Montgomery County Department of Transportation

Ride On Reimagined

Ride On Reimagined: Montgomery County's Comprehensive Bus Network Study | Task 2

Analysis of Existing Conditions

DECEMBER 2022

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Existing Conditions: Executive Summary

An analysis was completed for the existing conditions of Ride On's bus service. Current ridership trends, bus stop facilities, trip planning, and route profiles were reviewed and analyzed in depth in the following report.

Ridership Hotspots

A ridership analysis revealed where transit activity is concentrated. Weekday boarding and alighting hotspots include:

- Silver Spring Station
- Wheaton Station
- Takoma-Langley Transit Center
- Shady Grove Station
- Rockville Station
- Lakeforest Transit Center
- Glenmont Station
- Germantown Transit Center
- Bethesda Station
- Friendship Heights Station

The hotspots remained the same from 2019 to 2021, but the level of boardings and alightings in 2021 were about half those of 2019.

Bus Stop Facilities

A bus stop facilities analysis showed that only 14 percent of bus stops in Montgomery County are sheltered or have plans to be sheltered, and only six percent of all Montgomery County stops have lighting. While the majority of high ridership stops are sheltered, there are a number of stops with high ridership volumes that are unsheltered, and a number of sheltered stops that have very low ridership volumes. 63 percent of all bus stops have a sidewalk, although many stops have sidewalks only at their stops and fail to provide connectivity to surrounding areas. Stops with sidewalks generate higher ridership numbers than those that do not have sidewalks.

Trip Planning

Comparing trip planner results to Google Maps for transit versus driving travel times showed that the driving time for most of the O/D pairs was normally much shorter than the transit time, with the exception of Silver Spring to DC and Bethesda to DC. Many of the pairs with dramatic differences between drive time and transit time were further up-county, such as Germantown to Rockville, Clarksburg to Silver Spring, Poolesville to Rockville, Gaithersburg to Darnestown, and Clarksburg to Gaithersburg.

Route Profiles

Route profiles were analyzed across Montgomery County, with summaries broken down by county subareas:

Germantown-Damascus had a decrease in ridership and some poor performing routes:

- Between 2019 and 2021, bus ridership in the Germantown-Damascus subarea decreased at a faster rate than whole of Montgomery County. Weekday ridership decreased between 54 percent and 84 percent across all communities in the subarea. Germantown and Clarksburg together generate around 95 percent of all trips in this subarea of Montgomery County.
- In 2019, Ride On Loop Route 97 in this subarea was the top performing of the four countywide Loop routes for weekday Passengers/Vehicle Revenue Hours, Passengers/Trips, Cost Recovery and Subsidy/Passenger, yet has the lowest on-time performance of the six routes in the subarea. Its on-time performance for weekdays, Saturday, and Sunday are all below 75 percent.
- The remaining five routes ranked in the bottom third and fourth quartiles among all routes for all KPI's except on-time performance, where besides Route 73's 79 percent on-time performance for Weekdays, all on-time performances for all day types were greater than 85 percent.

Gaithersburg-Laytonsville-North Potomac was defined by Metrorail station ridership and Route 55 ridership:

- In the Gaithersburg-Laytonsville-North Potomac subarea, the Shady Grove Metro Station and Lakeforest Transit Center generated 41.6 percent of all weekday ridership in 2019.
- Like Germantown-Damascus, bus ridership in the subarea decreased at a faster rate than the whole of Montgomery County.
- Ride On Local Route 55, the only route to have at least seven hours of 11-15 minute headways on weekdays, Saturdays, and Sundays, is the best performing route in this subarea. It also ranks first

in weekday boardings, Passengers/Trips, Cost Recovery and Subsidy/Passenger among all local routes; it does, however, only score 84 percent for weekday and Saturday on-time performance.

Bethesda-Potomac-Rockville is a heavy-employment subarea, which impacted ridership figures because of the changing landscape of commuting for work:

- The Bethesda-Potomac-Rockville subarea contains 47 percent of Montgomery County's total employment base. Ridership in the area decreased at a faster rate than Montgomery County as a whole. Covid-induced work-from-home trends and the subarea's high percentage of the county's employment base are likely the reasons why this subarea experienced higher than average ridership decline.
- Transit productivity is lower in lower density and higher income residential neighborhoods.
- Metro Stations accounted for 44.9 percent of all weekday ridership in 2019. Rockville, Bethesda and North Bethesda represented 76 percent of the subarea's total ridership in 2021. Ride On Local Route 46, the only local route to have 11 to 15-minute headways on weekdays, was also the best performing weekday route in 2019.

Wheaton-Aspen Hill-Olney has several poorly served communities and Metrobus service issues, but maintained ridership across the study timeframe:

- In the Wheaton-Aspen Hill-Olney subarea, the Wheaton and Glenmont Metro Stations accounted for 33.3 percent of total ridership in 2019.
- The subarea contains a few pockets of high transit propensity that are served with little to no transit, including the communities of Leisure World, Layhill, Colesville, and Kemp Mill.
- Ridership decreased at a slower rate than the county as a whole between 2019 and 2021, and the subarea gained ridership share in the county across all days of the week.
- Metrobus routes in this subarea are the worst performing services in terms of on-time performance. Top performing routes serve major corridors with direct alignments, connect to Metrorail stations, offer frequent service, and operate long service spans, seven days per week. The lower-performing routes generally operate low-frequency, peak-only service on weekdays.

Silver Spring-Burtonsville has a varied transit landscape and consistent high ridership, partially owing to its booming population and transit proclivities:

- Silver Spring-Burtonsville is the densest county subarea, making up only eight percent of land area but 20 percent of the population. 69 percent of the subarea population identify as a racial minority, 49 percent of the subarea pop live in rental households, and 39 percent of the subarea population are single-vehicle households.
- The subarea contains a BRT FLASH line and a number of routes with 11 to 15-minute headways, including Ride On Local Route 15 and Metrobus C2, C4, F4, K8, and K9. The subarea accounts for around a quarter of total county bus ridership, with Silver Spring accounting for 60 percent of the subarea's ridership in 2019. Two-thirds of Silver Spring's ridership is generated within its downtown core.
- Most of the subarea's CDP's experienced a less severe ridership decrease compared to the county average. The Colesville Rd./Columbia Pike Corridor is the subarea's most productive bus corridor; this is attributed to the fact that it intersects four other major corridors in the subarea. Only four routes (Ride On 15, 2, 25 and 19) have a weekday on-time performance greater than 85 percent.

2

Service Area and Route Alignments

Introduction

Route profiles were analyzed for five separate subareas:

- Germantown-Damascus
- Gaithersburg-Laytonsville-North Potomac
- Bethesda-Potomac-Rockville
- Wheaton-Aspen Hill-Olney
- Silver Spring-Burtonsville

Analyses considered service levels (including service span and headways), key transit hubs and destinations, activity density and transit propensity, ridership (by community, corridor, hubs), and route performance.

Germantown-Damascus Subarea

Subarea Overview

The Germantown-Damascus subarea covers the northernmost portion of Montgomery County, bordered by Frederick County to the north, Howard County to the east, and the Potomac River to the west. The Gaithersburg-Laytonsville-North Potomac subarea is immediately south of the subarea. The Germantown-Damascus subarea is the largest subarea, covering 210 square miles of the county.

Germantown, Clarksburg, Damascus, and Poolesville are all included in this area of Montgomery County.

Table 1 lists the six primary bus routes in the Germantown-Damascus subarea, while **Figure 1** reveals the alignments. Four of the routes are Local, one is Loop, and one is Express. Although there are no Metrorail stations in this subarea, there are four MARC stations (Dickerson, Barnesville, Boyds, and Germantown), and one transit center (Germantown). Corridors with the strongest ridership are Germantown Rd., Observation Dr., and Frederick Rd. Service levels for each route are summarized in **Figure 2**.

Table 1: Germantown-Damascus Subarea Routes

Route		Service Category
75	Clarksburg Correctional-Germantown	Local
83	Germantown Transit Ctr-Holy Cross	Local
90	Shady Grove-Damascus	Local
98	Germantown Transit Ctr-Kingsview	Local
97	Germantown Transit-Gunners Lake	Loop
73	Shady Grove-Gateway Center	Express

Figure 1: Germantown-Damascus Subarea Bus Routes

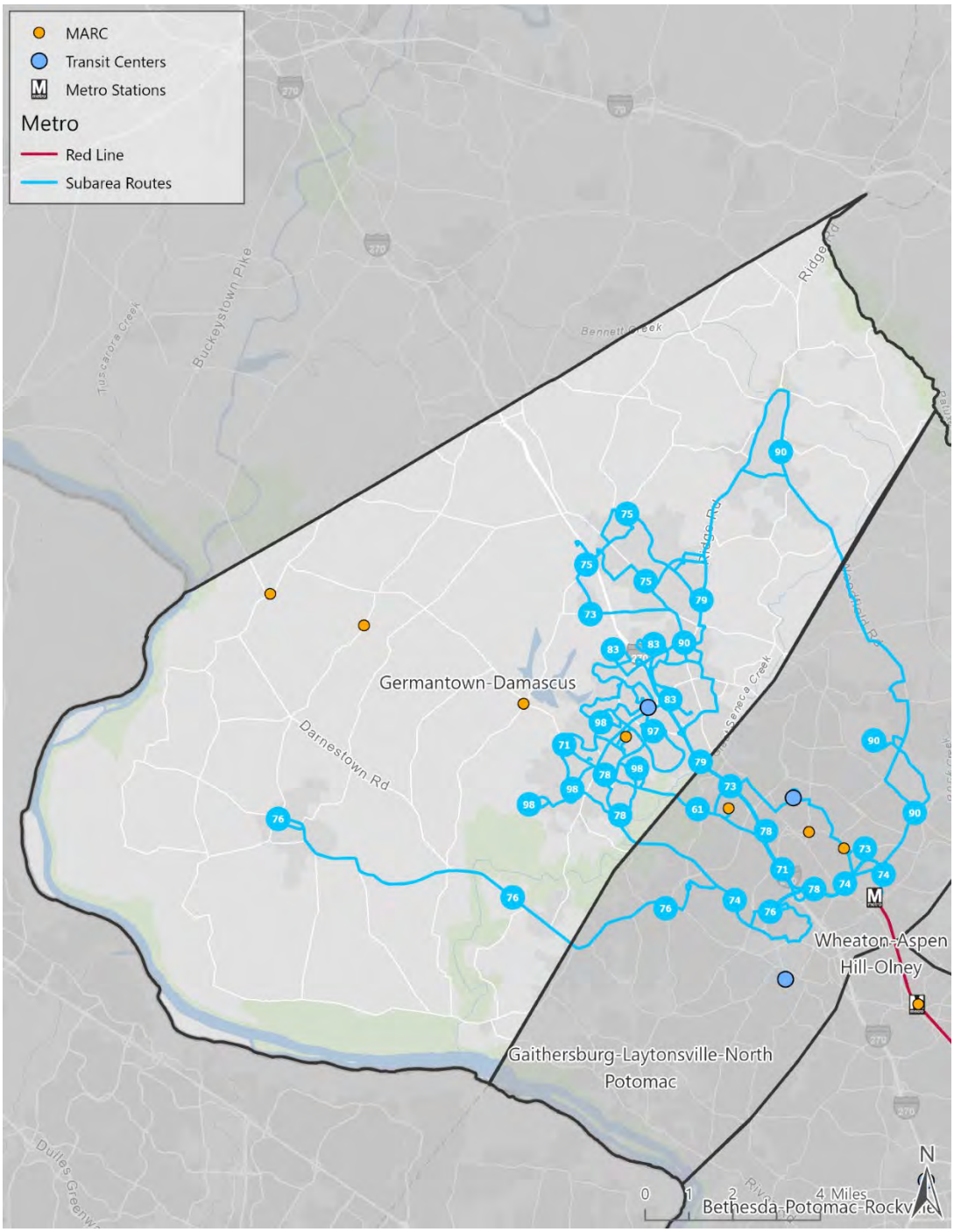
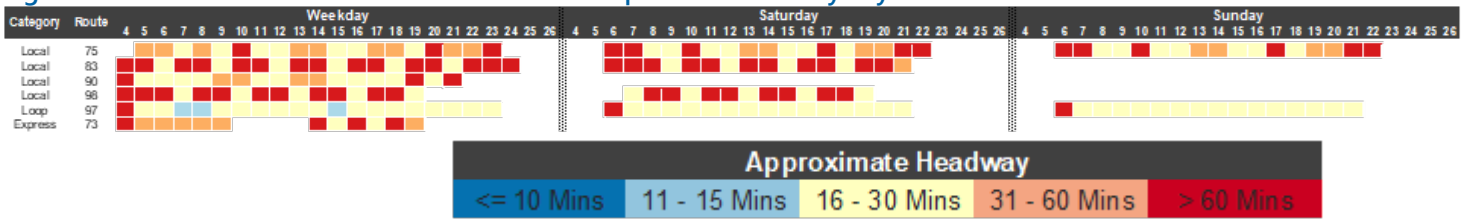


Figure 2: Germantown-Damascus Subarea Service Span and Headways by Route



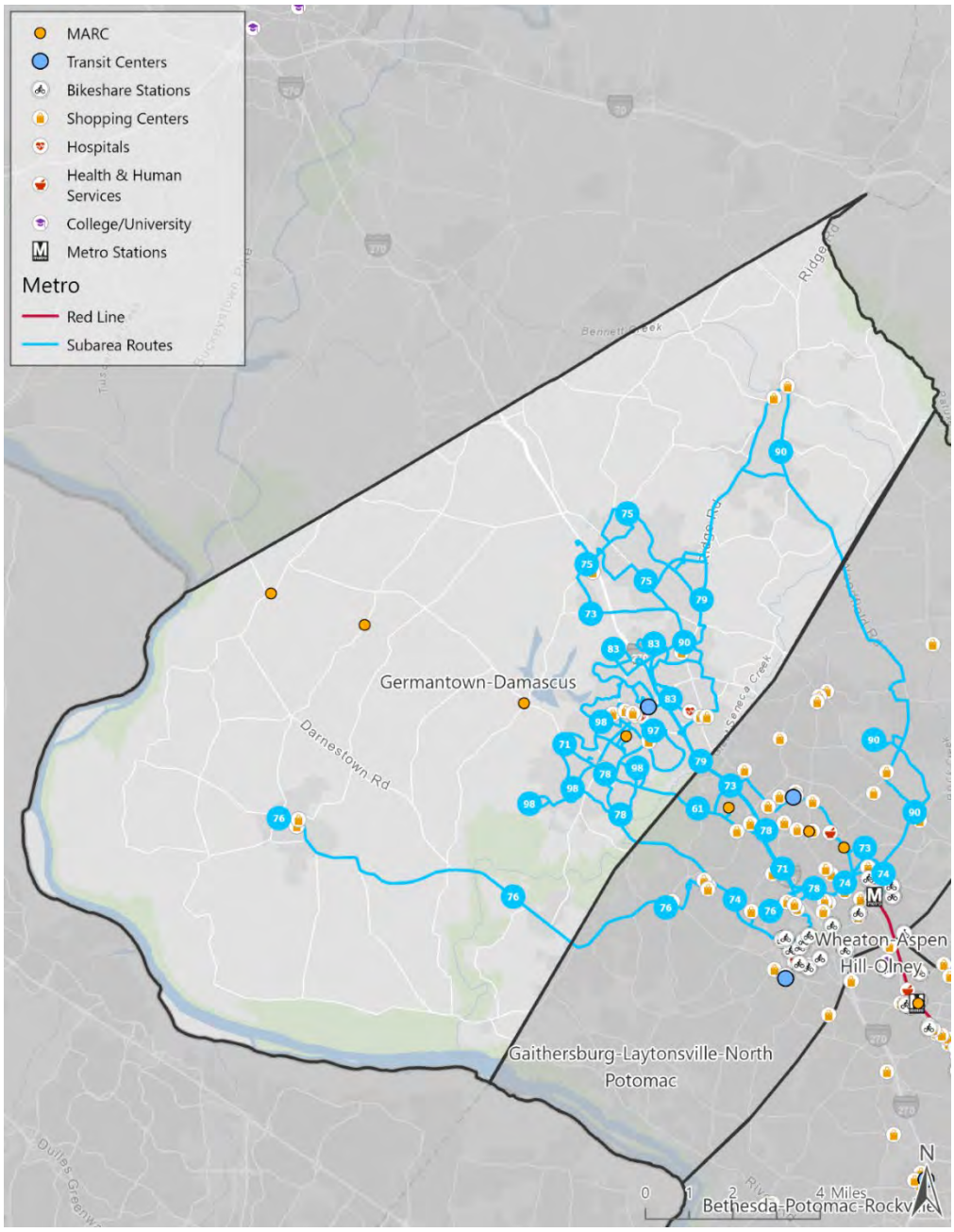
Key Transit Hubs & Destinations

Table 2 and **Figure 3** present key transit hubs and major destinations within the subarea. Most of the highest ridership locations in the subarea are located at key transfer facilities that provide connections to regional commuter rail and bus services operated by the Maryland Transit Administration (MARC and MTA Commuter Bus) and local bus services operated by Ride On. Other key destinations in the subarea include major shopping centers and Montgomery College.

Table 2: Key Transit Hubs & High Ridership Destinations

Name	Type	Routes Served	2019 Weekday Ridership (% of Total)
Germantown Transit Center	Transit Center	100, 61, 74, 83, 98	2,100 (33.6%)
Neelsville Village Shopping Center	Shopping Center	55, 70, 75, 83, 90	820 (13.1%)
Montgomery College	College Campus	83	300 (4.8%)
Middlebrook Square Shopping Center	Shopping Center	55, 79	210 (3.4%)
Kingsview Village Center	Shopping Center	61, 71, 74	100 (1.7%)
Germantown Square	Shopping Center	74, 97	100 (1.5%)
Germantown Town Center	Shopping Center	61, 75, 83, 97	90 (1.5%)
Clarksburg Premium Outlets	Shopping Center	75	30 (0.5%)
Germantown MARC Station	MARC Station	61, 75, 83	30 (0.5%)
Damascus Center	Shopping Center	90	30 (0.4%)
Poolesville Plaza	Shopping Center	76	10 (0.2%)

Figure 3: Key Hubs and Destinations



Activity Density and Transit Propensity

In most urban settings, population and employment density are typically the most important factors that influence transit ridership. Potential ridership demand, or propensity, is also strongly driven by socioeconomic characteristics such as household income, race/ethnicity, and access to personal vehicles. **Table 3** presents key socioeconomic indicators for the Germantown-Damascus subarea. **Figure 4** depicts population and job density, and

Figure 5 depicts transit propensity relative to the quantity of transit service provided. Key findings include:

- The Germantown-Damascus subarea contains 15 percent of Montgomery County's total population and seven percent of its total employment base, making it the least dense subarea in the county. Areas with the highest activity densities include the Germantown community located in the central part of the subarea and the southern section of the Damascus area. As shown in **Figure 4**, these areas are generally well served by the bus network.
- The subarea's socioeconomic indicators suggest the lowest degree of transit propensity of the subareas. The subarea is home to 16 percent of the county's minority residents, 13 percent of low-income residents and eight percent of zero-vehicle households. As a percentage of the total subarea population, 61 percent identify as racial minorities, 10 percent are below 150 percent of the federal poverty line, and five percent have low or no English language proficiency. Moreover, four percent of households do not have access to a personal vehicle and about a quarter of households are renters. In terms of commuting habits, seven percent of subarea workers commute using transit and 11 percent work non-traditional hours. Except for minority and youth populations, and workers with non-traditional hours, each subarea transit propensity indicator falls below the county average in terms of both percentage of the overall population and density.

As shown in **Figure 5**, the transit propensity indicators were compared to existing transit service levels to identify service gaps. The Germantown area is well served, but there are limited pockets of higher transit propensity and low or no transit service. These areas include southern Poolesville along Hughes Rd. and Hoskinson Rd.

Table 3: Germantown-Damascus Subarea Socioeconomic Indicators

	Total Population, Households, & Jobs			Percent of Total Population & Households		Density (per acre)	
	Subarea	County	Subarea Share	Subarea	County	Subarea	County
Population							
Total Population	152,100	1,047,400	15%	--	--	1.1	3.2
Minority Population	92,600	595,800	16%	**61%**	57%	0.7	1.8
Youth Population (<18 years)	38,400	243,400	16%	**25%**	23%	0.3	0.8
Senior Population (>65 years)	16,200	162,400	10%	11%	16%	0.1	0.5
Disabled Population	6,200	37,400	17%	4%	4%	0.0	0.1
Population in Poverty (<150% FPL)	15,600	121,000	13%	10%	12%	0.1	0.4
Low or No English Proficiency	7,700	62,400	12%	5%	6%	0.1	0.2
Households							
Total Households	50,100	372,700	13%	--	100%	0.4	1.1
Zero Vehicle Households	2,200	28,100	8%	4%	8%	0.0	0.1
Single Vehicle Households	13,500	126,000	11%	27%	34%	0.1	0.4
Rental Households	12,500	128,100	10%	25%	34%	0.1	0.4
Commuting							
Total Commuters	81,700	549,800	15%	--	100%	0.6	1.7
Transit Commuters	5,400	71,700	8%	7%	13%	0.0	0.2
Workers with Non-Traditional Hours	9,200	56,600	16%	**11%**	10%	0.1	0.2
Employment							
Total Jobs	33,600	489,500	7%	--	--	0.3	1.5

Note: Green text indicates values greater than the county average.

Figure 4: Germantown-Damascus Subarea Activity Density

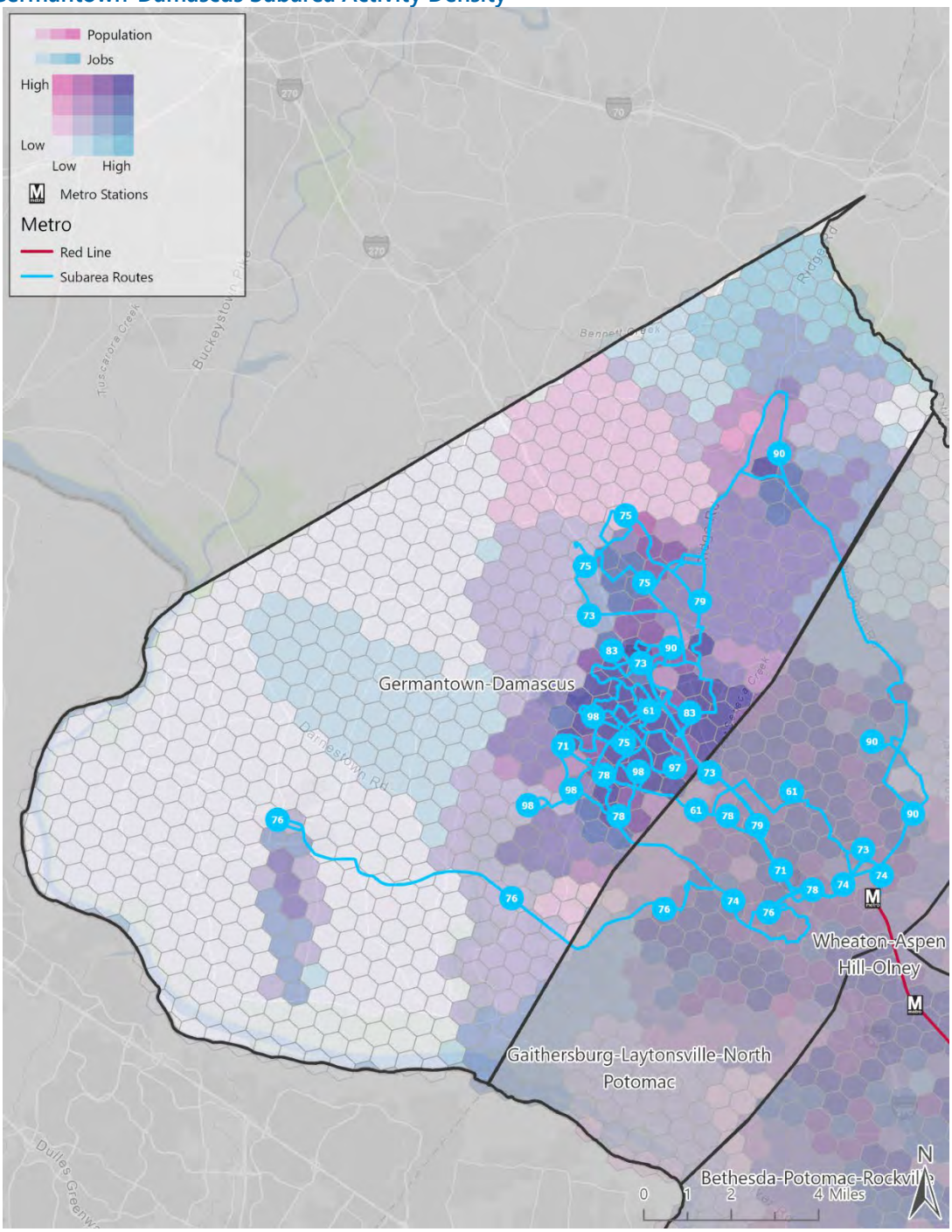
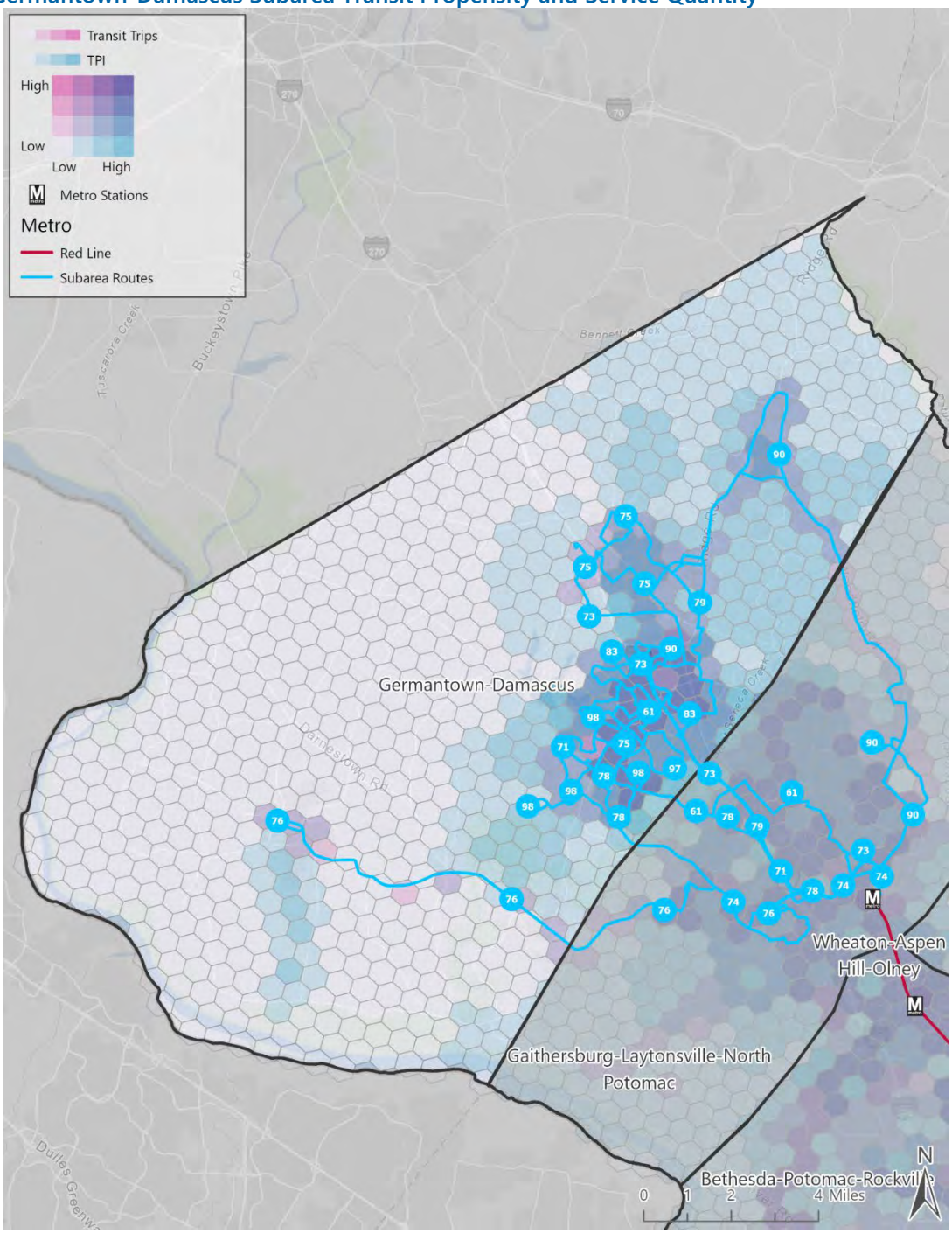


Figure 5: Germantown-Damascus Subarea Transit Propensity and Service Quantity



Ridership Productivity

Table 4 summarizes the subarea and countywide ridership activity for 2019 and 2021.

Figure 7 through **Figure 9** depict average daily stop-level ridership activity in 2019. In 2019, the Germantown-Damascus subarea produced 11,800 weekday bus boardings, 3,700 daily Saturday boardings, and 2,000 boardings on Sundays. This equates to about less than 10 percent of the overall county ridership throughout the week. Weekday ridership decreased by about 55 percent between 2019 and 2021, while Saturday and Sunday ridership decreased by 59 percent and 40 percent, respectively. Ridership in the subarea decreased at a faster rate than the county as a whole during the early years of the pandemic. However, the subarea market share remained relatively stable.

Table 4: Subarea and Countywide 2019 and 2021 Ridership Activity

Geography	2019			2021			Percent Change		
Subarea	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Ons	6,236	3,723	2,014	2,792	1,541	1,209	-55%	-59%	-40%
Offs	5,610	3,430	1,837	2,489	1,348	1,087	-56%	-61%	-41%
Total	11,846	7,153	3,851	5,282	2,890	2,296	-55%	-60%	-40%
County Total	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Ons	94,730	61,375	40,975	49,706	30,989	25,754	-48%	-50%	-37%
Offs	165,223	108,829	72,339	87,894	55,279	45,951	-47%	-49%	-36%
Total	226,924	150,810	99,985	122,946	77,428	64,169	-46%	-49%	-36%
Subarea Share	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Ons	7%	6%	5%	6%	5%	5%	-1%	-1%	0%
Offs	3%	3%	3%	3%	2%	2%	-1%	-1%	0%
Total	5%	5%	4%	4%	4%	4%	-1%	-1%	0%

Ridership by Community and Employment Center

Ridership productivity was evaluated by community to determine the general distribution of transit demand throughout the subarea. **Table 5** presents the total ridership generated within each Census Designated Place (CDP) in 2019 and 2021. Census designated places are concentrations of population and generally coincide with incorporated municipalities or unincorporated neighborhoods. Key findings from the community-level ridership analysis are described below:

- The Germantown CDP generated about 90 percent of the subarea's weekday ridership in 2019, followed by Clarksburg at five percent. Collectively, these two communities represent 95 percent of the subarea's total ridership.
- Ridership decreases between 2019 and 2021 were more severe across all subarea CDPs compared to the county average. Germantown saw a decrease of 54 percent, which is six percent greater than the county average, while Clarksburg, Damascus, Ten Mile Creek, and Poolesville saw 59 to 70 percent decreases in ridership.

Table 5: Community and Employment Center 2019 and 2021 Ridership Activity

Community	2019 Total			2021 Total			Percent of Subarea Total		Percent Change 2019-2021		
	Wkdy	Sat	Sun	Wkdy	Sat	Sun	2019	2021	Wkdy	Sat	Sun
Clarksburg	289	104	65	86	38	37	5%	3%	-70%	-63%	-42%
Damascus	174	0	0	62	0	0	3%	2%	-65%	--	--
Darnestown	2	0	0	0	0	0	0%	0%	-84%	--	--
Germantown	5,657	3,576	1,915	2,602	1,472	1,150	91%	93%	-54%	-59%	-40%
Poolesville	49	0	0	15	0	0	1%	1%	-68%	--	--
Ten Mile Creek	64	38	35	26	31	21	1%	1%	-59%	**-18%**	-39%
Undefined	1	6	0	0	0	0	0%	0%	-83%	-100%	--
Subarea Total	**6,236**	**3,723**	**2,014**	**2,792**	**1,541**	**1,209**	**7%**	**6%**	-55%	-59%	-40%

Note: Green text indicates percent change less than the county average between 2019 and 2021.

Ridership by Corridor

Transit corridors with high ridership in the Germantown-Damascus area include Germantown Rd., Observation Dr., Frederick Rd., Clopper Rd., and Great Seneca Highway. Average weekday boardings by stop was used as the basis for analyzing corridor ridership. The stops with the highest ridership generally tended to occur at major stops like transit centers, and activity centers, but also at intersections with transfer opportunities. Stops were considered 'along' the corridor if they were within 0.2 miles from the route pattern. **Figure 6** illustrates high ridership corridors.

The northeast-bound **Germantown Rd. Corridor** stretches for 3.4 miles from Scenery Dr. to Clopper Rd. in Old Germantown, excluding the short segment between Frederick Rd. and Shakespeare Blvd. The corridor hosts a ridership density of 830 boardings per mile, the highest in the subarea. The share of overall subarea ridership was also exceedingly high compared to other corridors, at 45 percent, having only declined slightly to 44 percent in 2021. The highest ridership segment is between Wisteria Dr. and Frederick Rd., where Germantown Transit Center, MARC Station, and Montgomery College are located.

The winding **Observation Dr. Corridor** stretches for 2.2 miles from Dorsey Mill Rd. to Montgomery College Germantown Campus. The corridor experienced 370 boardings per mile in 2019, the second highest in the subarea. Due to the decrease in boardings at Montgomery College, the share of overall subarea ridership decreased slightly between 2019 and 2021, from 13 percent to 11 percent, remaining the third highest in the subarea.

The northbound **Frederick Rd. Corridor** stretches 4.2 miles from Wheatfield Dr to Clarksburg Rd, excluding the short segment between Shawnee Ln. and Stringtown Rd. Ridership density in 2019 was the third highest in the subarea, at 200 boardings per mile. The share of total subarea ridership was the second highest, at 14 percent. Notably, due to the several commercial areas, especially between Middlebrook Ln. and Scenery Dr., ridership share dramatically increased to 18 percent in 2021, solidifying it as the second highest in the subarea.

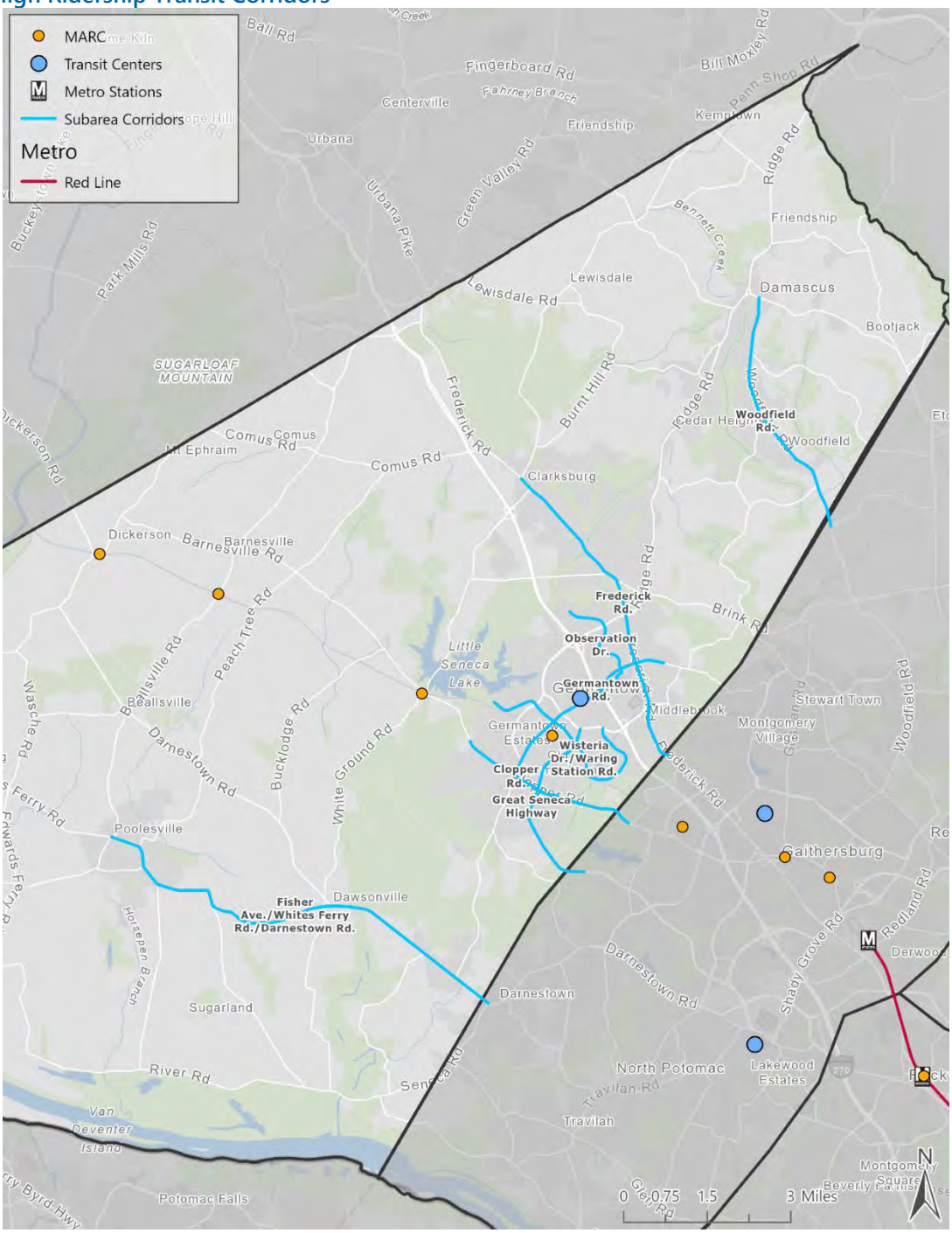
The **Wisteria Dr./Waring Station Rd.** winds for 4.1 miles from Wanegarden Dr. to Middlebrook Rd. It had the fifth highest boarding density in the subarea, at 120 per mile, in 2019. The share of subarea ridership slightly increased from eight percent to 10 percent between 2019 and 2021, remaining at the fourth highest in the subarea. The corridor sees high ridership at Germantown Rd. and Great Seneca Highway, with commercial areas at both intersections.

The northwest-bound **Great Seneca Highway Corridor** stretches for 3.3 miles from Middlebrook Rd. to Park Access Rd., where it extends into the Gaithersburg-Laytonsville-North Potomac subarea. The corridor hosted about 130 boardings per mile on the average weekday in 2019. The share of total subarea ridership was seven percent in 2019, and slightly rose to eight percent in 2021.

The **Clopper Rd. Corridor** stretches for 3.3 miles from Steeple Rd. in Germantown Estates to Game Preserve Rd., where it extends into the Gaithersburg-Laytonsville-North Potomac subarea and hosts about 110 riders per mile. The share of total subarea ridership slightly decreased between 2019 and 2021, from six to five percent.

Fisher Ave./Whites Ferry Rd./Darnestown Rd. Corridor and **Woodfield Rd. Corridor** provide service to Poolesville and Damascus, respectively. Each corridor holds a ridership density of 60 boardings per mile or less, and each comprise a one percent to three percent share of the total subarea ridership.

Figure 6: High Ridership Transit Corridors



Ridership by Key Hubs

Table 6 provides ridership activity by key hub locations. A stop was considered in proximity of the key location if it is within 0.2 miles. All Metro and MARC stations, transit centers, and park and rides were considered key locations. Shopping centers and college campuses were selected based on high ridership and breadth of geography so that boardings would not be double counted between locations.

Across all key hubs, total ridership decreased between 2019 and 2021. Germantown Transit Center, the transit and commercial hub with the highest boardings in the subarea, saw a small increase in subarea ridership share on weekdays but a decline on weekends between 2019 and 2021. Further, Neelsville, Middlebrook Square, Kingsview, Germantown Square, and Germantown Town Center shopping centers, which had the highest ridership shares of all commercial hubs in the subarea in 2019, experienced an increase in ridership share on weekdays. Montgomery College saw a large drop in subarea ridership share between 2019 and 2021 on weekdays, due to the transition to online classes.

Table 6: Ridership Activity by Key Hub

Name	Type	Weekday Boardings (% of total)		Saturday Boardings (% of total)		Sunday Boardings (% of total)	
		2019	2021	2019	2021	2019	2021
Germantown Transit Center	Transit Center	2,100 (33.6%)	950 (34.0%)	1,470 (39.4%)	550 (36.0%)	770 (38.4%)	430 (35.2%)
Neelsville Village Shopping Center	Shopping Center	820 (13.1%)	390 (13.9%)	560 (15.1%)	310 (20.2%)	360 (17.8%)	280 (23.2%)
Montgomery College	College Campus	300 (4.8%)	60 (2.0%)	30 (0.8%)	10 (0.6%)	<5 (0.0%)	<5 (0.3%)
Middlebrook Square Shopping Center	Shopping Center	210 (3.4%)	150 (5.2%)	200 (5.4%)	130 (8.1%)	130 (6.2%)	120 (9.7%)
Kingsview Village Center	Shopping Center	100 (1.7%)	50 (1.8%)	70 (1.9%)	30 (1.9%)	20 (1.0%)	10 (1.1%)
Germantown Square	Shopping Center	100 (1.5%)	70 (2.3%)	70 (1.8%)	30 (1.8%)	20 (1.2%)	10 (0.6%)
Germantown Town Center	Shopping Center	90 (1.5%)	60 (2.0%)	70 (2.0%)	30 (1.8%)	60 (2.8%)	20 (2.0%)
Clarksburg Premium Outlets	Shopping Center	30 (0.5%)	10 (0.5%)	30 (0.9%)	20 (1.1%)	20 (1.1%)	10 (0.8%)
Germantown MARC Station	MARC Station	30 (0.5%)	10 (0.5%)	20 (0.5%)	<5 (0.3%)	20 (0.8%)	<5 (0.3%)
Damascus Center	Shopping Center	30 (0.4%)	10 (0.3%)	<5 (0.0%)	<5 (0.0%)	<5 (0.0%)	<5 (0.0%)
Poolesville Plaza	Shopping Center	10 (0.2%)	10 (0.2%)	<5 (0.0%)	<5 (0.0%)	<5 (0.0%)	<5 (0.0%)

Figure 7: 2019 Weekday Ridership by Stop

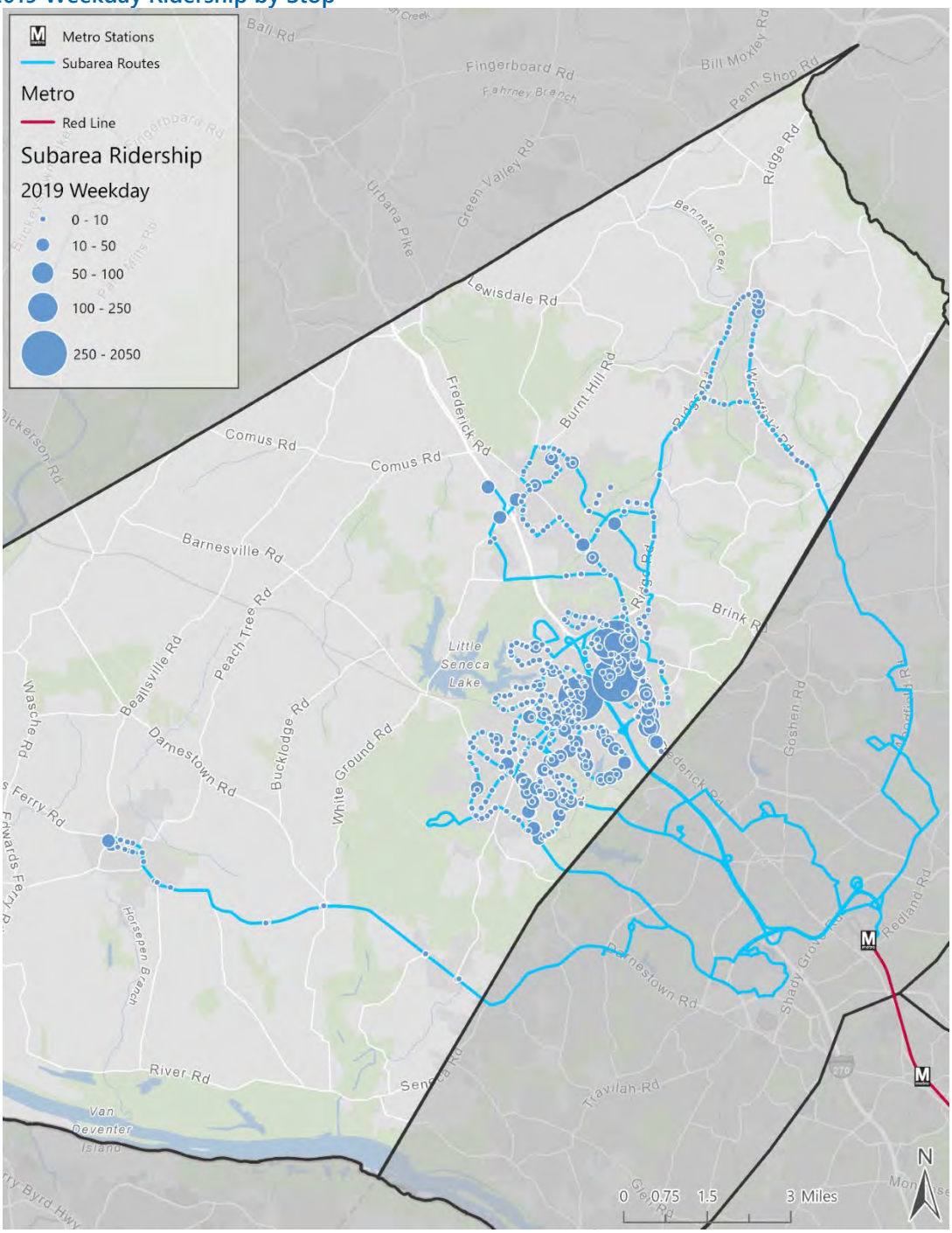


Figure 8: 2019 Saturday Ridership by Stop

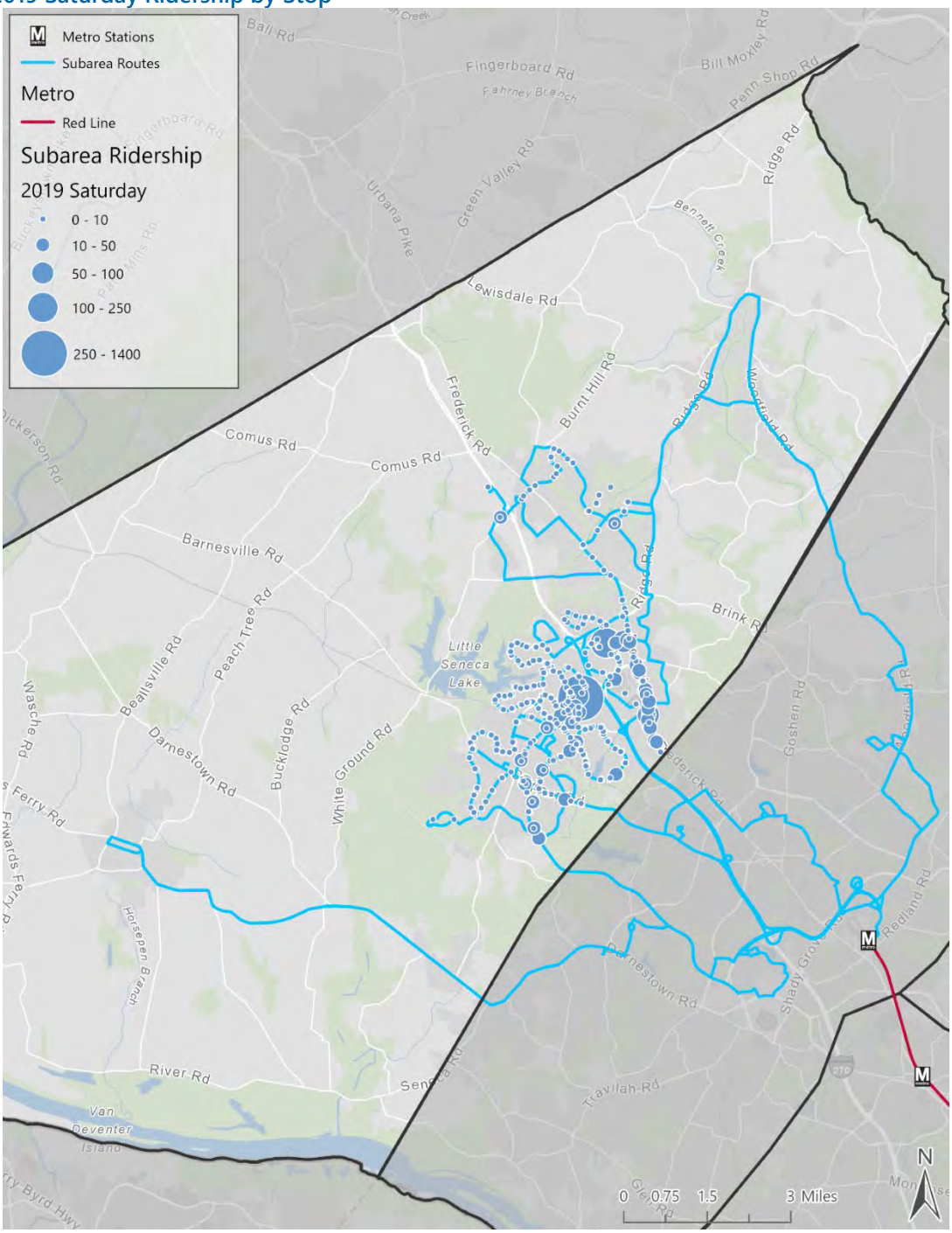
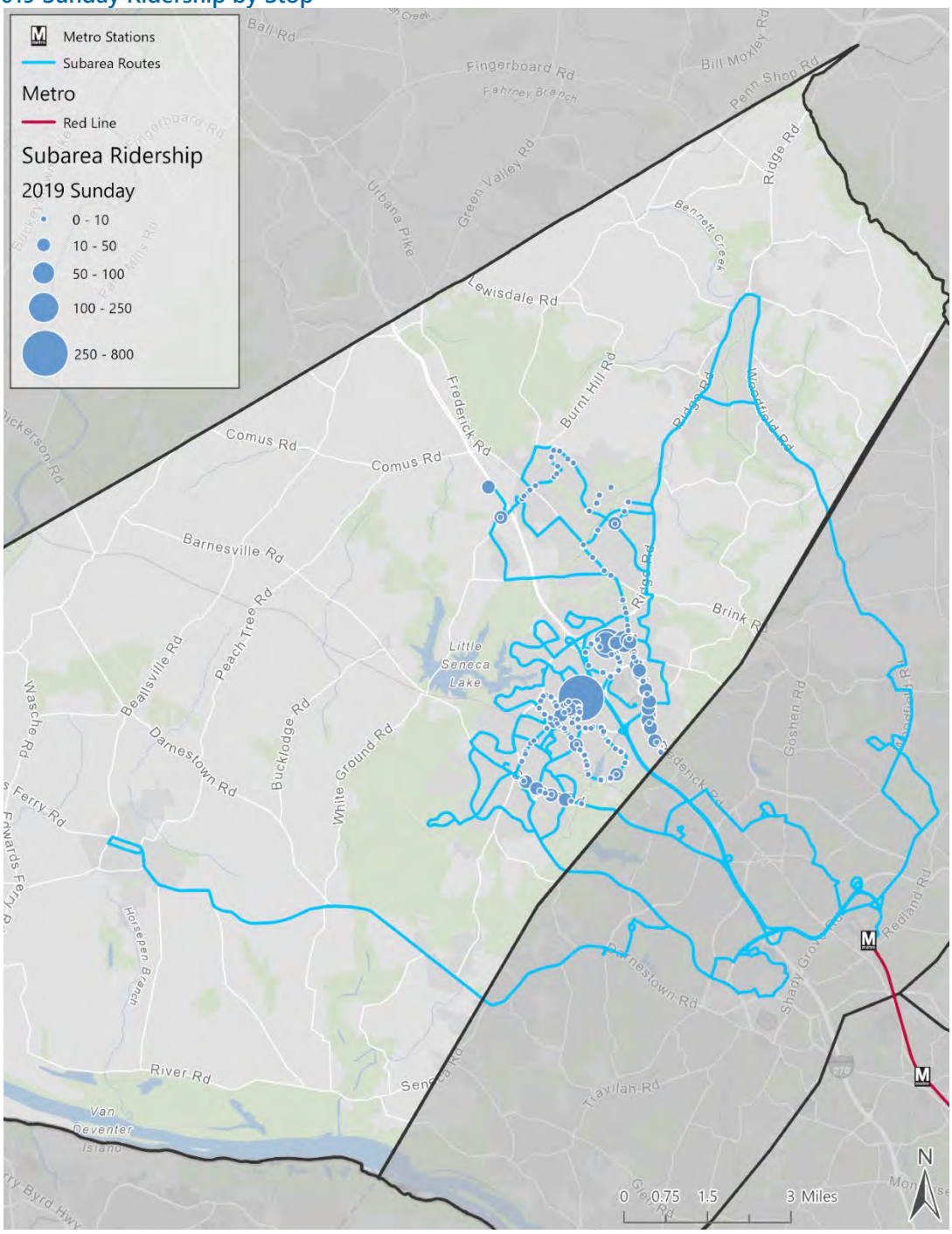


Figure 9: 2019 Sunday Ridership by Stop



Route Performance

Table 7 through **Table 9** provide key performance indicators (KPIs) for the Germantown-Damascus subarea routes for weekdays, Saturdays, and Sundays in 2019. The tables are sorted by daily boardings and color coded by quartile for all KPIs except on-time performance. On-time performance (OTP) is color coded by adherence to Ride On's on-time performance definition. Route quartiles and rankings are calculated based on route type for all Montgomery County bus routes. The KPIs are defined below along with key findings:

- **Daily Boardings** measures productivity in terms of passenger boardings per day. The Germantown-Damascus routes tend to be less productive compared to the rest of the county. Of the six routes serving the subarea, two perform within the top half of their respective service categories on weekdays. Three subarea routes carry more than 500 weekday passengers, namely Ride On local routes 75 and 90, and loop route 97. These higher performing routes connect the Germantown Transit Center and the Metrorail system to pertinent local destinations.
- **Service efficiency measures ridership per unit of resource investment.** Service efficiency KPIs include passengers per vehicle revenue hour (Pax/VRH), passengers per vehicle revenue mile (Pax/VRM), and passengers per one-way bus trip (Pax/Trip). Several of the least efficient Ride On local routes serve the subarea. The Ride On loop Route 97 is the top performing subarea route in terms of passengers per revenue hour, revenue mile and trip. All local subarea routes rank in the bottom quartile of their respective service categories on weekdays and weekend service.
- **Financial performance measures return on investment.** Financial performance KPIs include cost recovery (Cost Rec.), which is the ratio between fare revenue collected and operating cost and subsidy per passenger (Sub/Pax) which is net operating cost (operating cost minus fare revenue) per passenger boardings. The most efficient routes tend to also exhibit the strongest cost recovery ratios and lowest subsidies per passenger. The only route in the top quartile of its service category in terms of service efficiency and financial performance is Ride On loop route 97, while the other routes in this subarea show weak cost recovery ratios and high subsidies per passenger.
- **On-Time Performance (OTP)** measures reliability in terms of the percentage of bus trips that depart within Ride On's established definition of "on-time" (between one minute early and five minutes late). Weekday on-time performance is generally quite strong among the local routes serving the subarea, while loop and express route service tends to be less reliable. On weekdays, four subarea routes exceed Ride On's on-time target of 85 percent and two are below five percent of the target. All local routes exceed the target on Saturdays and Sundays, while the loop and express routes are below five percent of the target on both days. In this subarea, the routes that do not provide local service exhibit lower on-time performance. This reflects the fact that these routes pass through high traffic corridors.

Table 7: Weekday Route Key Performance Indicators (2019)

Route	Route Description	Route Type	Boardings		Pax/VRH		Pax/VRM		Pax/Trip		Cost Rec.		Sub./Pax		On-time performance	
			Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank
90	Milestone-Damascus-Woodfield Rd- Airpark Shady Grove	Local	695	29 / 63	11	50 / 63	0.6	59 / 63	10.1	33 / 63	12%	50 / 63	$7.10	50 / 63	90%	19 / 63
97	GTC, Germantown MARC, Waring Station, GTC	Loop	580	2 / 4	18.6	1 / 4	1.8	2 / 4	10.9	1 / 4	21%	1 / 4	$3.85	1 / 4	74%	2 / 4
75	Clarksburg-Correctional Facility-Milestone-GTC	Local	515	39 / 63	12.3	49 / 63	0.7	52 / 63	7.4	49 / 63	14%	47 / 63	$6.02	47 / 63	87%	33 / 63
98	GTC, Kingsview, GCC, Cinnamon Woods	Local	415	41 / 63	9.8	52 / 63	0.7	56 / 63	6.7	52 / 63	11%	53 / 63	$8.40	53 / 63	89%	25 / 63
83	Germantown MARC-GTC-Waters Landing-Milestone-Holy Cross	Local	374	44 / 63	6.5	62 / 63	0.5	62 / 63	4.8	59 / 63	7%	62 / 63	$12.91	62 / 63	93%	8 / 63
73	Clarksburg-Old Baltimore-Shady Grove	Express	326	3 / 3	12	3 / 3	0.5	3 / 3	8	3 / 3	13%	3 / 3	$6.84	3 / 3	79%	2 / 3

KPI Quartile Ranking				OTP Ranking		
Top 25%	50-75%	25-50%	Bottom 25%	>= 85%	80-85%	<80%

Table 8: Saturday Route Key Performance Indicators (2019)

Route	Route Description	Route Type	Boardings		Pax/VRH		Pax/VRM		Pax/Trip		Cost Rec.		Sub./Pax		On-time performance	
			Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank
75	Clarksburg-Correctional Facility-Milestone-GTC	Local	320	34 / 42	8.2	38 / 42	0.5	38 / 42	5.3	36 / 42	9%	37 / 42	$9.79	37 / 42	86%	25 / 42
97	GTC, Gunner's Lake, GTC	Loop	269	2 / 2	15.5	1 / 2	1.5	2 / 2	8.7	1 / 2	17%	1 / 2	$4.87	1 / 2	72%	1 / 2
98	GTC, Kingsview, Soccerplex	Local	195	38 / 42	6.3	40 / 42	0.4	41 / 42	4.4	38 / 42	7%	40 / 42	$13.48	40 / 42	86%	22 / 42
83	GTC-Waters Landing-Milestone	Local	183	40 / 42	6.6	39 / 42	0.4	40 / 42	4.2	40 / 42	8%	39 / 42	$12.29	39 / 42	89%	17 / 42

KPI Quartile Ranking				OTP Ranking		
Top 25%	50-75%	25-50%	Bottom 25%	>= 85%	80-85%	<80%

Table 9: Sunday Route Key Performance Indicators (2019)

Route	Route Description	Route Type	Boardings		Pax/VRH		Pax/VRM		Pax/Trip		Cost Rec.		Sub./Pax		On-time performance	
			Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank
75	Clarksburg-Correctional Facility-Milestone-GTC	Local	245	28 / 33	7.9	31 / 33	0.5	32 / 33	4.5	30 / 33	9%	31 / 33	$10.88	31 / 33	94%	1 / 33
97	GTC, Gunner's Lake, GTC	Loop	154	1 / 1	10	1 / 1	0.9	1 / 1	5.3	1 / 1	11%	1 / 1	$7.96	1 / 1	70%	1 / 1

KPI Quartile Ranking				OTP Ranking		
Top 25%	50-75%	25-50%	Bottom 25%	>= 85%	80-85%	<80%

Germantown-Damascus Subarea Conclusions

- Montgomery County's bus network is structured to feed the Metrorail system, with all but four routes connecting to at least one station. These four routes serve the Germantown-Damascus subarea. In this sense, the subarea's bus routes form an independent network oriented to the Germantown Transit Center, which facilitates transfers between the local circulator routes and several regional express routes that connect to Metrorail stations and employment centers in the southern part of the county.
- The primary routes serving Germantown-Damascus are among some of the lowest-performers in the county in terms of ridership productivity, efficiency, and effectiveness. This performance is to be expected given the low-density development patterns in the area. In order to maximize coverage, many of the local and loop routes are designed with circuitous alignments and generally have low frequencies. As an alternative, or supplemental service, Ride On could consider new delivery models such as on-demand service to improve service quality while maintaining coverage in the area. Loop Route 97, which services Germantown MARC Station, Germantown Transit Center, Middlebrook Rd., and Wisteria Dr., is the top performing Loop route across all four in the county but has the lowest on-time performance of all routes in the subarea.
- Despite low performing routes within the subarea, the very high performing local and express routes 55, 61 and 100 connect riders from the Germantown Transit Center to points further south in the county, demonstrating their importance as regional connectors.

Gaithersburg-Laytonsville-North Potomac Subarea

Subarea Overview

The Gaithersburg-Laytonsville subarea covers approximately 92 square miles of central Montgomery County. The subarea extends to the Potomac River to the west and the Howard County border to the east. The Wheaton-Aspen Hill-Olney and Bethesda-Potomac-Rockville subareas are to the south, and the Germantown-Damascus subarea is to the north. This subarea includes the communities of Darnestown, Gaithersburg, Montgomery Village, Redland, and Laytonsville.

The primary routes in the Gaithersburg-Laytonsville subarea are shown in **Table 10** and **Figure 10**. All 21 primary routes are operated by Ride On, of which 15 are Local, five are Limited, and one is Express. There are two Transit Centers (Lakeforest Transit Center at Lakeforest Mall and Traville Gateway Dr Transit Center at The Universities at Shady Grove), and three MARC stations (Metropolitan Grove, Gaithersburg, and Washington Grove). The terminus of the Red Line Metrorail, Shady Grove station, is in Derwood. The most productive corridor in this area is Redland Rd., followed by Frederick Rd., Quince Orchard Road/Montgomery Village Ave., W. Diamond Rd./Clopper Rd., and Old Towne Ave. Service levels for each route are summarized in **Figure 11**.

Table 10: Gaithersburg-Laytonsville Subarea Routes

Route		Service Category
43	Shady Grove-Traville Transit Ctr	Local
54	Rockville-Lakeforest	Local
55	Rockville-Germantown Transit Ctr	Local
56	Rockville-Lakeforest	Local
57	Shady Grove-Lakeforest	Local
58	Shady Grove-Lakeforest	Local
59	Rockville-Montgomery Village	Local
61	Shady Grove-Germantown Transit	Local
63	Rockville-Shady Grove	Local
64	Shady Grove-Montgomery Village	Local
66	Shady Grove-Traville Transit Ctr	Local
67	Shady Grove-Traville Transit Ctr	Local
74	Shady Grove-Germantown Transit	Local
76	Shady Grove-Poolesville	Local
301	Potomac-Rockville	Local
60	Shady Grove-Montgomery Village	Limited
65	Shady Grove-Mont. Village-Express	Limited
71	Shady Grove-Kingsview P & R	Limited
78	Shady Grove-Kingsview P & R	Limited
79	Shady Grove-Clarksburg	Limited
100	Shady Grove-Germantown Transit	Express

Figure 10: Gaithersburg-Laytonsville Subarea Bus Routes

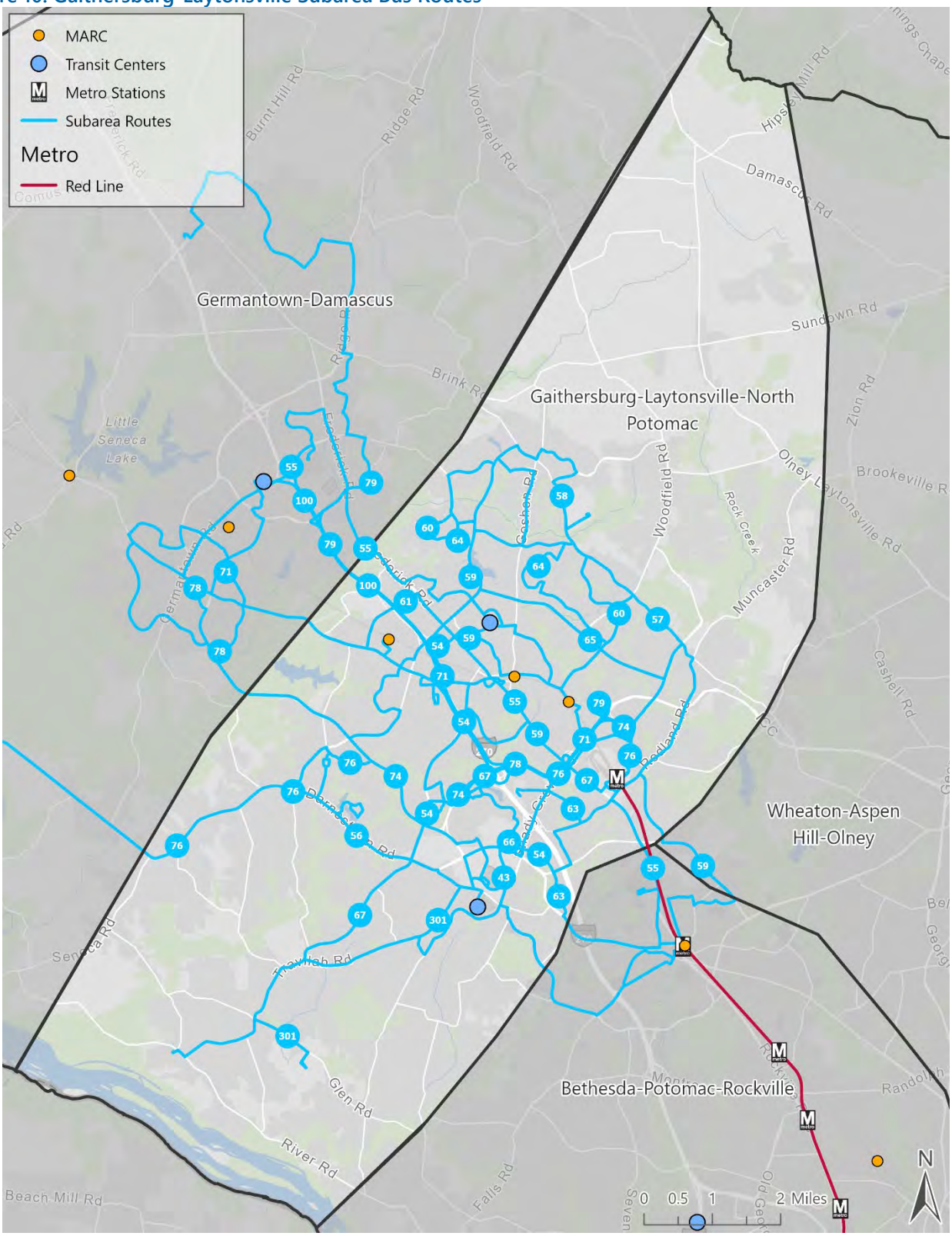
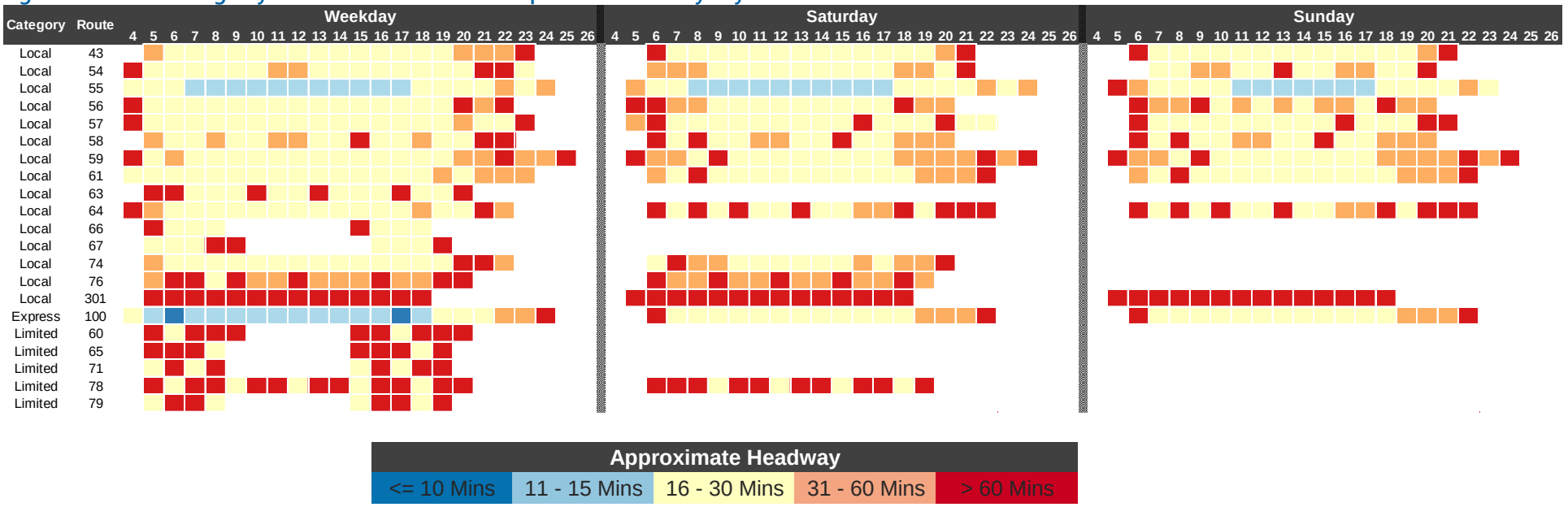


Figure 11: Gaithersburg-Laytonsville Subarea Service Span and Headways by Route



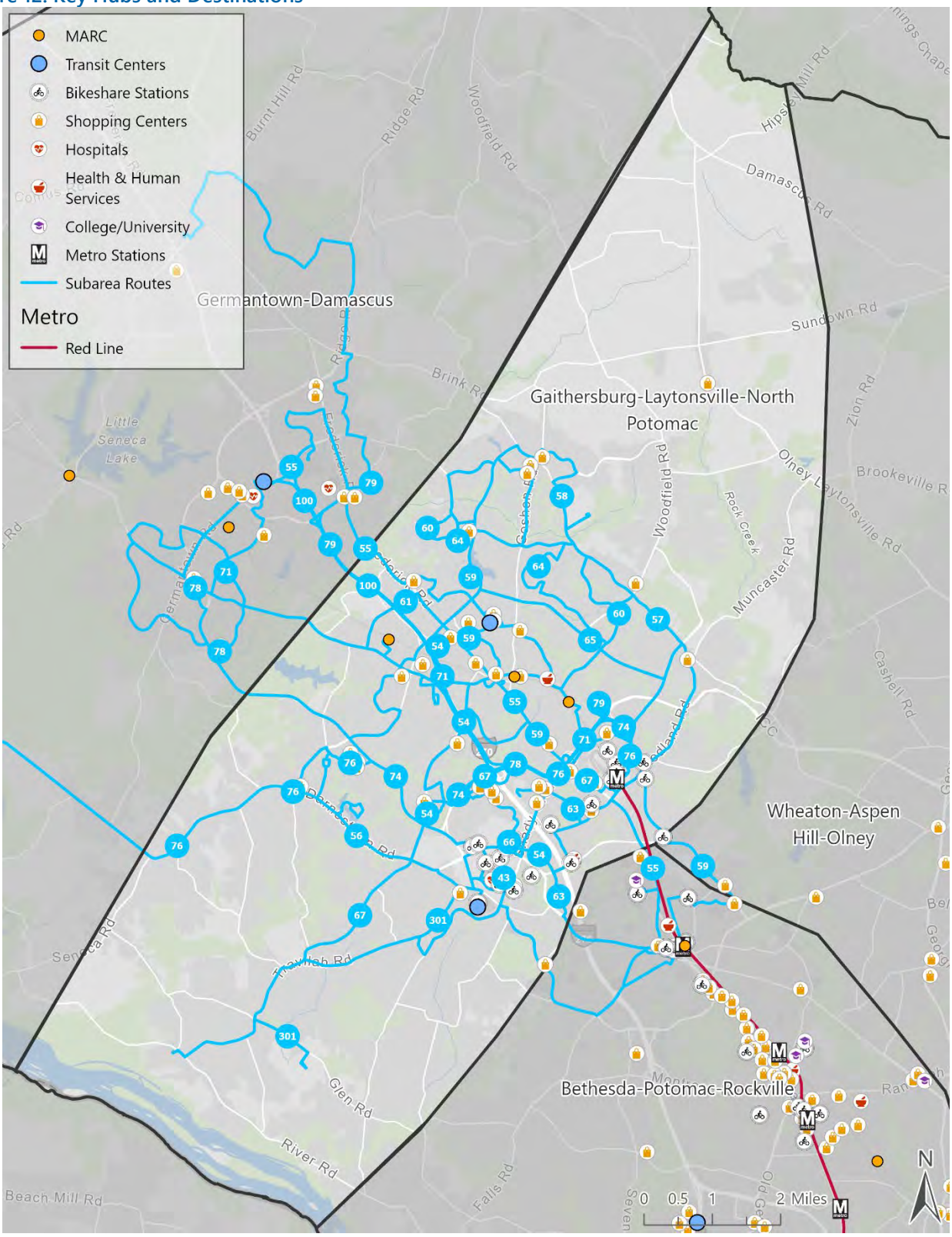
Key Transit Hubs & Destinations

Table 11 and **Figure 12** present key transit hubs, park-and-ride lots, and major destinations within the subarea. Most of the highest ridership locations in the subarea are located at key transfer facilities that provide connections to regional commuter rail and bus services operated by Metro and the Maryland Transit Administration (MARC and MTA Commuter Bus) and local bus services operated by Ride On and Metro. Other key destinations in the subarea include major shopping centers, Shady Grove Adventist Hospital, and Montgomery Baptist Church.

Table 11: Key Transit Hubs & High Ridership Destinations

Name	Type	Routes Served	2019 Weekday Ridership (% of Total)
Shady Grove Metro Station	Metro Station	100, 101, 43, 55, 57, Q1	4,850 (28.0%)
Lakeforest Transit Center	Transit Center	101, 54, 55, 56, 61	2,360 (13.6%)
Montgomery Village Center	Shopping Center	58, 59, 60	570 (3.3%)
Montgomery Baptist Church	Church	55, 56, 58, 59	400 (2.3%)
Gaithersburg Square	Shopping Center	101, 54, 61	340 (1.9%)
Walnut Hill Shopping Center	Shopping Center	101, 55	240 (1.4%)
Gaitherstowne Plaza	Shopping Center	55	210 (1.2%)
The Shops at Potomac Valley South	Shopping Center	56, 76	200 (1.2%)
Flower Hill Shopping Center	Shopping Center	57	200 (1.1%)
Quince Orchard Plaza	Shopping Center	56, 71	190 (1.1%)
The Summit	Shopping Center	61	190 (1.1%)
Kentlands Place	Shopping Center	56	180 (1.1%)
Grand Corner Avenue	Shopping Center	54, 74	170 (1.0%)
Gaithersburg MARC Station	MARC Station	57, 59	150 (0.9%)
Shady Grove Plaza	Shopping Center	43, 55	140 (0.8%)
Shady Grove Adventist Hospital	Hospital	43, 56, 66	120 (0.7%)
Goshen Crossing	Shopping Center	58, 64	110 (0.6%)
Great Beginnings Shopping Center	Shopping Center	55	100 (0.6%)
Diamond Square Shopping Center	Shopping Center	56, 71	80 (0.5%)
Traville Gateway Dr Transit Center	Transit Center	43, 66	80 (0.5%)
Northgate Community Church	Church	58	80 (0.5%)
Redmill Center	Shopping Center	53, 57	70 (0.4%)
Washington Grove MARC Station	MARC Station	61	10 (0.1%)
Metropolitan Grove MARC Station	MARC Station	78	< 5 (0.0%)

Figure 12: Key Hubs and Destinations



Activity Density and Transit Propensity

In most urban settings, population and employment density are typically the most important factors that influence transit ridership. Potential ridership demand, or propensity, is also strongly driven by socioeconomic characteristics such as household income, race/ethnicity, and access to personal vehicles. **Table 12** presents key socioeconomic indicators for the Gaithersburg-Laytonsville subarea. **Figure 13** depicts population and job density, and **Figure 14** depicts transit propensity relative to the quantity of transit service provided. Key findings include:

- The Gaithersburg-Laytonsville subarea contains about 20 percent of Montgomery County's total population and 24 percent of its total employment base, making it one of the more productive subareas of the county. Areas with the highest activity densities include the city of Gaithersburg in the center of the subarea, the community of Darnestown situated west of Gaithersburg, and Laytonsville to the east. As shown in **Figure 13**, the bus network generally serves the denser parts of the subareas and not the fringes.
- The subarea's socioeconomic indicators suggest a moderate degree of transit propensity. The subarea is home to 23 percent of the county's minority and low-income residents and 17 percent of zero-vehicle households. As a percentage of the total subarea population, 62 percent identify as racial minorities, 13 percent are below 150 percent of the federal poverty line, and eight percent have low or no English language proficiency. Moreover, six percent of households do not have access to a personal vehicle and 36 percent of households are renters. In terms of commuting habits, 10 percent of subarea workers commute using transit and 11 percent work non-traditional hours. Subarea transit propensity indicators that exceed the county average in terms of both percentage of the overall population and density include Minority Population, Population in Poverty, Low or No English Proficiency, Rental Households, and Workers with Non-Traditional Hours.
- As shown in **Figure 14**, the transit propensity indicators were compared to existing transit service levels to identify service gaps. The central, denser areas are well served, however there are a few pockets of higher transit propensity and low or no transit service. These areas tend to be in lower density, residential neighborhoods, such as along Seneca Rd. in west Darnestown and the area around Woodfield Rd./State Route 124 between Midcounty Highway and Brink Rd. The latter area is only partially served by Routes 57 and 58.

Table 12: Gaithersburg-Laytonsville Subarea Socioeconomic Indicators

	Total Population, Households, & Jobs			Percent of Total Population & Households		Density (per acre)	
	Subarea	County	Subarea Share	Subarea	County	Subarea	County
Population							
Total Population	219,900	1,047,400	21%	--	--	**3.7**	3.2
Minority Population	137,000	595,800	23%	**62%**	57%	**2.3**	1.8
Youth Population (<18 years)	49,100	243,400	20%	22%	23%	0.8	0.8
Senior Population (>65 years)	31,700	162,400	20%	14%	16%	0.5	0.5
Disabled Population	9,200	37,400	25%	4%	4%	**0.2**	0.1
Population in Poverty (<150% FPL)	27,900	121,000	23%	**13%**	12%	**0.5**	0.4
Low or No English Proficiency	17,400	62,400	28%	**8%**	6%	**0.3**	0.2
Households							
Total Households	77,200	372,700	21%	--	100%	**1.3**	1.1
Zero Vehicle Households	4,700	28,100	17%	6%	8%	0.1	0.1
Single Vehicle Households	25,500	126,000	20%	33%	34%	0.4	0.4
Rental Households	27,800	128,100	22%	**36%**	34%	**0.5**	0.4
Commuting							
Total Commuters	117,200	549,800	21%	--	100%	**2.0**	1.7
Transit Commuters	11,900	71,700	17%	10%	13%	0.2	0.2
Workers with Non-Traditional Hours	12,600	56,600	22%	**11%**	10%	0.2	0.2
Employment							
Total Jobs	116,100	489,500	24%	--	--	**2.0**	1.5

Note: Green text indicates values greater than the county average.

Figure 13: Gaithersburg-Laytonsville Subarea Activity Density

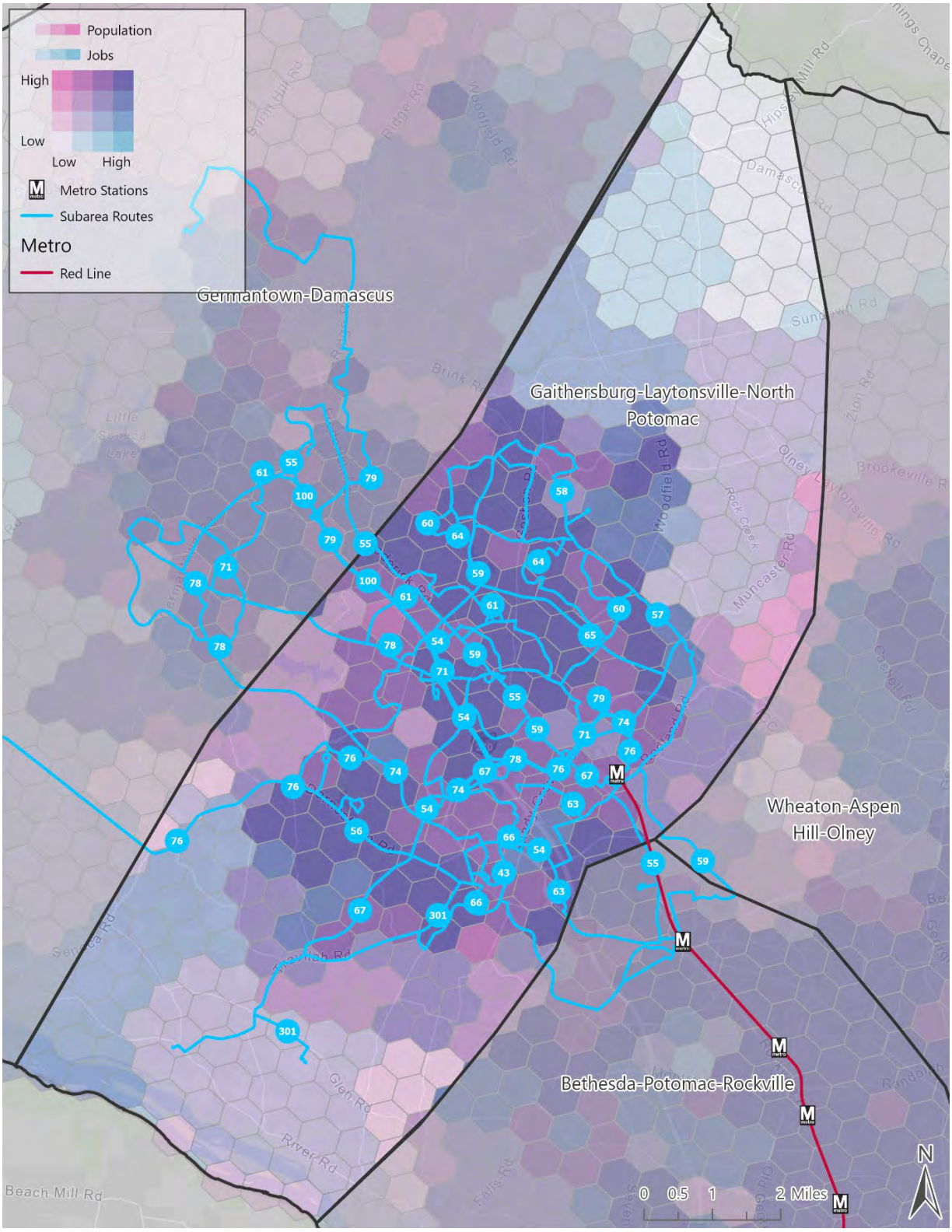
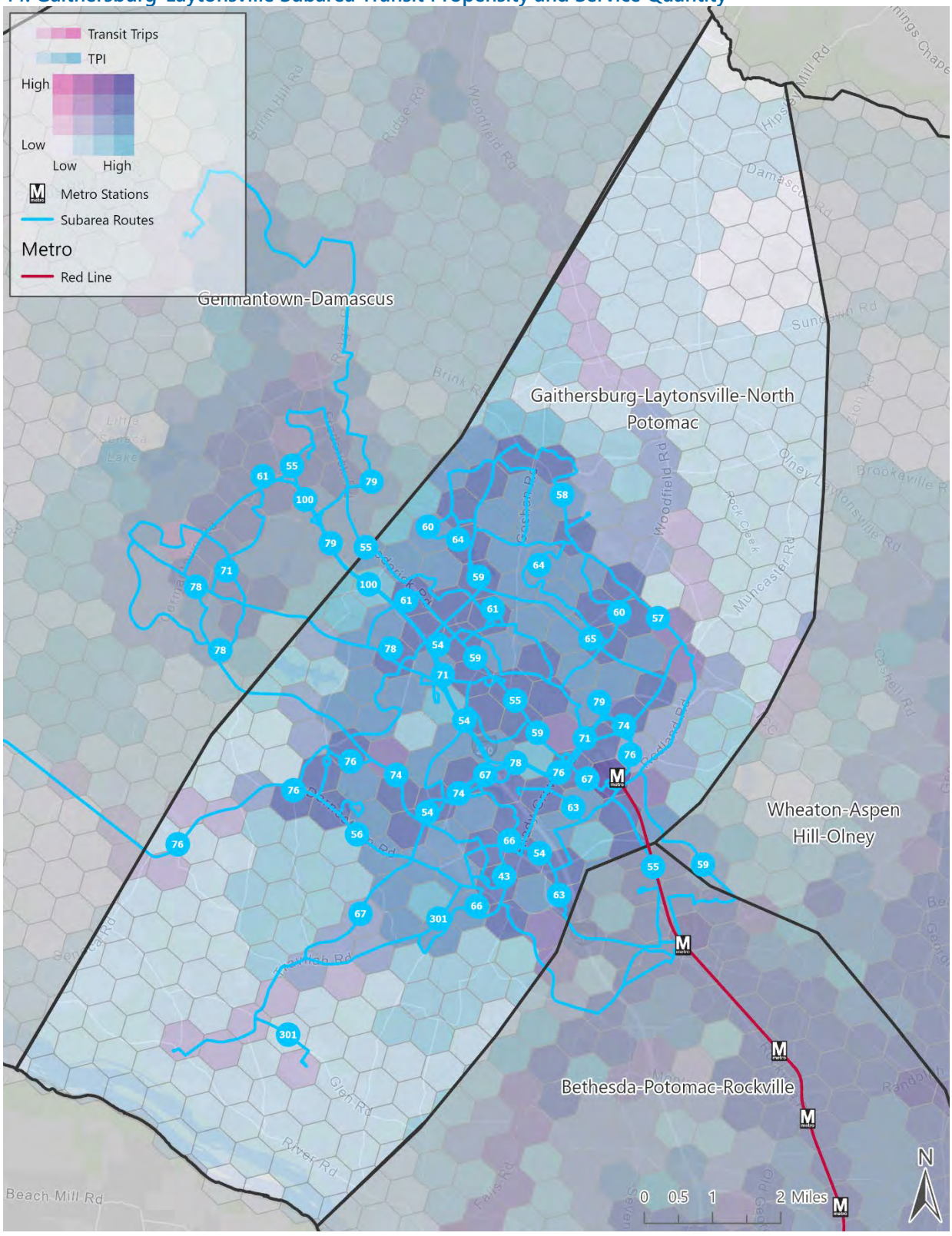


Figure 14: Gaithersburg-Laytonsville Subarea Transit Propensity and Service Quantity



Ridership Productivity

Table 13 summarizes the subarea and countywide ridership activity for 2019 and 2021. **Figure 16** through **Figure 18** depict average daily stop-level ridership activity in 2019. In 2019, the Gaithersburg-Laytonsville-North Potomac subarea produced 33,400 weekday bus boardings, 11,200 daily Saturday boardings, and 7,400 boardings on Sundays. This activity equates to about 20 percent of the overall county ridership throughout the week. Weekday and Saturday ridership decreased by about 55 percent between 2019 and 2021, while Sunday ridership decreased by 43 percent. Ridership in the subarea decreased at a faster rate than the county as a whole during the early years of the pandemic.

Table 13: Subarea and Countywide 2019 and 2021 Ridership Activity

Geography	2019			2021			Percent Change		
Subarea	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Ons	17,293	11,231	7,401	8,037	4,918	4,193	-54%	-56%	-43%
Offs	16,125	10,745	7,024	7,588	4,577	3,870	-53%	-57%	-45%
Total	33,418	21,976	14,425	15,624	9,494	8,063	-53%	-57%	-44%
County Total	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Ons	94,730	61,375	40,975	49,706	30,989	25,754	-48%	-50%	-37%
Offs	165,223	108,829	72,339	87,894	55,279	45,951	-47%	-49%	-36%
Total	226,924	150,810	99,985	122,946	77,428	64,169	-46%	-49%	-36%
Subarea Share	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Ons	18%	18%	18%	16%	16%	16%	-2%	-2%	-2%
Offs	10%	10%	10%	9%	8%	8%	-1%	-2%	-1%
Total	15%	15%	14%	13%	12%	13%	-2%	-2%	-2%

Ridership by Community and Employment Center

Ridership productivity was evaluated by community to determine the general distribution of transit demand throughout the subarea. **Table 14** presents the total ridership generated within each Census Designated Place (CDP) in 2019 and 2021. Census designated places are concentrations of population and generally coincide with incorporated municipalities or unincorporated neighborhoods. Key findings from the community-level ridership analysis are described below:

- The Gaithersburg CDP generated about 40 percent of the subarea's weekday ridership in 2019, followed by Redland (33 percent) and Montgomery Village (11 percent). Collectively, these three communities represent 84 percent of the subarea's total ridership. However, the majority of the ridership in Redland is attributed to transfers occurring at the Shady Grove Metrorail station.
- The Gaithersburg CDP saw a ridership decrease between 2019 and 2021 that was slightly below the county average, while the other CDPs within the subarea saw steeper declines. The Redland subarea, where Shady Grove Metrorail station is located, saw a 14 percent decrease in ridership. This is likely the result of fewer work-based commutes occurring during the pandemic.

Table 14: Community and Employment Center 2019 and 2021 Ridership Activity

Community	2019 Total			2021 Total			Percent of Subarea Total		Percent Change 2019-2021		
	Wkdy	Sat	Sun	Wkdy	Sat	Sun	2019	2021	Wkdy	Sat	Sun
Darnestown	12	5	1	2	0	1	0%	0%	-80%	-91%	-52%
Derwood	82	37	24	43	21	13	0%	1%	-48%	**-44%**	-43%
Flower Hill	339	193	123	142	59	64	2%	2%	-58%	-69%	-48%
Gaithersburg	6,935	5,452	3,652	3,642	2,555	2,240	40%	45%	**-47%**	-53%	-39%
Germantown	7	5	6	4	3	4	0%	0%	**-32%**	**-39%**	**-31%**
Montgomery Village	1,905	1,467	1,021	997	635	561	11%	12%	-48%	-57%	-45%
North Potomac	281	113	63	81	38	24	2%	1%	-71%	-66%	-61%
Redland	5,640	2,792	1,818	2,146	1,085	924	33%	27%	-62%	-61%	-49%
Rockville	611	275	144	233	111	74	4%	3%	-62%	-60%	-49%
Travilah	0	0	0	0	0	0	0%	0%	-100%	--	--
Washington Grove	36	24	14	14	11	5	0%	0%	-60%	-52%	-62%
Undefined	1,445	869	537	733	398	283	8%	9%	-49%	-54%	-47%
Subarea Total	**17,293**	**11,231**	**7,401**	**8,037**	**4,918**	**4,193**	**18%**	**16%**	**-54%**	**-56%**	**-43%**

Note: Green text indicates percent change less than the county average between 2019 and 2021.

Ridership by Corridor

Transit corridors with high ridership in the Gaithersburg area include Frederick Rd, Clopper Rd., Quince Orchard Rd./Montgomery Village Ave., and Muddy Branch Rd./Dufief Mill Rd. Average weekday boardings by stop was used as the basis for analyzing corridor ridership. The stops with the highest ridership generally tended to occur at major stops like Metro stations, transit centers, and activity centers, but also at intersections with transfer opportunities. Stops were considered 'along' the corridor if they were within 0.2 miles from the route pattern. **Figure 15** illustrates high ridership corridors.

The northeast bound **Redland Rd. Corridor** spans 3.6 miles from Picard Dr. to Muncaster Mill Rd. The corridor has the highest boarding density in the subarea, at 1,440 per mile. Ridership along the corridor is highly dependent on Shady Grove Metro Station, so its share of total subarea boardings declined drastically from 30 percent to 24 percent between 2019 and 2021, though it remains the highest in the subarea. Other nodes of high ridership exist at intersections with Frederick Rd. and Muncaster Mill Rd.

The northbound **Frederick Rd. Corridor** stretches 5.9 miles from Wheatfield Dr. to Gude Dr. where it extends into the Bethesda subarea. The corridor has the second highest ridership density in the subarea, at 370 riders per mile. Due to several commercial hubs along the corridor, its share of subarea ridership increased drastically from 13 percent to 18 percent between 2019 and 2021, solidifying the corridor as the second highest in the subarea.

The northbound **Quince Orchard Rd./Montgomery Village Ave. Corridor** stretches 6.1 miles from Wightman Rd. to Darnestown Rd., though there is no route pattern serving between E. Village Ave. and

Fieldcrest Rd. Ridership was 310 passengers per mile, third highest in the subarea. The share of subarea ridership increased slightly from 11 percent to 12 percent between 2019 and 2021, remaining as the third highest in the subarea. High ridership nodes include Darnestown Rd., Firstfield Rd., Christopher Ave., where Lakeforest Transit Center is located, and Montgomery Village.

The westbound **Clopper Rd./W. Diamond Ave. /Old Towne Ave. Corridor** stretches 2.8 miles from Fulks Corner Ave. to Game Preserve Rd., where it extends into the Germantown-Damascus subarea. Ridership density was 280 passengers per mile, fourth highest in the subarea. However, due to its shorter length, the corridor comprises a smaller share of total subarea ridership, at five percent, which remained consistent between 2019 and 2021. Ridership was highest at the intersections with Frederick Rd. and Firstfield Rd. The corridor is one of three that provides local service into the Germantown-Damascus subarea.

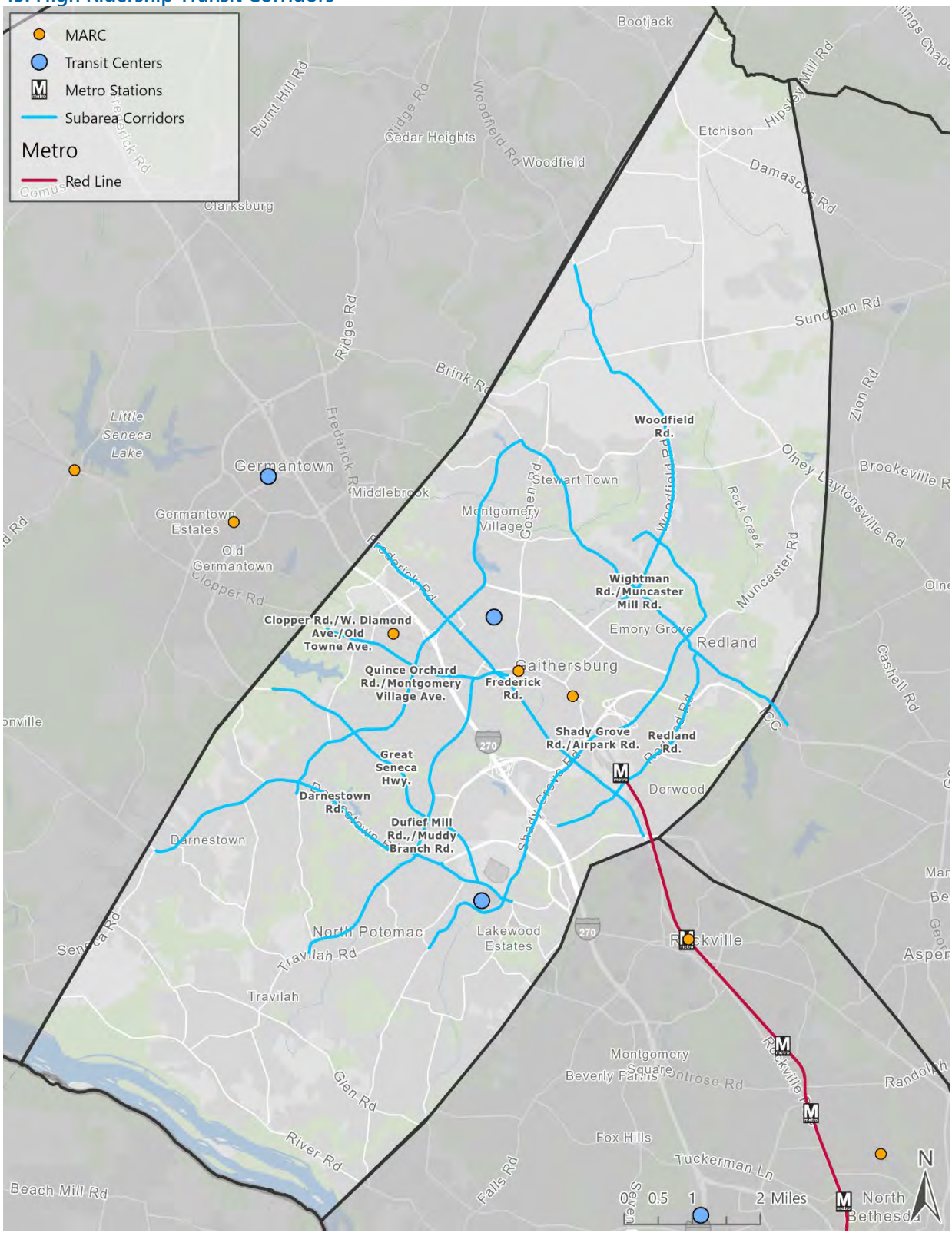
The **Wightman Rd./Muncaster Mill Rd. Corridor** spans 5.9 miles from Montgomery Village Ave to Colonel Zadok Magruder High School in the Wheaton-Aspen Hill-Olney subarea. In 2019, the corridor experienced about 100 boardings per mile, and held three percent of total subarea boardings, with its relative status remaining the same in 2021. The highest nodes of ridership are at intersections with Montgomery Village Ave., Woodfield Rd., and Redland Ave.

The southbound **Dufief Mill Rd./Muddy Branch Rd. Corridor** stretches 2.7 miles from Travilah Rd. to W. Diamond Ave., excluding a short segment along the corridor from Diamondback Dr. to School Dr., where there is no service. The corridor had the fifth highest ridership density in the subarea, at 200 passengers per mile. The corridor's share of total subarea ridership in 2019 was low at three percent and remained consistent in 2021.

The northeast-bound **Shady Grove Rd./Airpark Rd. Corridor** stretches 8.5 miles from Cavanaugh Dr. to Queenair Dr., excluding the short segment between Key West Ave. and Blackwell Dr. Ridership was at 90 passengers per mile, the sixth highest in the subarea. The share of subarea ridership remained consistent between 2019 and 2021, at four percent.

Corridors with a boarding density of less than 100 per mile and a subarea ridership share of less than four percent include **Darnestown Rd.**, **Woodfield Rd.**, and **Great Seneca Highway**.

Figure 15: High Ridership Transit Corridors



Ridership by Key Hubs

Table 15 provides ridership activity by key hub locations. A stop was considered in proximity of the key location if it is within 0.2 miles. All Metro and MARC stations, transit centers, and park and rides were considered key locations. Shopping centers and churches were selected based on high ridership and breadth of geography, so that boardings would not be double counted between locations.

Across all key hubs, ridership fell between 2019 and 2021. Shady Grove Metro Station, which is the end of line for the Red Line, and acts as a key connection point for commuters entering the District, experienced a dramatic decrease in subarea ridership share across weekdays, Saturdays, and Sundays. The commercial hubs with the highest ridership in 2019, like Lakeforest Transit Center, Montgomery Village Center, Gaithersburg Square, and Walnut Hill Shopping Center, all saw a moderate increase in subarea ridership share on weekdays.

Table 15: Ridership Activity by Key Hub

Name	Type	Weekday Boardings (% of total)		Saturday Boardings (% of total)		Sunday Boardings (% of total)	
		2019	2021	2019	2021	2019	2021
Shady Grove Metro Station	Metro Station	4,850 (28.0%)	1,810 (22.5%)	2,190 (19.5%)	800 (16.3%)	1,400 (19.0%)	730 (17.3%)
Lakeforest Transit Center	Transit Center	2,360 (13.6%)	1,240 (15.5%)	2,040 (18.2%)	950 (19.4%)	1,490 (20.1%)	870 (20.8%)
Montgomery Village Center	Shopping Center	570 (3.3%)	350 (4.4%)	480 (4.3%)	230 (4.7%)	340 (4.6%)	180 (4.2%)
Montgomery Baptist Church	Church	400 (2.3%)	210 (2.6%)	320 (2.8%)	150 (3.1%)	220 (2.9%)	130 (3.1%)
Gaithersburg Square	Shopping Center	340 (19%)	180 (2.2%)	340 (3.0%)	140 (2.8%)	220 (3.0%)	110 (2.7%)
Walnut Hill Shopping Center	Shopping Center	240 (1.4%)	150 (1.9%)	180 (1.6%)	110 (2.3%)	120 (1.6%)	80 (1.8%)
Gaitherstowne Plaza	Shopping Center	210 (1.2%)	170 (2.1%)	240 (2.1%)	160 (3.3%)	170 (2.3%)	150 (3.5%)
The Shops at Potomac Valley South	Shopping Center	200 (1.2%)	100 (1.2%)	90 (0.8%)	30 (0.6%)	30 (0.4%)	10 (0.2%)
Flower Hill Shopping Center	Shopping Center	200 (1.1%)	90 (1.1%)	180 (1.6%)	90 (1.8%)	120 (1.6%)	60 (1.4%)
Quince Orchard Plaza	Shopping Center	190 (1.1%)	70 (0.8%)	140 (1.2%)	40 (0.7%)	110 (1.4%)	30 (0.8%)
The Summit	Shopping Center	190 (1.1%)	90 (1.1%)	140 (1.2%)	60 (1.3%)	100 (1.4%)	60 (1.4%)
Kentlands Place	Shopping Center	180 (1.1%)	80 (1.0%)	130 (1.2%)	60 (1.1%)	70 (0.9%)	30 (0.7%)
Grand Corner Avenue	Shopping Center	170 (1.0%)	90 (1.1%)	200 (1.8%)	60 (1.2%)	100 (1.3%)	50 (1.3%)

Name	Type	Weekday Boardings (% of total)		Saturday Boardings (% of total)		Sunday Boardings (% of total)	
		2019	2021	2019	2021	2019	2021
Gaithersburg MARC Station	MARC Station	150 (0.9%)	60 (0.8%)	110 (1.0%)	60 (1.2%)	70 (0.9%)	50 (1.1%)
Shady Grove Plaza	Shopping Center	140 (0.8%)	110 (1.3%)	120 (1.1%)	70 (1.5%)	80 (1.1%)	60 (1.5%)
Shady Grove Adventist Hospital	Hospital	120 (0.7%)	50 (0.6%)	60 (0.6%)	20 (0.4%)	40 (0.6%)	20 (0.4%)
Goshen Crossing	Shopping Center	110 (0.6%)	60 (0.7%)	100 (0.9%)	30 (0.7%)	80 (1.0%)	40 (0.9%)
Great Beginnings Shopping Center	Shopping Center	100 (0.6%)	60 (0.7%)	90 (0.8%)	50 (0.9%)	70 (0.9%)	40 (1.0%)
Diamond Square Shopping Center	Shopping Center	80 (0.5%)	30 (0.4%)	70 (0.6%)	20 (0.5%)	50 (0.6%)	20 (0.5%)
Traville Gateway Dr Transit Center	Transit Center	80 (0.5%)	30 (0.4%)	50 (0.5%)	20 (0.4%)	30 (0.4%)	20 (0.4%)
Northgate Community Church	Church	80 (0.5%)	20 (0.2%)	50 (0.5%)	10 (0.2%)	40 (0.5%)	10 (0.2%)
Redmill Center	Shopping Center	70 (0.4%)	30 (0.4%)	50 (0.5%)	30 (0.5%)	30 (0.3%)	20 (0.5%)
Washington Grove MARC Station	MARC Station	10 (0.1%)	< 5 (0.0%)	10 (0.1%)	< 5 (0.1%)	< 5 (0.0%)	< 5 (0.0%)
Metropolitan Grove MARC Station	MARC Station	< 5 (0.0%)	< 5 (0.0%)	< 5 (0.0%)	< 5 (0.0%)	< 5 (0.0%)	< 5 (0.0%)

Figure 16: 2019 Weekday Ridership by Stop

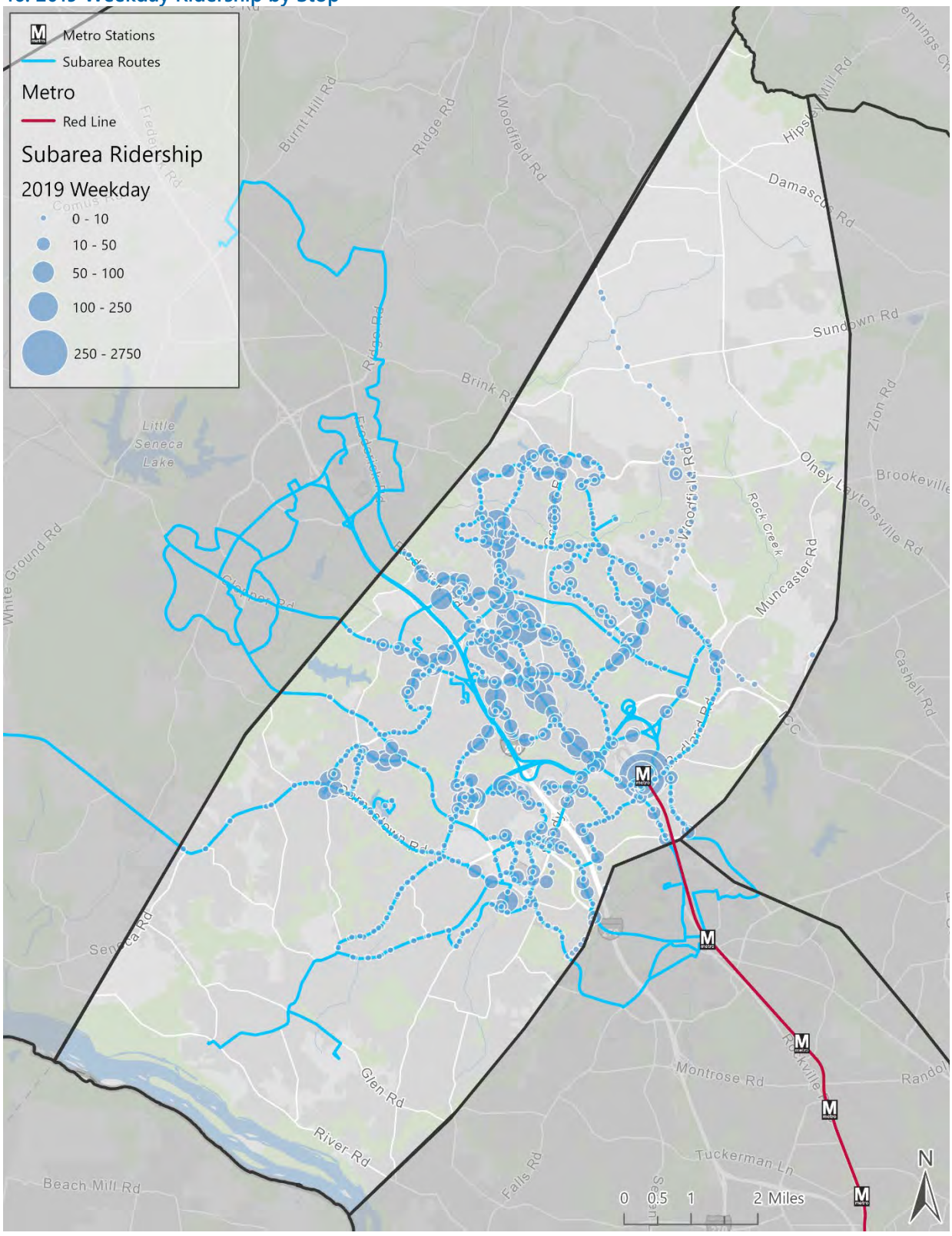


Figure 17: 2019 Saturday Ridership by Stop

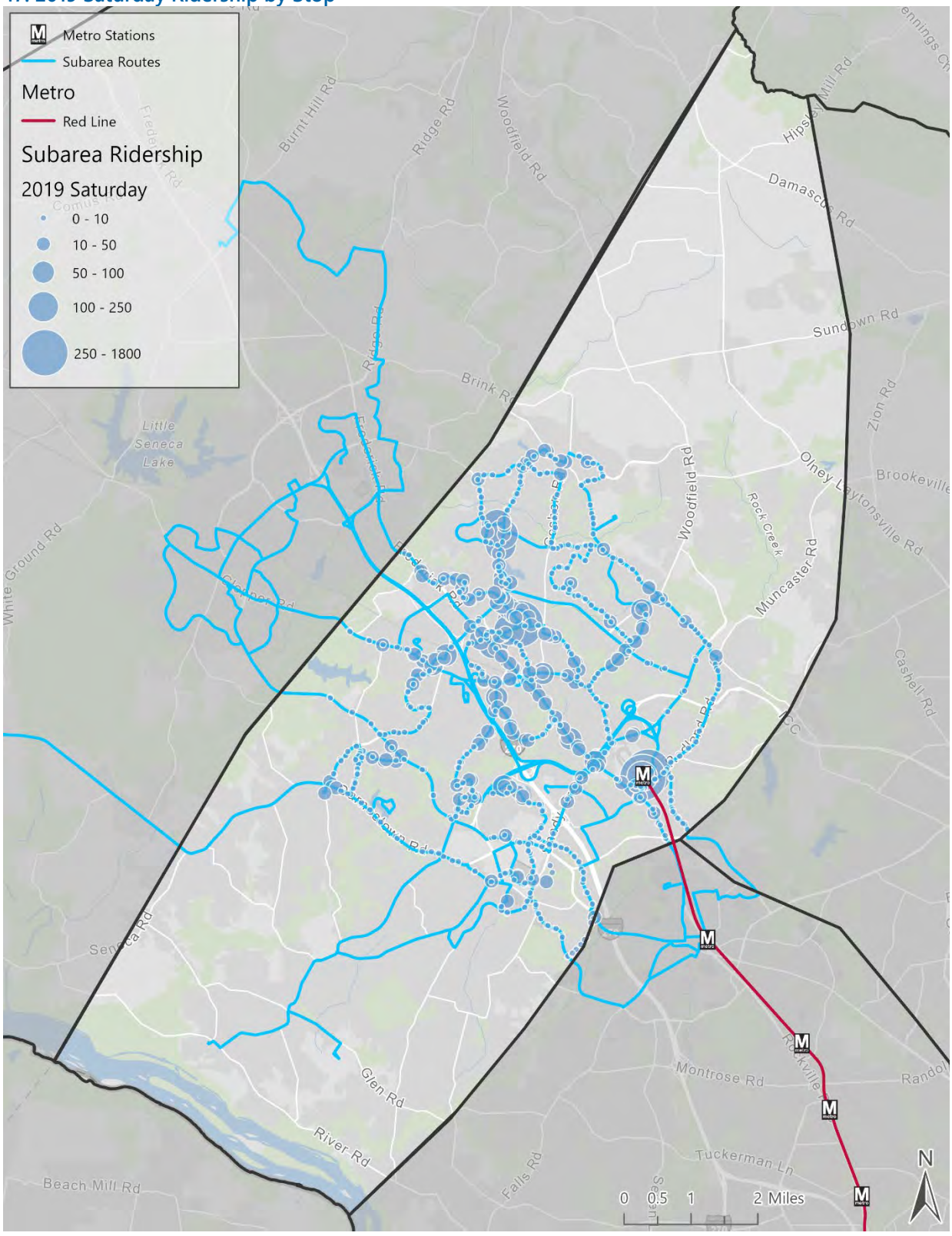
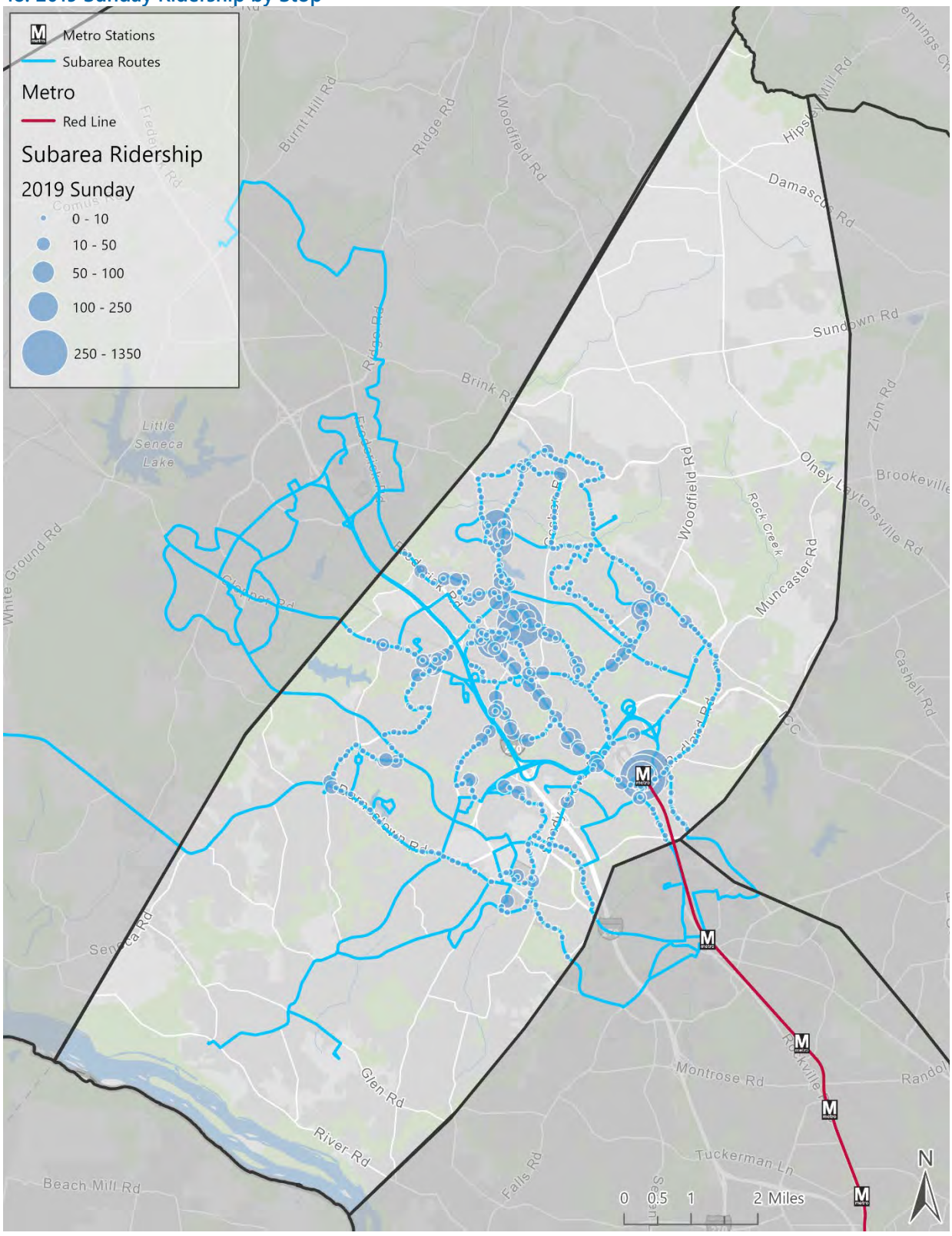


Figure 18: 2019 Sunday Ridership by Stop



Route Performance

Table 16 through **Table 18** provide key performance indicators (KPIs) for the Gaithersburg-Laytonsville subarea routes for weekdays, Saturdays, and Sundays in 2019. The tables are sorted by daily boardings and color coded by quartile for all KPIs except on-time performance. On-time performance (OTP) is color coded by adherence to Ride On's on-time performance definition. Route quartiles and rankings are calculated based on route type for all Montgomery County bus routes. The KPIs are defined below along with key findings:

- **Daily Boardings** measures productivity in terms of passenger boardings per day. The Gaithersburg-Laytonsville subarea is served by a number of high-performing routes. Of the 21 routes serving the subarea, five perform within the top quartile of their respective service categories on weekdays. Four routes perform within the top quartile on Saturdays and Sundays. Three subarea routes carry more than 2,000 weekday passengers, namely Ride On local routes 55, 59, and 61. These high-performing routes operate long service spans, seven days per week, and tend to serve major activity hubs with direct alignments.
- **Service efficiency measures ridership per unit of resource investment.** Service efficiency KPIs include passengers per vehicle revenue hour (Pax/VRH), passengers per vehicle revenue mile (Pax/VRM), and passengers per one-way bus trip (Pax/Trip). A few efficient Ride On local routes serve the subarea. Both the Ride On Express Route 100 and Local Route 55 form part of the top performing routes in terms of passengers per revenue hour and revenue mile. Overall, about half of the subarea routes are within the top half of their respective service categories on weekdays, while weekend service tends to exhibit mixed performance.
- **Financial performance measures return on investment.** Financial performance KPIs include cost recovery (Cost Rec.), which is the ratio between fare revenue collected and operating cost and subsidy per passenger (Sub/Pax) which is net operating cost (operating cost minus fare revenue) per passenger boardings. The most efficient routes in this subarea tend to also exhibit the strongest cost recovery ratios and lowest subsidies per passenger. 13 of the routes rank in the top half in terms of weekday service efficiency and low subsidy per passenger numbers.
- **On-Time Performance (OTP)** measures reliability in terms of the percentage of bus trips that depart within Ride On's established definition of "on-time" (between one minute early and five minutes late). Weekday on-time performance tends to meet Ride On's on-time target for most subarea routes. On weekdays, only two subarea routes do not exceed Ride On's on-time target of 85 percent. The two routes also do not exceed the target on Saturdays and Sundays. In general, routes that do not meet the on-time target carry the largest volumes of passengers; this reflects delay attributed to passenger boarding/alighting activity. One outlier is the Ride On Route 100 on Sunday, which sees relatively low ridership for the day but struggles with on-time performance.

Table 16: Weekday Route Key Performance Indicators (2019)

Route	Route Description	Route Type	Boardings		Pax/VRH		Pax/VRM		Pax/Trip		Cost Rec.		Sub./Pax		On-time performance	
			Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank
55	GTC-Milestone-MC,G-Lakeforest-Shady Grove-MC,R-Rockville	Local	5,453	1 / 63	32.9	2 / 63	2.7	8 / 63	42.9	1 / 63	38%	1 / 63	$1.63	1 / 63	84%	49 / 63
59	Montgomery Village-Lakeforest-Shady Grove-Rockville	Local	2,723	3 / 63	26	10 / 63	2.1	17 / 63	27.2	4 / 63	29%	8 / 63	$2.40	8 / 63	88%	28 / 63
61	GTC-Lakeforest-Shady Grove	Local	2,208	10 / 63	26.6	6 / 63	2.2	15 / 63	26.6	5 / 63	31%	5 / 63	$2.23	5 / 63	85%	40 / 63
100	GTC-Shady Grove	Express	1,974	1 / 3	25.1	1 / 3	1.1	1 / 3	10.8	1 / 3	28%	2 / 3	$2.59	1 / 3	78%	3 / 3
56	Lakeforest-Quince Orchard-Shady Grove Hospital-Rockville	Local	1,663	13 / 63	20	24 / 63	1.4	35 / 63	22.2	8 / 63	23%	23 / 63	$3.31	23 / 63	86%	39 / 63
54	Lakeforest-Washingtonian Blvd-Rockville	Local	1,508	16 / 63	20.5	22 / 63	1.8	26 / 63	18.6	15 / 63	24%	20 / 63	$3.25	20 / 63	85%	41 / 63
57	Lakeforest-Washington Grove-Shady Grove	Local	1,486	17 / 63	26.3	9 / 63	1.9	25 / 63	15.2	22 / 63	31%	6 / 63	$2.24	6 / 63	91%	14 / 63
64	Montgomery Village-Quail Valley-Emory Grove-Shady Grove	Local	1,223	20 / 63	22.6	15 / 63	1.6	28 / 63	16.8	19 / 63	26%	15 / 63	$2.83	15 / 63	93%	7 / 63
58	Lakeforest-Montgomery Village-East Village-Shady Grove, Watkins Mill & MD355	Local	1,206	21 / 63	19.7	26 / 63	1.4	37 / 63	17	18 / 63	23%	22 / 63	$3.28	22 / 63	93%	4 / 63
74	GTC-Great Seneca Hwy.-Shady Grove	Local	958	24 / 63	18.1	32 / 63	1	47 / 63	14.5	23 / 63	21%	28 / 63	$3.67	28 / 63	89%	22 / 63
63	Shady Grove-Gaither Road-Piccard Dr.-Rockville	Local	796	26 / 63	22.2	17 / 63	2.1	18 / 63	14	25 / 63	27%	14 / 63	$2.77	14 / 63	88%	29 / 63
76	Poolesville-Kentlands-Shady Grove	Local	648	30 / 63	15.5	38 / 63	0.8	51 / 63	9.5	35 / 63	16%	38 / 63	$5.12	38 / 63	86%	37 / 63
43	Traville TC-Shady Grove-Hospital-Shady Grove	Local	629	31 / 63	14.8	39 / 63	1.3	38 / 63	8.5	41 / 63	17%	36 / 63	$4.78	36 / 63	91%	12 / 63
79	Clarksburg-Skylark-Scenery-Shady Grove	Limited	322	3 / 8	20.9	6 / 8	1	6 / 8	17.9	3 / 8	22%	4 / 8	$3.51	4 / 8	88%	5 / 8
78	Kingsview-Richter Farm-Shady Grove	Limited	299	4 / 8	26.9	2 / 8	1.4	5 / 8	18.7	1 / 8	25%	2 / 8	$3.01	2 / 8	89%	3 / 8
71	Kingsview-Dawson Farm-Shady Grove	Limited	298	5 / 8	25.2	3 / 8	1.4	4 / 8	18.6	2 / 8	23%	3 / 8	$3.33	3 / 8	88%	4 / 8

KPI Quartile Ranking				OTP Ranking		
Top 25%	50-75%	25-50%	Bottom 25%	>= 85%	80-85%	<80%

Route	Route Description	Route Type	Boardings		Pax/VRH		Pax/VRM		Pax/Trip		Cost Rec.		Sub./Pax		On-time performance	
			Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank
60	Montgomery Village-Flower Hill-Shady Grove	Limited	246	7 / 8	24.1	5 / 8	1.7	3 / 8	14.5	5 / 8	22%	5 / 8	$3.64	5 / 8	**97%**	**1 / 8**
65	Montgomery Village-Shady Grove	Limited	178	8 / 8	25	4 / 8	2	2 / 8	12.7	6 / 8	21%	6 / 8	$3.69	6 / 8	**89%**	**2 / 8**
66	Shady Grove-Piccard Drive-Shady Grove Hospital-Traville TC	Local	108	59 / 63	16.3	37 / 63	1.3	41 / 63	7.7	46 / 63	18%	34 / 63	$4.49	34 / 63	**93%**	**6 / 63**
67	Traville TC-North Potomac-Shady Grove	Local	84	61 / 63	8.5	58 / 63	0.6	60 / 63	5.6	56 / 63	10%	54 / 63	$8.99	54 / 63	**93%**	**5 / 63**
301[1]	Tobytown-Rockville	Local	67	62 / 63	5	63 / 63	0.3	63 / 63	3.7	63 / 63	6%	63 / 63	$16.66	63 / 63	N/A	N/A

Notes:

[1] On-time performance data not available for Route 301

KPI Quartile Ranking				OTP Ranking		
Top 25%	50-75%	25-50%	Bottom 25%	>= 85%	80-85%	<80%

Table 17: Saturday Route Key Performance Indicators (2019)

Route	Route Description	Route Type	Boardings		Pax/VRH		Pax/VRM		Pax/Trip		Cost Rec.		Sub./Pax		On-time performance	
			Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank
55	GTC-Milestone-Lakeforest-Shady Grove-Rockville	Local	3,686	1 / 42	26.6	3 / 42	2.1	8 / 42	33.2	1 / 42	31%	3 / 42	$2.24	3 / 42	84%	32 / 42
59	Montgomery Village-Lakeforest-Shady Grove-Rockville	Local	1,922	4 / 42	25.5	5 / 42	2	9 / 42	26.3	2 / 42	29%	5 / 42	$2.41	5 / 42	85%	29 / 42
61	GTC-Lakeforest-Shady Grove	Local	1,495	8 / 42	23	7 / 42	1.9	12 / 42	22.7	4 / 42	27%	6 / 42	$2.64	6 / 42	87%	21 / 42
56	Lakeforest-Quince Orchard-Shady Grove Hospital-Rockville	Local	1,032	13 / 42	16.5	19 / 42	1.2	26 / 42	17.2	11 / 42	19%	20 / 42	$4.24	20 / 42	86%	23 / 42
57	Lakeforest-Washington Grove-Shady Grove	Local	923	15 / 42	19.6	12 / 42	1.3	22 / 42	10.6	23 / 42	23%	11 / 42	$3.30	11 / 42	89%	15 / 42
54	Lakeforest-Washingtonian Boulevard-Rockville	Local	791	17 / 42	15.7	23 / 42	1.2	23 / 42	13	16 / 42	19%	21 / 42	$4.40	21 / 42	85%	27 / 42
58	Lakeforest-Montgomery Village-East Village-Shady Grove	Local	768	18 / 42	18.9	14 / 42	1.3	21 / 42	13.7	15 / 42	22%	13 / 42	$3.45	13 / 42	92%	11 / 42
64	Montgomery Village-Quail Valley-Emory Grove-Shady Grove	Local	719	20 / 42	16.5	20 / 42	1.1	28 / 42	11.8	19 / 42	20%	18 / 42	$4.13	18 / 42	87%	20 / 42
100	GTC-Shady Grove	Express	650	1 / 1	24.5	1 / 1	1.1	1 / 1	10.3	1 / 1	29%	1 / 1	$2.47	1 / 1	86%	1 / 1
74	GTC-Great Seneca Hwy.-Shady Grove	Local	644	23 / 42	13.9	27 / 42	0.7	34 / 42	11.1	21 / 42	16%	27 / 42	$5.11	27 / 42	93%	7 / 42
43	Traville TC-Shady Grove-Hospital-Shady Grove	Local	355	32 / 42	11.1	31 / 42	1	29 / 42	6.3	33 / 42	13%	31 / 42	$6.50	31 / 42	92%	8 / 42
76	Kentlands-Shady Grove	Local	275	37 / 42	10.3	33 / 42	0.6	37 / 42	5.3	37 / 42	12%	32 / 42	$7.10	32 / 42	92%	10 / 42
301[1]	Tobytown-Rockville	Local	28	42 / 42	2.1	42 / 42	0.1	42 / 42	1.6	42 / 42	2%	42 / 42	$41.05	42 / 42	N/A	N/A

. Notes:

[1] On-time performance data not available for Route 301

KPI Quartile Ranking				OTP Ranking		
Top 25%	50-75%	25-50%	Bottom 25%	>= 85%	80-85%	<80%

Table 18: Sunday Route Key Performance Indicators (2019)

Route	Route Description	Route Type	Boardings		Pax/VRH		Pax/VRM		Pax/Trip		Cost Rec.		Sub./Pax		On-time performance	
			Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank
55	GTC-Milestone-Lakeforest-Shady Grove	Local	2,282	1 / 33	21	6 / 33	1.7	11 / 33	25.9	1 / 33	24%	6 / 33	$3.21	6 / 33	87%	18 / 33
59	Montgomery Village-Lakeforest-Shady Grove-Rockville	Local	1,721	2 / 33	22.1	4 / 33	1.8	8 / 33	23.6	3 / 33	25%	4 / 33	$3.01	4 / 33	86%	20 / 33
61	GTC-Lakeforest-Shady Grove	Local	1,396	5 / 33	22.2	3 / 33	1.9	6 / 33	22.9	4 / 33	26%	3 / 33	$2.90	3 / 33	88%	12 / 33
54	Lakeforest-Washingtonian Boulevard-Rockville	Local	871	11 / 33	18.8	10 / 33	1.7	12 / 33	16.4	6 / 33	22%	11 / 33	$3.75	11 / 33	81%	29 / 33
56	Lakeforest-Quince Orchard-Shady Grove Hospital-Rockville	Local	816	12 / 33	14.2	20 / 33	1	25 / 33	14.8	9 / 33	17%	20 / 33	$5.15	20 / 33	88%	14 / 33
57	Lakeforest-Washington Grove-Shady Grove	Local	763	13 / 33	19.4	9 / 33	1.4	16 / 33	11.7	15 / 33	23%	8 / 33	$3.51	8 / 33	93%	2 / 33
58	Lakeforest-Montgomery Village-East Village-Shady Grove	Local	629	19 / 33	16.1	15 / 33	1.2	22 / 33	12.8	12 / 33	19%	14 / 33	$4.29	14 / 33	92%	3 / 33
64	Montgomery Village-Quail Valley-Emory Grove-Shady Grove	Local	442	25 / 33	10.8	27 / 33	0.7	29 / 33	7.9	25 / 33	13%	25 / 33	$6.97	25 / 33	91%	6 / 33
100	GTC-Shady Grove	Express	398	1 / 1	10.7	1 / 1	0.7	1 / 1	6.5	1 / 1	12%	1 / 1	$7.72	1 / 1	68%	1 / 1
43	Traville TC-Shady Grove-Hospital-Shady Grove	Local	307	27 / 33	10.3	28 / 33	0.9	27 / 33	5.7	29 / 33	12%	28 / 33	$7.32	28 / 33	92%	4 / 33
301[1]	Tobytown-Rockville	Local	18	33 / 33	1.3	33 / 33	0.1	33 / 33	1	33 / 33	2%	33 / 33	$67.00	33 / 33	N/A	N/A

Notes:

[1] On-time performance data not available for Route 301

KPI Quartile Ranking				OTP Ranking		
Top 25%	50-75%	25-50%	Bottom 25%	>= 85%	80-85%	<80%

Gaithersburg-Laytonsville-North Potomac Subarea Conclusions

- Several subarea routes have highly circuitous alignments (57, 66, 67, 71, 78, 79). While the roadway network prevents a uniform grid and direct alignments in many cases, these routes should be reviewed for opportunities to provide more direct alignments while continuing to serve important destinations. Direct alignments are defined as route patterns on roads that do not see detours or double backs.
- The routes serving the Gaithersburg-Laytonsville-North Potomac subarea make it the third most productive subarea behind Silver Spring and Bethesda. The routes serving the subarea tend to be productive, with most operating in the top half of their respective service categories. Local Route 55, which services Shady Grove Metro Station, Gaithersburg MARC Station, and Lakeforest Transit Center, and Frederick Rd. Corridor, is the subarea's best performing route, and runs the most frequently. Throughout the week, on-time performance hovers around 85 percent.
- The routes serving the subarea also tend to have very high on-time performance. As seen in **Table 16**, on weekdays seven out of 21 routes are in the top 25 percent of their respective service category for passengers per revenue hour, and only two are in the bottom 25 percent. 18 out of 21 weekday routes have an on-time performance of 85 percent or over.
- In general, most neighborhoods with the highest transit propensity scores are well served by the existing network.

Bethesda-Potomac-Rockville Subarea

Subarea Overview

The Bethesda-Potomac-Rockville subarea covers approximately 75 square miles of southern Montgomery County, west of the Silver Spring-Burtonsville and Wheaton-Aspen Hill Olney subareas and south of Gaithersburg-Laytonsville-North Potomac subarea. The subarea is contiguous with northwestern Washington D.C. to the south and the Potomac River to the west. I-495 and I-270 provide freeway access, with I-270 intersecting from the north and I-495 from the east and west. The subarea includes the communities of Bethesda, North Bethesda, Kensington, Chevy Chase, Rockville, and Potomac.

Thirty-five primary bus routes serve the Bethesda-Potomac-Rockville subarea, listed in **Table 19** and shown cartographically in **Figure 19**. Of the 35 bus routes, seven are operated by Metro and 28 are operated by Ride On. Key transit transfer locations include three MARC stations on the eastern side of the subarea, and The Montgomery Mall Transit Center in the center of the subarea. The Metrorail Red Line operates primarily along the Rockville Pike corridor, with a total of seven stations. Major corridors include Wisconsin Ave./Rockville Pike./Frederick Rd., Veirs Mills Rd., and Randolph Rd. Service levels for each route are summarized in **Figure 20**.

Table 19: Bethesda-Potomac-Rockville Subarea Routes

Route		Service Category	Route		Service Category
1	Silver Spring-Friendship Heights	Local	6	Parkside-Grosvenor-Mont. Mall	Loop
4	Silver Spring-Kensington	Local	96	Grosvenor-Rock Spring-Montg Mall	Loop
5	Silver Spring-Twinbrook Station	Local	11	Silver Spring-Friendship Heights	Limited
23	Friendship Hghts-Sibley Hospital	Local	70	Germantown-Bethesda Express	Express
26	Montgomery Mall-Glenmont	Local	101	Lakeforest-Medical Ctr	extRa
29	Bethesda-Glenecho-Friendshphghts	Local	J1	Bethesda-Silver Spring	Metrobus
30	Bethesda-Medical Center	Local	J2	Bethesda-Silver Spring	Metrobus
32	Bethesda-Naval Ship R&D Center	Local	Q1	Veirs Mill Road	Metrobus
33	Glenmont-Medical Center	Local	Q2	Veirs Mill Road	Metrobus
34	Aspen Hill-Friendship Heights	Local	Q4	Veirs Mill Road	Metrobus
36	Bethesda-Potomac-Via Hillandale	Local	Q5	Veirs Mill Road	Metrobus
37	Potomac-Wheaton Metro Station	Local	Q6	Veirs Mill Road	Metrobus
38	Wheaton-White Flint Station	Local			
42	Montgomery Mall-White Flint	Local			
44	Twinbrook-Rockville	Local			
45	Rockvregional/Rockvsenior/Twinb	Local			
46	Mont.College-Rockv-Medical Ctr	Local			
47	Rockville-Mont. Mall-Bethesda	Local			
81	Rockville-White Flint	Local			
L8	Connecticut Ave-Maryland	Local			
L8	Aspen Hill-Friendship Heights	Local			
T2	River Road	Local			
T2	Rockville-Friendship Heights	Local			

Figure 19: Bethesda-Potomac-Rockville Subarea Bus Routes

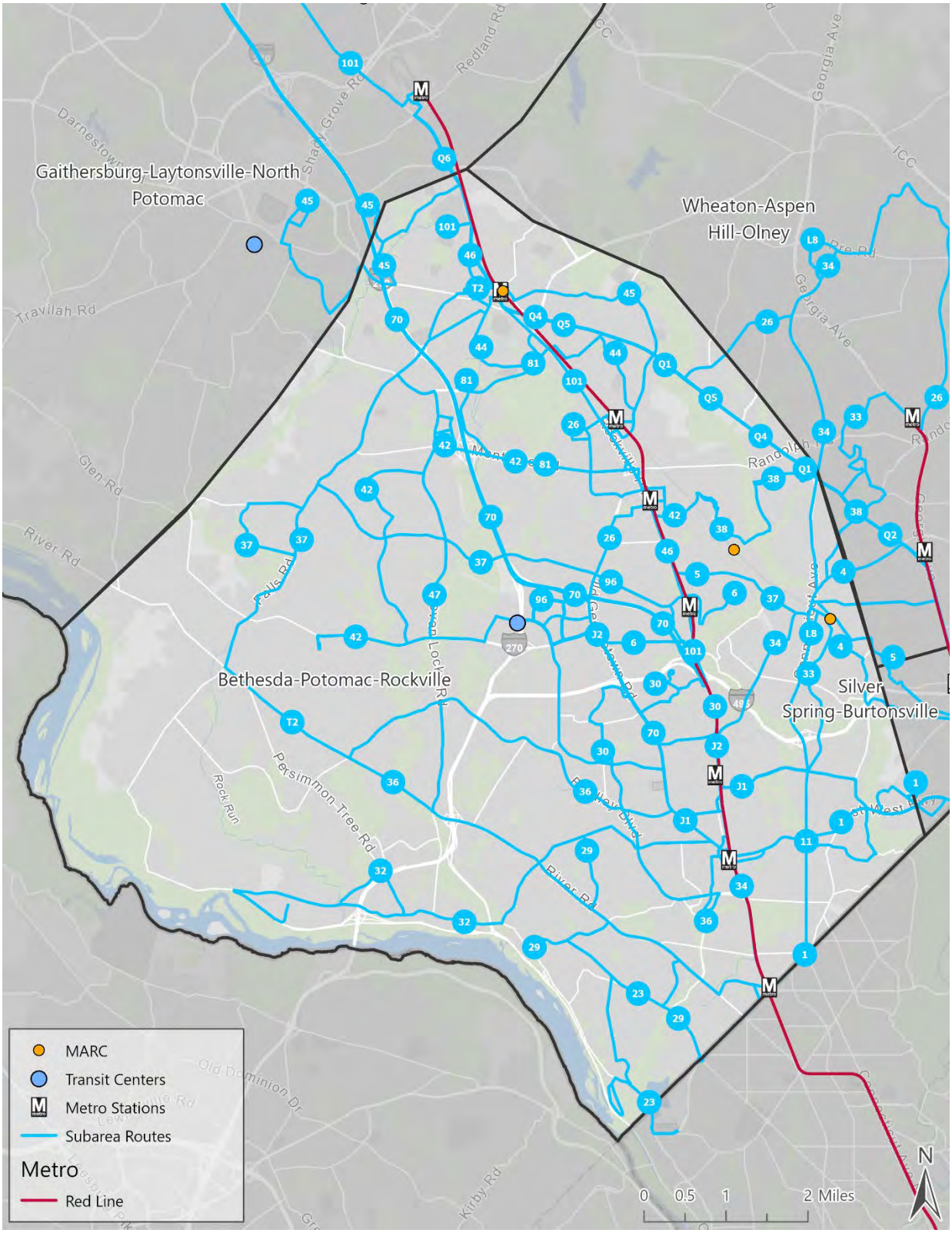
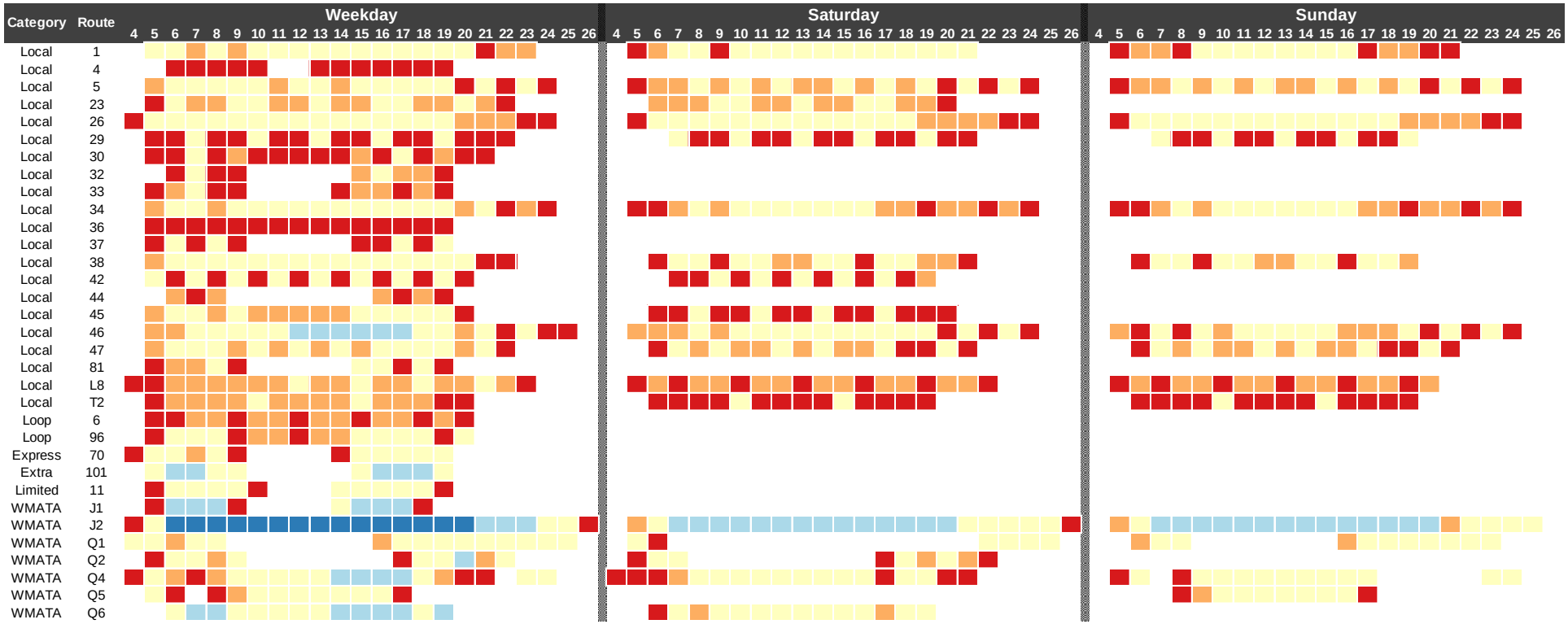


Figure 20: Bethesda-Potomac-Rockville Subarea Service Span and Headways by Route



Approximate Headway				
<= 10 Mins	11 - 15 Mins	16 - 30 Mins	31 - 60 Mins	> 60 Mins

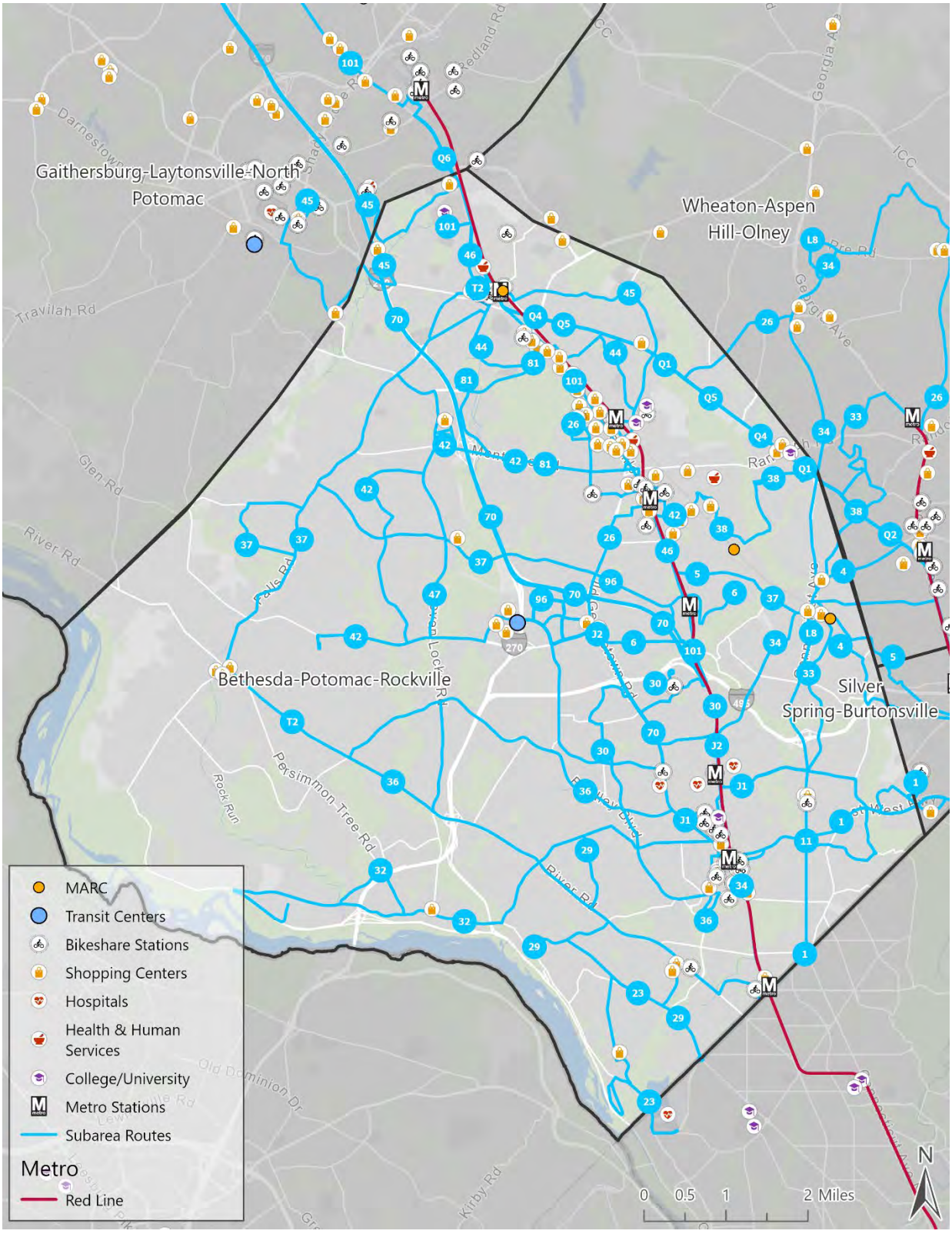
Key Transit Hubs & Destinations

Table 20 and **Figure 21** present key transit hubs, park-and-ride lots, and major destinations within the subarea. Most of the highest ridership locations in the subarea are located at key transfer facilities that provide connections to regional commuter rail and bus services operated by Metro and the Maryland Transit Administration (MARC and MTA Commuter Bus) and local bus services operated by Ride On and Metro. Other key destinations in the subarea include major shopping centers, Montgomery College, and Suburban Hospital Healthcare System.

Table 20: Key Transit Hubs & High Ridership Destinations

Name	Type	Routes Served	2019 Weekday Ridership (% of Total)
Rockville Metro Station	Metro Station	101, 44, 45, 46, 48, 54, 55, 59, T2, Q1	4,170 (17.2%)
Bethesda Metro Station	Metro Station	29, 34, 36, J1	1,860 (7.7%)
Friendship Heights Metro Station	Metro Station	11, 23, 29, 34, L8, 401, T2, 402	1,320 (5.4%)
Medical Center Metro Station	Metro Station	101, 30, 33, 34, 70, J1	1,250 (5.2%)
Montgomery College	College Campus	101, 46, Q1	1,180 (4.9%)
Twinbrook Metro Station	Metro Station	101, 10, 26, 44, 46, 5, C2	1,140 (4.7%)
Randolph Road Crossing	Shopping Center	10, 48, C8, Q1	1,090 (4.5%)
White Flint Metro Station	Metro Station	101, 46, C8	630 (2.6%)
Grosvenor-Strathmore Metro Station	Metro Station	101, 37, 46, 96	510 (2.1%)
Montgomery Mall Transit Center	Transit Center	26, 42, 47, 6, J1	480 (2.0%)
Kensington Shopping Center	Shopping Center	33, 34, 37, 4, 5, L8, 401	340 (1.4%)
Tenley Center	Shopping Center	101, 44, 46, 81	250 (1.0%)
Twinbrook Center	Shopping Center	45, Q1	250 (1.0%)
Georgetown Square	Shopping Center	26, 6, J1	230 (1.0%)
Woodmont Triangle	College Campus	34, 70, J1	190 (0.8%)
Kensington Triangle Shopping Center	Shopping Center	33, 34, L8, 401	150 (0.6%)
The Green Center	Shopping Center	48, 59	150 (0.6%)
Suburban Hospital Healthcare System	Hospital	47, J1	70 (0.3%)
Cabin John Shopping Center	Shopping Center	37, 47	70 (0.3%)
Westwood Center II	Shopping Center	23, T2	50 (0.2%)
Lake West Shopping Center	Shopping Center	L8, 401	50 (0.2%)
Shops At Sumner Place	Shopping Center	23	40 (0.2%)
Kensington MARC Station	MARC Station	33, 4, 5	40 (0.1%)
Potomac Village Shopping Center	Shopping Center	T2, 402	30 (0.1%)
Garrett Park MARC Station	MARC Station	38	20 (0.1%)

Figure 21: Key Hubs and Destinations



Activity Density and Transit Propensity

In most urban settings, population and employment density are typically the most important factors that influence transit ridership. Potential ridership demand, or propensity, is also strongly driven by socioeconomic characteristics such as household income, race/ethnicity, and access to personal vehicles. **Table 21** presents key socioeconomic indicators for the Bethesda-Potomac-Rockville subarea. **Figure 22** depicts population and job density, and **Figure 23** depicts transit propensity relative to the quantity of transit service provided. Key findings include:

- The Bethesda-Potomac-Rockville contains 26 percent of Montgomery County's total population and 47 percent of its total employment base, making it the main employment subarea of the county. Areas with the highest activity densities include the North Bethesda and Rockville communities located in the eastern third of the subarea, and the Somerset and Bethesda communities along the southern subarea border adjacent to the District of Columbia. As shown in **Figure 22**, these areas are generally well served by the bus network.
- The subarea's socioeconomic indicators suggest a moderate degree of transit propensity. The subarea is home to about a fifth of the county's minority and low-income residents and nearly a third of zero-vehicle households. As a percentage of the total subarea population, 39 percent identify as racial minorities, eight percent are below 150 percent of the federal poverty line, and four percent have low or no English language proficiency. Also, eight percent of households do not have access to a personal vehicle and close to a third of households are renters. In terms of commuting habits, 15 percent of subarea workers commute using transit and seven percent work non-traditional hours. Transit propensity indicators that exceed the county average in terms of both percentage of the overall population and density include Senior Population, Transit Commuters, and Single Vehicle households.
- As shown in **Figure 23**, the transit propensity indicators were compared to existing transit service levels to identify service gaps. The densest areas are well covered by existing bus routes, however there are a number of areas with higher transit propensity and low or no transit service. These areas tend to be surrounded by lower density, residential neighborhoods, such as the Potomac area south of River Rd.

Table 21: Bethesda-Potomac-Rockville Subarea Socioeconomic Indicators

	Total Population, Households, & Jobs			Percent of Total Population & Households		Density (per acre)	
	Subarea	County	Subarea Share	Subarea	County	Subarea	County
Population							
Total Population	273,900	1,047,400	26%	--	--	**5.7**	3.2
Minority Population	108,000	595,800	18%	39%	57%	**2.2**	1.8
Youth Population (<18 years)	62,100	243,400	26%	23%	23%	**1.3**	0.8
Senior Population (>65 years)	51,000	162,400	31%	**19%**	16%	**1.1**	0.5
Disabled Population	8,000	37,400	21%	3%	4%	**0.2**	0.1
Population in Poverty (<150% FPL)	21,500	121,000	18%	8%	12%	0.4	0.4
Low or No English Proficiency	10,500	62,400	17%	4%	6%	0.2	0.2
Households							
Total Households	105,500	372,700	28%	--	100%	**2.2**	1.1
Zero Vehicle Households	8,400	28,100	30%	8%	8%	**0.2**	0.1
Single Vehicle Households	37,600	126,000	30%	**36%**	34%	**0.8**	0.4
Rental Households	35,300	128,100	28%	33%	34%	**0.7**	0.4
Commuting							
Total Commuters	142,200	549,800	26%	--	100%	**2.9**	1.7
Transit Commuters	20,900	71,700	29%	**15%**	13%	**0.4**	0.2
Workers with Non-Traditional Hours	9,300	56,600	16%	7%	10%	0.2	0.2
Employment							
Total Jobs	228,000	489,500	47%	--	--	**4.7**	1.5

Note: Green text indicates values greater than the county average.

Figure 22: Bethesda-Potomac-Rockville Subarea Activity Density

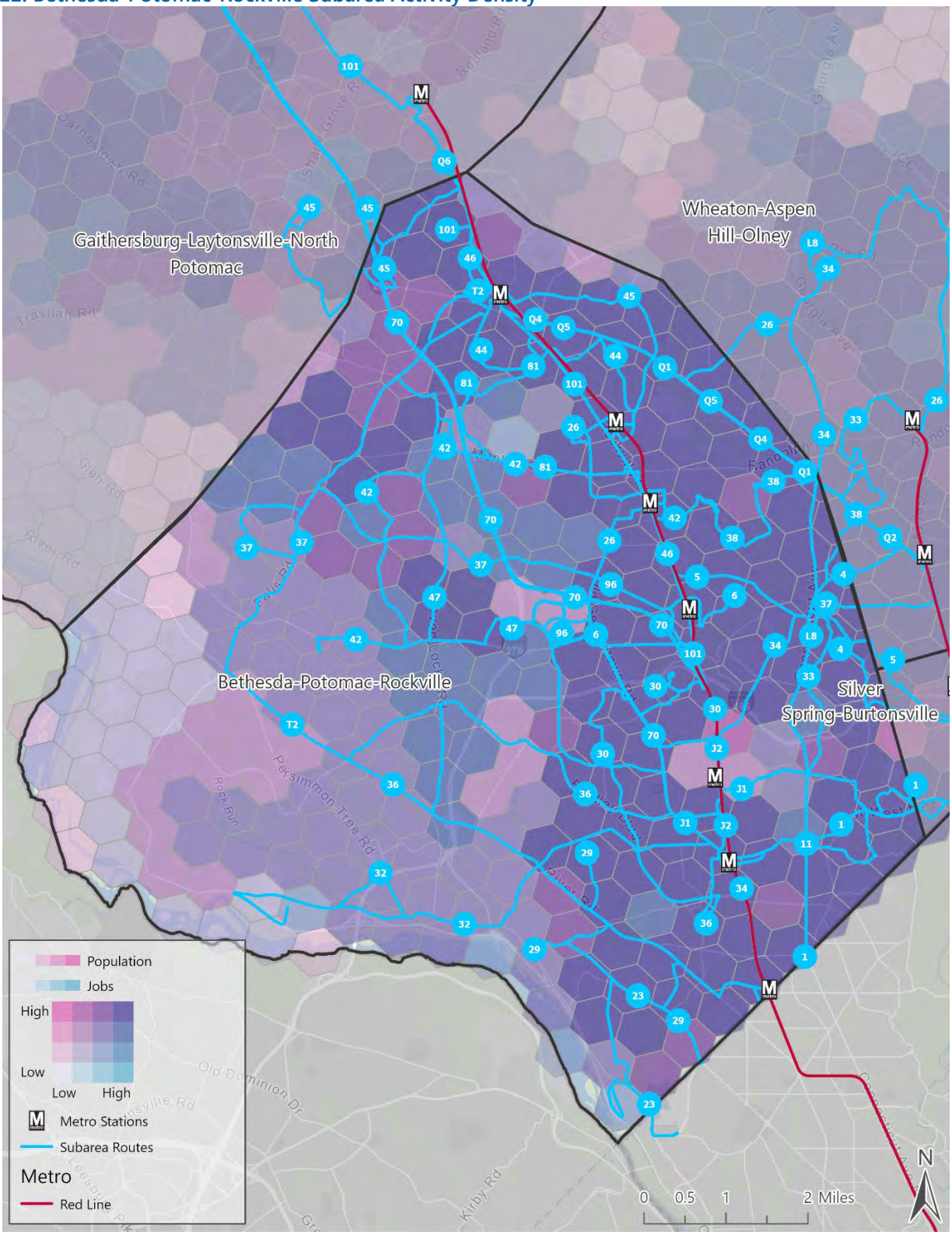
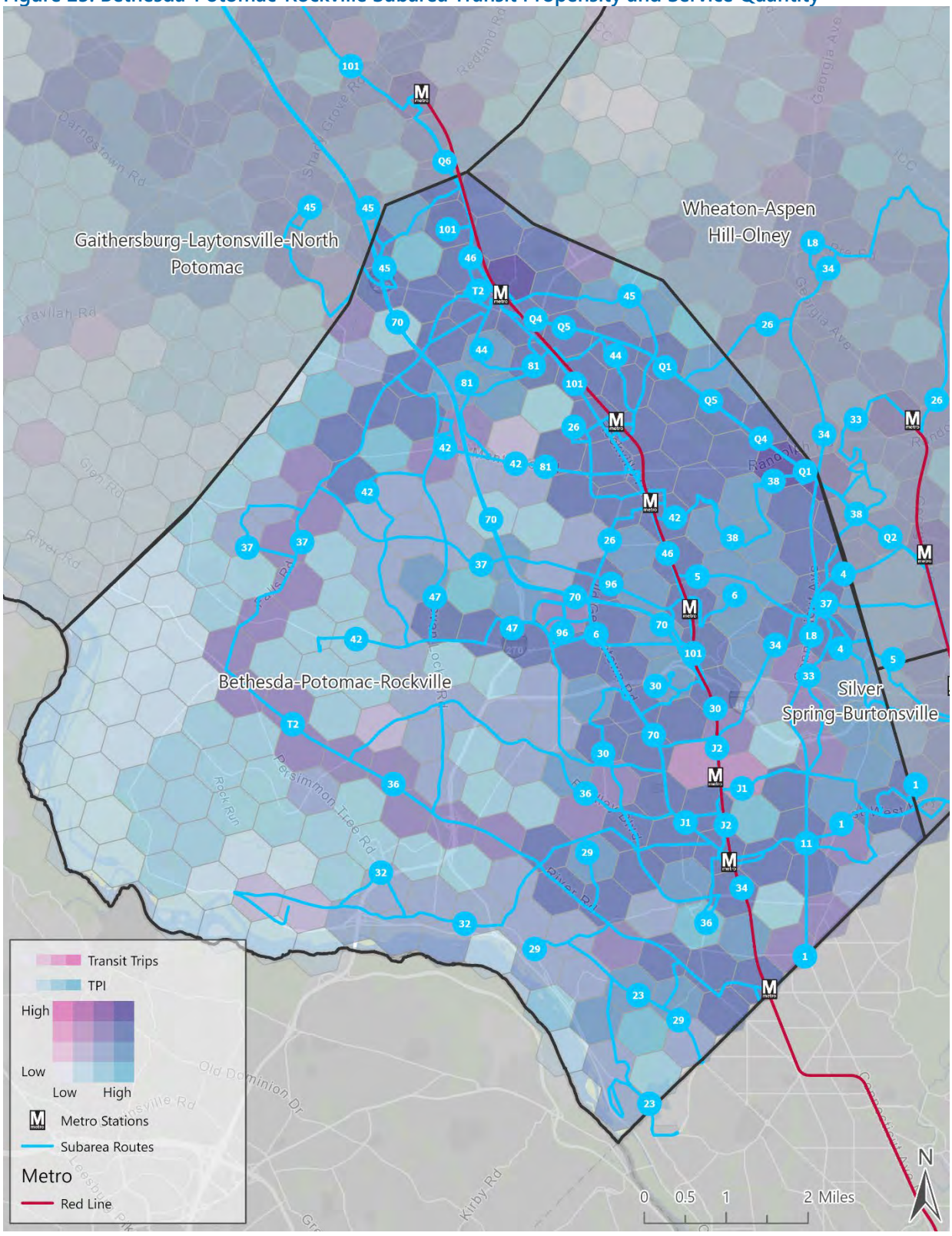


Figure 23: Bethesda-Potomac-Rockville Subarea Transit Propensity and Service Quantity



Ridership Productivity

Table 22 summarizes the subarea and countywide ridership activity for 2019 and 2021. **Figure 25** through **Figure 27** depict average daily stop-level ridership activity in 2019. In 2019, the Bethesda-Potomac-Rockville subarea produced 47,200 weekday bus boardings, 14,900 daily Saturday boardings, and 9,600 boardings on Sundays. This equates to about a quarter of the overall county ridership throughout the week. Weekday and Saturday ridership decreased by 52 percent between 2019 and 2021, while Sunday ridership decreased by 42 percent. Ridership in the subarea decreased at a faster rate than the county as a whole during the early years of the pandemic.

Table 22: Subarea and Countywide 2019 and 2021 Ridership Activity

Geography	2019			2021			Percent Change		
Subarea	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Boardings	24,236	13,920	9,611	11,519	6,699	5,558	-52%	-52%	-42%
Alightings	22,940	13,216	8,951	11,252	6,276	5,250	-51%	-53%	-41%
Total	47,176	27,135	18,562	22,771	12,975	10,808	-52%	-52%	-42%
County Total	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Boardings	94,730	61,375	40,975	49,706	30,989	25,754	-48%	-50%	-37%
Alightings	165,223	108,829	72,339	87,894	55,279	45,951	-47%	-49%	-36%
Total	226,924	150,810	99,985	122,946	77,428	64,169	-46%	-49%	-36%
Subarea Share	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Boardings	26%	23%	23%	23%	22%	22%	-2%	-1%	-2%
Alightings	14%	12%	12%	13%	11%	11%	-1%	-1%	-1%
Total	21%	18%	19%	19%	17%	17%	-2%	-1%	-2%

Ridership by Community and Employment Center

Ridership productivity was evaluated by community to determine the general distribution of transit demand throughout the subarea. **Table 23** presents the total ridership generated within each Census Designated Place (CDP) in 2019 and 2021. Census designated places are concentrations of population and generally coincide with incorporated municipalities or unincorporated neighborhoods. Key findings from the community-level ridership analysis are described below:

- The Rockville CDP generated 39 percent of the subarea's weekday ridership in 2019, followed by Bethesda (27 percent) and North Bethesda (14 percent). Collectively, these three communities represent just under 80 percent of the subarea's total ridership.
- Unlike trends seen in the Silver Spring-Burtonsville and Wheaton-Aspen Hill-Olney subareas, the top three CDPs by ridership volume saw a greater decrease in ridership between 2019 and 2021 compared to the county average. This is potentially attributed to the large share of office space in the subarea. Compared to other sectors like retail, office-based employees were more likely to work remotely during the pandemic. A closer look at ridership trends in downtown Bethesda, NIH-Walter Reed, downtown Rockville, and the Tower Oaks office park

revealed that these locations saw a seven to 12 percent greater decrease in ridership compared to the county average.

Table 23: Community and Employment Center 2019 and 2021 Ridership Activity

Community	2019 Total			2021 Total			Percent of Subarea Total		Percent Change 2019-2021		
	Wkdy	Sat	Sun	Wkdy	Sat	Sun	2019	2021	Wkdy	Sat	Sun
Aspen Hill	256	186	148	146	116	115	1%	1%	**-43%**	**-38%**	**-23%**
Bethesda	6,426	3,038	2,313	2,940	1,340	1,076	27%	26%	-54%	-56%	-53%
Brookmont	31	14	2	10	6	2	0%	0%	-68%	-59%	**20%**
Cabin John	27	0	0	0	0	0	0%	0%	-100%	--	--
Chevy Chase	506	223	154	240	81	53	2%	2%	-52%	-64%	-65%
Friendship Heights Village	35	23	15	34	6	1	0%	0%	**-2%**	-72%	-95%
Garrett Park	13	7	5	2	3	4	0%	0%	-83%	-50%	**-16%**
Glen Echo	10	2	2	3	1	2	0%	0%	-71%	-70%	**10%**
Kensington	454	259	165	220	106	80	2%	2%	-52%	-59%	-52%
North Bethesda	3,295	1,614	1,050	1,549	970	702	14%	13%	-53%	**-40%**	**-33%**
North Chevy Chase	11	1	0	2	0	0	0%	0%	-81%	-100%	--
North Kensington	209	113	70	115	8	10	1%	1%	**-45%**	-93%	-85%
Potomac	1,050	921	640	590	442	358	4%	5%	**-44%**	-52%	-44%
Rockville	9,543	5,656	3,727	4,266	2,528	2,269	39%	37%	-55%	-55%	-39%
Silver Spring	229	156	113	131	104	78	1%	1%	**-43%**	**-33%**	**-30%**
Somerset	2	2	0	1	0	0	0%	0%	-48%	-89%	--
South Kensington	97	39	16	24	10	10	0%	0%	-76%	-75%	**-34%**
Wheaton	1,979	1,629	1,165	1,208	960	783	8%	10%	**-39%**	**-41%**	**-33%**
Undefined	62	39	28	38	20	14	0%	0%	**-39%**	-50%	-48%
Subarea Total	**24,236**	**13,920**	**9,611**	**11,519**	**6,699**	**5,558**	**26%**	**23%**	**-52%**	**-52%**	**-42%**

Note: Green text indicates percent change less than the county average between 2019 and 2021.

Ridership by Corridor

Transit corridors with high ridership in the Bethesda area include Wisconsin Ave./Rockville Pike./Frederick Rd., Veirs Mill Rd., and Old Georgetown Rd.. Average weekday boardings by stop was used as the basis for analyzing corridor ridership. The stops with the highest ridership generally tended to occur at major stops like Metro stations, transit centers, and activity centers, but also at intersections with transfer opportunities. Stops were considered 'along' the corridor if they were within 0.2 miles from the route pattern. **Figure 24** illustrates high ridership corridors.

The subarea-spanning **Frederick Rd./Rockville Pike/Wisconsin Ave. Corridor** stretches 11 miles from Western Ave. on the D.C. border to Gude Dr. The corridor had a ridership of 1,140 passengers per mile, the highest boarding density of the subarea. Boarding density fell dramatically to 530 per mile in 2021, becoming the second highest in the subarea. The corridor experienced up to 52 percent of weekday subarea ridership, the highest in the subarea, decreasing slightly to 50 percent in 2021. The corridor, which runs along the Metrorail Red Line, is the only one in the county that links the subarea to both

Gaithersburg-Laytonsville-North Potomac and Germantown-Damascus subareas, often acting as a commuter route into and out of the D.C. core. Thus, the decrease in ridership indicates less of a demand for commuter-based trips.

The westbound **Veirs Mill Rd. Corridor** stretches 4.4 miles from Rockville Pike to Connecticut Ave., where it extends into the Wheaton-Aspen Hill-Olney subarea. In 2019, the corridor had a ridership of 770 passengers per mile, the fourth highest trip density of the corridors in the subarea. It became the third highest in 2021, having declined only slightly to 480 boardings per mile. Important ridership nodes include intersections at Twinbrook Highway, Randolph Rd., Connecticut Ave., and Rockville Pike. Boardings along the corridor ran up to 14 percent of weekday subarea ridership, increasing to 18 percent in 2021, remaining at second highest in the subarea. The corridor also saw a rise in ridership share in the Wheaton-Aspen Hill-Olney subarea. Like East-West Highway, Veirs Mill Rd. can serve as a feeder between non-adjacent Metro Stations on the Red Line, namely Wheaton and Rockville Metro Stations. However, the corridor's distance from the District, along its numerous intersections that host commercial centers, allowed the corridor to avoid the decline associated with commute-based travel patterns.

The northbound **Old Georgetown Rd. Corridor** stretches 5.6 miles from Nebel St. to Wisconsin Ave., excluding the short stretch between E. Jefferson St. and Nicholson Ln., where there is no service. It splits and merges with Rockville Pike near the White Flint and Bethesda Metro Stations, running parallel to the major corridor. The corridor had a ridership of 590 passengers per mile, the fifth highest in the subarea. Boardings totaled up to 14 percent of weekday subarea ridership in 2019 and declined slightly to 13 percent in 2021, remaining at third highest in the subarea. While the corridor provides a key connection to Montgomery Mall Transit Center, the bulk of its ridership and loss thereof is at the Metro Stations at the tail ends of the corridor.

The short westbound **Randolph Rd. Corridor** stretches 1.4 miles from Parklawn Dr. to Veirs Mill Rd., where it extends into the Wheaton-Aspen Hill-Olney subarea. In 2019, the corridor had a ridership of 1,070 riders per mile, which is the second highest trip density in the subarea, but it became the highest in 2021, despite falling to 640 boardings per mile. Like Veirs Mill Rd., Randolph Rd. acts as a feeder between non-adjacent Metro Stations, namely Twinbrook and Wheaton Metro Stations. The two even share an intersection, where Randolph Road Crossing Shopping Center is located. The corridor saw a moderate increase from six percent to eight percent of subarea ridership between 2019 and 2021, remaining fourth highest in the subarea.

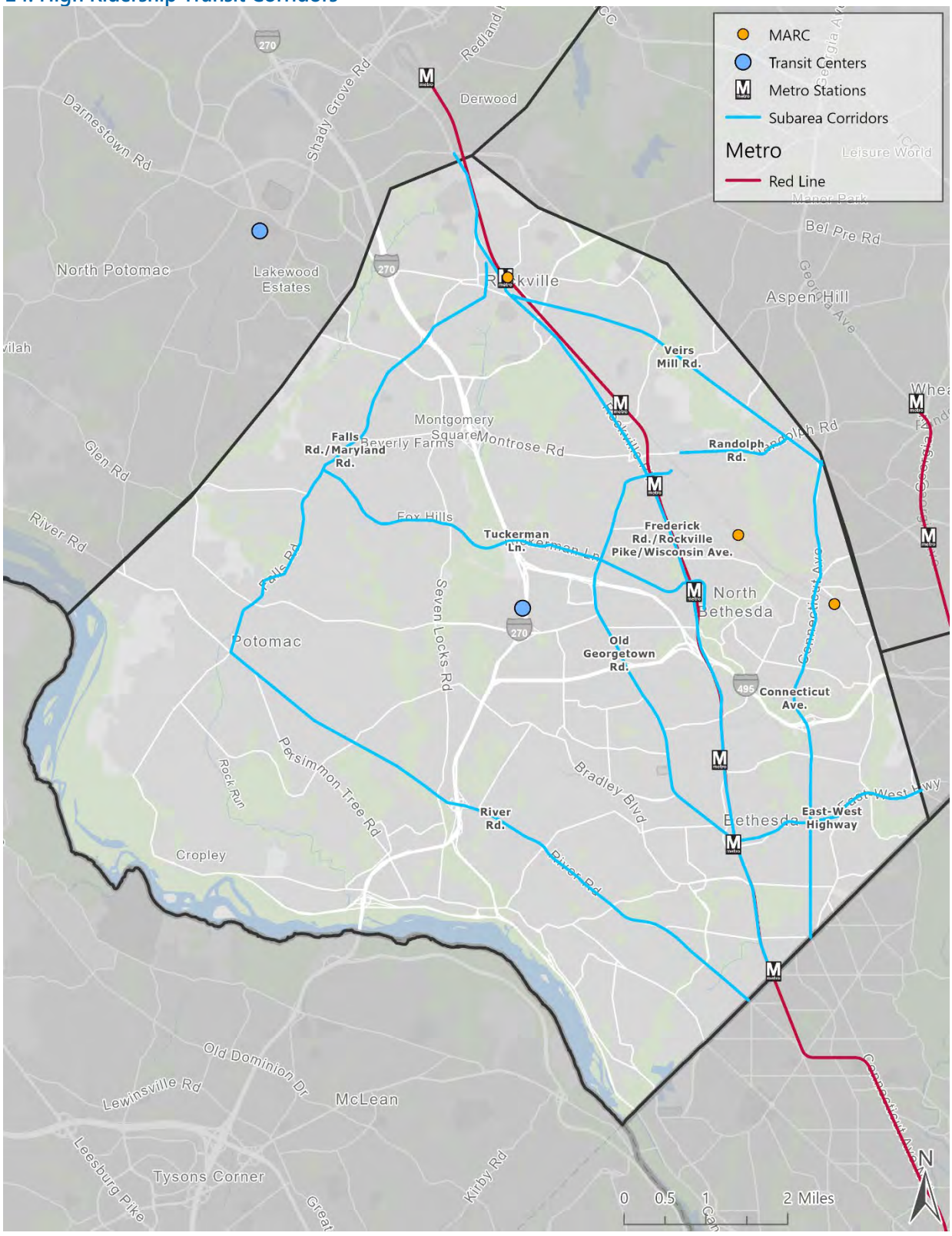
The **East-West Highway Corridor** stretches 2.5 miles from Wisconsin Ave. to Grubb Rd. where it extends into the Silver Spring-Burtonsville subarea. The corridor had a ridership of 1,030 riders per mile, the third highest trip density in the subarea. However, the corridor dropped to fourth highest in 2021, after drastically declining to 460 boardings per mile. The highway serves as a major connection between non-adjacent Metro Stations on the Red Line within close proximity to the District, feeding between Silver Spring and Bethesda Metro Stations. Due to boarding shares decreasing at both Metro Stations, the corridor's subarea ridership share declined from 11 percent to 10 percent between 2019 and 2021.

The northbound **Connecticut Ave. Corridor** stretches 3.7 miles from Western Ave on the D.C. border to Veirs Mill Rd., where it extends into the Wheaton-Aspen Hill-Olney subarea. The corridor had a ridership of 470 boardings per mile, the sixth highest in the subarea. 2019 weekday boardings totaled up to seven percent of the subarea total, increasing slightly to eight percent in 2021. The corridor becomes

experiences higher ridership productivity in the Wheaton-Aspen Hill-Olney subarea, where it connects to Georgia Ave.

The few remaining corridors include **Tuckerman Ln.**, **River Rd.**, and **Falls Rd./Maryland Rd.**, with key connections at Rockville, Grosvenor-Strathmore, and Friendship Heights Metro Stations. All three corridors ran through Potomac and held trip densities at or below 130 boardings per mile. Despite lengths ranging from 5.6 to 7.3 miles, the longest in the subarea, none of the corridors exceeded four percent of total subarea ridership.

Figure 24: High Ridership Transit Corridors



Ridership by Key Hubs

Table 24 provides ridership activity by key hub locations. A stop was considered in proximity of the key location if it is within 0.2 miles. All Metro and MARC stations, transit centers, and park and rides were considered key locations. Shopping centers, government facilities, and college campuses were selected based on high ridership and breadth of geography, so that boardings would not be double counted between locations. Boardings at all hubs decreased between 2019 and 2021.

Except for Friendship Heights and Twinbrook Metro Stations, ridership share on weekdays near all Metro Stations decreased between 2019 and 2021. In particular, Rockville Metro Station, which had the largest share of subarea boardings and serves as a key node that served as an entrance into the Metrorail system and the District for ten routes, experienced a large decline in ridership levels across weekdays and weekends. The decreased demand for rail transit that connects to the District may signal a small shift away from commute-based trips. Shopping centers with large ridership shares including Montgomery Mall, Randolph Rd. Crossing, Tenley Center, Woodmont Triangle, Twinbrook Center, and Georgetown Square, all experienced increases in subarea ridership share on weekdays. Montgomery College experienced a decrease in subarea ridership share, likely due to the transition to online classes.

Table 24: Ridership Activity by Key Hub

Name	Type	Weekday Boardings (% of total)		Saturday Boardings (% of total)		Sunday Boardings (% of total)	
		2019	2021	2019	2021	2019	2021
Rockville Metro Station	Metro Station	4,170 (17.2%)	1,610 (14.0%)	2,550 (18.3%)	840 (12.5%)	1,790 (18.6%)	810 (14.6%)
Bethesda Metro Station	Metro Station	1,860 (7.7%)	730 (6.3%)	760 (5.5%)	420 (6.2%)	640 (6.6%)	370 (6.6%)
Friendship Heights Metro Station	Metro Station	1,320 (5.4%)	740 (6.4%)	1000 (7.2%)	300 (4.5%)	800 (8.3%)	230 (4.2%)
Medical Center Metro Station	Metro Station	1,250 (5.2%)	570 (5.0%)	320 (2.3%)	170 (2.5%)	240 (2.5%)	140 (2.5%)
Montgomery College	College Campus	1,180 (4.9%)	180 (1.6%)	170 (1.2%)	50 (0.7%)	40 (0.5%)	40 (0.8%)
Twinbrook Metro Station	Metro Station	1,140 (4.7%)	730 (6.3%)	870 (6.2%)	520 (7.7%)	640 (6.7%)	470 (8.4%)
Randolph Road Crossing	Shopping Center	1,090 (4.5%)	660 (5.7%)	930 (6.7%)	600 (8.9%)	650 (6.8%)	460 (8.4%)
White Flint Metro Station	Metro Station	630 (2.6%)	270 (2.3%)	310 (2.2%)	180 (2.7%)	180 (1.9%)	130 (2.3%)
Grosvenor-Strathmore Metro Station	Metro Station	510 (2.1%)	110 (1.0%)	60 (0.4%)	20 (0.4%)	40 (0.4%)	20 (0.3%)
Montgomery Mall Transit Center	Transit Center	480 (2.0%)	320 (2.7%)	530 (3.8%)	360 (5.4%)	350 (3.7%)	280 (5.0%)
Kensington Shopping Center	Shopping Center	340 (1.4%)	170 (1.4%)	200 (1.4%)	80 (1.3%)	130 (1.4%)	60 (1.1%)
Tenley Center	Shopping Center	250 (1.0%)	140 (1.2%)	140 (1.0%)	70 (1.0%)	100 (1.1%)	50 (0.8%)
Twinbrook Center	Shopping Center	250 (1.0%)	160 (1.4%)	260 (1.8%)	150 (2.2%)	190 (2.0%)	120 (2.1%)

Name	Type	Weekday Boardings (% of total)		Saturday Boardings (% of total)		Sunday Boardings (% of total)	
		2019	2021	2019	2021	2019	2021
Georgetown Square	Shopping Center	230 (1.0%)	170 (1.5%)	130 (0.9%)	90 (1.4%)	90 (1.0%)	60 (1.1%)
Woodmont Triangle	Shopping Center	190 (0.8%)	140 (1.2%)	150 (1.0%)	110 (1.6%)	120 (1.3%)	90 (1.6%)
Kensington Triangle Shopping Center	Shopping Center	150 (0.6%)	90 (0.8%)	90 (0.7%)	30 (0.4%)	50 (0.5%)	20 (0.4%)
The Green Center	Shopping Center	150 (0.6%)	100 (0.9%)	80 (0.5%)	60 (0.9%)	40 (0.4%)	60 (1.1%)
Suburban Hospital Healthcare System	Hospital	70 (0.3%)	20 (0.2%)	30 (0.2%)	10 (0.1%)	20 (0.2%)	10 (0.2%)
Cabin John Shopping Center	Shopping Center	70 (0.3%)	30 (0.2%)	60 (0.5%)	20 (0.2%)	50 (0.5%)	20 (0.4%)
Westwood Center II	Shopping Center	50 (0.2%)	40 (0.3%)	80 (0.6%)	10 (0.2%)	50 (0.5%)	< 5 (0.0%)
Lake West Shopping Center	Shopping Center	50 (0.2%)	20 (0.2%)	20 (0.1%)	< 5 (0.0%)	10 (0.1%)	< 5 (0.0%)
Shops At Sumner Place	Shopping Center	40 (0.2%)	20 (0.1%)	30 (0.2%)	10 (0.1%)	< 5 (0.0%)	< 5 (0.0%)
Kensington MARC Station	MARC Station	40 (0.1%)	10 (0.1%)	10 (0.1%)	< 5 (0.0%)	< 5 (0.0%)	< 5 (0.0%)
Potomac Village Shopping Center	Shopping Center	30 (0.1%)	40 (0.3%)	70 (0.5%)	< 5 (0.0%)	50 (0.5%)	< 5 (0.0%)
Garrett Park MARC Station	MARC Station	20 (0.1%)	< 5 (0.0%)	10 (0.1%)	< 5 (0.0%)	10 (0.1%)	< 5 (0.0%)

Figure 25: 2019 Weekday Ridership by Stop

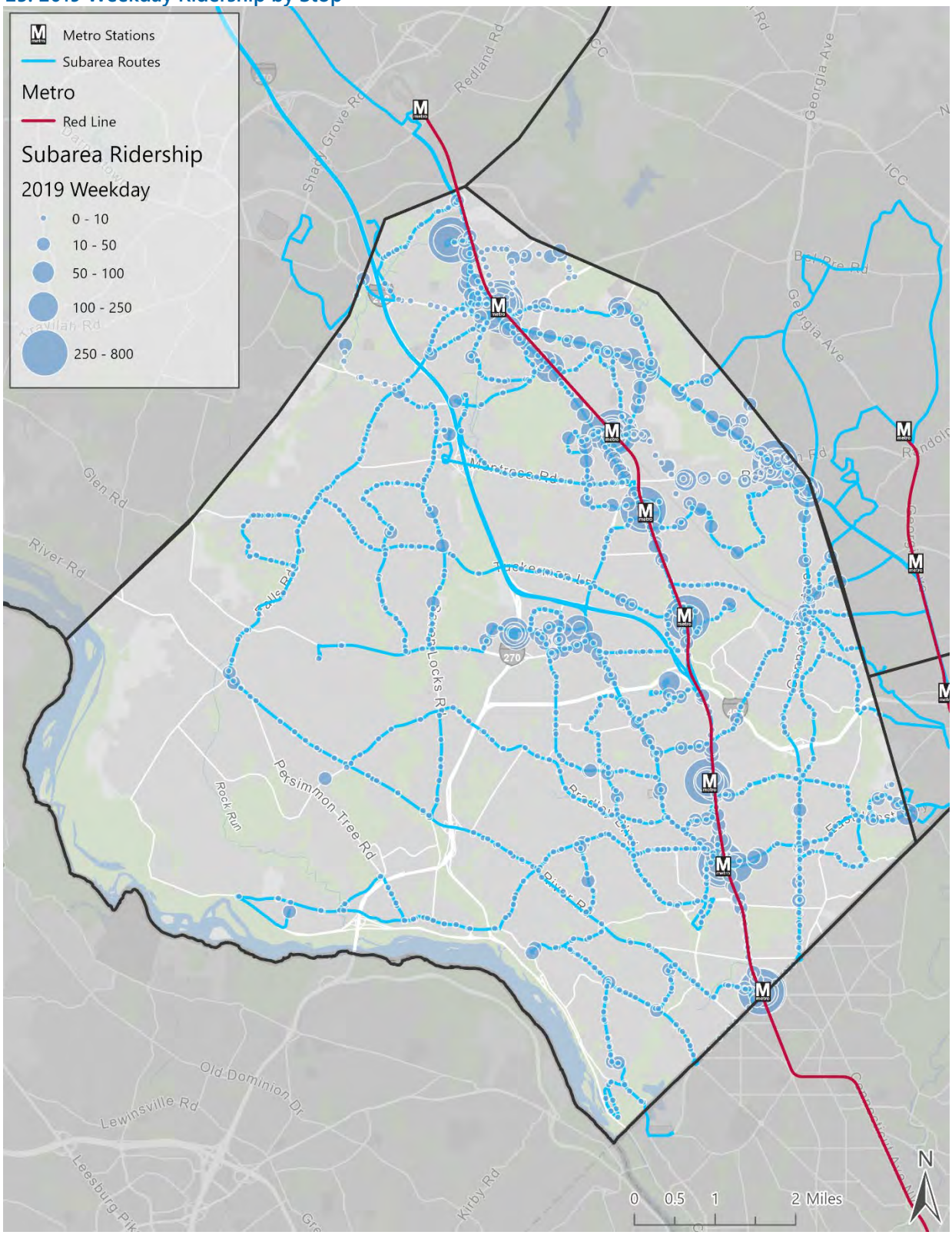


Figure 26: 2019 Saturday Ridership by Stop

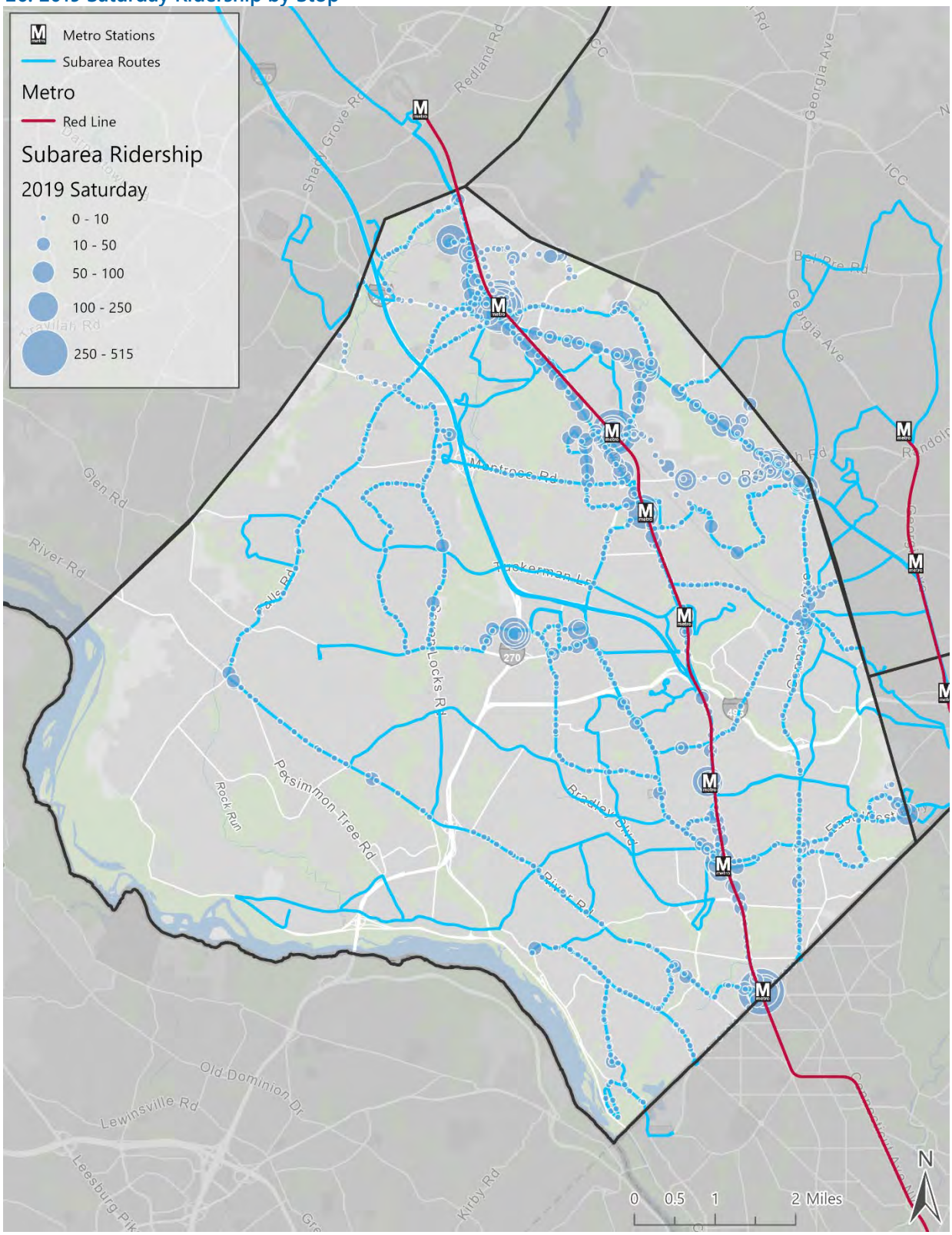
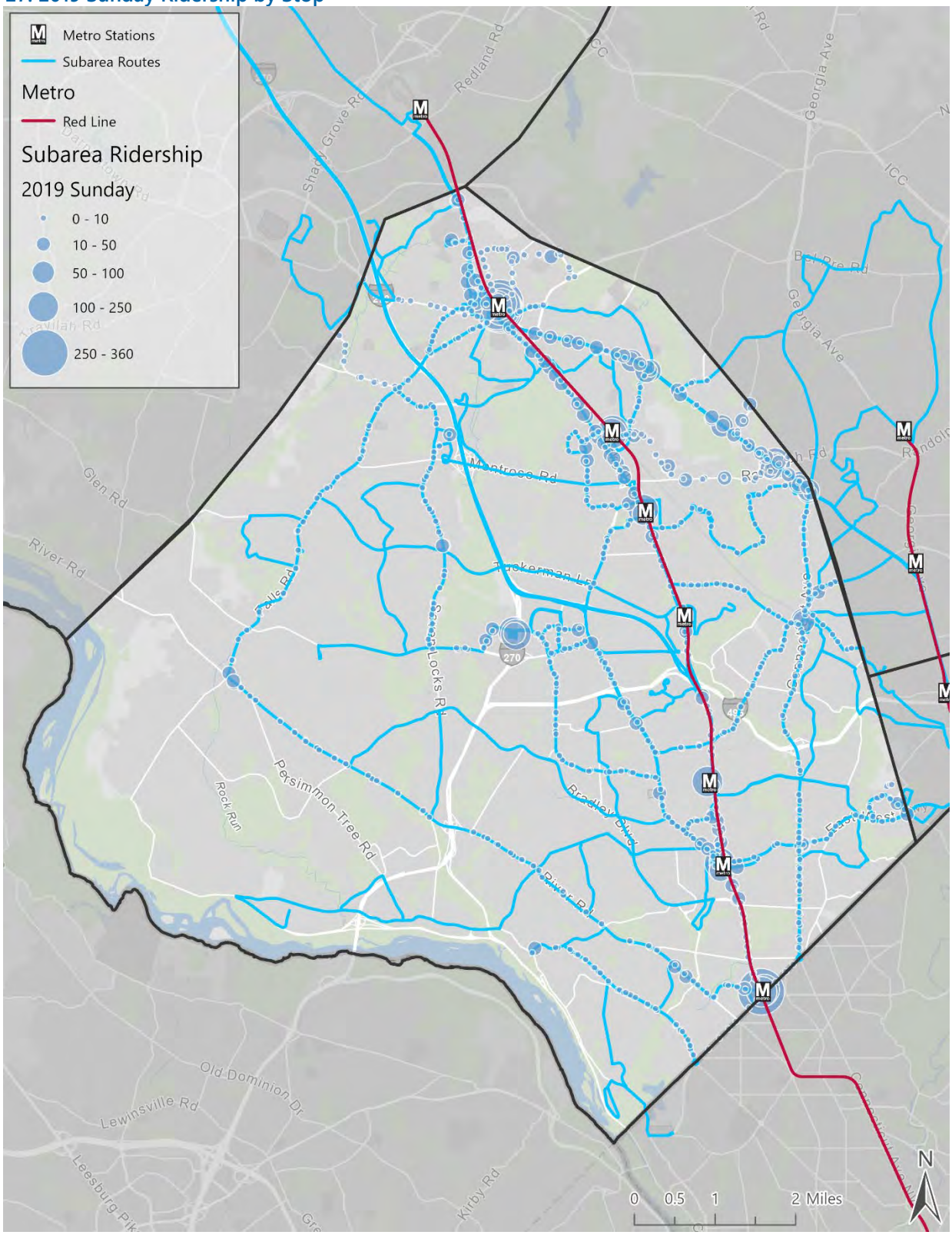


Figure 27: 2019 Sunday Ridership by Stop



Route Performance

Table 25 through **Table 27** provide key performance indicators (KPIs) for the Bethesda-Potomac-Rockville subarea routes for weekdays, Saturdays, and Sundays in 2019. The tables are sorted by daily boardings and color coded by quartile for all KPIs except on-time performance. On-time performance (OTP) is color coded by adherence to Ride On's on-time performance definition. Route quartiles and rankings are calculated based on route type for all Montgomery County bus routes. The KPIs are defined below along with key findings:

- **Daily Boardings** measures productivity in terms of passenger boardings per day. The Bethesda-Potomac-Rockville subarea is served by several of the most productive routes in the county, including nine that carry more than 1,000 riders on an average weekday. Of the 35 routes serving the subarea, 11 perform within the top quartile of their respective service categories on weekdays. Seven routes perform within the top quartile on Saturdays, and one performs within the top quartile on Sundays. The top five routes by weekday ridership volume, the Q line, J line, 46, 26, and 34 connect the various high-density activity centers along the Viers Mill Rd., Rockville Pike, Old Georgetown Rd., University Blvd., East-West Highway, and Aspen Hill Rd. corridors. Each of these routes also serve at least one Metrorail station. The lowest performing routes in the subarea, the 44 and 31, serve as short feeder routes to the Rockville, Twinbrook, and White Flint Metrorail stations. These routes carry less than 150 riders per day and operate infrequently during peak hours only.
- **Service efficiency measures ridership per unit of resource investment.** Service efficiency KPIs include passengers per vehicle revenue hour (Pax/VRH), passengers per vehicle revenue mile (Pax/VRM), and passengers per one-way bus trip (Pax/Trip). The top performing Metro routes in the subarea (Q series and J series) carry between 30 and 34 passengers per revenue hour, while the top Ride On local routes (46, 26, 34, 5) carry between 20 to 26 passengers per revenue hour on weekdays. Ride On's extRa Route 100 is an outlier among the most productive routes in the subarea, with a slightly lower weekday efficiency of 15.6 passengers per hour. The worst performing local routes in the subarea (routes 36, 37, 42, 44, and 81) carry fewer than 10 passengers per hour on weekdays. This performance is likely because these routes generally serve lower-density neighborhoods, have lower frequencies and/or operate during peak hours only, and have circuitous alignments. The two loop routes connecting the Grosvenor-Strathmore Metrorail station, Democracy Blvd. office park and Montgomery Mall Transit Center are also low-performing, both of which service about eight passengers per hour and four passengers per trip on weekdays.
- **Financial performance measures return on investment.** Financial performance KPIs include cost recovery (Cost Rec.), which is the ratio between fare revenue collected and operating cost and subsidy per passenger (Sub/Pax) which is net operating cost (operating cost minus fare revenue) per passenger boardings. The most efficient routes tend to also exhibit the strongest cost recovery ratios and lowest subsidies per passenger. Top performers in the subarea generally have a cost recovery ratio between 25 to30 percent and subsidy per passenger of roughly $2.50 to $3.00 per trip. The lowest performers have subsidies as high as $10.00 per trip.

- **On-Time Performance (OTP)** measures reliability in terms of the percentage of bus trips that depart within Ride On's established definition of "on-time" (between one minute early and five minutes late). Weekday on-time performance tends to be poor for most subarea routes. On weekdays, 15 subarea routes exceed Ride On's on-time target of 85 percent and four are below five percent of the target. Nine routes exceed the target on Saturdays and six routes exceed the target on Sundays. In general, routes carrying the largest volumes of passengers exhibit lower on-time performance, although the 46 is an example of an outlier that registers strong on-time performance.

Table 25: Weekday Route Key Performance Indicators (2019)

Route	Route Description	Route Type	Boardings		Pax/VRH		Pax/VRM		Pax/Trip		Cost Rec.		Sub./Pax		On-time performance	
Q1,2,4,5,6[1]	Veirs Mill Road	Metrobus	6,054	3 / 12	33.8	4 / 12	3.1	5 / 12	33.3	6 / 12	22%	6 / 12	$2.76	4 / 12	69%	2 / 12
J1,2[1]	Bethesda-Silver Spring	Metrobus	4,881	5 / 12	29.6	9 / 12	2.8	7 / 12	27.3	9 / 12	23%	5 / 12	$3.10	7 / 12	61%	5 / 12
46	Montgomery College-Rockville Pike-Medical Center	Local	2,947	2 / 63	25.7	11 / 63	2.6	9 / 63	25.4	6 / 63	30%	7 / 63	$2.35	7 / 63	89%	20 / 63
26	Glenmont-Aspen Hill-Twinbrook-Montgomery Mall	Local	2,685	4 / 63	22.6	16 / 63	1.9	23 / 63	30.2	3 / 63	25%	16 / 63	$2.95	16 / 63	83%	51 / 63
34	Aspen Hill-Wheaton-Bethesda-Friendship Heights	Local	2,254	8 / 63	25.6	13 / 63	2.7	7 / 63	24	7 / 63	28%	12 / 63	$2.62	12 / 63	81%	58 / 63
101	EXTRA-Lakeforest-Medical Center	Extra	1,664	1 / 1	15.6	1 / 1	1.1	1 / 1	15.7	1 / 1	17%	1 / 1	$4.89	1 / 1	75%	1 / 1
5	Twinbrook-Kensington-Silver Spring	Local	1,655	14 / 63	19.8	25 / 63	1.9	21 / 63	17.8	17 / 63	22%	26 / 63	$3.47	26 / 63	81%	56 / 63
47	Rockville-Montgomery Mall-Bethesda	Local	1,330	18 / 63	19.5	28 / 63	1.5	32 / 63	18.5	16 / 63	21%	27 / 63	$3.66	27 / 63	85%	43 / 63
1	Silver Spring-Leland St.-Friendship Heights	Local	1,129	22 / 63	20.9	21 / 63	2.3	13 / 63	14.1	24 / 63	23%	25 / 63	$3.33	25 / 63	87%	31 / 63
45	Fallsgrove-Rockville Senior Center-Rockville-Twinbrook	Local	870	25 / 63	13.3	43 / 63	1.2	44 / 63	11	31 / 63	15%	44 / 63	$5.62	44 / 63	92%	10 / 63
38	Wheaton-White Flint	Local	726	27 / 63	17.8	33 / 63	1.5	33 / 63	9.8	34 / 63	20%	30 / 63	$3.93	30 / 63	86%	36 / 63
70	Milestone-Medical Center-Bethesda Express	Express	645	2 / 3	13.8	2 / 3	0.5	2 / 3	10.4	2 / 3	42%	1 / 3	$4.14	2 / 3	81%	1 / 3
11	Silver Spring-East/West Hwy-Friendship Heights	Limited	619	1 / 8	29.7	1 / 8	3.2	1 / 8	16.7	4 / 8	29%	1 / 8	$2.43	1 / 8	84%	7 / 8
23	Sibley Hospital-Brookmont-Sangamore Road-Friendship Heights	Local	592	33 / 63	16.4	35 / 63	1.5	31 / 63	9	37 / 63	19%	33 / 63	$4.35	33 / 63	84%	45 / 63
29	Bethesda-Glen Echo-Friendship Heights	Local	574	35 / 63	14.4	40 / 63	1.1	45 / 63	9	38 / 63	16%	39 / 63	$5.28	39 / 63	88%	30 / 63
30	Medical Center-Pooks Hill-Bethesda	Local	559	36 / 63	13.1	45 / 63	1.2	42 / 63	8.7	39 / 63	14%	46 / 63	$5.97	46 / 63	89%	23 / 63

KPI Quartile Ranking				OTP Ranking		
Top 25%	50-75%	25-50%	Bottom 25%	>= 85%	80-85%	<80%

Route	Route Description	Route Type	Boardings		Pax/VRH		Pax/VRM		Pax/Trip		Cost Rec.		Sub./Pax		On-time performance	
42	White Flint-Montgomery Mall	Local	380	43 / 63	8.6	57 / 63	0.7	57 / 63	6.4	53 / 63	10%	55 / 63	$9.06	55 / 63	92%	9 / 63
36	Potomac-Bradley Blvd.-Bethesda	Local	296	45 / 63	9.1	55 / 63	0.7	54 / 63	5.5	57 / 63	10%	56 / 63	$9.12	56 / 63	90%	18 / 63
33	Glenmont-Kensington-Medical Center	Local	283	47 / 63	10.9	51 / 63	0.9	48 / 63	7.6	47 / 63	12%	51 / 63	$7.25	51 / 63	83%	52 / 63
4	Kensington-Silver Spring	Local	249	50 / 63	13.2	44 / 63	1.5	29 / 63	6.7	51 / 63	15%	45 / 63	$5.89	45 / 63	87%	32 / 63
6	Grosvenor-Parkside-Montgomery Mall Loop	Loop	226	3 / 4	8.1	3 / 4	0.8	3 / 4	3.9	4 / 4	9%	3 / 4	$9.84	3 / 4	92%	1 / 4
96	Montgomery Mall-Rock Spring-Grosvenor	Loop	205	4 / 4	7.7	4 / 4	0.7	4 / 4	3.9	3 / 4	9%	4 / 4	$10.71	4 / 4	71%	3 / 4
32	Naval Ship R&D-Cabin John-Bethesda	Local	198	52 / 63	13	46 / 63	0.9	49 / 63	7.1	50 / 63	13%	49 / 63	$6.52	49 / 63	89%	26 / 63
37	Potomac-Tuckerman La.-Grosvenor-Wheaton	Local	173	55 / 63	8.8	56 / 63	0.7	55 / 63	6.4	54 / 63	10%	57 / 63	$9.28	57 / 63	90%	16 / 63
81	Rockville-Tower Oaks-White Flint	Local	129	56 / 63	8	59 / 63	0.7	53 / 63	4.2	62 / 63	9%	59 / 63	$9.91	59 / 63	94%	3 / 63
44	Twinbrook-Hungerford-Rockville	Local	125	57 / 63	9.6	54 / 63	1.1	46 / 63	5	58 / 63	11%	52 / 63	$8.10	52 / 63	92%	11 / 63

Note:
1. Operating data provided by Metro for routes Q1, Q2, Q4, Q5, Q6 and J1 and J2 were reported as a single route.

KPI Quartile Ranking				OTP Ranking		
Top 25%	50-75%	25-50%	Bottom 25%	>= 85%	80-85%	<80%

Table 26: Saturday Route Key Performance Indicators (2019)

Route	Route Description	Route Type	Boardings		Pax/VRH		Pax/VRM		Pax/Trip		Cost Rec.		Sub./Pax		On-time performance	
Q1,2,4,6[1]	Veirs Mill Road	Metrobus	4,776	2 / 9	33.9	3 / 9	3.1	2 / 9	33.9	5 / 9	17%	5 / 9	$2.92	5 / 9	69%	1 / 9
J1,2[1]	Bethesda-Silver Spring	Metrobus	2,478	6 / 9	26.1	7 / 9	2.2	7 / 9	21.4	8 / 9	15%	6 / 9	$3.87	7 / 9	69%	1 / 9
46	Montgomery College-Rockville Pike-Medical Center	Local	1,711	6 / 42	20	10 / 42	2	10 / 42	19	7 / 42	24%	10 / 42	$3.24	10 / 42	89%	16 / 42
26	Glenmont-Aspen Hill-Twinbrook-Montgomery Mall	Local	1,641	7 / 42	17.7	17 / 42	1.5	18 / 42	22.8	3 / 42	21%	15 / 42	$3.88	15 / 42	83%	33 / 42
34	Wheaton-Bethesda-Friendship Heights	Local	1,249	10 / 42	22.1	9 / 42	2.1	6 / 42	17.3	8 / 42	27%	9 / 42	$2.77	9 / 42	83%	34 / 42
L8	Grand Pre-Bel Pre, Connecticut, Friendship Hts Station	Local	1,045	12 / 42	19.2	13 / 42	1.5	17 / 42	15.4	12 / 42	22%	14 / 42	$3.56	14 / 42	82%	40 / 42
5	Twinbrook-Kensington-Silver Spring	Local	804	16 / 42	12.7	28 / 42	1.2	24 / 42	11.2	20 / 42	15%	28 / 42	$5.56	28 / 42	90%	13 / 42
47	Rockville-Montgomery Mall-Bethesda	Local	707	21 / 42	11.7	30 / 42	1	30 / 42	12	18 / 42	13%	30 / 42	$6.44	30 / 42	85%	26 / 42
1	Silver Spring-Leland St.-Friendship Heights	Local	668	22 / 42	16.9	18 / 42	1.7	16 / 42	10.1	24 / 42	20%	17 / 42	$4.00	17 / 42	88%	19 / 42
T2	Friendship Hts, River Rd, Falls Rd, Rockville W.	Local	557	25 / 42	12.4	29 / 42	0.7	33 / 42	10.7	22 / 42	14%	29 / 42	$6.25	29 / 42	81%	40 / 42
38	Wheaton-White Flint	Local	462	28 / 42	14.9	25 / 42	1.2	25 / 42	8	29 / 42	17%	24 / 42	$4.80	24 / 42	93%	5 / 42
45	Fallsgrove-Rockville-Twinbrook	Local	375	31 / 42	8.5	36 / 42	0.7	35 / 42	7.2	31 / 42	10%	35 / 42	$9.04	35 / 42	93%	4 / 42
23	Sibley Hospital-Brookmont-Sangamore Road-Friendship Heights	Local	294	36 / 42	10.9	32 / 42	0.9	31 / 42	5.5	35 / 42	12%	33 / 42	$7.21	33 / 42	90%	12 / 42
42	White Flint-Montgomery Mall	Local	190	39 / 42	5.6	41 / 42	0.5	39 / 42	4.3	39 / 42	6%	41 / 42	$14.54	41 / 42	92%	9 / 42
29	Bethesda-Glen Echo-Friendship Heights	Local	129	41 / 42	8.8	35 / 42	0.7	36 / 42	2.7	41 / 42	9%	38 / 42	$9.94	38 / 42	94%	1 / 42

Note:

1. Operating data provided by Metro for routes Q1, Q2, Q4, and Q6 and J1 and J2 were reported as a single route.

KPI Quartile Ranking				OTP Ranking		
Top 25%	50-75%	25-50%	Bottom 25%	>= 85%	80-85%	<80%

Table 27: Sunday Route Key Performance Indicators (2019)

Route	Route Description	Route Type	Boardings		Pax/VRH		Pax/VRM		Pax/Trip		Cost Rec.		Sub./Pax		On-time performance	
Q1,4,5[1]	Veirs Mill Road	Metrobus	2,930	4 / 7	25.7	5 / 7	2.2	6 / 7	24	6 / 7	17%	6 / 7	$3.86	6 / 7	72%	2 / 7
J1,2[1]	Bethesda-Silver Spring	Metrobus	1,794	7 / 7	26	4 / 7	2.1	7 / 7	20.4	7 / 7	18%	5 / 7	$3.74	5 / 7	61%	5 / 7
26	Glenmont-Aspen Hill-Twinbrook-Montgomery Mall	Local	1,553	3 / 33	16.9	14 / 33	1.4	19 / 33	21.6	5 / 33	19%	15 / 33	$4.30	15 / 33	83%	25 / 33
46	Montgomery College-Rockville Pike-Medical Center	Local	1,212	9 / 33	15.5	17 / 33	1.5	15 / 33	14.4	10 / 33	18%	17 / 33	$4.64	17 / 33	89%	10 / 33
34	Wheaton-Bethesda-Friendship Heights	Local	1,120	10 / 33	20.2	7 / 33	1.9	7 / 33	15.5	8 / 33	23%	7 / 33	$3.39	7 / 33	82%	26 / 33
1	Silver Spring - Friendship Heights	Local	762	14 / 33	21.2	5 / 33	2.2	4 / 33	12.7	14 / 33	25%	5 / 33	$3.14	5 / 33	91%	7 / 33
L8	Grand Pre-Bel Pre, Connecticut, Friendship Hts Station	Local	684	16 / 33	15.6	16 / 33	1.2	23 / 33	11.6	17 / 33	19%	16 / 33	$4.53	16 / 33	85%	31 / 33
5	Twinbrook-Kensington-Silver Spring	Local	638	18 / 33	9.1	29 / 33	1	26 / 33	8.9	22 / 33	10%	30 / 33	$9.25	30 / 33	85%	21 / 33
47	Rockville-Montgomery Mall-Bethesda	Local	599	21 / 33	11.1	26 / 33	0.9	28 / 33	11.3	18 / 33	13%	26 / 33	$7.01	26 / 33	82%	27 / 33
T2	Friendship Hts, River Rd, Falls Rd, Rockville W.	Local	508	23 / 33	11.4	25 / 33	0.7	31 / 33	9.8	21 / 33	13%	27 / 33	$7.02	27 / 33	88%	31 / 33
38	Wheaton-White Flint	Local	377	26 / 33	12.7	24 / 33	1.1	24 / 33	7.3	26 / 33	15%	22 / 33	$5.88	22 / 33	92%	5 / 33
29	Glen Echo-Friendship Heights	Local	126	32 / 33	8.9	30 / 33	0.7	30 / 33	2.9	32 / 33	10%	29 / 33	$9.13	29 / 33	87%	17 / 33

Note:
1. Operating data provided by Metro for routes Q1, Q4, and Q5 and J1 and J2 were reported as a single route.

KPI Quartile Ranking				OTP Ranking		
Top 25%	50-75%	25-50%	Bottom 25%	>= 85%	80-85%	<80%

Bethesda-Potomac-Rockville Subarea Conclusions

- The subarea's large employment base likely attributed to above-average ridership losses between 2019 and 2021, as many office workers worked from home and reduced commute trips during the pandemic.
- The subarea's primary corridors (Rockville Pike, Viers Mill Rd., Old Georgetown Rd.) generate large ridership volumes, but productivity drops off in lower density and higher income residential neighborhoods.
- In general, the neighborhoods with the highest transit propensity scores are well served by the existing network.
- Several subarea routes have highly circuitous alignments (42, 26, 29, 91). While it is acknowledged that the roadway network prevents a uniform grid and direct alignments in many cases, these routes should be reviewed for opportunities to provide more direct alignments while continuing to serve important destinations. Route directness refers to the number of turns and deviations along a route path between its origin and destination. Generally speaking, routes should operate as directly as possible to maximize average speed and minimize travel time while maintaining service access.

Wheaton-Aspen Hill-Olney Subarea

Subarea Overview

The Wheaton-Aspen Hill-Olney subarea covers nearly 90 square miles of northeast Montgomery County. The northern border of the subarea is contiguous with Howard County. The subarea is generally contained by New Hampshire Avenue to the east and Veirs Mill Road to the southwest. This subarea includes the communities of Wheaton, Aspen Hill, Glenmont, Kemp Mill, Layhill, North Kensington, Olney, and Colesville.

Bus service that is primarily within the Wheaton-Aspen-Olney subarea is listed in **Table 28** and shown cartographically in **Figure 28**. Of the 15 routes in the area, ten are operated by Ride On and five are operated by Metro. Service is concentrated in the southern and central neighborhoods of the subarea but does extend as far north as Olney. There are two Metrorail Red Line stations in the subarea, including Wheaton and Glenmont, the line's terminus. This is the only subarea without any MARC stations or Transit Centers. Major corridors in the subarea include Georgia Ave., Veirs Mill Rd., University Blvd., Randolph Rd., and Connecticut Ave. Service levels for each route are summarized in **Figure 29**.

Table 28: Wheaton-Aspen Hill-Olney Subarea Routes

Route		Service Category
7	Wheaton-Forest Glen	Local
9	Silver Spring-Wheaton	Local
31	Wheaton-Glenmont	Local
39	Glenmont-Briggs Chaney P&R	Local
41	Aspen Hill-Glenmont	Local
48	Wheaton-Rockville	Local
49	Rockville-Glenmont	Local
51	Glenmont-Norbeck P&R	Local
52	Olney-Medstar Mont.Med-Rockv.	Local
53	Shady Grove-Glenmont	Limited
C8	College Park - White Flint	Metrobus
Y2	Georgia Ave-Maryland	Metrobus
Y7	Georgia Ave-Maryland	Metrobus
Y8	Georgia Ave-Maryland	Metrobus
Z2	Colesville - Ashton	Metrobus

Figure 28: Wheaton-Aspen Hill-Olney Subarea Bus Routes

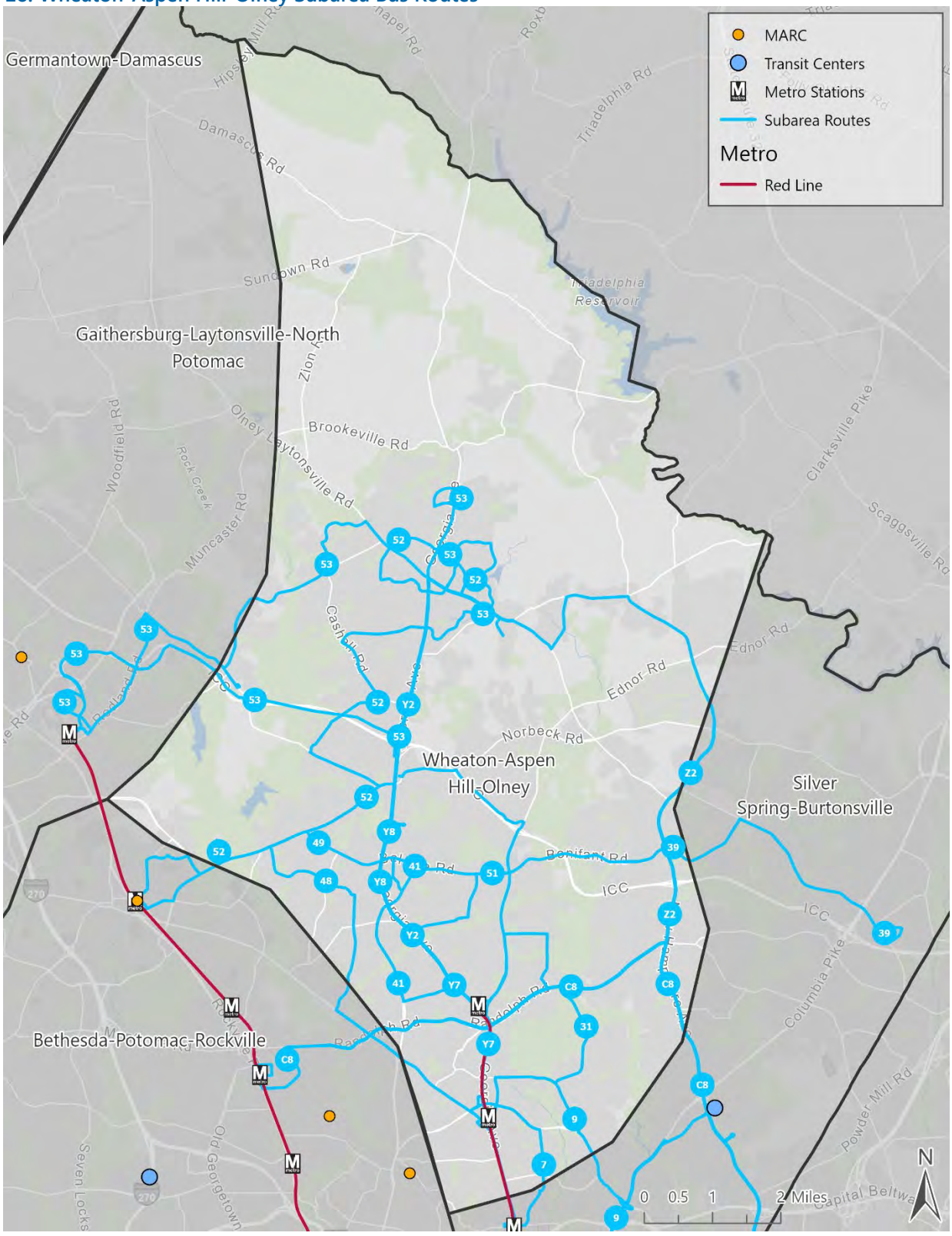
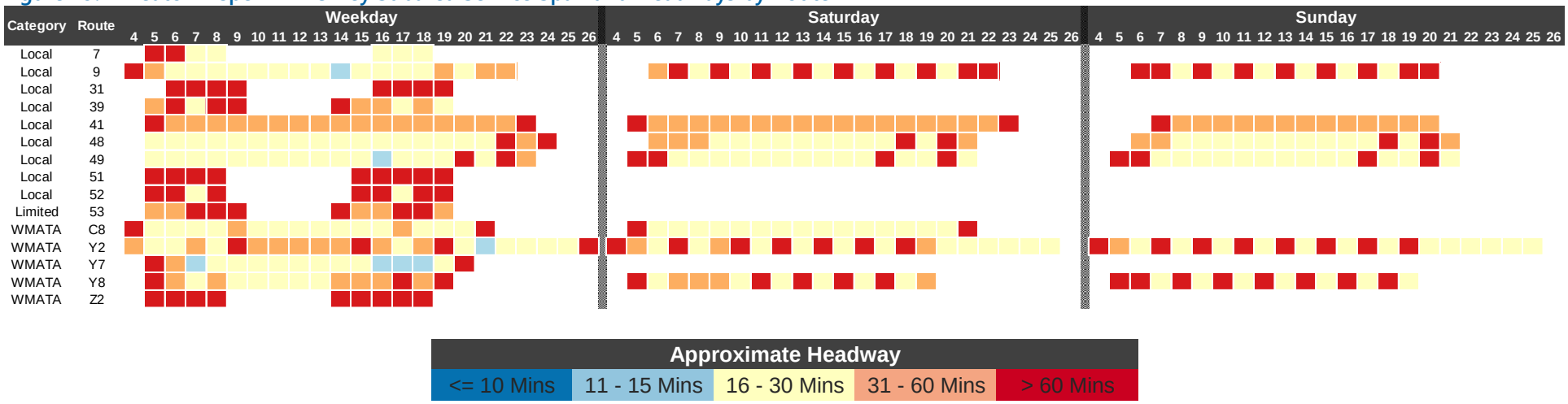


Figure 29: Wheaton-Aspen Hill-Olney Subarea Service Span and Headways by Route



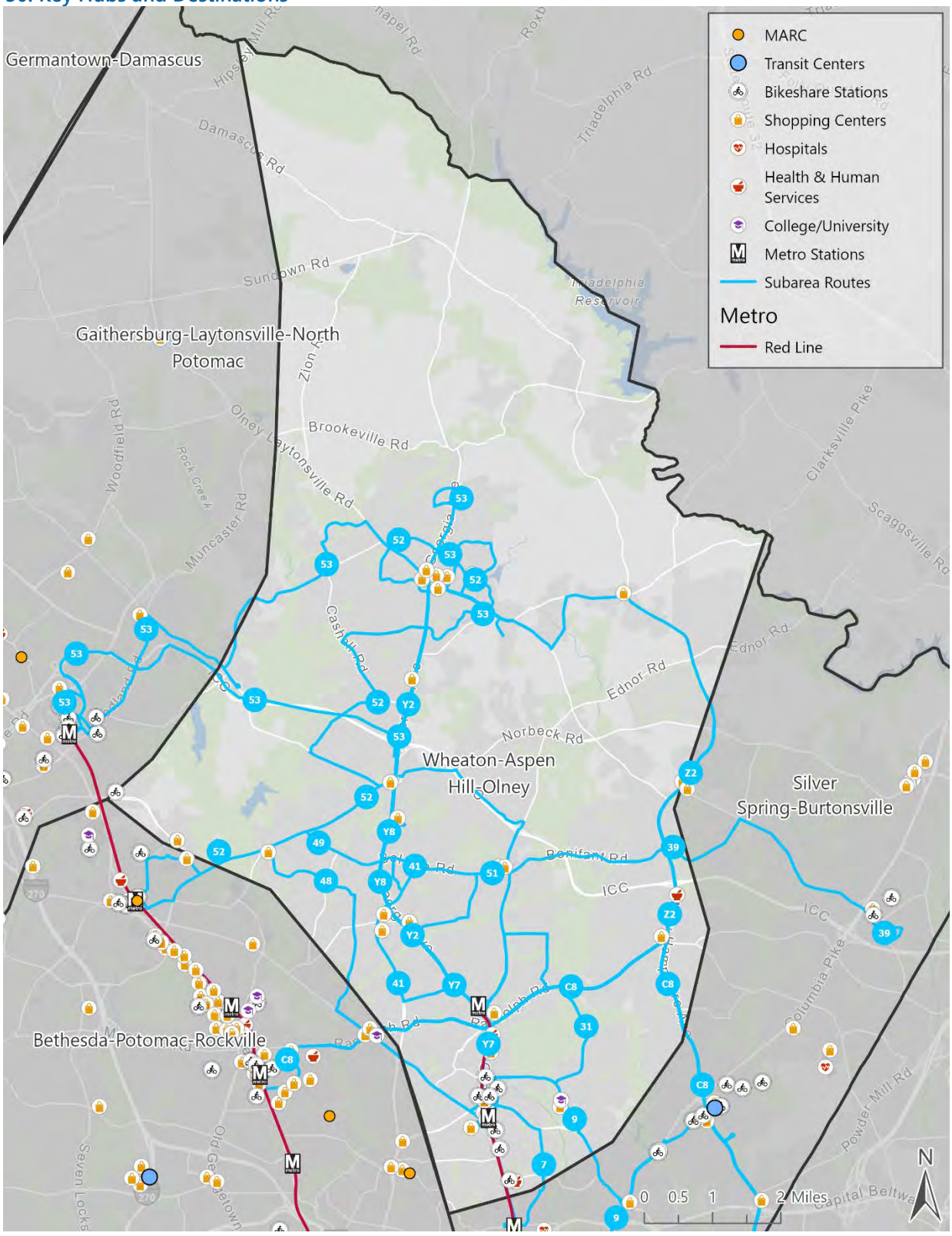
Key Transit Hubs & Destinations

Table 29 and **Figure 30** present key transit hubs, park-and-ride lots, and major destinations within the subarea. Most of the highest ridership locations in the subarea are located at key transfer facilities that provide connections to regional commuter rail and bus services operated by Metro and the Maryland Transit Administration (MARC and MTA Commuter Bus) and local bus services operated by Ride On and Metro. Other key destinations in the subarea include major shopping centers, schools, Leisure World, and MedStar Montgomery Medical Center.

Table 29: Key Transit Hubs & High Ridership Destinations

Name	Type	Routes Served	2019 Weekday Ridership (% of Total)
Wheaton Metro Station	Metro Station	31, 34, 9, Y2, C2, Q1	3,380 (20.0%)
Glenmont Metro Station	Metro Station	10, 26, 33, 41, 51, C8, Y2	2,260 (13.3%)
Northgate Plaza	Shopping Center	26, 34, L8, Y2	680 (4.0%)
Layhill Shopping Center	Shopping Center	26, 39, 49	380 (2.2%)
Wheaton Park Shopping Center	Shopping Center	Y2	290 (1.7%)
Wheaton High School	High School	10, 33, C8	270 (1.6%)
Aspen Manor	Shopping Center	51, Y2	260 (1.5%)
Olney Town Center South	Shopping Center	52, Z2, Y2	190 (1.1%)
Colesville Center	Shopping Center	10, Z2, C8	160 (0.9%)
Rock Creek Village Shopping Center	Shopping Center	48, 49	150 (0.9%)
Leisure World Plaza	Retirement Community	Y2	150 (0.9%)
MedStar Montgomery Medical Center	Hospital	52, Z2	80 (0.5%)
Yeshiva College of the Nation's Capital	College Campus	9	70 (0.4%)
Norbeck Road Park & Ride	Park & Ride	51, 52, Y2	40 (0.2%)
Georgia Ave. - ICC Park & Ride	Park & Ride	53, Y2	20 (0.1%)
Old Silo Inn Shopping Center	Shopping Center	52, 53	20 (0.1%)
Ashton Village	Shopping Center	Z2	10 (0.1%)

Figure 30: Key Hubs and Destinations



Activity Density and Transit Propensity

In most urban settings, population and employment density are typically the most important factors that influence transit ridership. Potential ridership demand, or propensity, is also strongly driven by socioeconomic characteristics such as household income, race/ethnicity, and access to personal vehicles. **Table 30** presents key socioeconomic indicators for the Wheaton-Aspen Hill-Olney subarea. **Figure 31** depicts population and job density, and **Figure 32** depicts transit propensity relative to the quantity of transit service provided. Key findings include:

- The Wheaton-Aspen Hill-Olney subarea contains nearly 20 percent of Montgomery County's total population and 14 percent of its total employment base. Areas with the highest activity densities include the Wheaton and Glenmont communities located in the southern section of the subarea, and the Olney area located in the central part of the county. As shown in **Figure 31**, there is existing bus service across these areas.
- The subarea's socioeconomic indicators suggest a moderate degree of transit propensity. The subarea is home to about a fifth of the county's minority and low-income residents and just under a fifth of zero-vehicle households. As a percentage of the total subarea population, 59 percent identify as racial minorities, 13 percent are below 150 percent of the federal poverty line, and 7 percent have low or no English language proficiency. Moreover, seven percent of households do not have access to a personal vehicle and 26 percent of households are renters. In terms of commuting habits, 14 percent of subarea workers commute using transit and 12 percent work non-traditional hours. The subarea has a few transit propensity indicators that exceed the county average in terms of both percentage of the overall population and density including minority population, senior population, population in poverty, and transit commuters.
- As shown in **Figure 32**, the transit propensity indicators were compared to existing transit service levels to identify service gaps. The densest parts of the subarea are well served, but there are a few pockets of higher transit propensity and low or no transit service. These areas tend to be in lower density areas. The areas include the neighborhoods around Layhill Rd. north of Maryland State Route 200, and the neighborhoods of Layhill, Colesville, and a smaller pocket in Kemp Mill.

Table 30: Wheaton-Aspen Hill-Olney Subarea Socioeconomic Indicators

	Total Population, Households, & Jobs			Percent of Total Population & Households		Density (per acre)	
	Subarea	County	Subarea Share	Subarea	County	Subarea	County
Population							
Total Population	202,900	1,047,400	19%	--	--	**3.6**	3.2
Minority Population	120,600	595,800	20%	**59%**	57%	**2.1**	1.8
Youth Population (<18 years)	46,500	243,400	19%	23%	23%	0.8	0.8
Senior Population (>65 years)	37,800	162,400	23%	**19%**	16%	**0.7**	0.5
Disabled Population	7,700	37,400	21%	4%	4%	0.1	0.1
Population in Poverty (<150% FPL)	25,700	121,000	21%	**13%**	12%	**0.5**	0.4
Low or No English Proficiency	13,600	62,400	22%	**7%**	6%	0.2	0.2
Households							
Total Households	68,700	372,700	18%	--	100%	**1.2**	1.1
Zero Vehicle Households	4,600	28,100	16%	7%	8%	0.1	0.1
Single Vehicle Households	21,800	126,000	17%	32%	34%	0.4	0.4
Rental Households	17,800	128,100	14%	26%	34%	0.3	0.4
Commuting							
Total Commuters	101,400	549,800	18%	--	100%	**1.8**	1.7
Transit Commuters	14,300	71,700	20%	**14%**	13%	**0.3**	0.2
Workers with Non-Traditional Hours	11,900	56,600	21%	**12%**	10%	0.2	0.2
Employment							
Total Jobs	41,800	489,500	9%	--	--	0.7	1.5

Note: Green text indicates values greater than the county average.

Figure 31: Wheaton-Aspen Hill-Olney Subarea Activity Density

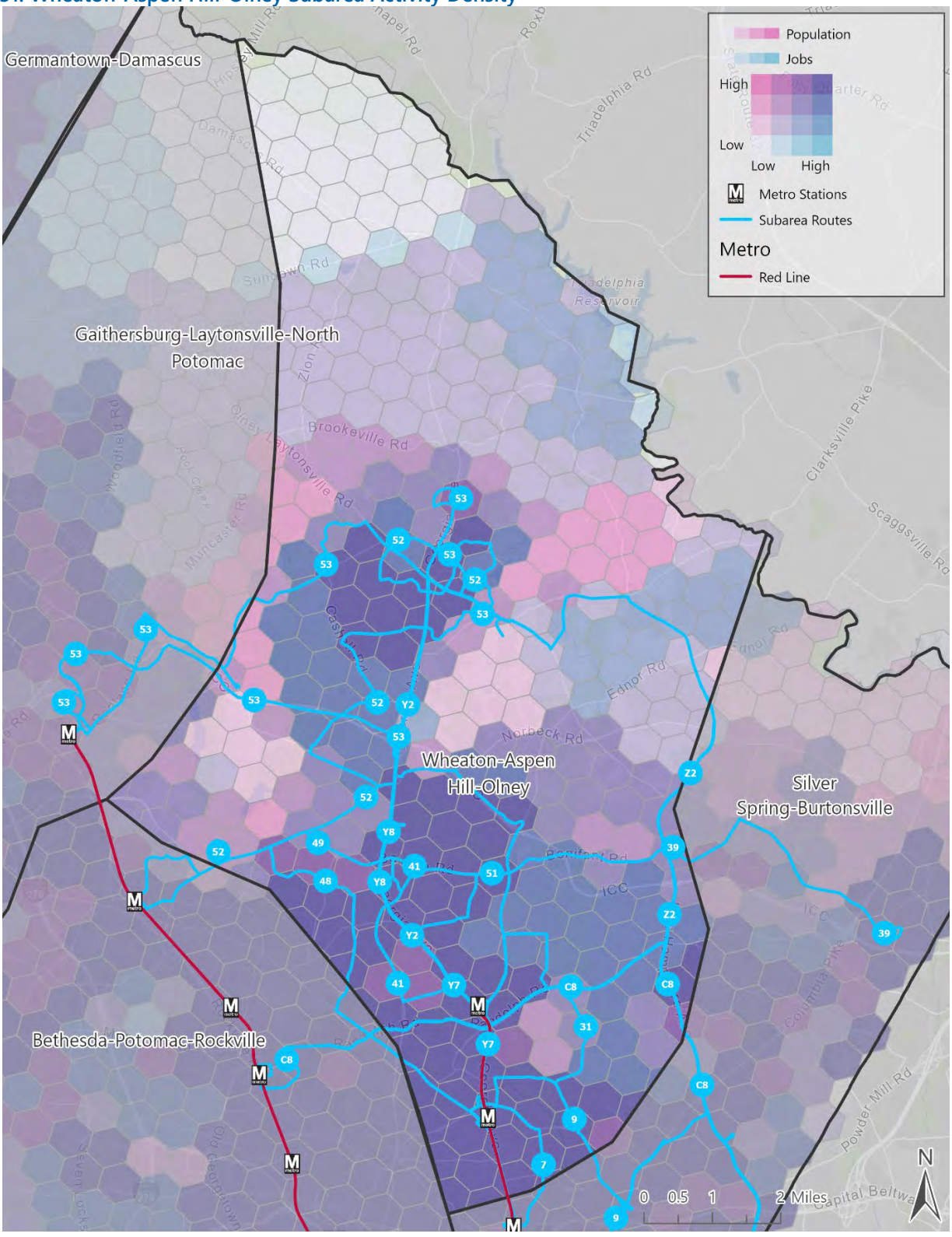
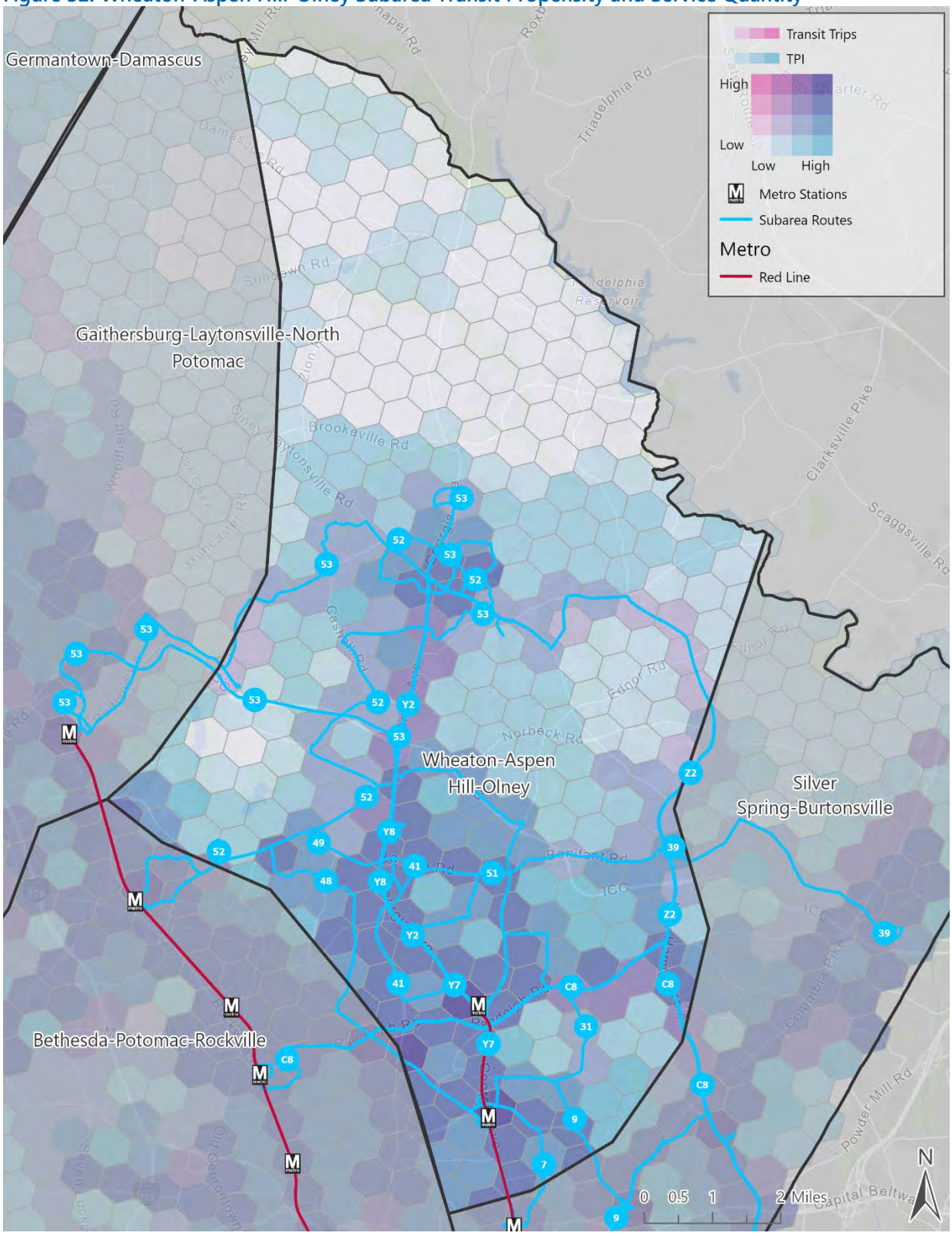


Figure 32: Wheaton-Aspen Hill-Olney Subarea Transit Propensity and Service Quantity



Ridership Productivity

Table 31 summarizes the subarea and countywide ridership activity for 2019 and 2021. **Figure 34** through **Figure 36** depict average daily stop-level ridership activity in 2019. In 2019, the Wheaton-Aspen Hill-Olney subarea produced 16,900 weekday bus boardings, 11,400 daily Saturday boardings, and 7,900 boardings on Sundays. This equates to just under 20 percent of the overall county ridership throughout the week. Weekday ridership decreased by about 39 percent between 2019 and 2021, while Saturday and Sunday ridership decreased by 43 percent and 33 percent, respectively. However, the subarea fared better compared the rest of the county during the early years of the pandemic, seeing a slightly smaller decrease in ridership and gaining in overall market share across all days of the week.

Table 31: 2019 and 2021 Subarea and Countywide Ridership Activity

Geography	2019			2021			Percent Change		
Subarea	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Ons	16,922	11,403	7,899	10,292	6,522	5,273	-39%	-43%	-33%
Offs	14,722	9,767	6,917	9,644	5,991	4,758	-34%	-39%	-31%
Total	31,644	21,170	14,816	19,936	12,512	10,031	-37%	-41%	-32%
County Total	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Ons	94,730	61,375	40,975	49,706	30,989	25,754	-48%	-50%	-37%
Offs	165,223	108,829	72,339	87,894	55,279	45,951	-47%	-49%	-36%
Total	226,924	150,810	99,985	122,946	77,428	64,169	-46%	-49%	-36%
Subarea Share	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Ons	18%	19%	19%	21%	21%	20%	3%	2%	1%
Offs	9%	9%	10%	11%	11%	10%	2%	2%	1%
Total	14%	14%	15%	16%	16%	16%	2%	2%	1%

Ridership by Community and Employment Center

Ridership productivity was evaluated by community to determine the general distribution of transit demand throughout the subarea. **Table 32** presents the total ridership generated within each Census Designated Place (CDP) in 2019 and 2021. Census designated places are concentrations of population and generally coincide with incorporated municipalities or unincorporated neighborhoods. Key findings from the community-level ridership analysis are described below:

- The Wheaton CDP generated about 40 percent of the subarea's weekday ridership in 2019, followed by Aspen Hill and Glenmont at 19 percent each. Collectively, these three communities represent 80 percent of the subarea's total ridership.
- The top three CDPs by ridership volume saw a less severe ridership decrease between 2019 and 2021 compared to the county average.
- The Wheaton community was particularly resilient, registering a 35 percent decline in weekday ridership relative to 48 percent for the county overall. This is likely attributed to the density of retail stores located around the Wheaton Metrorail station and transfers occurring at this location. This neighborhood also tends to have higher densities of populations with higher propensities to use transit.

Table 32: 2019 and 2021 Ridership Activity by Community

Community	2019 Total			2021 Total			Percent of Subarea Total		Percent Change 2019-2021		
	Wkdy	Sat	Sun	Wkdy	Sat	Sun	2019	2021	Wkdy	Sat	Sun
Ashton-Sandy Spring	47	0	0	14	0	0	0%	0%	-70%	--	--
Aspen Hill	3,272	2,488	1,731	1,894	1,307	1,059	19%	18%	**-42%**	**-47%**	-39%
Cloverly	58	0	0	20	0	0	0%	0%	-65%	--	--
Colesville	456	199	69	204	107	41	3%	2%	-55%	**-46%**	-41%
Derwood	11	5	3	4	0	1	0%	0%	-64%	-92%	-78%
Forest Glen	75	56	47	58	41	39	0%	1%	**-23%**	**-27%**	**-17%**
Glenmont	3,236	1,973	1,279	1,923	1,159	890	19%	19%	**-41%**	**-41%**	**-30%**
Kemp Mill	717	312	206	465	140	129	4%	5%	**-35%**	-55%	**-37%**
Layhill	492	298	181	231	136	110	3%	2%	-53%	-54%	-39%
Leisure World	372	186	143	193	124	95	2%	2%	-48%	**-33%**	**-34%**
North Kensington	461	281	241	250	157	141	3%	2%	**-46%**	**-44%**	-41%
Olney	486	241	242	312	190	165	3%	3%	**-36%**	**-21%**	**-32%**
Rockville city	61	38	17	47	27	20	0%	0%	**-23%**	**-29%**	**18%**
South Kensington	6	4	3	3	3	2	0%	0%	**-46%**	**-25%**	-42%
Wheaton	7,102	5,284	3,705	4,647	3,113	2,571	42%	45%	**-35%**	**-41%**	**-31%**
Undefined	70	40	36	26	17	11	0%	0%	-62%	-57%	-70%
Subarea Total	**16,922**	**11,403**	**7,899**	**10,292**	**6,522**	**5,273**	**18%**	**21%**	**-39%**	**-43%**	**-33%**

Note: Green text indicates percent change less than the county average between 2019 and 2021.

Ridership by Corridor

Transit corridors with high ridership in the Wheaton-Aspen Hill-Olney subarea include Georgia Ave., Veirs Mill Rd., and University Blvd. Average weekday boardings by stop was used as the basis for analyzing corridor ridership. The stops with the highest ridership generally tended to occur at major stops like Metro stations, transit centers, activity centers and intersections with transfer opportunities. Stops were considered 'along' the corridor if they were within 0.2 miles from the route pattern. **Figure 33** illustrates high ridership corridors.

The northbound **Georgia Ave. Corridor** stretches 10.7 miles from Heritage Hills Dr. in Tanterra to Dennis Ave. where it extends into the Silver Spring-Burtonsville subarea. The corridor had a ridership of 860 passengers per mile, the second highest ridership density in the subarea. The corridor had the highest share of total subarea ridership, at 54 percent, and rose to 57 percent in 2021, remaining the highest in the subarea. As the longest corridor in the subarea, Georgia Ave. interacts with every other major corridor. While the corridor acts as a commuter-path, serving the Red Line Metro Stations and Olney's park & rides, the corridor also serves commercial areas. Thus, even though commuter hubs experienced a decrease in ridership share, commercial hubs were able to offset the corridor's ridership loss. Ridership is especially high from Bonifant Rd. to Hewitt Ave., and from Layhill Rd. to Dennis Ave.

The short northwest-bound **Veirs Mill Rd**. **Corridor** spans 1.7 miles from Georgia Ave. to Connecticut Ave., where it extends into the Bethesda subarea. The corridor had a ridership density of 3,250 boardings

per mile, the highest in the subarea. The corridor's share of subarea ridership rose from 32 percent to 34 percent between 2019 and 2021, remaining at the second highest in the county. Like Randolph Rd., Veirs Mill Rd. can serve as a feeder between non-adjacent Metro Stations on the Red Line, namely Wheaton and Rockville Metro Stations. However, the corridor's distance from the District along with its numerous intersections adjacent to commercial centers allowed the corridor to avoid the decline associated with commute-based travel patterns. The corridor's share of ridership also increased in the Bethesda-Potomac subarea, though it observed a lower boarding density.

The westbound **University Blvd. Corridor** stretches 3.7 miles from Connecticut Ave. in the Bethesda-Potomac subarea to Dennis Ave., where it extends into the Silver Spring-Burtonsville subarea. The corridor had a ridership of 740 boardings per mile, the third highest ridership density in the subarea. The share of total subarea ridership was 16 percent, slightly increasing to 18 percent in 2021, and remained at the third highest share of the subarea total. The corridor has high ridership at intersections with Veirs Mill Rd., Georgia Ave., Inwood Ave., and Gabel St.

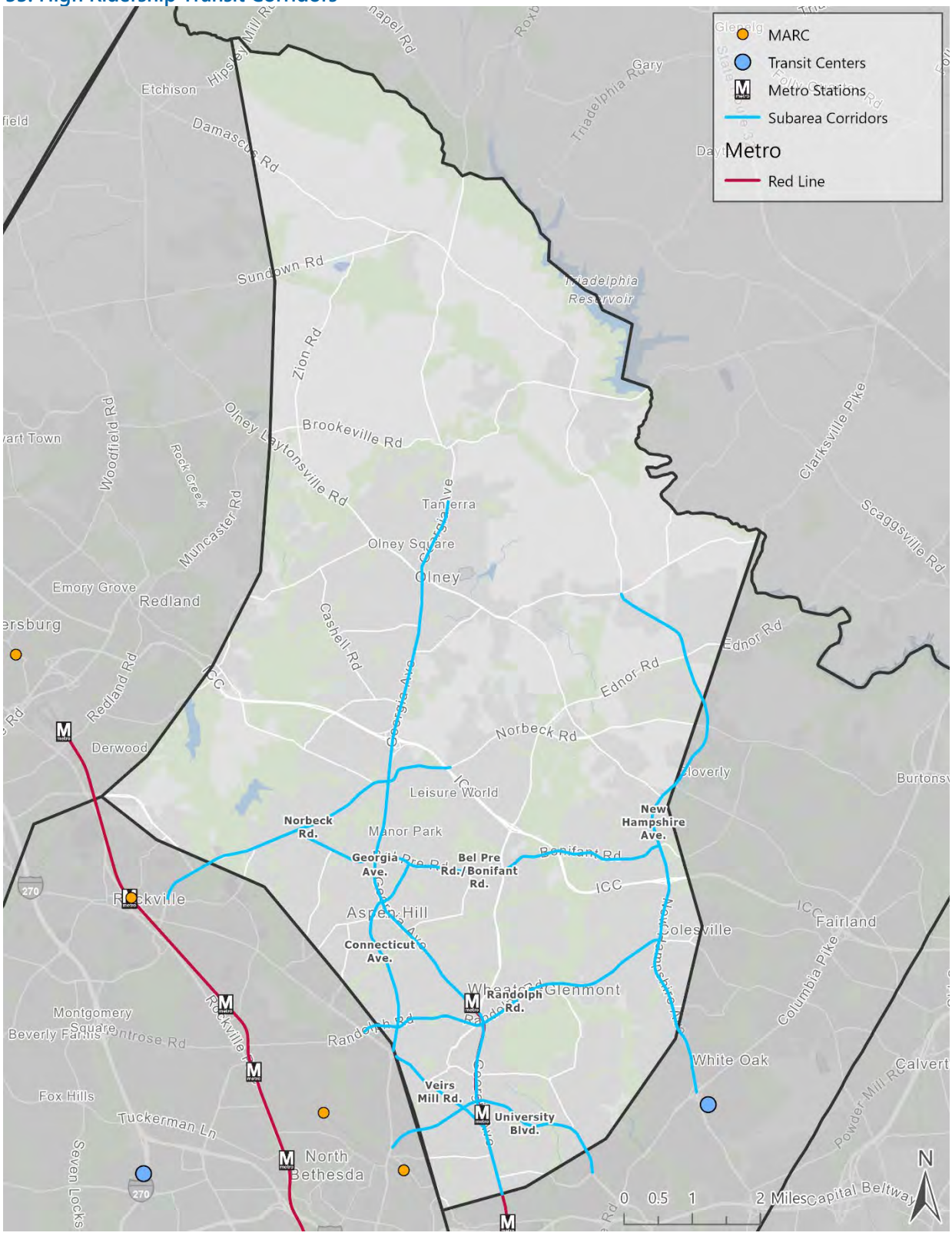
The westbound **Randolph Rd. Corridor** stretches 4.8 miles from New Hampshire Ave. to Veirs Mill Rd. where it extends into the Bethesda-Potomac subarea. The corridor had a ridership of 570 riders per mile, the fifth highest ridership density in the subarea. The share of total ridership slightly increased from 16 percent to 17 percent between 2019 and 2021. While the bulk of its ridership boards at Twinbrook and Glenmont Metro Stations, intersections at Veirs Mill Rd., Connecticut Ave., and Dalewood St. between the two stations also see significant ridership.

The northbound **Connecticut Ave. Corridor** stretches 3 miles from Bel Pre Rd. to Veirs Mill Rd., where it extends into the Bethesda-Potomac subarea. The corridor had 730 boardings per mile in 2019, the fourth highest in the subarea. The share of subarea ridership remained similar at around 13 percent between 2019 and 2021. The corridor provides connections to high ridership intersections at Randolph Rd., Georgia Ave., and Bel Pre Rd.

The westbound **Bel Pre Rd./Bonifant Rd. Corridor** stretches 5.7 miles from New Hampshire Ave. to Norbeck Rd. The corridor hosted 310 boardings per mile in 2019. The share of total subarea ridership decreased slightly from 10 percent to nine percent between 2019 and 2021. Most boardings are between Layhill Rd. and Georgia Ave.

Corridors with a boarding density of 60 boardings per mile or fewer and a ridership share of three percent or less include **New Hampshire Ave.** and **Norbeck Rd**.

Figure 33: High Ridership Transit Corridors



Ridership by Key Hubs

Table 33 provides ridership activity by key hub locations. A stop was considered in proximity of the key location if it is within 0.2 miles. All Metro and MARC stations, transit centers, and park and rides were considered key locations. Shopping centers, government facilities, and college campuses were selected based on high ridership and breadth of geography, so that boardings would not be double counted between locations.

Across almost all key hubs, ridership fell between 2019 and 2021. In general, shifts in ridership levels between 2019 and 2021 at different key hubs indicate a larger decrease in trips for commuting compared to trips for shopping Wheaton and Glenmont Metro Stations, which act as commuter hubs that connect to the District, each experienced a decrease in ridership shares on weekdays and Saturdays. Hubs at shopping centers did not experience as much ridership loss compared to the Metro Stations. In fact, Northgate Plaza, Wheaton Park, and Aspen Manor all experienced minor increases in subarea ridership share on weekdays.

Table 33: Ridership Activity by Key Hub

Name	Type	Weekday Boardings (% of total)		Saturday Boardings (% of total)		Sunday Boardings (% of total)	
		2019	2021	2019	2021	2019	2021
Wheaton Metro Station	Metro Station	3,380 (20.0%)	1,840 (17.9%)	2,690 (23.6%)	1,420 (21.7%)	1,850 (23.5%)	1,150 (21.8%)
Glenmont Metro Station	Metro Station	2,260 (13.3%)	1,280 (12.5%)	1,430 (12.6%)	820 (12.5%)	940 (11.8%)	650 (12.4%)
Northgate Plaza	Shopping Center	680 (4.0%)	450 (4.4%)	650 (5.7%)	360 (5.5%)	480 (6.1%)	280 (5.4%)
Layhill Shopping Center	Shopping Center	380 (2.2%)	200 (1.9%)	220 (2.0%)	120 (1.8%)	140 (1.8%)	100 (1.8%)
Wheaton Park Shopping Center	Shopping Center	290 (1.7%)	200 (1.9%)	210 (1.8%)	130 (2.1%)	150 (1.9%)	110 (2.1%)
Wheaton High School	High School	270 (1.6%)	220 (2.2%)	70 (0.7%)	50 (0.8%)	40 (0.4%)	20 (0.5%)
Aspen Manor	Shopping Center	260 (1.5%)	200 (1.9%)	210 (1.8%)	150 (2.3%)	150 (2.0%)	130 (2.5%)
Olney Town Center South	Shopping Center	190 (1.1%)	130 (1.3%)	140 (1.2%)	110 (1.6%)	140 (1.7%)	90 (1.7%)
Colesville Center	Shopping Center	160 (0.9%)	60 (0.6%)	80 (0.7%)	50 (0.7%)	40 (0.5%)	20 (0.3%)
Rock Creek Village Shopping Center	Shopping Center	150 (0.9%)	70 (0.7%)	90 (0.8%)	40 (0.6%)	60 (0.7%)	40 (0.7%)
Leisure World Plaza	Amusement Park	150 (0.9%)	100 (1.0%)	80 (0.7%)	50 (0.8%)	60 (0.8%)	50 (1.0%)
MedStar Montgomery Medical Center	Hospital	80 (0.5%)	60 (0.6%)	40 (0.4%)	40 (0.7%)	60 (0.7%)	40 (0.8%)
Yeshiva College of the Nation's Capital	College Campus	70 (0.4%)	30 (0.3%)	30 (0.2%)	10 (0.2%)	20 (0.3%)	10 (0.2%)

Name	Type	Weekday Boardings (% of total)		Saturday Boardings (% of total)		Sunday Boardings (% of total)	
		2019	2021	2019	2021	2019	2021
Norbeck Road Park & Ride	Park & Ride	40 (0.2%)	30 (0.3%)	30 (0.2%)	20 (0.2%)	10 (0.2%)	20 (0.3%)
Georgia Ave. - ICC Park & Ride	Park & Ride	20 (0.1%)	30 (0.3%)	< 5 (0.0%)	< 5 (0.0%)	< 5 (0.0%)	< 5 (0.0%)
Old Silo Inn Shopping Center	Shopping Center	20 (0.1%)	10 (0.1%)	10 (0.1%)	10 (0.2%)	20 (0.2%)	10 (0.2%)
Ashton Village	Shopping Center	10 (0.1%)	10 (0.1%)	< 5 (0.0%)	< 5 (0.0%)	< 5 (0.0%)	< 5 (0.0%)

Figure 34: 2019 Weekday Ridership by Stop

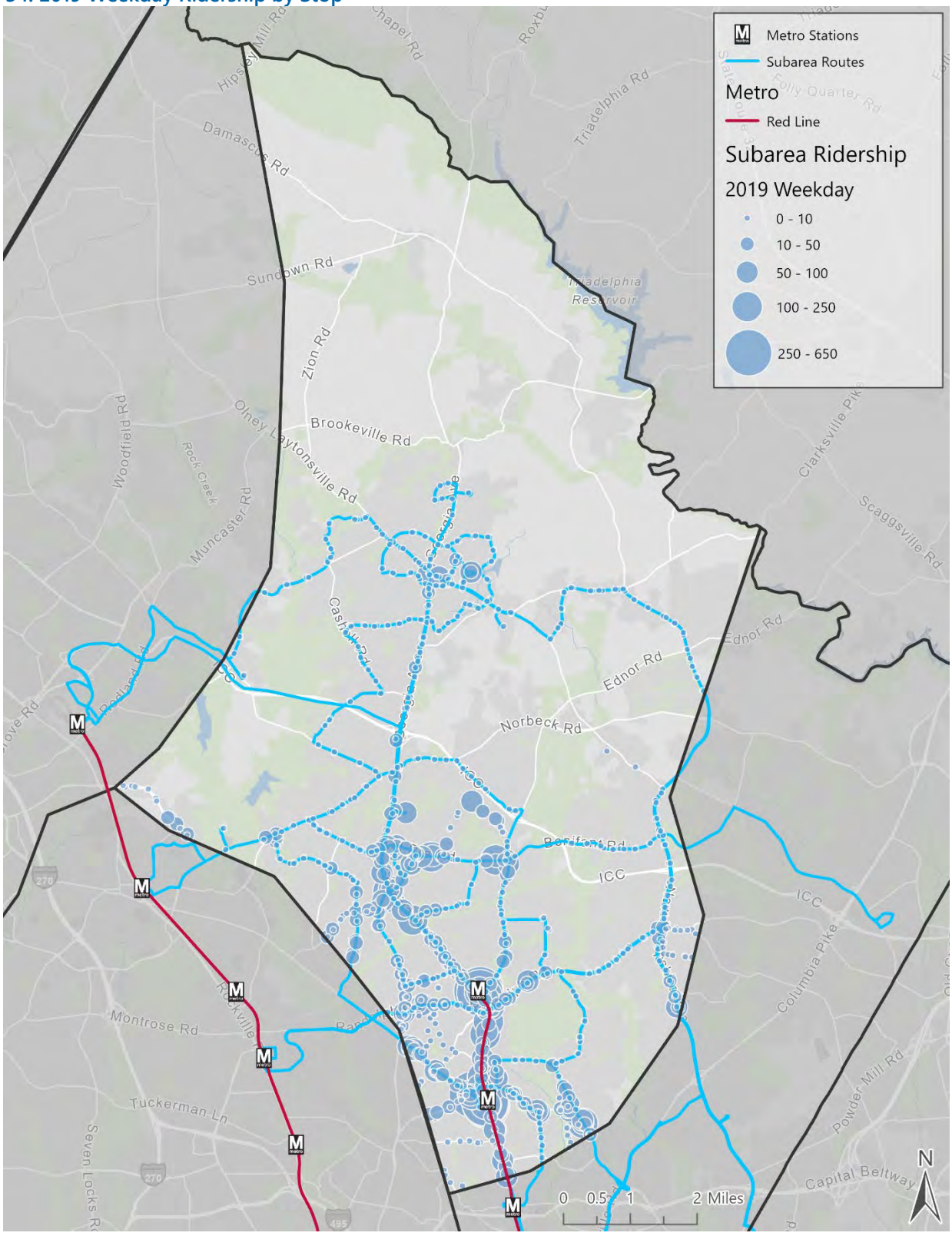


Figure 35: 2019 Saturday Ridership by Stop

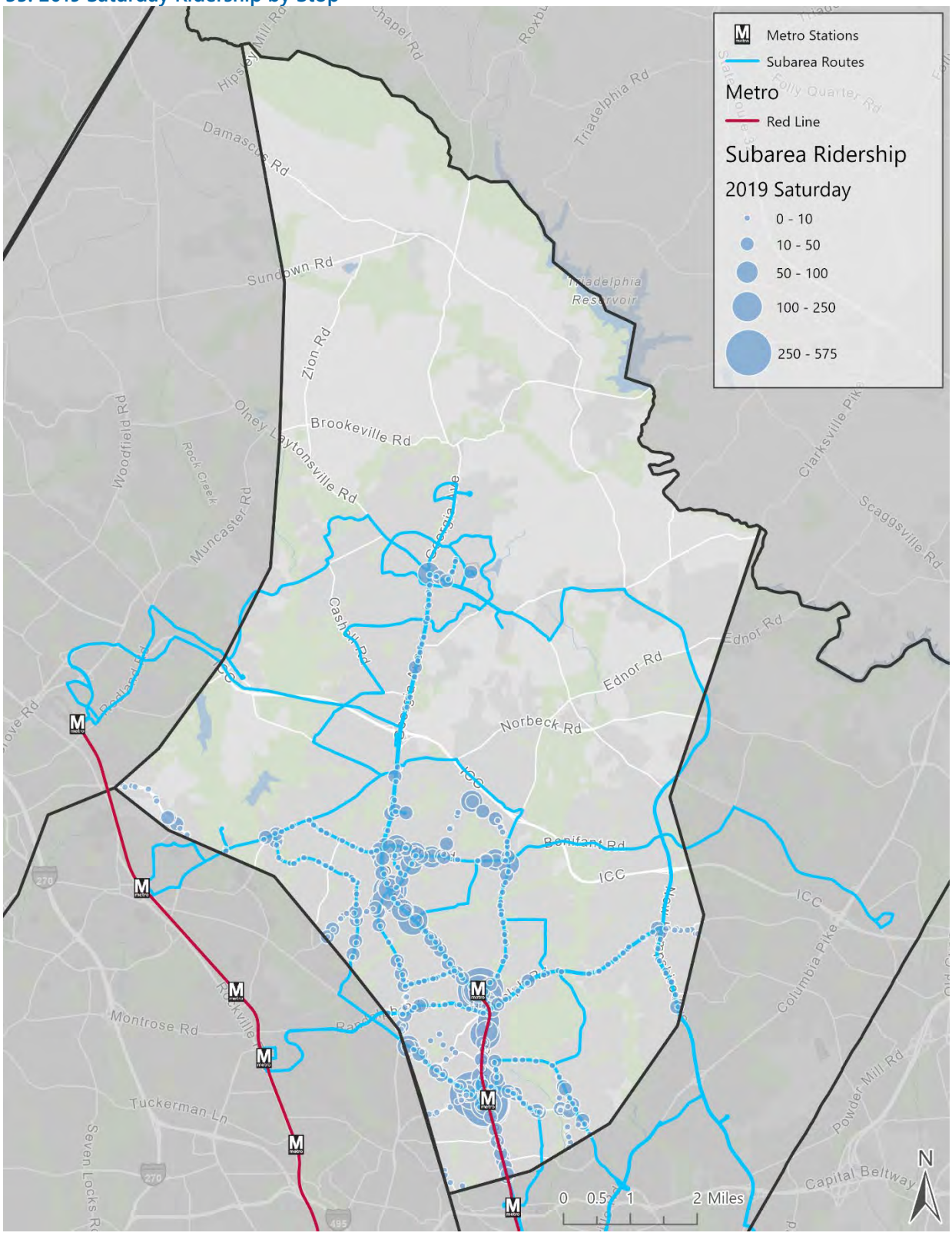
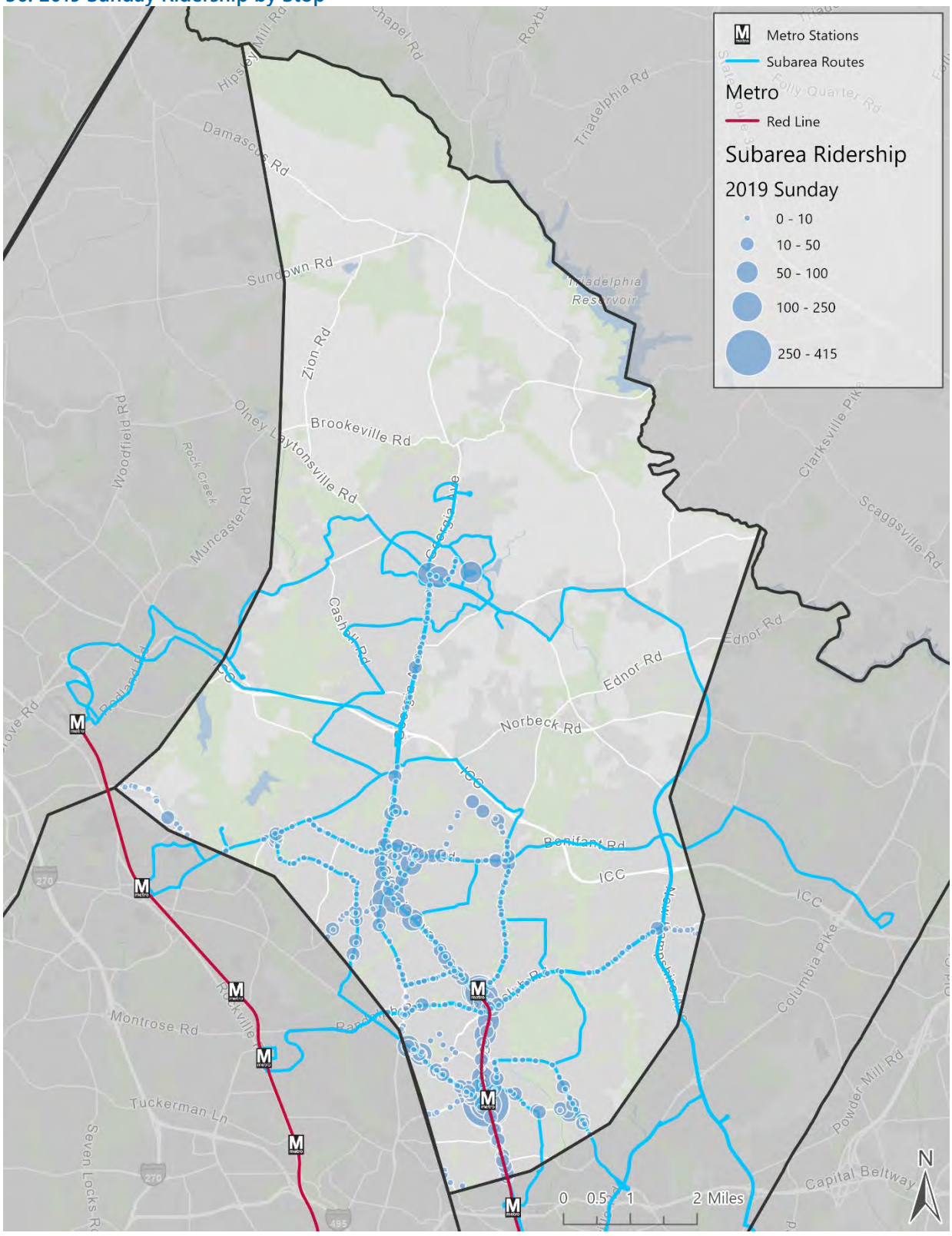


Figure 36: 2019 Sunday Ridership by Stop



Route Performance

Table 34 through **Table 36** provide key performance indicators (KPIs) for the Wheaton-Aspen Hill-Olney subarea routes for weekdays, Saturdays, and Sundays in 2019. The tables are sorted by daily boardings and color coded by quartile for all KPIs except on-time performance. On-time performance (OTP) is color coded by adherence to Ride On's on-time performance definition. Route quartiles and rankings are calculated based on route type for all Montgomery County bus routes. The KPIs are defined below along with key findings:

- **Daily Boardings** measures productivity in terms of passenger boardings per day. The Wheaton-Aspen Hill-Olney subarea is served by several top-performing routes, while the remainder operate in the bottom half of their respective service categories. Of the 13 routes serving the subarea, four perform within the top quartile on weekdays and one route performs within the top quartile on Saturday. Five subarea routes carry more than 1,000 weekday passengers, including Metrobus routes Y2/7/8 and C8 and Ride On local routes 48, 49, and 9. The Metro Y line, serving the Georgia Avenue corridor between Silver Spring and Olney, carries over 6,000 weekday passengers and is the second-most productive route in the county. These high-performing routes tend to serve major corridors with direct alignments, connect to Metrorail stations, offer frequent service, and operate long service spans, seven days per week. Outside of these top-performing routes, the remainder of the subarea routes tend to generate low ridership. Except for Route 41, each of these routes operates low-frequency, peak-only service on weekdays.
- **Service efficiency measures ridership per unit of resource investment.** Service efficiency KPIs include passengers per vehicle revenue hour (Pax/VRH), passengers per vehicle revenue mile (Pax/VRM), and passengers per one-way bus trip (Pax/Trip). Three of Ride On's most efficient local routes serve the subarea, including routes 48, 49, and 9. Route 48 connects the Wheaton and Rockville Metrorail stations via the Viers Mill Rd., Bauer Dr., and Norbeck Rd. corridors. Route 49 connects the Glenmont and Rockville Metrorail stations via the Layhill Rd., Bel Pre Rd., and Norbeck Rd. corridors. Route 9 connects three key employment and retail centers at Wheaton, Four Corners, and Silver Spring via the Arcola Rd., University Blvd., and Colesville Rd. corridors. Outside of these top performing routes, the remainder of the subarea routes tend to perform poorly on weekdays. On weekends, the 48 and 49 operate among the top tier of local routes on Saturdays, while all subarea routes tend to be less efficient on Sundays relative to their respective service categories.
- **Financial performance measures return on investment.** Financial performance KPIs include cost recovery (Cost Rec.), which is the ratio between fare revenue collected and operating cost and subsidy per passenger (Sub/Pax) which is net operating cost (operating cost minus fare revenue) per passenger boardings. The most efficient routes tend to also exhibit the strongest cost recovery ratios and lowest subsidies per passenger.
- **On-Time Performance (OTP)** measures reliability in terms of the percentage of bus trips that depart within Ride On's established definition of "on-time" (between one minute early and five minutes late). Weekday on-time performance tends to be poor for most subarea routes. On weekdays, eight subarea routes exceed Ride On's on-time target of 85 percent and four are below five percent of the target. Three routes exceed the target on Saturdays

and Sundays. The three Metro routes register the lowest on-time performance across all days of the week, which is likely attributed to several factors including the congested corridors they serve, high ridership volume on the Y-series and C8 routes, and relatively long route alignments. Route 9 is the only route that is significantly below target on weekdays and Saturdays, likely due to the same reasons as noted above for the Metro routes.

Table 34: Weekday Route Key Performance Indicators (2019)

Route	Route Description	Route Type	Boardings		Pax/VRH		Pax/VRM		Pax/Trip		Cost Rec.		Sub./Pax		On-time performance	
			Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank
Y2,7,8[1]	Georgia Ave-Maryland	Metrobus	6,333	2 / 12	31.8	5 / 12	3	6 / 12	37.9	3 / 12	21%	7 / 12	$2.95	6 / 12	63%	4 / 12
C8	College Park-White Flint	Metrobus	2,302	8 / 12	25.9	10 / 12	1.9	10 / 12	36.5	5 / 12	18%	11 / 12	$3.79	10 / 12	54%	7 / 12
48	Wheaton-Bauer Dr.-Rockville	Local	1,796	11 / 63	25.7	12 / 63	2.2	14 / 63	20.2	9 / 63	29%	9 / 63	$2.43	9 / 63	89%	21 / 63
49	Glenmont-Layhill-Rockville	Local	1,691	12 / 63	27.5	4 / 63	2.2	16 / 63	19	12 / 63	31%	4 / 63	$2.20	4 / 63	90%	17 / 63
9	Wheaton-Four Corners-Silver Spring	Local	1,530	15 / 63	30.2	3 / 63	2.9	4 / 63	18.9	13 / 63	33%	3 / 63	$2.02	3 / 63	78%	60 / 63
Z2	Colesville-Ashton	Metrobus	755	11 / 12	21	12 / 12	1.3	12 / 12	22.2	11 / 12	13%	12 / 12	$4.96	12 / 12	48%	12 / 12
41	Aspen Hill-Weller Rd.-Glenmont	Local	516	38 / 63	16.4	36 / 63	1.9	24 / 63	7.5	48 / 63	17%	37 / 63	$4.83	37 / 63	91%	15 / 63
39	Briggs Chaney-Glenmont	Local	258	49 / 63	13.9	41 / 63	0.8	50 / 63	7.8	45 / 63	15%	40 / 63	$5.49	40 / 63	86%	35 / 63
53	Shady Grove-MGH-Olney-Glenmont	Limited	255	6 / 8	7.4	7 / 8	0.4	8 / 8	8.2	7 / 8	8%	7 / 8	$11.33	7 / 8	84%	6 / 8
51	Norbeck P&R-Hewitt Ave.-Glenmont	Local	240	51 / 63	17	34 / 63	1.3	40 / 63	8.6	40 / 63	17%	35 / 63	$4.74	35 / 63	91%	13 / 63
52	MGH-Olney-Rockville	Local	120	58 / 63	7.6	61 / 63	0.5	61 / 63	5.7	55 / 63	8%	60 / 63	$11.66	60 / 63	85%	42 / 63
31	Glenmont-Kemp Mill Rd.-Wheaton	Local	95	60 / 63	7.7	60 / 63	0.6	58 / 63	4.3	61 / 63	7%	61 / 63	$12.48	61 / 63	86%	38 / 63
7	Forest Glen-Wheaton	Local	57	63 / 63	9.8	53 / 63	1.4	36 / 63	4.7	60 / 63	9%	58 / 63	$9.71	58 / 63	96%	1 / 63

Note:
1. Operating data provided by Metro for routes Y2, Y7, and Y8 were reported as a single route.

KPI Quartile Ranking				OTP Ranking		
Top 25%	50-75%	25-50%	Bottom 25%	>= 85%	80-85%	<80%

Table 35: Saturday Route Key Performance Indicators (2019)

Route	Route Description	Route Type	Boardings		Pax/VRH		Pax/VRM		Pax/Trip		Cost Rec.		Sub./Pax		On-time performance	
			Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank
Y2,8[1]	Georgia Ave-Maryland	Metrobus	4,286	4 / 9	36	2 / 9	3	3 / 9	41.6	1 / 9	20%	4 / 9	$2.66	2 / 9	51%	9 / 9
C8	College Park-White Flint	Metrobus	1,324	9 / 9	17.9	9 / 9	1.2	9 / 9	21.4	9 / 9	10%	9 / 9	$6.01	9 / 9	55%	7 / 9
48	Wheaton-Bauer Dr.-Rockville	Local	1,290	9 / 42	26.8	2 / 42	2.2	5 / 42	19.9	5 / 42	32%	2 / 42	$2.16	2 / 42	89%	14 / 42
49	Glenmont-Layhill-Rockville	Local	958	14 / 42	26.3	4 / 42	1.7	15 / 42	14.7	14 / 42	30%	4 / 42	$2.35	4 / 42	94%	2 / 42
9	Wheaton-Four Corners-Silver Spring	Local	542	26 / 42	15.1	24 / 42	1.4	19 / 42	9.2	27 / 42	17%	25 / 42	$4.81	25 / 42	77%	39 / 42
41	Aspen Hill-Weller Rd.-Glenmont	Local	485	27 / 42	18	15 / 42	2	11 / 42	7.7	30 / 42	19%	19 / 42	$4.22	19 / 42	93%	6 / 42

Note:
1. Operating data provided by Metro for routes Y2 and Y8 were reported as a single route.

KPI Quartile Ranking				OTP Ranking		
Top 25%	50-75%	25-50%	Bottom 25%	>= 85%	80-85%	<80%

Table 36: Sunday Route Key Performance Indicators (2019)

Route	Route Description	Route Type	Boardings		Pax/VRH		Pax/VRM		Pax/Trip		Cost Rec.		Sub./Pax		On-time performance	
			Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank
Y2,7,8[1]	Georgia Ave-Maryland	Metrobus	3,340	2 / 7	29.8	3 / 7	2.4	3 / 7	33.7	1 / 7	20%	2 / 7	$3.18	3 / 7	69%	3 / 7
48	Wheaton-Bauer Dr.-Rockville	Local	686	15 / 33	17.9	12 / 33	1.4	17 / 33	12.7	13 / 33	21%	12 / 33	$3.97	12 / 33	88%	16 / 33
49	Glenmont-Lay hill-Rockville	Local	678	17 / 33	18.7	11 / 33	1.4	20 / 33	11.7	16 / 33	22%	10 / 33	$3.73	10 / 33	85%	23 / 33
9	Wheaton-Four Corners-Silver Spring	Local	609	20 / 33	17.3	13 / 33	1.7	10 / 33	11.3	19 / 33	20%	13 / 33	$4.18	13 / 33	88%	15 / 33
41	Aspen Hill-Weller Rd.-Glenmont	Local	226	29 / 33	13.5	22 / 33	1.6	14 / 33	6.1	28 / 33	13%	24 / 33	$6.91	24 / 33	85%	22 / 33

Note:
1. Operating data provided by Metro for routes Y2, Y7, and Y8 were reported as a single route.

KPI Quartile Ranking				OTP Ranking		
Top 25%	50-75%	25-50%	Bottom 25%	>= 85%	80-85%	<80%

Wheaton-Aspen Hill-Olney Subarea Conclusions

- The Wheaton-Aspen Hill-Olney subarea generates about 17,000 average weekday riders, or about one fifth of the county's overall ridership production. Ridership is densest south of Norbeck Rd. and is oriented along major corridors within the Wheaton, Glenmont, and Aspen Hill communities. Outside of small pockets of ridership in Olney and Sandy Spring, ridership is sparse in the northern part of the subarea. These patterns are consistent with the lower-density, residential land uses in this area.
- Overall, the areas with the highest transit propensity are generally well-served by the existing transit network. However, there are a few neighborhoods with higher transit propensity scores and low transit accessibility and/or service levels. These include the residential neighborhoods near the Intercounty Connector within the Leisure World, Layhill, and Colesville communities and a smaller pocket in Kemp Mill.
- Performance is mixed among the subarea routes. Seven of the subarea's 15 primary routes carry more than 1,000 passengers per day and have at least one KPI in the top quartile, while the remaining eight routes perform in the bottom two quartiles for most metrics. The top performing routes serve major corridors with direct alignments, connect to Metrorail stations, offer frequent service, and operate long service spans, seven days per week. The lower-performing routes generally operate low-frequency, peak-only service on weekdays.

Silver Spring-Burtonsville Subarea

Subarea Overview

The Silver Spring-Burtonsville subarea covers the far eastern portion of Montgomery County. The subarea's western border extends along a line that generally parallels I-495, Columbia Pike, and New Hampshire Avenue. The Montgomery County line adjacent to Washington, D.C., Prince George's County, and Howard County forms the southern, eastern, and northern borders, respectively. The subarea covers approximately 42 square miles and contains the communities of Silver Spring, Takoma Park, White Oak, and Colesville-Burtonsville.

As shown in **Table 37** and **Figure 37**, the subarea is served by 26 primary bus routes, including 18 operated by Ride On and eight operated by Metro [1]. The network is oriented to major hubs including the Silver Spring Transit Center, White Oak Transit Center, and Takoma Langley Crossroads Transit Center. Major corridors including Columbia Pike, New Hampshire Avenue, University Boulevard, and Georgia Avenue are generally served by line haul routes operated by Metro. Ride On's first BRT line, the FLASH, operates between Silver Spring and Burtonsville along Columbia Pike. Ride On's local routes serve other major arterials and provide local feeder service to Metrorail stations, transit centers, and park-and-ride lots. Service levels for each route are summarized in **Figure 38**.

[1] Primary bus routes were assigned based on route miles within each subarea. Routes with shorter segments within the subarea are documented in other subarea profiles.

Table 37: Silver Spring-Burtonsville Subarea Routes

Route		Service Category
FLASH	FLASH-Silver Spring-Burtonsville	BRT
2	Silver Spring-Lyttonsville	Local
8	Silver Spring-Wheaton	Local
10	Twinbrook Station-Hillandale	Local
12	Silver Spring-Takoma	Local
13	Silver Spring-Takoma	Local
14	Silver Spring-Takoma	Local
15	Silver Spring-Langley Park	Local
16	Silver Spring-Takoma	Local
17	Silver Spring-Langley Park	Local
18	Silver Spring -Takoma -Langley	Local
19	Silver Spring-Northwood	Local
20	Silver Spring-Hillandale	Local
21	Silver Spring-Briggs Chaney P&R	Local
22	Silver Spring-Hillandale	Local
24	Hillandale-Takoma	Local
25	Takoma Station-Langley Park	Local
28	Silver Spring VanGo Shuttle	Loop
C2	Greenbelt-Twinbrook	Metrobus
C4	Greenbelt-Twinbrook	Metrobus
F4	New Carrollton-Silver Spring Ln.	Metrobus
K6	New Hampshire Ave-Maryland	Metrobus
K9	New Hampshire Ave-Md Limited Ln.	Metrobus
Z6	Calverton-Westfarm	Metrobus
Z7	Laurel-Burtonsville Express	Metrobus
Z8	Fairland	Metrobus

Figure 37: Silver Spring-Burtonsville Subarea Bus Routes

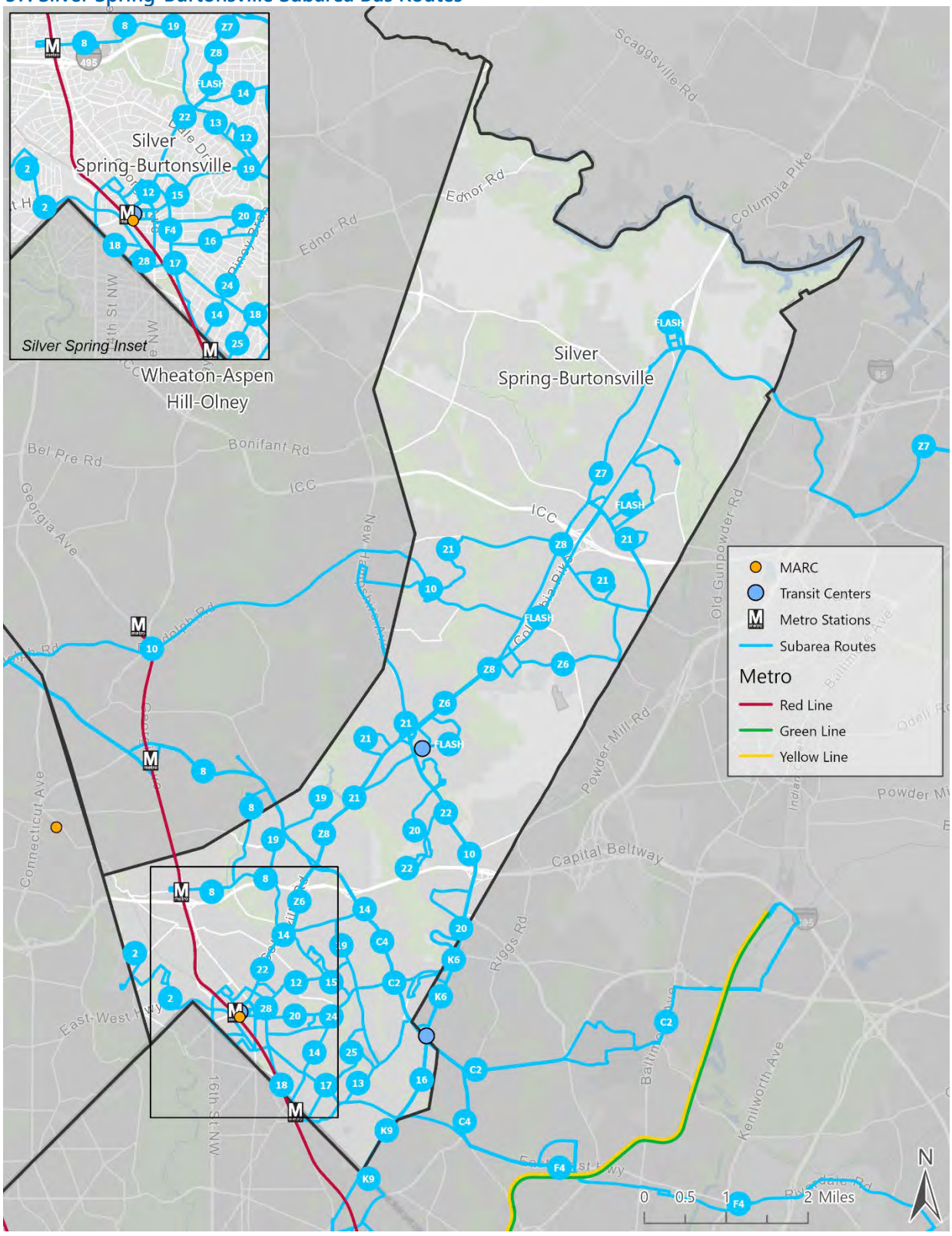
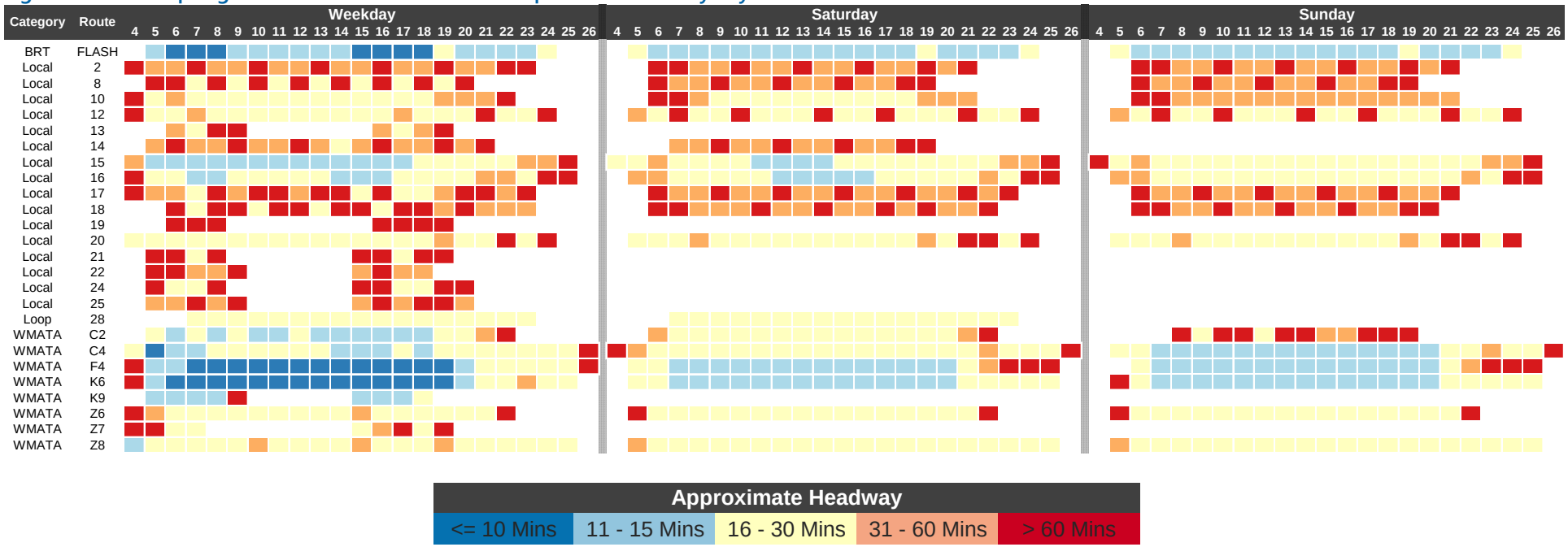


Figure 38: Silver Spring-Burtonsville Subarea Service Span and Headways by Route



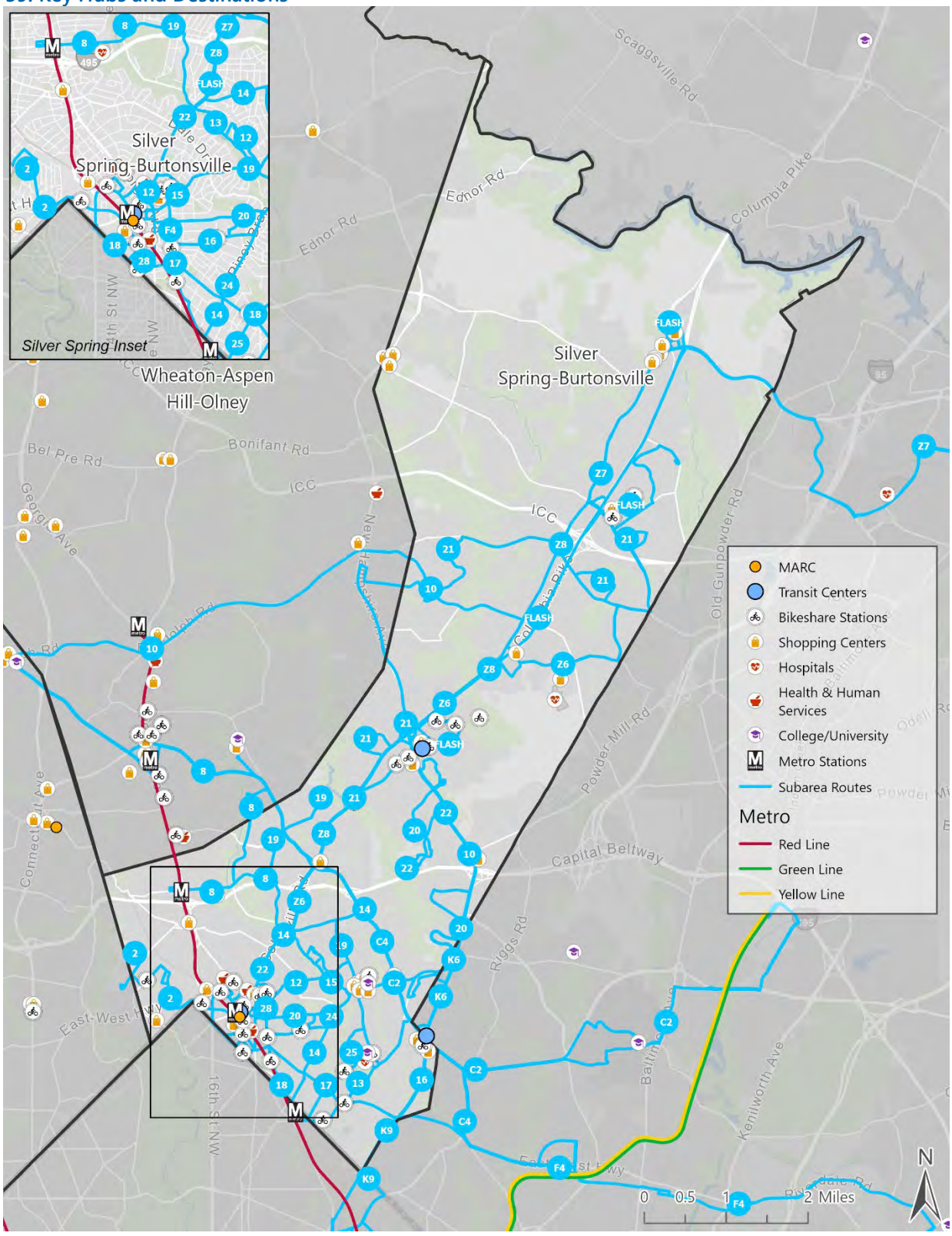
Key Transit Hubs & Destinations

Table 38 and **Figure 39** present key transit hubs, park-and-ride lots, and major destinations within the subarea. Most of the highest ridership locations in the subarea are located at key transfer facilities that provide connections to regional commuter rail and bus services operated by Metro and MARC and local bus services operated by Ride On, Metro, and Prince George's County. Other key destinations in the subarea include major shopping centers, Montgomery College, and the FDA Headquarters.

Table 38: Key Transit Hubs & High Ridership Destinations

Name	Type	Routes Served	2019 Weekday Ridership (% of Total)
Silver Spring Metro Station	Metro Station	2, 4, 8, 11, 12, 13, 14, 15, 16, 18, 20, 21, 28, 129, J1, J2, J4, Y2, Q1, Q2, Q4, Q5, Q6, Y7, Y8, Z6, Z7, Z8, Z11	7,060 (23.5%)
Takoma Langley Crossroads Transit Center	Transit Center	15, 16, 17, 18, 25, C2, C4, F8, J4, K6, K9	2,240 (7.5%)
White Oak Transit Center	Transit Center	10, 22, 129, C8, K6, Z6, Z8	1,640 (5.5%)
Woodmoor Shopping Center	Shopping Center	19, 21, 129, 401, C2, C4, L8, Z6, Z11	1,390 (4.6%)
Long Branch Shopping Center	Shopping Center	14, 15, 16, C2, C4, L8, J4	1,130 (3.8%)
Flower Center	Shopping Center	12, 14, 15, J4	960 (3.2%)
Hillandale Shopping Center	Shopping Center	16, F4, K6	730 (2.4%)
Takoma Park Shopping Center	Shopping Center	10, 20, C8	580 (1.9%)
Montgomery College	College Campus	17, 18, F4	380 (1.3%)
Tech Road Park & Ride	Park & Ride	10, Z8	260 (0.9%)
U.S. Food and Drug Administration	Government Facility	10, 22, C8, K9	190 (0.6%)
Seminary Place Shopping Center	Shopping Center	4, 5, Y2, Y7, Y8	180 (0.6%)
Forest Glen Metro Station	Metro Station	7, 8, Y2, Y7, Y8	160 (0.5%)
Burtonsville Park & Ride	Park & Ride	129, Z11, Z6	100 (0.3%)
Greencastle Rd Park & Ride	Park & Ride	Z11	60 (0.2%)
Briggs Chaney Park & Ride	Park & Ride	21, 39, 129, Z6, Z11	40 (0.1%)

Figure 39: Key Hubs and Destinations



Activity Density and Transit Propensity

In most urban settings, population and employment density are typically the most important factors that influence transit ridership. Potential ridership demand, or propensity, is also strongly driven by socioeconomic characteristics such as household income, race/ethnicity, and access to personal vehicles. **Table 39** presents key socioeconomic indicators for the Silver Spring-Burtonsville subarea. **Figure 40** depicts population and job density, and **Figure 41** depicts transit propensity relative to the quantity of transit service provided. Key findings include:

- The Silver Spring-Burtonsville subarea represents about eight percent of Montgomery County's total land area but contains nearly 20 percent of its total population and 14 percent of its total employment base, making it the densest subarea in the county. Areas with the highest activity densities include the Silver Spring and White Oak communities located in the southern third of the subarea, the Columbia Pike corridor, and the Fairland community along the eastern subarea border adjacent to Prince George's County. As shown in **Figure 40**, these areas are generally well served by the bus network.
- The subarea's socioeconomic indicators suggest a high degree of transit propensity. The subarea is home to about a quarter of the county's minority and low-income residents and nearly a third of zero-vehicle households. As a percentage of the total subarea population, 69 percent identify as racial minorities, 15 percent are below 150 percent of the federal poverty line, and seven percent have low or no English language proficiency. Moreover, 12 percent of households do not have access to a personal vehicle and about half of households are renters. In terms of commuting habits, 18 percent of subarea workers commute using transit and 13 percent work non-traditional hours. Except for senior and disabled populations, each subarea transit propensity indicator exceeds the county average in terms of both percentage of the overall population and density.
- As shown in **Figure 41**, the transit propensity indicators were compared to existing transit service levels to identify service gaps. While the densest areas are well served, there are a number of pockets marked by higher transit propensity and low or no transit service. These areas tend to be in lower density, residential neighborhoods, such as along the Maryland State Route 200 corridor between Columbia Pike and New Hampshire Avenue. The area northeast of White Oak has above average TPI scores and low/no service. The area is served by Routes Z6 and 10, however there is no service along Cherry Hill Road.

Table 39: Silver Spring-Burtonsville Subarea Socioeconomic Indicators

	Total Population, Households, & Jobs			Percent of Total Population & Households		Density (per acre)	
	Subarea	County	Subarea Share	Subarea	County	Subarea	County
Population							
Total Population	198,500	1,047,400	19%	--	--	**7.4**	3.2
Minority Population	137,700	595,800	23%	**69%**	57%	**5.2**	1.8
Youth Population (<18 years)	47,200	243,400	19%	**24%**	23%	**1.8**	0.8
Senior Population (>65 years)	25,700	162,400	16%	13%	16%	**1.0**	0.5
Disabled Population	6,400	37,400	17%	3%	4%	**0.2**	0.1
Population in Poverty (<150% FPL)	30,400	121,000	25%	**15%**	12%	**1.1**	0.4
Low or No English Proficiency	13,300	62,400	21%	**7%**	6%	**0.5**	0.2
Households							
Total Households	71,100	372,700	19%	--	100%	**2.7**	1.1
Zero Vehicle Households	8,200	28,100	29%	**12%**	8%	**0.3**	0.1
Single Vehicle Households	27,600	126,000	22%	**39%**	34%	**1.0**	0.4
Rental Households	34,700	128,100	27%	**49%**	34%	**1.3**	0.4
Commuting							
Total Commuters	107,300	549,800	20%	--	100%	**4.0**	1.7
Transit Commuters	19,200	71,700	27%	**18%**	13%	**0.7**	0.2
Workers with Non-Traditional Hours	13,500	56,600	24%	**13%**	10%	**0.5**	0.2
Employment							
Total Jobs	70,000	489,500	14%	--	--	**2.6**	1.5

Note: Green text indicates values greater than the county average.

Figure 40: Silver Spring-Burtonsville Subarea Activity Density

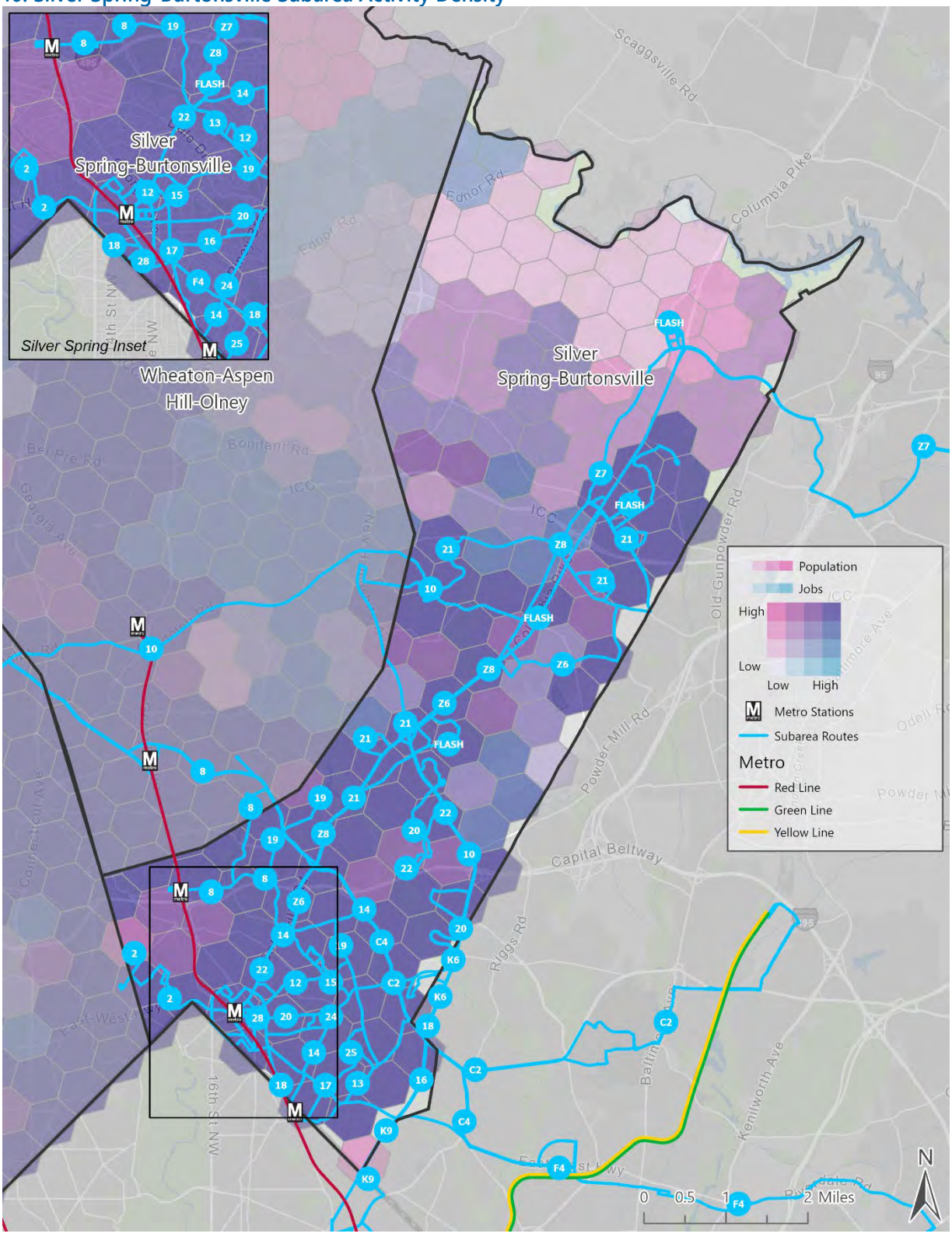
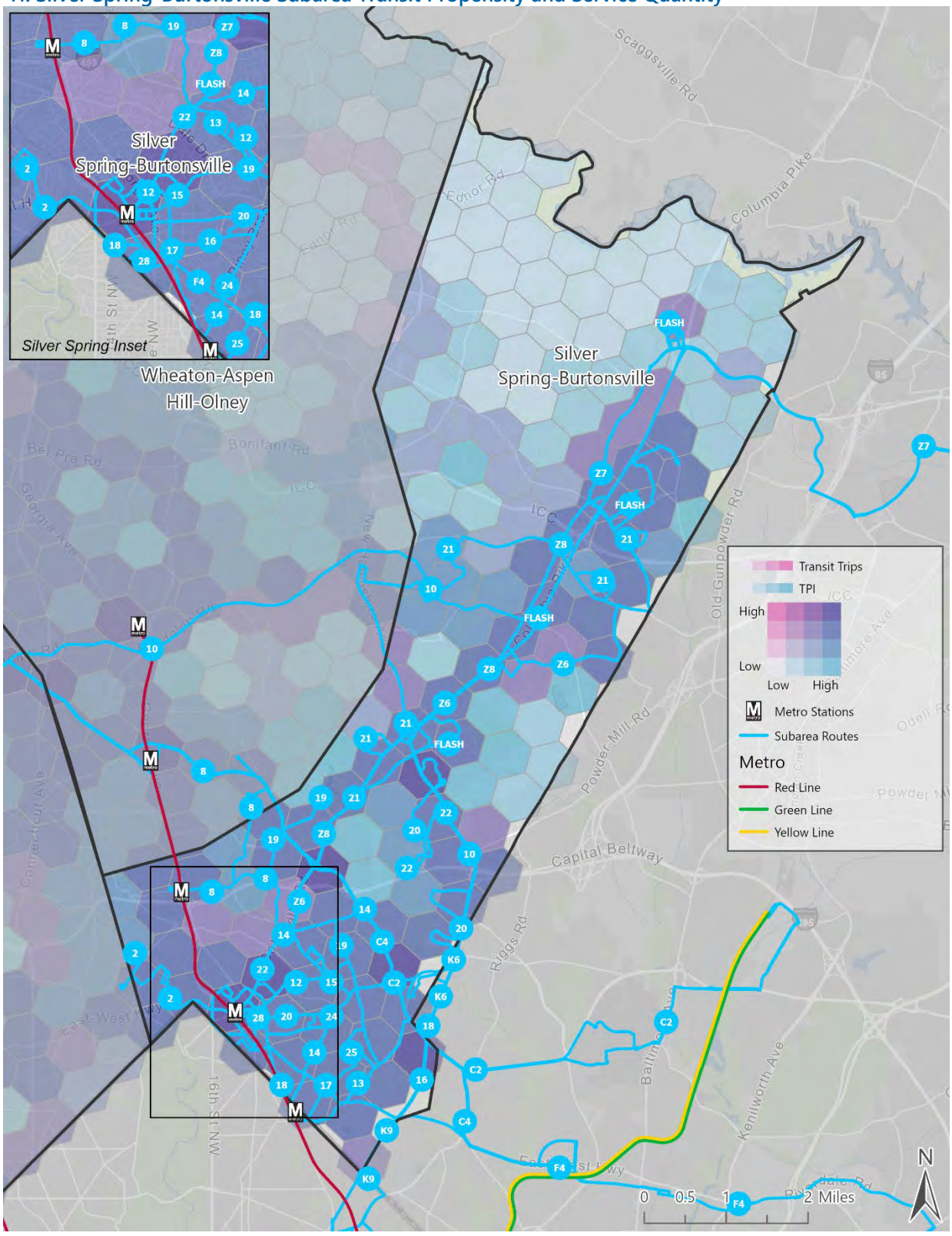


Figure 41: Silver Spring-Burtonsville Subarea Transit Propensity and Service Quantity



Ridership Productivity

Table 40 summarizes the subarea and countywide ridership activity for 2019 and 2021. **Figure 43** through **Figure 45** depict average daily stop-level ridership activity in 2019. In 2019, the Silver Spring-Burtonsville subarea produced 30,000 weekday bus boardings, 21,100 daily Saturday boardings, and 14,000 boardings on Sundays. This equates to about a third of the overall county ridership throughout the week. Weekday ridership decreased by 43 percent between 2019 and 2021, while Saturday and Sunday ridership decreased by 46 percent and 32 percent, respectively. However, the subarea fared better compared the rest of the county during the early years of the pandemic, seeing a slightly smaller decrease in ridership and gaining in overall market share across all days of the week.

Table 40: 2019 and 2021 Subarea and Countywide Ridership Activity

Geography	2019			2021			Percent Change		
Subarea	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Ons	30,043	21,098	14,050	17,066	11,310	9,522	-43%	-46%	-32%
Offs	25,244	18,040	11,870	15,332	10,234	8,503	-39%	-43%	-28%
Total	55,287	39,138	25,920	32,398	21,543	18,024	-41%	-45%	-30%
County Total	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Ons	94,730	61,375	40,975	49,706	30,989	25,754	-48%	-50%	-37%
Offs	165,223	108,829	72,339	87,894	55,279	45,951	-47%	-49%	-36%
Total	226,924	150,810	99,985	122,946	77,428	64,169	-46%	-49%	-36%
Subarea Share	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Ons	32%	34%	34%	34%	36%	37%	3%	2%	3%
Offs	15%	17%	16%	17%	19%	19%	2%	2%	2%
Total	24%	26%	26%	26%	28%	28%	2%	2%	2%

Ridership by Community

Ridership productivity was evaluated by community to determine the general distribution of transit demand throughout the subarea. **Table 41** presents the total ridership generated within each Census Designated Place (CDP) in 2019 and 2021. Census designated places are concentrations of population and generally coincide with incorporated municipalities or unincorporated neighborhoods. Key findings from the community-level ridership analysis are described below:

- The Silver Spring CDP generated nearly 60 percent of the subarea's weekday ridership in 2019, followed by Takoma Park (11 percent), White Oak (nine percent), Four Corners, and Fairland (five percent each). Collectively, these five communities represent nearly 90 percent of the subarea's total ridership.
- Of the nearly 18,000 daily boardings in the Silver Spring CDP, about two-thirds are generated within the downtown area. This large share of ridership, which equates to about 40 percent of the total countywide ridership, is attributed to the area's high population and

employment density and large volume of transfers occurring at the Silver Spring Transportation Center

- Three of the top five CDPs by ridership volume saw a less severe ridership decrease between 2019 and 2021 compared to the county average. These CDPs tend to have higher activity densities and TPI scores relative to the rest of the subarea.
- The share ridership remained stable in each CDP between 2019 and 2021, with no CDP increasing or decreasing its share by more than one percent.

Table 41: 2019 and 2021 Ridership Activity by Community

Community	2019 Total			2021 Total			Percent of Weekday Subarea Total		Percent Change 2019-2021		
	Wkdy	Sat	Sun	Wkdy	Sat	Sun	2019	2021	Wkdy	Sat	Sun
Burnt Mills	292	146	98	123	66	44	1%	1%	-58%	-55%	-55%
Burtonsville	151	0	0	60	0	0	1%	0%	-60%	--	--
Calverton	647	381	65	312	201	119	2%	2%	-52%	**-47%**	**84%**
Chillum	107	79	56	96	69	63	0%	1%	**-10%**	**-12%**	**13%**
Cloverly	66	0	0	25	0	0	0%	0%	-62%	--	--
Colesville	108	65	35	37	22	22	0%	0%	-66%	-66%	**-35%**
Fairland	1,391	747	610	661	393	298	5%	4%	-52%	**-47%**	-51%
Forest Glen	372	247	177	248	150	136	1%	1%	**-33%**	**-39%**	**-23%**
Four Corners	1,625	857	501	1,009	437	315	5%	6%	**-38%**	**-49%**	**-37%**
Hillandale	863	642	416	599	489	399	3%	4%	**-31%**	**-24%**	**-4%**
Kemp Mill	105	66	37	50	35	28	0%	0%	-53%	**-46%**	**-24%**
Langley Park	868	778	540	758	663	627	3%	4%	**-13%**	**-15%**	**16%**
Silver Spring	17,459	13,035	8,946	9,860	6,479	5,563	58%	58%	**-44%**	-50%	-38%
South Kensington	0	0	0	2	3	6	0%	0%	--	--	--
Spencerville	1	0	0	1	0	0	0%	0%	**78%**	--	--
Takoma Park	3,166	2,258	1,346	1,779	1,310	1,113	11%	10%	**-44%**	**-42%**	**-17%**
White Oak	2,821	1,800	1,226	1,448	991	787	9%	8%	-49%	**-45%**	**-36%**
Subarea Total	**30,043**	**21,098**	**14,050**	**17,066**	**11,310**	**9,522**	**32%**	**34%**	**-43%**	**-46%**	**-32%**

Note: Green text indicates percent change less than the county average between 2019 and 2021.

Ridership by Corridor

Transit corridors with high ridership in the Silver Spring-Burtonsville area include New Hampshire Ave, University Blvd., Georgia Ave, and Colesville Rd. Average weekday boardings by stop was used as the basis for analyzing corridor ridership. The stops with the highest ridership generally tended to occur at major stops like Metro stations, transit centers, and activity centers, but also at intersections with transfer opportunities. Stops were considered 'along' the corridor if they were within 0.2 miles from the route pattern.

The northbound **Colesville Rd. Corridor** stretches for 4.4 miles between East-West Hwy. and Stewart Ln., where local service ends. In 2019, the corridor experienced a boarding density of 2,710 per mile, the second highest in the subarea. Important nodes along the corridor include the Silver Spring area and Four Corners. The corridor had 40 percent of total subarea ridership share in 2019. Although it decreased to 37 percent in 2021, it remained the most productive route in the subarea. Notably, its high ridership productivity arises from its four intersections with East-West Hwy., Georgia Ave., University Blvd., and New Hampshire Ave., the highest number of corridor intersections in the subarea. This grants riders a significant number of transfer opportunities.

The northbound **New Hampshire Ave. Corridor** spans 5.8 miles, from Eastern Ave. on the D.C. border to Jackson Rd. where it extends into the Wheaton-Aspen Hill-Olney subarea. The segment between Metzerott Rd. and University Blvd. is omitted since it is outside the subarea boundary. In 2019, the corridor experienced a total of 1,300 boardings per mile, the fifth highest in the subarea. Segments with high boarding density include intersections with Ethan Allen Ave., where Takoma Park Shopping Center is located, University Blvd., where Takoma-Langley Crossroads Transit Center is located, Powder Mill Rd., where Hillandale Shopping Center is located, and Lockwood Dr., where White Oak Transit Center is located. The corridor hosted 25 percent of total subarea ridership in 2019, the third highest in the area, and it rose to 32 percent in 2021 to become second highest. The success of the corridor is in large part thanks to the drastic decline in ridership near the Silver Spring area, and subsequent decentralization of ridership towards shopping centers and transit centers.

The northbound **University Blvd. Corridor** stretches for 3.9 miles, between Caddington Ave. where it extends into the Wheaton-Aspen Hill-Olney subarea, and 14th Ave. In 2019, the corridor experienced a boarding density of 1,620 per mile, the fourth highest in the subarea. Ridership density fell slightly to 1,200 in 2021, but it exceeded **Georgia Ave. Corridor** to become the third highest in the subarea. Important ridership nodes include intersections with New Hampshire Ave. at Takoma-Langley Crossroads Transit Center, Piney Branch Rd. at Long Branch Shopping Center, and Colesville Rd. at Four Corners' Woodmoor Shopping Center. The corridor had 21 percent of total subarea ridership share in 2019, the fourth highest in the subarea. When ridership share rose to 27 percent in 2021, the corridor rose to become the third most productive in the subarea. Similar to **New Hampshire Ave. Corridor**, its rise stems from a decline in ridership around the Silver Spring area. The corridor's extension westward into the Wheaton-Aspen Hill-Olney subarea provides key transfer opportunities to Georgia Ave. and Veirs Mill Rd., but boarding density is not as strong as it is in the Silver Spring-Burtonsville subarea.

The northbound **Georgia Ave Corridor** spans 2.8 miles from Eastern Ave. on the D.C. border to August Dr. where it extends into the Wheaton-Aspen Hill-Olney subarea. The corridor had 2,090 boardings per mile in 2019, the third highest in the subarea. Key nodes include Silver Spring area and Forest Glen Metro Station. Ridership density drastically fell to 1,100 in 2021, when it became the fourth highest in the subarea. The corridor hosted 20 percent of subarea ridership in 2019, but it declined to 18 percent in 2021. Similar to Colesville Rd., and East-West Hwy., decentralization away from Silver Spring caused a decline in boarding share. Nevertheless, it serves as a key corridor in the Wheaton-Aspen Hill-Olney subarea, where it continues following the Red Line, serving major shopping centers, amusement parks, and park & rides.

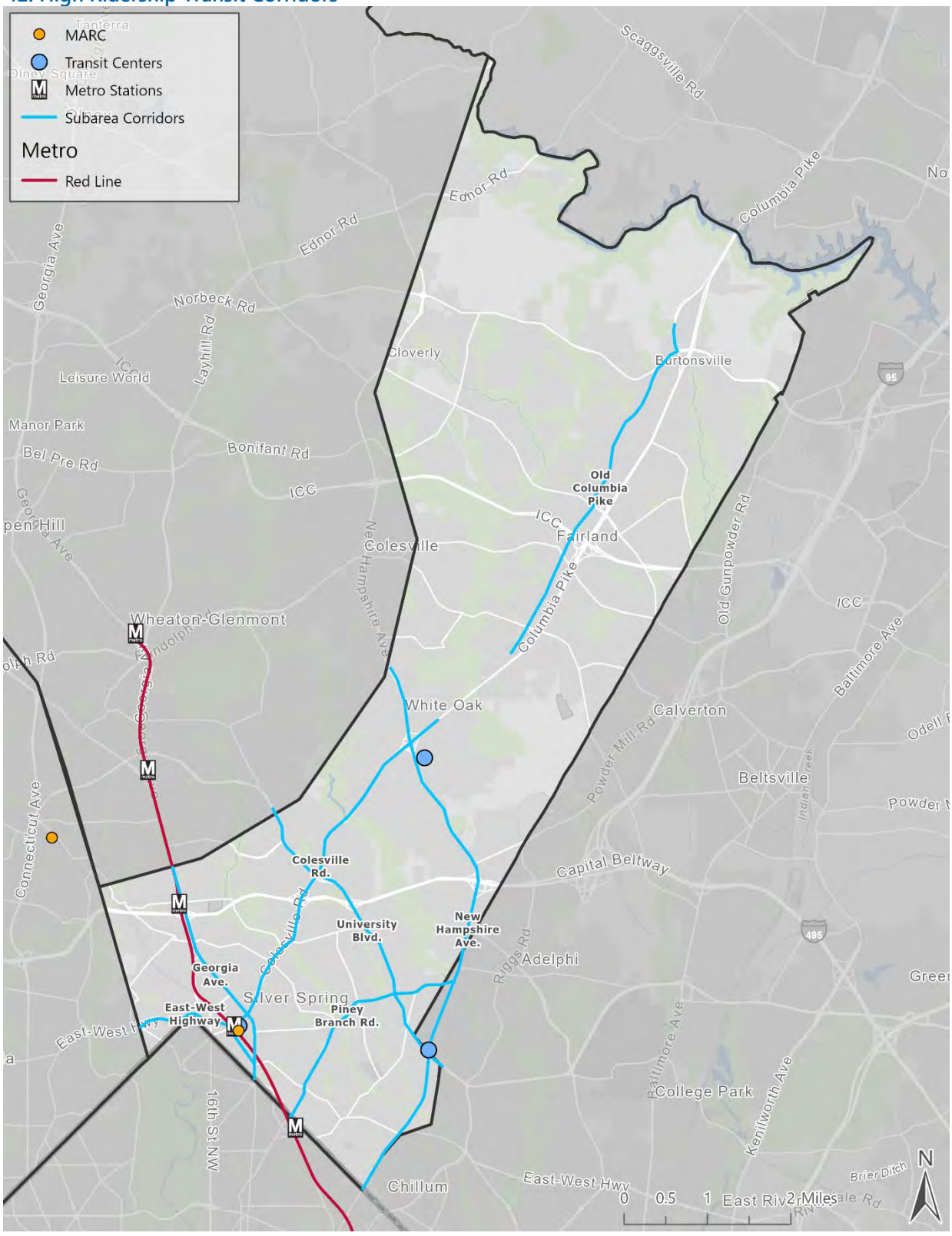
The **East-West Highway Corridor** spans 1.7 miles between Georgia Ave and Grubb Rd. where it extends into the Bethesda subarea. The corridor had 4,590 boardings per mile in 2019, the highest in the subarea.

The corridor hosted the second highest share of subarea ridership in 2019, at 26 percent. The highway serves as a major connection between non-adjacent Metro Stations on the Red Line within close proximity to the District, feeding between Silver Spring and Bethesda Metro Stations. Due to declines in ridership shares in both stations, ridership share declined to 23 percent in 2021, the fourth highest in the subarea.

The northbound **Old Columbia Pike Corridor** stretches 4.6 miles from Tech Rd. to National Dr. at Burtonsville Park & Ride. In 2019, the corridor experienced only 170 boardings per mile. 2019 ridership accounted for 3 percent of weekday ridership in the subarea, while in 2021 ridership declined to 2 percent. The corridor primarily served as a commuter route, serving Burtonsville and Tech Rd. park & rides. The corridor's decline is emblematic of a shift away from commute-based travel.

The northeast bound **Piney Branch Rd. Corridor** spans 3.8 miles from Eastern Ave. on the D.C. border to New Hampshire Ave. The corridor experienced 1,120 boardings per mile in 2019, the sixth highest in the subarea. Key nodes include intersections with Flower Ave. and University Blvd., both of which host major shopping centers. Thus, the corridor experienced a small rise in ridership share from 11 percent to 12 percent between 2019 and 2021.

Figure 42: High Ridership Transit Corridors



Ridership at Key Hubs

Table 42 provides ridership activity by key hub locations. A stop was considered in proximity of the key location if it is within 0.2 miles. All Metro and MARC stations, transit centers, and park and rides were considered key locations. Shopping centers, government facilities, and college campuses were selected based on high ridership and breadth of geography, so that boardings would not be double counted between locations.

Except for Briggs Chaney Park & Ride, and Takoma Langley Transit Center on Sundays, boardings near all hubs decreased between 2019 and 2021. Because Silver Spring Metro Station acts as a major hub through which riders enter and leave the Metrorail system into the District, a decrease in subarea ridership share indicates riders are less likely to commute to and from the D.C. core. The decrease in ridership share at Tech Rd. Park & Ride and Burtonsville Park & Ride, two of the biggest in the subarea, further indicate a shift away from commute-based trips. Third, stops near shopping centers, including Takoma Langley Crossroads and White Oak malls, generally experienced an increase in ridership share, indicating that travel for commercial purposes may not have experienced as large of a drop compared to commute-based work. Individual cases like U.S.F.D.A., and Montgomery College, both of which experienced a decrease in subarea ridership share, indicate the shift to work from home during the COVID pandemic.

Table 42: Ridership Activity by Key Hub

Name	Type	Weekday Boardings (% of total)		Saturday Boardings (% of total)		Sunday Boardings (% of total)	
		2019	2021	2019	2021	2019	2021
Silver Spring Metro Station	Metro Station	7,060 (23.5%)	3,490 (20.4%)	4,490 (21.3%)	2,090 (18.5%)	3,250 (23.1%)	1,720 (18.0%)
Takoma Langley Crossroads Transit Center	Transit Center	2,240 (7.5%)	1,860 (10.9%)	2,020 (9.6%)	1,500 (13.2%)	1,340 (9.5%)	1,350 (14.2%)
White Oak Transit Center	Transit Center	1,640 (5.5%)	960 (5.6%)	1,180 (5.6%)	680 (6.1%)	780 (5.6%)	520 (5.5%)
Woodmoor Shopping Center	Shopping Center	1,390 (4.6%)	870 (5.1%)	730 (3.4%)	360 (3.2%)	420 (3.0%)	260 (2.7%)
Long Branch Shopping Center	Shopping Center	1,130 (3.8%)	850 (5.0%)	1,050 (5.0%)	570 (5.0%)	720 (5.2%)	500 (5.3%)
Flower Center	Shopping Center	960 (3.2%)	560 (3.3%)	920 (4.3%)	400 (3.5%)	650 (4.6%)	400 (4.2%)
Hillandale Shopping Center	Shopping Center	730 (2.4%)	530 (3.1%)	580 (2.7%)	440 (3.9%)	380 (2.7%)	360 (3.8%)
Takoma Park Shopping Center	Shopping Center	580 (1.9%)	440 (2.6%)	490 (2.3%)	340 (3.0%)	300 (2.1%)	300 (3.1%)
Montgomery College	College Campus	380 (1.3%)	50 (0.3%)	90 (0.4%)	20 (0.1%)	20 (0.1%)	10 (0.1%)
Tech Road Park & Ride	Park & Ride	260 (0.9%)	90 (0.5%)	130 (0.6%)	70 (0.6%)	140 (1.0%)	50 (0.5%)
U.S. Food and Drug Administration	Government Facility	190 (0.6%)	50 (0.3%)	10 (0.1%)	10 (0.1%)	10 (0.0%)	10 (0.1%)
Seminary Place Shopping Center	Shopping Center	180 (0.6%)	140 (0.8%)	130 (0.6%)	100 (0.9%)	100 (0.7%)	70 (0.8%)
Forest Glen Metro Station	Metro Station	160 (0.5%)	110 (0.6%)	80 (0.4%)	50 (0.4%)	70 (0.5%)	50 (0.5%)
Burtonsville Park & Ride	Park & Ride	100 (0.3%)	30 (0.2%)	< 5 (0.0%)	< 5 (0.0%)	< 5 (0.0%)	< 5 (0.0%)
Greencastle Rd Park & Ride	Park & Ride	60 (0.2%)	40 (0.3%)	< 5 (0.0%)	< 5 (0.0%)	< 5 (0.0%)	< 5 (0.0%)
Briggs Chaney Park & Ride	Park & Ride	40 (0.1%)	50 (0.3%)	20 (0.1%)	50 (0.4%)	10 (0.1%)	50 (0.5%)

Figure 43: 2019 Weekday Ridership by Stop

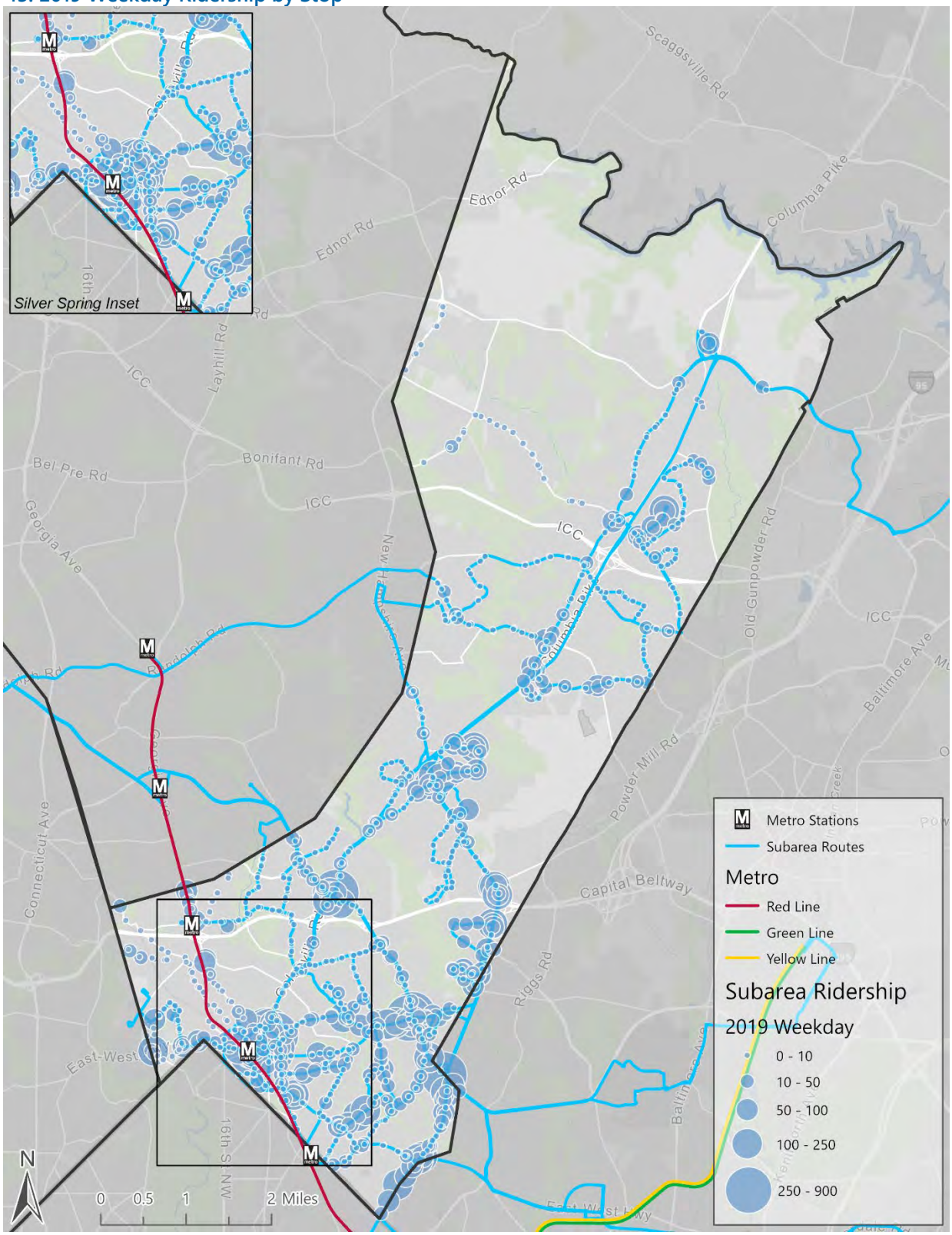


Figure 44: 2019 Saturday Ridership by Stop

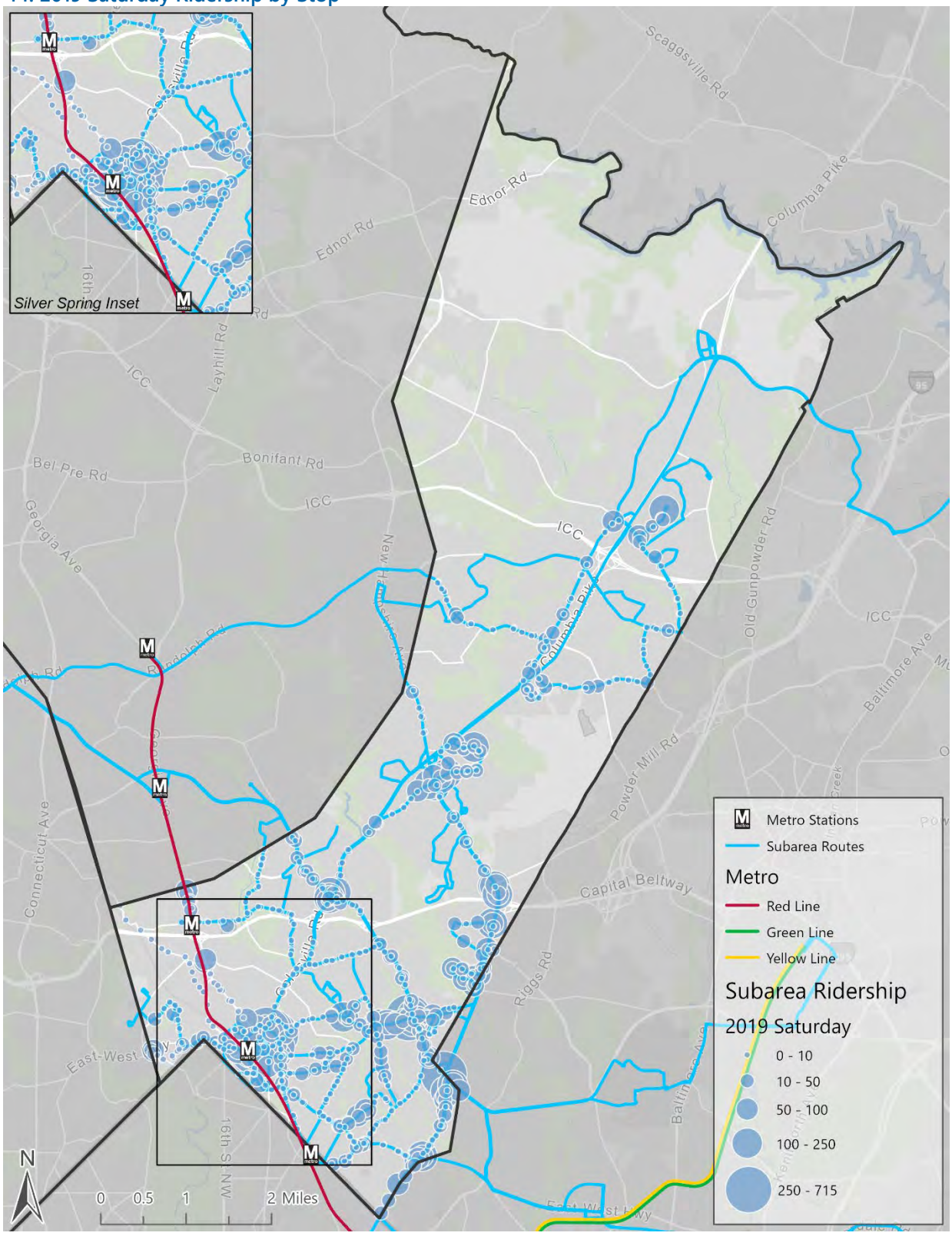
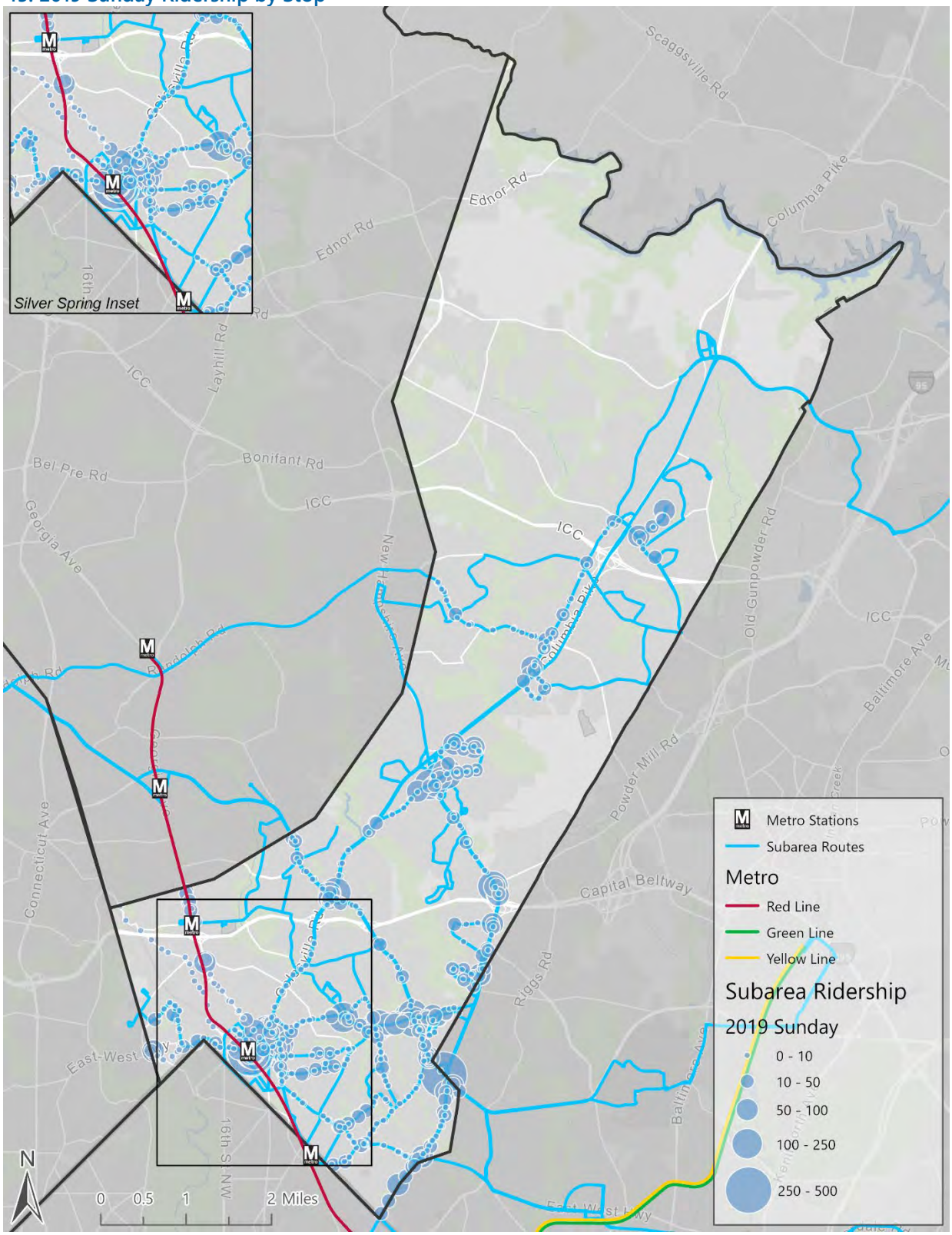


Figure 45: 2019 Sunday Ridership by Stop



Route Performance

Table 43 through **Table 45** provide key performance indicators (KPIs) for the Silver Spring-Burtonsville subarea routes for weekdays, Saturdays, and Sundays in 2019. The tables are sorted by daily boardings and color coded by quartile for all KPIs except on-time performance. On-time performance (OTP) is color coded by adherence to Ride On's on-time performance definition. Route quartiles and rankings are calculated based on route type for all Montgomery County bus routes. The KPIs are defined below along with key findings:

- **Daily Boardings** measures productivity in terms of passenger boardings per day. The Silver Spring-Burtonsville subarea is served by several of the most productive routes in the county. Of the 25 routes serving the subarea, seven perform within the top quartile of their respective service categories on weekdays. Five routes perform within the top quartile on Saturdays and Sundays. Nine subarea routes carry more than 2,000 weekday passengers, including Metrobus routes C2/4, F4, K6, Z8, and Z6 and Ride On local routes 15, 20, 16, and 10. These high-performing routes tend to serve major corridors with direct alignments, offer frequent service, and operate long service spans, seven days per week.
- **Service efficiency measures ridership per unit of resource investment.** Service efficiency KPIs include passengers per vehicle revenue hour (Pax/VRH), passengers per vehicle revenue mile (Pax/VRM), and passengers per one-way bus trip (Pax/Trip). Several of the most efficient Metrobus and Ride On local routes serve the subarea. Both the Metrobus Route K6 and Ride On local Route 15 are the top performing routes in terms of passengers per revenue hour and revenue mile. Overall, about two-thirds of the subarea routes are within the top half of their respective service categories on weekdays, while weekend service tends to exhibit mixed performance.
- **Financial performance measures return on investment.** Financial performance KPIs include cost recovery (Cost Rec.), which is the ratio between fare revenue collected and operating cost and subsidy per passenger (Sub/Pax) which is net operating cost (operating cost minus fare revenue) per passenger boardings. The most efficient routes tend to also exhibit the strongest cost recovery ratios and lowest subsidies per passenger. One outlier includes Ride On local route 24, which produces relatively low ridership but ranks in the top quartile in terms of weekday service efficiency and financial performance, indicating the strength of this peak-only service.
- **On-Time Performance (OTP)** measures reliability in terms of the percentage of bus trips that depart within Ride On's established definition of "on-time" (between one minutes early and five minutes late). Weekday on-time performance tends to be poor for most subarea routes. On weekdays, only four subarea routes exceed Ride On's on-time target of 85 percent and 12 are below five percent of the target. Three routes exceed the target on Saturdays and five routes exceed the target on Sundays. In general, routes carrying the largest volumes of passengers exhibit lower on-time performance. This reflects delay attributed to passenger boarding/alighting activity and the fact that these routes serve highly congested corridors.

Table 43: Weekday Route Key Performance Indicators (2019)

Route	Route Description	Route Type	Boardings		Pax/VRH		Pax/VRM		Pax/Trip		Cost Rec.		Sub./Pax		On-time performance	
			Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank
C2,4[1]	Greenbelt-Twinbrook	Metrobus	8,501	1 / 12	34.3	3 / 12	3.2	4 / 12	43.4	1 / 12	25%	4 / 12	$2.62	3 / 12	54%	7 / 12
F4	New Carrollton-Silver Spring Lane	Metrobus	5,306	4 / 12	36.8	2 / 12	3.6	2 / 12	42.8	2 / 12	28%	2 / 12	$2.34	2 / 12	56%	6 / 12
K6	New Hampshire Ave-Maryland	Metrobus	4,829	6 / 12	41.6	1 / 12	4.4	1 / 12	37.4	4 / 12	30%	1 / 12	$2.02	1 / 12	54%	7 / 12
15	Langley Park-Wayne Ave.-Silver Spring	Local	2,657	5 / 63	35.1	1 / 63	5	1 / 63	15.9	21 / 63	35%	2 / 63	$1.85	2 / 63	86%	34 / 63
Z8	Silver Spring-Fairland	Metrobus	2,589	7 / 12	29.8	8 / 12	2.6	8 / 12	28.1	8 / 12	20%	10 / 12	$3.23	9 / 12	51%	10 / 12
20	Hillandale-Northwest Park-Silver Spring	Local	2,534	6 / 63	26.4	8 / 63	3.2	2 / 63	20.1	10 / 63	28%	11 / 63	$2.53	11 / 63	80%	59 / 63
16	Takoma Langley Park-Silver Spring	Local	2,289	7 / 63	20.2	23 / 63	2.5	11 / 63	18.8	14 / 63	23%	24 / 63	$3.32	24 / 63	77%	62 / 63
Z6	Silver Spring-Fairland	Metrobus	2,283	9 / 12	30.9	7 / 12	2.4	9 / 12	33.1	7 / 12	20%	9 / 12	$3.11	8 / 12	51%	10 / 12
10	Twinbrook-Glenmont-White Oak-Hillandale	Local	2,229	9 / 63	26.5	7 / 63	2	20 / 63	31	2 / 63	29%	10 / 63	$2.44	10 / 63	78%	61 / 63
12	Takoma-Flower Avenue-Wayne Avenue-Silver Spring	Local	1,225	19 / 63	21.2	19 / 63	2.4	12 / 63	11.7	29 / 63	24%	18 / 63	$3.13	18 / 63	84%	46 / 63
K9	New Hampshire Ave-Maryland Limited Line	Metrobus	1,219	10 / 12	31.3	6 / 12	3.2	3 / 12	22.2	12 / 12	26%	3 / 12	$2.82	5 / 12	73%	1 / 12
17	Langley Park-Maple Ave.-Silver Spring	Local	986	23 / 63	21.1	20 / 63	2.8	5 / 63	12	28 / 63	24%	19 / 63	$3.24	19 / 63	82%	55 / 63
14	Takoma-Piney Branch Road-Franklin Ave.-Silver Spring	Local	719	28 / 63	18.7	31 / 63	1.9	22 / 63	11.2	30 / 63	21%	29 / 63	$3.80	29 / 63	81%	57 / 63
28	Silver Spring Downtown (VanGo)	Loop	650	1 / 4	17.4	2 / 4	3.1	1 / 4	9.8	2 / 4	19%	2 / 4	$4.13	2 / 4	67%	4 / 4
8	Wheaton-Forest Glen-Silver Spring	Local	618	32 / 63	13.7	42 / 63	1.2	43 / 63	10.8	32 / 63	15%	42 / 63	$5.54	42 / 63	84%	47 / 63
2	Lyttonsville-Silver Spring	Local	585	34 / 63	21.6	18 / 63	2.7	6 / 63	9.3	36 / 63	24%	17 / 63	$3.12	17 / 63	88%	27 / 63
18	Langley Park-Takoma-Silver Spring	Local	552	37 / 63	12.4	48 / 63	1.6	27 / 63	8.4	42 / 63	14%	48 / 63	$6.19	48 / 63	85%	44 / 63
22	Hillandale-White Oak-FDA-Silver Spring	Local	485	40 / 63	18.8	30 / 63	1.5	30 / 63	13.1	27 / 63	20%	31 / 63	$4.05	31 / 63	83%	50 / 63

KPI Quartile Ranking				OTP Ranking		
Top 25%	50-75%	25-50%	Bottom 25%	>= 85%	80-85%	<80%

Route	Route Description	Route Type	Boardings		Pax/VRH		Pax/VRM		Pax/Trip		Cost Rec.		Sub./Pax		On-time performance	
			Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank
Z7	Laurel-Burtonsville Express	Metrobus	456	12 / 12	22.8	11 / 12	1.5	11 / 12	26.8	10 / 12	20%	8 / 12	$4.17	11 / 12	64%	3 / 12
25	Langley Park -Maple Ave-Takoma	Local	409	42 / 63	18.9	29 / 63	2.5	10 / 63	8.3	43 / 63	19%	32 / 63	$4.23	32 / 63	94%	2 / 63
129	Limited Stop US29 Burtonsville-Silver Spring[2]	LTD	341	2 / 8	6.9	8 / 8	0.4	7 / 8	5.9	8 / 8	7%	8 / 8	$13.22	8 / 8	78%	8 / 8
21	Briggs Chaney-Tamarack-Dumont Oaks-Silver Spring	Local	293	46 / 63	19.5	27 / 63	1.3	39 / 63	19.5	11 / 63	15%	41 / 63	$5.49	41 / 63	82%	54 / 63
24	Hillandale-Northwest Park-Takoma	Local	271	48 / 63	26.8	5 / 63	3.0	3 / 63	15.9	20 / 63	27%	13 / 63	$2.67	13 / 63	84%	48 / 63
19	Northwood-Four Corners-Silver Spring	Local	186	53 / 63	23	14 / 63	2.1	19 / 63	13.3	26 / 63	23%	21 / 63	$3.26	21 / 63	89%	24 / 63
13	Takoma-Manchester Rd.-Three Oaks Dr.-Silver Spring	Local	175	54 / 63	12.8	47 / 63	1.4	34 / 63	8	44 / 63	15%	43 / 63	$5.62	43 / 63	82%	53 / 63

Notes:

1. Operating data provided by Metrobus for routes C2 / C4 were reported as a single route.
2. Route 129 was subsequently replaced by FLASH BRT in 2020.

KPI Quartile Ranking				OTP Ranking		
Top 25%	50-75%	25-50%	Bottom 25%	>= 85%	80-85%	<80%

Table 44: Saturday Route Key Performance Indicators (2019)

Route	Route Description	Route Type	Boardings		Pax/VRH		Pax/VRM		Pax/Trip		Cost Rec.		Sub./Pax		On-time performance	
			Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank
C2,4[1]	Greenbelt-Twinbrook	Metrobus	6,533	1 / 9	32.5	5 / 9	2.9	4 / 9	40.1	2 / 9	20%	3 / 9	$2.92	4 / 9	55%	7 / 9
K6	New Hampshire Ave-Maryland	Metrobus	4,336	3 / 9	45.6	1 / 9	4.5	1 / 9	39.1	3 / 9	27%	1 / 9	$1.92	1 / 9	56%	4 / 9
F4	New Carrollton-Silver Spring Lane	Metrobus	3,400	5 / 9	33.7	4 / 9	2.3	6 / 9	37.8	4 / 9	21%	2 / 9	$2.78	3 / 9	63%	3 / 9
15	Langley Park-Wayne Ave.-Silver Spring	Local	2,116	2 / 42	29.1	1 / 42	4.7	1 / 42	14.8	13 / 42	33%	1 / 42	$2.06	1 / 42	85%	28 / 42
16	Takoma Langley Park-Silver Spring	Local	2,115	3 / 42	19.9	11 / 42	2.3	4 / 42	17.3	9 / 42	23%	12 / 42	$3.40	12 / 42	80%	38 / 42
Z8	Silver Spring-Fairland	Metrobus	2,066	7 / 9	29.5	6 / 9	2.4	5 / 9	25.2	6 / 9	15%	7 / 9	$3.44	6 / 9	56%	4 / 9
20	Hillandale-Northwest Park-Silver Spring	Local	1,836	5 / 42	24.7	6 / 42	3.2	3 / 42	19.5	6 / 42	27%	7 / 42	$2.68	7 / 42	86%	24 / 42
Z6	Silver Spring-Fairland	Metrobus	1,412	8 / 9	23.9	8 / 9	1.9	8 / 9	21.4	7 / 9	12%	8 / 9	$4.38	8 / 9	56%	4 / 9
10	Twinbrook-Glenmont-White Oak-Hillandale	Local	1,075	11 / 42	15.9	21 / 42	1.1	27 / 42	17.3	10 / 42	18%	22 / 42	$4.48	22 / 42	83%	36 / 42
12	Takoma-Flower Avenue-Wayne Avenue-Silver Spring	Local	725	19 / 42	17.9	16 / 42	1.9	13 / 42	9.3	26 / 42	20%	16 / 42	$3.94	16 / 42	84%	30 / 42
17	Langley Park-Maple Ave.-Silver Spring	Local	605	24 / 42	15.8	22 / 42	2.1	7 / 42	9	28 / 42	18%	23 / 42	$4.48	23 / 42	84%	31 / 42
14	Takoma-Piney Branch Road-Franklin Ave.-Silver Spring	Local	461	29 / 42	14.5	26 / 42	1.7	14 / 42	10	25 / 42	17%	26 / 42	$4.93	26 / 42	83%	35 / 42
28	Silver Spring Downtown (VanGo)	Loop	399	1 / 2	9.5	2 / 2	1.8	1 / 2	5.2	2 / 2	11%	2 / 2	$8.44	2 / 2	65%	2 / 2
2	Lyttonsville-Silver Spring	Local	378	30 / 42	22.9	8 / 42	3.4	2 / 42	12.6	17 / 42	27%	8 / 42	$2.74	8 / 42	94%	3 / 42
18	Langley Park-Takoma-Silver Spring	Local	334	33 / 42	9.4	34 / 42	1.3	20 / 42	5.7	34 / 42	11%	34 / 42	$8.10	34 / 42	82%	37 / 42
8	Wheaton-Forest Glen-Silver Spring	Local	312	35 / 42	8.3	37 / 42	0.7	32 / 42	6.6	32 / 42	10%	36 / 42	$9.50	36 / 42	88%	18 / 42

Note:

1. Operating data provided by Metrobus for routes C2 / C4 were reported as a single route.

KPI Quartile Ranking				OTP Ranking		
Top 25%	50-75%	25-50%	Bottom 25%	>= 85%	80-85%	<80%

Table 45: Sunday Route Key Performance Indicators (2019)

Route	Route Description	Route Type	Boardings		Pax/VRH		Pax/VRM		Pax/Trip		Cost Rec.		Sub./Pax		On-time performance	
			Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank	Route	Rank
C2,4[1]	Greenbelt-Twinbrook	Metrobus	4,767	1 / 7	25.5	6 / 7	2.3	5 / 7	31.2	4 / 7	20%	3 / 7	$3.73	4 / 7	63%	4 / 7
K6	New Hampshire Ave-Maryland	Metrobus	3,123	3 / 7	39.5	1 / 7	3.7	1 / 7	31.5	2 / 7	29%	1 / 7	$2.13	1 / 7	59%	6 / 7
Z6,8[1]	Silver Spring-Fairland	Metrobus	2,465	5 / 7	31.2	2 / 7	2.4	4 / 7	24.2	5 / 7	19%	4 / 7	$3.09	2 / 7	52%	7 / 7
F4	New Carrollton-Silver Spring Lane	Metrobus	1,966	6 / 7	19.5	7 / 7	2.6	2 / 7	31.2	3 / 7	15%	7 / 7	$5.20	7 / 7	76%	1 / 7
16	Takoma Langley Park-Silver Spring	Local	1,497	4 / 33	15.1	19 / 33	1.8	9 / 33	13.6	11 / 33	18%	19 / 33	$4.84	19 / 33	82%	28 / 33
10	Twinbrook-Glenmont-White Oak-Hillandale	Local	1,337	6 / 33	23	2 / 33	1.6	13 / 33	24.8	2 / 33	26%	2 / 33	$2.88	2 / 33	81%	30 / 33
20	Hillandale-Northwest Park-Silver Spring	Local	1,323	7 / 33	19.6	8 / 33	2.6	2 / 33	15.7	7 / 33	22%	9 / 33	$3.57	9 / 33	84%	24 / 33
15	Langley Park-Wayne Ave.-Silver Spring	Local	1,276	8 / 33	26.4	1 / 33	3.5	1 / 33	11.1	20 / 33	29%	1 / 33	$2.47	1 / 33	86%	19 / 33
12	Takoma-Flower Avenue-Wayne Avenue-Silver Spring	Local	512	22 / 33	13.1	23 / 33	1.4	18 / 33	6.7	27 / 33	15%	23 / 33	$5.89	23 / 33	89%	9 / 33
17	Langley Park-Maple Ave.-Silver Spring	Local	487	24 / 33	14	21 / 33	2	5 / 33	8.4	23 / 33	16%	21 / 33	$5.53	21 / 33	88%	11 / 33
2	Lyttonsville-Silver Spring	Local	225	30 / 33	15.2	18 / 33	2.2	3 / 33	8	24 / 33	18%	18 / 33	$4.70	18 / 33	90%	8 / 33
18	Langley Park-Takoma	Local	197	31 / 33	7.6	32 / 33	1.2	21 / 33	3.8	31 / 33	9%	32 / 33	$11.04	32 / 33	88%	13 / 33

Note:
1. Operating data provided by Metrobus for routes C2 / C4 and Z6 / Z8 were reported as a single route.

KPI Quartile Ranking				OTP Ranking		
Top 25%	50-75%	25-50%	Bottom 25%	>= 85%	80-85%	<80%

Silver Spring-Burtonsville Subarea Conclusions

- The Silver Spring-Burtonsville subarea is a highly productive transit market, representing about a third of the county's total daily ridership. The Silver Spring community alone generates nearly one-fifth of the county's ridership. Other major markets within the subarea include Takoma Park, Four Corners, and Fairland. These places are generally well served by the existing network.
- The most productive routes in the subarea are longer line-haul routes that serve major corridors including University Blvd. (C-series routes), New Hampshire Ave. (K-series routes), and Colesville Rd./Columbia Pike (Z-series routes, FLASH BRT). There are also several highly productive feeder routes serving the downtown Silver Spring vicinity (12, 15, 16). These routes offer all-day service, seven days a week, and are more frequent compared to other subarea routes.
- Routes serving the Silver Spring-Burtonsville subarea tend to be less reliable and slower compared to those serving other subareas. In general, routes carrying the largest volumes of passengers exhibit lower on-time performance. This reflects delay attributed to passenger boarding/alighting activity and the fact that these routes serve highly congested corridors.

3

Ridership Trends

Introduction

To understand the transit market in Montgomery County, both Ride On and the Washington Metropolitan Area Transit Authority (Metro) provided their Automatic Passenger Counter (APC) data consisting of boardings, alightings, door open times, door close times, and activity location for each trip operated in the months of October 2019 and October 2021. This data, consolidated with schedule data, provides insight into transit current demand and ridership trends. Given the size of the county and to make trends clear, the stop level data was aggregated to a uniform sized grid of hexagons.

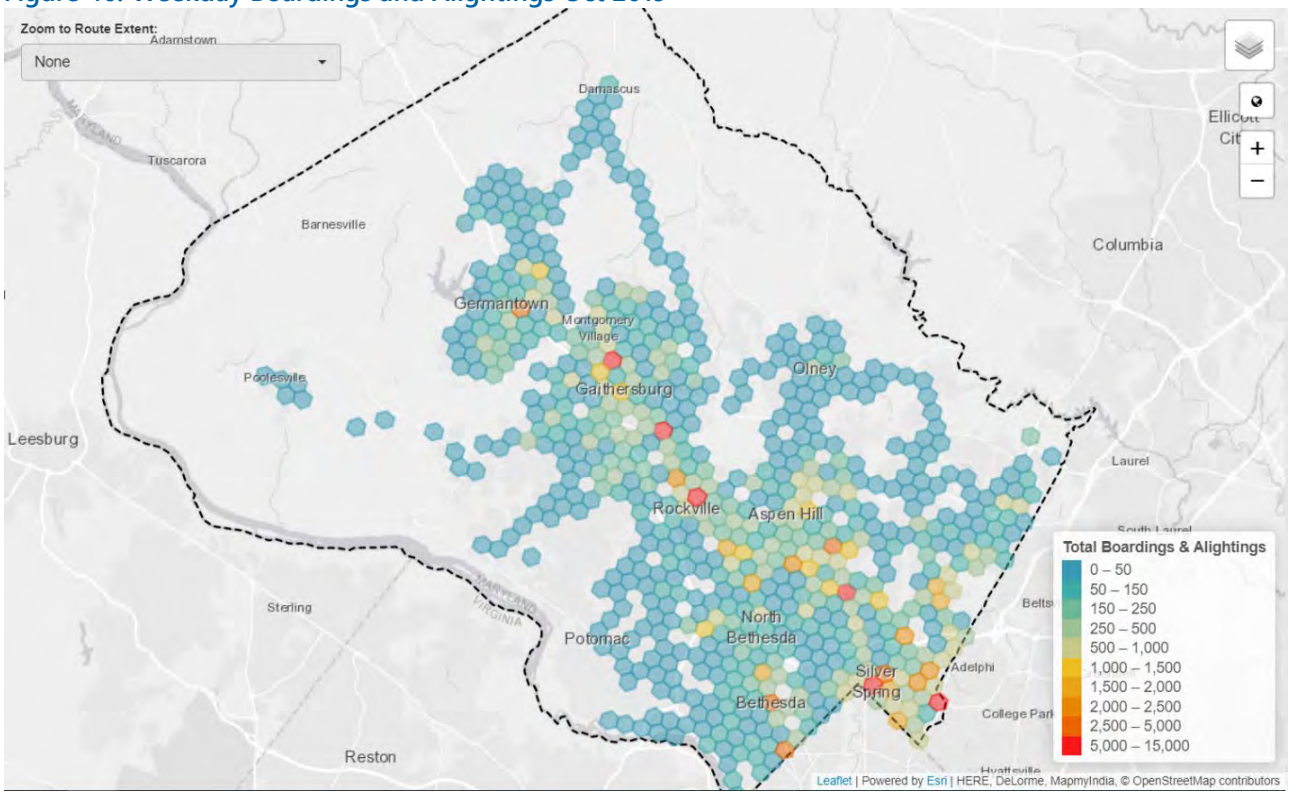
Weekday Trends

Several key focus points for transit emerge at major multi-modal hubs and transit centers primarily through the central corridor of the County. Clear hotspots (with daily weekday boardings + alightings over 2,500 in 2019) noted in red and orange appear at the following locations, ordered from North to South **(Figure 46)**:

- Germantown Transit Center (3,897 daily boardings + alightings)
- Lakeforest Transit Center (5,200)
- Shady Grove Station (9,140)
- Rockville Station (7,578)
- Glenmont Station (4,081)
- Wheaton Station (7,975)

- Silver Spring Station (14,304)
- Bethesda Station (3,712)
- Takoma-Langley Transit Center (5,195)
- Friendship Heights (2,629)

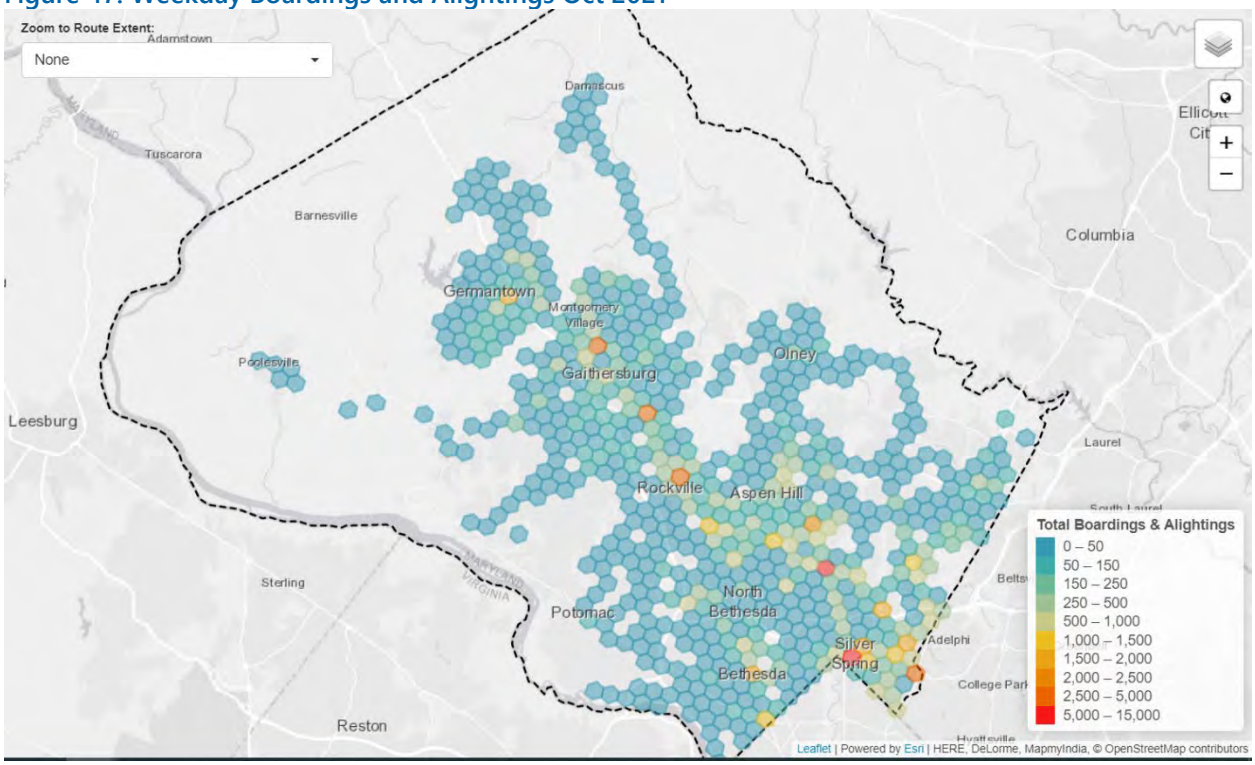
Figure 46: Weekday Boardings and Alightings Oct 2019



In 2021, the same hotspots appear with lower intensities due to lower ridership numbers as a result of the pandemic **(Figure 47)**. In many cases the number of boardings and alightings were about half the value in 2021 as they were in 2019.

- Germantown Transit Center (1,657 daily boardings + alightings)
- Lakeforest Transit Center (2,806)
- Shady Grove Station (3,477)
- Rockville Station (3,110)
- Glenmont Station (2,379)
- Wheaton Station (5,736)
- Silver Spring Station (7,577)
- Bethesda Station (1,626)
- Takoma-Langley Transit Center (4,483)
- Friendship Heights (1,489)

Figure 47: Weekday Boardings and Alightings Oct 2021

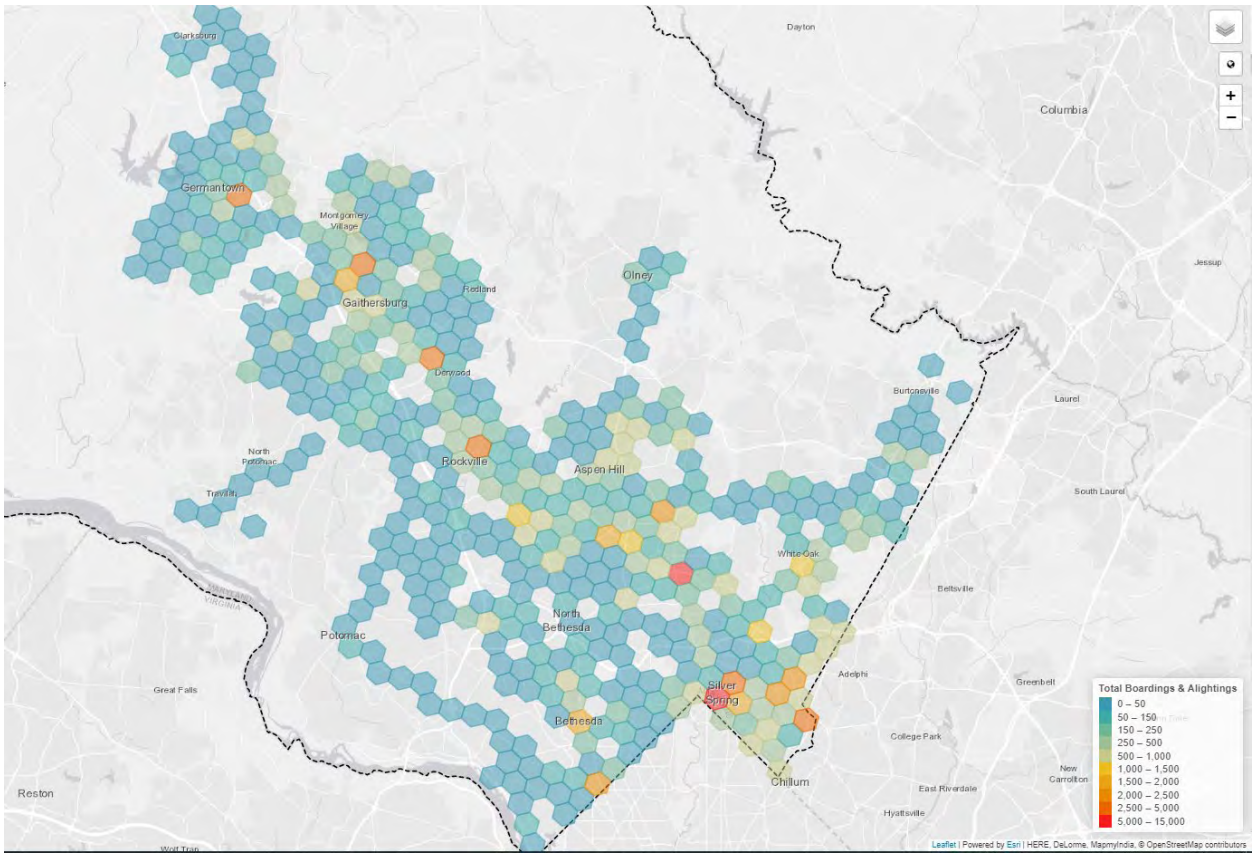


Saturday Trends

In 2019 on Saturdays, similar transit hotspots appear as compared to weekdays, with hotspots (>2,500 boardings + alightings) in 2019 appearing at the following locations from North to South **(Figure 48)**:

- Germantown Transit Center (2,547 daily boardings + alightings)
- Lakeforest Transit Center (4,454)
- Shady Grove Station (4,295)
- Rockville Station (4,640)
- Wheaton Station (6,418)
- Silver Spring Station (9,406)
- Downtown Silver Spring (2,955)
- Takoma-Langley Transit Center (4,888)

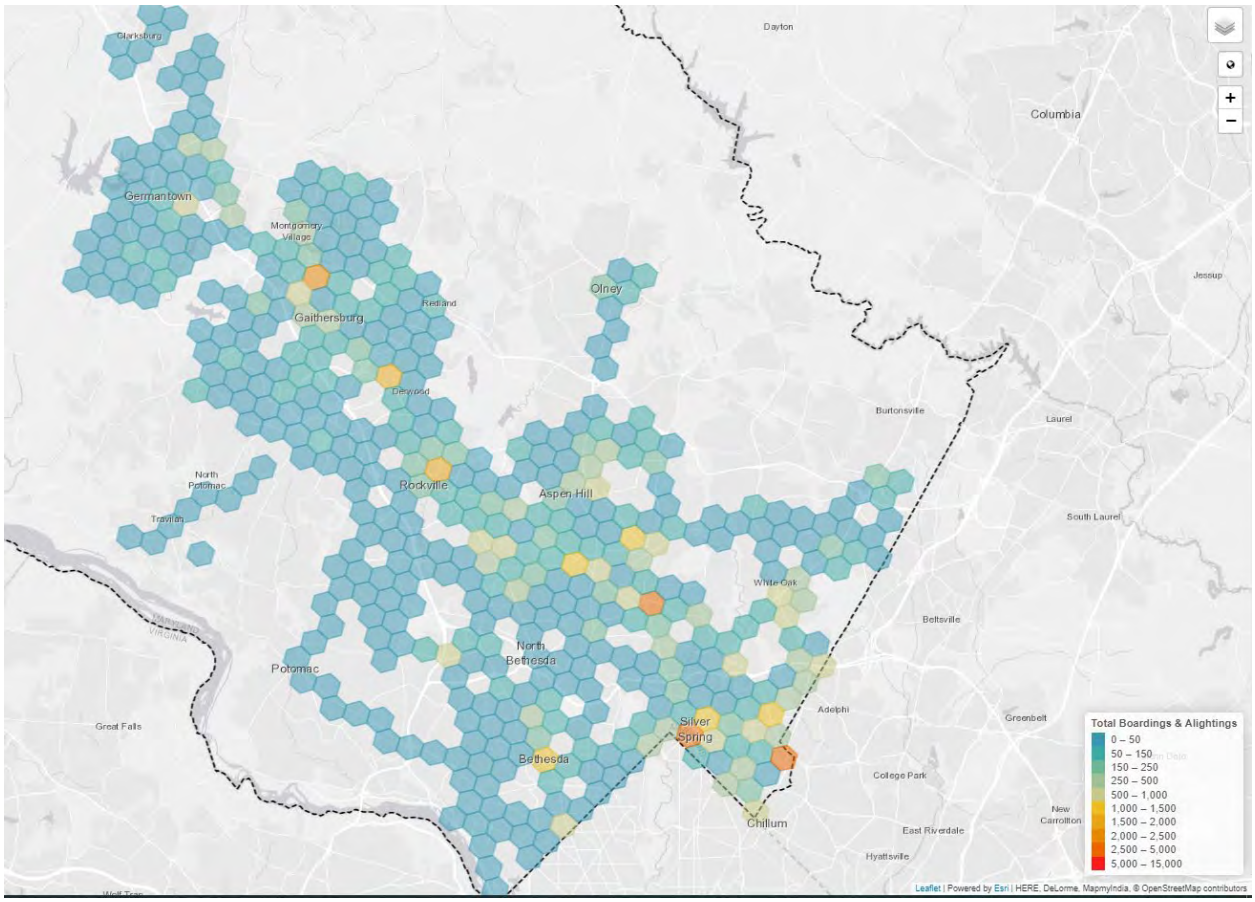
Figure 48: Boardings and Alightings Saturdays Oct 2019



On Saturdays in 2021 **(Figure 49)**, only three hexagons surpass 2,500 boardings +alightings, including:

- Wheaton Station (4,360 daily boardings + alightings)
- Silver Spring Station (4,937)
- Takoma-Langley Transit Center (3,735)

Figure 49: Boardings and Alightings Saturdays Oct 2021

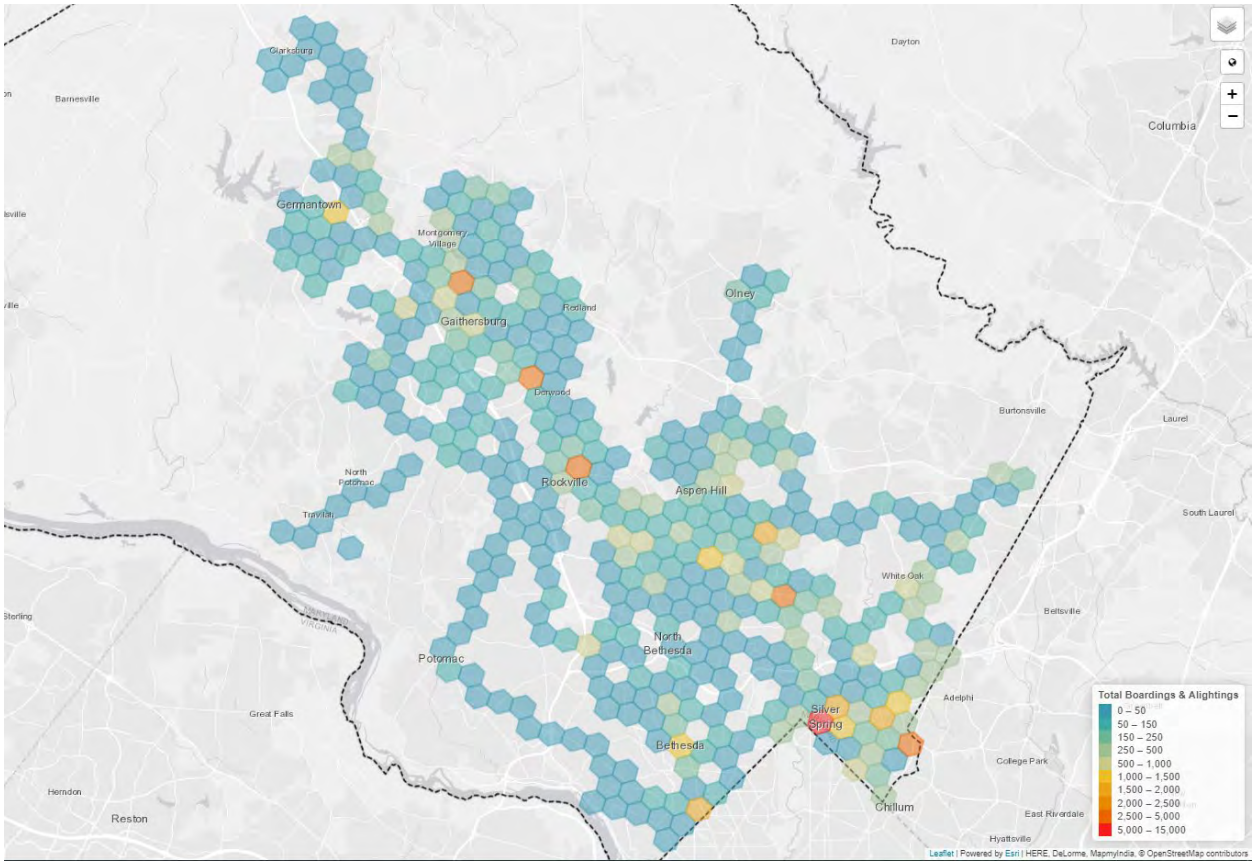


Sunday Trends

In 2019, Sunday ridership patterns follow the weekday and Saturday patterns, with the following hotspots over 2,500 **(Figure 50)**:

- Lakeforest Transit Center (3,234 daily boardings + alightings)
- Shady Grove Station (2,629)
- Rockville Station (3,272)
- Wheaton Station (4,374)
- Silver Spring Station (6,522)
- Takoma-Langley Transit Center (3,192)

Figure 50: Boardings and Alightings Sundays Oct 2019

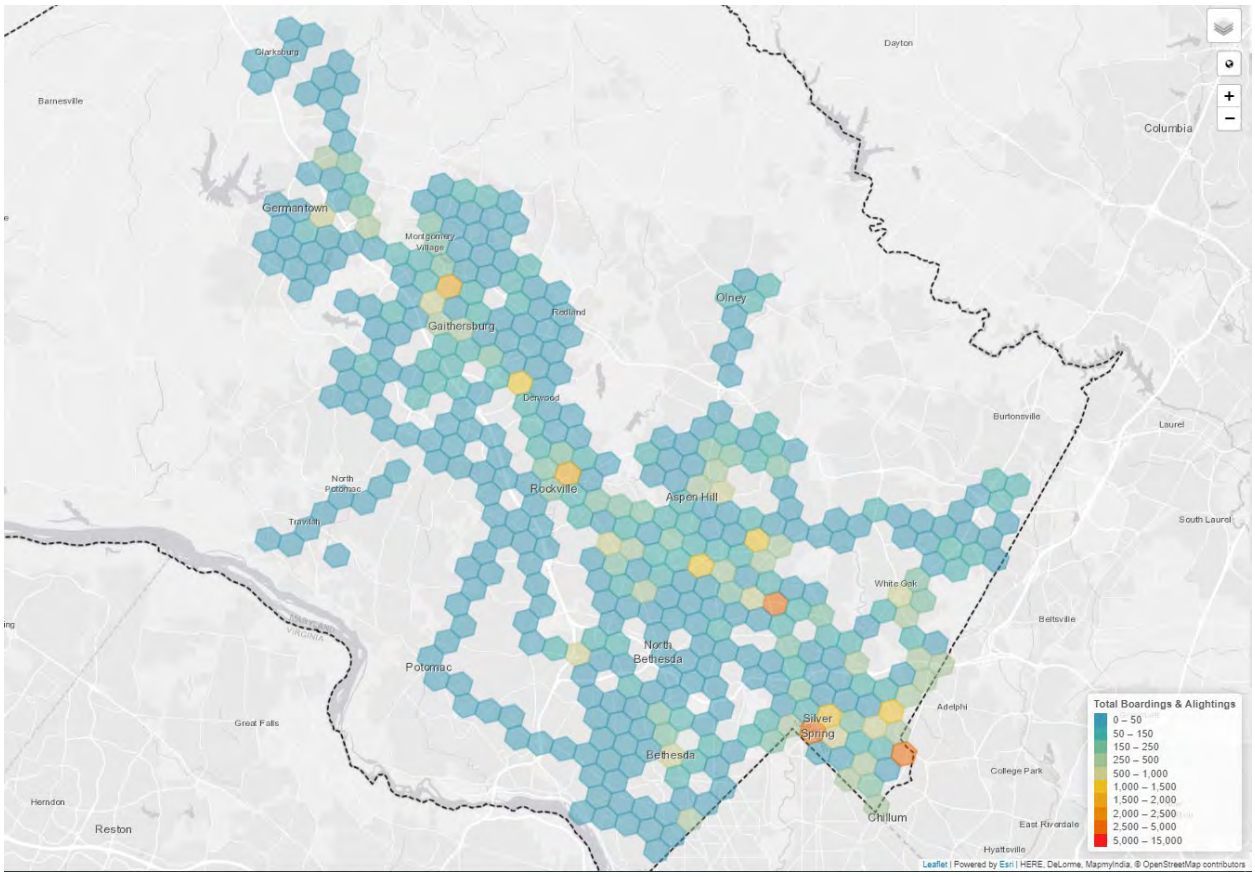


Similar to Saturdays in 2021, only three hexagons surpass 2,500 boardings + alightings **(Figure 51)**, including:

- Wheaton Station (3,490 daily boardings + alightings)
- Silver Spring Station (4,130)
- Takoma – Langley Transit Center (3,228)

Interestingly, Takoma-Langley Transit Center had more boardings and alightings on Sundays in 2021 than it did in 2019.

Figure 51: Boardings and Alightings Sundays Oct 2021



Daily Ridership Comparison

Figure 52: Hexagons Greater than 2,500 Weekday Boardings and Alightings (Pre-COVID-19)

Hexagons
Greater than 2,500 Weekday Boardings and Alightings (Pre-COVID-19)

	2019 Weekday Boardings and Alightings					2021 Weekday Boardings and Alightings					Change in Weekday Boardings and Alightings (2019 vs 2021)		
	Weekday	Saturday	Sunday	Saturday % of Weekday	Sunday % of Weekday	Weekday	Saturday	Sunday	Saturday % of Weekday	Sunday % of Weekday	Weekday	Saturday	Sunday
Germantown Transit Center	3,897	2,547	1,372	-35%	-65%	1,657	976	728	-41%	-56%	-57%	-62%	-47%
Lakeforest Transit Center	5,200	4,454	3,234	-14%	-38%	2,806	2,123	1,917	-24%	-32%	-46%	-52%	-41%
Shady Grove Station	9,140	4,295	2,629	-53%	-71%	3,477	1,596	1,347	-54%	-61%	-62%	-63%	-49%
Rockville Station	7,578	4,640	3,272	-39%	-57%	3,110	1,730	1,635	-44%	-47%	-59%	-63%	-50%
Glenmont Station	4,081	2,376	1,528	-42%	-63%	2,379	1,399	1,136	-41%	-52%	-42%	-41%	-26%
Wheaton Station	7,975	6,418	4,374	-20%	-45%	5,736	4,360	3,490	-24%	-39%	-28%	-32%	-20%
Silver Spring Station	14,304	9,406	6,522	-34%	-54%	7,577	4,937	4,130	-35%	-45%	-47%	-48%	-37%
Bethesda Station	3,712	1,680	1,290	-55%	-65%	1,626	1,048	877	-36%	-46%	-56%	-38%	-32%
Takoma-Langley Transit Center	5,195	4,888	3,192	-6%	-39%	4,483	3,735	3,228	-17%	-28%	-14%	-24%	1%
Friendship Heights	2,629	2,063	1,573	-22%	-40%	1,489	572	438	-62%	-71%	-43%	-72%	-72%
Average				**-32%**	**-54%**				**-38%**	**-48%**	**-45%**	**-49%**	**-37%**

Several interesting trends are seen when comparing hexagons in the County with greater than 2,500 weekday boardings + alightings in 2019 **(Figure 52)**:

- Takoma-Langley Transit Center and Lakeforest Transit Center retain the greatest ridership volumes on weekends when compared to weekdays. This trend can be seen both in 2019 and 2021.
- Conversely, Shady Grove and Bethesda retain the lowest proportion of riders on weekends compared to weekdays.
- When comparing 2019 and 2021 boardings and alightings, Takoma-Langley Transit Center saw the lowest level of ridership decline. Wheaton was the second most resilient station in terms of ridership decline between 2019 and 2021.
- Between 2019 and 2021, weekday ridership at Shady Grove, Rockville, Germantown, and Bethesda were most impacted, dropping by over 50 percent. On weekends, Friendship Heights, Rockville, Shady Grove, and Germantown were most impacted.
- Between 2019 and 2021, on average, ridership fell least on Sundays.

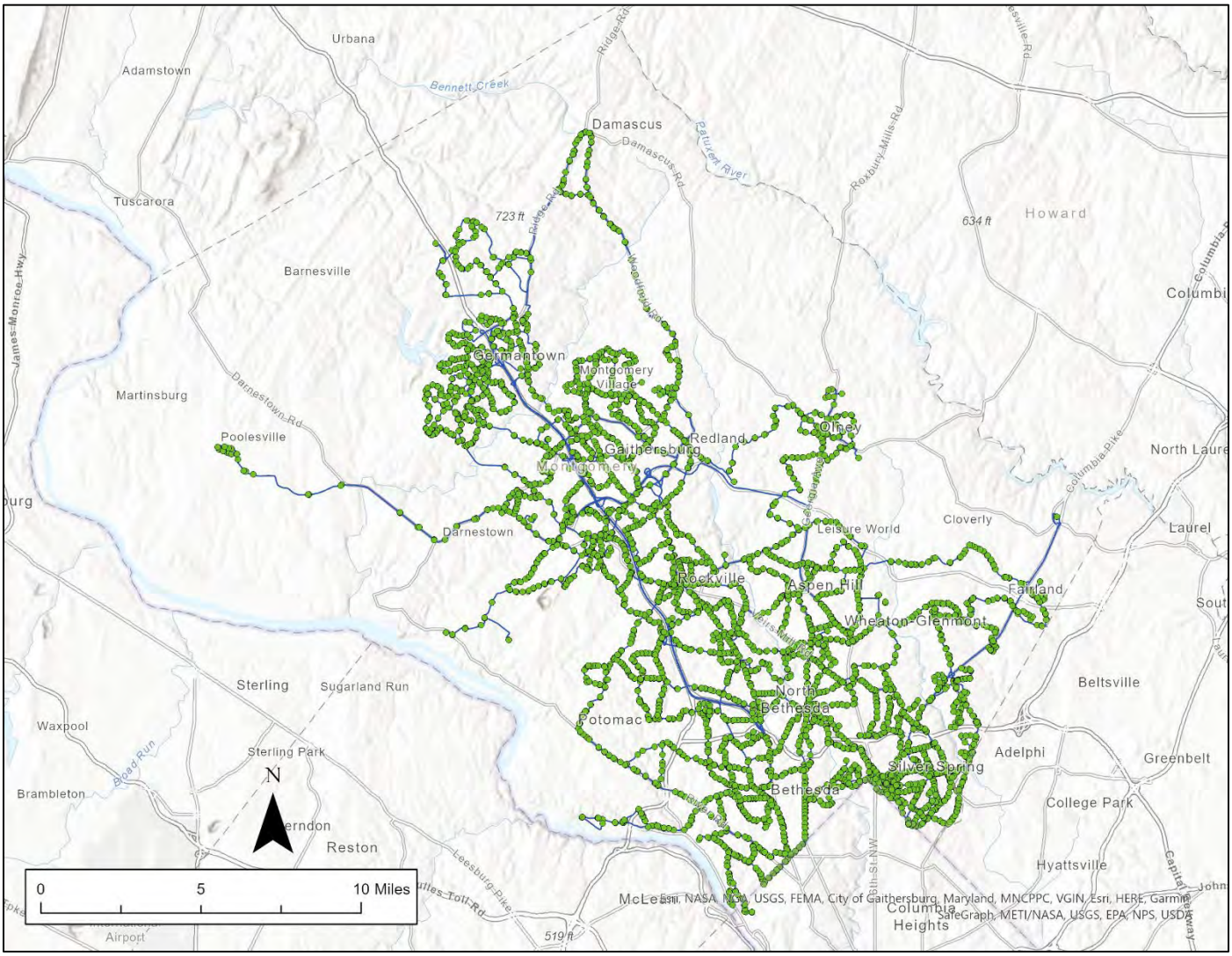
4

Passenger Facilities Amenities

Bus Stop Facilities

Ride On serves an area with a population of more than five million people and offers bus service from Damascus in the northern, or Upcounty, area of Montgomery County to the Washington, DC, border to the south. **Figure 53** illustrates the distribution of the 4,802 bus stops in Montgomery County. Bus stops throughout Montgomery County have a variety of amenities to suit ridership volumes, including shelters, trashcans, and benches. These amenities can be found in both higher density areas such as Silver Spring, and lower density areas, such as Olney. Amenities such as shelters, benches, and lights can drive overall bus ridership and ridership at individual stops.

Figure 53: Montgomery County Transit Stops



Bus stop facilities include the following:

- Shelters
  - Overhangs
  - Complete Structures
- Benches
  - Metal
  - Wood
- Trashcans
- Lighting
  - Around the stop
  - Integrated with shelter
- Advertisements
  - Side Panels
  - Interactive Screens

Fourteen percent of stops in Montgomery County are sheltered or are in active plans or construction to be sheltered and counted (826 stops out of 4,802 total stops). Shelters included in the calculations and maps include "Active," "Planned," and "Under Construction" for their status. With these statuses, the county has previously determined a need for a shelter at those locations and there is intent and/or plans to construct them. Lighting is provided at 37 percent of shelters (303 out of 826). Advertisements are included on approximately 34 percent of bus shelters. Bus stop shelters are maintained by the county, Washington Metropolitan Area Transit Authority (Metro), and other municipalities. Montgomery County maintains three percent of shelters in the county. These distributions are summarized in **Table 46**.

Table 46: Transit Stop Features

	Shelters	Benches	Trashcans	Shelter Lights	Shelter Advertisements
Stop with this feature	826 (14%)	654 (11%)	921 (19%)	303 (37%)	284 (34%)
Stops lacking this feature	3,976 (86%)	4,148 (89%)	3,881 (81%)	523 (63%)	542 (66%)
Total	4,802	4,802	4,802	826*	826*

* Indicates the total number of stops with shelters rather than the total number of stops.

Figure 54: Bus Stops by Shelter Availability

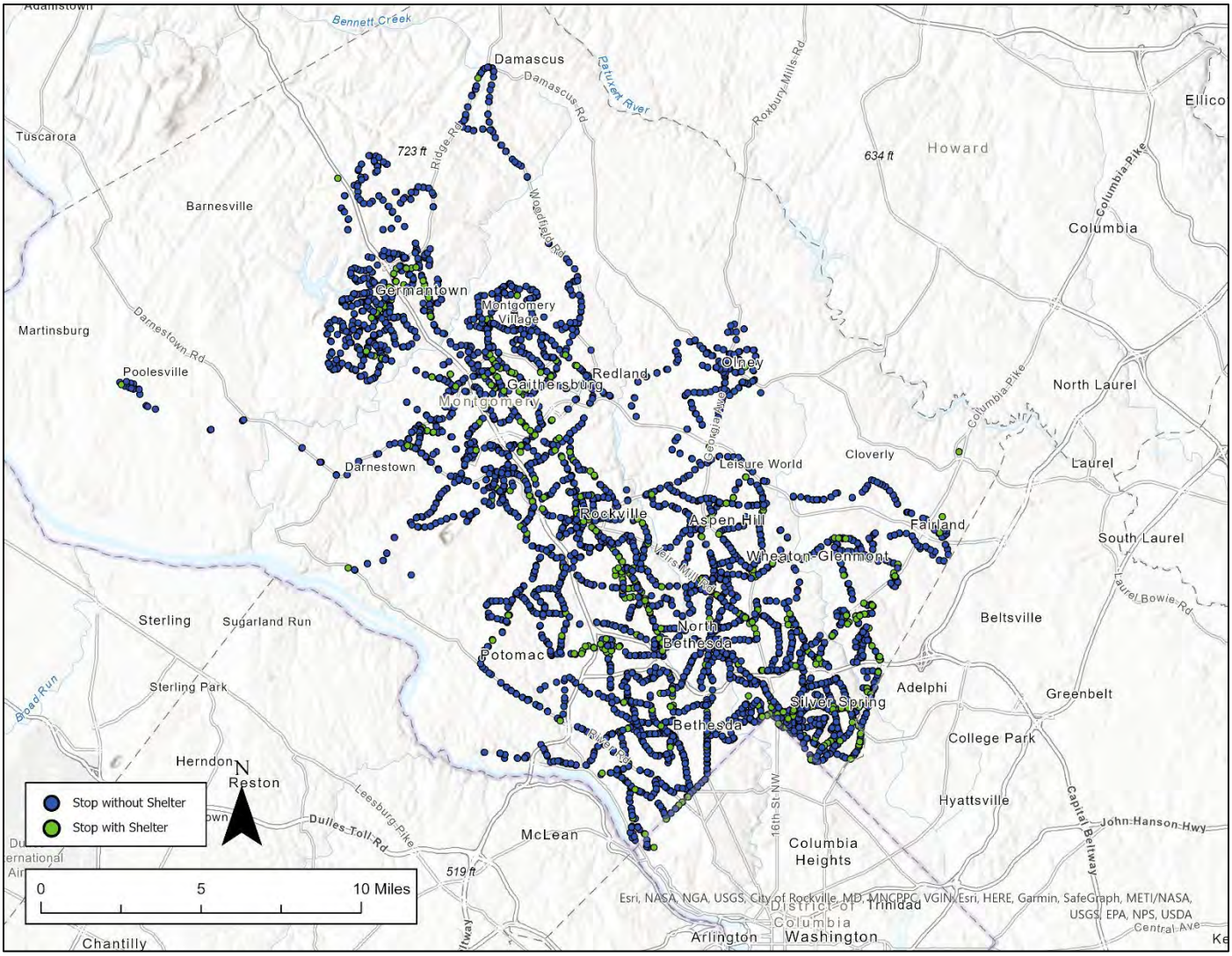


Figure 54 above shows Montgomery County's stops categorized by the presence of a shelter. Stops in blue do not have shelters while stops in green have some form of shelter. Transit centers are also separated out by bus bay within the data, centers such as Silver Spring have 32 individual stops labelled. Ride On routes that travel through more populated areas are more likely to have shelters along their routes. Roadways such as MD 355, MD 193, and MD 586 are all more likely than side streets to have some form of shelter present. Major transit hubs in Silver Spring, Rockville, and Germantown all have sheltered bus bays. Of the 826 sheltered stops in Montgomery County, 303 (37 percent) have built-in lighting.

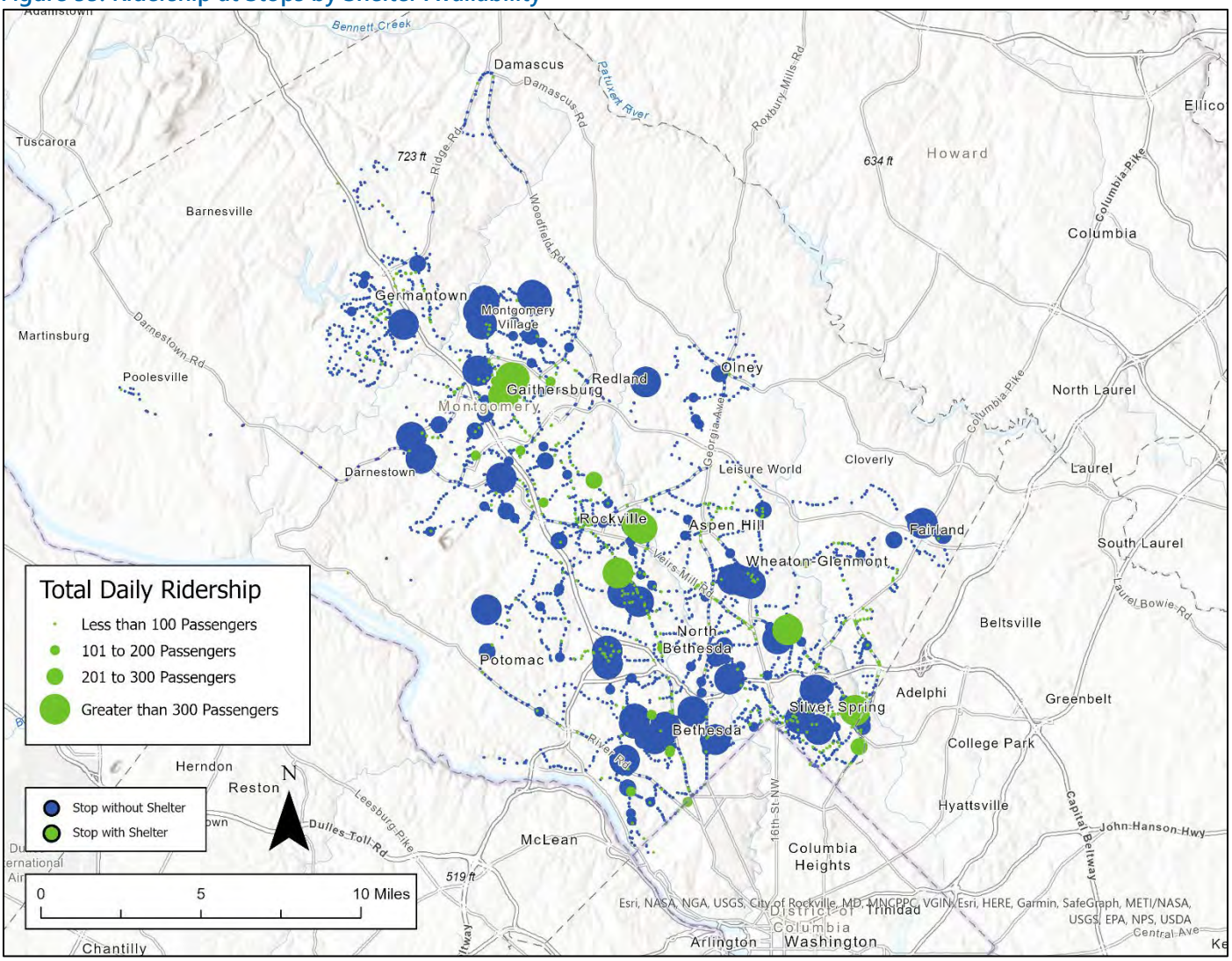
Some bus stops without shelters serve higher ridership volumes than those that do have shelters. These stops include Stonybrook Drive & Hill Street at the Temple with average weekday boardings being 2,034, and Jones Bridge Road & University Road at NIH with 760 average weekly boardings. Additionally, many of the bus stops in Kensington are lacking shelters along throughfares such as Knowles, Metropolitan, and Strathmore Avenues.

Sheltered vs. Non-Sheltered Stops Ridership Numbers

There are 826 sheltered stops throughout Montgomery County, and 3,976 stops without shelters. There are 303 bus stops that include lighting built into the shelter, with service being provided by PEPCO and an additional 42 with solar powered lights. Most of the larger stations that have ridership numbers over 300 boardings a day include shelters. These include the Rockville, Shady Grove, and Silver Spring Metro stations.

There are currently 92 non-sheltered bus stops in Montgomery County that average over 50 total boardings and alightings each weekday. Conversely, there are 407 sheltered bus stops in Montgomery County that average less than 50 riders per weekday. These are seen in **Figure 55**.

Figure 55: Ridership at Stops by Shelter Availability



The stations with the highest average number of boardings are the Germantown Transit Center, Shady Grove Metro Station, and Silver Spring Metro Station. The stops below in **Table 47** are all at major transit hubs and have shelter for passengers.

Table 47: Stations with Highest Average Boardings

Bus Stop Number	Stop	Route	Average Boardings	Average Alightings	Total Activity	Shelter
6006, 4601	Shady Grove Station	43, 53, 58, 60, 61, 64, 65, 71, 73, 74, 76, 78, 79, 90, 100, 101	5,621	4,593	10,160	Sheltered
7479, 7609, 7607, 7604, 7480, 7481, 7605, 7484, 7485, 7486, 7487, 7490, 0120	Silver Spring Station	1, 2, 4, 5, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 28, 129	4,351	4,091	8,442	Sheltered
5182, 5012	Germantown Transit Center	55, 61, 74, 75, 97, 98, 100	2,475	1,899	4,374	Sheltered

The bus stops with the largest ridership numbers outside of major transit hubs are all campus locations of Montgomery College (**Table 48**): Montgomery College in Germantown, Montgomery College in Rockville, and Philadelphia Avenue near Montgomery College in Takoma Park.

Table 48: Stations with Highest Average Boardings outside Major Transit Hubs

Bus Stop Number	Stop	Route	Average Boardings	Average Alightings	Total Activity	Shelter
4194	Observation Drive at Montgomery College	55	365	291	656	Sheltered
4196	South Campus Drive at Campus Drive	46, 55, 101	272	400	672	Sheltered
4866	Philadelphia Ave and Chicago Ave	17, F4	179	40	219	Sheltered

The bus stops in **Table 49** have high ridership numbers but do not have shelters. These include major hubs around business districts and densely populated residential areas. There is also a high concentration of ridership around major commercial areas such as Silver Spring that fail to have any shelter present.

Table 49: Stations with Highest Boardings and No Shelter

Bus Stop Number	Stop	Route	Average Boardings	Average Alightings	Total Activity	Shelter
6202	Stonybrook Dr. & Hill St.	100, 55, 61, 74, 75, 97, 98	2,034	1,790.9	3,825.4	Not Sheltered
3420	Jones Bridge Rd. & University Rd.	100, 55, 61, 75, 97	760	588	1,348.5	Not Sheltered
8468	Randolph Rd. & Livingston St.	54, 56, 63	745	596	1,340.8	Not Sheltered

Montgomery County also has numerous sheltered bus stops that have few or no passenger boardings per day on average (**Table 50**). The county has 259 bus stops with shelters that average less than 10 riders a day.

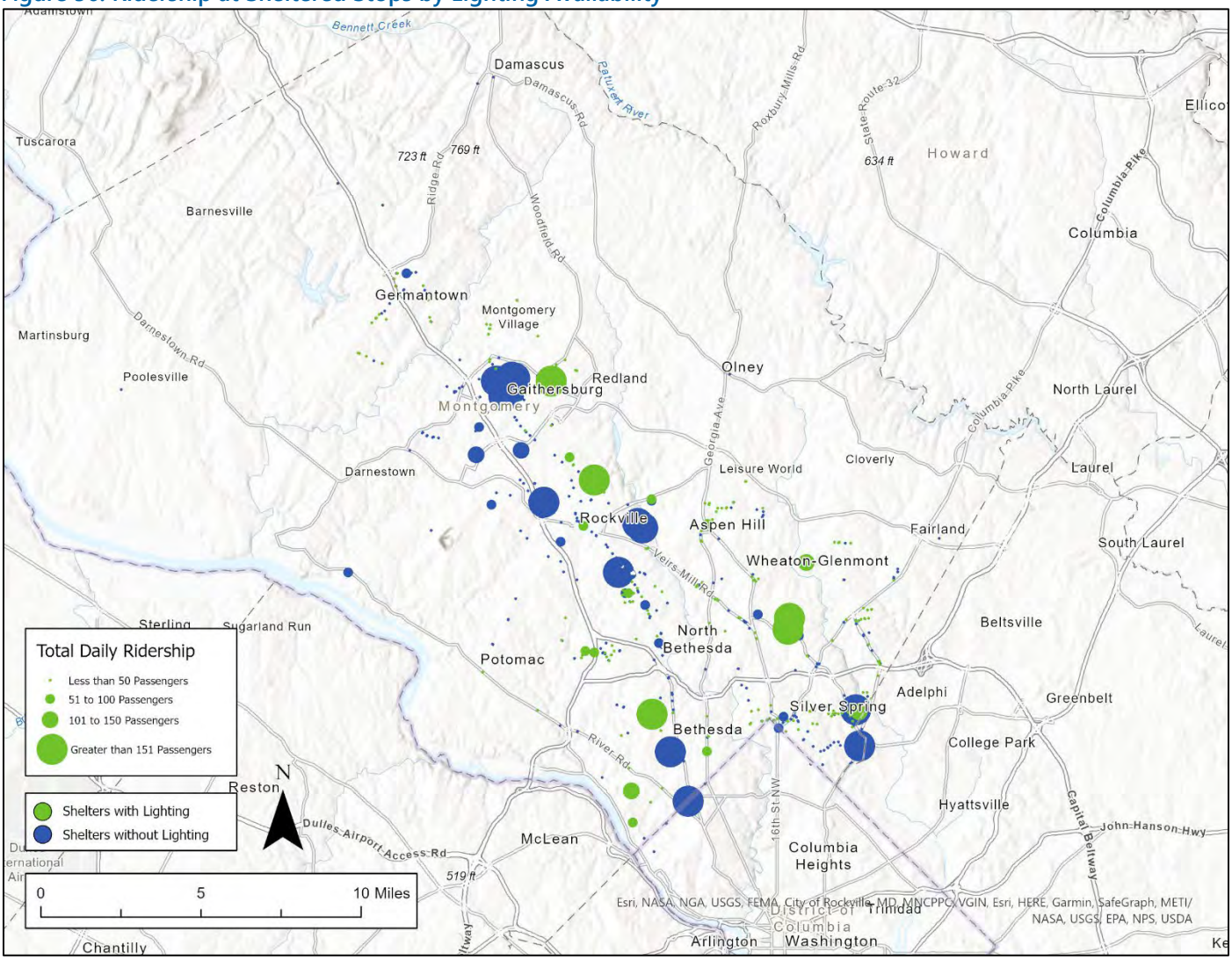
Table 50: Stations with Low Boardings and Sheltered

Bus Stop Number	Stop	Routes	Average Boardings	Average Alightings	Total Activity	Shelter
296	Bel Pre Rd. & Homecrest Rd.	98	0	0	0	Sheltered
724	Capitol View Ave. & Leafy Ave.	97	0	0	0	Sheltered
1346	Connecticut Ave. & Aspen Hill Rd.	97	0	0	0	Sheltered

Sheltered Bus Stops with Lighting

Figure 56 highlights ridership levels among sheltered stops sorted by the presence or absence of lighting at the shelter. While many larger stops have lighting, there are a significant number that have no lighting. Out of the 826 active, planned, and under construction sheltered bus stops, 523 do not have lighting while 303 do (58 percent). The average daily boardings and alightings for stops with lighting is 16, while the average daily activity for stops without lighting is 28.

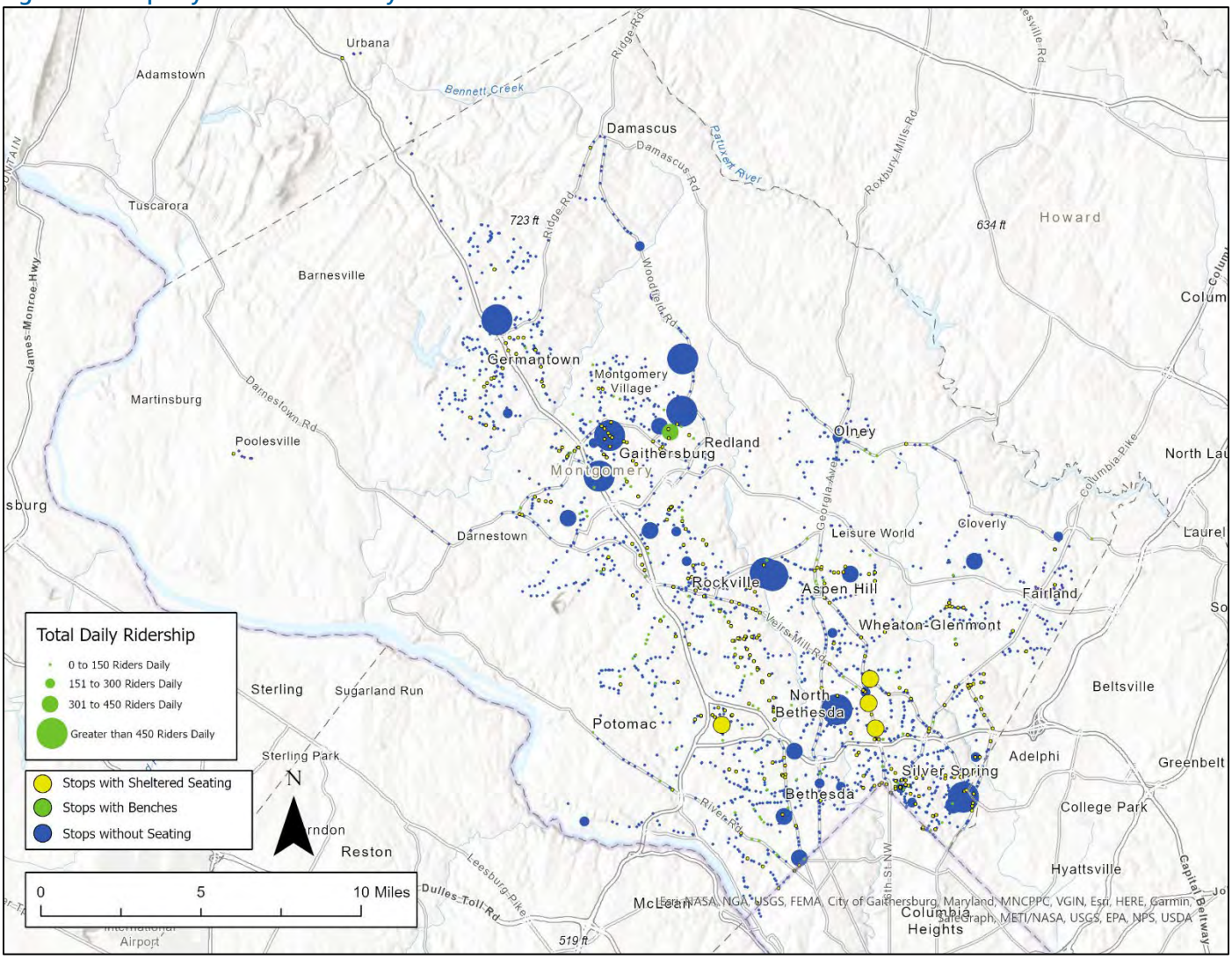
Figure 56: Ridership at Sheltered Stops by Lighting Availability



Montgomery County Transit Stops with Benches

In **Figure 57** below, the stops highlighted in blue are bus stops that do not offer seating, either with a bench or a shelter. There are also 174 bus stops throughout the county that average more than 50 riders a day that do not have seating available. Of the 4,802 stops in Montgomery County, 1,515 of them have seating (32 percent of all stops) and 1,824 are sheltered, while 1,463 (30 percent) do not have seating.

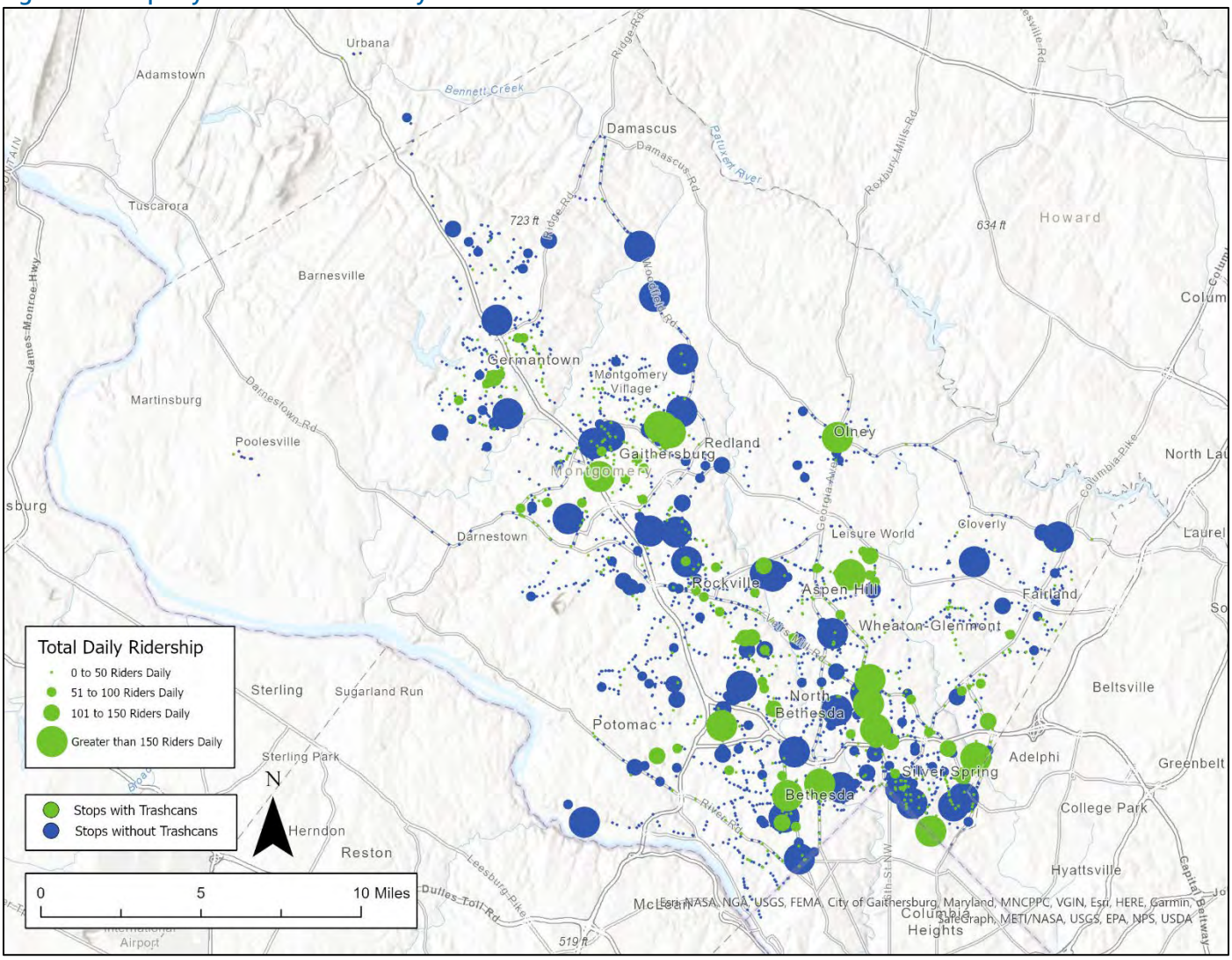
Figure 57: Stops by Bench Availability



Montgomery County Transit Stops with Trashcans

Montgomery County has trashcans placed at bus stops across the Ride On system for passenger and public use. The trashcans are located at higher passenger areas such as commercial areas or transit hubs. Stops that are less frequently used or are off the major roadways generally lack this amenity. Of the 4,802 stops in Montgomery County, 921 have a trashcan, or 19 percent of all stops (**Figure 58**).

Figure 58: Stops by Trashcan Availability



Montgomery County Park and Ride Lots

Montgomery County has 18 Park and Ride lots serving transit centers. Ownership is split between the county, private entities, MDOT Maryland Transit Administration (MTA), and the Maryland State Highway Administration (SHA). Park and Ride lots serve multiple services: Ride On, Metrobus, MARC, MTA commuter buses, and private shuttles. These lots are summarized on the map in **Figure 59** and **Table 51** below.

Figure 59: Montgomery County Park and Ride Lots

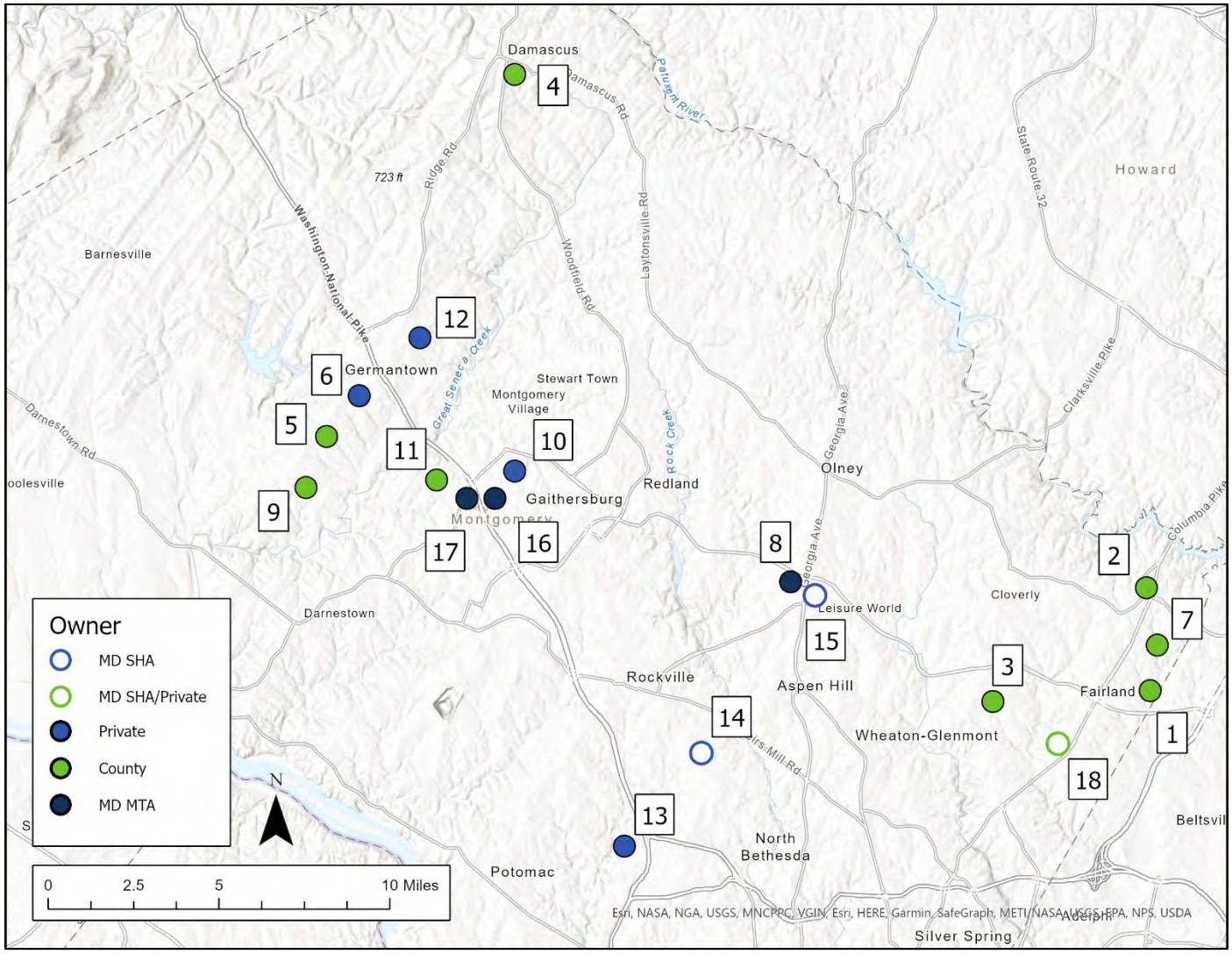


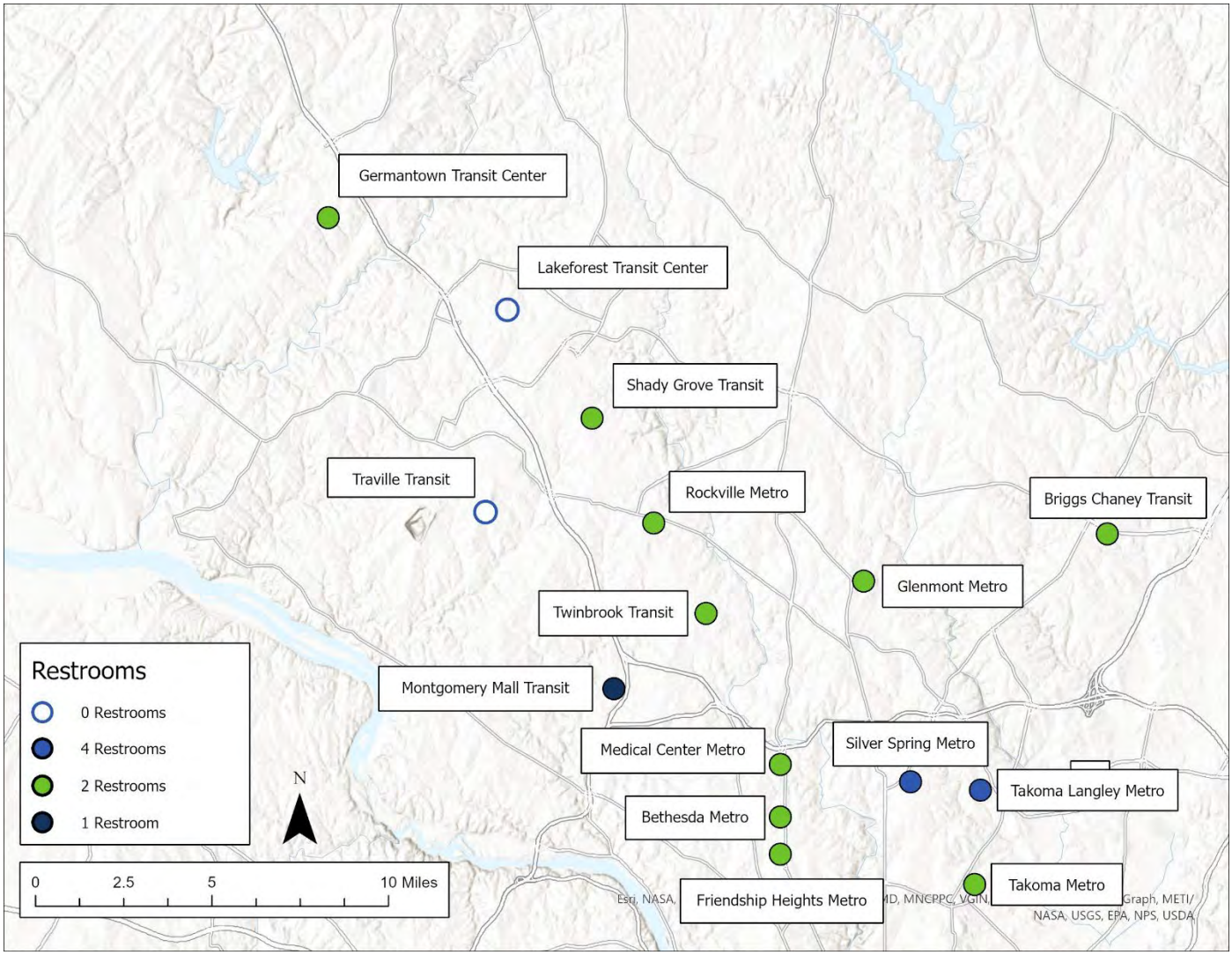
Table 51: Park and Ride Lots

Lot	Park and Ride Lot	Owner	Routes	Spaces	Average Weekday Boardings
1	Briggs Chaney Park and Ride Lot	County	21, 29, Z6, Z7	253	302
2	Burtonsville Park and Ride Lot	County	Z6, Z7, MTA201, MTA203, MTA305, MTA315	567	76
3	Colesville Park and Ride Lot	County	Z2	168	33
4	Damascus Park and Ride Lot	County	90	51	99
5	Germantown MARC Park and Ride Lot	County	75, 83, 97	657	35
6	Germantown TC Park and Ride Lot	Private	55, 61, 74, 75, 83, 97, 98, 100	175	94
7	Greencastle Park and Ride Lot	County	Z8	155	229
8	ICC Park and Ride Lot	MD MTA	53, Y7, MTA201, MTA204	194	12
9	Kingsview Park and Ride Lot	County	61, 71, 78, 98	177	97
10	Lakeforest Mall Park and Ride Lot	Private	54, 55, 56, 57, 58, 58, 59, 61, 101	417	93
11	Metropolitan Grove Park and Ride Lot	County	78	354	11
12	Milestone Park and Ride Lot	Private	55, 70, 75, 83, 90	216	139
13	Montgomery Mall Park and Ride Lot	Private	6, 26, 42, 47, 96, J1, J2, MTA?	200	112
14	Montrose Park and Ride Lot	MD SHA	NIH Shuttle	209	17
15	Norbeck Park and Ride Lot	MD SHA	51	242	19
16	Route 117 Park and Ride Lot	MD MTA	MTA201	309	47
17	Route 124 Park and Ride Lot	MD MTA	56, MTA201	477	30
18	Tech Road Park and Ride Lot	MD SHA/Private	10, 501, Z7, Z8	161	23

Montgomery County Transit Terminal Restrooms

The county has 13 transit terminals with at least one bathroom that operators can utilize at the end of their routes. Notably, both Traville Transit Center and Lakeforest Transit Center do not have any restrooms, making it difficult for bus operators serving these hubs. Additionally, routes 7, 27, 37, and 38 do not have any restrooms at either end of the line for operator use. Terminals with restrooms are shown in **Figure 60**. A Fairland Transit Center is currently being planned.

Figure 60: Transit Terminal Restrooms

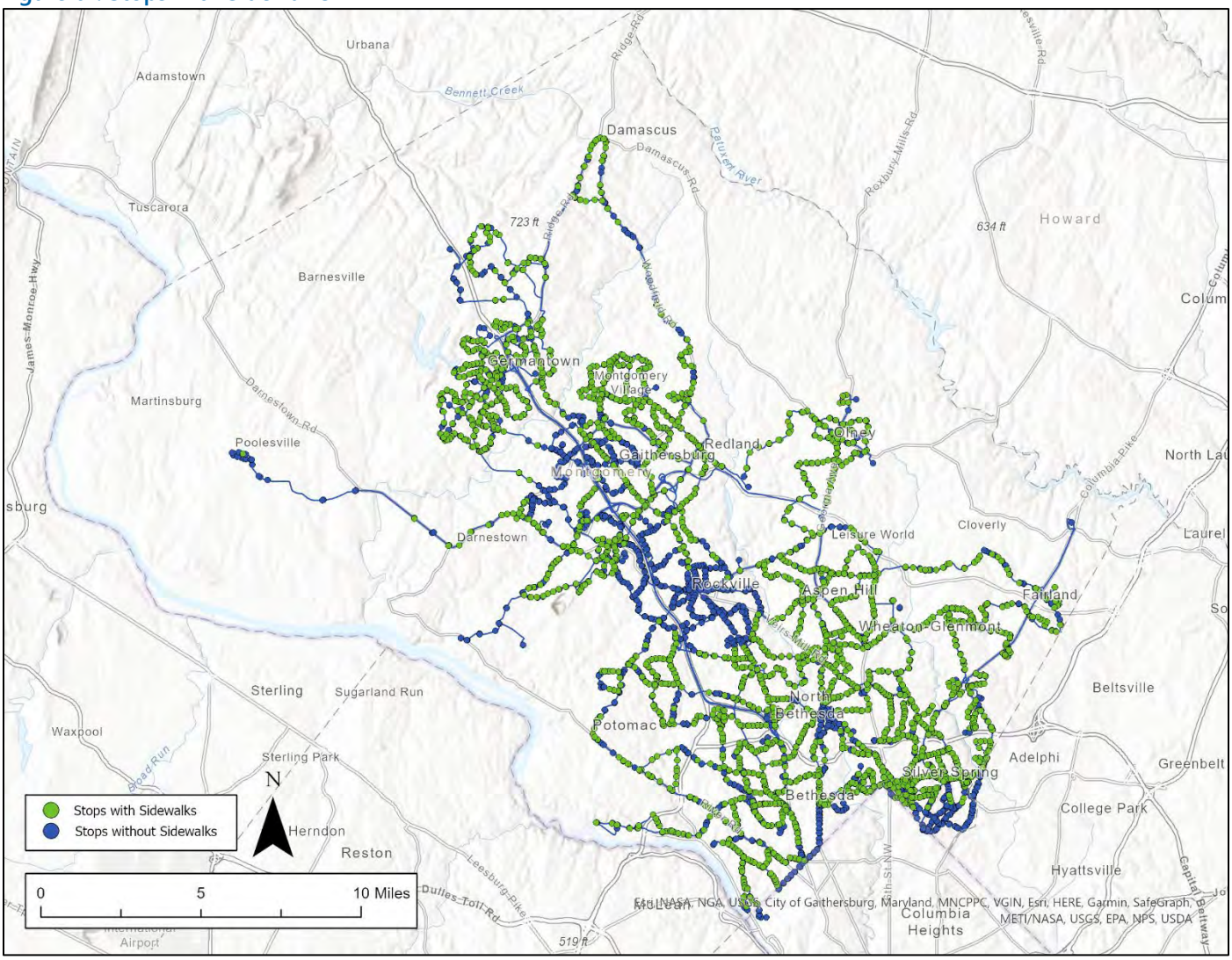


Montgomery County Bus Stops with Sidewalks

Based on Montgomery County Department of Planning's sidewalk data, the county has sidewalks available at a majority of its bus stops, with 63 percent of all stops having a sidewalk (**Figure 61**). However, having a sidewalk present does not mean it provides access, as many of the stops have sidewalks only at their stops and fail to connect to surrounding areas. There are 3,013 bus stops around the county that provide five feet of sidewalk at a minimum and border private property on most sides, for a virtual "dead end" for pedestrian connectivity. There are 166 bus stops in Montgomery County that have at least five feet of sidewalk and have a place of interest within 50 feet of the sidewalk. Similarly, there are 1,368 bus stops in the county that meet the sidewalk criteria and have a point of interest within a quarter of a mile. These places of interest include shopping centers, hospitals, churches, libraries, recreational centers, schools, universities, and parks. Many of the bus stops with sidewalks are located at major commercial or downtown areas. The less dense areas of Montgomery County near places such as Poolesville and Burtonsville have fewer bus stops with sidewalk connections.

This was analyzed by calculating how many bus stops had at least five feet of sidewalks within 25 feet of the local bus stop. Sidewalk data came from Montgomery County Department of Planning and was used for this analysis. The five feet of sidewalk was utilized for this calculation so passengers would have a hard and reliable surface to board and alight from their bus. Places of interest were added and utilized to calculate how many stops were within a tenth of a mile and had at least five feet of sidewalk.

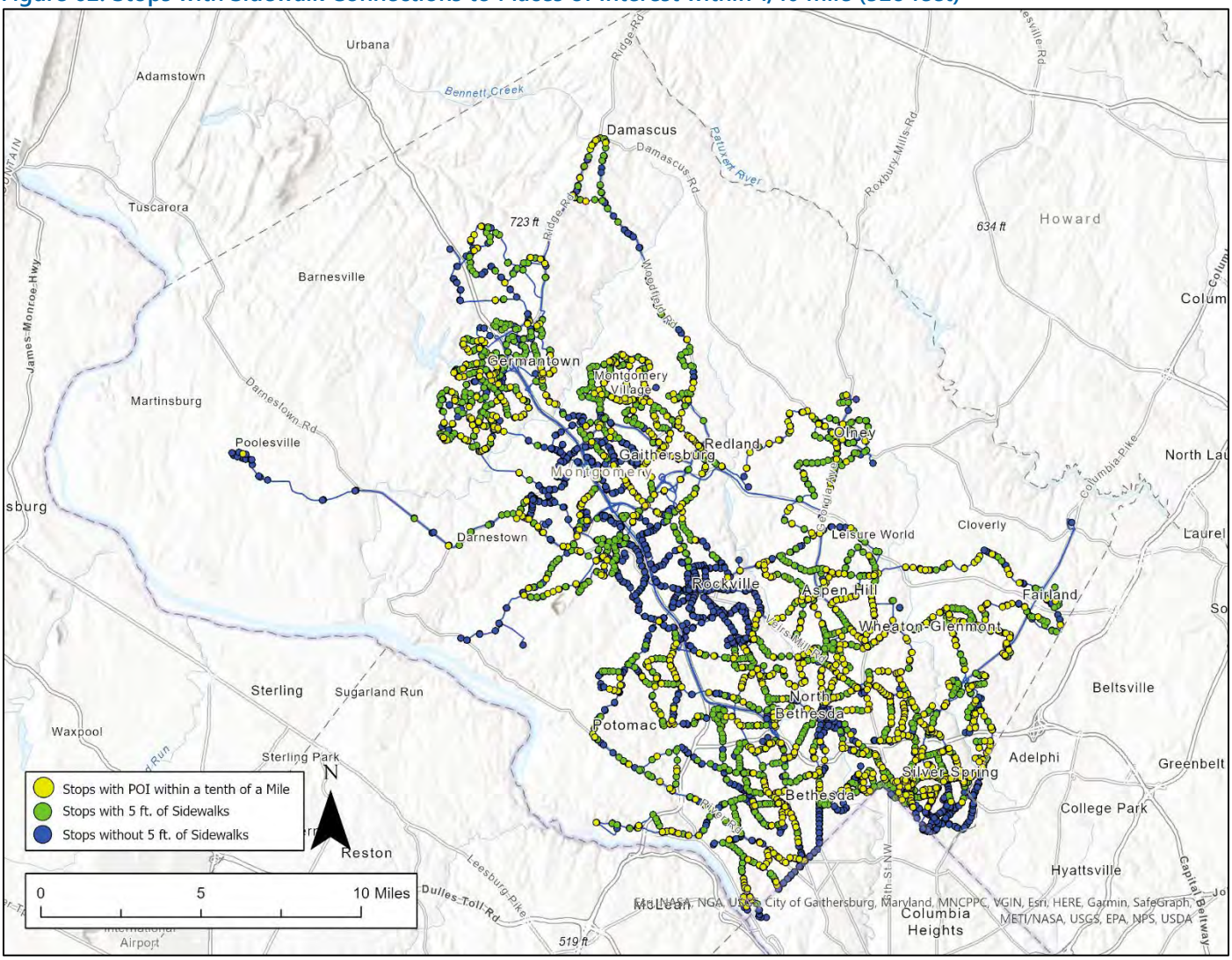
Figure 61: Stops with Sidewalks



In

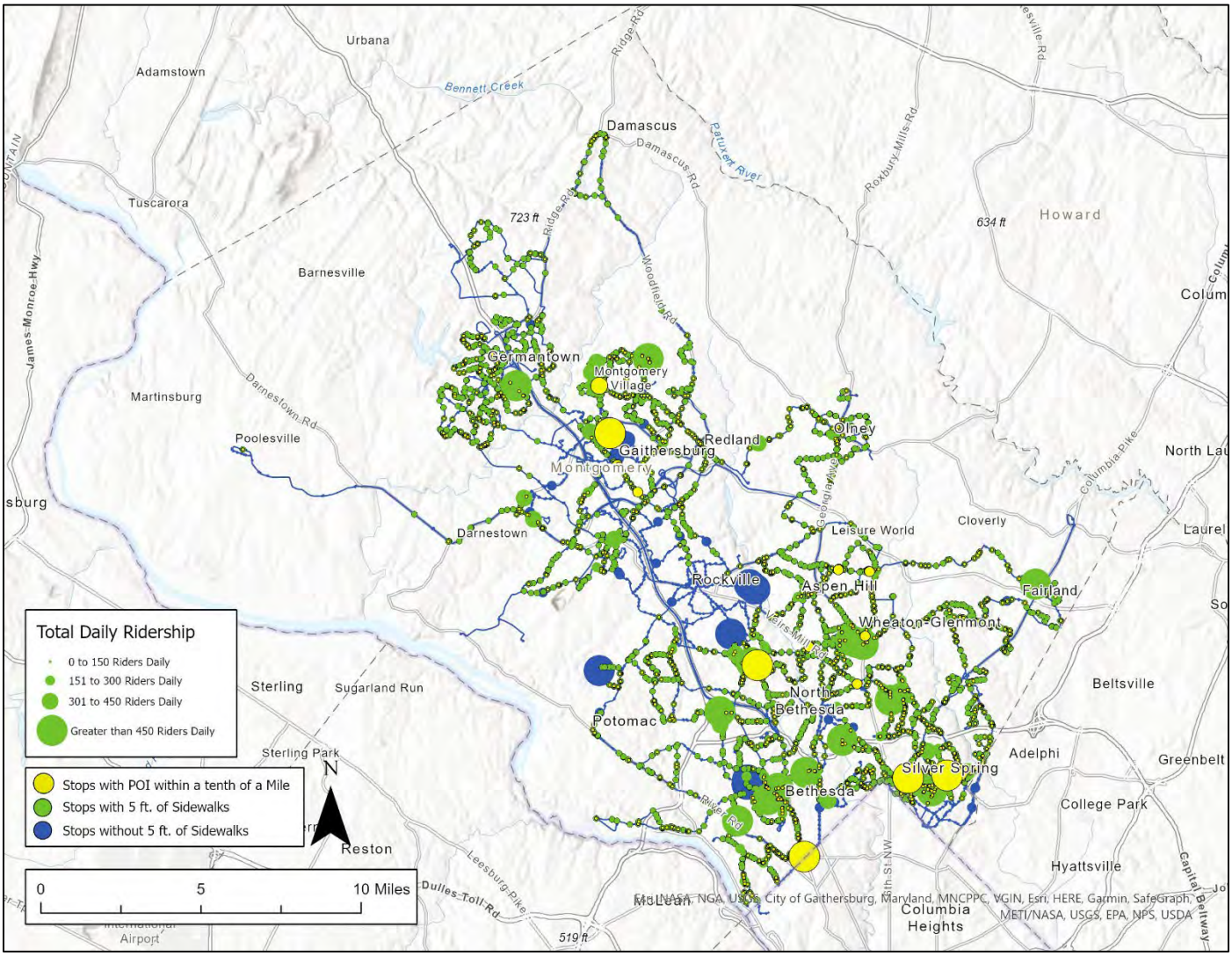
Figure 62, yellow points represent Montgomery County bus stops that have both a sidewalk and a place of interest within a tenth of a mile that are easily accessible to riders. The Montgomery County locational data includes churches, shopping centers, parks, hospitals, libraries, recreational centers, schools, and universities. There are a total of 1,368 bus stops in Montgomery County that have at least five feet of sidewalk and have a point of interest within a tenth of a mile.

Figure 62: Stops with Sidewalk Connections to Places of Interest within 1/10 mile (528 feet)



Stops that have a sidewalk appear to generate higher ridership numbers than those that do not. However, stops that have sidewalks connecting them to places of interest within a tenth of a mile are not consistently a major contributor to ridership levels, although these connections improve riders' ability to access bus stops. **Figure 63** represents the comparison between stops with and without sidewalks, and to the sidewalk stops that have a place of interest within a tenth of a mile.

Figure 63: Ridership for Stops with Sidewalks



Metrobus and Ride On Shared Stops

Figure 64 highlights ridership at Ride On stops throughout Montgomery County that are shared with Metrobus, with from weekdays in 2019. Ridership is higher for Ride On at these stops, but Metrobus has high ridership in some areas around Wheaton-Glenmont. The highest ridership comes from areas near park and rides or Metro stations such as Rockville, seen in **Table 52.**

Figure 64: Shared Stop Ridership

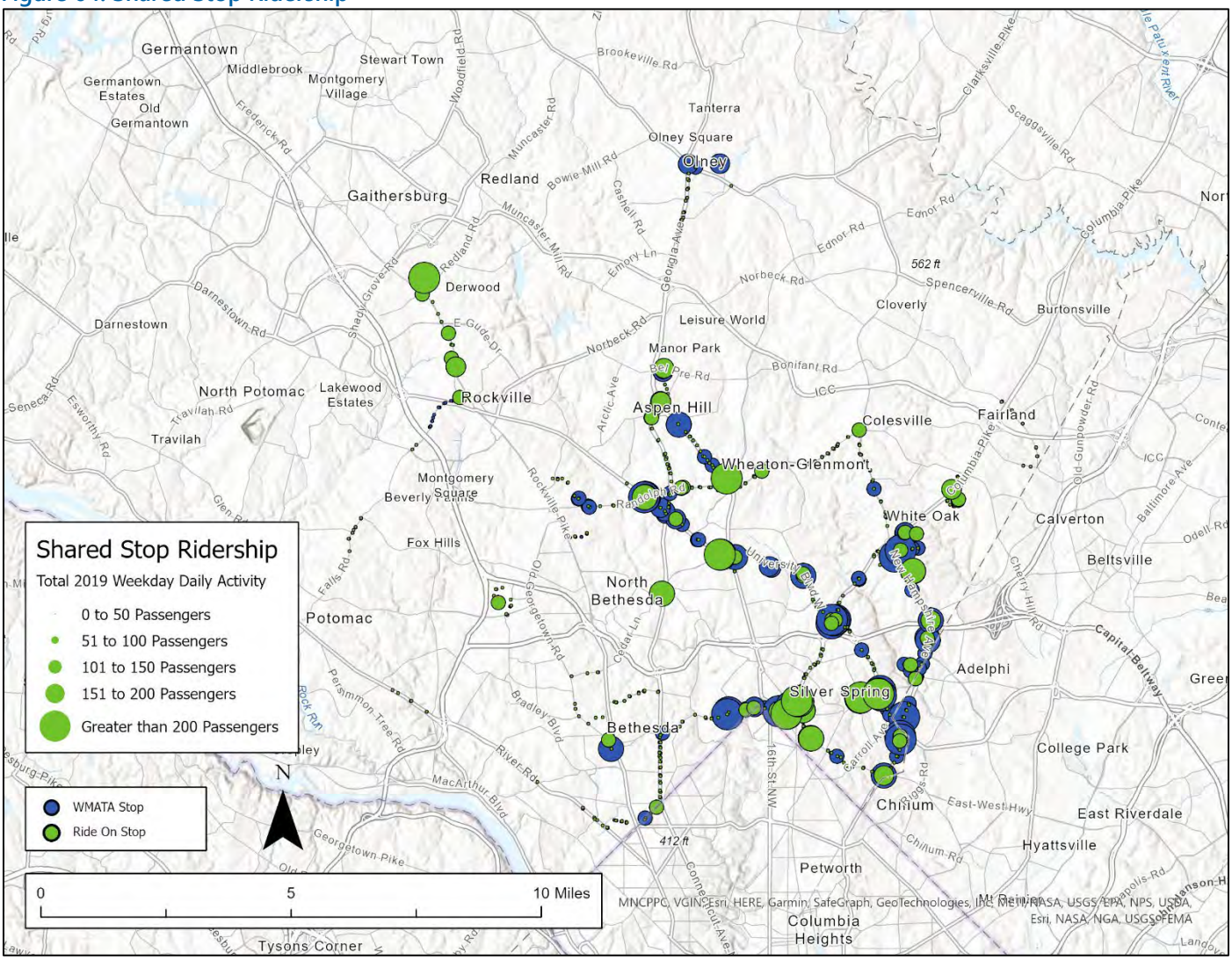


Table 52: Shared Stops with High Ridership

Stop ID	Name	Agency	Total Ons	Total Offs	Total Activity
20005474	Silver Spring Station Bus Bay 223	Metro	429.6	445.4	875
6012	Shady Grove Station Bay C West	Ride On	470.2	344.8	815
2000510	Veirs Mill Rd, University Blvd	Metro	599.8	156.2	756

Table 53: Shared Stops between Ride On and Metrobus

	Ride On	Metrobus	Both
Number of Stops	4,802	1,482	599
Numbers of Shelters	826	104	145
Total Average Daily Ridership per stop	23.57	52.27	29.29

Key Takeaways

Ride On offers bus service across Montgomery County, with varying levels of passenger facilities and amenities. Ride On has 14 percent of its stops equipped with shelters throughout the county, with a majority being at higher volume stops such as transit hubs or Park and Rides. Major roadways such as Rockville Pike or Georgia Avenue also have higher numbers of shelters compared to side streets or lower density areas. Sheltered stops could be implemented throughout the county to accommodate ridership, especially among routes that serve higher ridership areas.

Advertisements are featured throughout the county on bus shelters. Many of the advertisements are located in higher density areas such as Silver Spring or along major transit corridors such as Georgia Ave.

Only 36 percent of sheltered stops have lighting, and only six percent of all Montgomery County stops have lighting in general. Many Ride On routes operate after dusk and later in the evening, with fourteen routes running past midnight and eighty routes running past 6 PM.

Benches are present at 32 percent of all Montgomery County stops. Stops with high ridership in Montgomery County often fail to have a bench available: 174 bus stops that average over 50 riders per weekday do not include benches. This count includes stops that are found in transit hubs or at Metrobus stops. Bench-provided stops can be expanded for the benefit of elderly and disabled riders throughout the county.

Sidewalks are present at 63 percent of all Ride On stops. Most of the bus stops that have sidewalks are located in denser, more populated areas such as Bethesda or Silver Spring, while stops without sidewalks are located mainly in more exurban and rural areas. However, only 3,013 of the stops analyzed had a minimum of five feet of sidewalk with many leading to nowhere. Out of the 3,013 stops with sidewalks, 1,368 had a place of interest within a tenth of a mile. Improved sidewalks and strategically placed connections improve riders' ability to access bus stops.

5

Origin-Destination Patterns

Introduction

Origin/destination (O/D) data from StreetLight was analyzed to understand the travel patterns in Montgomery County. Travel flows were examined to determine the top O/D pairs in the county. Transfer data provided by Ride On was evaluated to determine top transfer points and Metrobus and Ride On routes that have the most transfers. These datasets provide insights to the existing service and travel patterns within the county.

StreetLight Travel Flows

An important part of understanding potential future transit markets that are not currently served by bus routes is to look at origin/destination (O/D) data to see counts of travelers between different pairs of geographic areas. VHB has conducted an analysis using StreetLight data to explore origin/destination pairs within Montgomery County and surrounding zones in Maryland, Virginia, and the District of Columbia by all vehicles trip volumes and bus and rail trip indices.

This analysis has shown that the strongest bus trip generating O/D pairs involve all combinations between the areas of Silver Spring, Washington, Rockville, Gaithersburg and Bethesda. Twinbrook has also shown to be a reliable bus trip generator both as an origin and as a destination. There are several O/D pairs that show potential for increased bus service. External O/D pairs such as Rockville-Gaithersburg and Gaithersburg-Rockville show potential for increased bus service between those areas. Clarksburg-Clarksburg, Olney-Olney, Potomac-Potomac and Damascus-Damascus are within pairs that could see increased bus service.

Data and Methodology

This data is made available to VHB via StreetLight Data, a transportation mobility data provider that aggregates millions of mobile GPS pings and uses machine learning methods to calculate travel trips broken down by transport mode. The data for Montgomery County, Maryland is represented by samples collected by StreetLight during the months of March, April, September, and October of 2019.

VHB has created two sets of geographic areas from which to compute origin/destination (O/D) pairs: **Regional Areas** and **Activity Areas**. Regional Areas contains 36 zones, include all areas that adjacent to Montgomery County, Maryland, in the District of Columbia, Arlington, Dranesville in Fairfax County, Virginia, and parts of Loudoun County, Virginia, and Frederick, Carroll, Howard and Prince George's counties in Maryland. Activity Areas are composed of 55 smaller neighborhood areas entirely within Montgomery County.

When looking at values that communicate trips between origins and destinations, an important distinction must be made between "volumes" and "indices". StreetLight's volume values represent estimate trip counts as calculated by the firm's machine learning algorithm. StreetLight's index values represent relative trip activity. We present both volumes and indices as trip "counts"; however, we do not directly compare a volume value for all vehicles with an index value for bus or rail since the indices are based on different sample populations and thus cannot be compared with each other.

Figure 65 shows a map of the labeled **Regional Areas** in Montgomery County and the surrounding areas.

Figure 65: Regional Areas of Montgomery County and Surrounding Locations

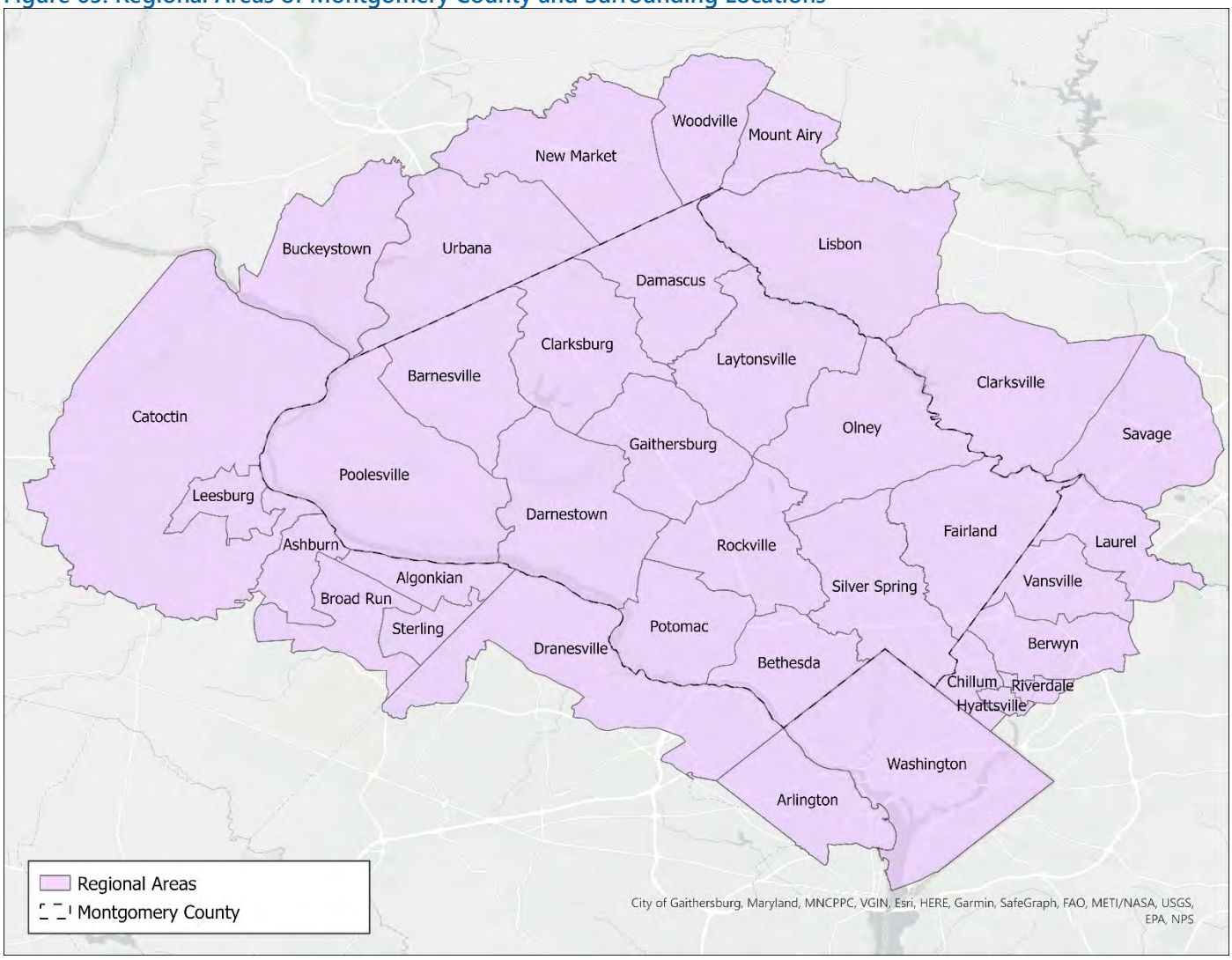
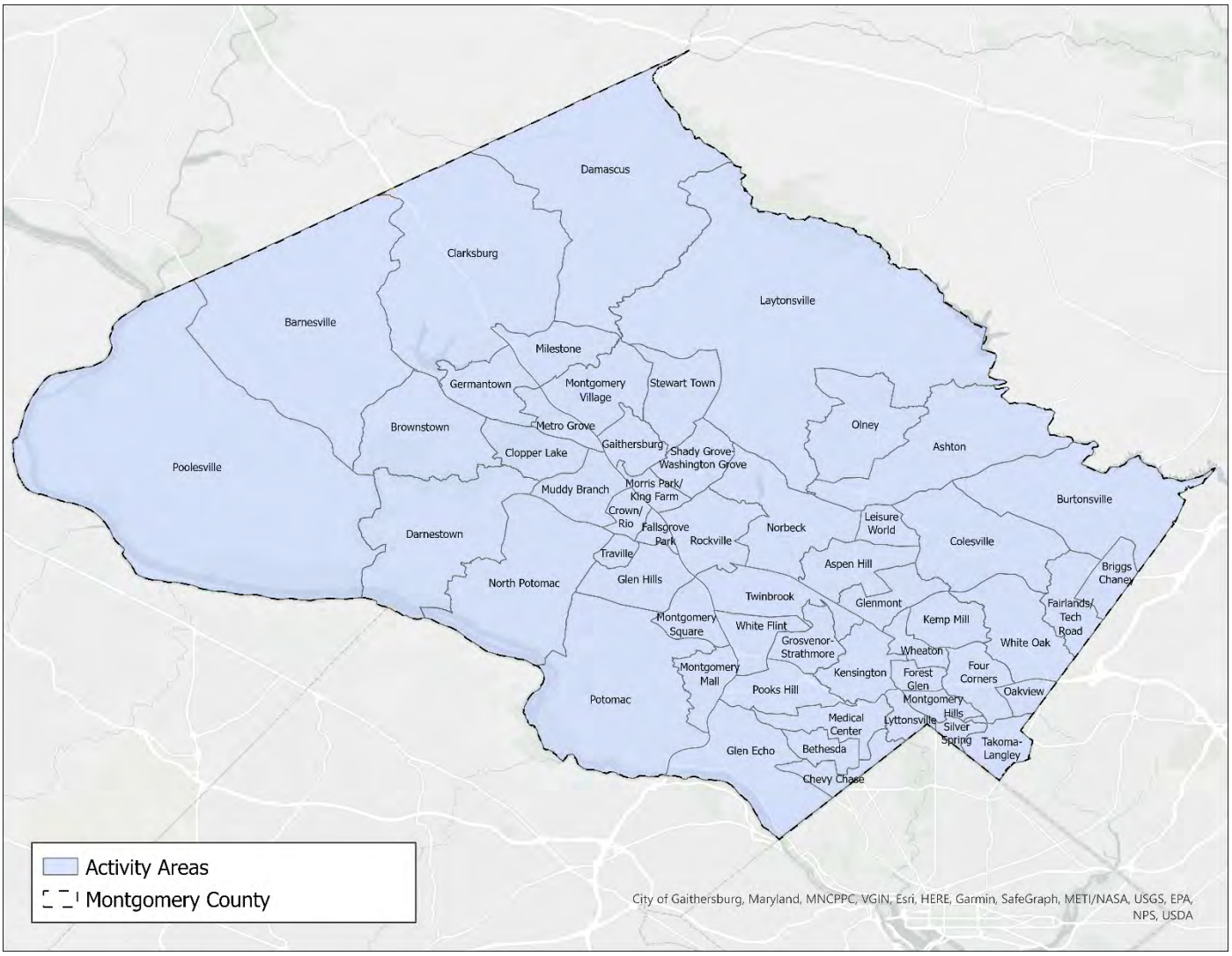


Figure 66 shows the **Activity Areas** all within Montgomery County.

Figure 66: Activity Areas of Montgomery County



Origin/Destination Volumes

All Vehicles, All Days

Figure 67 is an O/D matrix for the Regional Areas showing the number of total trips for all vehicles, all day, Sunday through Saturday. Each pair is marked by a square and colored by the number of trips reported by StreetLight.

The largest generators of trips are the within pairs of Bethesda-Bethesda, Gaithersburg-Gaithersburg, Rockville-Rockville and Silver Spring-Silver Spring. Non-within pairs that generate a considerable number of trips are Gaithersburg-Rockville, Rockville-Gaithersburg, Silver Spring-Washington, Bethesda-Washington and Rockville-Silver Spring.

Figure 67: O/D Matrix showing Total Trips for All Vehicles, All Day, Sunday through Saturday, Regional Areas

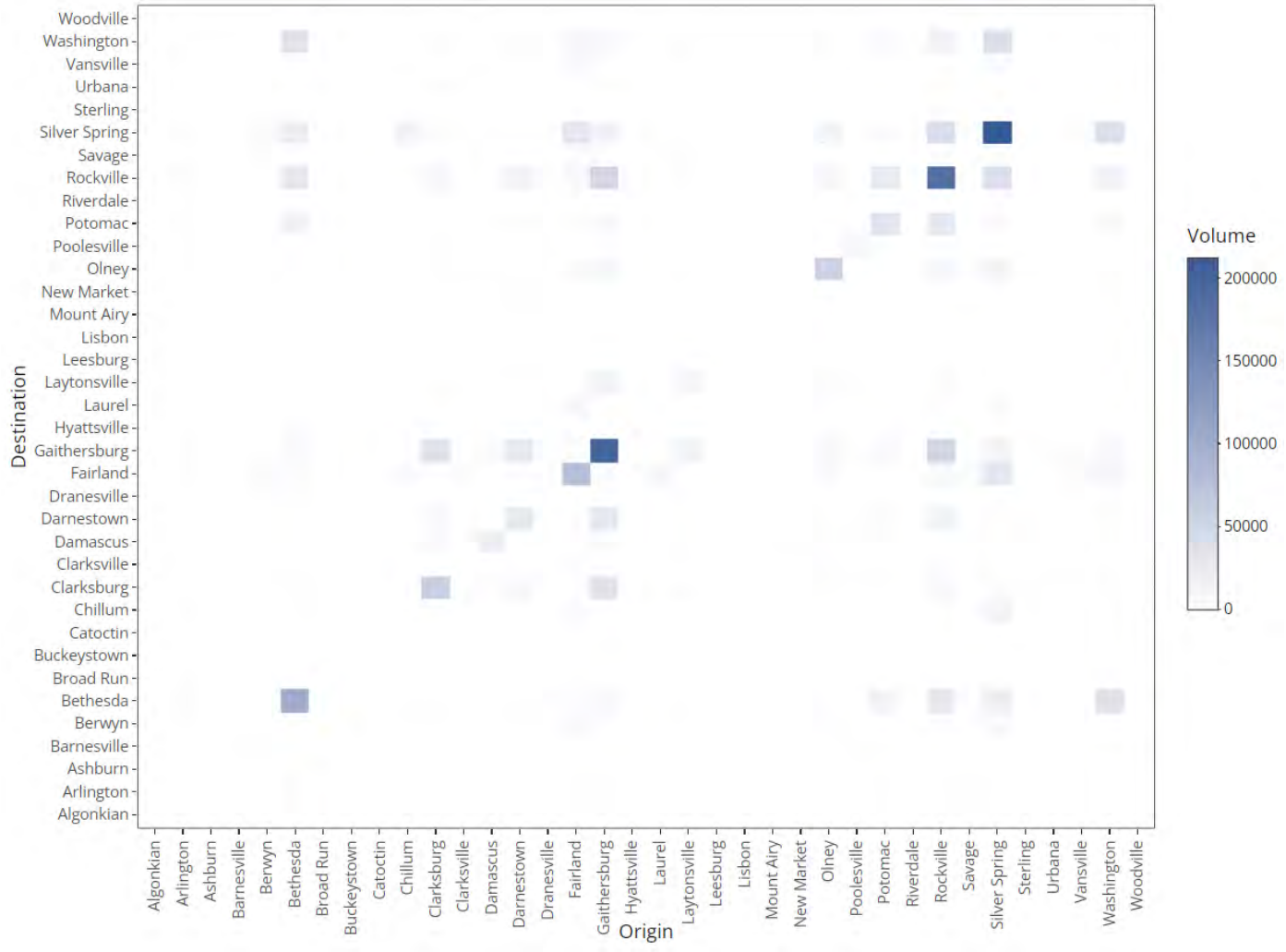


Table 54 displays a tabular list of O/D pairs from the previous matrix ordered by count. The first column shows all-vehicle travel counts between all possible O/D pairs, the second column between non-within pairs (the origin is different from the destination) and the third between within, or internal, pairs (origin and destination are the same).

An interesting thing to note is that the top seven overall O/D volumes are all internal pairs. Over 850,000 trips made by all vehicles during all day periods, Sunday through Saturday, occurred within

the following Regional Areas: Silver Spring, Gaithersburg, Rockville, Bethesda, Fairland, Clarksburg and Olney.

For the non-within pairs, an interesting pattern emerges in that the top trip generating pairs include both directions between the areas. For example, Rockville-Gaithersburg and Gaithersburg-Rockville are the top two non-within pairs. Both directions between Rockville and Silver Spring, Washington and Silver Spring, Gaithersburg and Clarksburg, Bethesda and Washington and Silver Spring and Fairland round out the rest of the top twelve non-within pairs. Washington appears to be the most common origin or destination outside of Montgomery County that generates trips. It is also interesting to note the Rockville-Silver Spring pairs as those zones are nearly 10 miles apart.

Table 54: Top O/D Pairs, Total Trips for All Vehicles, All Day, Sunday through Saturday, Regional Areas

All pairs			Non-within pairs			Within pairs		
Origin	Destination	Count	Origin	Destination	Count	Origin	Destination	Count
Silver Spring	Silver Spring	212,549	Rockville	Gaithersburg	49,076	Silver Spring	Silver Spring	212,549
Gaithersburg	Gaithersburg	198,391	Gaithersburg	Rockville	48,298	Gaithersburg	Gaithersburg	198,391
Rockville	Rockville	185,162	Rockville	Silver Spring	39,311	Rockville	Rockville	185,162
Bethesda	Bethesda	101,817	Silver Spring	Rockville	37,743	Bethesda	Bethesda	101,817
Fairland	Fairland	77,718	Washington	Silver Spring	37,122	Fairland	Fairland	77,718
Clarksburg	Clarksburg	57,185	Silver Spring	Washington	36,419	Clarksburg	Clarksburg	57,185
Olney	Olney	53,787	Gaithersburg	Clarksburg	34,008	Olney	Olney	53,787
Rockville	Gaithersburg	49,076	Clarksburg	Gaithersburg	33,762	Potomac	Potomac	31,687
Gaithersburg	Rockville	48,298	Bethesda	Washington	33,187	Darnestown	Darnestown	26,979
Rockville	Silver Spring	39,311	Washington	Bethesda	33,089	Damascus	Damascus	17,613
Silver Spring	Rockville	37,743	Silver Spring	Fairland	27,726	Laytonsville	Laytonsville	10,607
Washington	Silver Spring	37,122	Fairland	Silver Spring	27,227	Poolesville	Poolesville	8,739
Silver Spring	Washington	36,419	Gaithersburg	Darnestown	26,624	Barnesville	Barnesville	935
Gaithersburg	Clarksburg	34,008	Rockville	Bethesda	26,231			
Clarksburg	Gaithersburg	33,762	Bethesda	Rockville	26,014			
Bethesda	Washington	33,187	Darnestown	Gaithersburg	25,677			
Washington	Bethesda	33,089	Rockville	Potomac	24,567			

Figure 68 shows a geographical representation of O/D trips for all vehicles, all day parts, Sunday through Saturday for Regional Areas. Note that the map in **Figure 68** shows all flows with at least 1000 trips.

Figure 68: Map, Total Trips for All Vehicles, All Day, Sunday through Saturday, Regional Areas, Non-within pairs

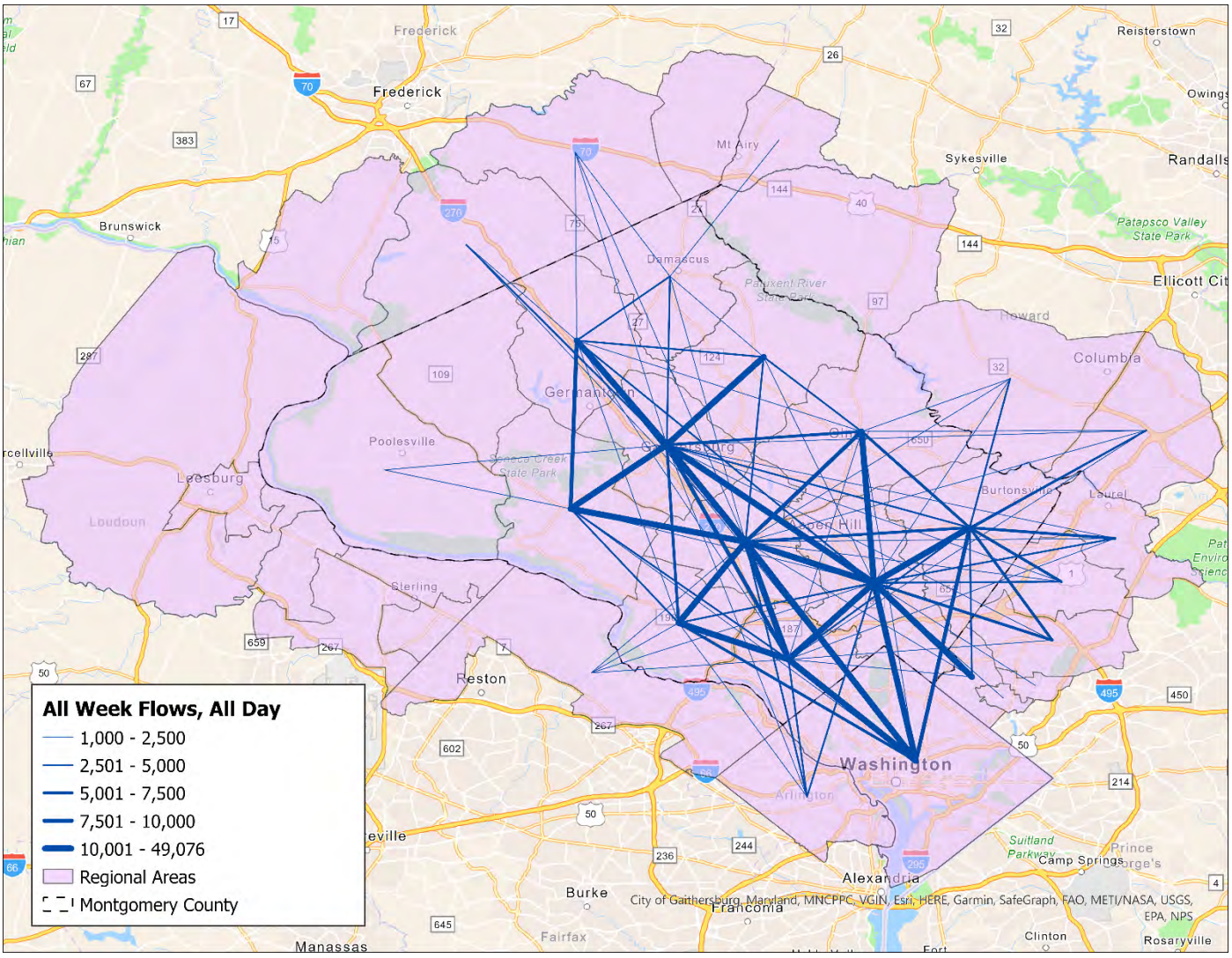
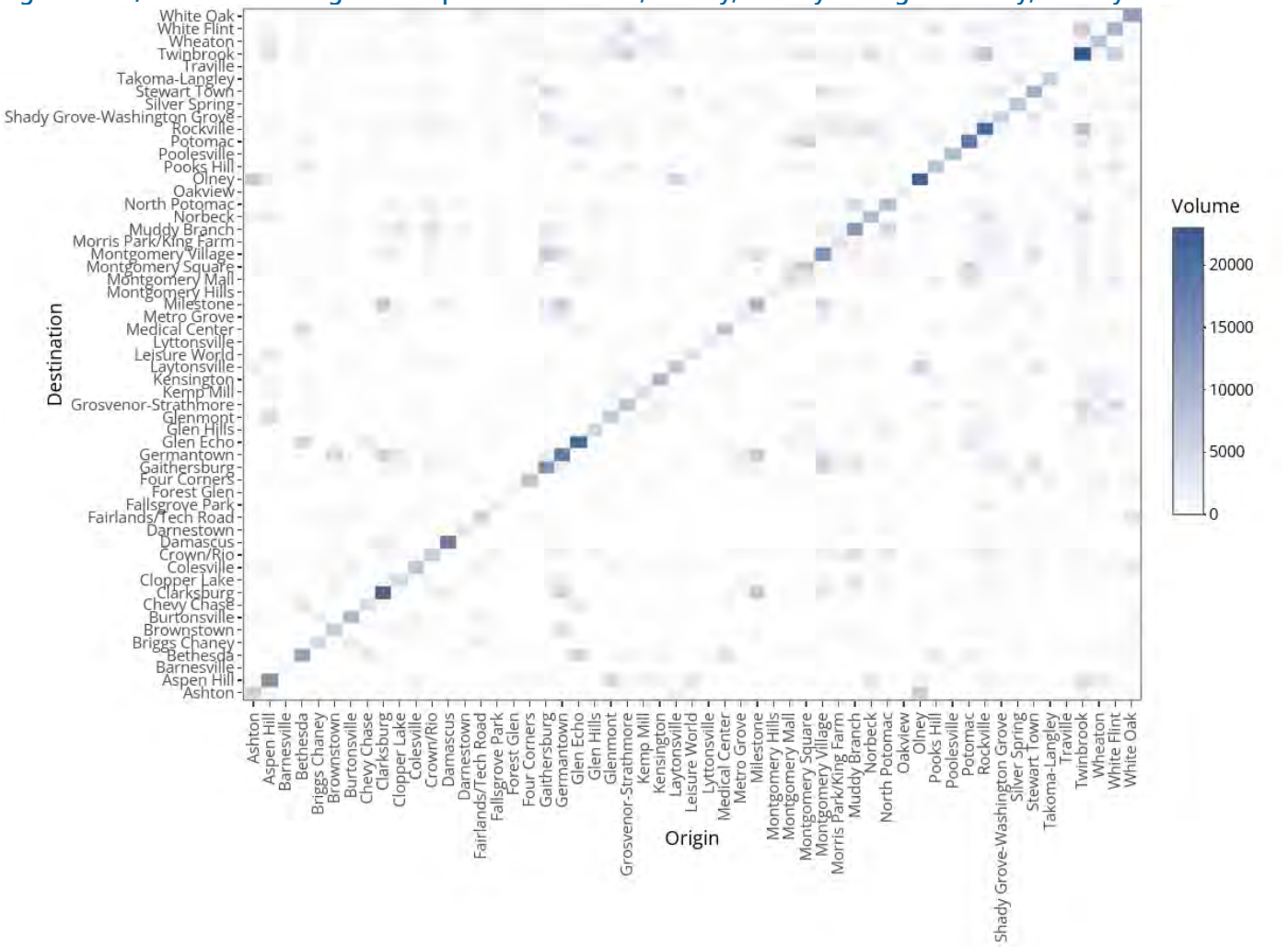


Figure 69 shows the O/D matrix for **Activity Areas** for total trips made by all vehicles, all day, Sunday through Saturday. Similar to Regional Areas O/D matrix, the majority of the trips are being generated by within-pairs as evidenced by the darker tiles along the matrix diagonal. Note that due to the fact that all 55 Activity Areas are contained within Montgomery County, these O/D pairs will generate fewer trips compared to Regional Area pairs.

Figure 69: O/D Matrix showing Total Trips for All Vehicles, All Day, Sunday through Saturday, Activity Areas



As mentioned on the previous page, Activity Areas are smaller and more numerous than Regional Areas and all are within Montgomery County, which therefore produces a greater number of non-within pairs.

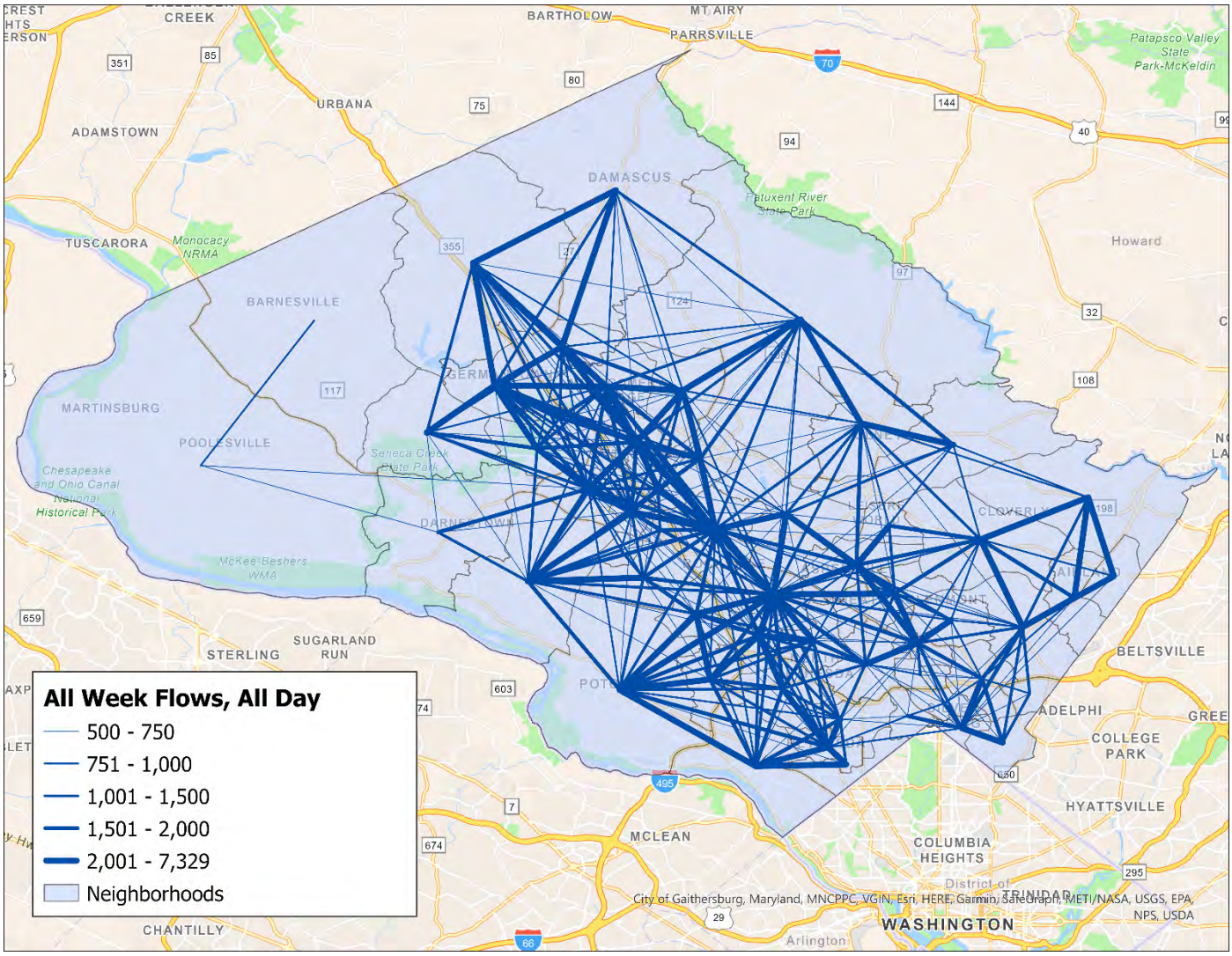
Table 55 shows the continuing pattern from the last set of O/D pairs in that the top 20 O/D pairs for All Vehicle trips, all day, Sunday through Saturday are all within pairs (the All pairs column and Within pairs column are identical). A pattern of note for the top non-within pairs is that each O/D pair is adjacent to one another. This table shows that the majority of weekend trips for all vehicles are either within a single Activity Area or between adjacent Activity Areas.

Table 55: Top O/D Pairs, Total Trips for All Vehicles, All Day, Sunday through Saturday, Activity Areas

All pairs			Non-within pairs			Within pairs		
Origin	Destination	Count	Origin	Destination	Count	Origin	Destination	Count
Twinbrook	Twinbrook	22,992	Rockville	Twinbrook	7,329	Twinbrook	Twinbrook	22,992
Olney	Olney	21,623	Twinbrook	Rockville	6,919	Olney	Olney	21,623
Clarksburg	Clarksburg	21,270	Milestone	Clarksburg	6,775	Clarksburg	Clarksburg	21,270
Rockville	Rockville	21,166	Gaithersburg	Montgomery Village	6,698	Rockville	Rockville	21,166
Glen Echo	Glen Echo	20,835	White Flint	Twinbrook	6,358	Glen Echo	Glen Echo	20,835
Potomac	Potomac	18,737	Montgomery Village	Gaithersburg	6,258	Potomac	Potomac	18,737
Germantown	Germantown	18,156	Milestone	Germantown	6,157	Germantown	Germantown	18,156
Damascus	Damascus	17,987	Germantown	Milestone	6,156	Damascus	Damascus	17,987
Aspen Hill	Aspen Hill	15,108	Ashton	Olney	6,140	Aspen Hill	Aspen Hill	15,108
Montgomery Village	Montgomery Village	14,252	Twinbrook	White Flint	5,962	Montgomery Village	Montgomery Village	14,252
Gaithersburg	Gaithersburg	14,008	Clarksburg	Milestone	5,938	Gaithersburg	Gaithersburg	14,008
Muddy Branch	Muddy Branch	13,599	Olney	Ashton	5,905	Muddy Branch	Muddy Branch	13,599
White Oak	White Oak	13,314	Bethesda	Glen Echo	5,254	White Oak	White Oak	13,314
Bethesda	Bethesda	11,731	Montgomery Square	Potomac	5,183	Bethesda	Bethesda	11,731
Stewart Town	Stewart Town	10,553	Olney	Laytonsville	5,141	Stewart Town	Stewart Town	10,553
Burtonsville	Burtonsville	9,648	Glen Echo	Bethesda	5,125	Burtonsville	Burtonsville	9,648
Kensington	Kensington	9,617	Potomac	Montgomery Square	5,003	Kensington	Kensington	9,617
White Flint	White Flint	9,534	Germantown	Clarksburg	4,985	White Flint	White Flint	9,534
Milestone	Milestone	9,289	Grosvenor-Strathmore	Twinbrook	4,929	Milestone	Milestone	9,289
Norbeck	Norbeck	8,908	Clarksburg	Germantown	4,921	Norbeck	Norbeck	8,908

Figure 70 shows a geographical representation of O/D trips for all vehicles, all day parts, Sunday through Saturday for Activity Areas. Note that the map in **Figure 70** shows all flows with at least 500 trips.

Figure 70: Map, Total Trips for All Vehicles, All Day, Sunday through Saturday, Activity Areas, Non-within pairs



All Vehicles, Monday through Thursday

Figure 71, Table 56, and **Figure 72** show the O/D matrix, list of top O/D pairs and a map of total trip flows for all vehicles in the Peak AM (6am-10am) for Mondays through Thursdays.

Figure 71: O/D Matrix, Total Trips for All Vehicles, Peak AM (6 – 10 AM), Monday through Thursday, Activity Areas

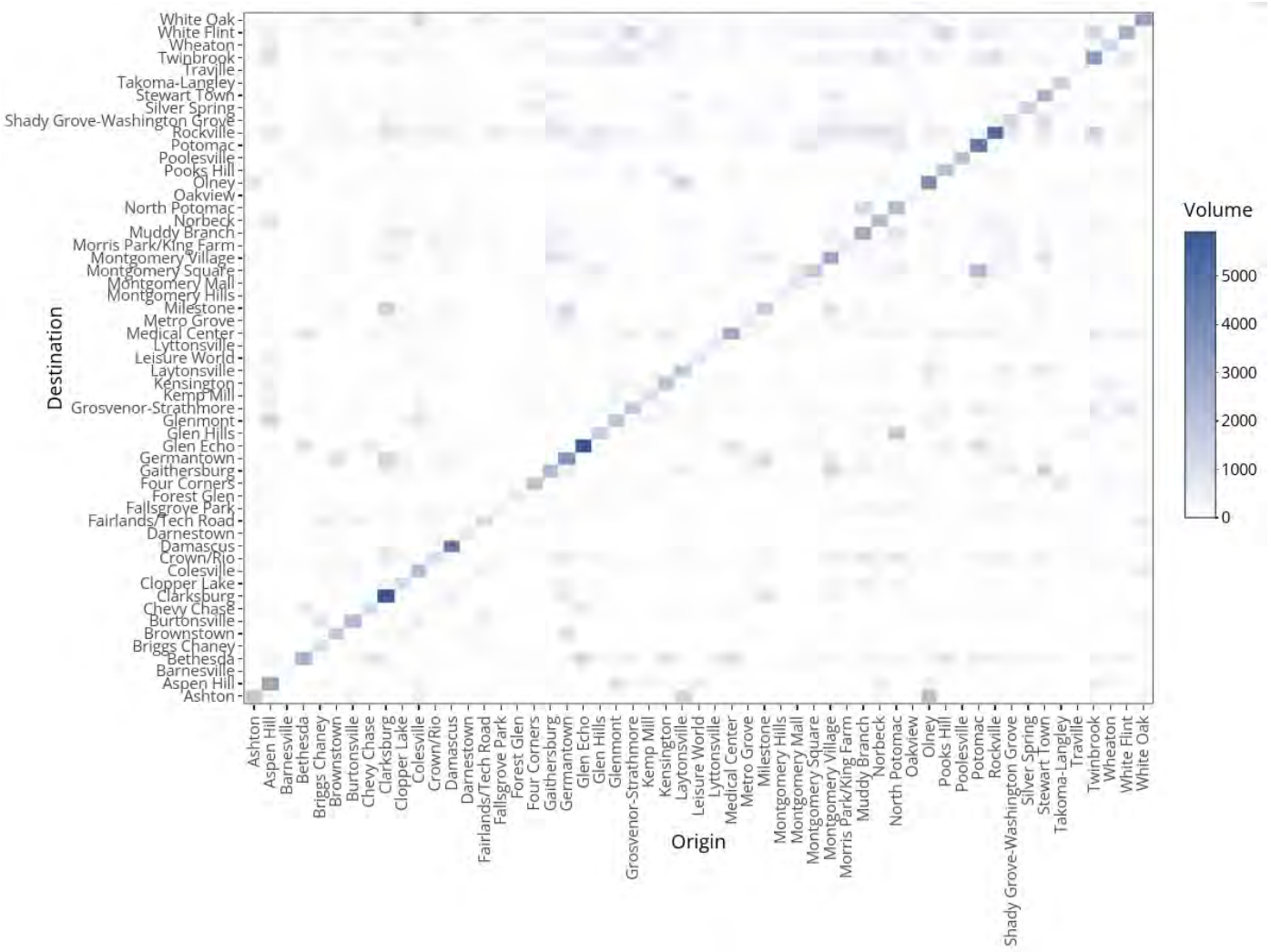


Table 56 below continues to show a recurring pattern with the top 20 O/D trip generators for All Vehicles being internal pairs (except for Potomac-Montgomery Square). Additionally, the top 20 non-within O/D pairs are all between adjacent Activity Areas. This suggests that most Peak AM trips for All Vehicles Monday through Thursday are either internal or between adjacent areas.

Table 56: Top O/D Pairs, Total Trips for All Vehicles, Peak AM (6 – 10 AM), Monday through Thursday, Activity Areas

All pairs			Non-within pairs			Within pairs		
Origin	Destination	Count	Origin	Destination	Count	Origin	Destination	Count
Glen Echo	Glen Echo	5,911	Potomac	Montgomery Square	2,470	Glen Echo	Glen Echo	5,911
Clarksburg	Clarksburg	5,884	Olney	Ashton	2,136	Clarksburg	Clarksburg	5,884
Rockville	Rockville	5,243	North Potomac	Glen Hills	1,764	Rockville	Rockville	5,243
Potomac	Potomac	4,632	Twinbrook	Rockville	1,623	Potomac	Potomac	4,632
Damascus	Damascus	4,393	Clarksburg	Germantown	1,430	Damascus	Damascus	4,393
Olney	Olney	3,914	Clarksburg	Milestone	1,409	Olney	Olney	3,914
Germantown	Germantown	3,666	Twinbrook	White Flint	1,374	Germantown	Germantown	3,666
Twinbrook	Twinbrook	3,529	Aspen Hill	Glenmont	1,337	Twinbrook	Twinbrook	3,529
Aspen Hill	Aspen Hill	3,188	Grosvenor-Strathmore	White Flint	1,311	Aspen Hill	Aspen Hill	3,188
White Oak	White Oak	3,174	Stewart Town	Gaithersburg	1,274	White Oak	White Oak	3,174
Montgomery Village	Montgomery Village	3,019	Laytonsville	Ashton	1,260	Montgomery Village	Montgomery Village	3,019
Medical Center	Medical Center	2,776	Glen Echo	Bethesda	1,229	Medical Center	Medical Center	2,776
Muddy Branch	Muddy Branch	2,738	Laytonsville	Olney	1,222	Muddy Branch	Muddy Branch	2,738
White Flint	White Flint	2,588	Muddy Branch	North Potomac	1,166	White Flint	White Flint	2,588
Potomac	Montgomery Square	2,470	Montgomery Village	Gaithersburg	1,144	Stewart Town	Stewart Town	2,456
Stewart Town	Stewart Town	2,456	Pooks Hill	White Flint	1,139	Bethesda	Bethesda	2,449
Bethesda	Bethesda	2,449	Potomac	Glen Echo	1,069	Gaithersburg	Gaithersburg	2,336
Gaithersburg	Gaithersburg	2,336	Germantown	Milestone	1,068	Norbeck	Norbeck	2,331
Norbeck	Norbeck	2,331	Brownstown	Germantown	1,061	Burtonsville	Burtonsville	2,298
Burtonsville	Burtonsville	2,298	Norbeck	Rockville	1,040	North Potomac	North Potomac	2,224

Note that the map in **Figure 72** shows all flows with at least 500 trips.

Figure 72: Map, Total Trips for All Vehicles, Peak AM (6 – 10 AM), Monday through Thursday, Activity Areas

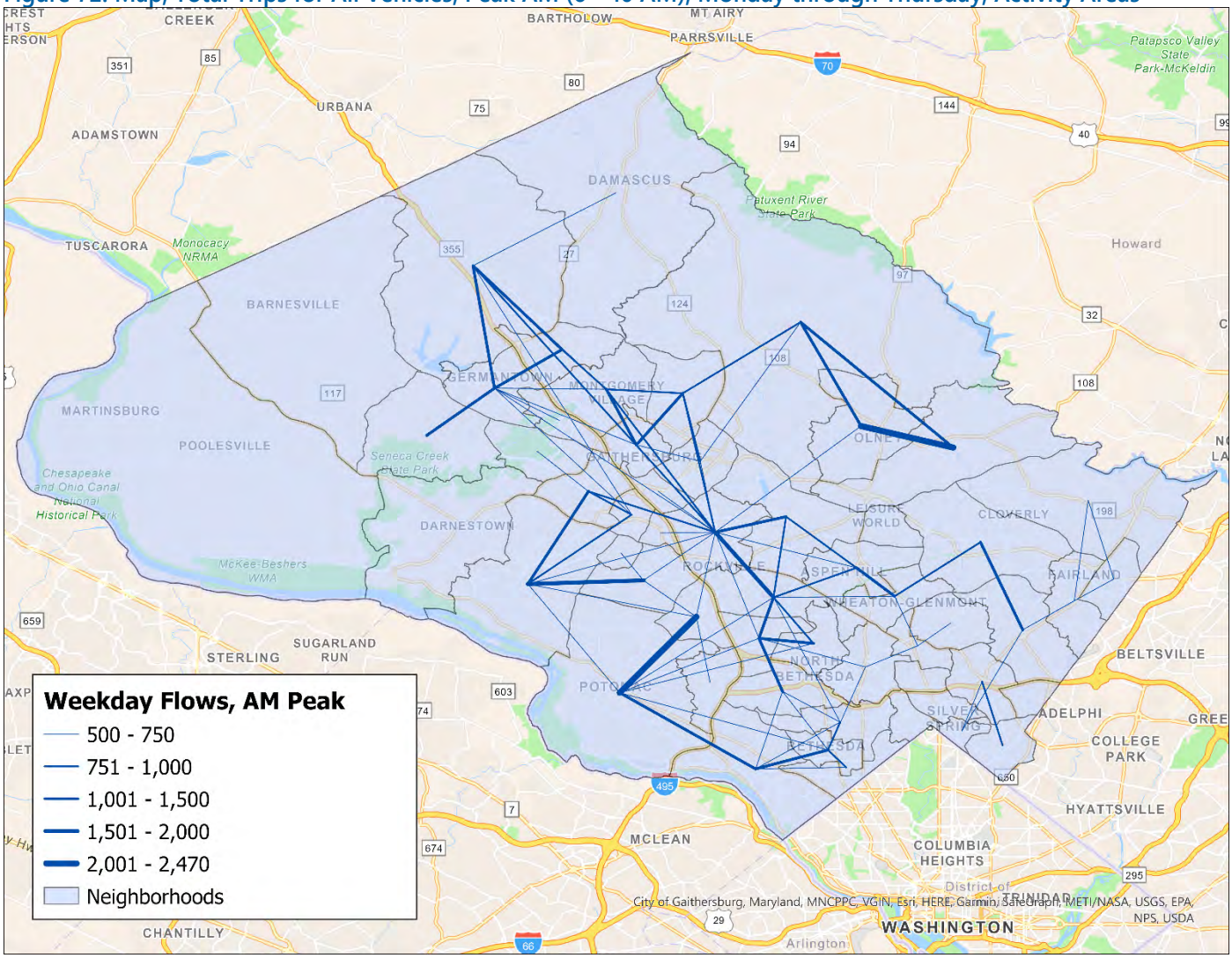
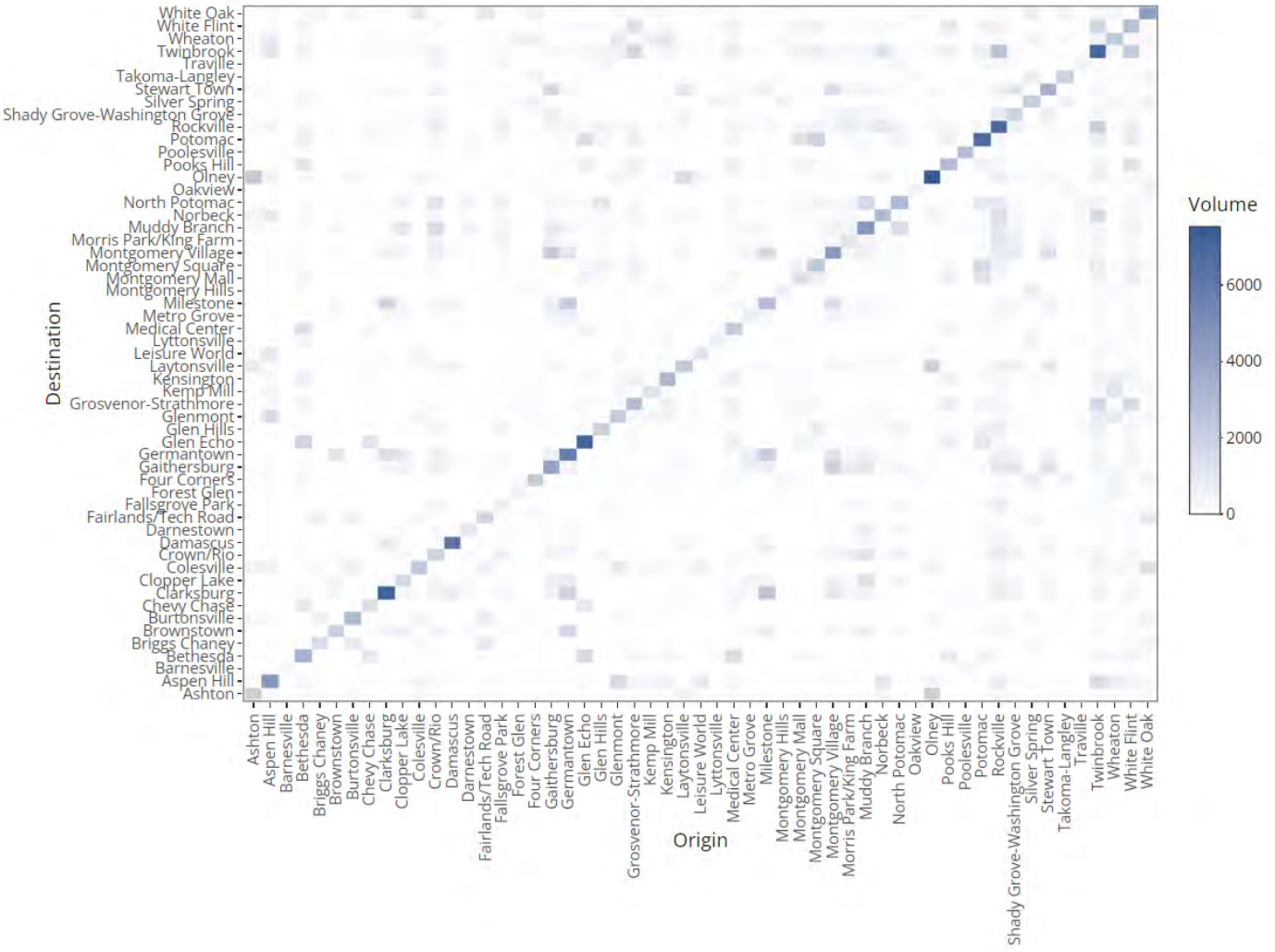


Figure 73, Table 57, and **Figure 74** show the O/D matrix, top O/D pairs and flow map of total trip flows for all vehicles during the Peak PM (3 – 7 PM) period Monday through Thursday.

Figure 73: O/D Matrix, Total Trips for All Vehicles, Peak PM (3 – 7 PM), Monday through Thursday, Activity Areas



The top 20 O/D trip generating pairs for all vehicles during the Peak PM period for Mondays through Thursdays are all internal. **Table 57** also shows that the top 20 Non-within O/D pairs are between adjacent areas, continuing the pattern from the previous setting of O/D trips. This suggests that most Peak PM trips are internal or between adjacent areas.

Table 57: Top O/D Pairs, Total Trips for All Vehicles, Peak PM (3 – 7PM), Monday through Thursday, Activity Areas

All pairs			Non-within pairs			Within pairs		
Origin	Destination	Count	Origin	Destination	Count	Origin	Destination	Count
Olney	Olney	7,530	Rockville	Twinbrook	2,548	Olney	Olney	7,530
Glen Echo	Glen Echo	7,133	Milestone	Clarksburg	2,424	Glen Echo	Glen Echo	7,133
Clarksburg	Clarksburg	7,131	Ashton	Olney	2,311	Clarksburg	Clarksburg	7,131
Twinbrook	Twinbrook	6,970	White Flint	Twinbrook	2,252	Twinbrook	Twinbrook	6,970
Rockville	Rockville	6,791	Gaithersburg	Montgomery Village	2,220	Rockville	Rockville	6,791
Potomac	Potomac	6,713	Twinbrook	Rockville	2,072	Potomac	Potomac	6,713
Damascus	Damascus	6,230	Milestone	Germantown	2,024	Damascus	Damascus	6,230
Germantown	Germantown	5,867	Olney	Ashton	2,023	Germantown	Germantown	5,867
Aspen Hill	Aspen Hill	4,620	Germantown	Milestone	1,987	Aspen Hill	Aspen Hill	4,620
Muddy Branch	Muddy Branch	4,518	Olney	Laytonsville	1,925	Muddy Branch	Muddy Branch	4,518
Montgomery Village	Montgomery Village	4,478	Montgomery Square	Potomac	1,887	Montgomery Village	Montgomery Village	4,478
White Oak	White Oak	4,305	Montgomery Village	Gaithersburg	1,843	White Oak	White Oak	4,305
Gaithersburg	Gaithersburg	3,996	Germantown	Clarksburg	1,821	Gaithersburg	Gaithersburg	3,996
Stewart Town	Stewart Town	3,399	Bethesda	Glen Echo	1,771	Stewart Town	Stewart Town	3,399
Bethesda	Bethesda	3,383	Twinbrook	White Flint	1,693	Bethesda	Bethesda	3,383
Kensington	Kensington	3,162	Clarksburg	Milestone	1,685	Kensington	Kensington	3,162
North Potomac	North Potomac	3,003	Grosvenor-Strathmore	Twinbrook	1,674	North Potomac	North Potomac	3,003
Norbeck	Norbeck	2,988	Gaithersburg	Stewart Town	1,644	Norbeck	Norbeck	2,988
Burtonsville	Burtonsville	2,975	Twinbrook	Grosvenor-Strathmore	1,634	Burtonsville	Burtonsville	2,975
Grosvenor-Strathmore	Grosvenor-Strathmore	2,920	Germantown	Brownstown	1,590	Grosvenor-Strathmore	Grosvenor-Strathmore	2,920

Note that the map in **Figure 74** shows all flows with at least 500 trips.

Figure 74: Map, Total Trips for All Vehicles, Peak PM (3 – 7 PM), Monday through Thursday, Activity Areas

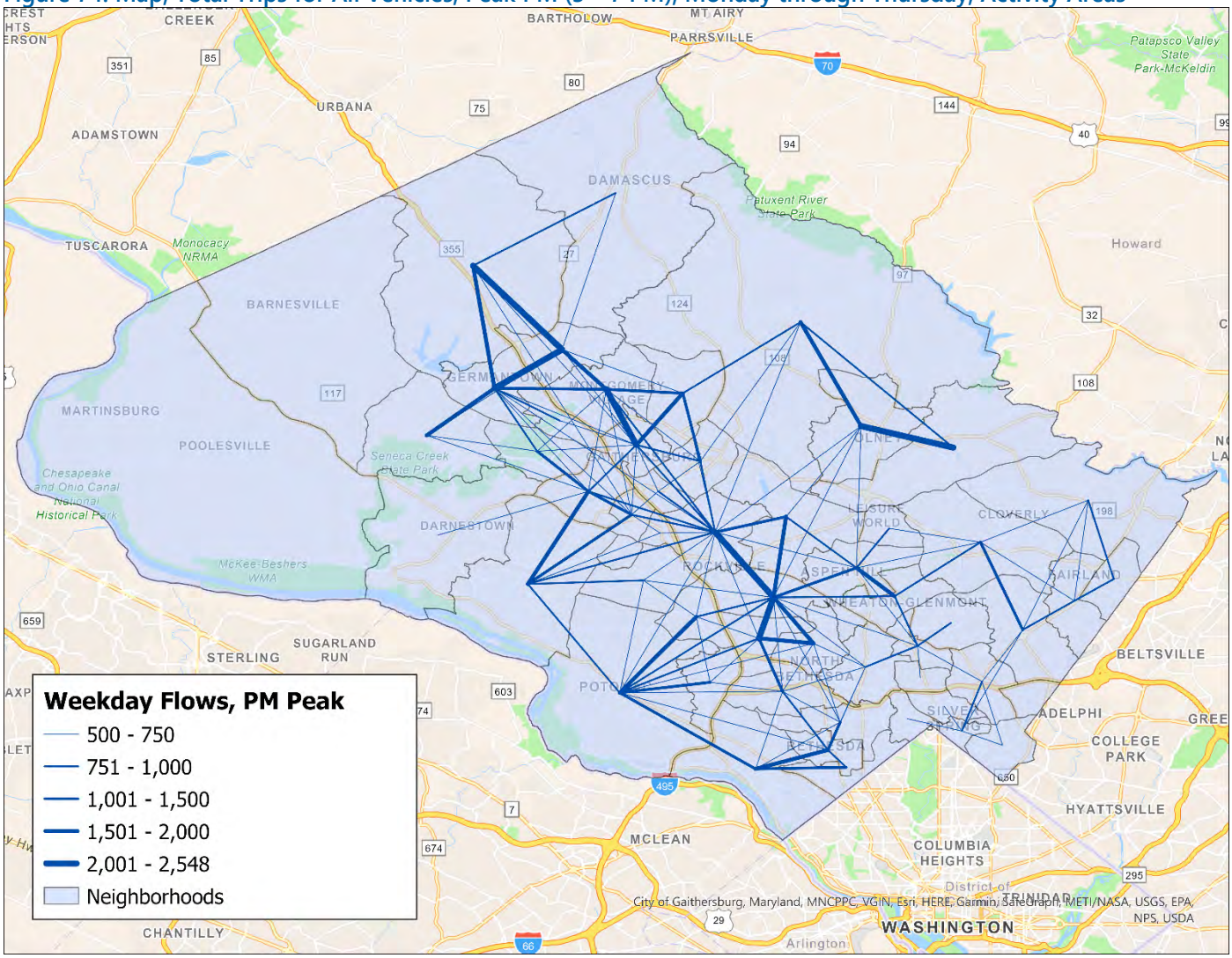


Figure 75, Table 58, and **Figure 76** show the O/D matrix, top O/D pairs and map of total trip flows for all vehicles during the Midday (10 AM – 3 PM) period Monday through Thursday.

Figure 75: O/D Matrix, Total Trips for All Vehicles, Midday (10 AM – 3 PM), Monday through Thursday, Activity Areas

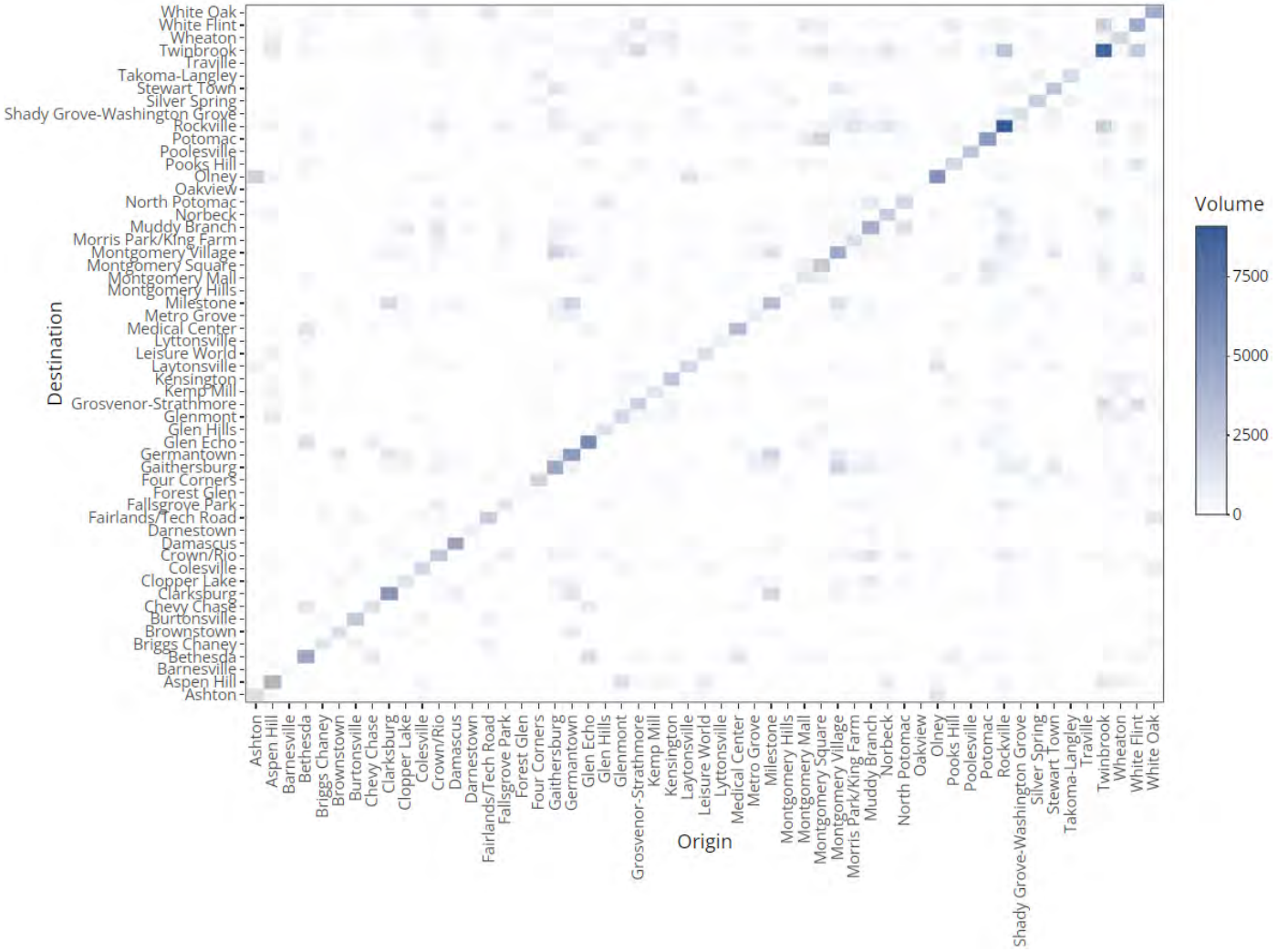


Table 58 continues to show the recurring pattern in that the top trip generating O/D pairs, this time for the midday period Mondays through Thursdays, are internal (except for Rockville-Twinbrook at 19). Additionally, the pattern of the top 20 non-within O/D pairs being between adjacent areas continues. This result is further evidence that most trips by all vehicles within Montgomery County are either internal or between adjacent areas.

Table 58: Top O/D Pairs, Total Trips for All Vehicles, Midday (10 AM – 3PM), Monday through Thursday, Activity Areas

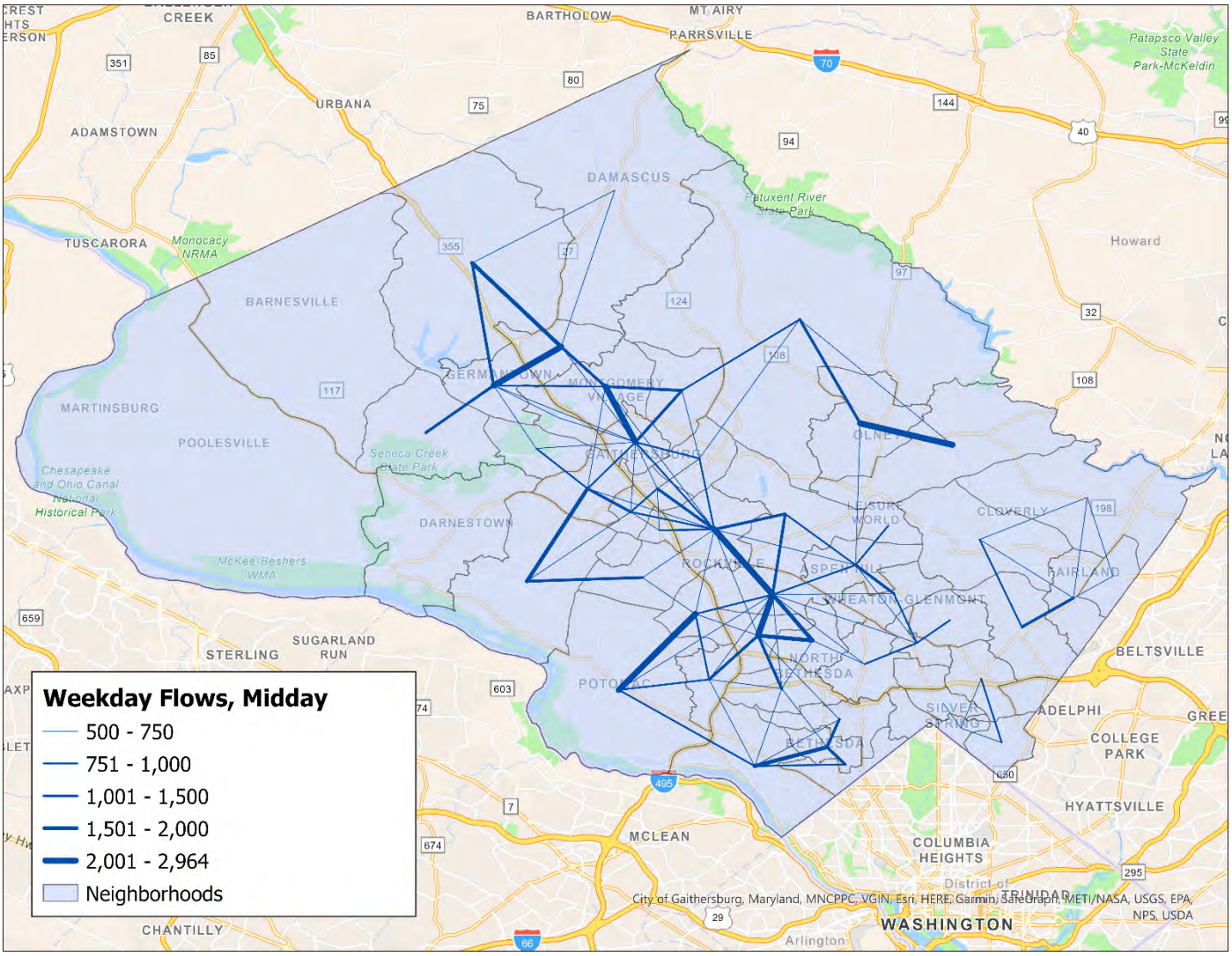
All pairs		
Origin	Destination	Count
Rockville	Rockville	9,091
Twinbrook	Twinbrook	8,548
Glen Echo	Glen Echo	6,338
Olney	Olney	5,701
Clarksburg	Clarksburg	5,387
Germantown	Germantown	5,333
Potomac	Potomac	5,289
Damascus	Damascus	4,730
Gaithersburg	Gaithersburg	4,593
Bethesda	Bethesda	4,529
Montgomery Village	Montgomery Village	4,387
White Flint	White Flint	4,301
White Oak	White Oak	4,284
Muddy Branch	Muddy Branch	4,180
Aspen Hill	Aspen Hill	3,846
Medical Center	Medical Center	3,400
Milestone	Milestone	3,270
Stewart Town	Stewart Town	3,003
Rockville	Twinbrook	2,964
Poolesville	Poolesville	2,960

Non-within pairs		
Origin	Destination	Count
Rockville	Twinbrook	2,964
White Flint	Twinbrook	2,642
Twinbrook	Rockville	2,350
Twinbrook	White Flint	2,228
Ashton	Olney	2,199
Germantown	Milestone	2,101
Montgomery Village	Gaithersburg	2,100
Montgomery Square	Potomac	2,076
Gaithersburg	Montgomery Village	2,075
Milestone	Germantown	2,006
Milestone	Clarksburg	1,831
Clarksburg	Milestone	1,740
Grosvenor-Strathmore	Twinbrook	1,660
Twinbrook	Grosvenor-Strathmore	1,566
Glen Echo	Bethesda	1,560
White Flint	Grosvenor-Strathmore	1,554
Bethesda	Glen Echo	1,545
North Potomac	Muddy Branch	1,527
Montgomery Village	Milestone	1,450
Milestone	Montgomery Village	1,408

Within pairs		
Origin	Destination	Count
Rockville	Rockville	9,091
Twinbrook	Twinbrook	8,548
Glen Echo	Glen Echo	6,338
Olney	Olney	5,701
Clarksburg	Clarksburg	5,387
Germantown	Germantown	5,333
Potomac	Potomac	5,289
Damascus	Damascus	4,730
Gaithersburg	Gaithersburg	4,593
Bethesda	Bethesda	4,529
Montgomery Village	Montgomery Village	4,387
White Flint	White Flint	4,301
White Oak	White Oak	4,284
Muddy Branch	Muddy Branch	4,180
Aspen Hill	Aspen Hill	3,846
Medical Center	Medical Center	3,400
Milestone	Milestone	3,270
Stewart Town	Stewart Town	3,003
Poolesville	Poolesville	2,960
Crown/Rio	Crown/Rio	2,784

Note that the map in **Figure 76** shows all flows with at least 500 trips.

Figure 76: Total Trips for All Vehicles, Midday (10 AM – 3 PM), Monday through Thursday, Activity Areas



All Vehicles, Saturday through Saturday

Figure 77, Table 59 and **Figure 78** show the O/D matrix, top O/D pairs and map for total trip flows of all vehicles for the entire day of Saturdays and Sundays.

Figure 77: O/D Matrix, Total Trips for All Vehicles, All Day, Saturday through Sunday, Activity Areas

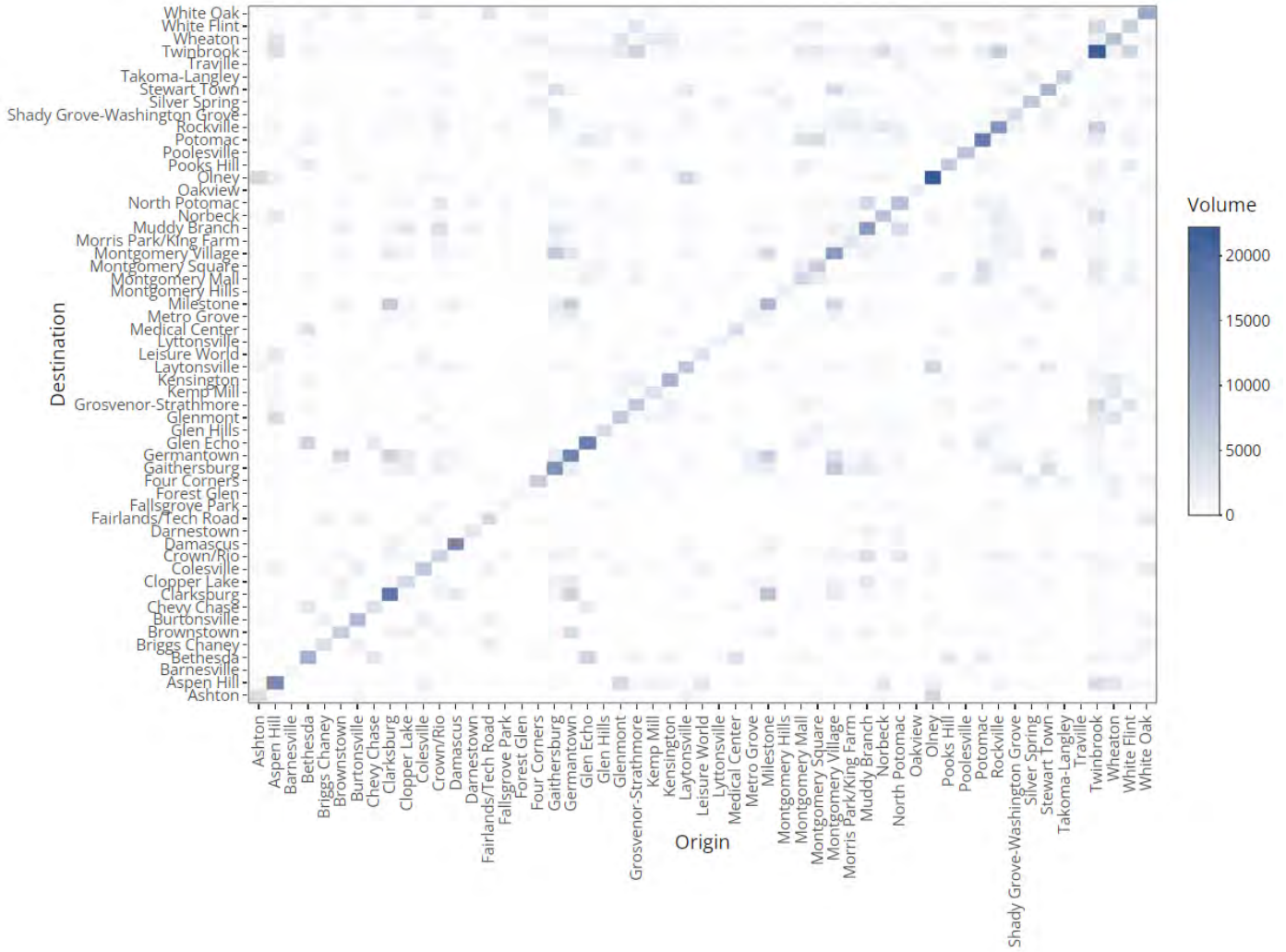


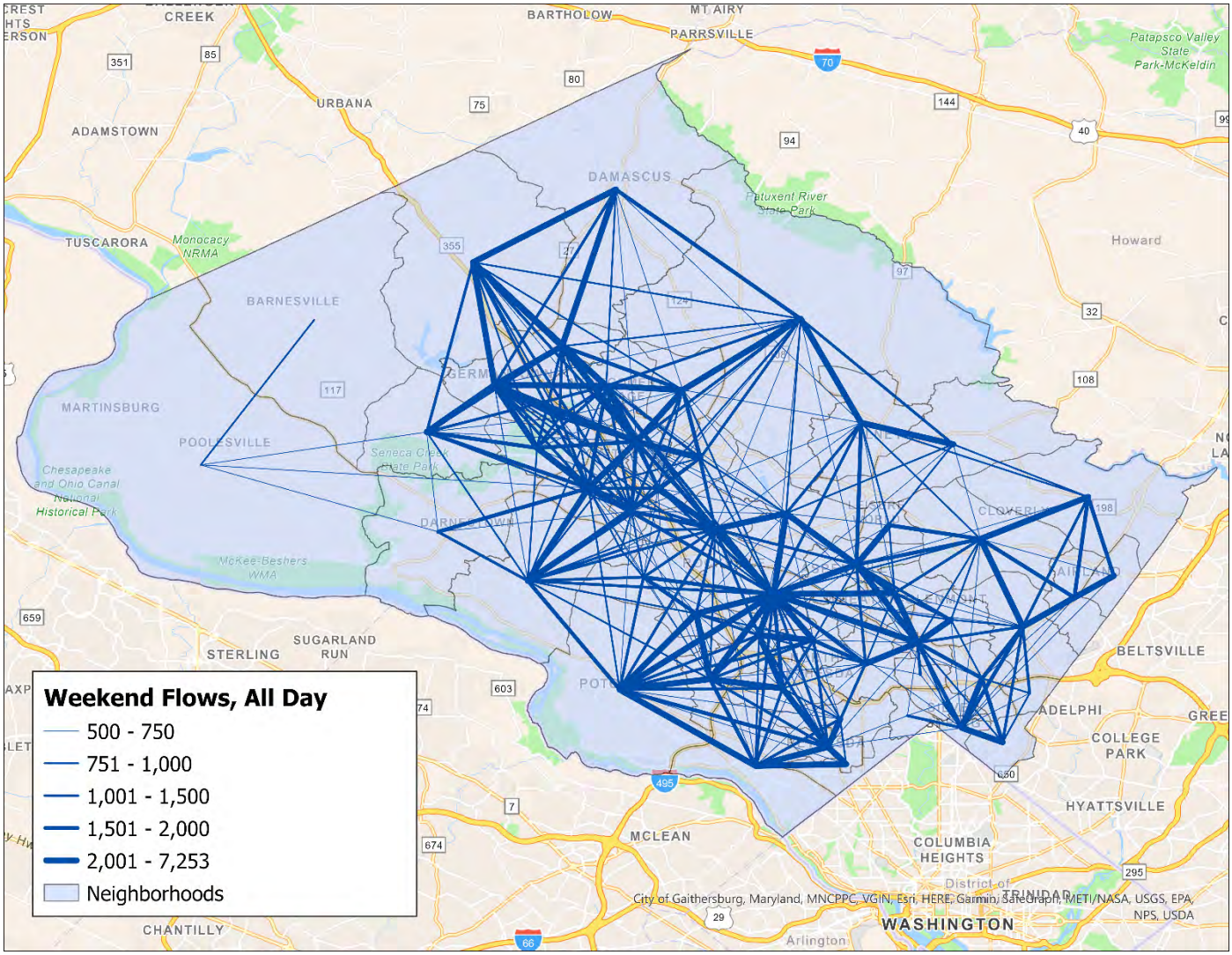
Table 59 demonstrates that (for all day Saturdays and Sundays), the top overall O/D trip generating pairs are internal, and the top non-within O/D pairs are between adjacent areas. This suggests that the majority of trips generated by All Vehicles originating and ending in Montgomery County are staying within small areas of the county, as in there aren't that many cross-county trips appearing within StreetLight's database.

Table 59: Top O/D Pairs, Total Trips for All Vehicles, All Day, Saturday through Sunday, Activity Areas

All pairs			Non-within pairs			Within pairs		
Origin	Destination	Count	Origin	Destination	Count	Origin	Destination	Count
Olney	Olney	22,210	Milestone	Clarksburg	7,253	Olney	Olney	22,210
Twinbrook	Twinbrook	21,763	Gaithersburg	Montgomery Village	6,720	Twinbrook	Twinbrook	21,763
Clarksburg	Clarksburg	18,190	Clarksburg	Milestone	6,519	Clarksburg	Clarksburg	18,190
Potomac	Potomac	17,257	Montgomery Village	Gaithersburg	6,378	Potomac	Potomac	17,257
Glen Echo	Glen Echo	16,853	Rockville	Twinbrook	6,152	Glen Echo	Glen Echo	16,853
Germantown	Germantown	16,190	Twinbrook	Rockville	5,884	Germantown	Germantown	16,190
Damascus	Damascus	15,955	Milestone	Germantown	5,868	Damascus	Damascus	15,955
Aspen Hill	Aspen Hill	15,268	Germantown	Milestone	5,865	Aspen Hill	Aspen Hill	15,268
Gaithersburg	Gaithersburg	14,318	White Flint	Twinbrook	5,196	Gaithersburg	Gaithersburg	14,318
Rockville	Rockville	13,720	Bethesda	Glen Echo	5,186	Rockville	Rockville	13,720
Montgomery Village	Montgomery Village	12,813	Glen Echo	Bethesda	5,098	Montgomery Village	Montgomery Village	12,813
Muddy Branch	Muddy Branch	12,747	Olney	Laytonsville	5,051	Muddy Branch	Muddy Branch	12,747
White Oak	White Oak	11,134	Clarksburg	Germantown	5,046	White Oak	White Oak	11,134
Bethesda	Bethesda	10,095	Ashton	Olney	5,027	Bethesda	Bethesda	10,095
Kensington	Kensington	9,534	Brownstown	Germantown	5,017	Kensington	Kensington	9,534
Stewart Town	Stewart Town	9,361	Twinbrook	White Flint	5,009	Stewart Town	Stewart Town	9,361
Milestone	Milestone	8,939	Germantown	Clarksburg	4,992	Milestone	Milestone	8,939
Burtonsville	Burtonsville	8,825	Grosvenor-Strathmore	Twinbrook	4,952	Burtonsville	Burtonsville	8,825
Wheaton	Wheaton	8,233	Twinbrook	Grosvenor-Strathmore	4,946	Wheaton	Wheaton	8,233
North Potomac	North Potomac	8,199	Olney	Ashton	4,900	North Potomac	North Potomac	8,199

Note that the map in **Figure 78** shows all flows with at least 500 trips.

Figure 78: Map, Total Trips for All Vehicles, All Day, Saturday through Sunday, Activity Areas



Bus, Monday through Thursday

In order to look at opportunities for Ride On to explore new bus routes, we can look at pre-pandemic patterns of bus ridership. **Figure 79** has the O/D matrix filtered for bus trips during the Peak AM (6 – 10 AM) period for Weekdays (Mon-Thurs) which shows morning bus commuter patterns.

Figure 79: O/D Matrix for Bus Trips in Activity Areas, Peak AM (6 – 10 AM), Monday through Thursday

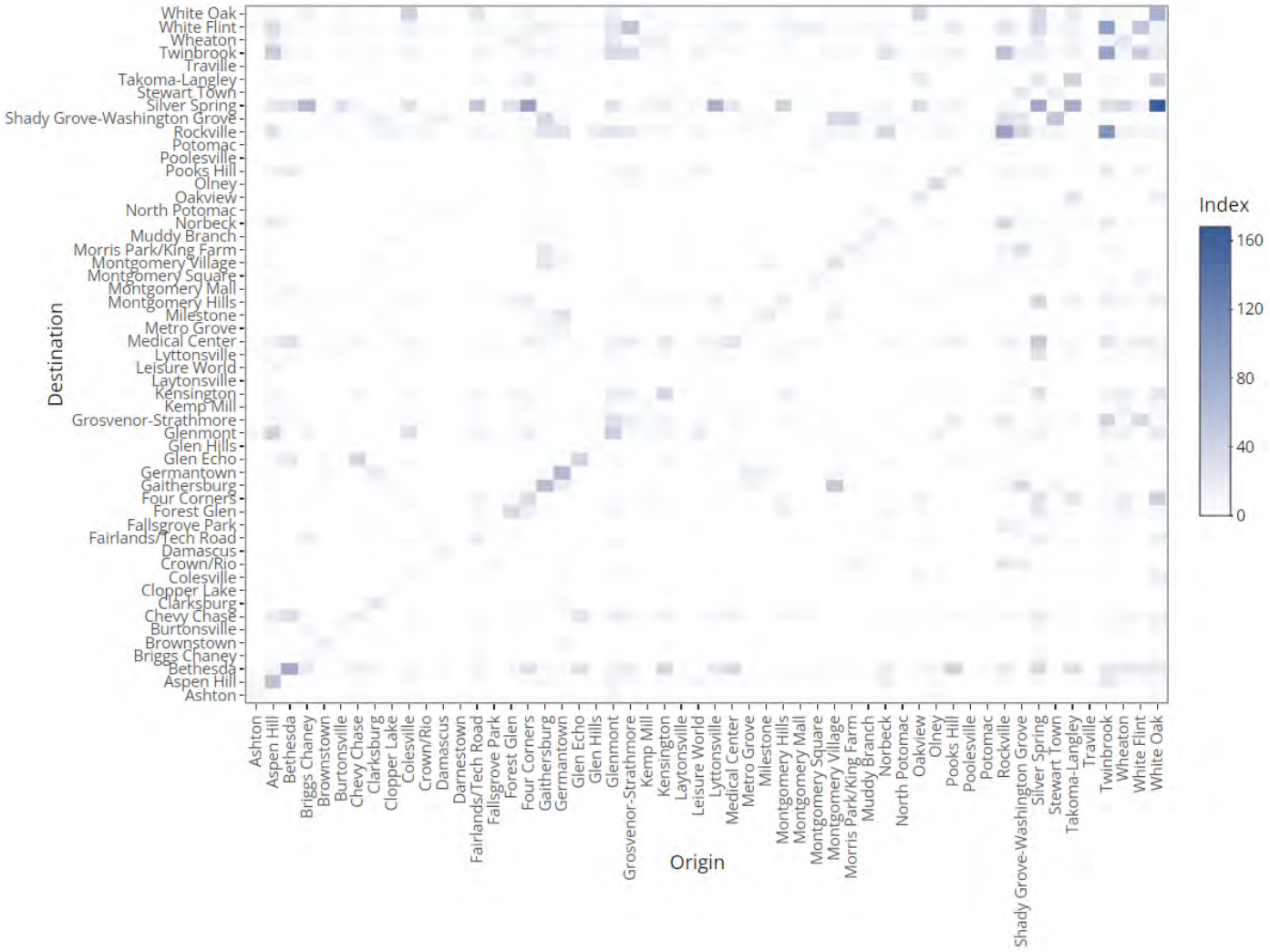


Table 60 shows the top O/D pairs from the previous matrix. Patterns different from All Vehicles trips start to emerge when looking at Bus trips. For example, the top trip generating O/D pairs for the Peak AM period Monday through Thursday are all non-within pairs except for the pairs within Twinbrook, Rockville, Silver Spring, Bethesda, White Oak, Germantown and Gaithersburg. And while many of the non-within pairs are adjacent to each other, two of the top three overall pairs (White Oak-Silver Spring & Four Corners-Silver Spring) are non-adjacent, suggesting that a greater share of bus trips compared to all vehicle trips traverse further distances.

Table 60: Top O/D Pairs for Bus Trips in Activity Areas, Peak AM (6 – 10 AM), Monday through Thursday

All pairs

Origin	Destination	Count
White Oak	Silver Spring	168
Twinbrook	Rockville	106
Four Corners	Silver Spring	94
Twinbrook	White Flint	93
Twinbrook	Twinbrook	90
Rockville	Rockville	89
Silver Spring	Silver Spring	86
Bethesda	Bethesda	80
White Oak	White Oak	77
Takoma-Langley	Silver Spring	77
Lyttonsville	Silver Spring	75
Germantown	Germantown	66
Briggs Chaney	Silver Spring	65
Gaithersburg	Gaithersburg	62
Aspen Hill	Aspen Hill	57
Rockville	Twinbrook	56
Stewart Town	Shady Grove-Washington Grove	55
Grosvenor-Strathmore	White Flint	54
White Flint	White Flint	54
Fairlands/Tech Road	Silver Spring	53

Non-within pairs

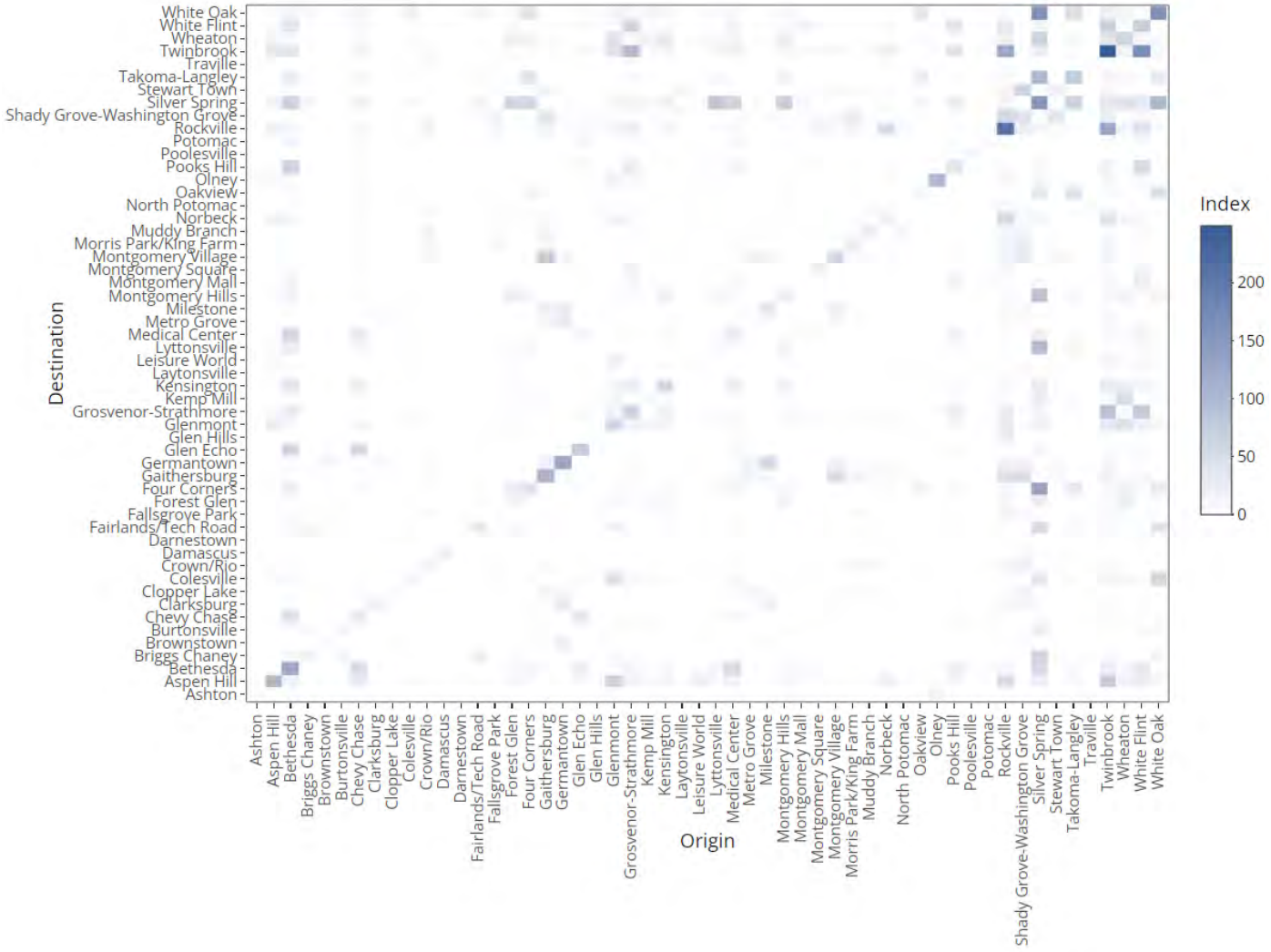
Origin	Destination	Count
White Oak	Silver Spring	168
Twinbrook	Rockville	106
Four Corners	Silver Spring	94
Twinbrook	White Flint	93
Takoma-Langley	Silver Spring	77
Lyttonsville	Silver Spring	75
Briggs Chaney	Silver Spring	65
Rockville	Twinbrook	56
Stewart Town	Shady Grove-Washington Grove	55
Grosvenor-Strathmore	White Flint	54
Fairlands/Tech Road	Silver Spring	53
Montgomery Village	Gaithersburg	51
Silver Spring	Medical Center	49
Aspen Hill	Twinbrook	47
White Flint	Twinbrook	43
White Oak	Four Corners	43
Montgomery Hills	Silver Spring	43
Colesville	White Oak	40
Pooks Hill	Bethesda	40
Twinbrook	Grosvenor-Strathmore	39

Within pairs

Origin	Destination	Count
Twinbrook	Twinbrook	90
Rockville	Rockville	89
Silver Spring	Silver Spring	86
Bethesda	Bethesda	80
White Oak	White Oak	77
Germantown	Germantown	66
Gaithersburg	Gaithersburg	62
Aspen Hill	Aspen Hill	57
White Flint	White Flint	54
Takoma-Langley	Takoma-Langley	43
Glenmont	Glenmont	43
Glen Echo	Glen Echo	38
Kensington	Kensington	35
Four Corners	Four Corners	32
Forest Glen	Forest Glen	32
Olney	Olney	28
Montgomery Village	Montgomery Village	23
Medical Center	Medical Center	22
Wheaton	Wheaton	21
Shady Grove-Washington Grove	Shady Grove-Washington Grove	20

Figure 80 shows the O/D matrix for all bus trips generated during the Peak PM (3 – 7 PM) period for Mondays through Thursdays.

Figure 80: O/D Matrix for Bus Trips in Activity Areas, Peak PM (3 – 7 PM), Monday through Thursday



The top bus trip generators for the Peak PM period for Mondays through Thursdays, as shown in **Table 61**, are either internal pairs or adjacent pairs with the exception of Silver Spring-White Oak and Silver Spring-Four Corners. The O/D pair of Silver Spring-Wheaton, appearing as 18th in the top 20 of non-within pairs, is also a non-adjacent pair. Besides those exceptions, it appears that most bus trips are generated within internal or adjacent areas.

Table 61: Top O/D Pairs for Bus Trips in Activity Areas, Peak AM (3 – 7 PM), Monday through Thursday

All pairs		
Origin	Destination	Count
Twinbrook	Twinbrook	249
Rockville	Rockville	208
White Flint	Twinbrook	166
White Oak	White Oak	162
Silver Spring	White Oak	160
Silver Spring	Silver Spring	155
Silver Spring	Four Corners	134
Twinbrook	Rockville	127
Germantown	Germantown	124
Rockville	Twinbrook	123
Bethesda	Bethesda	123
Gaithersburg	Gaithersburg	108
Aspen Hill	Aspen Hill	105
Silver Spring	Takoma-Langley	104
White Oak	Silver Spring	103
Grosvenor-Strathmore	Twinbrook	97
Olney	Olney	96
Silver Spring	Lyttonsville	96
Silver Spring	Montgomery Hills	91
Twinbrook	Grosvenor-Strathmore	87

Non-within pairs		
Origin	Destination	Count
White Flint	Twinbrook	166
Silver Spring	White Oak	160
Silver Spring	Four Corners	134
Twinbrook	Rockville	127
Rockville	Twinbrook	123
Silver Spring	Takoma-Langley	104
White Oak	Silver Spring	103
Grosvenor-Strathmore	Twinbrook	97
Silver Spring	Lyttonsville	96
Silver Spring	Montgomery Hills	91
Twinbrook	Grosvenor-Strathmore	87
Lyttonsville	Silver Spring	80
White Flint	Grosvenor-Strathmore	74
Twinbrook	Aspen Hill	69
Montgomery Hills	Silver Spring	69
Gaithersburg	Montgomery Village	68
Twinbrook	White Flint	68
Silver Spring	Wheaton	66
Takoma-Langley	Silver Spring	64
Shady Grove-Washington Grove	Stewart Town	61

Within pairs		
Origin	Destination	Count
Twinbrook	Twinbrook	249
Rockville	Rockville	208
White Oak	White Oak	162
Silver Spring	Silver Spring	155
Germantown	Germantown	124
Bethesda	Bethesda	123
Gaithersburg	Gaithersburg	108
Aspen Hill	Aspen Hill	105
Olney	Olney	96
Takoma-Langley	Takoma-Langley	71
Glen Echo	Glen Echo	69
White Flint	White Flint	68
Wheaton	Wheaton	60
Grosvenor-Strathmore	Grosvenor-Strathmore	56
Glenmont	Glenmont	53
Kensington	Kensington	52
Montgomery Village	Montgomery Village	46
Shady Grove-Washington Grove	Shady Grove-Washington Grove	37
Four Corners	Four Corners	34
Pooks Hill	Pooks Hill	33

Comparing O/D Pairs by Mode

Given the difference in how trips made by All Vehicles and trips made by Bus and Rail are calculated, it would be inaccurate to directly compare the values of trips reported by StreetLight between modes. These comparisons would also be unhelpful as the values for All Vehicles are going to be much larger than the values for Bus and Rail. Therefore, the most helpful and accurate available comparison to make is between the rankings of trips by mode for each O/D pair. This way, one can observe opportunities for bus expansion by looking at large disparities between rankings for All Vehicle trips and Bus trips.

Table 62 filters the table to only show non-within pairs and is ordered by All Vehicles rank, making apparent that Rockville-Twinbrook, Twinbrook-Rockville and White Flint-Twinbrook rank in the top 10 in bus trips but rank no higher than 31 for all vehicle trips. Therefore, the existing bus service between O/D pairs has already captured a large modal share. However, there appears to be potential for increased bus trips between Milestone-Clarksburg and Ashton-Olney given the disparity in All Vehicles versus Bus trips ranks.

Table 62: Modal Rank Comparison for Activity Areas, All Day Parts, All Days, Non-within pairs, Ordered by All Vehicles

	Origin	Destination	All Vehicles Rank	Bus Rank	Rail Rank
1	Rockville	Twinbrook	31	7	43
2	Twinbrook	Rockville	34	6	41
3	Milestone	Clarksburg	35	120	139
4	Gaithersburg	Montgomery Village	36	31	139
5	White Flint	Twinbrook	39	5	73
6	Montgomery Village	Gaithersburg	41	30	139
7	Milestone	Germantown	42	56	139
8	Germantown	Milestone	43	67	139
9	Ashton	Olney	44	116	139
10	Twinbrook	White Flint	45	15	65

Conversely, **Table 63** shows the same table as **Table 62** but ordered by Bus rank for non-with O/D pairs. This makes apparent which O/D pairs are capturing a more significant share of trips by Bus compared to All Vehicles. Interestingly, Silver Spring appears in all five O/D pairs in which the Bus rank is considerably higher than the All Vehicles rank, albeit with areas that are either adjacent to Silver Spring (Four Corners and Montgomery Hill) or relatively close by (White Oak).

Table 63: Modal Rank Comparison for Activity Areas, All Day Parts, All Days, Non-within pairs, Ordered by Bus

	Origin	Destination	All Vehicles Rank	Bus Rank ▲	Rail Rank
5	White Flint	Twinbrook	39	5	73
2	Twinbrook	Rockville	34	6	41
1	Rockville	Twinbrook	31	7	43
209	White Oak	Silver Spring	253	9	137
185	Silver Spring	White Oak	231	10	137
115	Silver Spring	Four Corners	163	14	137
10	Twinbrook	White Flint	45	15	65
131	Four Corners	Silver Spring	180	16	139
19	Grosvenor-Strathmore	Twinbrook	58	17	49
167	Silver Spring	Montgomery Hills	216	18	125

Table 64 and **Table 65** show modal rank comparisons for Activity areas during the Peak AM (6 – 10 AM) morning commute, Monday through Thursday, for non-within O/D pairs. **Table 64** has the table ordered by All Vehicles, and it is apparent that Potomac-Montgomery Square, Olney-Ashton and North Potomac-Glen Hills could see a potential increase in bus trips if service were expanded.

Table 64: Modal Rank Comparison for Activity Areas, Peak AM (6 – 10 AM), Monday through Thursday, Non-within pairs Ordered by All Vehicles

	Origin	Destination	All Vehicles Rank	Bus Rank	Rail Rank
1	Potomac	Montgomery Square	15	57	86
2	Olney	Ashton	23	57	86
3	North Potomac	Glen Hills	32	60	86
4	Twinbrook	Rockville	36	2	52
5	Clarksburg	Germantown	39	45	86
6	Clarksburg	Milestone	40	57	86
7	Twinbrook	White Flint	41	4	26
8	Aspen Hill	Glenmont	43	25	86
9	Grosvenor-Strathmore	White Flint	45	17	35
10	Stewart Town	Gaithersburg	46	52	86

Similar to **Table 63, Table 65** shows the modal rank comparison table ordered by Bus rank for non-within O/D pairs, and again, Silver Spring appears in all O/D pairs in which the Bus rank is over 100 spots higher than the All Vehicles rank. Existing bus service is very strong coming into Silver Spring, including from the relatively distant Briggs Chaney area.

Table 65: Modal Rank Comparison for Activity Areas, Peak AM (6 – 10 AM), Monday through Thursday, Non-within pairs, Ordered by Bus

	Origin	Destination	All Vehicles Rank	Bus Rank ▲	Rail Rank
97	White Oak	Silver Spring	142	1	84
4	Twinbrook	Rockville	36	2	52
80	Four Corners	Silver Spring	125	3	86
7	Twinbrook	White Flint	41	4	26
147	Takoma-Langley	Silver Spring	183	9	84
173	Lyttonsville	Silver Spring	203	10	86
264	Briggs Chaney	Silver Spring	264	12	86
21	Rockville	Twinbrook	63	15	29
25	Stewart Town	Shady Grove-Washington Grove	68	16	86
9	Grosvenor-Strathmore	White Flint	45	17	35

For the Peak PM weekday period, **Table 66** appears to show potential for increased bus service for the O/D pairs of Milestone-Clarksburg, Ashton-Olney, Olney-Ashton, Germantown-Milestone and Olney-Laytonsville, all of which are areas in the outer part of Montgomery County.

Table 66: Modal Rank Comparison for Activity Areas, Peak PM (3 – 7 PM), Monday through Thursday, Non-within pairs, Ordered by All Vehicles

	Origin	Destination	All Vehicles Rank ▲	Bus Rank	Rail Rank
1	Rockville	Twinbrook	24	10	52
2	Milestone	Clarksburg	25	71	96
3	Ashton	Olney	31	77	96
4	White Flint	Twinbrook	32	3	47
5	Gaithersburg	Montgomery Village	33	23	96
6	Twinbrook	Rockville	37	8	30
7	Milestone	Germantown	38	36	96
8	Olney	Ashton	39	72	96
9	Germantown	Milestone	43	63	96
10	Olney	Laytonsville	44	84	96

When ordering the table by Bus rank for non-within O/D pairs, as shown in **Table 67**, Silver Spring once again appears to be capturing a large modal share of Bus trips compared to All Vehicle trips. It should be noted that Silver Spring is not adjacent to White Oak nor Four Corners.

Table 67: Modal Rank Comparison for Activity Areas, Peak PM (3 – 7 PM), Monday through Thursday, Non-within pairs, Ordered by Bus

	Origin	Destination	All Vehicles Rank	Bus Rank ▲	Rail Rank
4	White Flint	Twinbrook	32	3	47
169	Silver Spring	White Oak	201	5	93
102	Silver Spring	Four Corners	141	7	96
6	Twinbrook	Rockville	37	8	30
1	Rockville	Twinbrook	24	10	52
113	Silver Spring	Takoma-Langley	150	13	96
276	White Oak	Silver Spring	275	14	96
17	Grosvenor-Strathmore	Twinbrook	53	15	33
211	Silver Spring	Lyttonsville	233	16	94
164	Silver Spring	Montgomery Hills	197	17	83

Table 68 and **Table 69** look at modal ranks for Midday (10 AM – 3 PM) trips Mondays through Thursdays. When ordering the table by All Vehicles rank for non-within O/D pairs, as in **Table 68**, it is apparent that Ashton-Olney and Montgomery Square-Potomac, two pairs that are adjacent to each other, could see a potential increased bus modal share.

Table 68: Modal Rank Comparison for Activity Areas, Midday (10 AM – 3 PM), Monday through Thursday, Non-within pairs, Ordered by All Vehicles

	Origin	Destination	All Vehicles Rank ▲	Bus Rank	Rail Rank
1	Rockville	Twinbrook	19	5	25
2	White Flint	Twinbrook	24	4	39
3	Twinbrook	Rockville	29	7	26
4	Twinbrook	White Flint	32	11	47
5	Ashton	Olney	33	64	75
6	Germantown	Milestone	35	33	75
7	Montgomery Village	Gaithersburg	36	24	75
8	Montgomery Square	Potomac	37	70	75
9	Gaithersburg	Montgomery Village	38	25	75
10	Milestone	Germantown	39	34	75

When ordering by Bus rank, as in **Table 69**, Silver Spring once again appears to be capturing a large modal share of Bus trips compared to All Vehicle trips.

Table 69: Modal Rank Comparison for Activity Areas, Midday (10am-3pm), Monday through Thursday, Non-within pairs, Ordered by Bus

	Origin	Destination	All Vehicles Rank	Bus Rank	Rail Rank
2	White Flint	Twinbrook	24	4	39
1	Rockville	Twinbrook	19	5	25
3	Twinbrook	Rockville	29	7	26
4	Twinbrook	White Flint	32	11	47
221	White Oak	Silver Spring	234	13	75
13	Grosvenor-Strathmore	Twinbrook	48	14	36
14	Twinbrook	Grosvenor-Strathmore	52	15	54
139	Four Corners	Silver Spring	175	16	75
240	Silver Spring	White Oak	248	17	75
248	Silver Spring	Lyttonsville	254	18	75

Finally, **Table 70** and **Table 71** compare modal ranks for Saturdays and Sundays all day periods. When looking for potential areas to increase bus modal share, **Table 70** shows that Milestone appears to be a good candidate (Milestone-Clarksburg, Clarksburg-Milestone and Germantown-Milestone all rank significantly higher for All Vehicles modal share compared to Bus modal share). Additionally, Clarksburg and Germantown are adjacent to Milestone.

Table 70: Modal Rank Comparison for Activity Areas, All Day, Saturday through Sunday, Non-within pairs, Ordered by All Vehicles

	Origin	Destination	All Vehicles Rank ▲	Bus Rank	Rail Rank
1	Milestone	Clarksburg	22	109	97
2	Gaithersburg	Montgomery Village	27	33	97
3	Clarksburg	Milestone	30	112	97
4	Montgomery Village	Gaithersburg	33	38	97
5	Rockville	Twinbrook	35	7	24
6	Twinbrook	Rockville	38	6	32
7	Milestone	Germantown	39	73	97
8	Germantown	Milestone	40	85	97
9	White Flint	Twinbrook	43	5	70
10	Bethesda	Glen Echo	44	44	95

When ordering the table by Bus rank, as shown in **Table 71**, we can see that again non-within O/D pairs involving Bus trips in and out of Silver Spring considerably out rank All Vehicle trips. Additionally, it can be seen that Bus trips in and out of Twinbrook also outrank All Vehicle trips by a good margin.

Table 71: Modal Rank Comparison for Activity Areas, All Day, Saturday through Sunday, Non-within pairs, Ordered by Bus

	Origin	Destination	All Vehicles Rank	Bus Rank ▲	Rail Rank
9	White Flint	Twinbrook	43	5	70
6	Twinbrook	Rockville	38	6	32
5	Rockville	Twinbrook	35	7	24
18	Grosvenor-Strathmore	Twinbrook	52	8	29
16	Twinbrook	White Flint	50	9	69
19	Twinbrook	Grosvenor-Strathmore	53	10	42
185	Silver Spring	White Oak	223	11	97
178	Silver Spring	Montgomery Hills	216	12	94
215	White Oak	Silver Spring	248	12	95
109	Silver Spring	Four Corners	149	14	93

StreetLight Analysis Summary

StreetLight Data's platform and algorithms have proven useful in generating Origin/Destination trips for multiple vehicular across two sets of geographic zones in Montgomery County, Maryland. The analysis findings will aid VHB and Ride On in order to determine how best to reimagine the existing bus network in the county.

An analysis of the top O/D pairs for All Vehicles trips that originate and terminate within Montgomery County shows that the majority of trips generated are between either internal O/D pairs (where the origin and the destination are the same area) or O/D pairs that are adjacent to one another. When looking at trips that originate/terminate outside of Montgomery County, Washington appears to be the most common area that generates trips for All Vehicles. Additionally, over 850,000 are concentrated in the Regional Areas of Silver Spring, Gaithersburg, Rockville, Bethesda, Fairland, Clarksburg and Olney. The main takeaway from this analysis is that trips beginning or ending within Montgomery County tend to stay within one area or venture to an adjacent area.

When looking at where bus service is capturing a good portion of the modal share versus where expanded bus services could capture more of the modal share, VHB looked at modal rank comparisons for O/D pairs between All Vehicles and Bus. Silver Spring and Twinbrook, both as origins and destinations, consistently displayed a command of the bus modal trip share between them and other nearby areas within Montgomery County. Many of the areas paired with Silver Spring and Twinbrook cluster near the border with Washington or toward the center of the county. Conversely, the pairs that rank higher with All Vehicles compared to Bus tend to be toward the outer edge of the county, as the pairs of Ashton-Olney (both directions), Montgomery Square-Potomac (both directions), Milestone-Clarksburg (both directions) and Germantown-Milestone (both directions) consistently show potential for capturing bus modal trip share.

Transfers

To understand the connections riders are making with other regional transit providers, transfer matrices from October 2019 were analyzed to identify route to route connections with over 150 transfers. The dataset included transfers to and from Prince George's County TheBus as well as Metrobus.

Transit Operators

While data for TheBus was included in the analysis, there were no route-to-route transfers of over 150 riders, the maximum number of riders transferring from Ride On to TheBus was 41. The Metrobus routes that Ride On passengers transferred to/from most frequently were the J2, C2/C4, Q4/Q6, Y2/Y7, and C8. The Ride On routes that had the most passenger transfers were routes 20, 34, 10, 15, 16, 26, 48, and 1.

Table 72 lists the top ten Metrobus to Ride On transfers, based off transfer volume. The J2, C4, K6, and Q4 routes are the routes that most frequently have larger numbers of transfers to Ride On routes. Most of these routes show up multiple times in the top ten list, with the C4 route having four of the highest transfer values to a Ride On route.

Table 72: Top Ten Route-to-Route Transfers from Metrobus to Ride On

Transfer From	Transfer To	Number of Transfers
Metrobus Route	Ride On Route	October 2019
J2	15	885
C4	34	788
C4	15	640
K6	16	640
J2	20	595
Q4	55	580
C4	46	522
C4	48	507
J2	16	505
K6	20	503

Similarly, **Table 73** lists the top ten Ride On to Metrobus transfers, based off transfer volume. These routes generally follow the same patterns as the Metrobus to Ride On transfer routes.

Table 73: Top Ten Route-to-Route Transfers from Ride On to Metrobus

Transfer From	Transfer To	Number of Transfers
Ride On Route	Metrobus Route	October 2019
15	J2	833
20	J2	655
34	C4	596
10	K6	592
20	C4	590
26	Y2	570
16	K6	533
16	C4	530
15	C4	521
20	K6	501

Table 74 shows the routes with the highest number of occurrences where the number of transfers to other routes were 150 or above. For example, the J2 had over 150 transfers each to fifteen different Ride On routes. Many of these routes overlapped with the routes listed in **Table 72**. Interestingly, while some routes such as the Q6 and Y2 were not included in the top transfers list, they did have a larger number of transfers to Ride On Routes of over 150 than the K6 did.

Table 74: Routes with the Highest Number of Occurrences of a Transfer Rate Over 150

Transfer From	
Metrobus Route	Occurrences
J2	15
Q4	13
C4	12
Q6	12
Y2	6
C8	6
Y7	6
C2	6
T2	5
Z8	5
K6	5
L8	5
Y8	5

Transfer To	
Ride On Route	Occurrences
20	15
34	13
10	11
15	10
16	8
26	7
48	7
1	6
17	5
46	5
49	5
101	4
9	4

Table 75 lists the top five Prince George's to Ride On transfers, based off transfer volume. Due to the low transfer volume between the services, only the top five routes were included. The Prince George's 180 route is the only route that had any significant transfer volumes.

Table 75: Top Five Route-to-Route Transfers from Prince George's to Ride On

Transfer From	Transfer To	Number of Transfers
Prince George's Route	Ride On Route	October 2019
180	15	35
180	16	20
180	17	13
180	18	6
180	20	5

Similarly, **Table 76** lists the top five Ride on to Prince George's transfers, based off transfer volume. The routes are mostly the same as those shown in **Table 75**.

Table 76: Top Five Route-to-Route Transfers from Ride On to Prince George's

Transfer From	Transfer To	Number of Transfers
Ride On Route	Prince George's Route	October 2019
15	180	41
16	180	35
17	180	15
25	180	13
18	180	7

Table 77 lists the top twenty Ride On to Ride On transfers, based off transfer volume. The top transfers included those to or from Route 55. In fact, fifteen of the twenty top transfers included Route 55 of one of the routes. Route 100 was the second most common route transfer, appearing in six of the twenty top transfers. Over 10,000 transfers occurred to or from Route 55, while almost 4,000 transfers occurred to or from Route 100. Route 55 runs parallel to the I-270 corridor from Rockville to Germantown, serving a large portion of Montgomery County.

Table 77: Top Twenty Route-to-Route Transfers from Ride On to Ride On

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
61	55	1067
59	55	1056
55	59	1043
55	61	905
46	55	855
100	55	844
97	100	781
55	46	776
100	97	775
57	55	760
55	57	732
83	100	710
98	100	674
55	100	659
58	55	603
55	54	582
54	55	569
55	58	530
56	55	522
46	26	519

Table 80 in Appendix A contains a list of Ride On to Ride on Transfers above 40, roughly the equivalent to one fully-seated bus load. This table is based off of October 2019 transfer data.

Transfer Points

The transfer points were determined by evaluating the common stops of route-to-route transfer combinations which had over 150 transfers. Therefore, some route-to-route transfer pairs had multiple transfer points. The most common transfer points were at rail stations/transit centers, but some non-station stops were also in the top transfer points list. Silver Spring Transit Center and Rockville Station were the stops where the highest number of transfers occurred.

Table 78: Top Transfer Points

Transfer Point	Number of Route Transfer Combinations
Silver Spring Transit Center	30
Rockville Station	23
Wheaton Station	14
Glenmont Station	10
Takoma Langley Transit Center	9
Friendship Heights Station	9
University Blvd + Piney Branch Rd	6
Medical Center Station	4
Connecticut Ave + Georgia Ave	4

6

Trip Planner Analysis

Introduction

Multiple trip planner applications are available to the public for planning transit trips across Montgomery County. These applications include Ride On's Plan Your Trip, Metro's Trip Planner, and third-party applications, such as Google Maps/Transit. This analysis compares the results for drive times and transit trip times within Google Maps, and transit trip itineraries and travel times between Google Transit, Ride On's Plan Your Trip, and Metro's Trip Planner. The analysis found that there are significant differences between the resulting trip itineraries and travel times.

Transit Itineraries and Trip Times

A total of 18 origin/destination (O/D) pairs were compared using the different trip planners to understand differences in routing. The times in **Table 79** were at 5 PM during the PM Peak period. A column with the Google Maps car travel time was included to compare how transit times and driving times differ. Google Maps generally had the fastest routing of all the planners. The Ride On trip planner was not able to provide routing for the Metro DC O/D pairs. It also was less user-friendly than the other tools. There was no autofill once you started to type a location, and you have to fill out two boxes for both the origin and destination – one box with the street address or location name and another box with the city of the location.

Drive Times versus Transit Trip Times

Table 79 also includes a column indicating the drive times between the O/D pairs using Google Maps. The drive time for most of the O/D pairs was normally much shorter than the transit time, with

the exception of Silver Spring to DC and Bethesda to DC, with Silver Spring to Gaithersburg transit travel time being almost the same as driving travel time. Many of the pairs with dramatic differences between drive time and transit time were further up-county, such as Germantown to Rockville, Clarksburg to Silver Spring, Poolesville to Rockville, Gaithersburg to Darnestown, and Clarksburg to Gaithersburg.

Table 79: Trip Planner Results

Origin	Destination	Minutes of Estimated Travel Time			
		Google Maps - Car	Google Maps - Transit	Ride On Plan Your Trip	Metro Trip Planner
Silver Spring	The Universities at Shady Grove	39	52	57	120
Germantown	Rockville	20	72	69	68
Rockville	Silver Spring	38	62	64	86
Silver Spring	Gaithersburg	41	42	43	68
Gaithersburg	Bethesda	29	47	79	42
Glenmont	Silver Spring	20	29	42	46
Clarksburg	Silver Spring	52	106	131	126
Aspen Hill	Glenmont	7	14	18	25
Poolesville	Rockville	33	69	77	81
Silver Spring	Metro Center DC	40	32	-	55
Olney	Silver Spring	41	69	74	75
Potomac	Rockville	18	23	23	27
The Universities at Shady Grove	Metro Center DC	57	67	-	81
Bethesda	Silver Spring	22	33	35	47
Gaithersburg	Darnestown	18	64	79	87
Bethesda	Metro Center DC	47	24	-	23
Clarksburg	Gaithersburg	15	67	83	83
Rockville	Gaithersburg	17	36	35	40

Appendix A

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A

Appendix A: All Ride On to Ride On Transfers

Table 80: All Ride On to Ride On Transfers above 40

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
61	55	1067
59	55	1056
55	59	1043
55	61	905
46	55	855
100	55	844
97	100	781
55	46	776
100	97	775
57	55	760
55	57	732
83	100	710
98	100	674
55	100	659
58	55	603
55	54	582
54	55	569
55	58	530
56	55	522

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
46	26	519
26	46	507
61	59	505
20	15	490
57	59	490
49	55	485
59	61	479
100	83	471
59	57	453
20	16	452
74	55	441
61	57	440
55	56	439
15	20	435
59	54	428
55	101	418
100	59	417
100	101	397
16	15	391
16	20	390
61	54	388
55	74	386
75	100	386
101	55	385
101	46	371
15	1	369
15	16	365
49	59	363
46	101	362
54	61	360
10	20	358
54	57	357
61	100	348
100	61	343
54	59	342
55	49	341
59	101	339
59	56	336
64	59	328
59	100	326

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
58	101	321
46	10	320
10	46	318
57	61	317
100	75	316
55	97	313
49	54	312
59	46	312
61	56	308
61	58	306
15	11	305
55	63	304
55	75	303
47	55	298
48	55	298
56	59	298
61	101	295
57	54	293
15	5	291
83	55	290
48	59	289
100	98	287
59	48	287
55	47	283
75	55	283
10	49	280
20	10	279
58	59	276
64	55	275
10	26	274
26	10	274
46	5	272
46	49	270
54	46	269
101	59	267
55	43	266
46	54	265
45	46	264
97	55	259
57	58	258

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
58	57	258
46	59	257
49	26	257
49	10	255
56	101	255
10	48	254
49	56	254
23	1	253
16	17	249
43	55	248
56	57	247
98	55	247
100	43	245
55	76	245
74	100	245
56	61	243
57	100	243
15	17	242
63	55	241
101	26	240
101	100	239
26	49	239
1	15	238
59	58	237
55	48	235
58	100	234
57	56	233
1	23	231
76	55	230
57	101	229
54	101	227
59	49	227
56	54	225
58	61	225
100	57	224
48	46	224
59	64	224
100	74	221
20	5	221
100	63	217

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
5	20	216
46	45	215
56	46	214
61	43	214
100	58	212
16	12	211
17	16	211
34	46	211
75	61	210
100	90	208
101	57	208
38	46	208
98	61	208
34	101	205
49	46	205
49	48	205
58	54	205
101	61	204
41	26	204
5	15	203
54	56	201
26	101	200
54	100	200
55	64	200
12	16	197
20	1	194
16	1	193
20	11	193
39	49	193
101	54	192
12	15	192
5	46	191
12	20	190
101	5	186
48	57	186
57	46	184
61	74	184
48	34	183
64	100	183
34	23	182

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
48	49	182
46	56	180
48	10	180
46	34	179
17	15	178
56	58	178
47	34	177
20	17	175
54	76	175
49	63	174
64	74	174
74	59	174
101	56	173
47	46	173
55	83	172
90	55	172
46	38	170
56	49	170
49	101	169
59	63	169
63	100	169
43	100	168
74	61	167
20	12	165
47	101	165
34	48	164
54	49	164
58	56	164
15	2	163
1	20	160
15	12	160
34	47	160
43	61	160
61	75	160
11	23	158
46	48	158
46	47	157
48	54	157
26	41	154
34	9	153

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
54	58	149
16	5	148
97	61	146
1	16	145
57	63	145
101	49	144
55	90	144
45	26	143
57	90	141
61	63	141
63	49	141
83	61	141
17	1	140
56	74	139
101	48	138
101	63	138
59	43	138
64	43	138
90	57	138
5	26	137
90	100	136
23	11	134
63	59	134
73	55	134
74	57	134
101	58	133
17	20	133
47	49	133
100	54	132
47	56	131
5	34	131
64	57	131
98	74	131
48	56	129
64	58	129
43	59	128
90	59	128
38	26	127
46	63	127
15	34	126

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
56	47	126
16	9	125
23	34	125
63	101	125
74	98	125
76	59	125
101	34	124
41	10	124
74	90	124
100	64	123
55	73	123
57	74	123
100	76	121
11	15	121
58	74	121
75	97	121
90	101	121
56	76	120
59	47	120
54	74	119
55	45	119
26	5	118
48	101	118
58	43	118
34	8	117
56	100	117
63	61	117
54	47	115
54	48	115
74	97	115
9	34	115
5	101	114
57	76	114
64	61	114
75	74	114
34	5	113
45	55	113
48	63	113
5	16	113
57	48	113

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
59	74	113
58	63	112
74	54	112
49	57	111
59	90	111
30	34	110
57	64	110
83	70	110
100	56	109
45	101	109
47	59	109
55	66	109
1	12	108
34	36	108
41	49	108
49	47	108
129	10	107
39	26	107
59	76	107
63	57	107
101	47	106
20	34	106
45	59	106
61	76	106
38	34	105
49	39	105
76	61	105
100	46	104
34	20	104
46	57	104
74	58	104
101	76	103
55	98	103
61	48	103
74	76	103
16	11	102
64	76	102
54	63	101
57	49	101
63	58	101

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
74	56	101
15	9	100
2	15	100
56	48	100
61	90	100
76	54	100
10	5	99
26	38	98
48	100	98
48	26	98
61	97	98
64	101	98
1	17	97
43	57	97
61	98	97
26	45	96
34	38	96
63	46	96
20	2	94
74	101	94
76	57	94
47	54	93
57	43	93
76	100	93
26	48	92
101	74	91
101	90	91
17	5	91
70	83	91
76	56	91
16	2	90
90	61	90
12	1	89
14	16	89
16	10	89
97	74	89
2	20	88
61	83	88
8	34	88
9	20	88

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
10	41	87
9	16	87
10	16	86
101	38	86
11	16	86
11	20	86
34	30	86
46	30	85
49	45	85
1	11	84
20	46	84
34	1	84
43	64	84
54	43	84
58	64	84
5	12	83
58	90	83
76	101	83
1	29	82
100	49	82
15	10	82
38	48	82
46	100	82
46	74	82
63	76	82
76	74	82
83	74	82
10	15	81
20	9	81
63	74	81
1	9	80
24	15	80
30	46	80
45	49	80
57	47	80
74	64	80
83	97	80
43	56	79
9	15	79
12	17	78

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
17	12	78
34	29	78
43	58	78
16	34	77
49	41	77
98	83	77
101	45	76
34	16	76
36	34	76
56	43	76
76	64	76
12	5	74
2	16	74
45	10	74
57	66	74
74	83	74
9	1	74
46	20	73
5	10	73
61	64	73
63	54	73
97	75	73
39	10	72
47	26	72
47	30	72
60	101	72
61	46	72
76	58	72
10	33	71
18	16	71
75	98	71
14	20	70
45	56	70
46	61	70
58	76	70
71	55	70
73	101	70
74	49	70
74	63	70
10	129	69

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
18	17	69
45	5	69
61	49	69
24	20	68
29	23	68
43	63	67
20	24	66
47	48	66
73	59	66
16	14	65
17	34	65
33	34	65
34	32	65
48	61	65
73	100	65
74	43	65
74	46	65
11	12	64
51	49	64
12	9	63
20	14	63
34	15	63
59	26	63
71	59	63
78	59	63
10	34	62
100	48	62
16	18	62
20	26	62
26	39	62
26	47	62
30	47	62
43	74	62
30	101	61
42	38	61
43	76	61
43	90	61
5	1	61
26	20	60
45	48	60

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
55	71	60
63	56	60
71	43	60
83	75	60
1	34	59
29	34	59
51	33	59
55	70	59
66	55	59
70	55	59
74	75	59
78	90	59
97	83	59
17	18	58
43	54	58
46	76	58
5	17	58
59	45	58
63	66	58
63	97	58
10	39	57
5	129	57
71	61	57
90	74	57
1	5	56
11	9	56
14	15	56
2	1	56
20	23	56
38	42	56
53	55	56
60	59	56
34	26	55
42	46	55
5	9	55
83	98	55
90	43	55
98	54	55
130	34	54
48	38	54

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
49	61	54
71	101	54
20	48	53
45	47	53
10	1	52
10	51	52
100	73	52
11	17	52
17	11	52
42	26	52
49	100	52
76	63	52
9	17	52
97	98	52
10	17	51
26	34	51
45	57	51
46	6	51
48	45	51
54	64	51
6	46	51
63	48	51
64	63	51
73	61	51
74	71	51
78	43	51
81	46	51
9	11	51
1	129	50
101	64	50
12	11	50
129	11	50
30	55	50
38	101	50
38	5	50
56	64	50
61	73	50
63	64	50
90	58	50
18	15	49

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
21	1	49
56	63	49
58	46	49
58	75	49
59	66	49
8	38	49
1	2	48
10	12	48
15	23	48
29	1	48
56	45	48
59	78	48
61	71	48
64	56	48
75	54	48
75	83	48
96	46	48
12	13	47
16	8	47
41	46	47
5	42	47
55	53	47
58	97	47
73	58	47
81	101	47
98	97	47
101	6	46
15	14	46
24	16	46
46	81	46
51	26	46
55	140	46
76	90	46
100	53	45
12	10	45
140	1	45
2	11	45
38	8	45
57	60	45
59	39	45

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
66	57	45
73	43	45
8	16	45
17	9	44
21	11	44
34	17	44
34	59	44
54	75	44
58	53	44
59	10	44
64	46	44
64	54	44
66	101	44
76	46	44
20	8	43
30	49	43
34	130	43
34	33	43
45	54	43
46	41	43
47	36	43
79	43	43
90	63	43
90	64	43
101	75	42
12	14	42
15	18	42
18	20	42
26	42	42
33	26	42
48	47	42
49	76	42
5	11	42
54	45	42
12	26	41
13	12	41
14	12	41
2	5	41
26	51	41
42	47	41

Transfer From	Transfer To	Number of Transfers
Ride On Route	Ride On Route	October 2019
47	57	41
48	64	41
49	34	41
55	60	41
64	49	41
8	20	41
8	9	41
83	54	41
98	73	41
1	14	40
1	22	40
101	73	40
11	129	40
17	2	40
26	130	40
47	63	40
5	2	40
64	90	40
65	101	40
70	75	40
75	58	40

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