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 level where potential parkers become frustrated when trying to locate an available space and therefore perceive the facility as full. This is particularly problematic for drivers who wish to remain parked only for a short period of time (shoppers, dinners, etc). For the purpose of this study, a practical capacity factor of 90% was used to analyze the parking conditions in the PLD. Therefore, if a 100-space parking lot has 95 parked vehicles during the peak hour, then a practical deficit of 5 spaces would exist. Tables 3a and 3b in the Appendix illustrate the peak on- and off-street practical surpluses/deficits on the weekday and weekend, respectively. Overall, the numbers indicate that, on weekdays, there is a practical surplus of 239 on-street and 3,745 publicly-available off-street spaces. On weekends the PLD experiences a practical surplus of 6,662 off-street and 174 on-street spaces. Exhibits C1 and C2 further illustrate the current surplus deficit conditions by color coding based on the amount of surplus or deficit within each block. The color blue indicates that the block is experiencing a surplus of parking. The lighter shade of blue represents blocks with a surplus of less than 25 spaces during the peak period and the darker shade represents blocks within which a 100 spaces or more are available during the peak period.

Exhibit C1: Peak weekday publicly available on- and off-street surplus/deficit by block

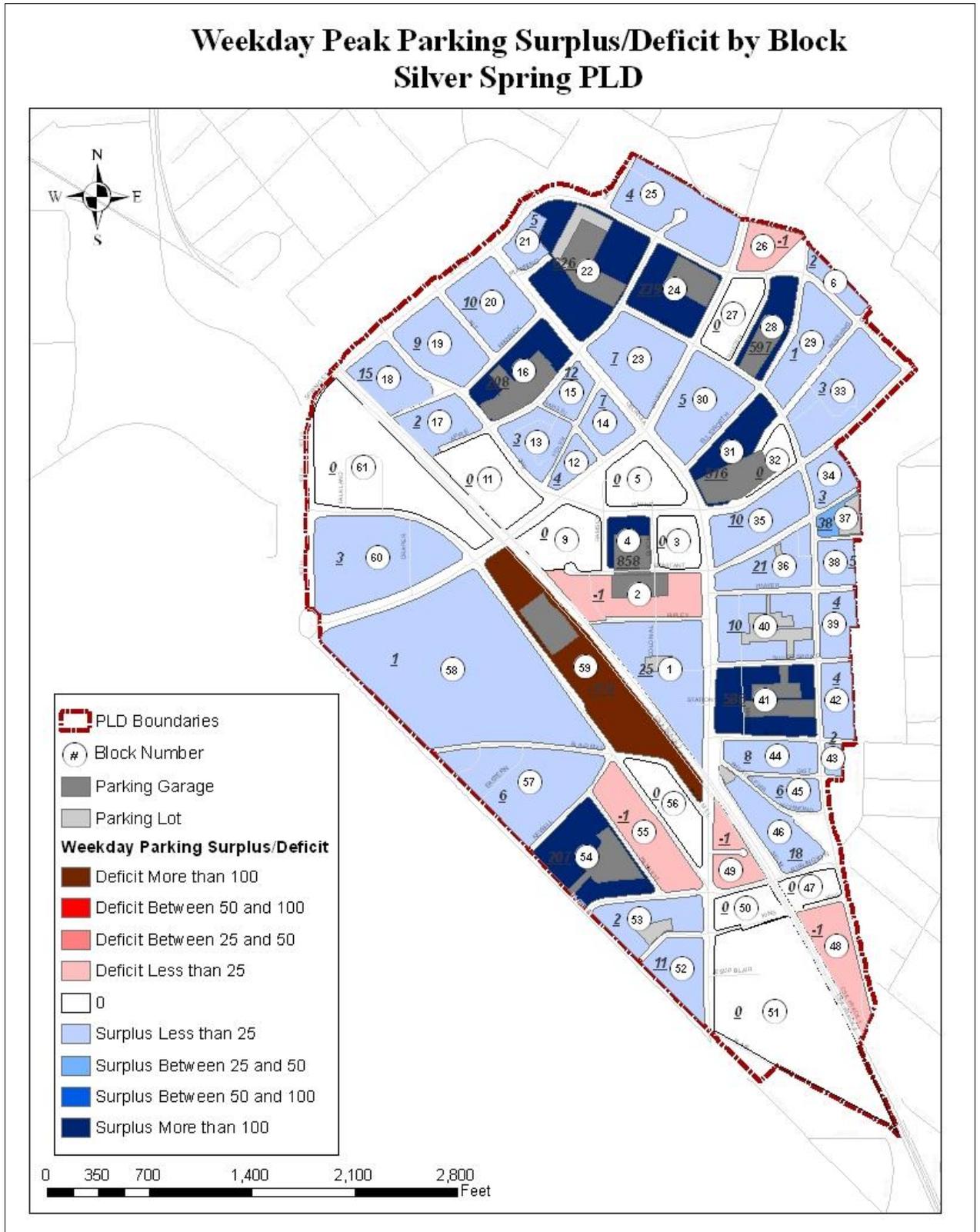
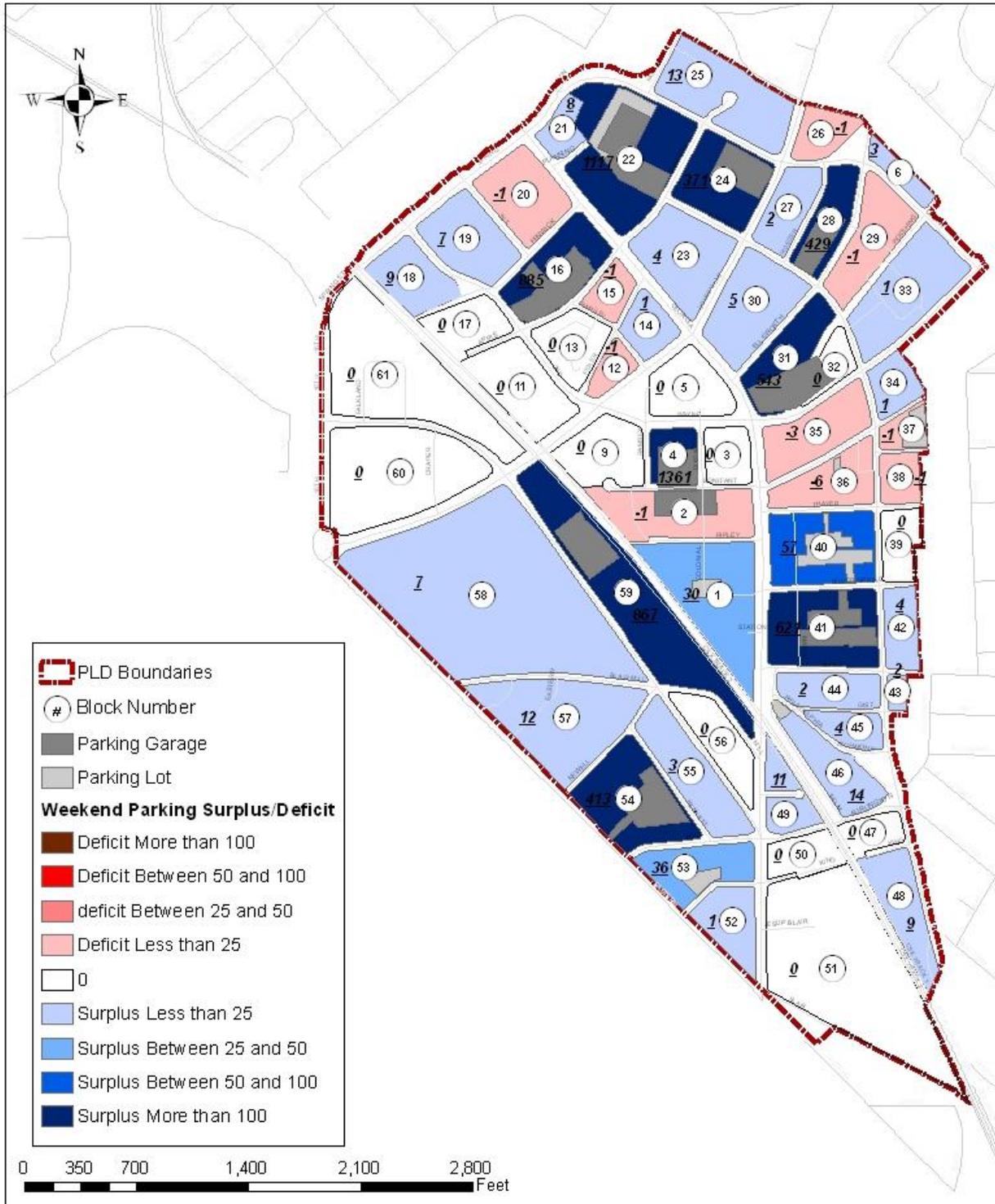


Exhibit C2: Peak weekend publicly available on- and off-street surplus/deficit by block

## Weekend Peak Parking Surplus/Deficit by Block Silver Spring PLD



## Parking Turnover:

In addition to the public parking utilization surveys DESMAN also completed a license plate survey to monitor the length of time each vehicle occupied a single public parking space and to determine how many vehicles utilized a specific parking space throughout the course of the day. Results of the turnover survey are summarized in Tables 4a and 4b. During the weekday survey period 9,972 vehicles utilized the 10,748 off-street spaces and 2,837 vehicles utilized the 1,015 on-street spaces. This equates to a turnover ratio of 0.93 turns per day and a duration of stay of 4.9 hours for off-street spaces and a turnover ratio of 2.8 turns per day and a duration of stay of 1.8 hours for on-street spaces. During the weekend survey period 7,182 vehicles used the available 10,748 off-street spaces (0.67 turns per day) with an average length of stay of 2.7 hours. The average length of stay and the turnover ratio for on-street spaces came to 5.3 hours and 3.7 turns, respectively.

## PHASE II – EXISTING LAND USE ANALYSIS

Field surveys of parking utilization and turnover cannot by themselves determine when Silver Spring has an over abundance of parking spaces. 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. The following section introduces a comprehensive land use database for Silver Spring and peak period parking demand ratios associated.

### 1.0 LAND USE BASED MODELLING OF PARKING DEMAND

In order to determine the existing land use-based parking demand, 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. Table A shows current peak parking demand factors that are believed to be relevant. For example, for each occupied 1,000 SF of restaurant space within the PLD today, roughly 1.2 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 would suggest that although the intensity of existing office, residential, retail, and restaurant land use activity in the Silver Spring PLD 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.

Land Use Category	Base - Auto Dependent Ratio (1)	Recommend Peak Demand Ratio (2)
Retail	3.5	1.10
Hotel	1.20	0.50
Office	3.5	2.00
Movie Theater	0.3	0.05
Restaurant	10	1.20
Church	0.0	0.00
Residential ( Per Dwelling)	1.5	0.80
Institutional	1.2	0.60
Light Industrial	0.4	0.40

(1) Base Ratios were derived from ULI "Shared Parking"(2nd Edition) and ITE "Parking Generation" (3rd Edition)  
 (2) Vehicles per 1,000 sq. ft. GFA

Table A: Existing Land Use Based Parking Ratios

Table 5 in the appendix illustrates the total square footage of each land use category by block as provided by the County through its CoStar commercial real estate database. Note that this analysis focuses on presently occupied commercial, institutional and residential property. Table 6 illustrates the estimated existing peak parking demand figures and surplus/deficit conditions associated with such land uses.

Overall, it is indicated that there is a parking demand for 20,293 spaces associated with all uses within the PLD boundaries. The dominant land uses according to Table 5 are Office and Residential. Consequently, parking demand associated with these two land uses would be greater. There is 6,135,064 SF of occupied office space within the Silver Spring PLD. Considering a parking ratio of 2.0 (Table 1), the office land use generates a demand for 12,265 parking spaces during a weekday peak period at 1:00 PM. The peak demand generated by 7,094 residential dwelling units at 1:00 PM on the weekday was calculated at 5,675 spaces, i.e., a ratio of 0.8 per unit. It should be noted that the residential demand ratio is only an indicator of demand during the system-wide peak utilization hour at 1:00 PM when a majority of residents are at work. During the evening hours the office parking demand would decrease while the residential parking demand would increase.

In order to crosscheck the accuracy of the recommended ratios referenced in Table A the resulting weekday peak parking demand figures were compared to the weekday field survey data. Note that based on field observations parking occupancy in private/restricted parking facilities were at 75% capacity (13670 spaces) during the peak period of utilization at 1:00 PM on a weekday. The difference between the surveyed peak weekday field data and the land use based parking demand is merely 16 spaces or 0.08%.

***Peak Parking Demand Based on Demand Ratios: 20,293***

***Peak Occupancy Based on Field Surveys: Peak Public Parking Utilization (6,607) +  
Private Parking Utilization (13,670) =20,227***

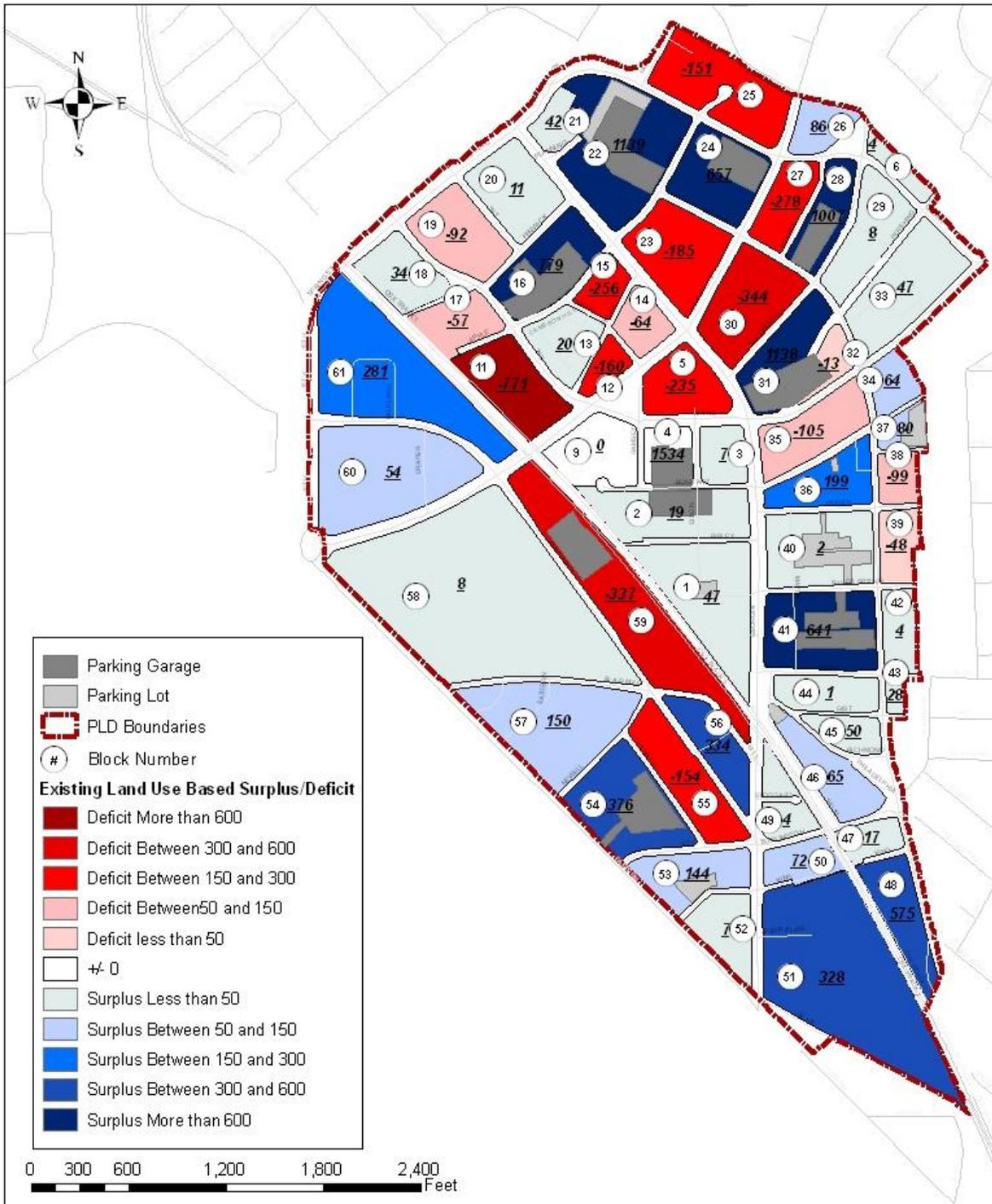
Exhibit D illustrates the land use-based parking surplus/deficit by block. The color blue indicates that the block is experiencing a surplus of parking. The lighter shade represents blocks within which a surplus of less than 50 spaces exists during the peak period and the darker shade represents blocks with more than 600 available spaces during the peak period. At present it appears that the deficits of parking in blocks 23,25,27,30, 55 and 58 are satisfied with the surpluses of parking in adjacent blocks.

This analysis indicates that overall the Silver Spring PLD experiences a surplus of 6,714 parking spaces during the peak utilization period of 1:00 PM on a weekday. Note that this analysis assumes that all 6,720 reserved/restricted spaces associated with Residential uses are available to the general public. A more realistic approach would suggest that the parking inventory associated with Residential uses be taken out from the model since they are not available to the general public. Considering a practical capacity of 90% and an occupancy rate of 75% based on DESMAN's field observations, a residential peak surplus of 1,008 spaces would materialize (( 6,720\*.9)-(6720\*.75)). As such a system-wide practical surplus of 5706 spaces would exist if residential parking spaces are not counted on to satisfy the general public parking needs.

While this analysis supports the establishment of parking demand ratios that are unique and accurate to Silver Spring, it does not determine if Silver Spring has an over abundance of parking because it does not include presently vacant commercial property or pending development activity. The next phase of this report will examine if the current public parking system could absorb an increases in parking demand associated with the occupied vacant space and new development.

Exhibit D: Land use based surplus/deficit by block

## Existing Land Use Based Surplus/Deficit by Block



## PHASE III- DEVELOPMENT IMPACT ANALYSIS

### 1.0 ESTIMATE OF PARKING DEMAND AT FULL BUILDING OCCUPANCY

At present, 685,918 square feet of commercial space is presently vacant. Table B and Tables 7 and 8 in the appendix illustrate land use areas and their associated parking demand presuming full building occupancy. Under this scenario, if all vacant land uses within the PLD were to be occupied, the system-wide weekday peak parking demand would increase by 1,391 spaces which would equate to a demand for 21,684 parking spaces system-wide. Exhibit E illustrates the block-by-block practical surpluses and deficits of spaces once all vacancies are absorbed. Blocks that are shown in the dark blue shade experience a surplus of more than 600 spaces and by and large contain a publicly available garage. Blocks with a higher surplus of parking spaces have the ability to satisfy the need for parking in adjacent blocks. This analysis suggests that at present, even when all vacancies are filled, the PLD would experience a surplus of 5,323 spaces. In other words, Silver Spring is overparked.

*Table B: Land Use Area and Parking Demand by Land Use Category*

Silver Spring Parking District	Area Sq Ft	Parking Demand	Number of Private Parking Spaces	Number of Public Parking Spaces	Number of Parking Spaces	Practical Capacity at 90%	Land Use Based Practical Surplus Deficit
Office	6,135,064	12,265					
Retail	1,526,895	1,679					
Restaurant	62,248	76					
Theater	19,624	1					
Church	34,904	0					
Hotel	822,349	411					
Industrial	316,500	127					
Institutional	98,130	59					
Residential (Dwelling Units)	7,094	5,675					
<b>Sub Total *</b>	<b>9,015,714</b>	<b>20,293</b>	<b>18,244</b>	<b>11,763</b>	<b>30,007</b>	<b>27,007</b>	<b>6,714</b>
Vacant Office	664,202	1,349					
Vacant Retail	21,716	24					
Vacant Residential (Dwelling Units)	22	18					
<b>Sub Total Vacant *</b>	<b>685,918</b>	<b>1,391</b>		<b>11,763</b>	<b>30,007</b>	<b>27,007</b>	
<b>Total *</b>	<b>9,701,632</b>	<b>21,684</b>	<b>18,244</b>	<b>11,763</b>	<b>30,007</b>	<b>27,007</b>	<b>5,323</b>

### 2.0 FUTURE LAND USE-BASED MODELLING OF PARKING DEMAND

In addition to increases in the occupancy levels of the existing land uses within the PLD, future development and redevelopment projects will also have an impact on the demand for and availability of parking. In an attempt to quantify possible future changes in the supply of and demand for parking, the Maryland National Capital Park and Planning Commission (MNCPPC) was asked to provide data regarding any known, proposed and/or potential development within the Silver Spring PLD. 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. Table C presents the future development information and Exhibit F illustrates the location of such developments by block.

Table C: Future, known, proposed and potential developments

Block	Development Name	Office	Retail	Hotel	Transit Oriented Facility	Other	Residential Units	Parking Spaces
1	1150 Ripley Street (formerly 1050 Ripley Street)		7,460				316	309
2	Midtown Silver Spring (Ripley North)		5,380				317	369
9	Silver Spring Transit Center			160,390	3,960		453	762
16	8700 Georgia Ave	21,540	19,806				106	115
22	8711 Georgia Ave Office Building	148,278	4,462					326
22	Cameron House		7,330					403
23	8621 Georgia Ave	182,072	6,209					290
23	Fillmore (1)	220,000		100,000		28,000		566
29	Downtown Silver Spring					42,000	222	260
35	Bonifant Plaza (1)(3)						72	58
35	Silver Spring Library Phase 1	15,000				50,000		0
35	Silver Spring Library Phase 2	12,000					143	0
37	836 Bonifant Street	3,409						0
39	814 Thayer Avenue						52	36
40	Fenton Street Village Center	4,613	4,613					0
40	Easley Subdivision (The Adele)	18,200	15,020				96	171
40	Studio Plaza	174,805	60,862				603	973
42	Silver Spring Park	22,538	9,234	59,870			58	100
45	Blair		918					4
49	8021 Georgia Avenue						210	199
53	The Galaxy						321	334
56	Silver Spring Gateway (The Veridian)		53,027					266
58	1200 East/West Highway		10,600				247	220
61	Falkland Chase		61,314				910	1,433
61	Metro Plaza Silver Spring	179,050	23,900					150
<b>Total</b>		<b>1,001,505</b>	<b>290,135</b>	<b>320,260</b>	<b>3,960</b>	<b>120,000</b>	<b>4,126</b>	<b>7,344</b>

(1) MNCPPC did not provide the number of parking spaces for the Fillmore and Bonifant Plaza developments in block 23 and 35. It was assumed that the supply is equal to demand.

(2) The commercial square footages and residential units are estimates of what was remaining to be built as of January 1, 2010.

(3) It is assumed that blocks located at 951-963 Bonifant Street will be replaced by the Bonifant Plaza Development

Source: Montgomery County Planning Department, Research and Technology Center, March 9, 2010

Exhibit E: Land use based surplus/deficit at full building capacity

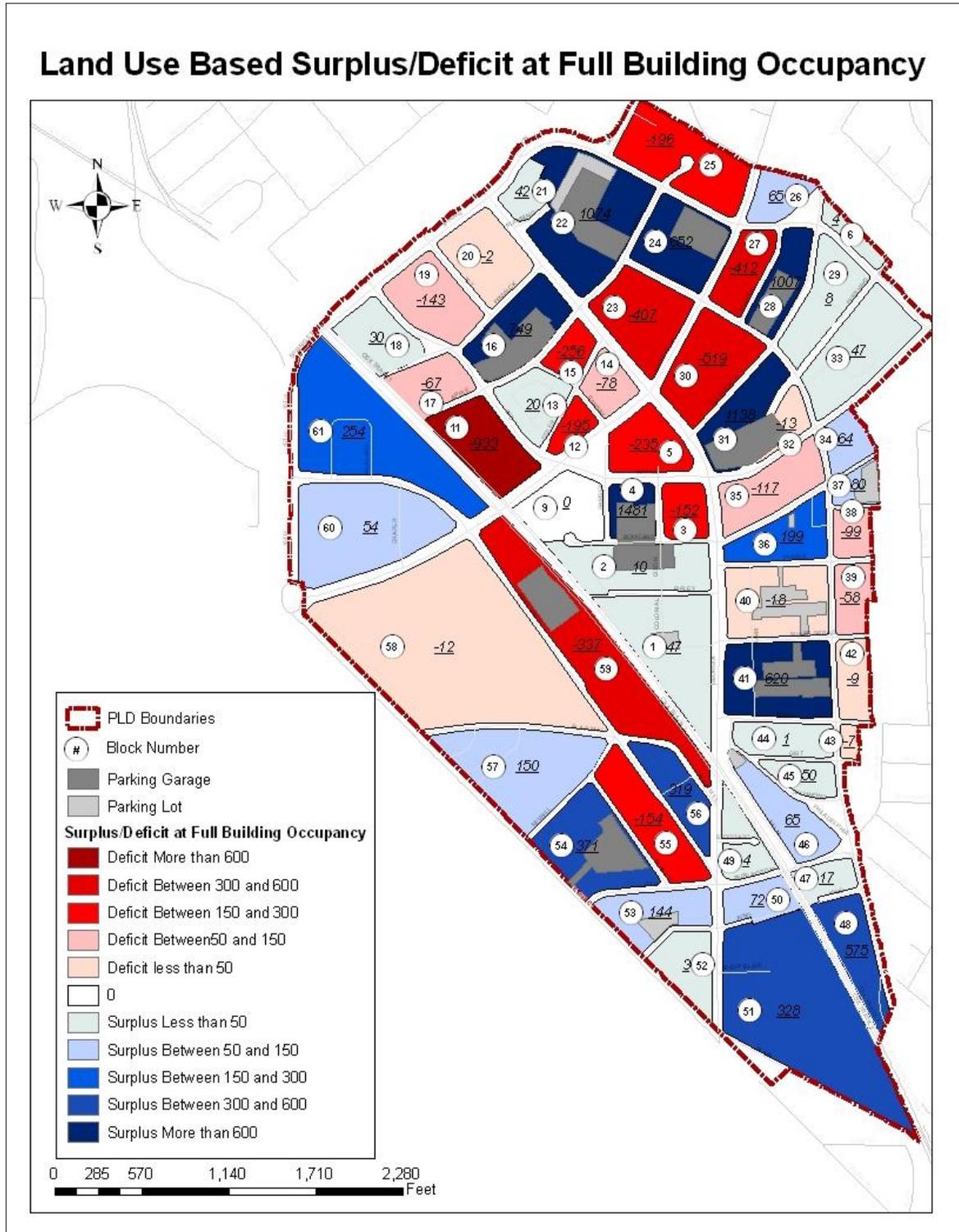
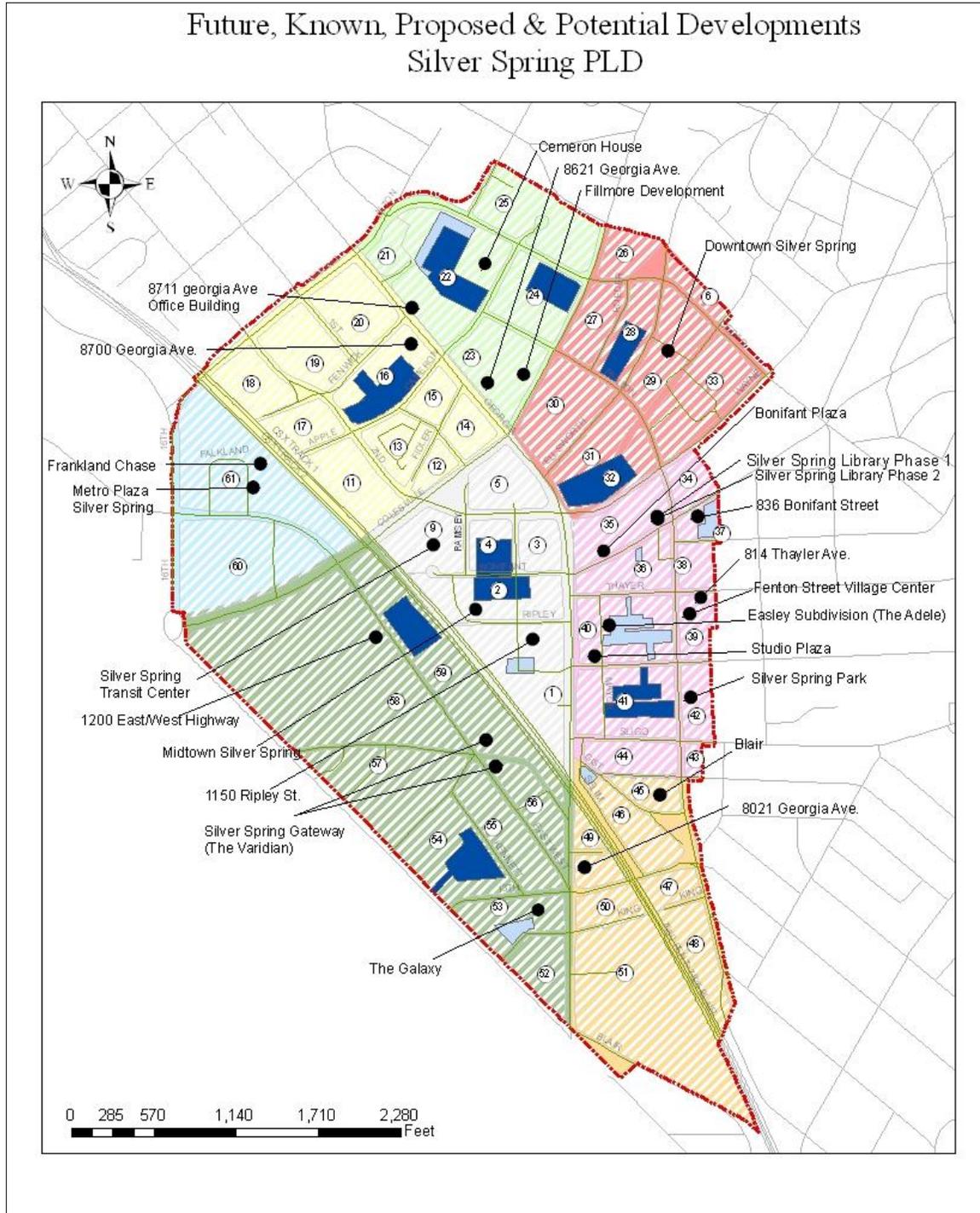


Exhibit F: Future, known, proposed and potential developments by block



**3.0 ESTIMATE OF PARKING DEMAND BY LAND USE BASED ON FULL BUILDING OCCUPANCY AND EXPECTED FUTURE DEVELOPMENT**

In order to create an accurate estimate of future parking needs, the analysis combines the projected needs of all of the noted future developments as well as the estimated parking demand with 100% vacancy absorption, as calculated previously in this memorandum. This will allow the County to plan ahead for any additions or alterations to the parking supply or changes to its parking management program necessary to accommodate the future demand growth.

Tables 9 and 10 in the appendix illustrate the future land use areas and the future parking demand associated with each use after vacancies are filled and all development/redevelopment projects are completed. Under this scenario, the total demand for parking equates to 27,160 spaces, resulting in a surplus of 5,788 parking spaces. Exhibit G illustrates the block-by-block surplus/deficit of parking under the latest scenario. In fact, the anticipated parking surplus under this scenario is greater than under the 100% vacancy absorption scenario as the developments themselves are over building parking.

Exhibit G: Future Land use based surplus/deficit based on full building occupancy and expected future development

