PARKING STUDY

SMART SOLUTIONS FOR A GROWING ACTIVITY CENTER

Final Report

June 2016

Prepared by:

Sabra, Wang & Associates, Inc.

Engineers · Planners · Analysts

7055 Samuel Morse Dr., Ste. 100,
Columbia, MD 21046

443-741-3500 | sabra-wang.com

CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

Acknowledgements

About the Parking Management Study

This study of parking issues in the Old Takoma area of wards 1, 2, and 3 of Takoma Park includes an examination of meters, handicap parking, residential permit zones, enforcement, City Code and regulations, and parking hot spots. Data collection efforts included a field inventory of all parking resources in the study area, as well as interviews with key stakeholder. The study is covered by a technical assistance grant from the Metropolitan Washington Council of Governments (MWCOG) to examine parking pressures in the Old Takoma area and advise on creative solutions. Findings and recommendations regarding curbside parking management for commercial and residential parking were presented to the Takoma Park City Council on June 15, 2016.[1]

This study is part of an overall effort to address city-wide parking issues in a comprehensive manner.[2] Prior steps in the City's parking management study efforts have included online surveys of residents and business owners to gain a better understanding of parking needs.

City of Takoma Park

Kate Stewart, Mayor
Peter Kovar, Councilmember
Tim Male, Councilmember
Terry J. Seamens, Councilmember
Fred Schultz, Councilmember
Jarrett Smith, Councilmember
Rizzy Qureshi, Councilmember
Roz Grigsby, Community Development Manager
Erkin Ozberk, Senior Planner

Prepared By

Sabra, Wang & Associates, Inc.
7055 Samuel Morse Drive, Suite 100
Columbia, MD 21046
443-741-3500
www.sabra-wang.com

[1] Takoma Park City Council website: https://takomaparkmd.gov/government/city-council/meetings/
[2] Takoma Park Parking Study website: https://takomaparkmd.gov/initiatives/project-directory/parking-study/

I. Introduction

For decades after the opening of the Takoma Metrorail Station in 1978, the City of Takoma Park largely retained its residential character, but in recent years development pressures have led to new mixed-use projects radiating outward from the Station. To date, the transformation has been centered on adjacent areas in the District of Columbia, but conditions may lead to additional development in Takoma Park proper.

In response to the recent uptick in development, the City has decided that the time is right to review and update its existing parking code and regulations, to effectively manage existing and expected parking pressures. Providing too much or poorly-placed parking can be immensely costly, increase vehicle traffic, reduce pedestrian and cyclist safety, and reduce development density. Conversely, supplying too little parking can create its own set of problems including undermining the financial feasibility of development projects, hampering the revitalization of commercial districts, and creating parking spillover issues.

The City solicited a qualified engineering consultant, through the MWCOG *Transportation and Land Use Connections* Program, to perform a comprehensive assessment of current parking demand and supply that entails developing effective recommendations to ensure parking availability, mitigating parking spillover from commercial areas into neighborhoods, and avoiding an unnecessary influx of private vehicle traffic stemming from an over-abundance of free parking.

Study Objective

The study performed a comprehensive assessment of current parking demand and supply to develop a parking regulatory framework that:

- Balances the needs of existing residents and new commercial growth
- Encourages multi-modal transportation by preventing an over-abundance of free parking
- Is easy to understand, implement, and enforce

This study recommends new parking management strategies covering off-street parking code requirements, curbside metered parking in commercial zones, curbside permit parking in residential neighborhoods, City-managed off-street parking facilities, and potential partnerships with developers and other major property-holders.

Study Area

The city of Takoma Park holds a historic place as one of the first railroad suburbs in the country. Its central commercial corridor along Carroll Avenue has long functioned as a local, activity center drawing customers from nearby communities in Montgomery County, Prince George's County, and D.C. The combination of attractive neighborhoods with close-by amenities is what has made and will continue to make Takoma Park a desirable location to live.

The study area encompasses the southwestern half of Takoma Park between Eastern Avenue and MD 410. The area is bounded by the D.C. Metro Red Line from Montgomery College's Takoma Park/Silver Spring Campus to Laurel Street NW. Adjacent areas on the D.C. side of Eastern Avenue including the Takoma Metro Station and sections of Maple, Willow, and Laurel Streets are included in the study area. Key commercial areas are located along Carroll Street/Avenue in the historic 'downtown', between the Takoma Metro Station and Takoma Junction, collectively known as Old Takoma. Residential and commercial areas along Westmoreland Avenue and Walnut, Elm, Tulip, and Pine Avenues are included in the study area. The intersections at Carroll Avenue and Philadelphia and Grant Avenue and the surrounding residential and commercial areas are encompassed. The study area follows along MD 410, locally known as Philadelphia Avenue, but excludes the northeastern part of the city beyond Philadelphia Avenue. Carroll and Philadelphia Avenues are classified as Urban Principal Arterial roads. Piney Branch Road is an Urban Minor Arterial, and all other roads within the study area are classified as local roads. The northernmost point of the study area is the intersection at Chicago Avenue and Boundary Avenue. The study area's boundary is illustrated in Figure 1, Study Area. The study area is connected to the Washington metropolitan region via additional transit service options including Montgomery County Department of Transportation Ride On bus routes and Washington Metropolitan Area Transit Authority Metrobus routes. The Study Area is served by 5 Metrobus

routes and 9 Ride On routes. On average, buses run every 30 minutes on weekdays and have abbreviated hours and lower frequencies during on weekends.

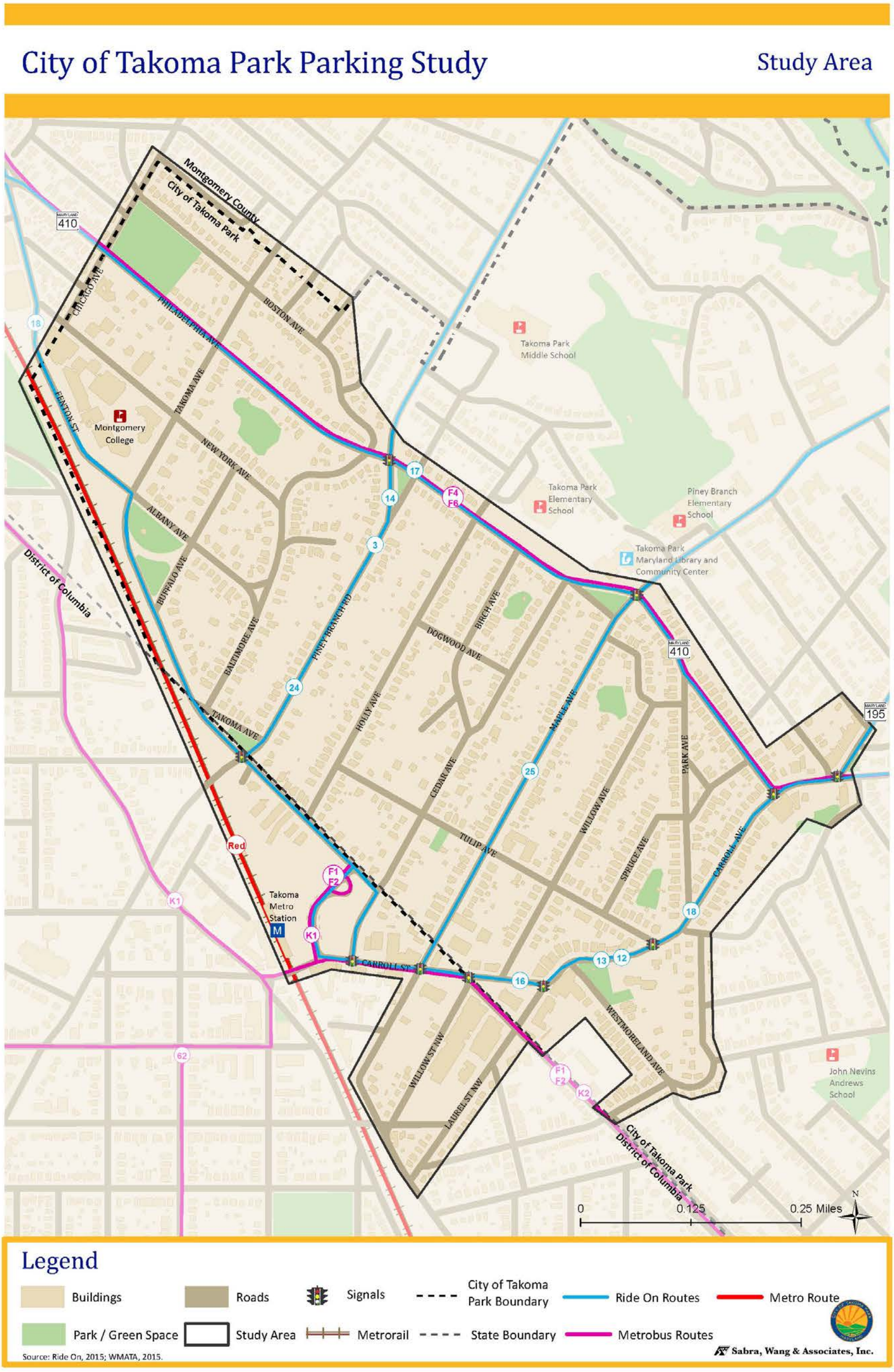


Figure 1: Study Area

II. Existing Conditions & Parking Supply

Land Use & Zoning

The land use within the study area, as shown in Figure 2, is relatively uniform. The majority of the area is residential, with smaller areas designated to other land uses dispersed throughout, including a few parks. The Montgomery College campus is identified as institutional, while the Carroll Street/Avenue corridor through Old Takoma is a commercial area. The Takoma Metro station has a transportation land use classification.

The zoning classifications found throughout the study area can be seen in Figure 3. For the sake of simplicity, the specific zoning designations within the Takoma Park and D.C. portions of the study area gave been combined into similar general categories. The primary zoning classification within the study area is single family residential. Takoma Junction is zoned for neighborhood residential development and commercial retail, and multiple-family residential zoning along Carroll Avenue between Park Avenue and Takoma Junction. Zoning in the Old Takoma portion of the study area varies, as part of the area is zoned by the District of Columbia and the other part is zoned by Montgomery County (City of Takoma Park). The portion of Takoma within the D.C. line is zoned for low density development, which includes the Takoma Metro station and the variety of businesses along Carroll Street. The portion of Takoma Park within Montgomery County is zoned for neighborhood retail and commercial residential development.

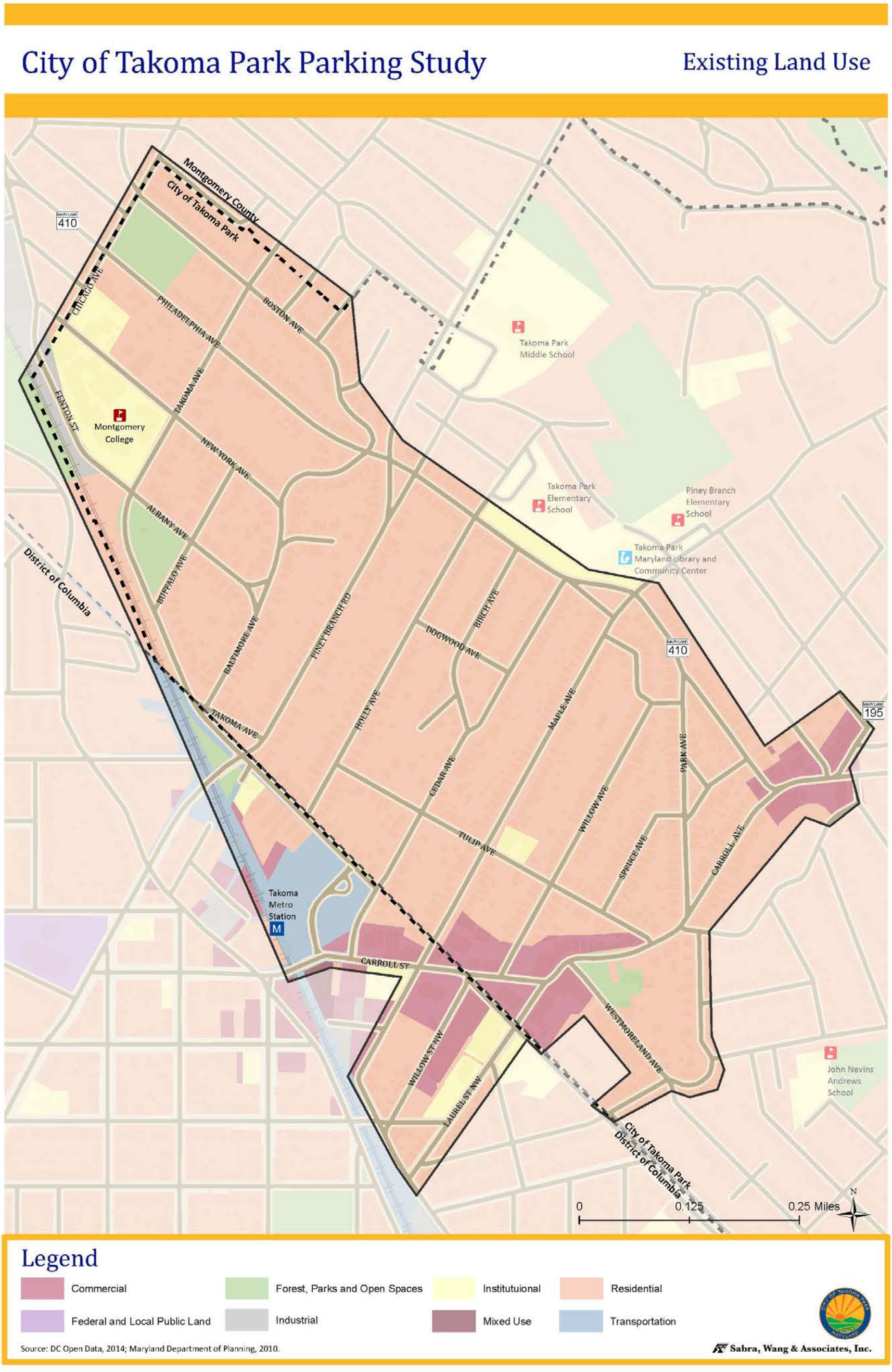


Figure 2: Land Use

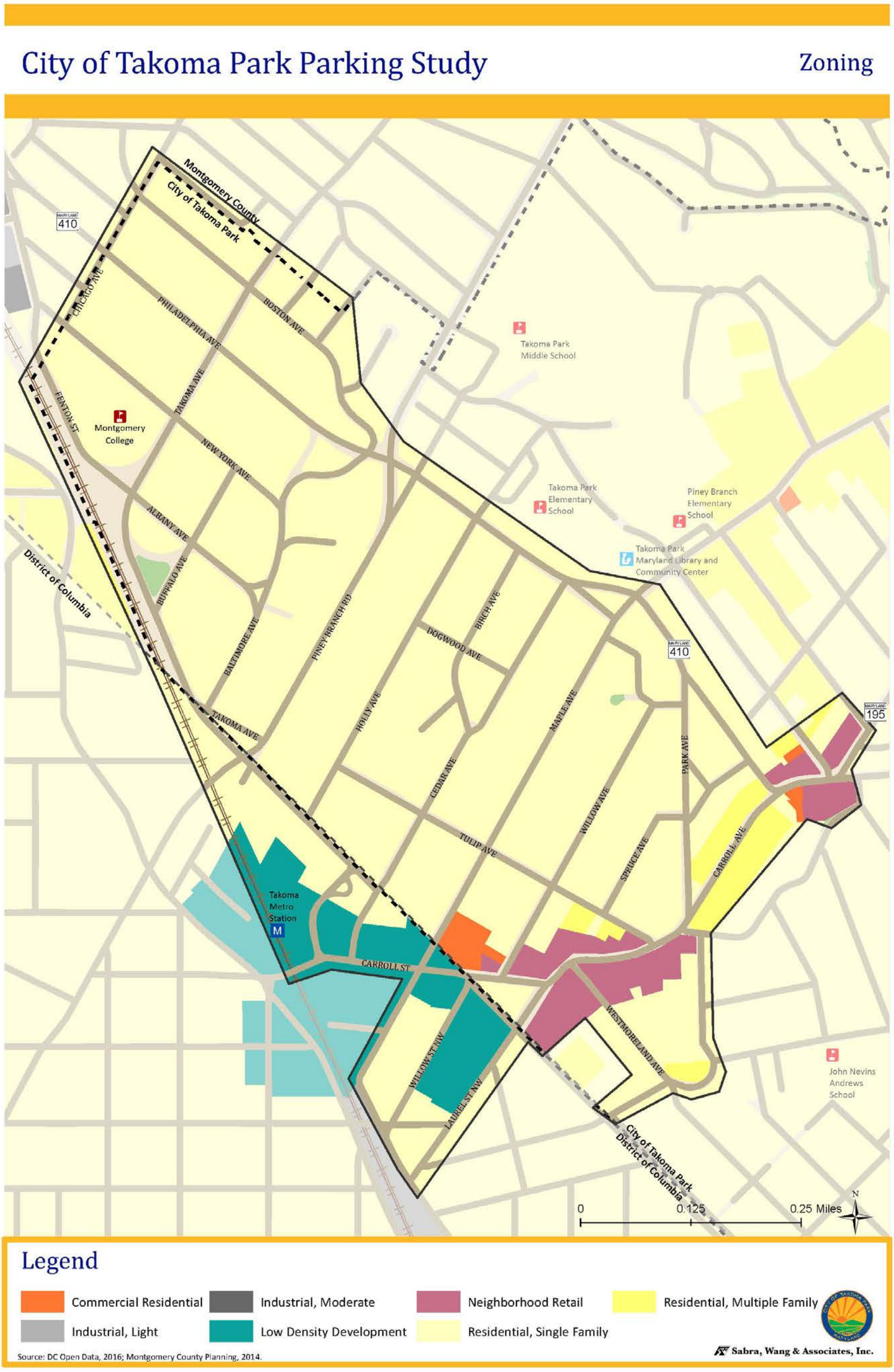


Figure 3: Zoning

Parking Infrastructure

Curbside

Curbside parking inventory was collected by Sabra, Wang & Associates, Inc. in March 2016.

Curbside space was measured and categorized by the following:

- Car Share, for a vehicle which can be rented for a short period of time
- Commercial Loading Zone
- Handicap Permit
- Metered or Pay-to-Park
- Passenger Loading
- Residential Permit Zone, which requires a City-designated permit
- Special Permit, which requires a private permit
- Under construction, where curbside parking is temporarily unavailable and not inventoried
- Unrestricted

Curbside parking inventory of metered and pay to park spaces provided information on the meter rates and time limits. Most meters were operational from Monday to Saturday, with some meters operating only on weekdays on Maple, Carroll and Eastern Avenues as well as Cedar Street. Meters along or adjacent to Carroll Avenue that are part of Old Takoma, which account for 86% of the meters, have a rate of $0.75 per hour and time limits ranging from 30 minutes to 2 hours. This differs from the meters along Takoma and Chicago Avenues, which have a rate of $0.50 per hour and a limit of 8 hours. Meters on the D.C. side of the study area have varying operational times, but either a 2 or 4-hour time limit and a consistent rate of $2.30 per hour.

Curbs that were un-striped for individual spaces were measured for spaces as follows: end parking spaces were 20 feet long and spaces in between two or more end parking spaces were measured to be 22 feet. Figure 4 shows the curbside inventory and
Table 1 provides additional information on the curbside parking within the study area.

There are a total of 1,414 curbside parking spaces available within the study area. The majority (64%) of the available curbside parking spaces requires a residential parking permit during designated hours. They are mostly found within the center of the study area. There are 238 unrestricted parking spaces, most of which are along Piney Branch Road and along Boston Avenue. Curbside parking along Carroll Street and Carroll Avenue is primarily metered or pay-to-park. There is no parking along Maryland 410 (Philadelphia Avenue), and Maryland 195 (Carroll Avenue) north of Tulip Avenue, and on Fenton Street.

Overall, publicly-accessible or visitor parking is located around Old Takoma and at Montgomery College, but the majority of parking spaces within the study area are restricted by residential parking permit use.

Table 1: Curbside Parking Inventory by Category

Curbside Parking		
Parking Category	**Number of Spaces**	**Percentage**
Residential Permit Zone	908	64%
Unrestricted	238	17%
Meters or Pay to Park	197	14%
Under Construction	26	2%
Handicap	21	1%
Commercial Loading Zone	10	< 1%
Passenger Loading	7	< 1%
Special Permit	6	< 1%
Car Share	1	< 1%
TOTAL	**1,414**	**100%**

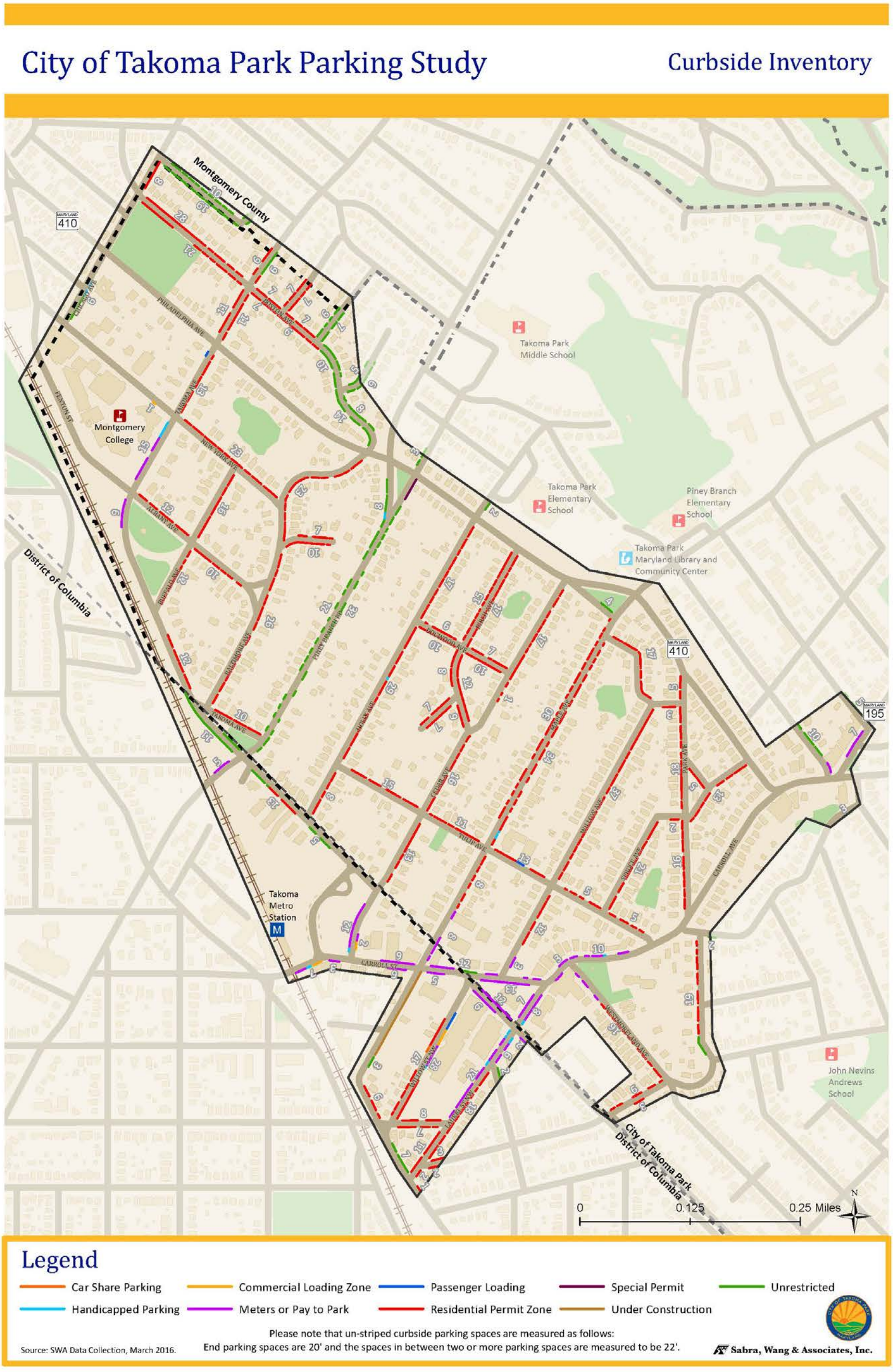


Figure 4: Curbside Parking Inventory

Residential Parking Permit Program

The residential parking permit program was established in 1976 by the Takoma Park City Council to alleviate parking pressures throughout the City, particularly due to nonresident commuters from the Takoma Metro Station and Montgomery College. Parking permit zones were expanded and added through 2012 to include the current eight (8) zones. Parking permits applications are available through the City of Takoma Park's website, with a one-year permit available for $12.50 and a two-year permit for $20.

The residential parking permit zones, number of spaces and number of permits issued per space are found in Figure 5. Within the study area, there are five (5) residential parking permit zones: zones 1, 1A, 2, 2A, and 3. Curbside parking within these zones is restricted to permit holders on weekdays from 8:00 AM to 7:00 PM. As shown in Table 2, the largest zone is Zone 2, with 359 available spaces, followed by Zone 1 with 279 spaces. In 2015, the number of permits issued exceeded the number of available spaces in three zones; 1A, 2A and 3.

Table 2: Residential Parking Permit Supply and Demand

Residential Parking Permit Zones		
Zone	**Number of Spaces**	**Number of Permits Issued**
1	279	168
1A	27	33
2	359	308
2A	114	142
3	36	43

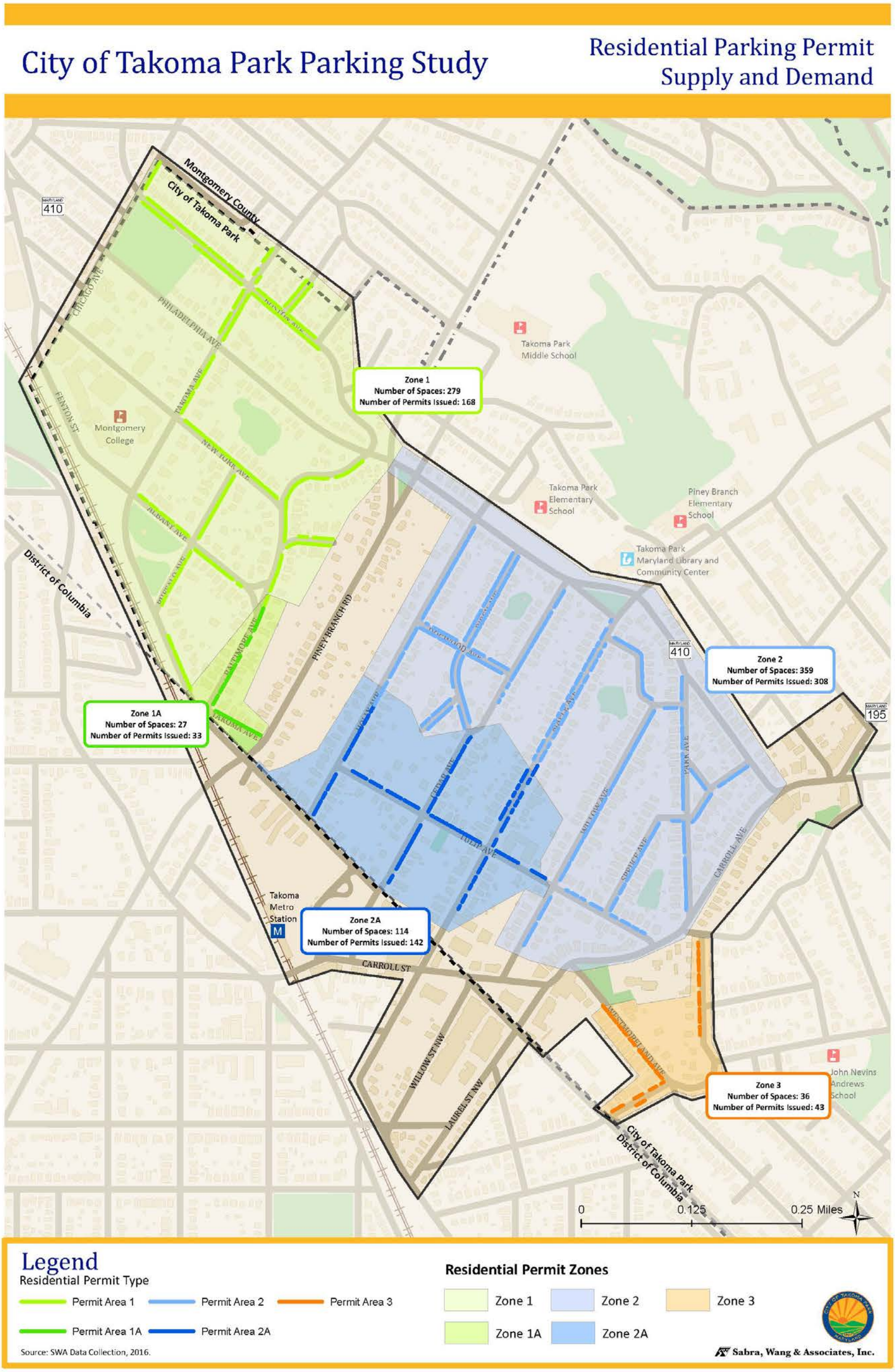


Figure 5: Residential Parking Permit Program Zones & Supply

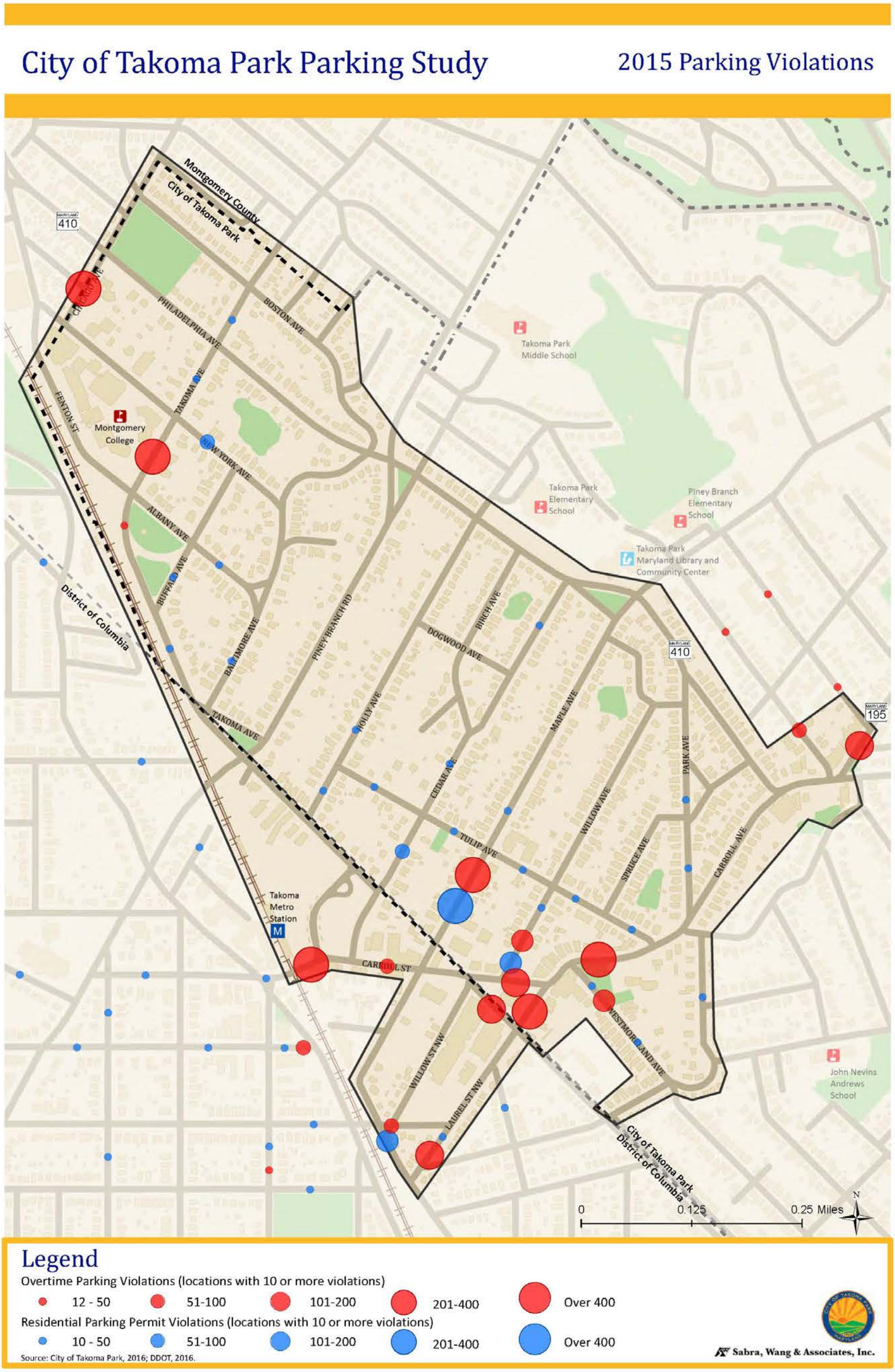


Figure 6: Parking Violations within the Residential Parking Permit Zones

Parking Violations

Parking violations incurred in 2015 are shown in Figure 6, summarized by block. The two types of violations analyzed include overtime violations (i.e. parking beyond the time paid for on the meter) and residential permit parking violations (i.e. parking in residential permitted areas without a permit during restricted times). Note that not all parking violations are shown; only blocks with ten (10) or more residential permit or overtime violations were included. The City employs two parking enforcement officers to administer violations.

The total number of overtime parking violations within the study area is 5,950, and the highest number of overtime parking violations on a given block is found on Carroll Avenue, with 975 violations. Overall, areas with higher overtime parking violations are found in predominately commercial or intuitional areas, including blocks around Montgomery College, downtown Takoma, Takoma Junction, and the Metro station.

Residential parking permit violations are relatively dispersed throughout the permit restricted areas, although the number of violations increases the closer a block is to Carroll Street and Carroll Avenue. The total number of violations within the study area is 1,390, and the block with the highest number of residential parking permit violations (422 violations) is found on Maple Avenue.

While residential parking permit violations occur on more block faces than overtime violations, overall there are fewer residential parking permit violations per block face.

Off Street

Off street parking inventory was collected in April 2016 by Sabra, Wang & Associates, Inc. Figure 7 shows the off street parking inventory for the study area and Table 3 provides additional details.

The following categories were used to inventory off-street parking:

- Pay to Park, Public
- Pay to Park, Private
- Permit-Only, Public
- Permit-Only, Private
- Unrestricted/Free, Public
- Unrestricted/Free, Private

Public parking is defined as a lot managed by a public institution or local government, and private parking is owned by individuals or businesses. Off street parking is mostly found around the perimeter of the study area, with the majority of lots found around downtown Takoma. Five (5) of the six (6) Montgomery College lots are outside of the study area boundary, although all were included in this study. Any private or public pay to park or unrestricted/free parking lots are available for visitor use, while all permit-only lots are restricted to permit holders.

There are a total of 2,083 off street parking spaces within the study area, although most of these spaces (1,428) require a permit for use. 1,273 of the permit-only spaces are parking for Montgomery College student, staff, and visitors, while the remainder are lots that rent spaces on a monthly basis to commuters or tenants. That leaves 655 spaces available for visitors' use on demand, including 383 pay-to-park spaces and 272 unrestricted (free) spaces. Of the 272 spaces that are unrestricted, 182 are managed by businesses, such as Bank of America or CVS. While they are not restricted, they are reserved lots for patron use. All public and private pay to park lots are accessible to any user, and include the Metro station lot, the city lot at Takoma Junction, and the Laurel Avenue parking lot.

Table 3: Off Street Parking Inventory by Category

Off Street Parking		
Category	**Number of Spaces**	**Percentage**
Pay to Park, Public	206	10%
Pay to Park, Private	177	9%
SUBTOTAL	*383*	*19%*
Permit-Only, Public	1,273	61%
Permit-Only, Private	155	7%
SUBTOTAL	*1,428*	*68%*
Unrestricted/Free, Public	90	4%
Unrestricted/Free, Private	182	9%
SUBTOTAL	*272*	*13%*
Total	**2,083**	**100%**

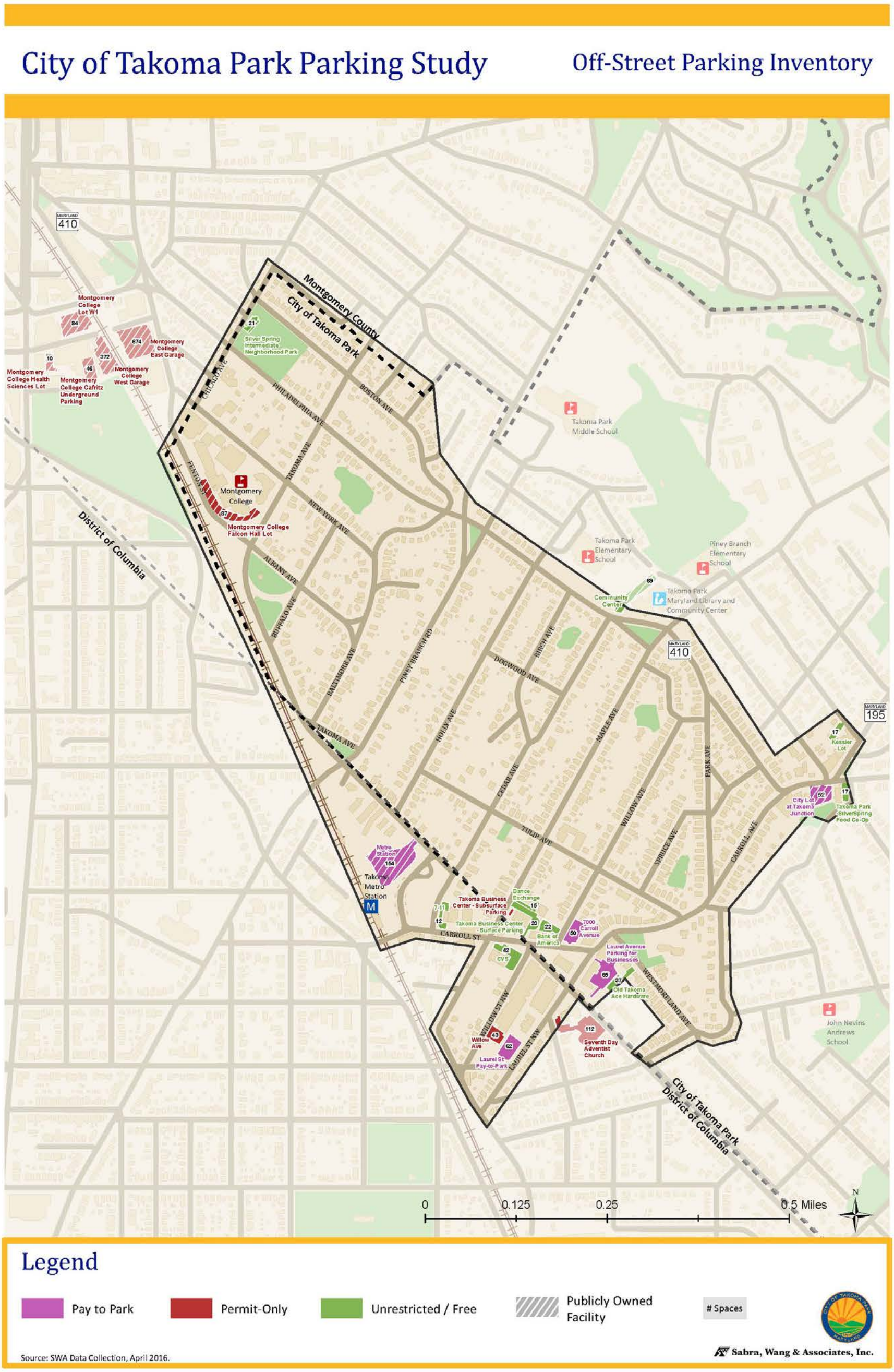


Figure 7: Off Street Parking Inventory

Pedestrian & Bicycle Infrastructure

The bicycle and pedestrian infrastructure within the study area can be seen in Figure 8 and Figure 9. The City of Takoma Park has a variety of bicycle amenities available to the public; the Metropolitan Branch Trail runs though the western portion of the study area and most parks have trails.

The following ten (10) streets have signed bicycle routes:

- Carroll Street and Carroll Ave
- Cedar Avenue
- Eastern Avenue
- Ethan Allen Avenue
- Grant Avenue
- Maple Avenue and Maple Street
- Philadelphia Avenue
- Sandy Spring Road
- Takoma Avenue (becomes an unsigned on-road route north of Boston Ave)
- Westmoreland Avenue

The City of Takoma Park is part of the Capital Bikeshare program, with four (4) locations within the study area: the Takoma Metro, the intersection of Philadelphia Ave and Maple Ave, Carroll Ave and Westmoreland Ave and Carroll Ave and Ethan Allen Ave. The study area also has many bicycle racks, with clusters around the Takoma Metro station, Laurel Avenue, Takoma Junction, Belle Ziegler Park and the Takoma Park Library and Community Center. The Takoma Metro station provides bicycle amenities to commuters, with 60 bicycle lockers and 51 bicycle racks near the Metro Station.

The pedestrian network within the study area is relatively complete, with the majority of streets lined with sidewalks on either side of the road. The network also features many marked crosswalks, particularly around areas with high pedestrian activity including Montgomery College, the Takoma Park Community Center, and downtown Takoma. There are also seven (7) intersections with pedestrian signals. This combination of the pedestrian infrastructure, in addition to the grid network street layout that primarily makes up the study area, provides pedestrians with a highly connective network.

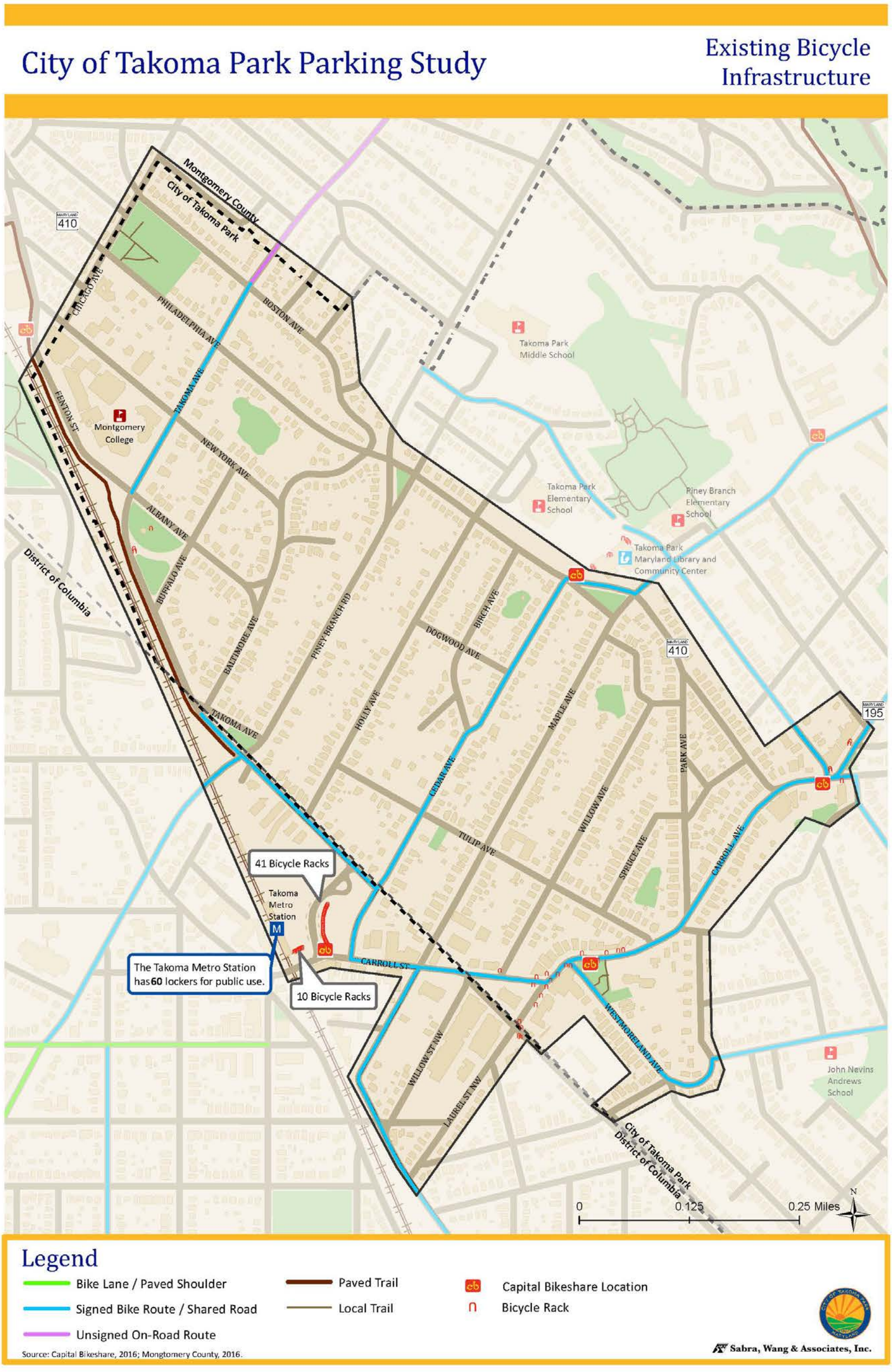


Figure 8: Bicycle Infrastructure

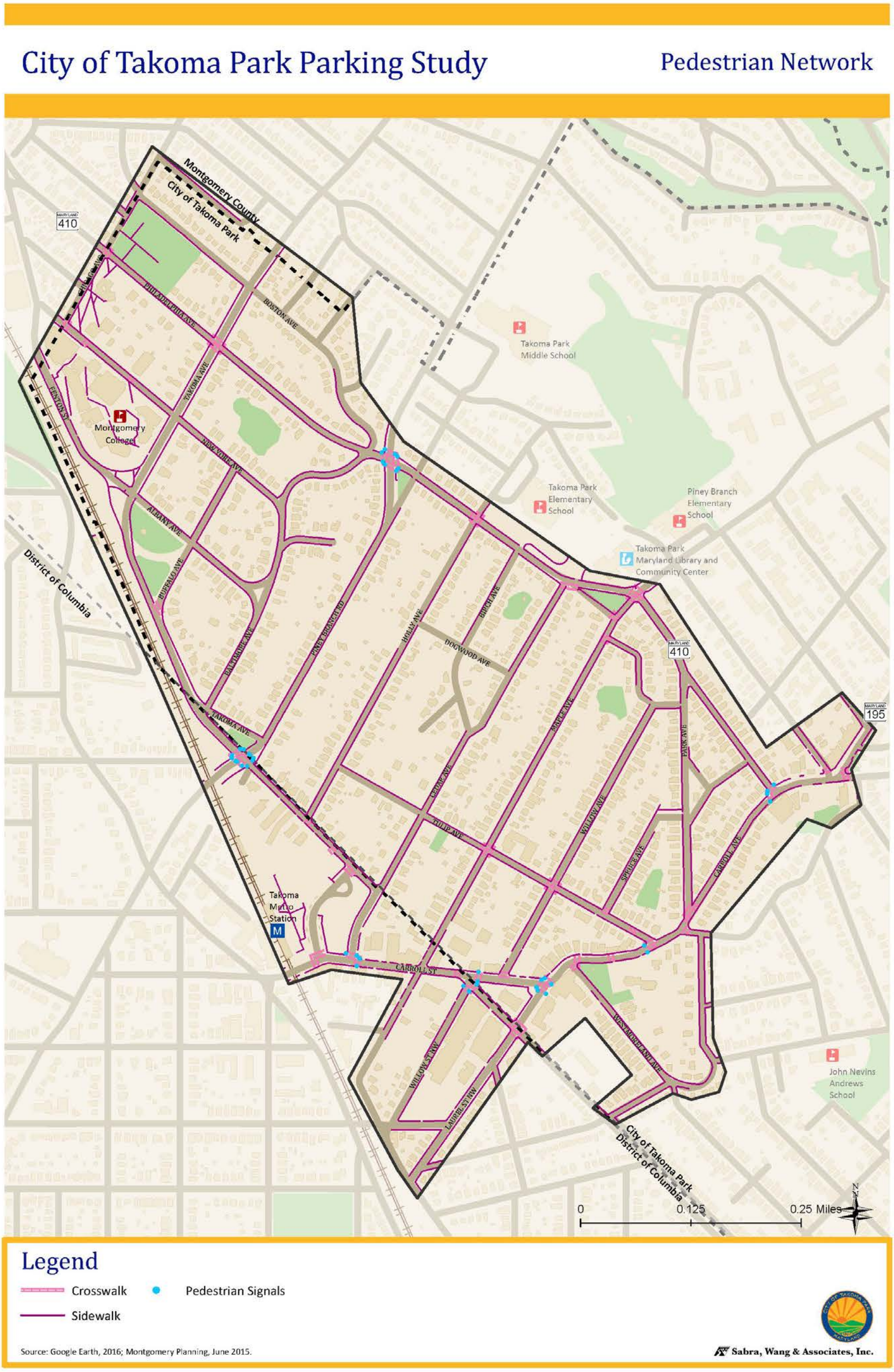


Figure 9: Pedestrian Network

III. Parking Demand

Ideally, parking supply correlates to parking demand. This section presents numerous factors that influence demand such as vehicle ownership, pedestrian generators, and walksheds as well as analyzes the parking demand within the study area through utilization studies.

Demographics Influencing Demand

Figure 10 shows the average number of vehicles per household by Census block groups within and around the study area. There is an average of 1.5 vehicles per household within the study area, showing relatively low auto dependence. For comparison, the City of Takoma Park on the whole has an average of 1.9 vehicles per household. Areas that are primarily residential show higher averages within their block group, between 1.72 and 1.82 vehicles per household, while the commercial areas and the areas immediately surrounding the Takoma Metro station show lower auto dependence.

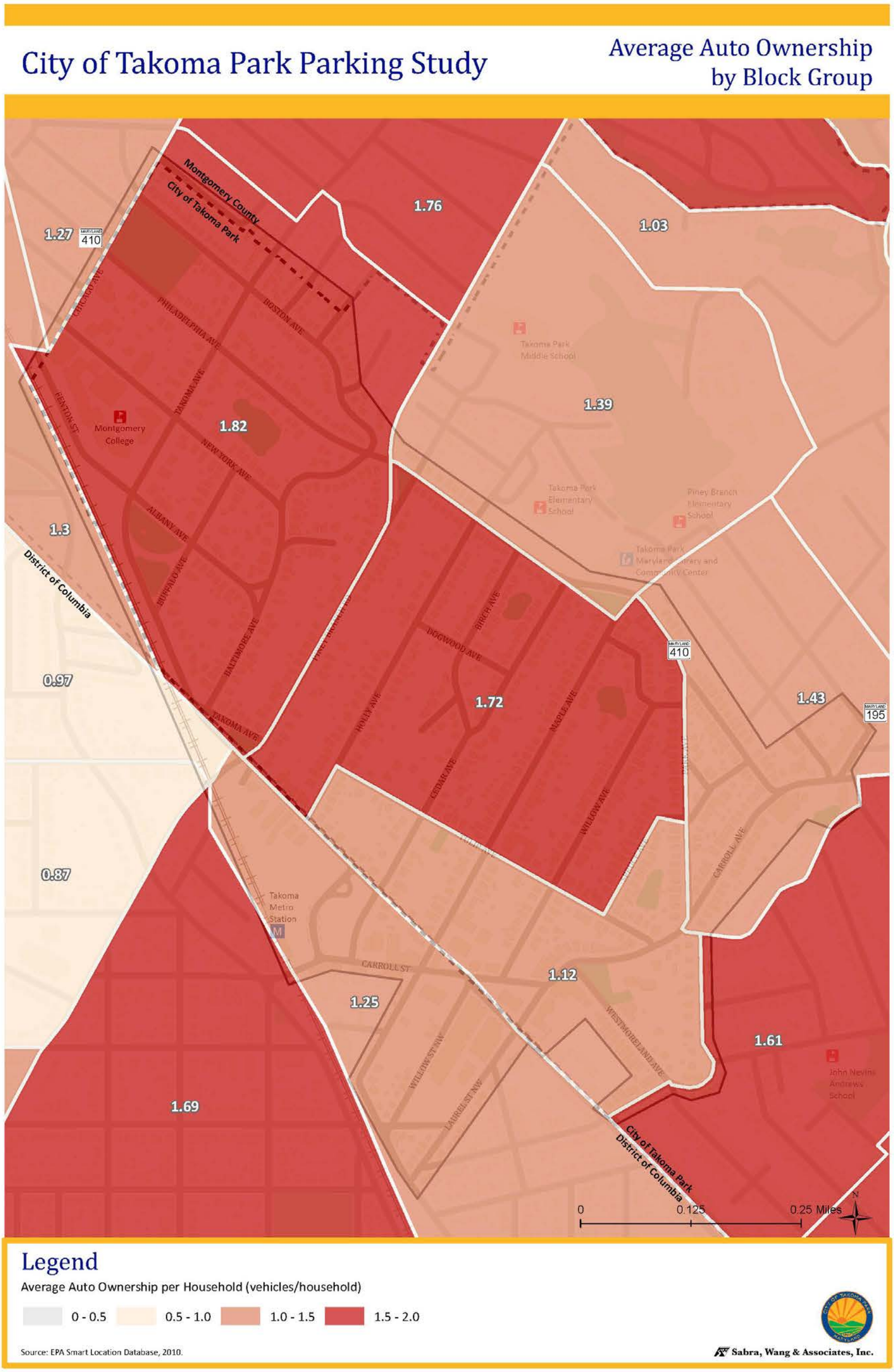


Figure 10: Average Auto Ownership per Household

Pedestrian Generators

The study area has many businesses and institutions that attract vehicle, pedestrian and transit trips, as shown in Figure 11. Many of these generators are found along Carroll Street and Carroll Avenue, which make up downtown Takoma. Some notable generators within the downtown Takoma area are: Takoma Metro station, Busboys and Poets, Republic, Willow Street Yoga, and the shops along Laurel Avenue.

Takoma Junction, found at the intersection of Ethan Allen Avenue and Carroll Avenue, includes generators such as the Takoma Park Silver Spring Co-op and a variety of businesses on Carroll Avenue. The northern end of the study area also has some pedestrian generators including the Silver Spring Intermediate Park, Montgomery College, and Belle Ziegler Park.

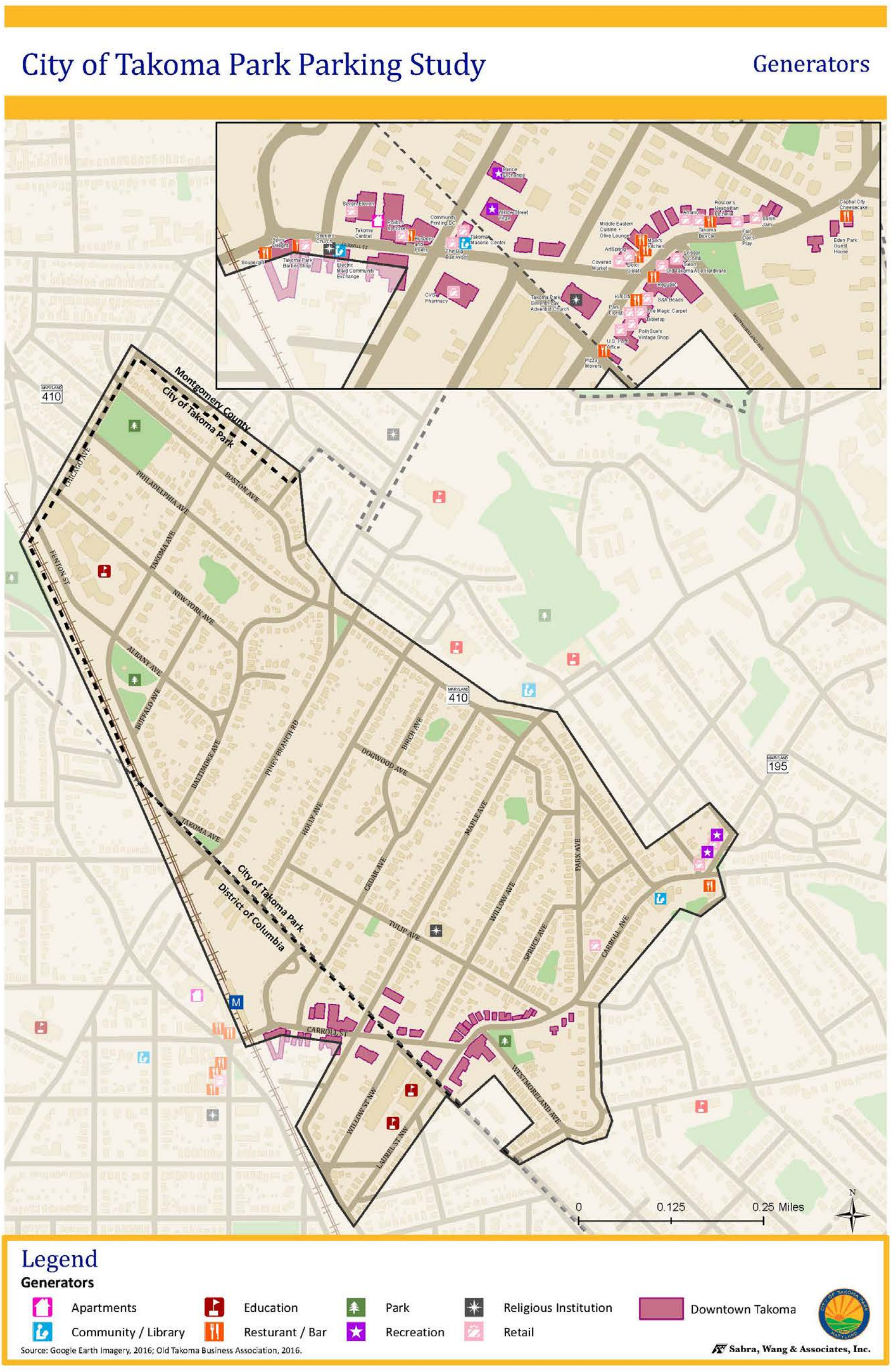


Figure 11: Pedestrian Generators

Takoma Park Metro Ridership & Mode Share

The Takoma Metro station is located along the southwestern border of the study area, and is adjacent to downtown Takoma. The station influences the amount of visitors to Takoma Park and how they travel there. Its average weekday daily boardings in October 2015 was 5,491, ranking near the middle of the system's ninety-one stations. The station's monthly average of daily boardings from September 2010 to February 2016 is shown in Figure 12. The Takoma station exhibits the typical pattern of stations that primarily serve residential areas, with a majority of its boardings in the AM Peak period. This pattern is much less pronounced than at other stations that lack significant retail and business attractors in their vicinity, however.

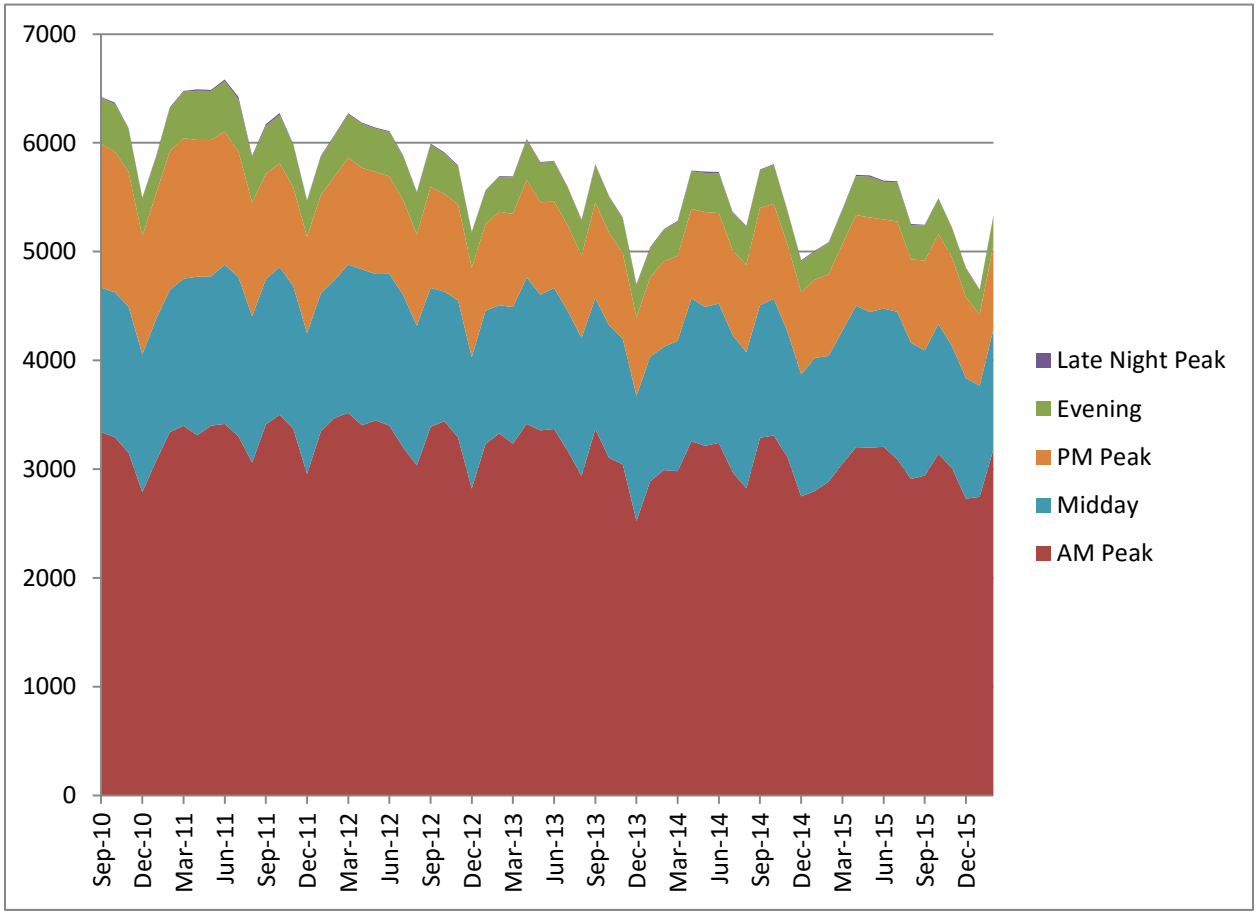


Figure 12: Takoma Station Average Ridership

Figure 13 shows the distribution of how riders using the Takoma Metro station travel to the station; walk, bike, ride a public bus, get dropped off (kiss and ride), drive and park (park and ride), or other. Just over half of the riders walk to the Metro, while only eight percent drive and park at the Metro station.

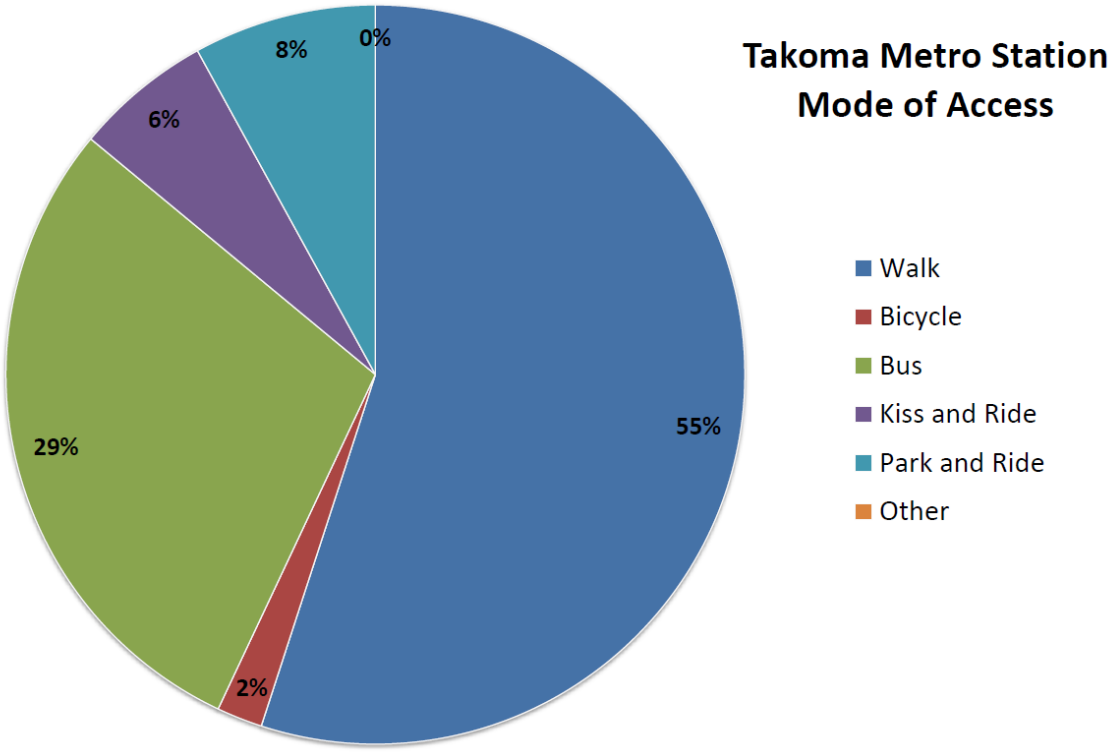


Figure 13: Takoma Metro Station Mode of Access

Figure 14 shows the locations and their respective density, where Metro riders using the Takoma Metro station, start their trip. Three concentric rings with a center point of the Takoma Metro station are drawn in order to enable visualizing the proportion of riders who travel from origins within one, two, and five miles. While a high majority of riders come from a two mile radius, there are select locations in a greater than five mile radius that have riders that pass through Takoma Park at a weekly average of fifteen to fifty riders. There is a pattern of a larger proportion of riders coming from within D.C. and northeast of Takoma than any other direction.

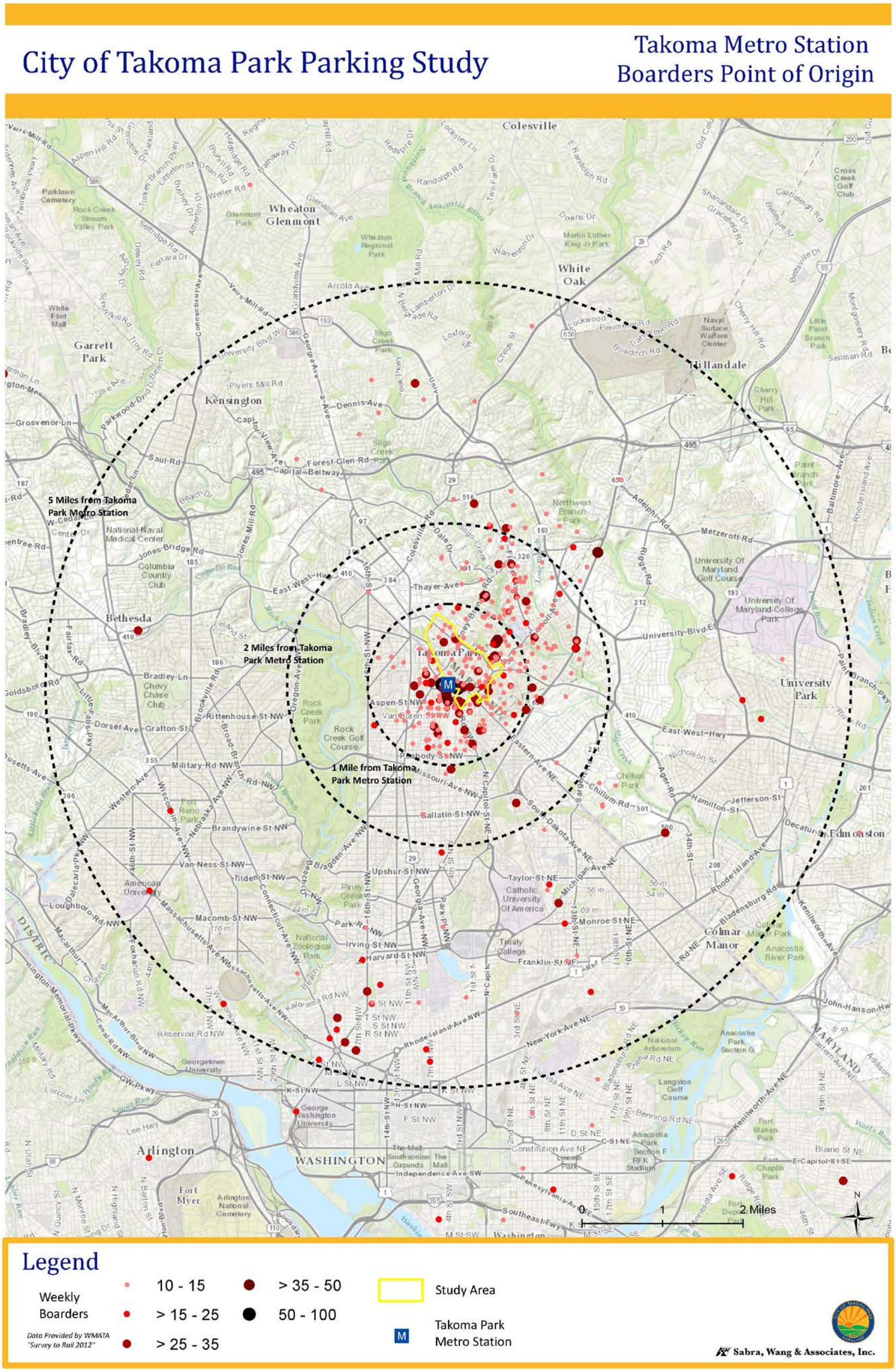


Figure 14: Takoma Metro Station Boarders Point of Origin

Walksheds

The parking supply and demand sections of this report focus on a study area- wide parking analysis, while this section on walkshed analysis will visualize attractions within a comfortable walking distance of a pedestrian generator. Four locations identified as primary trip attractor locations were selected and a ¼ mile walking distance buffer was drawn around each of them to determine the attractions within the buffer as well as the weekday and weekend parking utilization. Generally, a ¼ mile translates to a five to ten minute walk dependent upon individual walking pace and is an industry standard in a walkshed analysis. The four generators include 1) the Takoma Metro Station, 2) the intersection of Carroll Street NW and Maple Street NW, 3) the intersection of Carroll Avenue and Laurel Avenue, and 4) the Montgomery College campus. The walksheds for the Metro station, Carroll & Maple, and Carroll & Laurel overlap significantly.

Walkshed Inventory

Table 4 highlights the number of curbside spaces within each of the four walksheds and contrasts the number of publically available/visitor spaces (metered) against the number of permitted/residential spaces (residential parking permit restrictions). The intersections of Carroll & Maple and Carroll & Laurel have the greatest number of curbside spaces within a ¼ mile walkshed. Roughly 35% of those spaces are metered while just under half are residential restricted. Half of the curbside spaces within the walkshed of the Metro Station are metered while one-third is residential. A significant majority (88%) of the curbside spaces within the walkshed of the college are residential restricted.

Table 4: Walkshed Analysis - Curbside Parking Spaces

Number of Curbside Parking Spaces within the Four Walksheds					
	Number of Spaces	**Metered Spaces**		**Residential Permit Spaces**	
		Number	**Percentage of Total**	**Number**	**Percentage of Total**
Metro Station	263	132	50%	75	29%
Carroll & Maple	416	163	39%	182	44%
Carroll & Laurel	424	159	38%	198	47%
Montgomery College	230	19	8%	188	82%

Table 5 shows the number of off street spaces within each of the four walksheds and highlights what percentage is pay to park / unrestricted. The number of off-street spaces is greater than the number of curbside spaces for each of the four walksheds. The Montgomery College walkshed contains the greatest number of off-street spaces but with very few open for general public use. Greater than 65% of the off street spaces within each of the three remaining walksheds are available for public use. Figure 15, Figure 16, Figure 17, and Figure 18 show the parking inventory walkshed for each of the four generators.

Table 5: Number of Off-Street Parking Spaces within the Four Walksheds

Number of Off-Street Parking Spaces within the Four Walksheds			
	Number of Spaces	Pay to Park / Unrestricted	Percentage
Metro Station	315	315	100%
Carroll & Maple	634	479	76%
Carroll & Laurel	490	333	68%
Montgomery College	1,154	21	2%

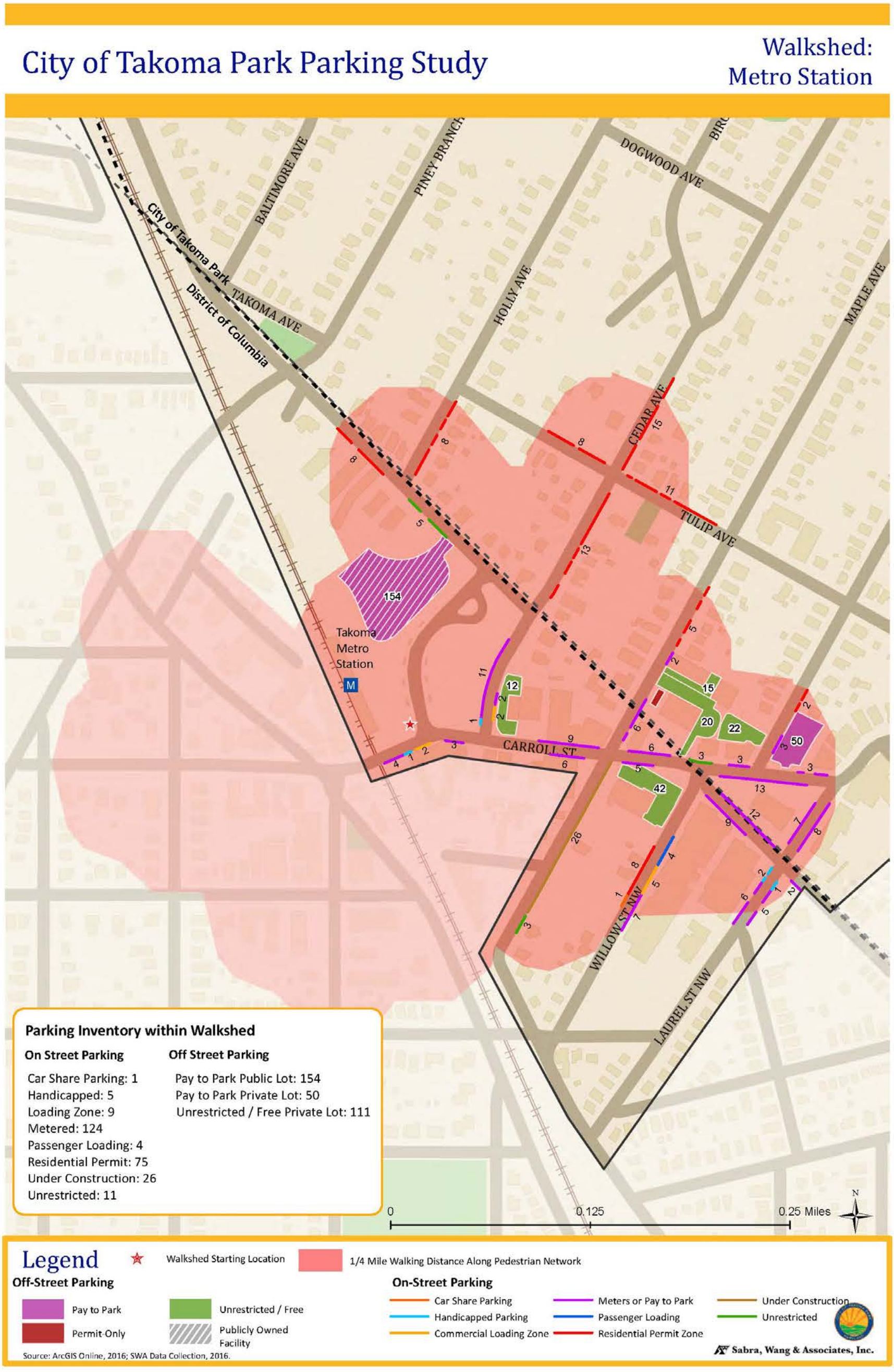


Figure 15: Walkshed for the Metro Station

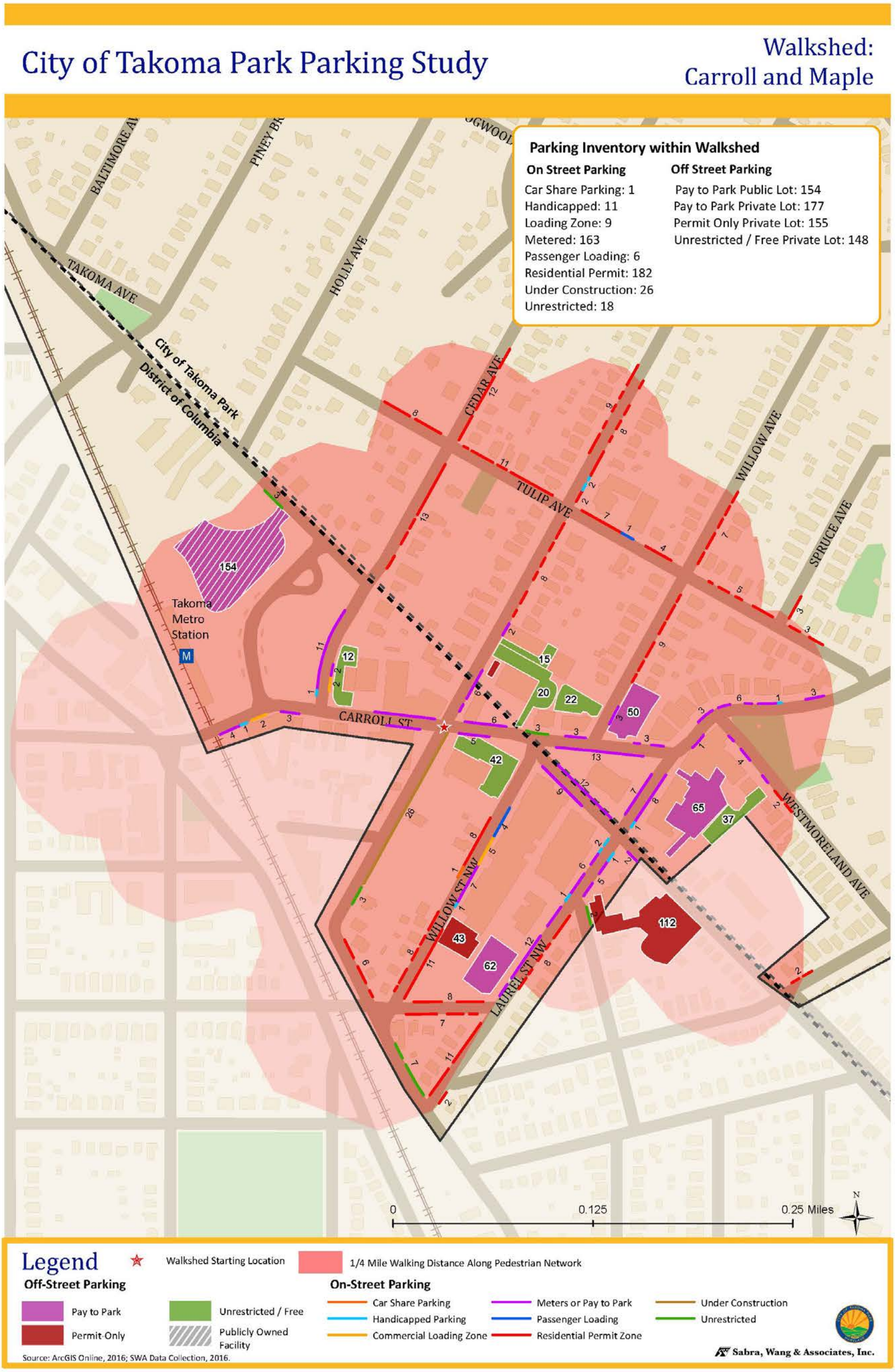


Figure 16: Walkshed from Carroll Street & Maple Street

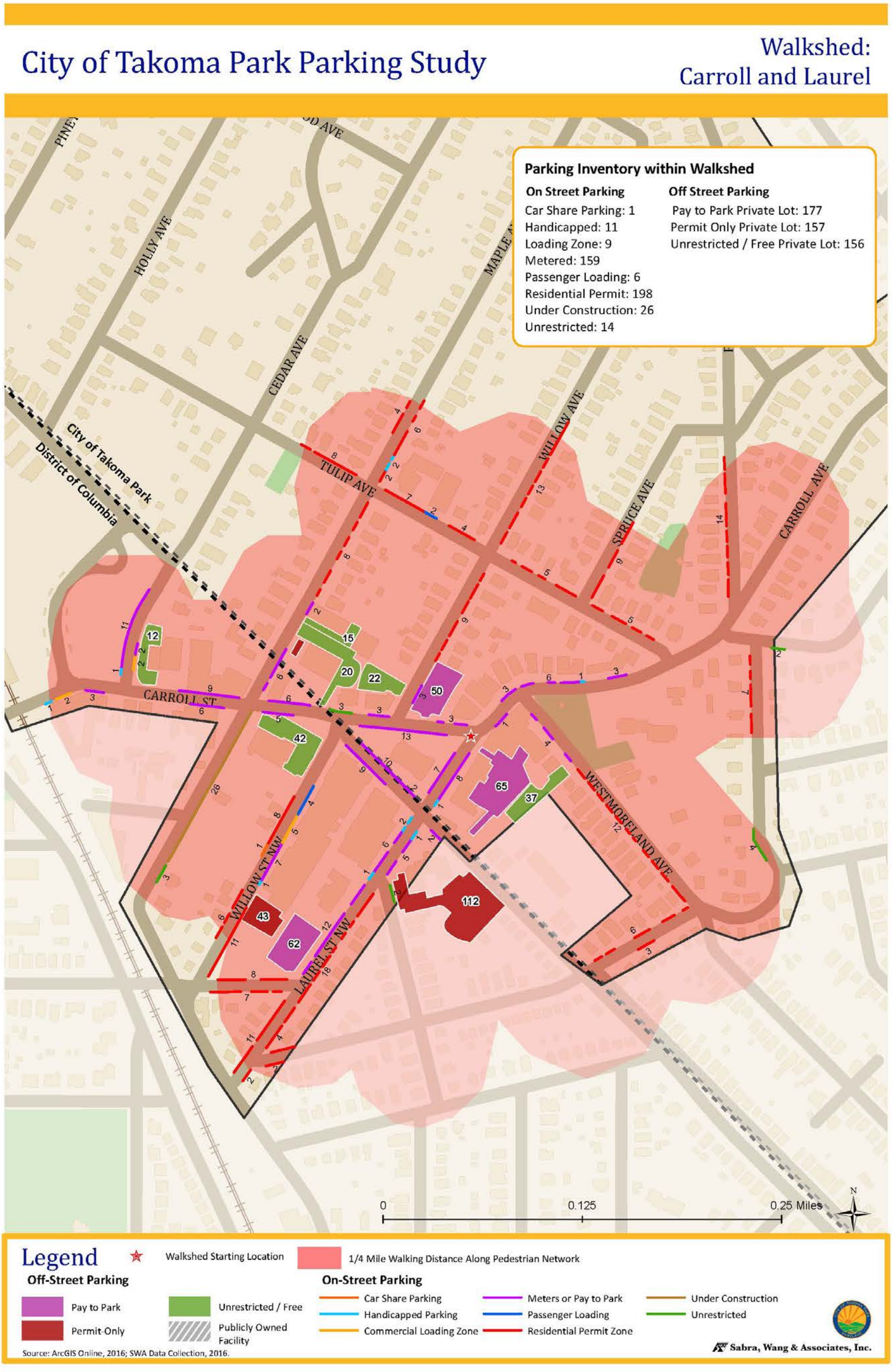


Figure 17: Walkshed for Carroll Avenue & Laurel Avenue

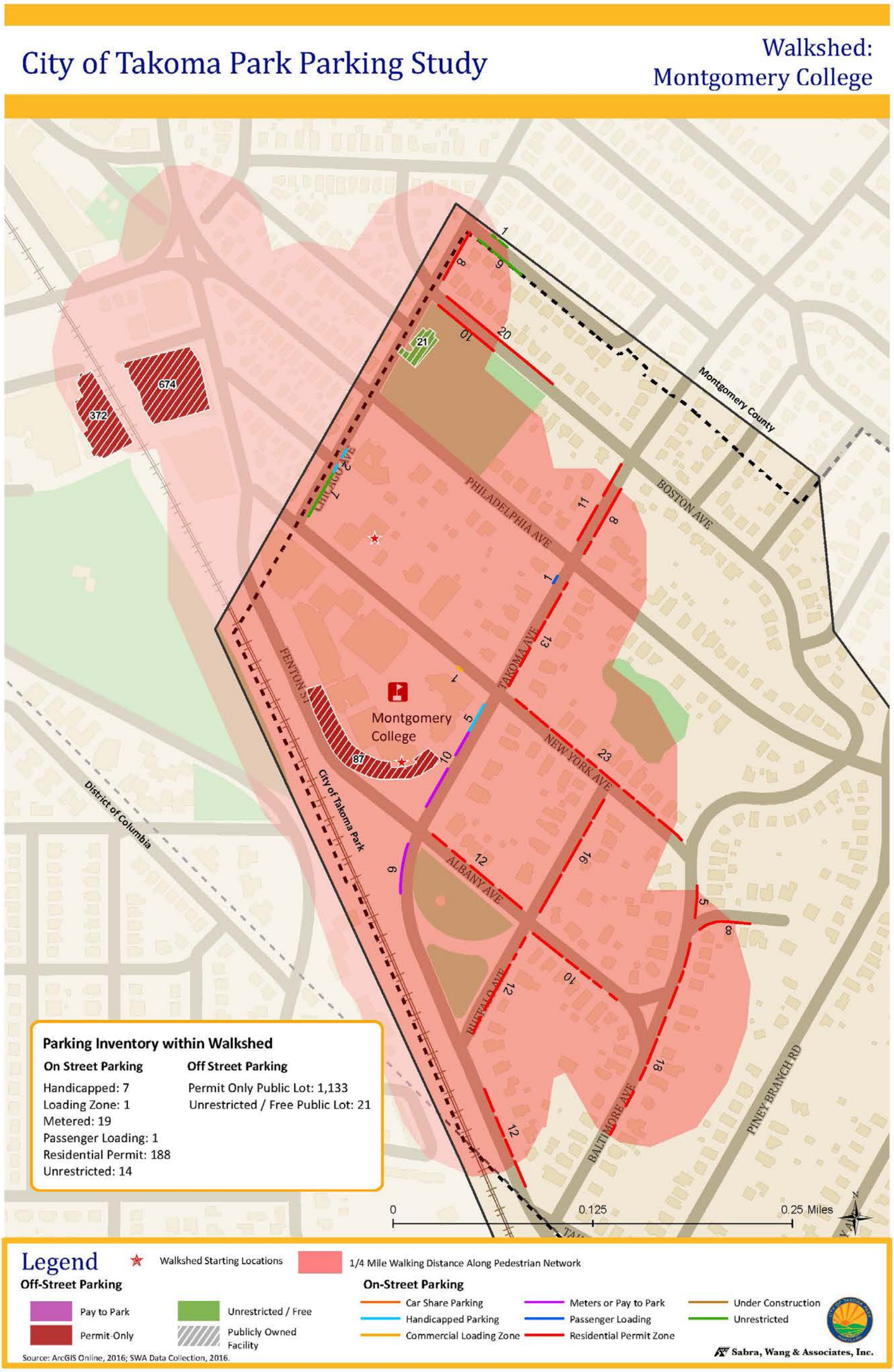


Figure 18: Walkshed for Montgomery College Student Union

Walkshed – Weekday Utilization

This section presents a sub dataset of the parking utilization study conducted by Sabra, Wang & Associates in April 2016 for the weekday evening period, focusing on the utilization within the walksheds of the four predominant pedestrian generators in the study area. Table 6 highlights the quantity and availability of generally public parking (pay to park / unrestricted) against non-public parking (permit / special use) for each of the four walksheds. Figure 19, Figure 20, Figure 21, and Figure 22 show the weekday evening curbside and off-street parking utilization with each of the four walksheds.

About half of the public spaces are not utilized during the weekday evening peak period. There is a lower utilization rate along Willow, Tulip, Cedar and Holly than along Carroll or Maple. A significant portion of available spaces are to be found in commercial surface lots as well as at the Metro station.

Table 6: Walkshed Weekday Utilization

Category	No. of Spaces	No. Occupied	No. Available	Percent Available
Metro				
Pay to Park / Unrestricted	458	245	213	47%
Permit / Special Use	98	42	56	57%
SUBTOTAL	556	287	269	48%
Carroll & Maple				
Pay to Park / Unrestricted	714	386	328	46%
Permit / Special Use	310	241	69	22%
SUBTOTAL	1,024	627	397	39%
Carroll & Laurel				
Pay to Park / Unrestricted	524	311	213	41%
Permit / Special Use	352	151	201	57%
SUBTOTAL	876	462	414	47%
Montgomery College				
Pay to Park / Unrestricted	54	25	29	54%
Permit / Special Use	1,328	920	408	31%
SUBTOTAL	1,382	945	437	32%

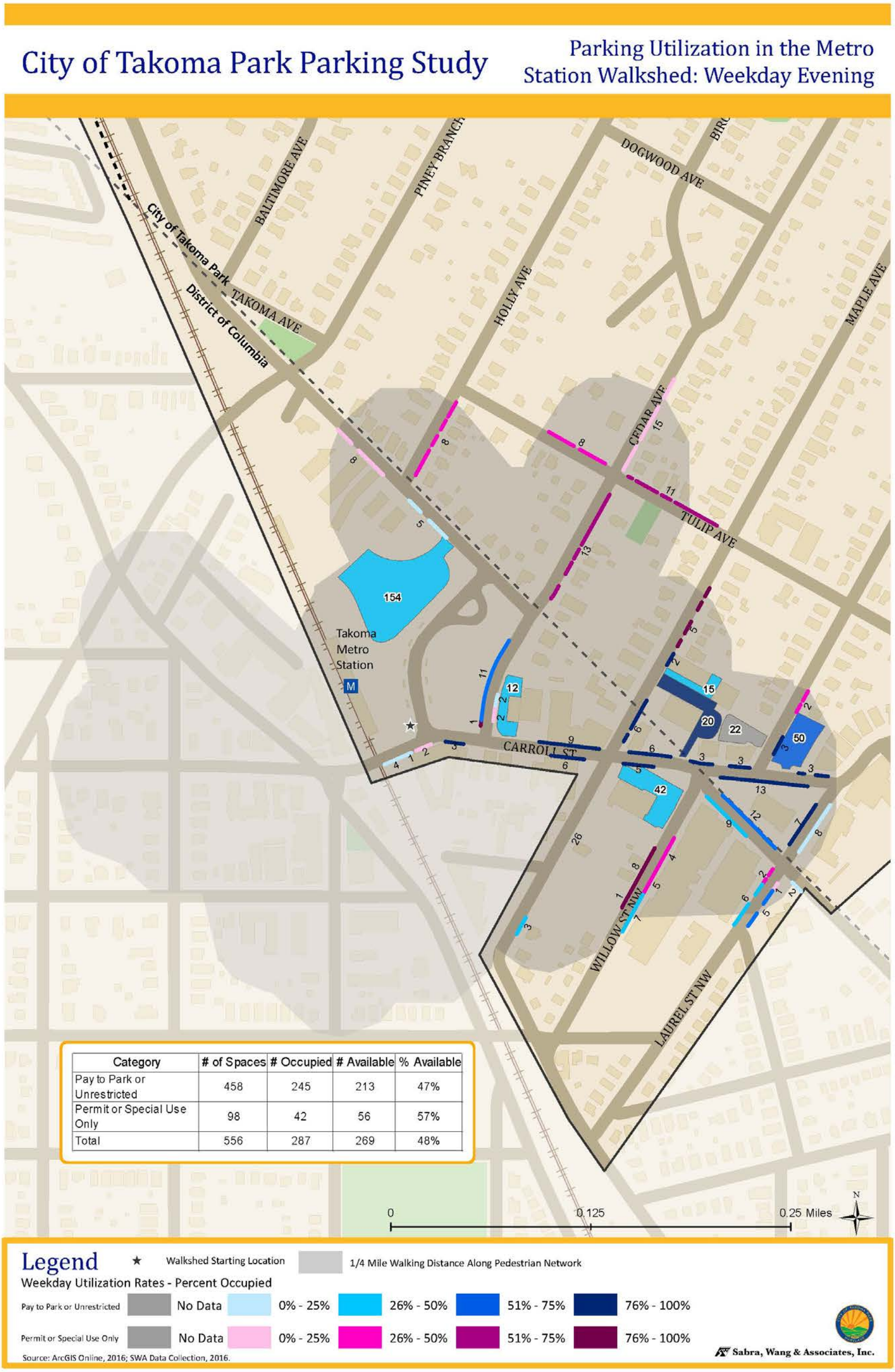


Figure 19: Weekday Utilization within Metro Station Walkshed

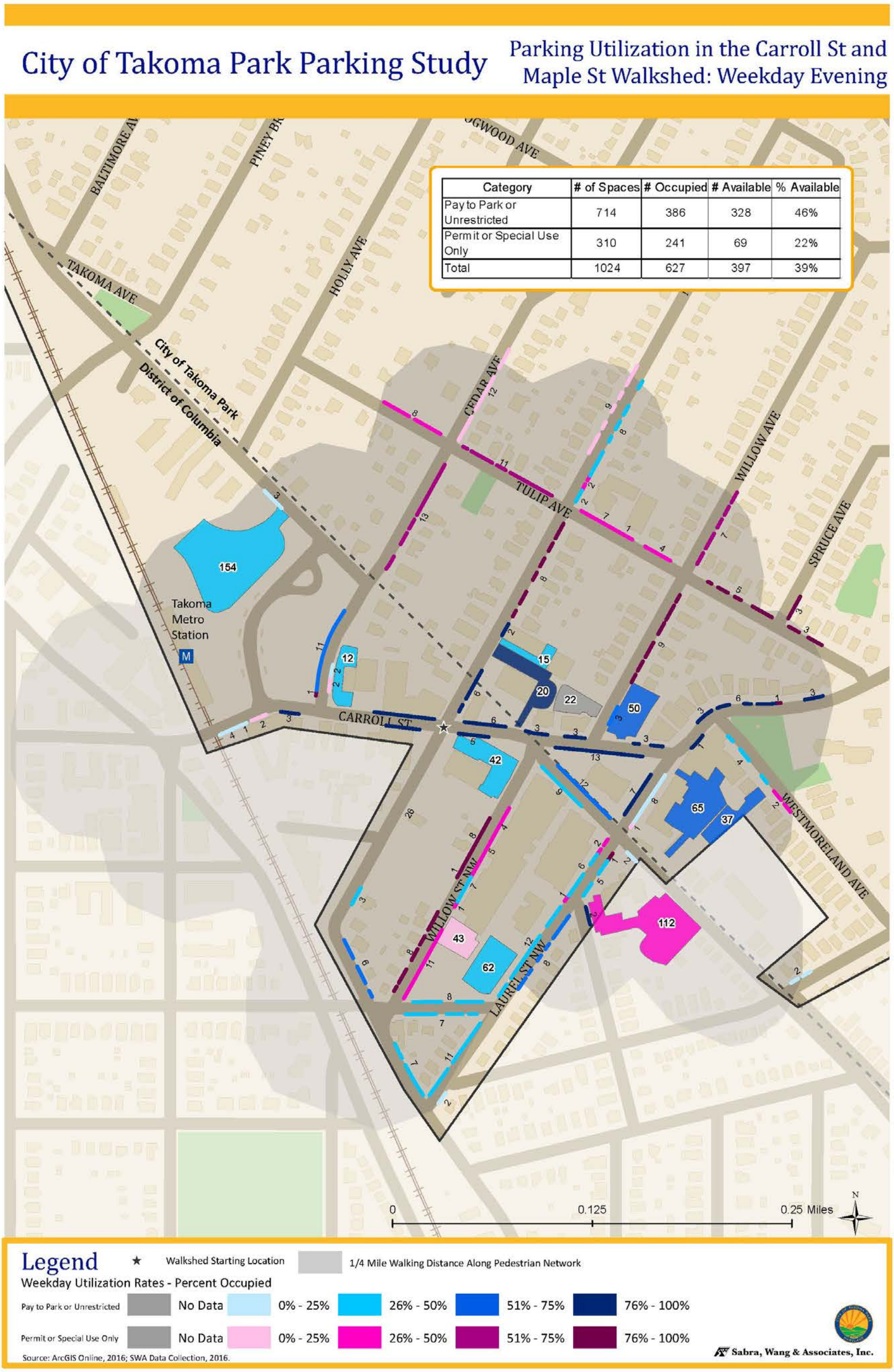


Figure 20: Weekday Utilization within Carroll & Maple Street Walkshed

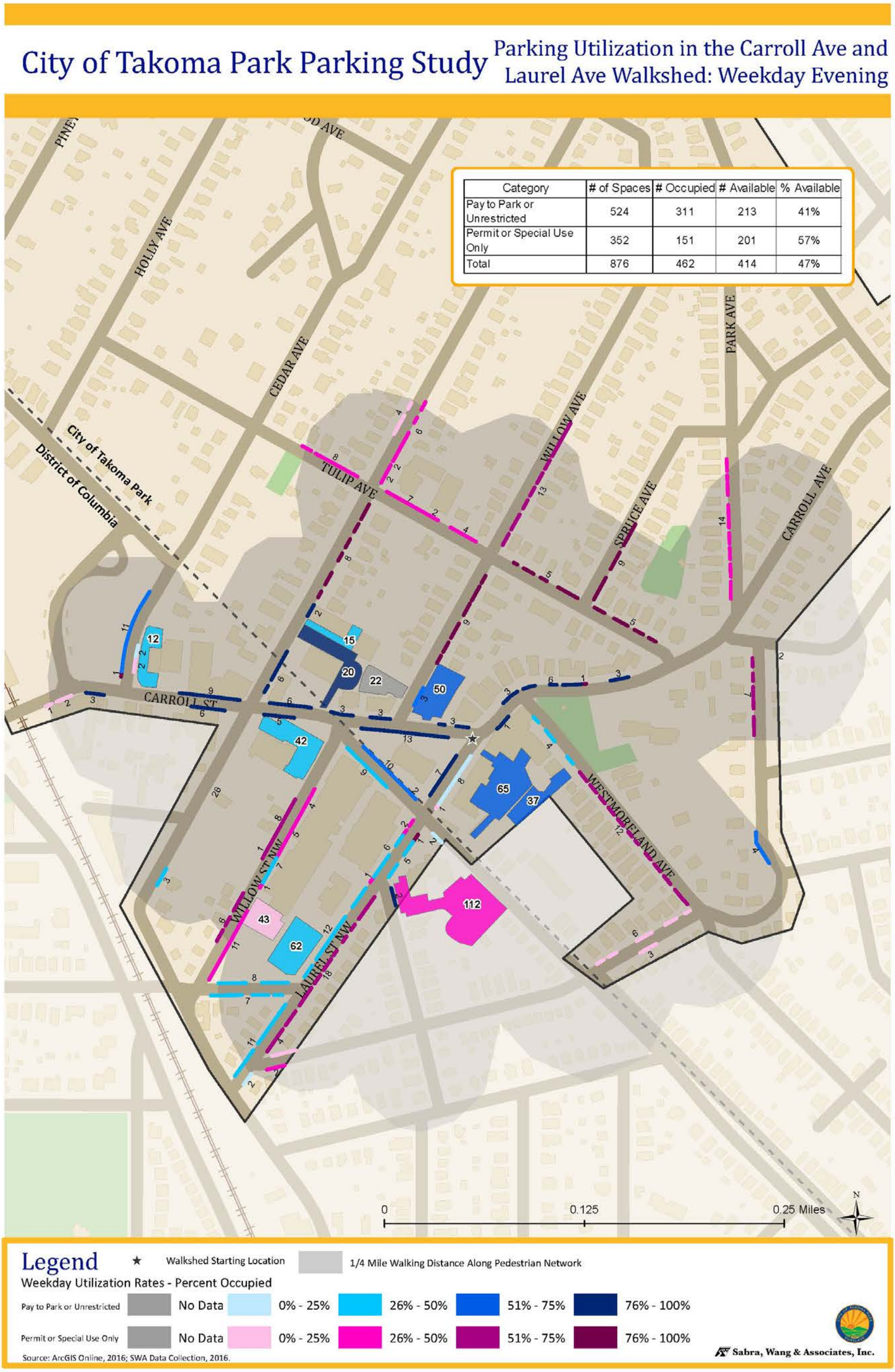


Figure 21: Weekday Utilization within Carroll Avenue & Laurel Walkshed

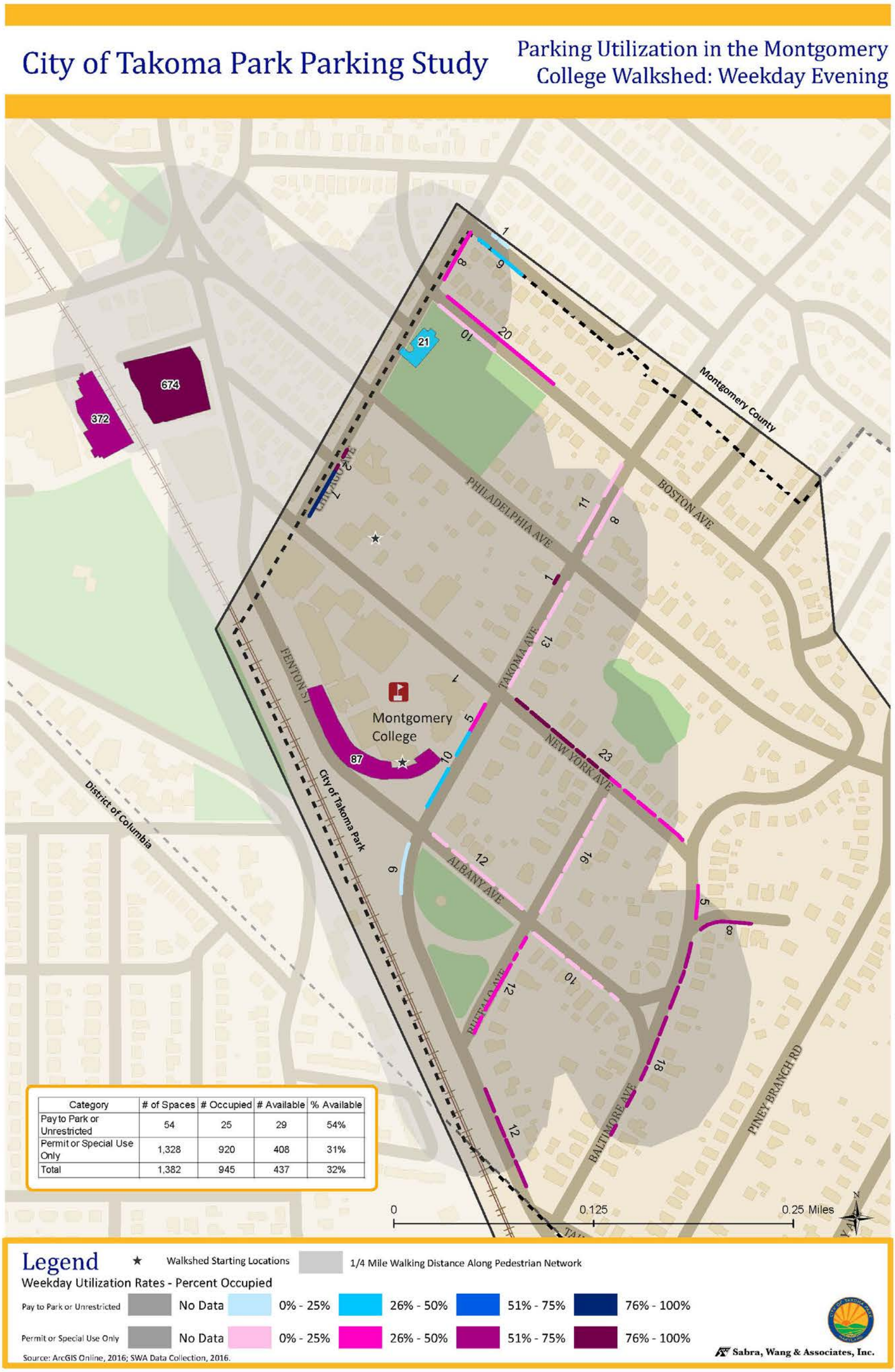


Figure 22: Weekday Utilization within Montgomery College Walkshed

Walkshed – Weekend Utilization

This section presents a sub dataset of the parking utilization study conducted by Sabra, Wang & Associates in April 2016 for the Saturday evening period, focusing on the utilization within the walksheds of the four predominant pedestrian generators in the study area. Table 7 highlights the quantity and availability of generally public parking (pay to park / unrestricted) against non-public parking (permit / special use) for each of the four walksheds. Figure 23, Figure 24, Figure 25, and Figure 26 show the Saturday evening curbside and off-street parking utilization within each of the four walksheds.

The availability of public parking during the Saturday evening period is slightly higher than during the weekday evening period at just over 50% availability across the four walksheds. The availability of spaces in permit or special use area is, on average, 11% higher than the public lots, indicating that these permitted lots are primarily rented to commuters for weekday use.

Table 7: Walkshed Saturday Utilization

Category	No. of Spaces	No. Occupied	No. Available	Percent Available
Metro				
Pay to Park / Unrestricted	458	242	216	47%
Permit / Special Use	98	44	54	55%
SUBTOTAL	556	286	270	49%
Carroll & Maple				
Pay to Park / Unrestricted	714	333	381	53%
Permit / Special Use	310	83	227	73%
SUBTOTAL	1,024	416	608	59%
Carroll & Laurel				
Pay to Park / Unrestricted	524	234	290	55%
Permit / Special Use	352	119	233	66%
SUBTOTAL	876	353	523	60%
College				
Pay to Park / Unrestricted	54	25	29	54%
Permit / Special Use	195	77	118	61%
SUBTOTAL	249	102	147	59%

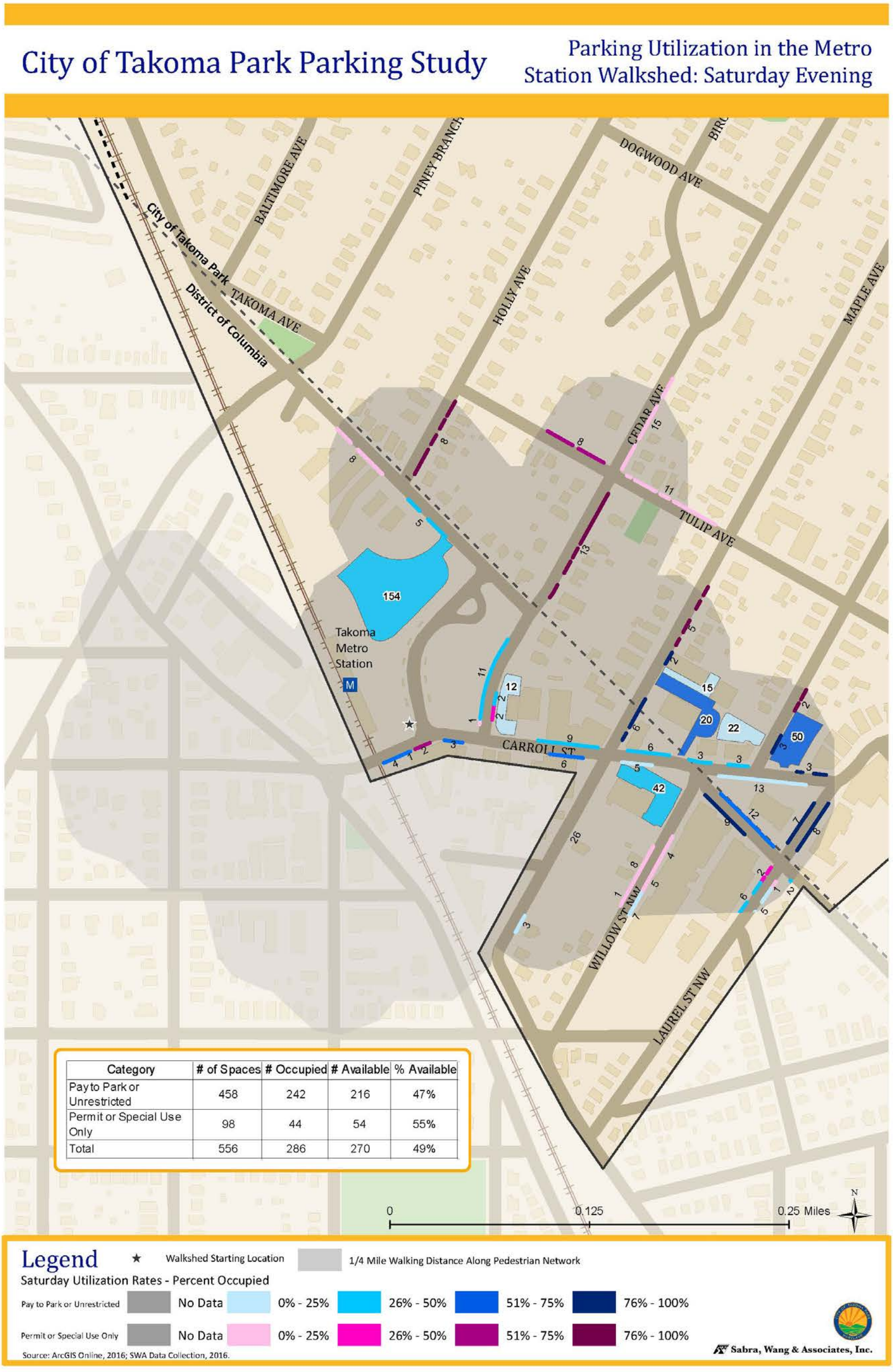


Figure 23: Saturday Utilization within Metro Station Walkshed

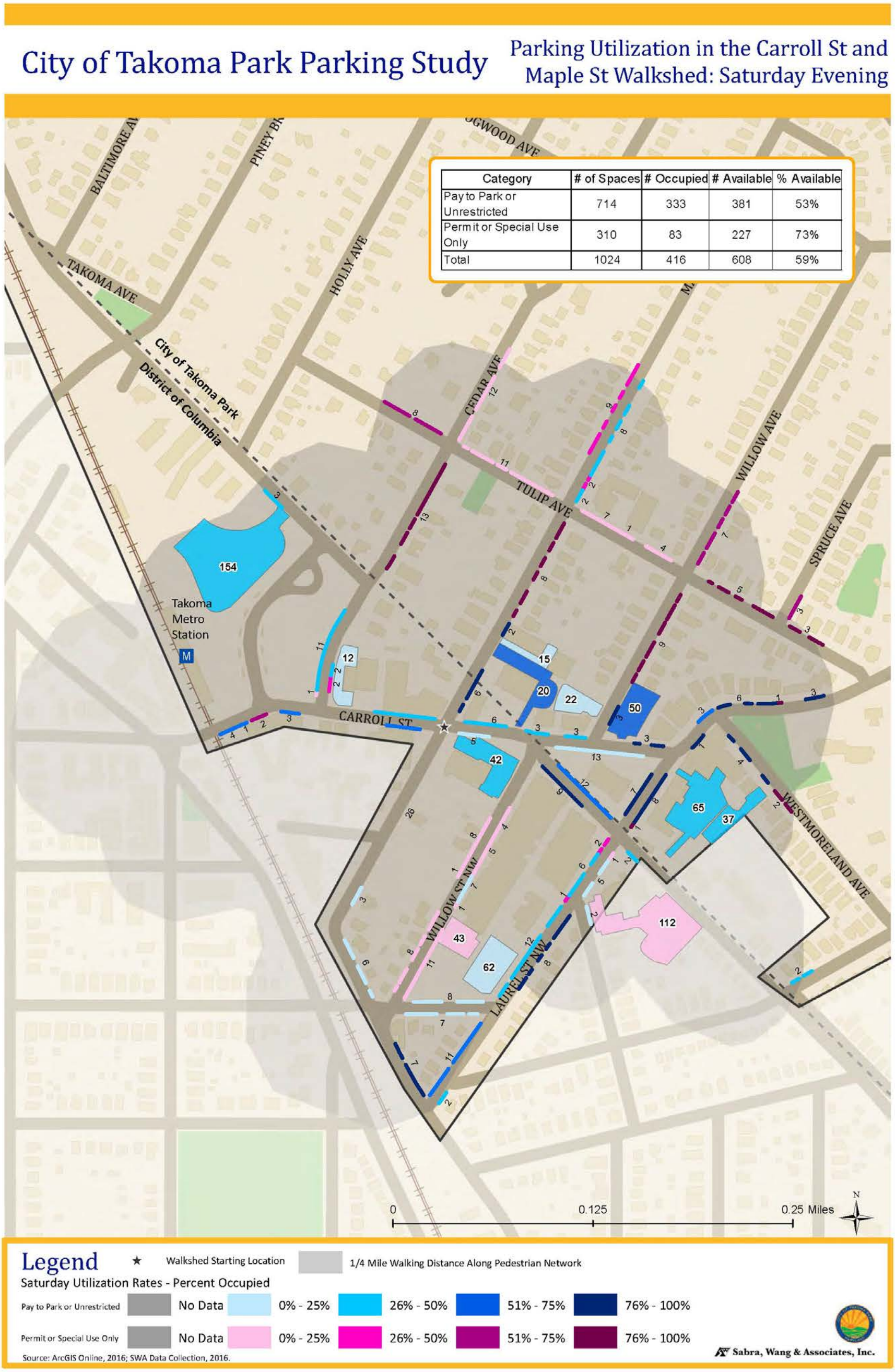


Figure 24: Saturday Utilization within Carroll & Maple Street Walkshed

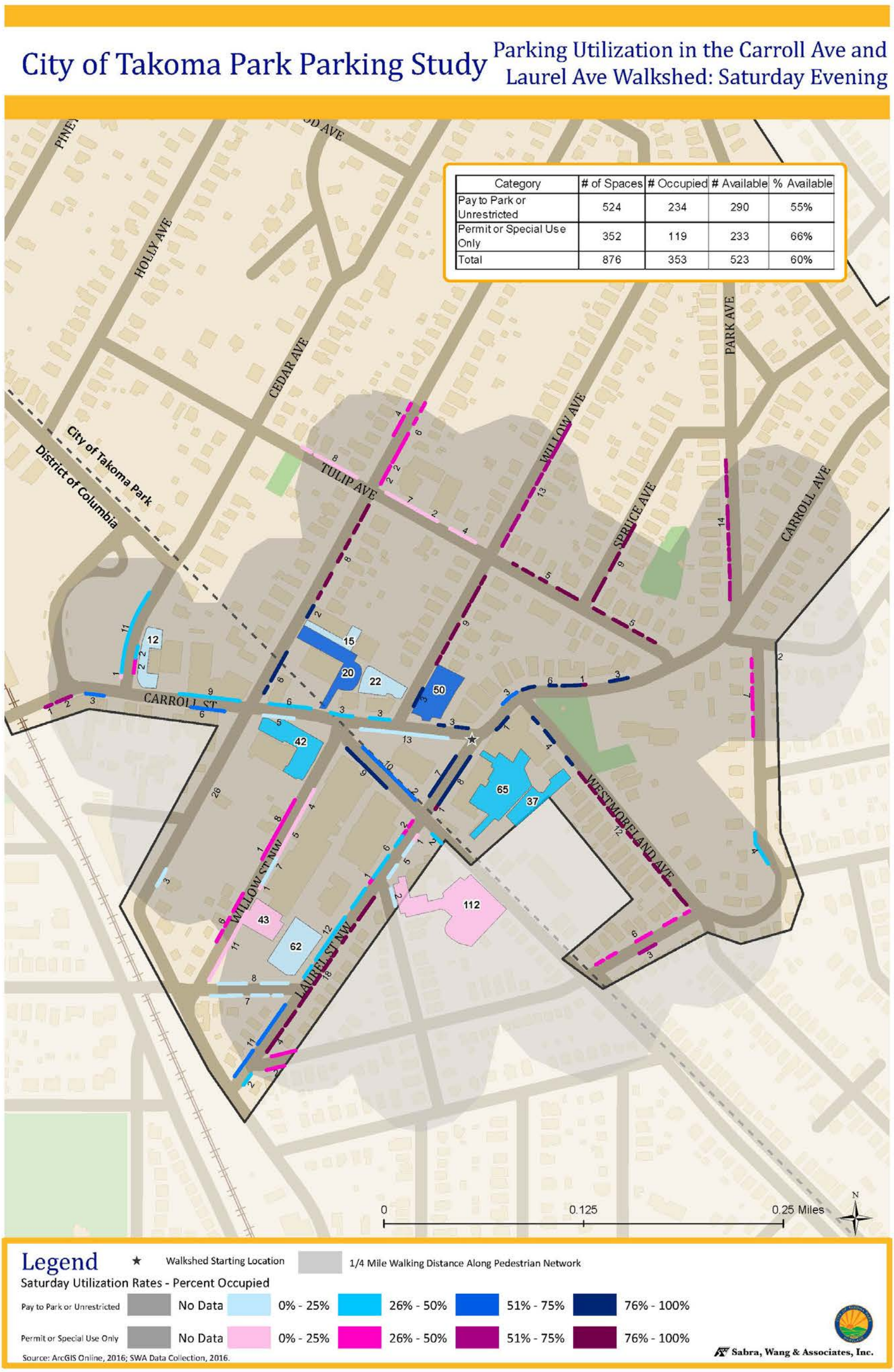


Figure 25: Saturday Utilization within Carroll Avenue & Laurel Walkshed

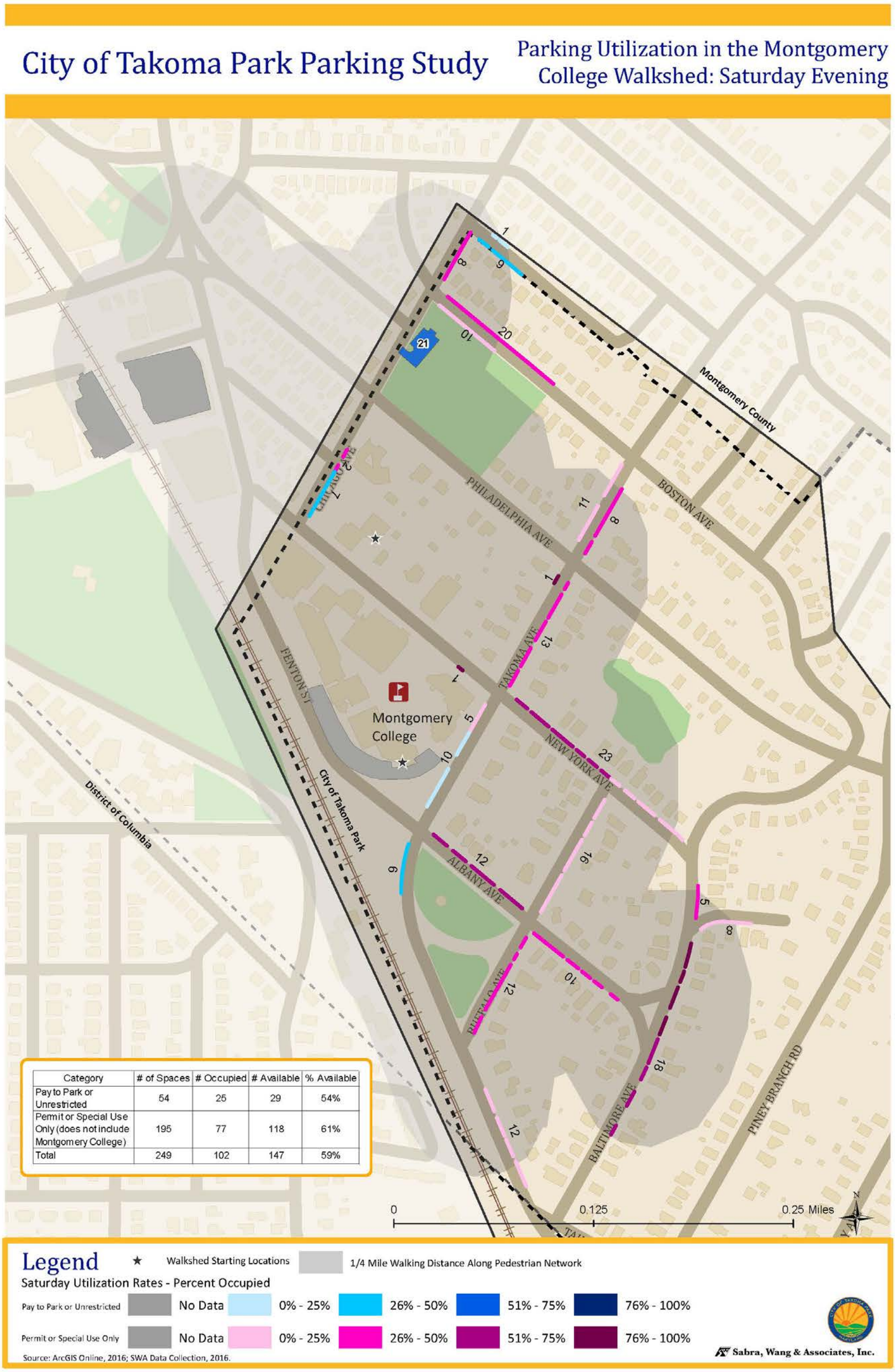


Figure 26: Saturday Utilization within Montgomery College Walkshed

Curbside Parking Utilization

Weekday and Saturday curbside parking utilization was collected in April 2016, during the peak hours of 5:00 PM and 7:00 PM by Sabra, Wang, & Associates, Inc. Data was collected of the course of two days, one weekday evening and one Saturday evening. The data collection dates were chosen as not to conflict with any holidays, spring break at Montgomery County Schools, or inclement weather, all of which might have affected the accuracy of the data collection. All data was collected at the block-face level, and can be seen in Figure 27 and Figure 28.

Weekday Utilization

On average, the weekday utilization rate of a block face in the study area is 53%. Blocks closest to commercial areas and institutions show the highest utilization rates, with the majority of both Carroll Street and Carroll Avenue showing rates of 90% utilization or higher. These areas are primarily available for visitor or public parking, with minimal restrictions with the exception of the handicapped and commercial loading zone spaces. The high demand for parking near downtown declines significantly north of Tulip Avenue, despite close proximity and relative walkability. Streets that are primarily residential, in particular those that are part of a residential parking permit area, show a wide range of utilization rates, with most falling between 1% and 60%. Exceptions to this are Piney Branch Road, Spruce Avenue, and portions of Tulip Avenue and Chicago Avenue, which show much higher utilization rates.

Saturday Utilization

Weekend curbside parking utilization within the study area is slightly lower than the weekday average at around 50%. Saturdays show higher utilization rates within the residential neighborhoods, in particular along Maple Avenue, Willow Avenue, Park Avenue, Westmoreland Avenue, and Holly Avenue. Carroll Street shows lower utilization rates than Carroll Avenue, in particular on Carroll Avenue between Willow and Tulip Avenues. This shows an overall trend that visitor parking is more available than restricted or permitted parking during this time, and that the demand for parking downtown is less on Saturdays than on weekdays.

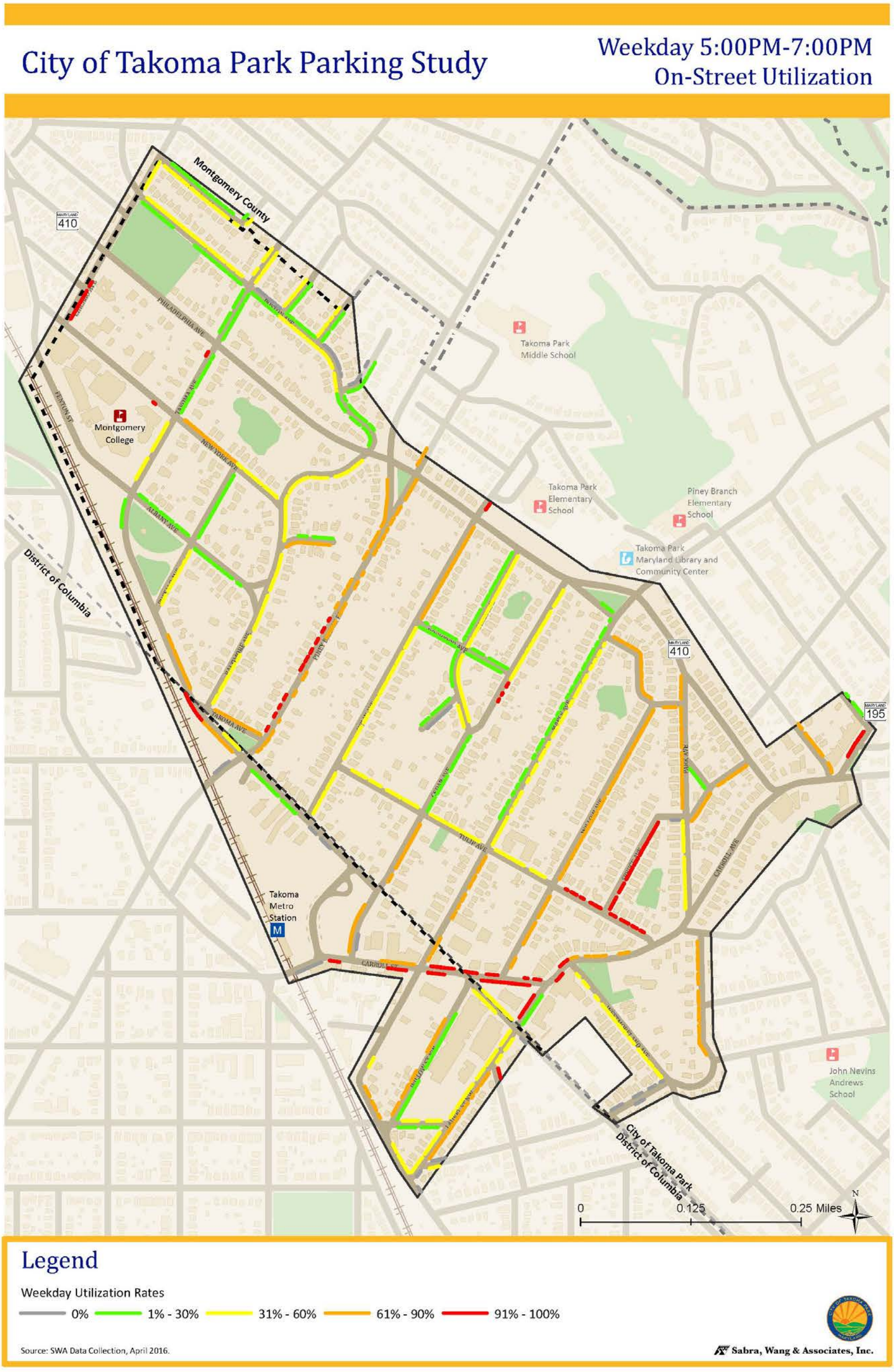


Figure 27: Weekday Curbside Utilization

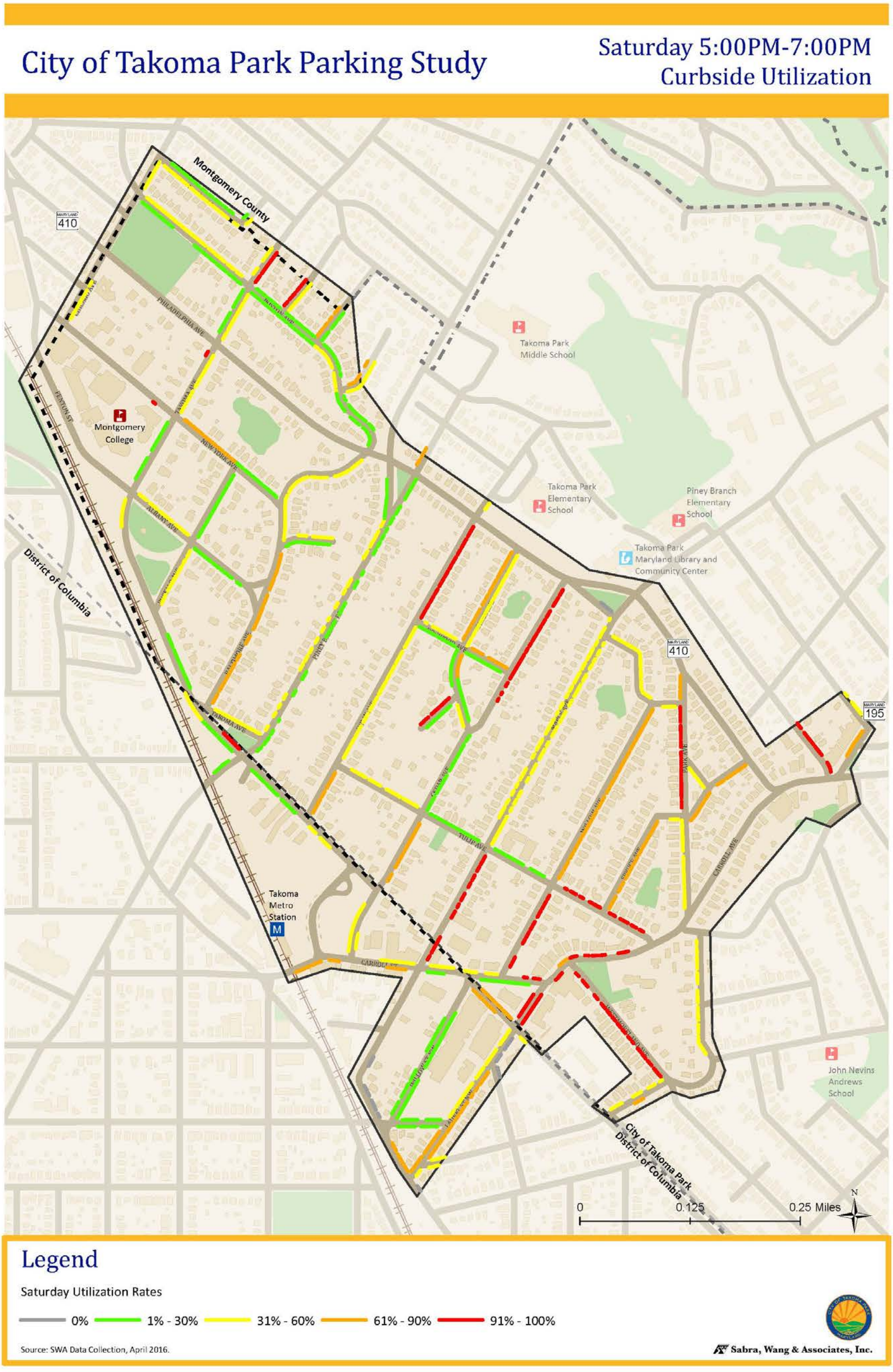


Figure 28: Saturday Curbside Utilization

Off Street Parking Utilization

Weekday and Saturday off street parking utilization was collected in April 2016, during the peak hours of 5:00 PM and 7:00 PM by Sabra, Wang, & Associates, Inc., and can be seen in Figure 29 and Figure 30. Data was collected of the course of two days, one weekday evening and one Saturday evening. The data collection dates were chosen as not to conflict with any holidays, spring break at Montgomery County Schools, or inclement weather, all of which might have affected the accuracy of the data collection.

Weekday Utilization

The average weekday utilization rate of the off-street parking was 49%. The lot with the highest utilization rate (95%) was the surface parking at the Takoma Business Center, a lot that is accessible to visitors in downtown Takoma. Other lots in this area showed moderate utilization rates, with the exception of the Bank of America lot which had a rate of 0% (data collection occurred after bank business hours). While it appears that there is a demand for parking during this peak period, many publicly-accessible lots do not show high utilization rates. This may be because those businesses which own lots do not have the same customer peak hours as other businesses in the downtown area. The two lots that are privately owned and inaccessible to visitors, on Willow Avenue and at the Seventh Day Adventist Church, show relatively low use. Montgomery College parking lots and garages showed moderate to high rates of utilization as well during this time; however these lots require a permit.

Saturday Utilization

Off-street parking utilization rates during the Saturday evening peak were relatively low, with an average of 36% utilized. It should be noted that this average does not include off-street parking at Montgomery College, for which no data was available. None of the surveyed parking lots had a utilization rate over 90%, and many were below 30% utilized; again, the surface parking at the Takoma Business Center had the highest utilization rate at 90%. The utilization rates in the two private permit only lots were very low, similar to their weekday utilization. There are many visitor parking lots, including the Laurel Avenue parking lot and the City Lot at Takoma Junction, which appear to have ample parking, indicating that overall there is more of a need for parking on weeknights than on Saturdays.

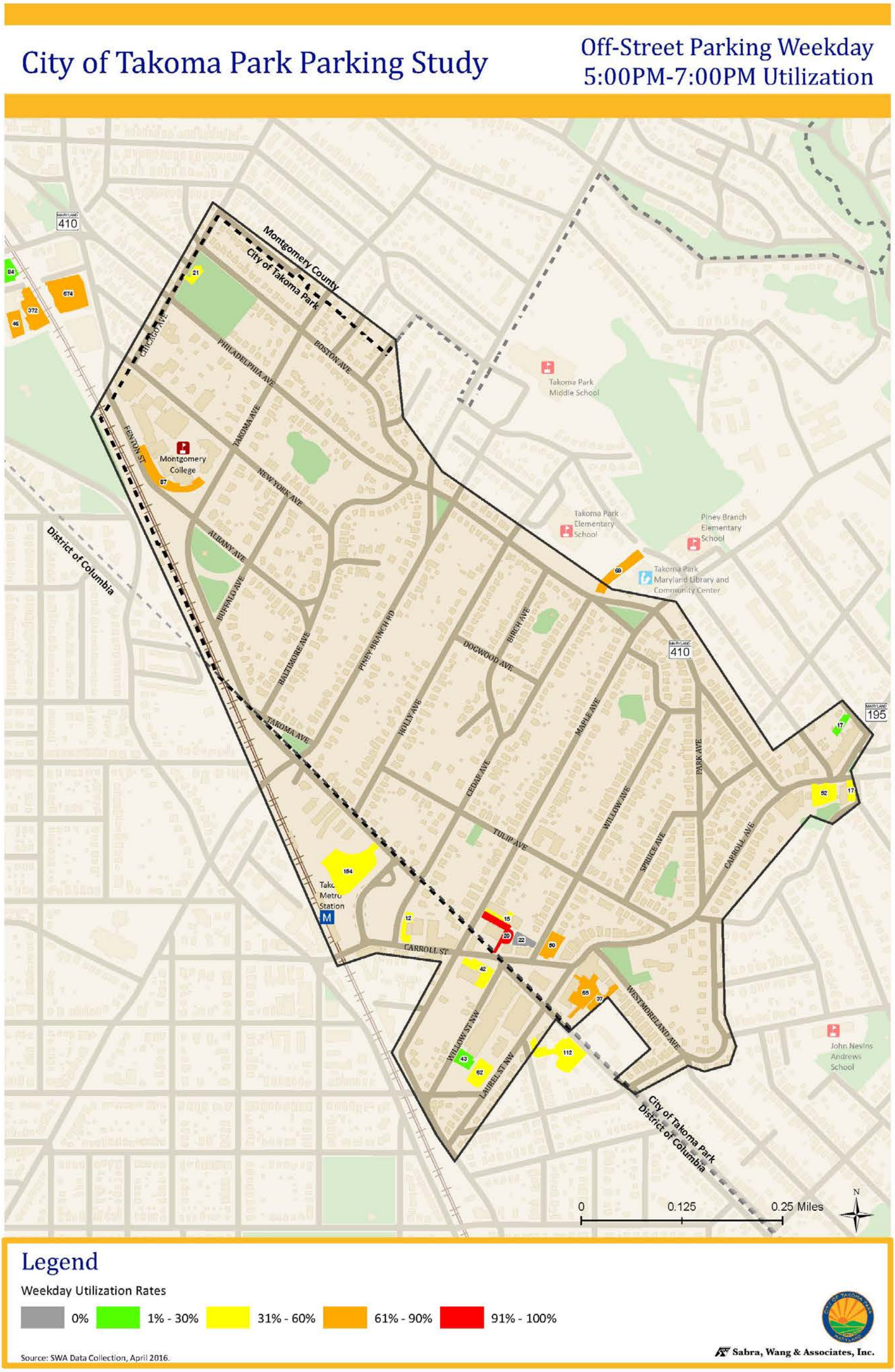


Figure 29: Weekday Curbside Utilization

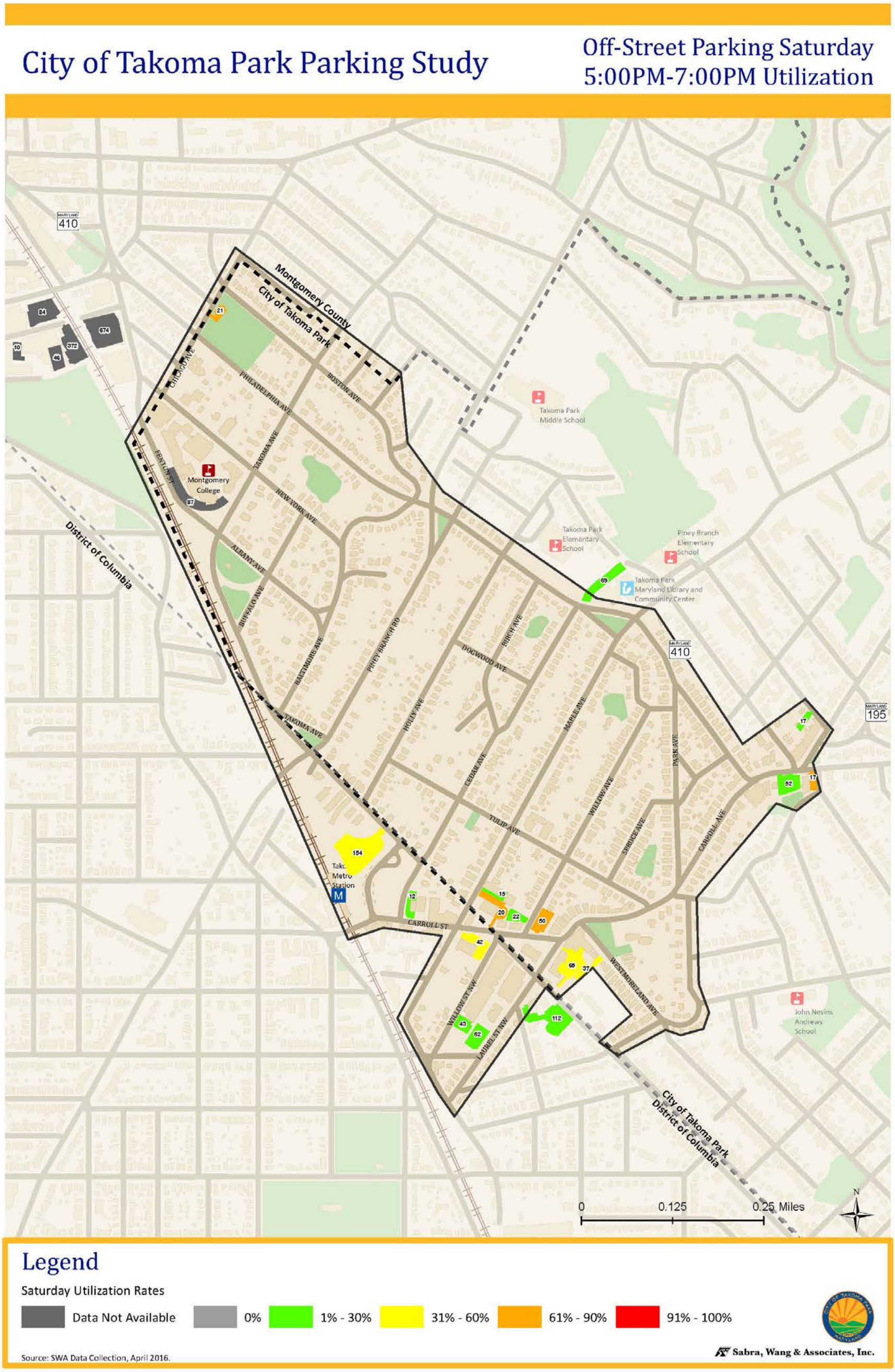


Figure 30: Saturday Curbside Utilization

Bicycle Parking Utilization

Bicycle parking utilization was collected in May 2016 by Sabra, Wang & Associates, Inc. between 5:00 PM and 7:00 PM for both weekday and Saturday. Data was collected of the course of two days, one weekday evening and one Saturday evening. The data collection dates were chosen as not to conflict with any holidays, Montgomery College spring break, or inclement weather, all of which might have affected the accuracy of the data collection. A total of 210 bicycle parking spaces were found within the study area and around the Takoma Park Community Center. Of this total, 102 spaces are found in the immediate area surrounding the Takoma Metro station. The majority of the available bicycle racks had a capacity of 2, although some privately maintained bicycle racks had a greater capacity.

On weekdays, 52 spaces, or 25% of the available bicycle parking were utilized, as seen in Figure 31. The majority of these occupied spaces (45 of 52) were found near the Takoma Metro station. None of the bicycle racks at Belle Ziegler Park were utilized. Figure 32 shows Saturday utilization rates, which were much lower than on weekdays. Only ten (10) spaces, 5% of the available bicycle parking, were utilized. Eight (8) of the utilized spaces were near the Takoma Metro Station. The bicycle racks at Belle Ziegler Park, the Takoma Park Community Center, and Takoma Junction were not utilized at the time of the data collection.

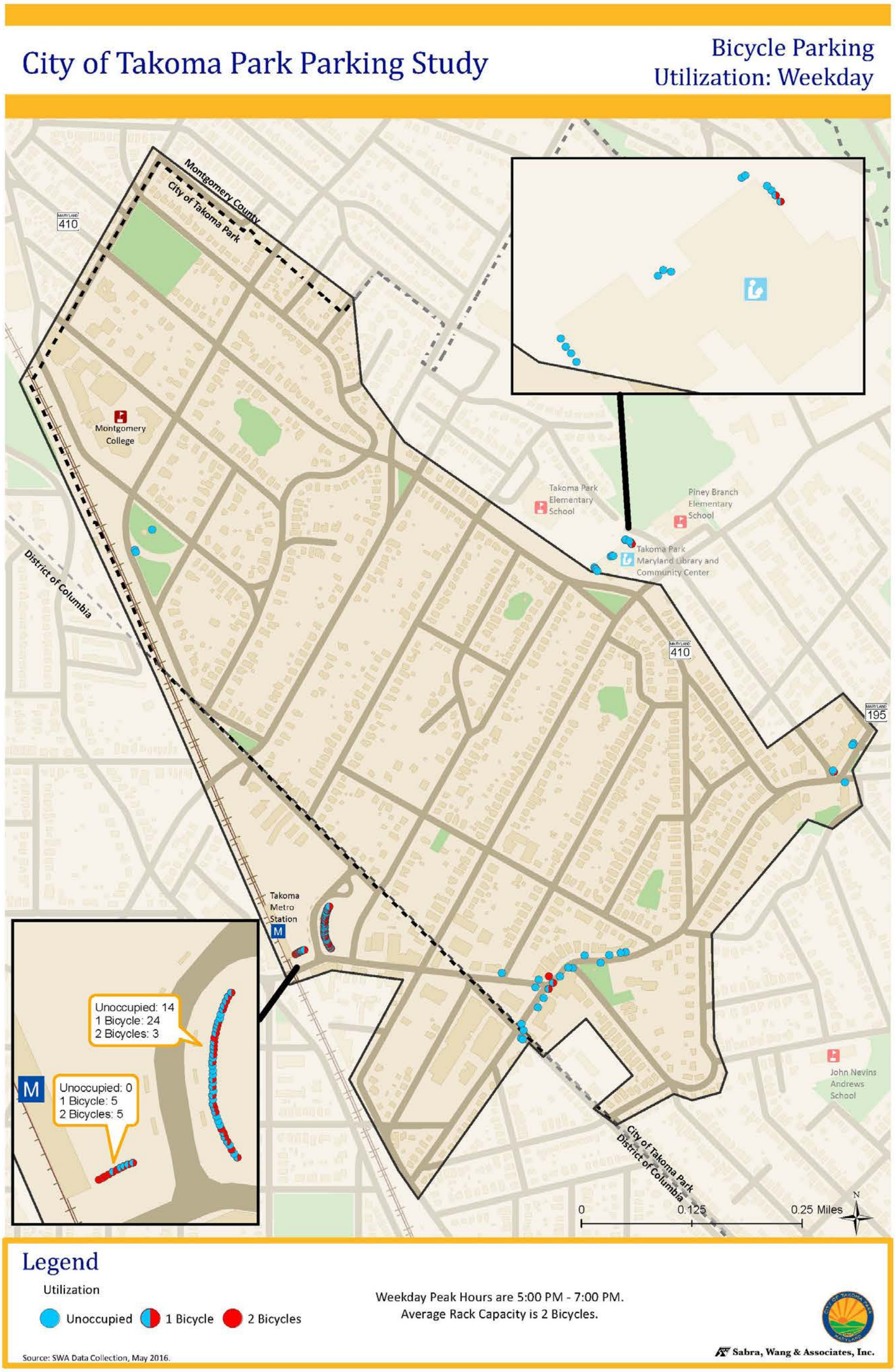


Figure 31: Weekday Bicycle Parking Utilization

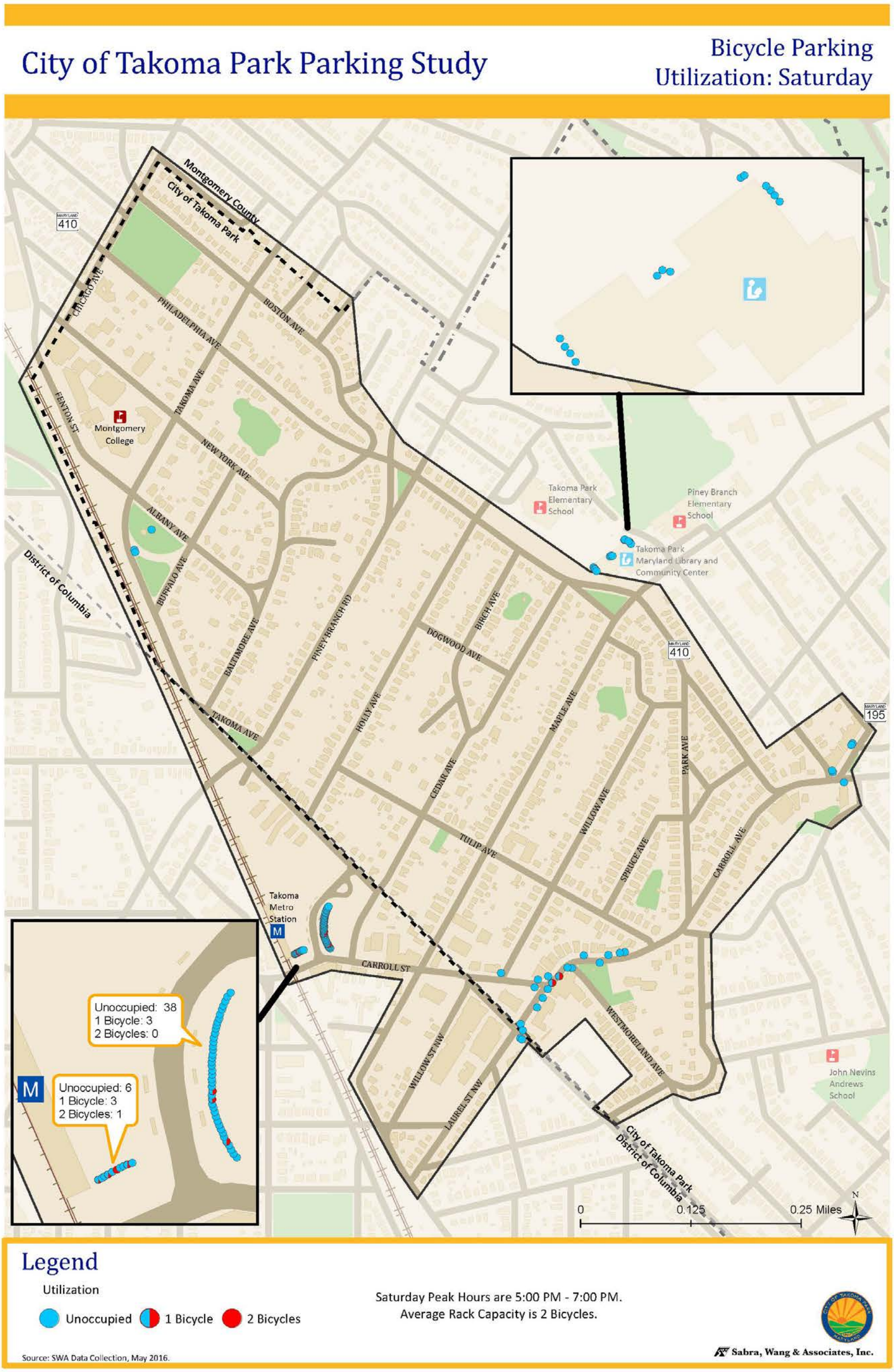


Figure 32: Saturday Bicycle Parking Utilization

Future Developments & Needs Assessment

Planned future development and transportation related infrastructure projects were assessed and mapped in Figure 33. While anecdotal information was received during the study period on future developments, including possible additional retail, this assessment only considers pipeline developments and improvement projects included in adopted planning documents.

Developments

Three developments are scheduled to come online in the near future: the Metro Village apartments, the Takoma Station apartments, and the Willow & Maple apartments. The residential developments are located in the D.C. portion of the study area and are within the ¼ mile walkshed of the Metro station and the intersection of Carroll & Maple. These will bring 515 dwelling units to the area with 279 parking spaces for residents.

A brief assessment on the parking provided by each complex compared to typical parking demand was conducted. A low to mid-rise apartment complex located within 1/3 mile of a transit station and less than 10 miles from a central business district, yields 0.8 to 1.2 vehicles per household[3]. This correlates well to the auto ownership per household for this block group of 1.25, as referenced in Figure 10. Metro Village apartments is providing 0.3 spaces per dwelling unit, Takoma Station is providing 0.7 spaces per dwelling unit, and Willow & Maple is providing 0.6 spaces per dwelling unit; all lower than typical and existing rates for vehicles per household. A lower bound assessment of 0.8 vehicles per household yields a need for 412 spaces resulting in deficit of 133 spaces. An upper bound assessment of 1.2 vehicles per household yields a need for 618 spaces resulting in deficit of 339 spaces. The additional parking demand placed on Takoma Park is estimated to be between 135 and 340 spaces. Factors such as household size, bicycle infrastructure, close proximity to a Metro station, and cost of owning/parking a vehicle can influence the parking demand[4].

[3] Institute of Transportation Engineers, Parking Generation Manual, 3rd Edition; reference page 50.
[4] Note that his assessment does not account for local parking requirements; assessment based on industry standards. While local requirements provide a baseline for providing adequate parking, they may not reflect true demand.

Infrastructure

D.C.'s and Maryland's most recent *Transportation Improvement Program* as well as their *Constrained Long Range Plan* were reference to determine transportation related infrastructure improvements schedule for the Takoma Park area. Four improvements are highlighted in Figure 33 and described below.

- *The Metropolitan Branch Trail Expansion*: The trail traverses the study area along its eastern boundary, adjacent to the D.C. line. The expansion, scheduled for a 2018 completion, will connect Takoma Park to the Silver Spring Transit Center, a current gap of about 0.6 miles.

- *The Park Valley Road Bridge Maintenance***:** The existing Sligo Creek bridge along Park Valley Road is schedule for replacement by 2017. The bridge serves vehicles as well as pedestrian and bikes using the Anacostia Tributary Trail System, which is a shared use path running through Takoma Park.

- *The Flower Avenue Sidewalk Improvement:* Flower Avenue runs the north border of Takoma Park serving a residential community as well as the Washington Adventist University Campus. While a sidewalk currently runs along one side of Flower Avenue, it is schedule for replacement with an ADA compliant sidewalk by 2018.

- *Intersection improvements are 4th Street, Blair Street, and Cedar Street:* The Takoma Park Study results in a series of recommendations for this intersection including new traffic signals, sidewalks, and curb/gutter improvements.

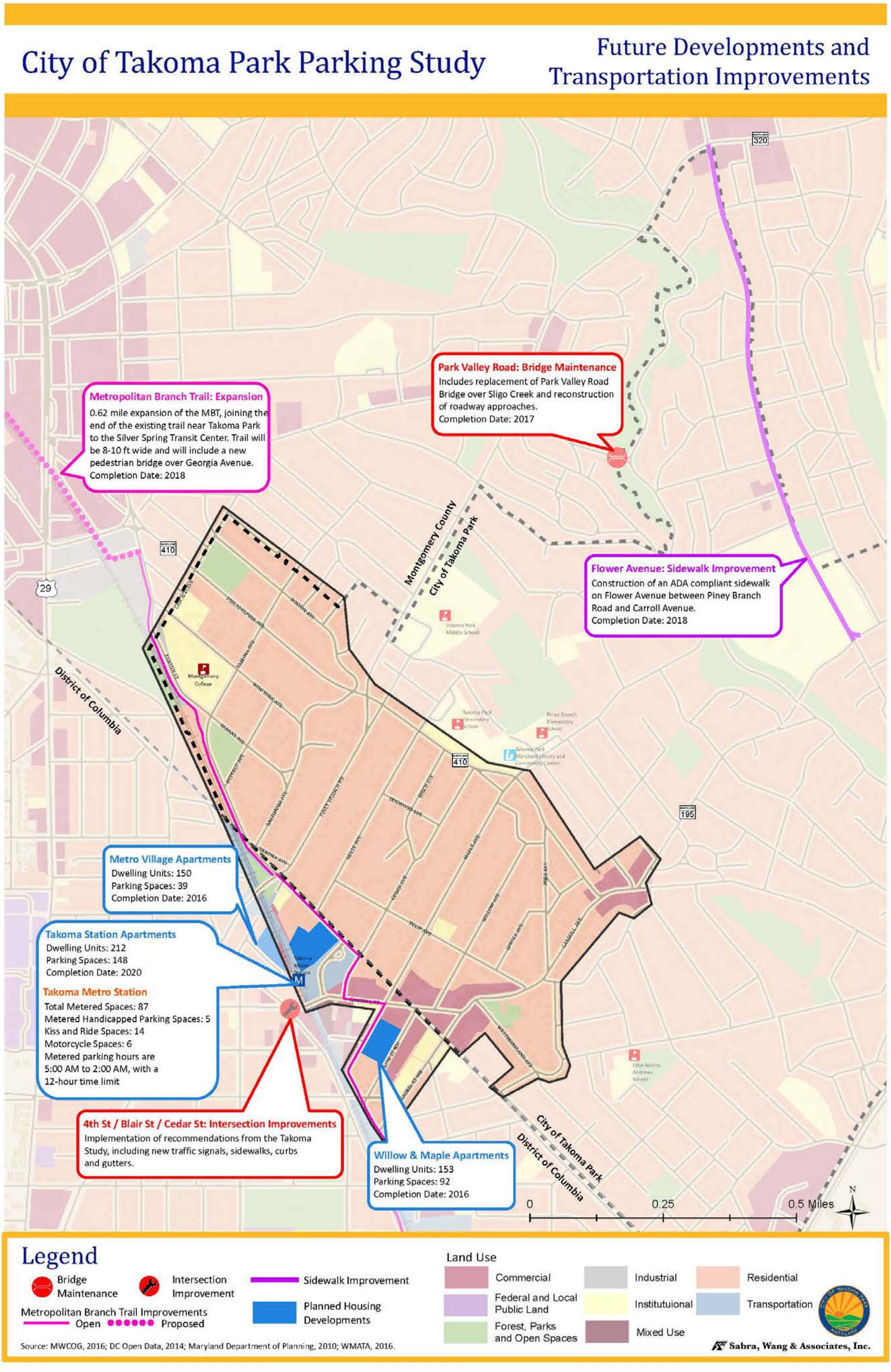


Figure 33: Planned Developments/Transportation Investments/Future Transit Changes

IV. Stakeholder Input & Key Findings

Stakeholder Input

Sabra, Wang and Associates, Inc. conducted stakeholder interviews with eleven (11) key representatives of the community in late February and mid-March of 2016, including business owners, religious and educational institution representatives, and stakeholder agencies. All interviewees were willing to provide information, and to be contacted further if necessary. Details for each interview can be found in Appendix A.

The following representatives were interviewed:

- John Urciolo, Owner of Takoma Metro Shopping Center
- Zoe Stern, Property Manager of Takoma Metro Shopping Center
- Laura Barclay, Executive Director of the Old Takoma Business Association
- Sandra Filippi, Campus Planner for Montgomery College
- Mark Greiner, Pastor of Takoma Park Presbyterian Church
- Councilman Peter Kovar of the Takoma Park City Council
- Andrea Bachinski, Studio Manager for the Washington National Opera
- John Reed, Administrator for the Takoma Park Seventh Day Adventist Church
- Robin McElhenny, Program Manager of Station Area Planning, WMATA Office of Real Estate and Station Planning
- Evian Patterson, Citywide Parking Division Manager at DDOT
- Tom Kenney, Managing Partner of Immerman & Kenney Properties, LLC

Through the interviews, several general observations were made about parking within the study area. It was noted that the recent development trends, particularly on the D.C. side of downtown Takoma, placed strain on the existing local parking supply. Further tension is felt towards these developments due to D.C.'s development practices, which allow for developments near Metrorail stations to reduce or eliminate parking requirements. Stakeholders felt that while this practice may be appropriate for new developments in downtown D.C., it would create parking problems in Takoma Park.

The City's current parking meters were observed to be a problem, as the coin-operated meters were considered a nuisance that often led to non-payment. Suggestions to switch to meters that accept credit card or phone payments were made. Friday and Saturday evenings were considered to be the most critical periods where parking became scarce due to increased restaurant patronage, although it was also noted that during other times parking is (generally) not difficult to find, and is mostly an issue of convenience.

The Seventh Day Adventist Church was considered to be a vital resource for parking within downtown Takoma. The parking lot is rented out to multiple businesses for staff parking, as well as Strayer University students on weekdays, utilized by Seventh Day Adventist Church members on Saturday, and by other churches and farmers' market customers on Sundays. Without the use of this parking lot, daily parking pressures in Takoma Park would increase.

Key Findings

- The predominant land use within the study area is residential with a concentration of retail and business establishments in the southeast corner of the study area.
- The pedestrian network is complete with above average connectivity and the City has four Capital Bikeshare stations within the study boundary.

Parking Supply

- There are 1,414 curbside parking spaces in the study area with 64% restricted for residential permit only parking (during certain hours) and roughly 32% are publicly available.
- There are 2,083 off-street spaces in 24 locations, of which the majority (62%) are owned and managed by Montgomery College and require a permit to park.
- Unofficial shared parking is in effect at the Takoma Park Seventh Day Adventist Church Lot.

- Key destinations in Takoma Park that attract visitors and induce a parking demand include the Metro station, downtown Takoma (specifically the intersection of Carroll & Maple and Carroll & Laurel), as well as Montgomery College. The number of curbside spaces within a ¼-mile walkshed of downtown Takoma Park is twice that of the Metro station and the College. Within the walkshed of the Metro station and downtown Takoma, 35%-55% of the spaces are pay to park/unrestricted and 30% to 50% are residential restricted. A greater discrepancy occurs within the ¼-mile walkshed from the college where 88% of the curbside spaces are residential restricted.

Parking Demand

- Five of the eight residential permit parking zones cross the study area. Of the five, three issue an average of 20% more permits than there are spaces; indicating there is a higher demand for residential parking in these zones (1A, 2A, and 3) and a lower residential demand in zones 1 and 2.
- Utilization of curbside and off-street parking during the weekday evening period is greater than during the Saturday evening period.
- The walkshed analysis shows that there is an excess supply of parking (around 40%) during all peak times.
- Parking pressures from Montgomery College are a seasonal occurrence. There is a surge in parking demand during the first few weeks of each semester; however the demand tapers off and does not over extend the parking system during a majority of the year. Montgomery College also induces a surge in demand during the mid-day while classes are in session; however this is balanced by local residents being at work. It is also noted that there are a low number of permit violations near the campus.
- Demand on parking from Metro commuters is not a significant impact. The station draws passengers from a radius of one to two miles. The mode share analysis shows that 8% of the commuters drive to the station; therefore, commuter parking is minimal. It should also be noted that parking violations are minimal near the station.

- The study shows that parking is available in all study time periods, but availability may be a block or more from destination. Some available parking resources (on- or off-street) go unused at peak times.

Stakeholder Comments

- Concern about new development with reduced parking requirements is widespread.

- The public views older parking meters, which only accept quarters, as an inconvenience. Meter usage would likely go up if additional payment options were available, and the rate of overtime infractions would likely go down.

IV. Recommendations

Although the pace of development in Old Takoma is on the increase, options to address parking supply through new facilities is hampered by the fact that relatively few parcels remain to be developed. In light of the limited options to provide parking supply, the common sense approach to manage parking in the area is to implement a variety of small changes aimed at maximizing the utility of existing parking supply. The recommendations included here focus on meeting the study objectives through the following approaches:

- Curbside Management
- Pricing Strategies
- Un-Bundled Parking
- Residential Parking Permit Program
- Develop Shared Lease Agreements
- Wayfinding and Information
- Bicycle Infrastructure Improvements

A common component of these strategies is an emphasis on integrating greater flexibility into the management of the overall parking supply. While the demand for parking fluctuates over the course of a day and/or a week, the parking supply remains largely static. Implementing flexibility into the parking supply through better management equates to a system that better meets the needs of all users and stakeholders.

Curbside Management

Revising the curbside parking regulations and meter technology is often a simple and cost effective method to improve parking experience and increase parking supply. A variety of curbside management improvements are recommended below.

- **Replace existing single space, coin operated meters with a pay station and/or credit card operated machines.** Pay stations, which are single payment locations managing all spaces along a single block, have many advantages over single-space meters. Pay stations allow for multiple payment options including coins, bills, and credit/debit card which facilitate ease of use for patrons to utilize curbside parking as well as can increase compliance and parking meter revenue. By not defining a set number of parking spaces as is the case with individual parking meters, pay stations can increase the number of possible

parked vehicles by an estimated 10% to 15%. The 20-22 foot space length requirement for marked spaces is designed to accommodate the longest privately-owned vehicles, which represent only a small minority of vehicles in operation today. Pay stations also allow for flexible use of public realm providing more space for streetscaping.

- **Extend metered time to 8:00 PM in the Old Takoma District.** The span of parking meter periods should reflect the span of demand of metered parking. A major draw to Old Takoma are the restaurants where many patrons are parked until 8:00 PM or later. Metering parking during high demand time periods more effectively manages parking, reducing circulation while increasing turnover.

- **Specify loading zone times.** Defining loading zone times is an efficient management of valuable curb space reserving space when it is needed for loading, and restrictions can be lifted when it is not. For example, restricted loading only parking can be in effect when business more frequently receive their shipments such as between 5:00 AM -11:00 AM and/or 2:00 PM- 4:00 PM. Specified loading only times open up parking spaces during prime demand times.

- **Consider instating the loading zone in front of Ace Hardware along Carroll Avenue.** In the absence of a loading zone here, deliveries are currently unloaded on the opposite side of Carroll Avenue (where no official loading zone exists) and carted across the street.

- **Designate curbside space for non-private vehicles.** Encouraging trip sharing reduces parking demand. It is recommended to specifically designate two to four spaces for ride share and one to two spaces for car share spaces in the restaurant corridor. Possible locations for these spaces could include:
    - Three currently unrestricted spaces on the north side of Carroll Avenue at the Carroll/Willow/Eastern intersection.
    - Spaces on Maple Street NW to be replaced after construction of the Willow & Maple residential development is complete.
    - The CVS parking lot at Carroll Street NW and Willow Street NW.

- The Kirchiro lot at Carroll Avenue and Willow Avenue.
- The Bank of America parking lot on Willow Avenue (likely only for rideshare outside of bank business hours)
- Spaces on the north side of Carroll Street NW at Cedar Street NW – if Cedar Street one-way configuration (below) is implemented.

Utilization of any of the private lots listed above for the purpose of designated ride share or car share spaces would require a memorandum of understanding with the property owners.

- **Install additional metered spaces at select locations.**
  - Convert unregulated spaces to metered spaces along Carroll Street NW/Carroll Avenue and Eastern Avenue.
  - Re-install metered spaces along Maple Street NW post construction completion**.**
  - Convert Cedar Street to one way traffic flow between Eastern and Carroll. This will provide the right of way to install back in angled parking and increase the number of spaces along this block from 14 to 35. Since this block is on the D.C. side of the state boundary, this approach would have to be a DDOT initiative, and would require careful coordination with WMATA and Ride On, whose buses layover on Cedar Street.

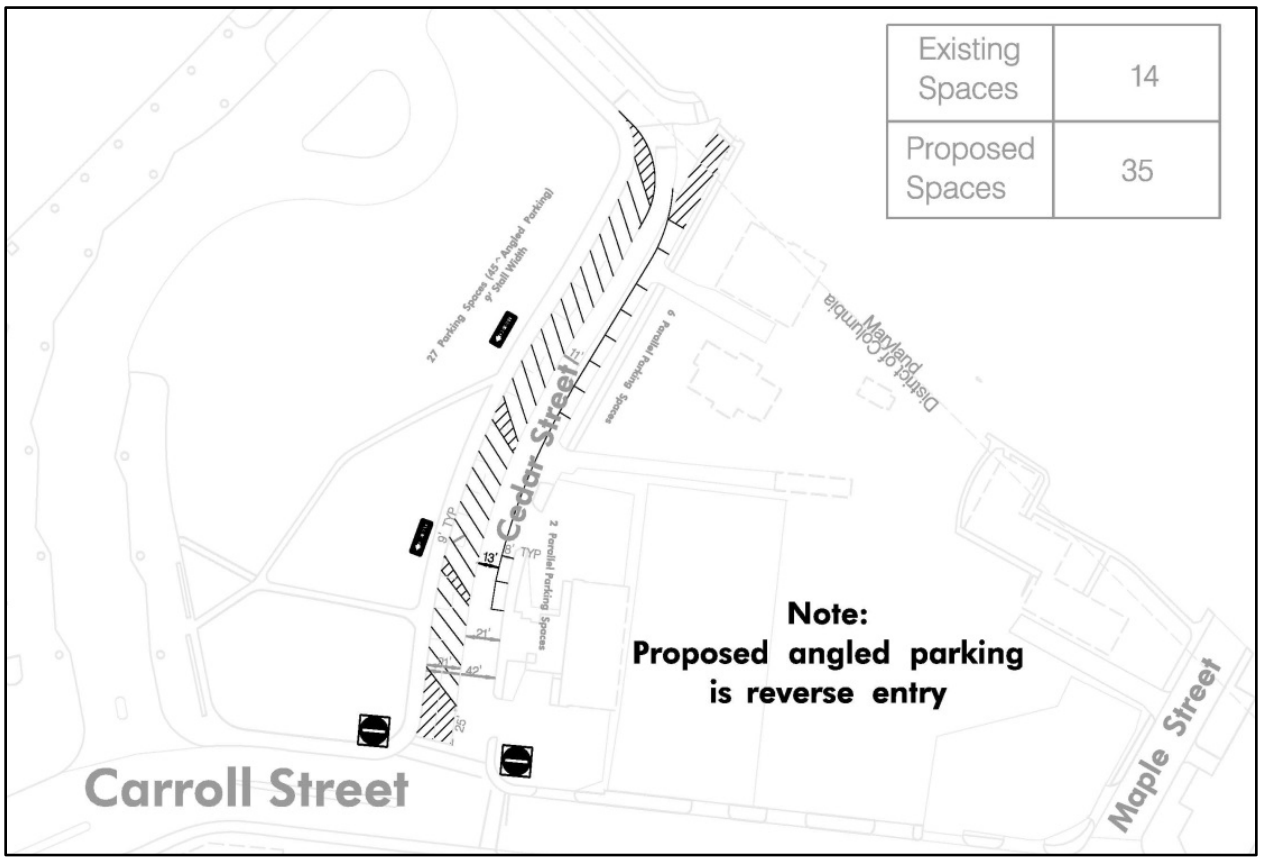


Figure 34: Possible one-way reconfiguration of Cedar Street NW with back-in angled parking.

Pricing Strategies

Pricing strategies are effective in regulating parking demand. Two pricing strategies improvements are recommended:

- **Re-establish a unified base rate.** 78% of the meters in the City of Takoma Park (146 of 188) are signed at a rate of $0.75 per hour, while the remainder are signed at either $0.50 per hour or $2.00 per hour. Field observations also reveal that signage at meters is inconsistent, and several of these meters may in fact be set to the standard $0.75 per hour rate, but are incorrectly signed. The meters on the D.C. side of the line were recently reset from $0.75 per hour to $2.30 per hour. This imbalance between rates is likely to create additional parking pressure in the City of Takoma Park, as users can save substantially by parking at City meters over parking at D.C. meters. The City should coordinate with DDOT

to establish a single, consistent base rate for the entire area in order to ensure that the parking load is evenly distributed.

- **Institute performance pricing.** Pricing is an effective tool to manage parking by increasing turn over during high demand times or in high demand areas. Peak parking demand hours in the study area are between 4:00 PM and 8:00 PM. It is recommended to institute rates along Carroll Avenue between 4:00 PM and 8:00 PM that achieves approximately 90% occupancy. At that rate of occupancy, there will generally be at least 1 or 2 spaces available per block (although block lengths vary considerably in the study area), creating a perception that there are always "a few" open spaces. The overall goal is to ensure that the most desirable parking locations are well used, but that visitors can also find parking at all times without needing to search for a long time to find it. Slowly cruising downtown streets in search of curbside parking adds significantly to overall traffic congestion in commercial areas around the country. Reducing the rates along the side streets during the same time period encourages patrons parking for longer durations to park there, leaving spaces in front of businesses open for patrons parking for shorter durations. The City can effectively utilize enforcement personnel to audit occupancy on a monthly or quarterly basis in order to reset prices.

Un-Bundled Parking

Removing the cost of parking from monthly rent for residential and office tenants would have two primary benefits. First, it sets the cost of parking to the market rate, allowing renters to base parking decisions on financial benefit. Trip making by alternative modes would be encouraged among those tenants who decide against paying for the parking space(s) that otherwise included in their rent. Secondly, un-bundling would allow remaining unreserved spaces to be made available for rent to the general public, either as short-term parking or monthly rented spaces. Implementation of this recommendation would likely require adjustment to municipal zoning codes, as well as memorandums of understanding with property owners. Un-bundling could be applied to both existing properties and to new developments.

Residential Parking Permit Adjustments

A series of recommendation to the residential parking permit program are shared below.

- **Redraw residential parking permit zone boundaries.** Through a spatial analysis of the residential permit parking zone violations, it was determined that violations are concentrated in a few key areas. The recommended boundaries are shown in Figure 35, reflecting where parking demand is high enough to warrant a permit program for local residents, and removing permit requirements where demand is less.

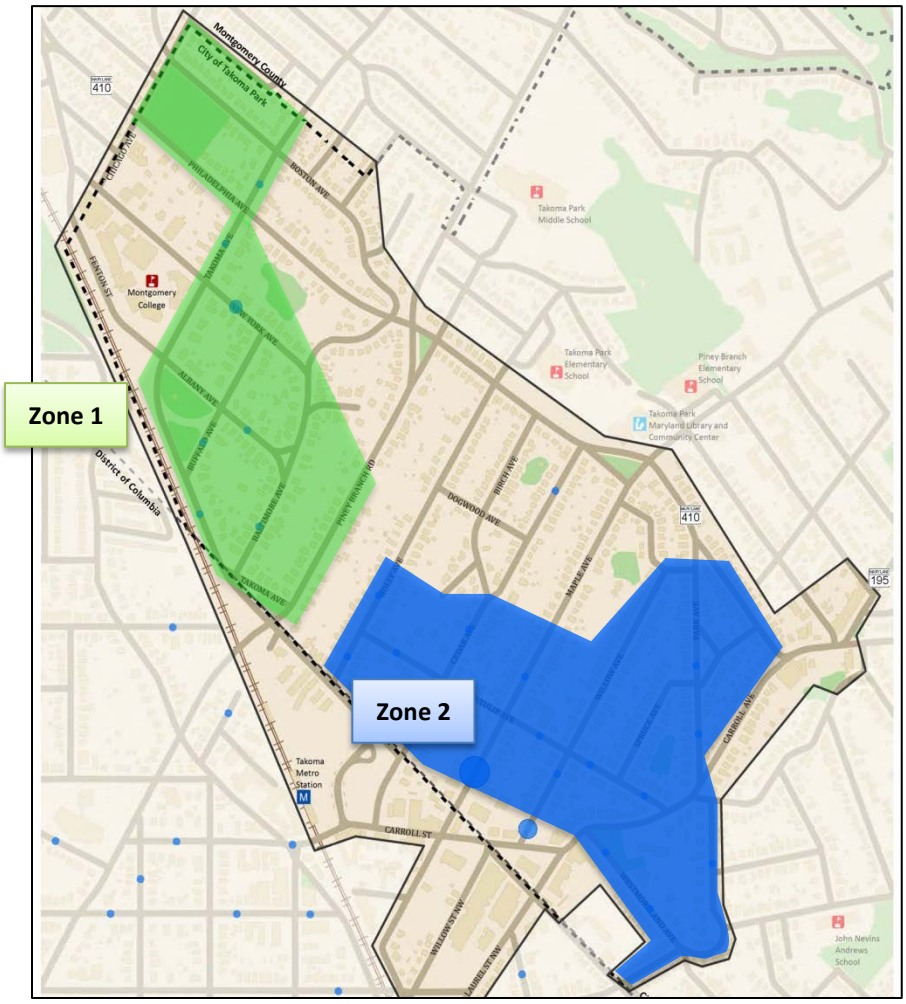


Figure 35: Recommended changes to permit parking zones

The five residential permit parking zones could be consolidated as two zones that are more directly focused on the areas surrounding the Montgomery College campus (Zone 1) and the Carroll Avenue commercial corridor.

- **Adjust permit parking-only times.** There are two locations where permit parking-only times could be adjusted to better reflect parking demand. These include 1) in Old Takoma, adjust the permit only parking times to 4:00 PM to 10:00 PM Monday through Saturday, and 2) in the vicinity of Montgomery College extend permit only parking times to 9:00AM to 4:00 PM, Monday through Friday. Additionally, allow two hour parking in the residential parking permit zones for the general public from 10:00 AM to 8:00 PM. The City may also consider charging for non-permit holder parking in the permit zones through pay-by phone technology.

  As with performance pricing, regular monitoring of curbside parking is an integral component of this recommendation. If abrupt changes in utilization rates, or the rate of violations, are noticed, boundaries and/or restricted time periods can be adjusted to ensure a desired condition that balances the needs of residential neighborhoods and adjacent land uses.

Develop Shared Leasing Agreements

- **Facilitate shared leasing agreements.** Share leasing agreements can make the most use of existing parking supply by connecting parking needs of distinct generators that have peak demands at different times during the day. For example, allowing use of bank parking lots after 5:00 PM for restaurant patrons can help to alleviate parking pressures in Downtown Takoma during evening hours. The City can facilitate the agreements between entities. Some locations with potential for shared use agreements include the following:
  - **Bank of America lot** – available in evening hours when bank is closed.
  - **Kirchiro lot at Carroll Ave. and Willow Ave.** – used by commuters during the day, could be available to retail patrons in the evening.
  - **Post Office lot at Laurel Ave. and Eastern Ave** – available in evening hours when Post Office is closed.

- **Underground parking at the Takoma Business Center** – possible monthly rental for commuters or employees of local businesses).
- **Daily lot at Laurel St. and Aspen St.** – currently charges commuters $6/day, open for other uses outside of commuting hours.
- **Montgomery College Garages** - MOU already exists with M-NCPPC to provide access to Jessup Blair Park. Other uses possible during evening/weekend periods.

Wayfinding and Information

- **Install static wayfinding signs.** Communicating parking locations to visitors and patrons is a key element to achieving a high utilization rate of existing parking supply. Sign placement should reflect typical travel patterns and gateways to Old Takoma. A signage program would serve the public best in the case of Takoma Park if implemented on both sides of the Maryland/D.C. line, with a consistent set of signage that helps to establish a single identity, or "brand" for the area. Signage would not focus solely on providing direction to parking facilities, but would also point out significant landmarks. Such a wayfinding signage program could be implemented through the Old Takoma Business Association, which already coordinates civic improvement efforts among business owners on both sides of the line..

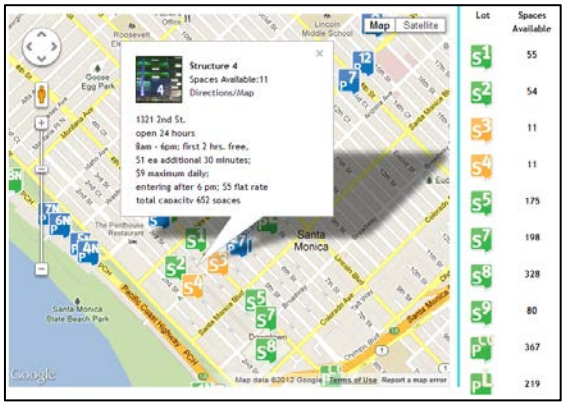


Figure 36: Example of mobile-friendly parking website.

- **Establish a mobile friendly parking information website.** Websites are one of the most effective methods to communicate information to the general public. A parking website can contain an interactive map showing curbside and off-street parking locations as well as parking rates and permit times of each location. It is recommended to update at least quarterly, but monthly is preferred. To encourage alternative modes of transportaiton, it is also recommended to include information on bicycle and/or transit options on the website.

Bicycle Infrastructure Improvements

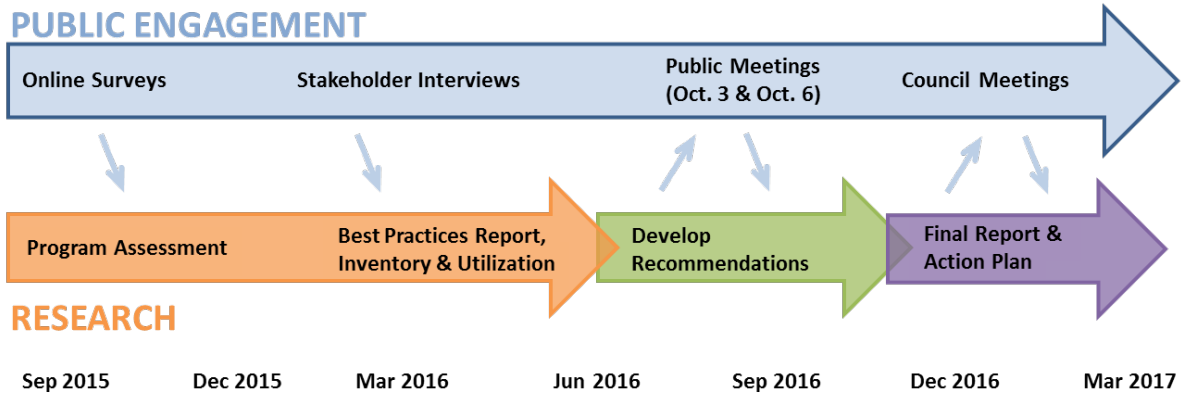
The study area is already a highly bike-friendly area. Although there are only a handful of designated bike routes, in reality almost all of the streets in the study area are bike-friendly due to their low travel speeds. In addition, the area features the Metropolitan Branch trail, a primary link in the regional bicycle network, and five Capital Bikeshare stations. Nevertheless, Old Takoma can further encourage bicycle trips in place of driving by providing additional focus on bicycle parking.

- **Increase bicycle parking presence.** The study found that although existing bicycle parking supply is adequate, it is difficult to locate and is not well distributed throughout the study area, specifically along the primary corridors. It is recommended to 1) place attractive and distinctive bicycle racks at regularly spaced intervals along the Carroll Avenue corridor, and 2) convert a parking space to bicycle parking by installing a bike corrals at Carroll & Maple, Carroll & Laurel, Takoma Junction, and Montgomery College. While one parking space serves one vehicle, it can serve about 10-15 bikes.

Figure 37: Bike corral example

V. Next Steps

This parking management study represents a single phase of the City's ongoing review and revision of parking management policies city-wide. The recommendations included in this report will be further developed over the next several months, with additional input stemming from public meetings planned for October and additional City Council meetings at a later date. A final report and plan for updating parking management in the City of Takoma Park is expected in 2017.



Further detail on the City's parking management study can be found on the study website at: https://takomaparkmd.gov/initiatives/project-directory/parking-study/.

APPENDIX A

STAKEHOLDER INTERVIEWS

May 6, 2016

Erkin Ozberk, AICP
Housing and Community Development
City of Takoma Park
7500 Maple Avenue, Takoma Park, MD 20912

Reference: Stakeholder Interview Notes

Sabra, Wang & Associates (SWA) conducted the set of stakeholder interviews proscribed in the Takoma Park Parking Study between late February and mid-March of 2016. The list of interviewees included the following representatives of the business community, religious institutions, and stakeholder agencies.

- **John Urciolo, Owner of Takoma Metro Shopping Center**
- **Zoe Stern, Property Manager of Takoma Metro Shopping Center**
- **Laura Barclay, Executive Director of the Old Takoma Business Association**
- **Sandra Filippi, Campus Planner for Montgomery College**
- **Mark Greiner, Pastor of Takoma Park Presbyterian Church**
- **Councilman Peter Kovar of the Takoma Park City Council**
- **Andrea Bachinski, Studio Manager for the Washington National Opera**
- **John Reed, Administrator for the Takoma Park Seventh Day Adventist Church**
- **Robin McElhenny, Program Manager of Station Area Planning, WMATA Office of Real Estate and Station Planning**
- **Evian Patterson, Citywide Parking Division Manager at DDOT**
- **Tom Kenney, Managing Partner of Immerman & Kenney Properties, LLC**

Additionally, SWA made multiple attempts to contact Jack Lester of EYA, but did not receive any response. Robin McElhenny of WMATA was able to provide details of the Takoma Metro Station joint development, which should aid in mitigating a lack of information from EYA.

All interviewees shared their thoughts willingly, and all expressed a willingness to be contacted further if necessary.

Overview

The interviewees had varying perspectives on the issue of parking supply in the study area. However, among the stakeholders a handful of common themes emerged over the course of the full set of interviews. The following concerns and observations were all expressed by multiple interviewees.

a. **Recent development trends have placed a strain on local parking supply.** Several stakeholders pointed out that parking has historically been plentiful and easy to find in Takoma Park, but that the recent surge in development on the DC side of the line has added new users for whatever surplus of parking had existed before.

b. Those who point to recent development soaking up parking also tended to hold the opinion that **development practices that are appropriate for more central parts of DC are not**

appropriate for Takoma Park. In particular, stakeholders felt that DC's practice of lowering or eliminating parking requirements for developments near Metrorail stations should not be applied to the same degree in a neighborhood such as Takoma, which is at the outer edges of the District, as it would be for stations closer to the core. Of those who expressed this opinion, **Busboys and Poets** and the **Takoma Metro Station joint development** were singled out as egregious examples of requiring too little parking.

c. **The City's outdated meters are a problem.** Several stakeholders pointed to the coin-operated parking meters in the City of Takoma Park as presenting a nuisance and leading to non-payment. Stakeholders pointed to payment by credit card and/or by phone as a potential solution.

d. **Parking supply is currently a convenience issue.** Most stakeholders admitted that it is still generally not difficult to find parking in Takoma Park, and mentioned that residents have become accustomed to being able to park exactly where they want to.

e. **Friday and Saturday evenings are the most critical periods relavent to parking scarcity,** driven by the increased restaurant patronage in the area.

f. **The Seventh Day Adventist Church lot is a critical resource**. This lot serves as a de facto shared parking facility, serving multiple user groups at different times throughout the week, including:
    - employees of local businesses and Strayer University students on weekdays,
    - Seventh Day Adventist Church members on Saturdays, and
    - Members of other churches and farmers' market customers on Sundays.

    Without the availability of this facility for numerous uses, parking would be significantly more scarce throughout the week.

Detailed notes from Stakeholder Interviews

John Urciolo, Owner of Takoma Metro Shopping Center
Zoe Stern, Property Manager of Takoma Metro Shopping Center
Interviewed on February 24, 2016

- Residents are concerned about the lack of replacement parking included in the Metro Station joint development.
- Residents are accustomed to free parking. Ticketing of vehicles in residential areas was a shock to residents when it began.
- The opening of new restaurants (Republic in 2013, Busboys & Poets in 2015) has absorbed the surplus of parking that used to exist. John & Zoe noted that their lot has gotten steadily more full. The area near Busboys & Poets is seen as the key area of conflict.
- The Takoma Metro Shopping Center was converted to cash in 2014, with the first hour free and $3/hour after that up to a $16 daily max. Sunday rate is a flat $2.50 with no free first hour. Trucks do not pay, which is regulated by a high sensor detecting tall vehicles. John & Zoe noted

that due to the free first hour, there are a lot of free riders who benefit from their parking lot, and may be patronizing other businesses (not their tenants).

- The Seventh Day Adventist Church rents spaces during the week. Some of the tenants in the Takoma Metro Shopping Center rent spaces for their employees. That lot is open and free on Sundays.
- Ace Hardware's lot (access from Westmoreland Street) relieves pressure on the on-street parking.
- Issues identified with parking meters:
    - Need to use quarters in Takoma Park meters leads to a lot of non-payment.
    - Some DC meters were changed from a four-hour span to two hours.
    - Recommendation: replace meters with pay-by-phone.
    - The metered section of some streets (e.g. Cedar, Maple) stops abruptly at the edge of residential areas. The City may want to continue meters/ pay parking further.
- The difficulty in crossing Carroll Avenue in the Takoma Junction area makes the city-owned lot less accessible.

Laura Barclay, Executive Director of the Old Takoma Business Association
Interviewed on February 24, 2016

- Weekend evenings are the key time for parking supply pressures, particularly when the weather is good.
- Residents and customers are conditioned to finding parking exactly where they want it.
- The opening of Busboys & Poets in 2015 has increased parking pressures.
    - The development was treated like it is in a downtown area, but it isn't. The development only included 40 spaces for 140 residents, and no commercial parking.
    - At the peak busy times for the restaurant, residential restrictions are not in place, so customers do park in neighborhoods.
    - A lot of circling and searching for spaces is observed.
    - B&P has weeknight events, such as book signings, that draw large numbers of visitors and often surprise locals.
- Another building adding to parking pressure is the Takoma Business Center, which has ample parking that is not available for customers of businesses. Willow Street Yoga customers are often seen searching for spaces.
- The Metro Station lot is important to relieving parking pressure in the evenings when it is free & unrestricted. The reduction in spaces due to the joint development is a concern.
- Parking is tight for the farmers' market on Sundays (10:00AM-2:00PM), and there is a perception that the lack of parking pushes some customers to the Silver Spring farmers' market instead. 15 spaces on Laurel are "lost" for the event, and churchgoers occupy some spaces. The availability of the Seventh Day Adventist Church is critical to the success of the farmers' market.
- Events at the Presbyterian Church cause gridlock due to the narrow streets, particularly funerals.
- Comments regarding meters:

    - The Business Association worked with DDOT on meter policy, which resulted in reducing meter spans from 4hrs/8hrs to 2hrs/4hrs, which encourages more turnover.
    - Supportive of modernizing payment system to include credit card payment and/or pay-by-phone.
    - Supportive of one standard rate for meters in both Takoma Park & DC (suggested $0.75/hour).
- The City asked the Business Association to poll businesses about implementing 10 minute pick-up spaces. The majority of those polled were against it.
- Laura expressed support for common signage in both Takoma Park & DC within the Carroll corridor.
- Some lots offer the opportunity to increase supply:
    - Kirchiro lots could be reconfigured to include more spaces.
    - USPS & Bank of America lot could provide additional evening parking, as they are not used or monitored.

Sandra Filippi, Campus Planner for Montgomery College
Interviewed on February 29, 2016

- A lot of residents resent the presence of Montgomery College, but enjoy the amenities it brings, such as cultural events, the College's library, and the greenspace on campus (Jessup Blair Park).
- Some residents treat the College as a newcomer, but the Takoma Park-Silver Spring (TPSS) Campus opened in 1950.
- Montgomery College is sensitive to the parking pressures in the area, and encourages non-driving modes:
    - There's a Capital Bikeshare station on campus.
    - Two Metro Stations are within a mile.
    - Students can ride free on Ride On.
    - The University operates a shuttle service that connects the two halves of the TPSS, and connects to the other Montgomery College Campuses.
    - The College encourages pick-up/drop-off on Fenton Street, but discourages it elsewhere.
- On-campus parking is more than enough for the College's students, except during peak class times, primarily midday, in the early weeks of each semester. As students drop out or drop classes, demand goes down.
- Classes run from 8:00AM to 10:00PM on weekdays.
- Parking is always in high demand at the metered spaces on Fenton Street.
- Students do park on the residential streets near campus, particularly early in semesters. The College puts fliers on cars that they see parking in residential permit areas to let those (presumably new) students know about the residential permit rules.

- The West Garage (adjacent to Cafritz building) includes metered spaces, and also serves the Jessup Blair Park under an MOU with M-NCPPC. Montgomery College permit-holders do not need to pay.
- Ms. Filippi referred us to the College's 2013-2023 Facilities Master Plan http://cms.montgomerycollege.edu/EDU/Department2.aspx?id=32897:
    - TPSS enrollment is projected to grow by 27% between 2013 & 2023.
    - The projected parking shortfall in 2023 if additional parking are not added is 375 spaces.
    - The most notable feedback from the public on the Facilities Master Plan is a desire for the College to acquire the self-storage facility on Fenton Street, south of the East Garage. The City included this recommendation in Board Resolution 5015-57)

Mark Greiner, Pastor of Takoma Park Presbyterian Church
Interviewed on February 29, 2016

- Pastor Greiner has been the pastor at Takoma Park Presbyterian Church for ten years, and has noted a dramatic up-tick in development during the last two years.
- Pastor Greiner's general concerns and comments include:
    - The need for more commercial parking and more meters.
    - Parking in Takoma Park seems to be tightest on Friday and Saturday evenings, and on Saturday mornings. Saturday community events create parking pressures, and the Seventh Day Adventist Church's lot cannot relieve the pressure on Saturdays.
    - The addition of a sizable mixed-use development with a popular restaurant (Busboys & Poets) was irresponsible.
    - Parking regulation should honor the character of residential neighborhoods.
    - The church provides numerous benefits to the community, which should be taken into consideration.
- Parking needs (and issues) on Tulip Avenue for church activities span all seven days of the week:
    - Sunday church services
    - Weddings on Saturdays and funerals on all days of the week
    - Weeknight uses of the church gym, which is primarily by school groups and sports leagues (adult and youth). The hours of greatest use are generally from 4:00PM to 9:00PM. Most events translate to 20-30 cars needing parking.
    - The church has a commercial kitchen facility, and will soon begin using it for a community kitchen enterprise. A deal has been worked out with the Takoma Business Center building to make some of their parking available to participants.
- People parking for events at the church/gym find the nearest available space, but sometimes park badly, such as blocking driveways. The church distributes information on parking to parents and other users, but the pool of visitors is constantly changing due to the nature of the activities.

Councilman Peter Kovar of the Takoma Park City Council

Interviewed on March 7, 2016

- Councilman Kovar expressed the following concerns:
    - Concern over residents at Victory Towers obtaining residential parking permits adding to pressure on neighborhood parking.
    - Are employees of downtown businesses taking spaces from customers.
    - Some visitors are unaware of the border between Takoma Park and DC, which causes confusion.
    - Restaurant customers are able to use residential permit parking spaces after 7:00PM and on weekends, adding pressure to these neighborhoods
    - Approximately 400 new apartments are under construction in the area, more if the Takoma Metro Station development comes to fruition.
- Councilman Kovar mentioned mobile parking apps as a technology that he would like to see explored through the study.

Andrea Bachinski, Studio Manager for the Washington National Opera
Interviewed on March 9, 2016

- The Opera's staffing levels vary considerably, from a full-time year-round staff of 25 to over 200 when productions are in rehearsals. The Opera's five productions per year are generally spaced between August and May. Much of the activity during rehearsals takes place during evenings and on weekends.
- Many take Metro, but it is difficult to state a typical number of those who drive, given that the staff involved varies from production to production.
- The Opera's lease previously included the use of a 43-space lot on Laurel Street, but was recently been changed to include only 25 spaces (location undetermined). There is speculation that the landlord (Douglas Jemal) may intend to develop the southern end of the block between Laurel Street and Willow Street.
- Noted that the lot at Laurel and Aspen Streets is not highly used. The fact that it is unmanned in the evenings helps relieve pressure on on-street parking facilities.
- Parking is still a convenience issue for the Opera staff, due to the need to feed meters. Reduction in span of DC meters from 4 hours to 2 hours increases the inconvenience factor.
- Parking is tightest on weekday evenings from 7:00PM-10:00PM.

John Reed, Administrator for the Takoma Park Seventh Day Adventist Church
Interviewed on March 14, 2016

- The Church generally has up to 1,000 people attend services on Saturday, and the congregation is growing. Church activities run from 8:00AM to 5:00 PM, with 9:00AM to 2:00PM the busiest period.

- The Church's Lot on Eastern Avenue has 117 spaces. It is full on Saturdays when the Church has services, and the Church rents additional spaces from Strayer University on Laurel Street. Other church members park at meters.
- The Church lot is made available to other users on all other days of the week, free on Sundays and rented on a monthly basis for weekdays. 50 spaces are rented to Strayer University, 12 to Bank of America, as well as other employers. All spots are currently rented, but actual usage is around 75%. The Presbyterian Church parks its church bus there during the week as well.
- The Church would like to see DC stop enforcing meters in the area on Saturdays, since meters are not enforced on Sundays when other churches have services. Takoma Park does not enforce meters on Saturday or Sunday.
- Mr. Reed felt that parking supply was being constrained by the construction of new apartments, the coming joint development project at the Metro Station, and the influx of restaurant patrons.
- Mr. Reed felt that weekday midday was the timeframe when parking is the tightest in the area, and that the lack of parking keeps restaurant patronage down at that time.

Robin McElhenny, Program Manager of Station Area Planning, WMATA Office of Real Estate and Station Planning

Interviewed on March 14, 2016

- The joint development project for the Takoma Station is proceeding, with EYA as the developers.
- The WMATA Board has approved the "transit replacement facilities" (i.e. facilities the developer will provide to ensure access to the station), whereas the content of the development is still to be determined through the District's PUD process.
- An older joint development plan called for the development of the open space between the bus loop and Cedar Street, but the community saw this green space as an amenity and opposed the plan. The current plan is limited to the boundaries of the station parking & bus loop, and the green space will be preserved.
- The traffic study that was done for the development showed minor impacts, and suggested mitigation including adjustments to signal timing and lane reconfiguration on Piney Branch Road that would result in removal of some off-street spaces (outside of the study area).
- Details of the joint development plan:
    - Existing Takoma station parking inventory = 160 general-access spaces:
        - 141 7-Hour metered spaces
        - 6 ADA-reserved spaces
        - 5 carsharing spaces
        - 5 "A-spaces" (attended waiting spaces)
        - 3 motorcycle spaces.
    - Future transit parking = 87 metered spaces (+ special uses). From the WMATA Staff Report:

      "Staff recommends reducing the parking to 87 metered spaces. The Revised Site Concept Plan shows 87 metered parking spaces; five reserved spaces for people with

disabilities; 14 Kiss & Ride spaces (driver-attended waiting) 7 taxi/shuttle spaces); and 6 motorcycle spaces. Staff further recommends 14 Board approval of extended revenue hours: 5 AM to 2 AM seven days per week for all metered parking."

- Robin said that those metered spaces will have a 12-hour time limit, which would essentially make them true commuter spaces and not "short-term." This isn't unique in the Metrorail system (e.g. Rockville)
- Estimated # of residential units = 212
- Estimated residential parking spaces = 148, based on a ratio of 0.7 per unit.

Evian Patterson, Citywide Parking Division Manager at DDOT
Interviewed on March 21, 2016

- DDOT saw low parking demand in Takoma Park until revitalization began in recent years.
- DDOT is working with The Takoma Park Business Association and ANC 4B on parking issues, and jointly produced a metering plan in 2015. Another result of this coordination was an agreement to allow meters' spans to end at 6:30.
- Recent mixed-use developments that have not included parking may have been by-right, or specially negotiated through the PUD process.
- No parking enforcement on Sundays citywide is based on the CBA negotiated with Union parking collections employees.
- Saturday enforcement citywide came about as a result of a Council-level directive in 2006.
- DC has four performance parking pilot areas:
    - Ballpark/Navy Yard area – focus is on higher pricing during events.
    - H Street SE – focus is on higher pricing during evenings (restaurant corridor).
    - Columbia Heights – focus is on adjusting pricing periodically to achieve 85% occupancy threshold.
    - Chinatown – focus is on exploring various occupancy data collection techniques (in-ground sensors, camera systems) and developing a best practice that is "asset-light."
- DC has had its contract with Parkmobile to process parking payments since 2010. All on-street spaces citywide are accessible through that system.

Tom Kenney, Managing Partner of Immerman & Kenney Properties, LLC
Interviewed on March 21, 2016

- Immerman & Kenney Properties, LLC owns the storefront at 7322 Carroll Avenue and the parking lot at 6 Lee Avenue (the "Kessler Lot").
    - The lot is irregularly shaped, and is roughly 16 spaces.
    - At this time there is no controlled access to the lot, so people freely come and go without paying. Signage warns users that they could be towed if they are not patronizing local businesses, but Montgomery County's 2015 laws against predatory

towing has given Immermann & Kenney pause in implementing any sort of towing program.
    - Six spaces within the lot are committed to Bikram Yoga until 2020 by the terms of a lease between Bikram and the previous owner of the lot.
    - The lot is full during midday on both weekdays and weekends, but less full during evenings.
- Eve Kenney and Sue Immermann are owners of MAD Fitness, LLC, located at 7302 Carroll Avenue.
    - Customers of MAD Fitness often "take their chances" parking at metered spaces without paying, simply due to not having quarters on hand.
    - Not being able to pay at meters by credit card or by phone is seen as a "hassle factor."
- Tom Kenney identified the intersection of Carroll Ave, Grant Ave, Sycamore Ave, and Ethan Allen Ave as a significant traffic problem.

APPENDIX B

LITERATURE REVIEW SUMMARY

Date: March 25, 2016
Revised April 29, 2016

To: Erkin Ozberk, AICP
Senior Planner
Housing and Community Development
City of Takoma Park
7500 Maple Avenue, Takoma Park, MD 20912

From: Brian Laverty, AICP, Sabra, Wang & Associates, Inc.
Paul Silberman, P.E., PTOE, Sabra, Wang & Associates, Inc.

Re: Council of Governments Transportation and Land Use Study
Smart Solutions for a Growing Activity Center
Municipal Parking Operations and Management Best Practice Review

Introduction

In order to provide a broad frame of reference for the assessment of parking conditions in the study area and for potential recommendations, Sabra, Wang & Associates (SWA) collated a set of best practices in the field of parking operations and management. This memorandum is not intended to be an all-inclusive list of techniques that have been or are being implemented across the country, but rather sets forth a concise set of practices that could be applicable to the particular circumstances in the City of Takoma Park.

The techniques outlined below have been grouped into five categories:

- **Curbside Management**, including both metered and non-metered spaces,
- **Neighborhood Parking Management**,
- **Policy-Based Solutions**
- **Technology-Based Solutions,** including smart phone apps and traveler information, and
- Providing **Wayfinding** to users.

There is some level of overlap between these categories, such as with mobile parking apps that might provide real-time information on parking availability, but on the whole these categories should help to better understand the palette of available options. Sources used include the Institute of Transportation Engineers (ITE); the National Association of City Transportation Officials (NACTO); the Victoria Transport Policy Institute; the Institute for Transportation & Development Policy (ITDP); the Federal Highway Administration (FHWA); best practices and documents from other urban jurisdictions including direct parking study project experience of Sabra, Wang & Associates, Inc. with municipalities in the region.

Curbside Parking Management

Parking Payment by Block

In order to accommodate more vehicle parking spaces, individual parking space lines and pay-by-space meters can be replaced with one longitudinal line and/ or parking pay stations. As appropriate, disability spaces may also be designated to a block or portion of a block. Removing specifically marked spaces allows more vehicles to use the same amount of space, increasing overall parking supply. Striping only one longitudinal line also requires less frequent restriping. Typical parallel parking spaces provide 25 feet between pay-by-space meters. In urban areas spaces for compact cars can be as short as 15 feet. Replacing as few as 4 pay-by-space meters[1] with a single pay station could potentially create one additional parking space for a compact car[2]. Pay stations are typically spaced one per block or approximately every 400 feet, with supporting regulatory signage (e.g. 'Pay at Pay Station').

Pay stations typically accept credit cards as well as coins and bills, and allow for variable pricing by day and time. The prices can be changed periodically to reflect demand and extended to provide coverage during evenings and weekends as necessary. After an initial capital expenditure, maintenance costs for a small number of payment machines should be lower on a year-to-year basis. Time-stamped payment records also would provide greater certainty in enforcement. An additional advantage of payment stations is their less obtrusive visual impact to the streetscape, which is important on residential blocks. This benefit is applicable to blocks currently regulated as permitted parking, but maybe changed to paid curbside parking.

Case Study: City of Hyattsville, MD – The City of Hyattsville implemented a road diet through strategic use of on-street parking on US 1. Previously a four-lane thoroughfare with restricted parking during peak periods, Sabra, Wang worked with the City and SHA to modify curbside regulations along US 1 to permit on-street parking at all hours of the day, resulting in a more supportive environment to businesses in the corridor, which enhanced the City's goal to redevelop US 1 with mixed-use development.

On-street parking acting as traffic calming in Hyattsville, MD

In addition to enhancing on-street parking management, the City also invested in off-street lot improvements along US 1 in the downtown area including wayfinding signage, lighting, paving, access and landscaping.

[1] At 25 feet per space, a 100 foot block can provide for 4 pay by space meters (100/25 = 4)

[2] A 100 foot block with pay by space meters could provide for 4 spaces at the traditional 25 feet per space or 6 spaces at a compact size of 15 feet per space. A 100 foot block with a single pay station and therefore not individually striped meters could provide for an average of 5 spaces if a combination of compact and traditionally sized vehicles park; that's one more space than by a pay by space meter system.

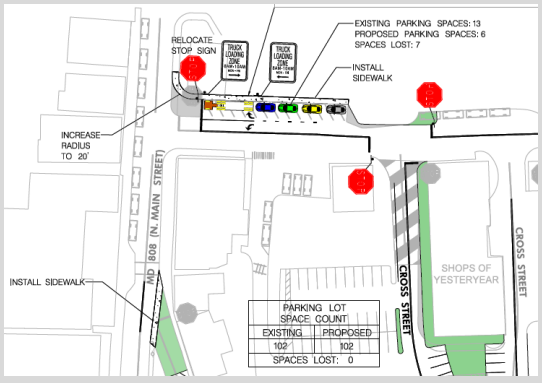
Adjustments to Parking Meter Span of Operation

Blocks with curbside parking can be expanded to reflect areas and times of highest demand. The majority of the parking meters in the study area operate Monday through Friday until 6:30 PM on weekdays and Saturdays in the District of Columbia, and until 7:00 PM on weekdays and Saturdays in the City of Takoma Park. However, interviews with stakeholders indicate that evening times beyond 6:30 PM are the busiest periods. Many jurisdictions periodically review metered parking hours of operation to reflect changing travel patterns, land use and parking dynamics. Extending the metered parking hours of operation until later in the evening is a strategy that could cover the additional periods of demand and provide a means to generate more parking turnover during these hours, but could also encourage users to park on neighborhood streets. In many cases, changes in metered parking hours of operations are also accompanied by changes in adjacent neighborhoods permit parking restriction hours of operation or time limits to manage retail parking spillover on residential streets.

Metered Rates and Time Limits

In areas where jurisdictions border each other, using consistent meter hourly rates and/or time limits can reduce driver confusion and better distribute parking demand across all metered blocks. Across the study area, on-street parking meters charge different hourly parking rates, ranging from $0.50 to $0.75 per hour in the City of Takoma Park; and $0.75 to $2.00 per hour in the District of Columbia. Meter time limits also varied considerably, ranging between thirty minutes and eight hours within the City of Takoma Park, and from two to four hours in the District of Columbia. While variations in rates and time limits are necessary to manage block-specific parking dynamics, parking rates should be evenly balanced across the entire commercial district to provide more even parking distribution whenever possible.

Case Study: Town of Mount Airy, MD – SWA worked with the Town to relocate a commercial loading zone in the historic downtown from Main Street to Center Street and shift the loading zone times from 8 AM to 10 AM M-F to minimize through traffic and customer parking disruption.



Loading Zone Management

Identifying designated loading zones and improving the management of loading zones can enhance parking operations and reduce customer frustration. The lack of or insufficient amount of dedicated loading zones, or loose time restrictions on loading zones can result in ad hoc loading activities, such as truck double parking and blocking travel lanes, or trucks loading from customer parking spaces. Best practice techniques include providing designated loading zones on side streets and providing shorter loading zone time limits, such as during off-peak retail hours (e.g. Monday-Friday 8:00 AM to 10:00 AM), to consolidate truck activity away from peak parking and traffic demand hours.

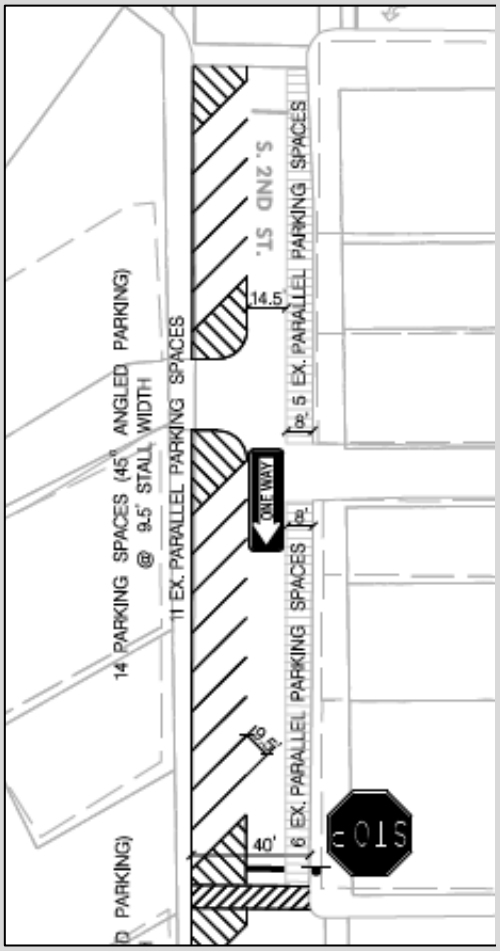
Photos of loading activity from Main Street and Market Place in Annapolis, Maryland blocking street traffic and customer parking

Neighborhood Parking Management

Conversion of Streets to One Way

Conversion of strategic blocks of wider streets from two-way to one-way may allow for provision of angled parking and a net on-street parking space gain. A case study from Oakland, MD is shown to the left. Evaluation of the traffic impact of any street pattern changes should be considered prior to implementing such changes. The study area contains numerous neighborhood residential streets that are very narrow but still permit two-way traffic flow. The only one-way streets are single blocks of Valley View Avenue, Park Avenue and Old Philadelphia Avenue. Even with parking restricted in one direction on most two-way streets, there is not enough pavement width for a parked car and two vehicles to pass simultaneously, thus risking potential collisions with parked cars or blockage of through traffic. However, there may be select blocks with retail and commercial land uses where this strategy could be applied.

Case Study: Town of Oakland, MD – SWA worked with the town on developing a conversion plan for 2nd Street to a one-way flow with angled pull-in parking in order to create 6 additional on-street parking spaces within the historic downtown retail area.



Street conversion to one-way in Oakland, MD.

Part-Time One-Way Traffic Patterns and Reconfigured Parking / Loading Zones

Where roadway width doesn't allow for one-way with angled parking, another strategy is converting specific blocks from two-way to one-way in order to provide expanded passenger drop offs and loading zones such as during worship service or school bell time periods in order to improve neighborhood traffic flow and reduce traffic blockages. One potential location to further explore this strategy is along Tulip Avenue between Willow and Maple in the vicinity of the Takoma Park Presbyterian Church.

In addition, although not a strategy to increase parking supply, alternating parking on either side of narrow streets to act like a chicane can serve to slow traffic speeds.

Adjustments to Residential Permit Parking Zone Restrictions

Spillover of parking from commercial establishments or commuter parking from transit stations into residential neighborhoods can sometimes be a problem. Issuing residential permits can ensure that residents can find parking near their home by providing restrictions to non-residents searching for parking spaces. Permit parking hours and restrictions could be adjusted based on the needs of the community, such as to reflect evening and weekend demand. Current parking restrictions for the permit parking zones included within the study area run from 8:00 AM to 7:00 PM on weekdays in order to limit spillover parking from Montgomery College and the Takoma Metrorail Station. Preliminary interviews with stakeholders and field investigations of parking occupancy, however, indicate that evenings are the highest demand periods for parking in the vicinity of businesses along Carroll Avenue. Extending the permit-only hours into the evening for residential street blocks near Carroll Avenue, or possibly reversing the restricted period as is the case with permit parking zones 5 and 6 is a strategy that should be further explored in developing specific recommendations. Adjustments to paid metered spaces may be needed in tandem with extending permit only hours.

Similarly, for daytime retail customers, revising neighborhood parking permit regulations to allow for short-term visitor parking up to two hours (as permitted in the District of Columbia non-metered RPP zones 4B and other urban jurisdictions such as Baltimore City) when residential parking demand is not peaked, would be a low-cost way to enhance on-street parking capacity. However, this would require increased enforcement.

Another method of controlling parking within neighborhoods is to issue *day permits* allowing non-residents such as employees of local commercial or retail establishments (but not commuters or community college students and faculty) to park in residential areas during hours when most residents have taken their vehicle to work. Instead of having empty residential-permit curb space or free, unrestricted curbside parking, day permits allow management of the available neighborhood parking. Residents are able to find a space when they need one, and nearby commercial districts benefit from the additional daytime parking for employees who no longer park in customer spaces. A portion of the revenue generated can be returned to the neighborhood for street or public space improvements.

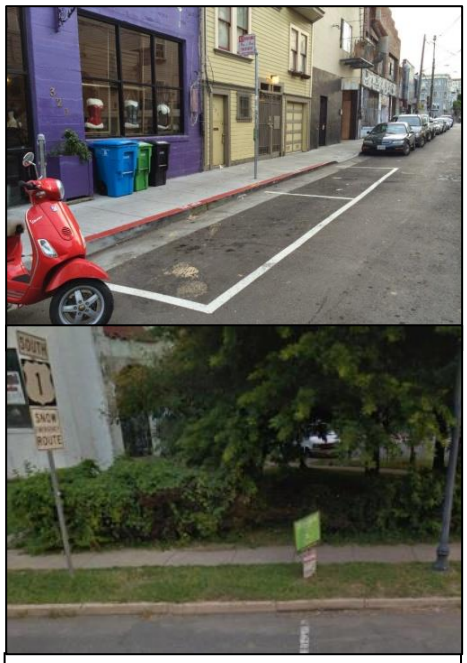
Policy-Based Solutions

Parking management, which refers to regulation of the parking supply through policy measure such as local ordinances and zoning, is a critical element in creating and sustaining a balanced transportation system. Providing too much or too distant parking can be costly, increase vehicle traffic volumes, reduce pedestrian safety, and reduce development density. Conversely, providing too little parking can undermine the financial feasibility of development projects, hinder the revitalization of commercial districts, and create parking spillover issues. Supporting balanced parking requirements via code or on a case-by-case basis to facilitate more efficient use of parking resources should be supported. The case-by-case analysis should carefully consider many factors such as proposed on-site parking management

strategies, transportation demand management strategies, proximity to transit, mix of proposed land uses, parking fees, and on-street parking conditions.

Priority Parking

Priority parking can be implemented to provide specific space(s) for certain types of parking that maximize the efficiency of available parking supply by encouraging 1) higher vehicle occupancies, 2) reduced vehicle ownership, and 3) use of alternative modes. These spaces are typically designated in prime locations to be highly visible and more convenient for the user. Priority parking spaces can be designated either on-street or off-street. Typical priority parking examples include carpool, car-share (e.g. Zipcar), bicycle parking (including bike share), and other ride share services (taxis, Uber, etc.). Several locations in Takoma Park for curbside priority parking could be further explored along Carroll Avenue.



Designated Car Share parking, San Francisco commercial area (top) and US 1 in Mount Rainier, MD (bottom)

Transportation Management Associations / Parking Management Districts

A *Transportation Management Association* (TMA) is a non-profit agency typically composed of local businesses, and one or more local jurisdictions funded by a public-private partnership. The TMA's mission is to provide/ support programs and information about parking and travel options. The TMA can provide information, encouragement and incentives to help people know about and use all their transportation options to optimize all modes in the system – and to counterbalance the incentives to drive. Example TMA functions may include:

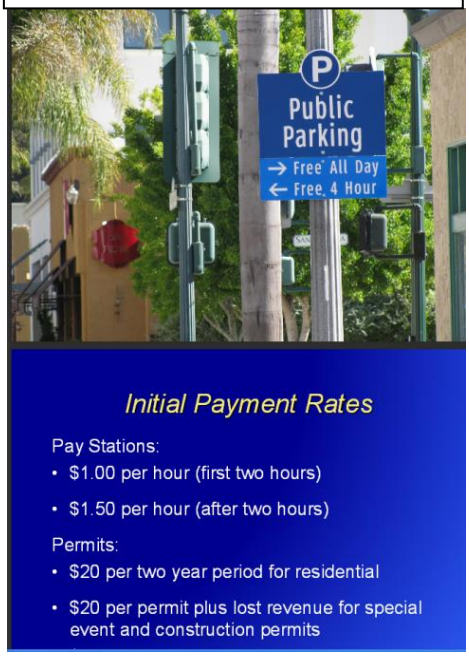
- Securing and managing satellite parking locations
- Developing shared parking agreements between private property owners
- Developing and publicizing alternative travel options
- Organizing and managing valet services
- Signage for carpool, car share and bike parking

A local example of a TMA in a historic urban environment is The Waterfront Partnership of Baltimore, which currently comprises a number of stakeholders that have united to guide and advocate for transportation improvements in the area through the "A Smarter Way to Get There" initiative.

A *Parking Management District* (PMD) is a similar organization of public and private stakeholders that work together based on the principle that parking facilities should set prices at municipal on- and off-street parking facilities to achieve a peak parking utilization rate that still provides a nominal amount (10-15%) of available curbside spaces. Some PMD's unify parking regulations within a designated area to

regulate rates and supply by ordinance. This allows for centralized allocation of parking resources (e.g. satisfying parking code requirements through off-site parking arrangements) on a project-by-project basis. Centralizing the parking enables users to park once and walk instead of creating multiple short trips. Parking meter revenues may be used to defray city parking and transportation service expenses, including funding alternative transportation programs, projects and enhancements that reduce the demand for, or increase supply of parking resources in the parking district.

Parking Management District Signage and Rate Changes, City of Ventura, CA



A national example of a Parking Management District is the City of Ventura, CA which instituted curbside regulation changes (hours of operation and time limits) as well as pricing reforms to respond to uneven parking utilization throughout the downtown and high demand along the Main Street commercial core. The resulting changes met the City's goal of maintaining a maximum 85% on-street parking occupancy at peak retail times. This benefitted the City by changing the perception of parking availability and improved customer convenience.

Parking Code Maximums

Municipalities frequently set policies that require a minimum number of private off-street parking spaces for different types of developments, often following guidelines from ITE or the example of neighboring communities which don't often account for the influence of urban travel such as proximity to transit, and more walking and biking trips. Furthermore, with the increasing use of ride and car sharing services, as well as the onset of autonomous vehicles, the current parking code minimum requirements may be even further in excess of actual demand. Conversely, jurisdictions should consider also setting maximum requirements for the number of parking spaces to be included with new or re-development to reduce parking demand and encourage travel by alternative modes. Consideration should be given to the location of the project, mix of land uses, local demographics (car ownership), fees-in-lieu, TDM, and distance to transit. A local example of this application is from the City of Mount Rainier where SWA evaluated the existing parking demand and utilization, compared to the current County parking code requirement (2.5 parking spaces per multi-family dwelling unit and 5 spaces per 1000 square feet of commercial space), and recommended reduced parking requirements within the Mixed-Use Town Center overlay zoning district of 1.75 spaces per multi-family dwelling unit and 3 spaces per 1000 square feet of commercial. The urban characteristics of Takoma Junction and Old Town may be suitable for similar parking code revisions.

Shared Parking

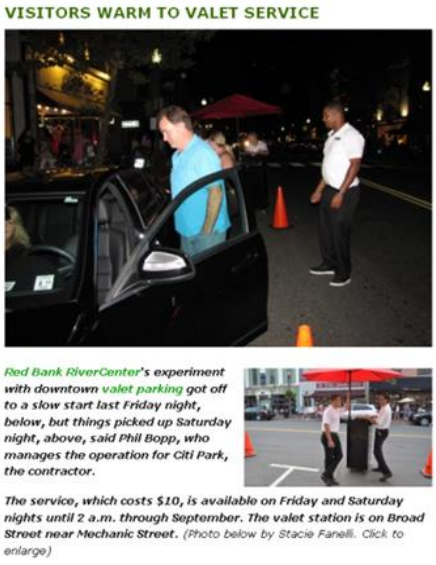
Implementing a shared parking program can greatly diminish the amount of required parking when differing land uses are able to share the same parking facility. It establishes the right amount of parking

for an area rather than by property/development. Typically, this occurs when two land uses have differing peak hours of use. The parking requirement can take into account the maximum number of spaces required for both facilities during the highest time period.

In Montgomery County, current zoning ordinances reward developers through the assignment of public benefit points for project design or amenities/ proffers that enhance connectivity, increase mobility options, encourage walking/cycling/ transit trips, facilitate social interaction, provide opportunities for healthier living, and stimulate local business. Specifically, providing fewer than the maximum number of private parking spaces and providing up to the maximum number of public (shared) parking spaces earns points towards fulfilling a development's Travel Demand Management (TDM) obligations.

Another example from a commercial office redevelopment along US 29 within the City of Falls Church suggests that shared parking should be investigated more thoroughly given the abundance of existing parking adjacent to a development site. In a review of a development application (site plan and traffic impact study), concerns were raised about the site access points, traffic operations and proposed inability to meet parking code requirements on site. After a detailed review, SWA noted that the three churches adjacent to the development site had abundant surface parking lots that were not used to capacity during regular working hours. Some of these church parking lots would be more easily accessible than the proposed underground garage, and so a shared parking arrangement was proposed. The City sought to enter into a Memorandum of Understanding between the applicant and adjacent property owners, as well as seek a performance bond to provide attendant assisted valet as needed on-site as part of the project approval.

Shared Valet Parking Operation from Broad Street in Red Bank, NJ



Shared Valet Parking

In commercial areas where on-street parking demand is high, multiple business can join together to offer a shared curbside valet service. This service can be operated from one or two on-street spaces during times of peak retail demand, and can reduce the time and congestions of patrons looking for parking in order to enhance customer convenience.

Demand-Based Pricing

Demand-based pricing is a method of controlling the demand for spacing using pricing. Several strategies exist to dynamically price on and off-street parking rates to manage parking occupancy in

order to achieve a specific vacancy target. These strategies include graduated parking (higher pricing on prime blocks of retail streets and lower pricing on surrounding blocks) or value parking (higher pricing during peak hours of parking demand) – also known as performance or smart parking. Multiple jurisdictions have implemented this type of strategy to improve the chances of drivers finding parking spaces and reducing congestion. These strategies can be applied to parking districts of any size from large central business districts to small main street retail areas of several blocks.

Demand-based pricing can also be supplemented by technology applications. In-space vehicle-detection sensors can be installed to determine whether a space is occupied or vacant. It can send data to a centralized parking management sever to optimize parking rates in real-time. Other applications include sending messages to users searching for a space by electronic parking guidance systems, real-time message boards, changeable message signs (CMS), apps, and perhaps in-car delivery in the future.

Parking enforcement can also receive this data to determine when a vehicle has overstayed the allotted time, which maximizes the efficiency of the enforcement staff. Ideal occupancy rates are approximately 85% to 90% full in order to maintain the perception of available parking at all times, based on surveys of retail trade associations, chambers of commerce, and parking industry management professionals.

In order to establish demand-based pricing, a thorough review of existing public on-street and off-street metered parking supply and demand should be examined to determine the optimal time periods and locations to dynamically charge for parking. In a recent SWA parking study for the City of Annapolis, it was found that thirty minute spaces were less utilized than two hour spaces in the Main Street and City Dock historic area. It was also noted that most on-street parking zones were full when the meter regulations expired at 7:30 PM. The study recommended pricing parking higher during peak times, including late evenings, and lower during light demand. Industry research, such as the Victoria Transport Policy Institute, documents parking price elasticity correlating a 10% increase in parking price to a 1% to 3% reduction in parking demand while maintaining the same number of person trips to an area. (http://www.vtpi.org/tdm/tdm28.htm#_Toc128220476)

Case Study: District of Columbia: Currently, the District DOT is piloting a value parking program in Chinatown (http://ddot.dc.gov/sites/default/files/dc/sites/ddot/page_content/attachments/ChinatownBriefing_for%20public_0.pdf The pilot program aims to rebalance supply and demand, use underutilized spaces, encourage higher turnover, boost use of other modes, and provide better parking information. The Multimodal Value Pricing Pilot uses the strategies of real-time parking information and price adjustments within the Chinatown/Penn Quarter area to manage parking (including for delivery vehicles and inter-city buses.) Underutilized on- and off-street spaces will be used. ParkMobile pay-by-cell was introduced in 2011 followed by the testing of parking sensors and cameras. Adjustments to pricing occur quarterly. The current pay-and-display parking will transition to a planned pay-by-space approach where the driver enters the numbered parking space into the meter when paying, or continues to use ParkMobile. The District anticipates better signage and real-time parking availability. The pilot study ends in Fall 2016.

Business/Residential Parking Programs

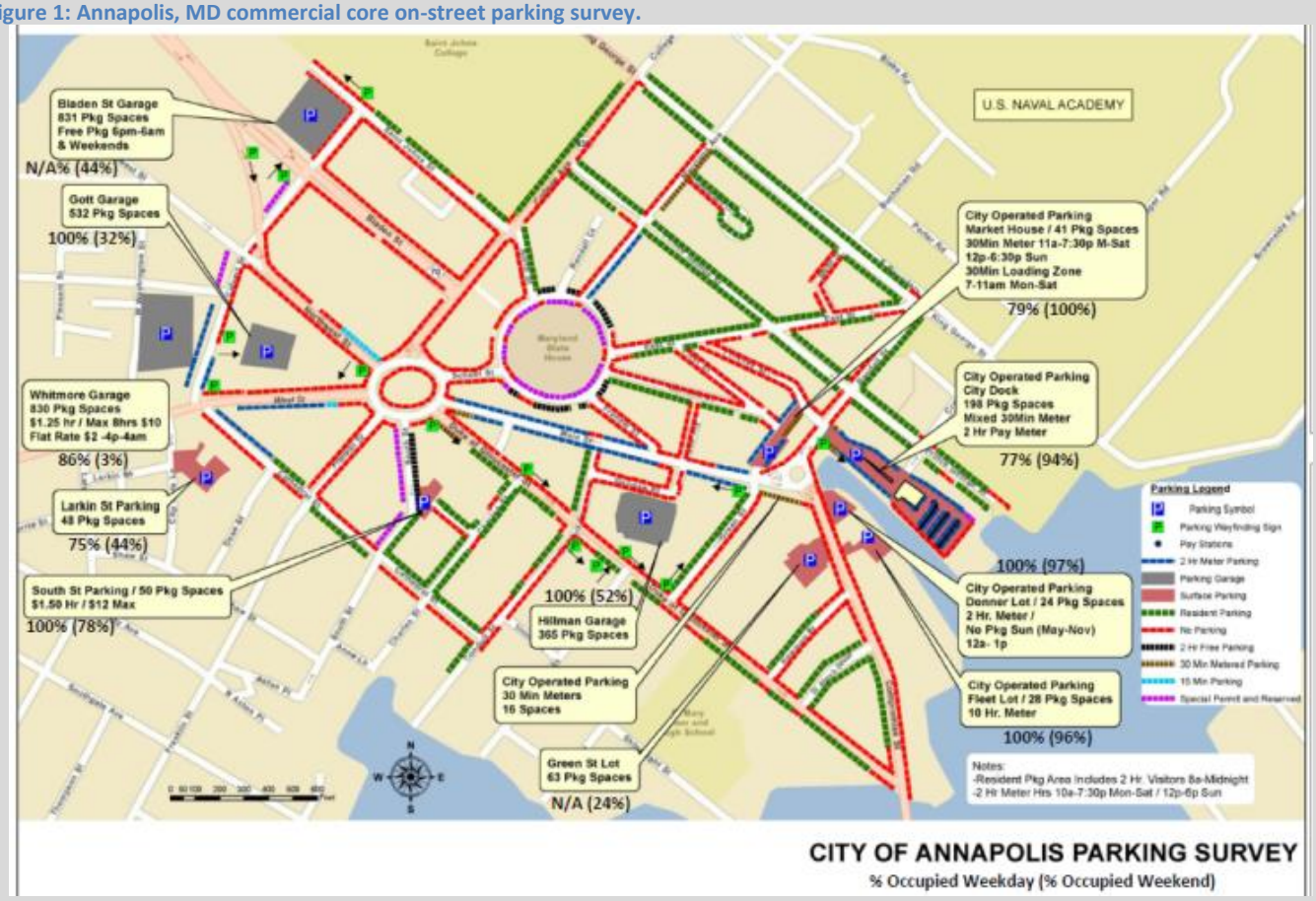
Several strategies can be used to create financial incentives for employees, tenants and residents to choose not to drive or use available parking. These include:

Cash-out programs are those that are offered by employers to encourage employees to trade their parking privileges for a cash payment. Alternatively, a company may offer a paid transit pass. This program allows employees who use an alternative mode to receive a comparable benefit to the free parking option. This strategy is typically more effective for large employers, such as Montgomery County College. Industry research (Victoria Transport Policy Institute) showed a potential reduction of 15%-25% in employee parking demand. These programs are often used within TMAs – if the City establishes a TMA, then they could incentivize employers within the TMA to unbundle employee parking

Unbundled parking from residential, office, or commercial units. Parking spaces can be sold separately to tenants and residents as opposed to including the cost of off-street parking facility operations and maintenance in the rent. This method can help reduce the number of spaces required for a property, reduce the number of vehicles in the lot or garage during periods of peak demand, and even reduce car ownership. When the actual cost of parking is passed onto the user, different choices about travel may be made. Parking can be priced according to its market value and income from paid parking can be used to cover facility costs and fund transportation programs. This is particularly effective in transit-oriented development areas.

Case Study: City of Annapolis, MD – In the central commercial area, the City sought to encourage visitors to utilize off-street parking facilities rather than spend time searching for scarce on-street parking spaces near the waterfront. In order to affect change in driving and parking behavior, the City raised the hourly rates for on-street meters from $0.50 per hour to $1 per hour in 2005. Recent studies by SWA documented a continued high demand for the on-street spaces and recommended further rate increases. Currently, the City is working with the business community to further increase fees and revise the Park and Shop discount program.

Figure 1: Annapolis, MD commercial core on-street parking survey.



Technology Based Solutions / Applications

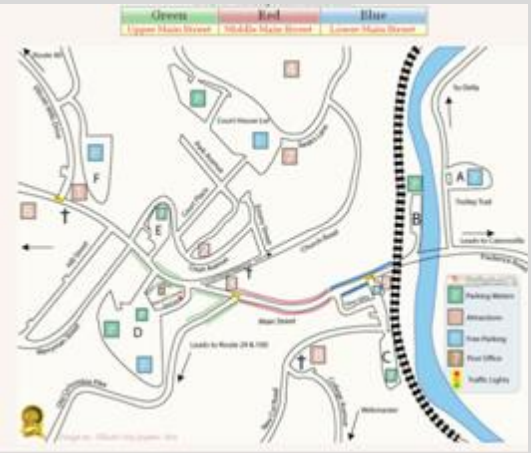
Developing technology makes it possible to find, reserve, and pay for parking prior to reaching a destination. Drivers can also use a variety of websites or parking applications available for smartphones to pay once they have parked instead of paying a traditional meter. Increased payment options can benefit drivers and parking agencies. Online, pay-by-phone, electronic debit, prepaid transit smart cards, and kiosks that accept coins and credit cards, are some of the available options for parking payments.

Special Web/ Mobile Applications

Parking Payment and Reservation In the District of Columbia, Parkmobile can be used to pay for on-street parking throughout much of the city. Their new reservation app, ParkNow, can be used to reserve and pay for parking before attending the Cherry Blossom Festival. The app allows users to find a parking garage based on location, rates, or added services. After booking the chosen space, drivers use their smartphone to check-in once they arrive at the garage. This strategy could be applied to off-street metered parking lots or garages with available public parking (e.g. Montgomery College). Other pay-by-phone applications include Passport, Parkline, SMS Parking, and MobileNow (used by Montgomery County.)

Case Study: Ellicott City, MD – Howard County developed a customized smart parking app as part of a implementation of smart parking technology (pay stations), parking regulations changes (hours and of operations and rates) and visitor information (website and parking maps) to improve the customer experience in this historic main street community.

http://www.baltimoresun.com/news/maryland/howard/ellicott-city/ph-ho-cf-ellicott-parking-1122-20121115-story.html



Annapolis, MD commercial core on-street parking survey.

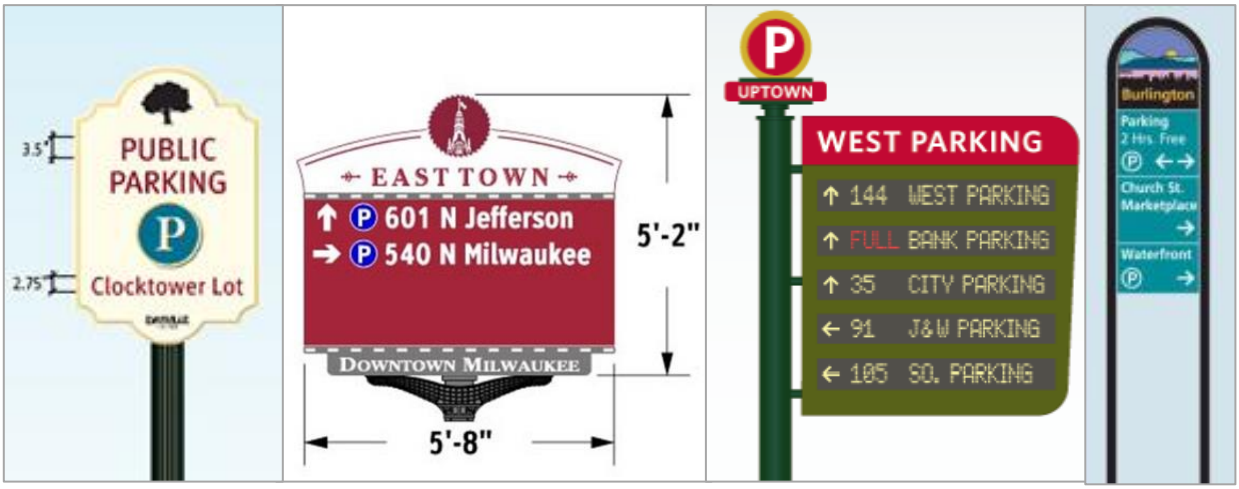
Parking Panda is a website and smartphone app that allows users to find, reserve, and pay for parking in over 40 cities. Spaces are guaranteed and reservations can be canceled up to the start time. Discounts are sometimes available, and parking can also be accomplished by booking over the phone and/or printing a paper confirmation. In Baltimore City, Parking Panda is able to partner with the Parking Authority to reserve spaces in City-operated garages and lots. This strategy is can also be implemented as a peer-to-peer exchange whereby a private property owner (e.g. resident) would rent a private off-street space to a customer (such as a Metrorail commuter).

Real Time Parking Availability Information

Parker, Parkme, and ParkWhiz are some of the applications that provide information to guide users to available spaces. Frequently, real-time parking information, such as availability and pricing are available, and driving directions to the spot with walking directions to a destination are available in some apps. Some apps, like ParkWhiz and MonkeyParking, also allow individuals and businesses to sell their parking spaces. SpotShare is designed to address the need for guest parking in urban condo developments through the temporary donation of resident spaces. Text messages and smartphone apps provide time-sensitive data to users.

Wayfinding

Providing signage to direct drivers to available parking, or wayfinding, makes it easier and quicker to find parking, especially within a commercial main street environment with limited on-street parking and less visible off-street public parking or side street curb parking. It can also enhance the "branding" of an area if designed to be distinctive and attractive. Signs can be static or dynamic, offering additional information about tourist sites, bicycle routes, real-time parking availability, or just simply enhancing the visibility of public parking lots. Several examples are shown below.



In addition, physical improvements to off-street public parking lots enhance capacity, attractiveness and utilization. Improvements to access (driveways), parking stall reconfiguration, lighting and landscaping can increase the use off-street parking lots.

Case Study: Town of Mount Rainier, MD – SWA completed a parking study for the mixed-use Town Center redevelopment and recommended the following strategies:

- Developing off-street shared parking agreements
- Improving existing publicly and privately owned off-street lots for capacity and access
- Implementing parking code revisions (unbundled parking, shared parking and reduced parking minimums)
- performance pricing for metered spaces

Summary

The following table summarizes the best practice parking strategies applicable to commercial Main Street and historic environments.

Strategy Type	Strategy	Notes
Curbside	Replace parking space meters with single block parking pay stations	May increase number of parking spaces
	Extend metered parking hours of operations	Responds to periods of peak demand
	Consistent Metered rates and time limits	May help better distribute curbside parking demand
	Loading Zone Designation and time limits	Reduces conflicts with peak parking and traffic demand hours
Neighborhood	One-Way Street Patterns (Full-Time)	Improves traffic safety and may increase parking spaces if reconfigured on wider streets
	Alternative Residential Street Curb Parking	Provides traffic calming
	One-Way Street Patterns (Part-Time)	May provide additional passenger loading zones and improve circulation for schools or religious institutions
	Residential Permit Parking Adjustments (Hours, Short-Term Non-Permit Parking and Special Day Permits)	Enhance balance between commercial parking and residential parking demands
Technology	Web and Mobile Parking Payment Options	Improved customer parking experience
Policy	Priority Parking (carpool, car share, ride share and bicycle)	Encourages more efficient use of existing parking
	Transportation Management Association/ Parking Management Districts	Coalition of stakeholders to collaboratively manage, market and monitor parking resources and travel options and programs
	Parking Code Maximums	Can reduce on and off-street parking demand
	Shared Parking	Optimizes the use of off-street parking resources for multiple periods of peak demand
	Shared Valet	Reduces curbside parking demand and improves customer convenience
	Demand Based Pricing	Provides management of curbside parking to ensure parking availability at all times
	Business/ Resident Parking Programs (Cash Out, Unbundled)	Provides for a market-driven use of parking resources
Wayfinding	Parking Lot Signage	Increase utilization of off-street parking facilities
	Off-Street Lot Improvements	Physical improvements can increase off-street parking supply and utilization