Title VI Compliance Monitoring Report

August 2017

Title VI of the Civil Rights Act of 1964

(42 U.S.C. §§ 2000d, et seq.)

&

FTA Circular 4702.1B, dated October 1, 2012

TITLE VI REQUIREMENTS AND GUIDELINES FOR FEDERAL TRANSIT ADMINISTRATION RECIPIENTS

Montgomery County Department of Transportation

Division of Transit Services

Rockville, Maryland

Accessible Formats

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Table of Contents

1. Overview and Recommendations 1

2. Montgomery County Service Standards 2

2.1. FTA Service Standard Requirements 2
2.2. Ride On Service Standards 2
2.3. RIDE ON Service Policies 3

3. Monitoring Methods 5

3.1. Minority Population by Bus Route 5
3.2. Vehicle Load Factor Monitoring Method 7
3.3. Route Headways Monitoring Method 7
3.4. On-Time Performance Monitoring Method 7
3.5. Service Accessibility Monitoring Method 7
3.6. Vehicle Assignment Monitoring Method 7
3.7. Distribution of Transit Amenities Monitoring Method 7

4. Monitoring Results 8

4.1. Vehicle Load Factor Monitoring Results 8
4.2. Route Headways Monitoring Results 8
4.3. On-Time Performance Monitoring Results 9
4.4. Service Accessibility Monitoring Results 9
4.5. Vehicle Assignment Monitoring Results 10
4.6. Distribution of Transit Amenities Monitoring Results 10
4.7. Load Factor Detailed Results 12
4.8. Route Headways Detailed Results 14
4.9. On-Time Performance Detailed Results 16
4.10. Service Accessibility Detailed Results 17
4.11. Vehicle Assignment Detailed Results 20
4.12. Distribution of Transit Amenities 22

1. Overview and Recommendations

Following the guidelines set forth by FTA Circular 4702.1B, the Montgomery County Department of Transportation (MCDOT) monitors the performance of the transit system relative to system-wide service standards and service policies on a tri-annual basis. These monitoring activities are used to compare the level of service provided to predominantly minority areas with the level of service provided to predominantly non-minority areas to ensure that the result of policies and decision-making is equitable.

The monitoring methodology groups the routes into four quartiles with quartile 1 having the highest minority population and quartile 4 having the lowest minority population. For the purpose of this monitoring report, routes grouped in quartiles 1 and 2 are considered the minority services.

This Compliance Monitoring Report has not identified any of disparity which requires additional review.

2. Montgomery County Service Standards

2.1. FTA Service Standard Requirements

MCDOT receives FTA funding to provide service in Montgomery County, Maryland as a sub-recipient to the Maryland Transit Administration. As defined under 49 U.S.C. 5307, the county has a population of 200,000 people or greater. As such, public transit providers are required to develop service standards and policies.

Pursuant to FTA circular 4702.1B, RIDE ON has established and monitors service performance under quantitative service standards and qualitative service policies. The standards and policies that must be monitored are:

- Standards
  - Vehicle Load for each mode
  - Vehicle Headway for each mode
  - On-Time Performance for each mode
  - Service Accessibility for each mode
- Policies
  - Vehicle Assignment for each mode
  - Distribution of Transit Amenities (Policy and Standards) for each mode

2.2. Ride On Service Standards

Standards for each of the FTA requirements are described below:

Vehicle Load Factor - This standard is measured as the ratio of passengers on board to the seated bus capacity expressed as a percent. Values of 100 percent or less indicate all riders are provided a seated ride while values of more than 100 percent denote standees. Loading standards indicate the degree of crowding (i.e., standees) which is acceptable, with consideration given to both the type of service and the operating period. Acceptable load factors are as follows:

Service Type	Load Factor
Regular Routes	1.2
Express	1.0

Vehicle Headways - In general, frequencies or "headways" (the time between one bus and the next at the same location in the same direction) are established to provide enough vehicles past the maximum load point(s) on a route to accommodate the passenger volume and stay within the recommended load factor standards. If passenger loads are so light that an excessive time is needed between vehicles to meet loading standards, then headways should be set on the basis of policy

considerations. Montgomery County has established a thirty minute headway as the minimum policy headway for routes operating in any time period.

As with all standards, the minimum headway is not an absolute measure and should be used as a guide. There may be situations where low demand and actual running times warrants even less frequent service. Further, headways should be designed, wherever possible, to conform to regularly recurring clock face intervals. There are instances where operational efficiencies may take the place of the benefits of clock face headways.

On-Time Performance – on-time performance standards have been established as follows:

Schedule Adherence (OTP):	All Service Types
2 minutes early to 7 minutes late	88.5%

Service Accessibility – Within Montgomery County transit service is provided to traffic analysis zones with 3+ households per acre and/or 4+ jobs per acre.

2.3. RIDE ON Service Policies

Vehicle Assignment Policy – Ride On transit vehicles are assigned to three garages based upon their size and technology. The Nicholson Court Garage located near White Flint is a leased facility and can only accommodate diesel buses 30 foot in length or shorter. The Silver Spring Garage located near downtown Silver Spring can only accommodate diesel fueled buses. The David F. Bone Equipment Maintenance and Transit Operations Center (EMTOC) located in Gaithersburg can accommodate diesel and CNG buses up to 60 foot in length. Vehicles are assigned to routes based upon ridership loads with smaller buses assigned to routes with lighter loads and full sized buses assigned to routes with heavier loads. RIDE ON monitors the age of buses assigned to routes by periodically sampling the bus assignments for a weekday and then comparing the average age of the buses assigned by quartile to the average age for all buses assigned. If the average age of buses assigned to any quartile is one standard deviation higher than the average of all buses assigned, then further investigation of the bus assignment process will be conducted.

Distribution of Transit Amenities Policy - In accordance with RIDE ON policy Bus Stop/Passenger Facilities will generally be located at or near major trip generators or destinations or at regular intervals based on the population density and transit-related demographic factors along the route. Stops must be in locations passengers can board and alight safely and where buses can safely enter and exit. Optimally, bus stop locations will have pedestrian friendly facilities, including sidewalks and walkways that separate pedestrians from vehicular traffic. Whenever possible, stops in opposite directions on a route will be located directly opposite each other.

All stops will be fixed locations designated by RIDE ON in accordance with this policy. Additionally, Ride On has a Night Request Stop program that allows passengers to request to be let off at any location with the following limitations: after 9:00 p.m. only; alighting only; must be on the regular route; location must be safe to stop; in Maryland only.

Bus stops shall not obstruct driveways or entranceways or cause visual obstructions for motorists or for bus operators merging back into the traffic stream. In areas that have high traffic volumes, turning movements, and pedestrian crossings through intersections, the stop should be placed where it presents the least conflict with vehicular traffic and pedestrians.

Decisions for final bus stop selection are based on the following:

- Passenger origins
- Adjacent land use and activities
- Operational feasibility in accessing the stop
- Physical constraints or obstructions (trees, driveways, etc.)
- Pedestrian access including accessibility for people with disabilities
- Parking restrictions and requirements
- Traffic volumes on adjacent roadways particularly as evidenced by turning movements
- An examination of the individual bus route/routes that serve the potential stop
- Bus and intermodal (rail, park and ride) transfers to the stop

Safety is a critical consideration. Stops shall not be placed where they present a hazard to passengers, transit vehicles, or other traffic.

Park and Ride lots are a special category of bus stops intended to extend the reach of transit by collecting passengers from a wider area. Their location is based on availability of land or preexisting parking and connections to the regional highway system. Park and rides may also accommodate carpoolers, bicycle riders and serve as transit hubs. Planning and development of park and rides include a higher level of involvement with the public, other MCDOT divisions, Maryland National Capital Park and Planning Commission, WMATA and Maryland Transit Administration.

Bus stop interval spacing has a major impact on transit operations. It greatly impacts a route's travel time, service reliability, and schedule adherence as well as the route's attractiveness to the customer population. RIDE ON guidelines for bus stop spacing are based on a combination of factors including:

- Type of service operated
- Ridership levels
- Passenger transfer potential and demand
- Type of roadway used for operation
- Prevailing traffic conditions operating on the roadway
- Adjacent and surrounding land use, trip generators, or attractors
- Topography of the area
- Population densities and demographic characteristics
- Interface with other routes and public transportation services

Bus stops should be placed approximately 750 feet to 1000 feet apart or 5-7 bus stops per mile.

1. Exceptions to Interval Spacing Requirements: Interval spacing guideline exceptions should be limited and made on a case-by-case basis in order to not confuse customers or

adversely impact a route's running time and schedule adherence. The following are examples of exceptions to interval spacing requirements:

- Street or subdivision design causes walking distance to the stop to be excessive
- Topographic conditions, such as hills or steep grades leading to and from a bus stop
- Demographic characteristics of customers, such as elderly customers who are unable to conveniently travel the prescribed guideline distance between bus stops
- High volume activity centers.

2. Consolidation of Bus Stops: Where there are excessive numbers of stops located at short intervals, stops with low levels of ridership will be consolidated. Individual stops may be eliminated or adjacent stops may be consolidated at a suitable intermediate location. Determination of stops to be retained will be based on operational, safety, accessibility, customer convenience considerations and on the suitability of the site for customer facilities.

3. Monitoring Methods

RIDE ON will produce a Title VI Monitoring Report every three years. The monitoring method for each service standard and policy follow.

3.1. Minority Population by Bus Route

Using the 2014 on-board survey, RIDE ON has identified the minority and majority population for each route. Each route's minority and majority population will be totaled and a percent minority population will be calculated. The routes will then be ranked in descending order of minority population and divided into four quartiles with the highest minority percentage in the first quartile. Table 3-1 below lists the Ride On routes with minority percentages and arranged in quartiles. This minority ridership ranking by quartile will be utilized in the service monitoring to determine if service is being fairly and equitably provided.

Table 3-1: Ride On – Montgomery County Population by Transit Route

Minority by Route – 2014 Survey		
	Route #	% Minority
Quartile 1	43	94.7%
	15	94.1%
	20	93.9%
	41	93.8%
	65	93.3%
	38	92.5%
	17	92.4%
	10	92.3%
	83	91.8%
	79	91.3%
	49	91.1%
	16	90.8%
	8	90.1%
	25	89.8%
	39	89.8%
	58	89.5%
	74	89.3%
	55	89.2%
	57	89.1%
	59	89.1%
Quartile 2	26	89.0%
	97	88.9%
	56	88.3%
	11	88.1%
	51	87.5%
	64	87.1%
	28	86.8%
	2	86.7%
	48	86.2%
	61	85.9%
	31	85.7%
	66	85.7%
	75	85.1%
	9	84.9%
	67	84.6%
	18	84.5%
	54	84.2%
	71	84.0%
	46	83.4%
	94	83.3%

Minority by Route – 2014 Survey		
	Route #	% Minority
Quartile 3	63	83.1%
	70	82.1%
	60	81.8%
	21	81.1%
	100	80.6%
	42	80.3%
	78	80.0%
	93	80.0%
	5	79.8%
	1	78.4%
	12	77.1%
	34	77.0%
	81	75.0%
	98	75.0%
	90	74.6%
	24	74.2%
	47	72.1%
	44	71.8%
	23	71.6%
Quartile 4	45	71.1%
	96	71.0%
	53	70.7%
	37	70.6%
	33	70.2%
	76	69.8%
	13	65.6%
	36	65.5%
	29	64.0%
	6	63.2%
	22	63.0%
	52	60.0%
	19	57.1%
	30	56.1%
	14	55.4%
	4	51.4%
	7	50.0%
	32	33.3%
	3	0.0%

3.2. Vehicle Load Factor Monitoring Method

Using the GFI Fare collection data for a recent fiscal year, ridership and service capacity data will be collected for each route and an average week day AM peak period and PM peak period will be calculated. Using the quartiles shown in Table 3-1, the average load factor per quartile for each peak period will be calculated. A disparity will exist if the average load factor for either quartile 1 or 2 is one standard deviation higher than the system average.

3.3. Route Headways Monitoring Method

Using published timetables, headway data will be collected for each route by four time periods. Using the quartiles shown in Table 3-1, the average headway will be calculated for each quartile and time period. A disparity will exist if the average headway for either quartile 1 or 2 is one standard deviation longer that the system average.

3.4. On-Time Performance Monitoring Method

Using automatic vehicle location data for a recent fiscal year, on-time performance will be collected for each route. Using the quartiles shown in Table 3-1, the average on-time performance will be calculated for each quartile and time period. A disparity will exist if the average on-time performance for either quartile 1 or 2 is one standard deviation less than the system average.

3.5. Service Accessibility Monitoring Method

Using the most recent US Census and GIS analysis RIDE ON will estimate the percentage of the minority and majority population within ¼ mile of a transit route. If a transit route travels within ¼ mile of a block group, the minority and majority population from that census block group will be assumed to have accessibility to transit services. The average minority and majority access to transit for the system will be calculated. If the minority rate of transit service access is less than 90% of the average rate of transit service access for the total population a disparity will exist.

3.6. Vehicle Assignment Monitoring Method

Using vehicle assignments for a recent weekday, the average age of all buses operating on a route during that weekday will be calculated. Using the quartiles shown in Table 3-1, the average age will be calculated for each quartile. A disparity will exist if the average bus age for either quartile 1 or 2 is one standard deviation older than the system average for all buses assigned.

3.7. Distribution of Transit Amenities Monitoring Method

Transit amenities will be mapped on GIS mapping for minority and low income populations and the number of shelters and benches will be counted in each area. The number of shelters and the number of benches will be calculated for the minority / non-minority areas and the low income areas based upon the percent of households in poverty. Rates of shelters and benches per 1,000 households will be calculated. If the rate of shelters or benches in minority / low income areas is 20 per cent less that in non-minority / non-low income areas a disparity will exist.

4. Monitoring Results

4.1. Vehicle Load Factor Monitoring Results

Ridership and service capacity data was collected for Fiscal Year 2017. Average weekday AM peak period and PM peak period load factors by quartiles are shown in Table 4.1.

Table 4-1: Ride On Vehicle Load Factor Monitoring Results – Fiscal Year 2017

Quartile	AM Peak	PM Peak
1	54.0%	64.0%
2	43.9%	57.9%
3	41.9%	48.4%
4	33.8%	30.0%
System Average	43.6%	50.6%
Standard Deviation	0.199718	0.3205554
Disparity Limit	63.5%	82.7%

The monitoring methodology establishes that a disparity exists if the average load factor for either quartile 1 or 2 is one standard deviation higher than the system average. In the AM Peak and PM Peak, the load factor for quartiles 1 and 2 are higher than the system average but lower than the disparity limit.

There are four routes that exceed Ride On's PM Peak Hour Load factor policy of 120% during the PM peak including Route 55 – 174%, Route 59 – 125%, Route 61 – 122% and Route 1 – 125%. Routes 55, 59 are in Quartile 1, Route 61 is in Quartile 2, and Route 1 is in Quartile 3. Beginning October 2, 2017, RIDE ON is adding a new Route 101 – Ride On extRa which will add additional capacity between Lakeforest, Shady Grove, Rockville and Bethesda. This new route should reduce overcrowding on Routes 55, 59 and 61.

4.2. Route Headways Monitoring Results

Using the Fiscal Year 2017 Service Summary, headway data was collected for each route by four time periods. The average headway was calculated for each quartile and time period as shown in Table 4-2 below. A disparity exists if the average headway for either quartile 1 or 2 is one standard deviation longer that the system average.

Table 4-2: Ride On Route Headways Monitoring Results – Fiscal Year 2017

Quartile	AM Peak	Mid Day	PM Peak	Evening
1	21.4	25.6	22.1	28.0
2	23.0	27.1	22.8	28.5
3	23.6	27.7	24.4	30.0
4	26.9	30.0	27.1	35.0
System Average	23.7	27.2	24.0	28.8
Standard Deviation	7.9	5.6	7.5	4.1

Disparity Limit	31.6	32.8	31.6	32.9

Analysis of the headways indicates that there are no disparities.

4.3. On-Time Performance Monitoring Results

Using the automatic vehicle location system for Fiscal Year 2017, on-time performance data for all time points was collected for each route. The average on-time performance was calculated for each quartile and summarized in Table 4-3. The monitoring methodology provides that a disparity exists when the average on-time performance for either quartile 1 or 2 is one standard deviation less than the system average.

Table 4-3: Ride On On-Time Performance – Fiscal Year 2017

Quartile	On-Time Performance
1	90.7%
2	89.8%
3	82.7%
4	91.0%
System Average	90.9%
Standard Deviation	9.7%
Disparity Limit	81.2%

Analysis of the on-time performance results indicates that overall on-time performance has achieved the system goal of 90.9 percent.

4.4. Service Accessibility Monitoring Results

Table 4-4 presents the GIS analysis of the percentage of minority and non-minority populations within ¼ mile of a Ride On and Metro Bus transit route. The monitoring methodology provides that a disparity exists if the minority rate of transit service access is less than 90% of the majority population rate of transit service access. The data for this calculation is shown in Table 4-9 below.

Table 4-4: Ride On Service Accessibility Analysis – September 2013

	Total Population	Minority Population	Non-Minority Population
Montgomery County	971,777	493,012	478,765
Transit Service Area	854,312	447,350	406,962
% of population within transit service area	87.9%	90.7%	85.0%

Review of the data indicates that no disparity exists.

4.5. Vehicle Assignment Monitoring Results

Using vehicle assignments for April 26, 2017, the average age of all buses operating on a route was calculated and the average age was calculated for each quartile. The monitoring methodology requires that a disparity exists if the average bus age for either quartile 1 or 2 is one standard deviation older that the system average for all buses assigned.

Table 4-5: Bus Average Age April 26, 2017

Quartile	Average Age
1	6.70
2	7.21
3	6.47
4	5.92
System Average	6.63
Standard Deviation	2.35
Disparity Limit	8.99

Review of the data indicates that the average age of buses assigned to quartile 1 and quartile 2 are slightly older than the system average. The analysis demonstrates however that no disparity exists.

4.6. Distribution of Transit Amenities Monitoring Results

The location of transit amenities has been analyzed to determine if they have been fairly located for minority and low-income populations. Tables 4-6 and 4-7 compare the rate of transit amenities calculated as shelters and / or benches per 1,000 households.

The rate of transit amenities per 1,000 households is higher for census block groups that have minority concentrations greater than the county average and the rate of transit amenities per 1,000 households is highest in the low income groups. Considering this data, there does not appear to be any disparity in the location of transit amenities.

Table 4-6: Transit Amenities Relative to Minority Concentrations

Minority Census Block Groups	Households	Shelters	Benches	Shelters per 1,000 Households	Benches per 1,000 Households
Low Minority concentrations less than 50.7%	186,442	397	627	2.13	3.36
High Minority Concentrations more than 50.7%	166,735	367	501	2.20	3.00
County Total	353,177	764	1,128	2.16	3.19

Table 4-7: Transit Amenities Relative to Low-income Concentrations

Percent of Households less that Poverty Level	Households	Shelters	Benches	Shelters per 1,000 Households	Benches per 1,000 Households
< 10 %	287,338	557	885	1.94	3.08
10.1% - 20%	50,598	149	179	2.94	3.54
20.1% - 30%	11,755	40	45	3.40	3.83
30.1% - 40%	3,486	18	19	5.16	5.45
County Total	353,177	764	1,128	2.16	3.19

4.7. Load Factor Detailed Results

Table 4-8: Load Factor Analysis – Fiscal Year 2017

Load Factor		Average Weekday – Fiscal Year 2017					
Q#	Route #	AM Peak Boardings	PM Peak Boardings	AM Peak Seats	PM Peak Seats	AM Load Factor	PM Load Factor
Quartile I	43	94.7%	157	198	692	655	23%
	15	94.1%	998	601	1743	1440	57%
	20	93.9%	657	726	1099	910	60%
	41	93.8%	182	188	569	455	32%
	65	93.3%	137	50	218	182	63%
	38	92.5%	230	239	720	493	32%
	17	92.4%	215	229	682	606	32%
	10	92.3%	531	512	606	455	88%
	83	91.8%	112	137	540	432	21%
	79	91.3%	159	84	295	221	54%
	49	91.1%	512	453	764	655	67%
	16	90.8%	605	859	1023	1023	59%
	8	90.1%	119	163	324	324	37%
	25	89.8%	268	168	594	459	45%
	39	89.8%	129	78	243	216	53%
	58	89.5%	296	383	582	510	51%
	74	89.3%	242	284	546	437	44%
	55	89.2%	1389	1598	1200	920	116%
	57	89.1%	436	451	764	582	57%
	59	89.1%	806	863	910	692	89%
Quartile 2	26	89.0%	650	741	796	644	82%
	97	88.9%	182	212	405	324	45%
	56	88.3%	441	454	728	546	61%
	11	88.1%	288	307	569	455	51%
	51	87.5%	135	107	443	443	30%
	64	87.1%	335	337	582	473	58%
	28	86.8%	70	166	432	648	16%
	2	86.7%	196	228	720	606	27%
	48	86.2%	438	457	655	582	67%
	61	85.9%	546	664	728	546	75%
	31	85.7%	29	62	297	297	10%
	66	85.7%	61	65	218	182	28%
	75	85.1%	103	106	546	437	19%
	9	84.9%	278	298	796	569	35%
	67	84.6%	75	62	218	218	34%
	18	84.5%	137	177	297	297	46%
	54	84.2%	472	503	692	510	68%
	71	84.0%	169	69	255	218	66%
	46	83.4%	477	859	920	800	52%
	94	83.3%	6	14	81	162	8%

Load Factor		Average Weekday – Fiscal Year 2017					
Q#	Route #	AM Peak Boardings	PM Peak Boardings	AM Peak Seats	PM Peak Seats	AM Load Factor	PM Load Factor
Quartile 3	63	83.1%	166	220	473	437	35%
	70	82.1%	323	274	946	837	34%
	60	81.8%	193	129	291	218	66%
	21	81.1%	106	74	189	162	56%
	100	80.6%	748	680	2288	1882	33%
	42	80.3%	111	90	378	297	29%
	78	80.0%	145	83	291	218	50%
	93	80.0%	17	11	162	162	11%
	5	79.8%	442	490	985	720	45%
	1	78.4%	390	523	644	417	60%
	12	77.1%	336	375	834	758	40%
	34	77.0%	653	677	910	682	72%
	81	75.0%	66	79	324	324	21%
	98	75.0%	88	89	432	324	20%
	90	74.6%	300	243	812	590	37%
	24	74.2%	183	85	303	265	60%
	47	72.1%	387	403	644	493	60%
	44	71.8%	66	50	324	324	20%
	23	71.6%	183	222	569	455	32%
Quartile 4	45	71.1%	263	261	648	486	41%
	96	71.0%	141	163	324	432	44%
	53	70.7%	152	116	378	324	40%
	37	70.6%	138	111	455	417	30%
	33	70.2%	147	124	531	493	28%
	76	69.8%	264	203	655	582	40%
	13	65.6%	106	119	341	379	31%
	36	65.5%	106	120	417	455	25%
	29	64.0%	176	184	351	324	50%
	6	63.2%	88	71	324	324	27%
	22	63.0%	154	125	569	493	27%
	52	60.0%	81	58	297	243	27%
	19	57.1%	88	49	190	227	47%
	30	56.1%	225	206	493	455	46%
	14	55.4%	250	248	569	455	44%
	4	51.4%	72	68	297	324	24%
	7	50.0%	23	16	108	108	21%
	32	33.3%	100	94	297	297	34%
	3	0.0%	26	12	81	81	33%
					System Average	43.6%	50.6%
					Standard Deviation	0.199718	0.3205554
					Disparity Limit	63.5%	82.7%

4.8. Route Headways Detailed Results

The purpose of this evaluation is to determine if the routes that provide service to the minority quartiles (1 and 2) have significantly less frequent service (longer headways) that the routes that provide service to the non-minority quartiles (3 and 4). The average headway was taken from the Fiscal Year 2017 service summary. The detailed results are shown on Table 4-9 on the next two pages.

Table 4-9: Route Headway Detailed Results

Quartile	% Minority	Route	Route Description	AM Avg Hdwy	Base Day 1200n	PM Avg Hdwy	Evng 900p
1	94.7%	43	Traville TC-Shady Grove-Hospital-Shady Grove	20	30	25	30
	94.1%	15	Langley Park-Wayne Ave.-Silver Spring	6	15	7	20
	93.9%	20	Hillandale-Northwest Park-Silver Spring	8	20	10	20
	93.8%	41	Aspen Hill-Weller Rd.-Glenmont	30	30	30	30
	93.3%	65	Montgomery Village-Shady Grove	30		30	
	92.5%	38	Wheaton-White Flint	20	30	25	30
	92.4%	17	Langley Park-Maple Ave.-Silver Spring	20	25	20	30
	92.3%	10	Twinbrook-Glenmont-White Oak-Hillandale	30	30	25	30
	91.8%	83	Germantown MARC-GTC-Waters Landing-Milestone-Holy Cross	30	30	30	30
	91.3%	79	Clarksburg-Skylark-Scenery-Shady Grove	30		30	
	91.1%	49	Glenmont-Layhill-Rockville	15	30	20	30
	90.8%	16	Takoma-Langley Park-Silver Spring	12	20	12	20
	90.1%	8	Wheaton-Forest Glen-Silver Spring	30	30	30	
	89.8%	25	Langley Park-Washington Adventist Hosp-Maple Ave-Takoma	15		15	
	89.8%	39	Briggs Chaney-Glenmont	30		30	
	89.5%	58	Lakeforest-Montgomery Ville-East Village-Shady Grove, Watkins Mill & MD355	25	30	25	30
	89.3%	74	GTC-Great Seneca Hwy.-Shady Grove	30	30	30	30
	89.2%	55	GTC-Milestone-MC,G-Lakeforest-Shady Grove-MC,R-Rockville	12	10	12	30
	89.1%	57	Lakeforest-Washington Grove-Shady Grove	20	20	20	30
	89.1%	59	Montgomery Village-Lakeforest-Shady Grove-Rockville	15	30	15	30
2	89.0%	26	Glenmont-Aspen Hill-Twinbrook-Montgomery Mall	15	30	15	30
	88.9%	97	GTC, Germantown MARC, Waring Station, GTC	15	30	15	30
	88.3%	56	Lakeforest-Quince Orchard-Shady Grove Hospital-Rockville	20	30	20	30
	88.1%	11	Silver Spring-East/West Hwy-Friendship Heights	9		15	
	87.5%	51	Norbeck P&R-Hewitt Ave.-Glenmont	30		30	
	87.1%	64	Montgomery Village-Quail Valley-Emory Grove-Shady Grove	25	30	25	30
	86.8%	28	Silver Spring Downtown (VanGo)	15	12	15	12
	86.7%	2	Lyttonsville-Silver Spring	25	30	20	30
	86.2%	48	Wheaton-Bauer Dr.-Rockville	25	25	20	30
	85.9%	61	GTC-Lakeforest-Shady Grove	20	30	20	30
	85.7%	31	Glenmont-Kemp Mill Rd.-Wheaton	30		30	
	85.7%	66	Shady Grove-Piccard Drive-Shady Grove Hospital-Traville TC	30		30	
	85.1%	75	Clarksburg-Correctional Facility-Milestone-GTC	30	30	30	
	84.9%	9	Wheaton-Four Corners-Silver Spring	20	30	20	30
	84.6%	67	Traville TC-North Potomac-Shady Grove	30		30	
	84.5%	18	Langley Park-Takoma-Silver Spring	30	30	30	30
	84.2%	54	Lakeforest-Washingtonian Blvd-Rockville	20	30	20	30
	84.0%	71	Kingsview-Dawson Farm-Shady Grove	30		30	
	83.4%	46	Shady Grove-Montgomery College-Rockville Pike-Medical Center	15	15	15	30
	83.3%	94	Germantown MARC-Clarksburg Meet the MARC Janaury 2014	25		25	

Table 4-10: Ride On Headway Analysis – August 2014

Quartile	% Minority	Route	Route Description	AM Avg Hdwy	Base Day 1200n	PM Avg Hdwy	Evng 900p
	83.1%	63	Shady Grove-Gaither Road-Piccard Dr.-Rockville	30	30	30	
	82.1%	70	Milestone-Medical Center-Bethesda Express	12		15	
	81.8%	60	Montgomery Village-Flower Hill-Shady Grove	30		30	
	81.1%	21	Briggs Chaney-Tamarack-Dumont Oaks-Silver Spring	30		30	
	80.6%	100	GTC-Shady Grove	6	15	6	30
	80.3%	42	White Flint-Montgomery Mall	30	30	30	30
	80.0%	78	Kingsview-Richter Farm-Shady Grove	30		30	
	80.0%	93	Twinbrook-HHS-Twinbrook	30		30	
	79.8%	5	Twinbrook-Kensington-Silver Spring	10	30	12	30
3	78.4%	1	Silver Spring-Leland St.-Friendship Heights	30	20	25	30
	77.1%	12	Takoma-Flower Avenue-Wayne Avenue-Silver Spring	15	30	15	30
	77.0%	34	Aspen Hill-Wheaton-Bethesda-Friendship Heights	15	30	15	30
	75.0%	81	Rockville-Tower Oaks-White Flint	30		30	
	75.0%	98	GTC, Kingsview, GCC, Cinnamon Woods	30	30	30	30
	74.6%	90	Damascus-Woodfield Rd- Airpark Shady Grove	20	30	20	
	74.2%	24	Hillandale-Northwest Park-Takoma	20		30	
	72.1%	47	Rockville-Montgomery Mall-Bethesda	25	30	25	30
	71.8%	44	Twinbrook-Hungerford-Rockville	30		30	
	71.6%	23	Sibley Hospital-Brookmont-Sangamore Road-Friendship Heights	25	30	30	30
	71.1%	45	Fallsgrove-Rockville Senior Center-Rockville-Twinbrook	15	30	15	
	71.0%	96	Montgomery Mall-Rock Spring-Grosvenor	10	30	10	
	70.7%	53	Shady Grove-MGH-Olney-Glenmont	35		35	
	70.6%	37	Potomac-Tuckerman La.-Grosvenor-Wheaton	30		30	
	70.2%	33	Glenmont-Kensington-Medical Center	25		25	
	69.8%	76	Poolesville-Kentlands-Shady Grove	15	30	15	
	65.6%	13	Takoma-Manchester Rd.-Three Oaks Dr.-Silver Spring	25		30	
	65.5%	36	Potomac-Bradley Blvd.-Bethesda	30	30	30	
	64.0%	29	Bethesda-Glen Echo-Friendship Heights	30	30	30	35
4	63.2%	6	Grosvenor-Parkside-Montgomery Mall Loop	30	30	30	
	63.0%	22	Hillandale-White Oak-FDA-Silver Spring	15		15	
	60.0%	52	MGH-Olney-Rockville	30		30	
	57.1%	19	Northwood-Four Corners-Silver Spring	30		30	
	56.1%	30	Medical Center-Pooks Hill-Bethesda	30	30	30	
	55.4%	14	Takoma-Piney Branch Road-Franklin Ave.-Silver Spring	30	30	30	
	51.4%	4	Kensington-Silver Spring	30		30	
	50.0%	7	Forest Glen-Wheaton	30		30	
	33.3%	32	Naval Ship R&D-Cabin John-Bethesda	32		30	
	0.0%	3	Takoma-Dale Dr.-Silver Spring	40		40	

4.9. On-Time Performance Detailed Results

Table 4-11: Ride On On-Time Performance – Fiscal Year 2017

Quartile	Route	Route OTP	Quartile OTP	Quartile	Route	Route OTP	Quartile OTP
Quartile 1	43	**93.9%**	90.7%	Quartile 3	63	**95.5%**	91.0%
	15	**89.8%**			70	**85.0%**	
	20	**84.8%**			60	**91.4%**	
	41	**92.0%**			21	**81.8%**	
	65	**97.4%**			100	**96.8%**	
	38	**92.9%**			42	**95.4%**	
	17	**89.7%**			78	**92.7%**	
	10	**87.4%**			93	**92.8%**	
	83	**95.8%**			5	**88.2%**	
	79	**85.1%**			1	**95.0%**	
	49	**91.7%**			12	**89.7%**	
	16	**82.9%**			34	**90.7%**	
	8	**85.7%**			81	**98.5%**	
	25	**93.9%**			98	**90.0%**	
	39	**88.4%**			90	**90.7%**	
	58	**93.7%**			24	**90.2%**	
	74	**93.0%**			47	**89.4%**	
	55	**89.2%**			44	**94.2%**	
	57	**94.5%**			23	**81.5%**	
	59	**91.5%**					
Quartile 2	26	**88.8%**	89.8%	Quartile 4	45	**94.2%**	92.3%
	97	**81.3%**			96	**95.8%**	
	56	**88.5%**			53	**92.2%**	
	11	**91.2%**			37	**95.0%**	
	51	**92.7%**			33	**88.4%**	
	64	**93.0%**			76	**92.7%**	
	28	**66.0%**			13	**86.2%**	
	2	**94.2%**			36	**90.8%**	
	48	**93.7%**			29	**95.2%**	
	61	**90.7%**			6	**97.5%**	
	31	**93.9%**			22	**87.6%**	
	66	**96.4%**			52	**91.7%**	
	75	**90.5%**			19	**87.7%**	
	9	**88.5%**			30	**95.9%**	
	67	**92.3%**			14	**88.6%**	
	18	**90.5%**			4	**92.5%**	
	54	**91.3%**			7	**98.9%**	
	71	**93.3%**			32	**86.8%**	
	46	**91.2%**			3	**96.2%**	
	94	**87.4%**					

4.10. Service Accessibility Detailed Results

Using the 2010 census and the methodology described in Section 3.5, RIDE ON has utilized GIS to estimate the numbers of persons in Montgomery County that are within the transit service area for the Ride On and Metro Bus services. Table 4.11 below provides the numerical analysis. Figure 5-1 illustrates the minority populations served by the Ride On transit services and Figure 5-2 illustrates the low-income populations served by the Ride On transit services.

Table 4-12: Ride On Service Accessibility Analysis – August 2014

	Total Population	Minority Population	Non-Minority Population
Montgomery County	971,777	493,012	478,765
Transit Service Area	854,312	447,350	406,962
% of population within transit service area	87.9%	90.7%	85.0%

Figure 4-1: Ride On Service Area with Minority Population Concentrations by Block Group

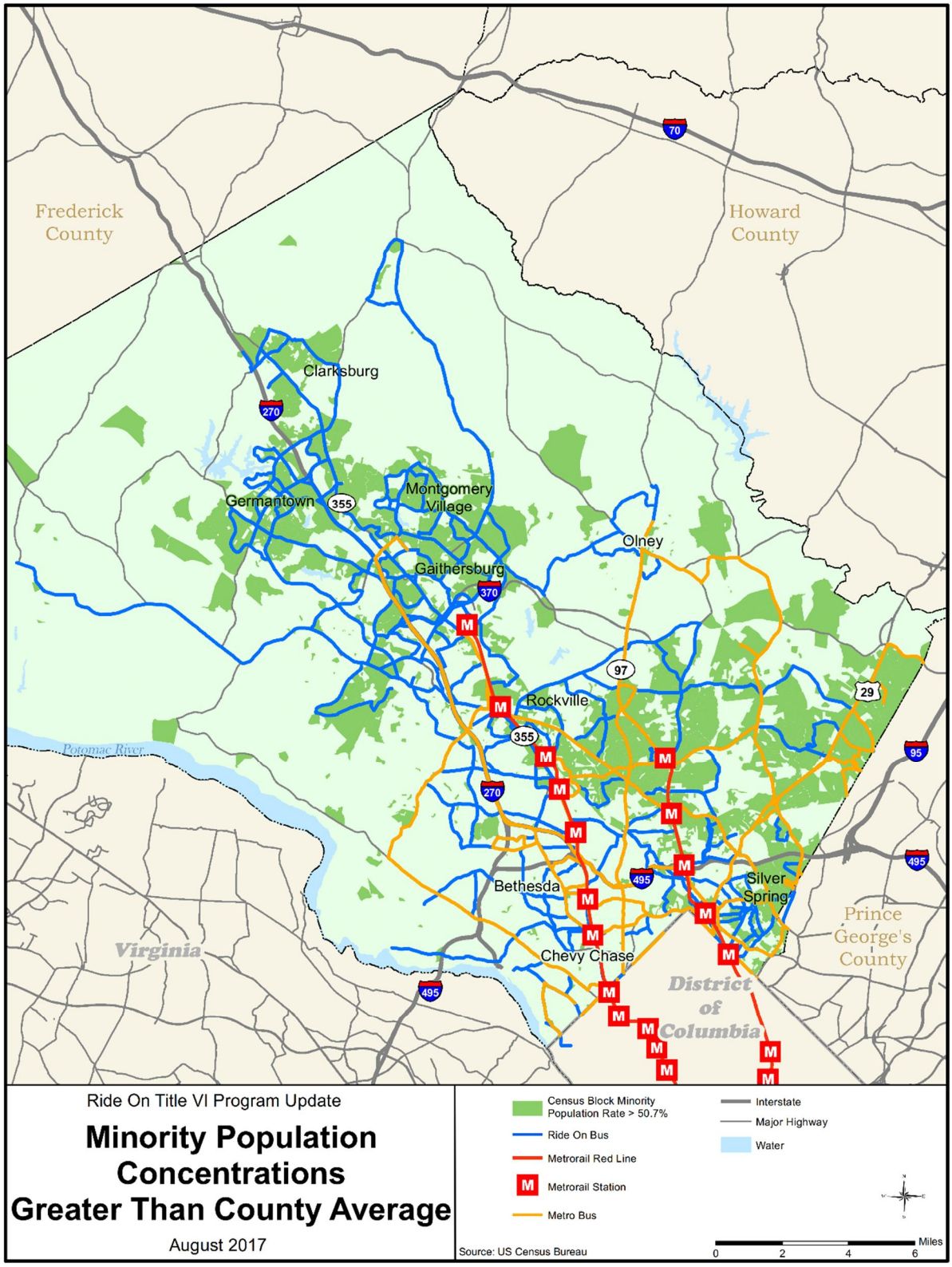
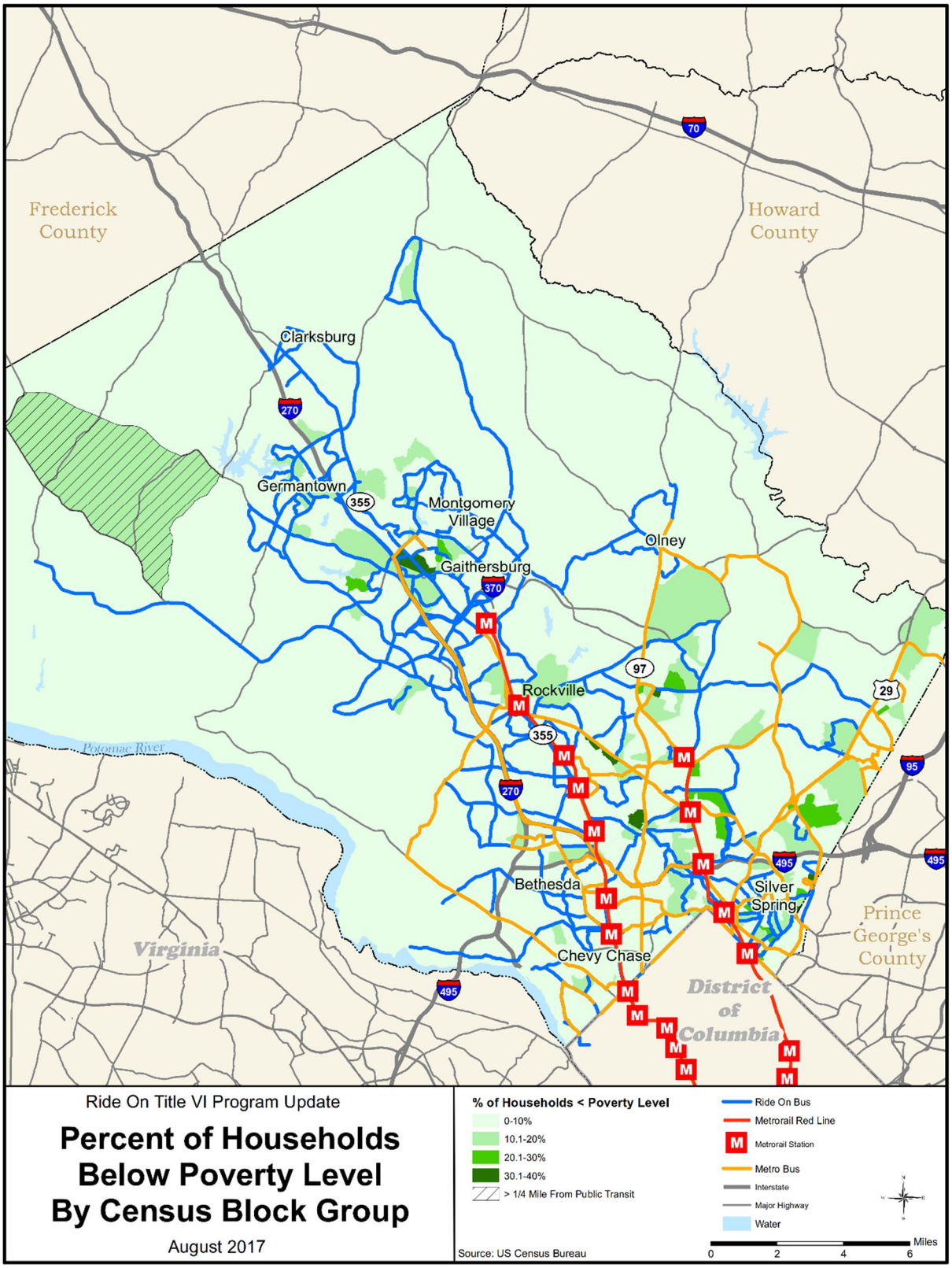


Figure 4-2: Ride On Service Area with Households below Poverty Level by Block Group



4.11. Vehicle Assignment Detailed Results

Table 4-13: Ride On Average Bus Age by Route – April 26, 2017

Quartile	Route	Trips	Total Age	Route Average Age	Quartile Average Age
Quartile 1	43	76	812	10.7	6.70
	15	142	737	5.2	
	20	97	497	5.1	
	41	67	377	5.6	
	65	14	138	9.9	
	38	64	286	4.5	
	17	65	359	5.5	
	10	59	330	5.6	
	83	78	325	4.2	
	79	18	169	9.4	
	49	89	522	5.9	
	16	89	462	5.2	
	8	56	278	5	
	25	38	108	2.8	
	39	24	108	4.5	
	58	73	794	10.9	
	74	66	617	9.3	
	55	163	1136	7	
	57	98	1077	11	
	59	100	764	7.6	
Quartile 2	26	63	347	5.5	7.21
	97	53	227	4.3	
	56	79	844	10.7	
	11	33	164	5	
	51	20	141	7.1	
	64	71	611	8.6	
	28	91	339	3.7	
	2	58	357	6.2	
	48	89	706	7.9	
	61	83	726	8.7	
	31	22	155	7	
	66	14	146	10.4	
	75	58	520	9	
	9	65	401	6.2	
	67	15	161	10.7	
	18	55	151	2.7	
	54	81	927	11.4	
	71	16	150	9.4	
	46	122	764	6.3	
	94	14	108	7.7	

Quartile	Route	Trips	Total Age	Route Ave Age	Quartile Ave Age
Quartile 3	63	57	660	11.6	6.47
	70	62	299	4.8	
	60	17	174	10.2	
	21	15	103	6.9	
	100	182	1581	8.7	
	42	59	326	5.5	
	78	16	179	11.2	
	93	14	78	5.6	
	5	80	433	5.4	
	1	58	249	4.3	
	12	78	368	4.7	
	34	80	375	4.7	
	81	31	180	5.8	
	98	62	317	5.1	
	90	73	721	9.9	
	24	14	78	5.6	
	47	55	270	4.9	
	44	25	146	5.8	
	23	56	148	2.6	
Quartile 4	45	79	469	5.9	5.92
	96	59	361	6.1	
	53	31	175	5.6	
	37	27	152	5.6	
	33	31	192	6.2	
	76	66	643	9.7	
	13	18	81	4.5	
	36	43	231	5.4	
	29	64	402	6.3	
	6	58	278	4.8	
	22	35	95	2.7	
	52	21	133	6.3	
	19	10	58	5.8	
	30	42	253	6.0	
	14	51	286	5.6	
	4	26	78	3	
	7	12	92	7.7	
	32	28	158	5.6	
	3	6	48	8	

4.12. Distribution of Transit Amenities

Transit amenities are mapped on Figures 4.3 and 4.4.

Figure 4-3: Ride On Stop Amenities Relative to Minority Population

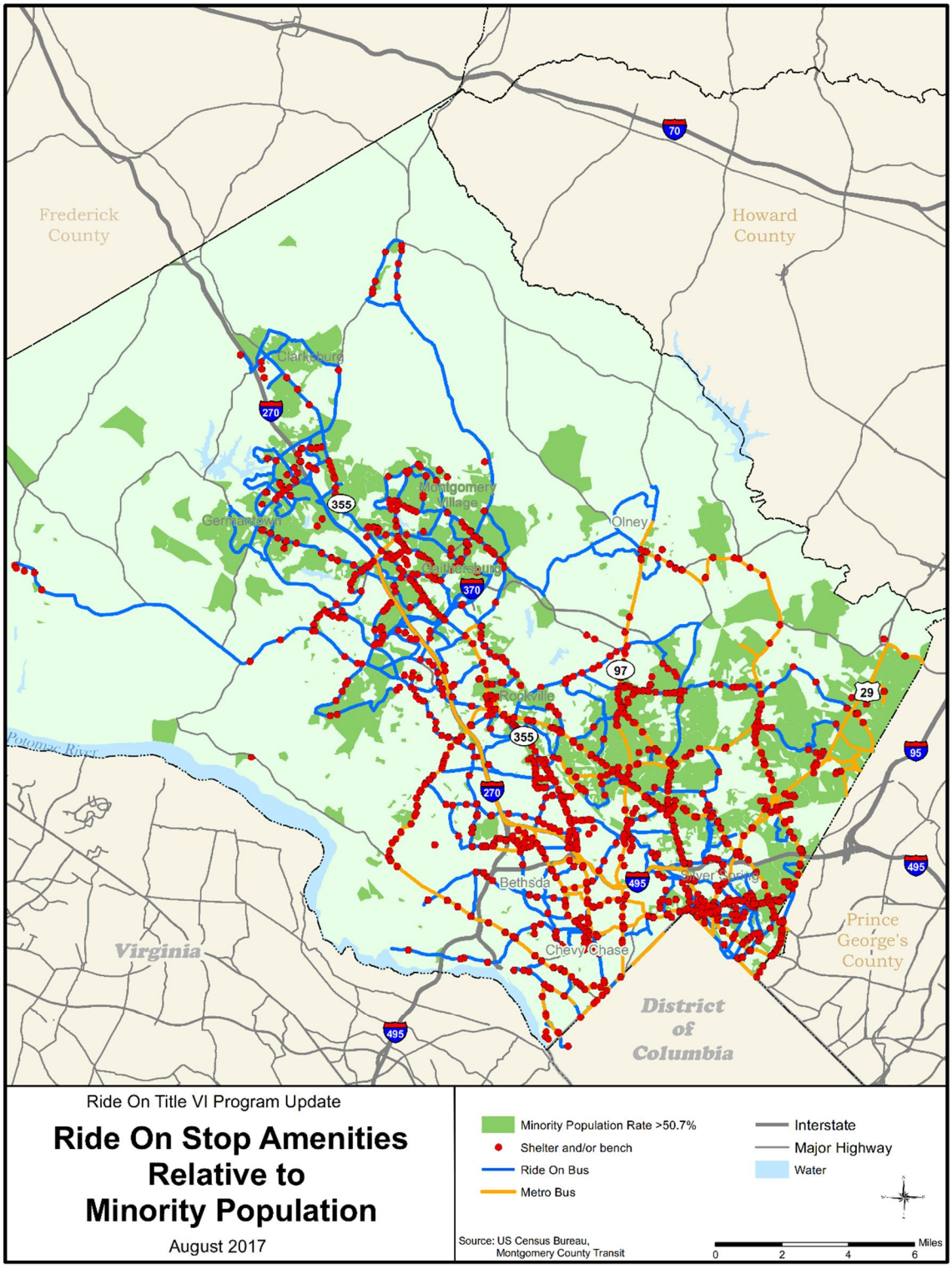


Figure 4-4: Ride On Stop Amenities Relative to Poverty Level Income