T&E COMMITTEE #2
July 23, 2015

MEMORANDUM

July 21, 2015

TO: Transportation, Infrastructure, Energy and Environment (T&E) Committee

FROM: Glenn Orlin, Deputy Council Administrator

SUBJECT: Briefing—Ride On Bus Fleet Management Plan

The Maryland Transit Administration, at the request of the Department of Transportation's (DOT) Division of Transit Services, contracted for the development of a Ride On Bus Fleet Management Plan. It was completed in June 2014 (attached). The report contains a significant amount of analysis of transit ridership currently and in the near-term future. It recommends expanding the size of the Ride On fleet from 342 buses to 441 by 2020, a 29% increase, this despite the fact that ridership has slightly declined in the past couple of years and, due to budgetary constraints, the amount of Ride On service has not grown much in the past couple of years. To house the additional buses it believes will be needed by 2020, the report also recommends an expansion of the Brookville Road Depot in Silver Spring plus a new facility for 150-250 buses.

The report references the Corridor Cities Transitway and the other bus rapid transit lines currently in the early stages of project planning. However, it appears that the recommendations were based under the assumption that the BRT lines would not be operational by 2020. For example, one of the recommendations is for Ride On to acquire 60'-long articulated buses for Route 55, the route largely follows MD 355 between Rockville and Germantown; yet this is the same general route as the master-planned MD 355 North BRT. The Committee should explore with DOT the interrelation of the recommendations in this report with the vision and timing for BRT.

Carolyn Biggins, Chief of the Division of Transit Services, will brief the Committee and answer its questions.

Ride On Bus Fleet Management Plan

2013 to 2020

June 30, 2014

MTA Maryland

Office of Planning and Programming
6 St. Paul Street
Baltimore, Maryland 21202

TABLE OF CONTENTS

List of Figures

List of Tables

DOCUMENT RECORD

Version	Issuance Date	Description
#1	6/30/2014	Ride On Bus Fleet Management Plan 2013 - 2020

ACRONYMS / DEFINITIONS

The following acronyms are used within this document or in documents referenced within this MTA Bus Fleet Management Plan.

AA Alternatives Analysis
AC Air Conditioning
ADA Americans with Disability Act
APC Automatic Passenger Counter
AVL Automatic Vehicle Location
ARTIC Articulated bus – 60 foot
BFMP Bus Fleet Management Plan
CFR Code of Federal Regulations
CLN Clean (used to describe clean diesel technology)
CTP Consolidated Transportation Program
DEH Diesel Electric Hybrid
DFMS Division of Fleet Management Services
EMTOC Equipment Maintenance and Transit Operating Center
FTA Federal Transit Administration
FY Fiscal Year
ICC Intercounty Connector
LF Low Floor
LPA Locally Preferred Alternative
LRT Light Rail Transit
MARC Maryland Area Regional Commuter Service
MCDOT Montgomery County Department of Transportation
MCDGS Montgomery County Department of General Services
MTA Maryland Transit Administration
NTD National Transit Database
OSR Operating Spare Ratio
PE Preliminary Engineering
PM Preventive Maintenance
PMT Passenger Miles Traveled
PVR Peak Vehicle Requirement
SHA State Highway Administration
TBD To Be Determined
VOMS Vehicles Operated in Maximum Service
WMATA Washington Metropolitan Area Transit Authority

DEFINITIONS

Brief definitions of terms that are used throughout this document follow:

1. **Active Fleet** - The vehicles available to operate in revenue service, including spares and vehicles temporarily out of service for routine maintenance and minor repairs.
2. **Headway** - The scheduled time between buses arriving at a bus stop or specified time point. Additional capacity (number of trips) is added to a route by decreasing the headway (increasing service frequency). Decreasing the headway means more buses will be in service on a route and thus will change the total system peak vehicle requirement.
3. **Load Factors** - A measure of the amount of utilization of the total available capacity of a transit vehicle. A load factor of 1.0 means that all seats on a bus are occupied by riders. A load factor greater than 1.0 means there are standing passengers.
4. **Load Standards** - Load standards are typically policy driven and define how heavily loaded with passengers a bus can be. The standard is measured as an acceptable load factor (see definition above).
5. **Preventive Maintenance Program** - The scheduled vehicle maintenance program that is designed to keep the bus fleet in a state of good repair, to prevent in-service failures, and to meet regulatory and warranty requirements. The scheduled maintenance program consists of several levels of inspection and maintenance on buses and bus components based on time and vehicle mileage.
6. **Operating Spare Ratio (OSR)** – The ratio of spare vehicles (the difference between the total active fleet and the peak vehicle requirement) to the peak vehicle requirement.
7. **Peak Passenger Loads** - The number of passengers on board a bus at the maximum load point, or the point along the route where the passenger load is the highest.
8. **Peak Vehicle Requirements (PVR)** - The number of vehicles required to meet peak period revenue service. The peak vehicle requirement includes vehicles in service, as well as reserve or strategic buses that can be inserted into service to address vehicle breakdowns, rail bus bridges or major schedule adherence issues.
9. **Purple Line Project** – This proposed light rail line will run from the Bethesda in Montgomery County to New Carrolton in Prince George's County.
10. **Unlinked Passenger Trips (UPT)** - The number of passengers who board public transportation vehicles. Passengers are counted each time they board vehicles no matter how many vehicles they use to travel from their origin to their destination.
11. **Unscheduled Maintenance** - Unanticipated maintenance procedures associated with vehicle breakdowns, accidents, and other incidents requiring a vehicle to be taken out of service.
12. **Vehicles Operated in Maximum Service (VOMS)** - VOMS is a count of the revenue vehicles scheduled for the peak day and operating period of the peak service season or schedule of the year. The revenue count is the typical number of vehicles operated and does not consider the number of vehicles operated on atypical days such as holiday celebrations (e.g., Fourth of July), or one-time special events (e.g., World Series celebration, political conventions).

EXECUTIVE SUMMARY

This Ride On Bus Fleet Management Plan 2013 - 2020 (BFMP) has been prepared as a cooperative effort of the Maryland Transit Administration (MTA) and the Montgomery County Departments of Transportation and General Services. The BFMP is intended to provide information about and analysis of Ride On's current fleet. It makes recommendations about Ride On's fleet and facility requirements to support the projected growth and management of the fleet. The BFMP is intended to support proper planning and funding of the Ride On fleet.

Montgomery County is located in Maryland northwest of the Washington, D.C. It is Maryland's most populous county with a 2010 population of 971,777. Ride On is a local transit service owned and operated by Montgomery County. Since starting as a feeder bus service to Washington's Metro, Ride On has grown to its current 281 peak vehicles on 78 different bus routes. On an average weekday, Ride On carries 88,370 riders and operates 2,591 revenue hours. From 2000 to 2008, Ride On ridership increased by 46 percent or an average of 4.8% per year. From 2008 through 2011, ridership fell by 10 percent, largely as a result of the fare increases, economic conditions, reductions in transit service, and service quality problems.

The future year peak vehicle requirements and need for expansion buses were analyzed. There are four areas where expansion buses are needed: for new routes that have been identified in underserved areas; for high productivity routes where significant peak period overcrowding occurs; for general population and employment increases; and, for implementation of the express limited stop service along MD 355. With these recommendations for service expansion, the peak vehicle requirement will grow from 281 to 362 buses. The fleet, which includes a 20 percent spare ratio, is proposed to grow from 342 to 441 vehicles in 2020. During the period 2015 to 2020, $94 million will be needed for fleet replacement and $65 million will be needed for fleet expansion, for a total capital budget of $159 million. Additional funding for bus operators, maintenance technicians and operations will be required to support the new services.

According to the National Transit Database Report Year 2012 statistics, Ride On is ranked 34th largest North American motor bus transit service in terms of annual vehicle miles operated. In managing this large transit agency, the County has developed a comprehensive management system for tracking maintenance performance. As part of this analysis, the FY 13 preventive maintenance intervals scheduled every 6,000 miles were tested. The data shows that the Ride On maintenance operation met the FTA standard during the period. Mechanical failures were tracked and analyzed. During FY 2013, 2,601 mechanical failures were recorded averaging 7.7 failures per bus or one failure every 5,502 scheduled miles. This relatively high failure rate is in part due in part to the older buses in use that are being replaced.

Maintenance facility capacity is a constraint to the growth of the Ride On service. The two maintenance facilities that are owned by the County (Brookville and EMTOC) have a capacity of 355 buses. Including the leased Nicholson facility in the While Flint area, the County has a total transit maintenance facility capacity of 422 buses. With the planned fleet expansion, County maintenance facility capacity will be exceeded by 2020. To provide for sufficient transit maintenance capacity in the future, two facility projects are recommended: Brookville renovation and a new maintenance facility with a capacity of 150 to 250 buses.

1. INTRODUCTION

This Ride On Bus Fleet Management Plan 2013 - 2020 (BFMP) has been prepared as a cooperative effort of the Maryland Transit Administration (MTA) and the Montgomery County Departments of Transportation and General Services. The BFMP is intended to provide information about and analysis of Ride On's current fleet. The plan makes recommendations regarding Ride On's fleet and facility requirements to support the projected growth and management of the fleet. The BFMP is intended to support proper planning and funding of the Ride On fleet.

A BFMP is a dynamic document based on current information. Assumptions in the BFMP are to be updated regularly with changes in ridership demand, bus operations and fleet conditions. Information detailed in the plan includes peak vehicle requirements (PVR) for the average weekday for each year (the number of vehicles required to meet the passenger demand); the average age and composition of the fleet; vehicle retirements and procurement plans; current and projected average daily ridership; a discussion of the maintenance facilities including their age and capacity; maintenance practices, service quality and reliability measures; measures used to gather information on service quality and reliability.

1.1. Plan Overview and Time Frame

Montgomery County Department of Transportation and the Maryland Transit Administration determined the need to develop the Ride On Bus Fleet Management Plan to serve as a guide for the agency in identifying its fleet and facility requirements. The BFMP identifies near term requirements, system improvements and vehicle replacements. The elements assessed in this plan are the transit fleet, existing and evolving transit operation and the facilities.

This Ride On Bus Fleet Management Plan covers the time-frame from 2013 through 2020 and is structured as follows:

Section 1: Introduction - Contains the plan overview and time frame

Section 2: Suburban Maryland Transit Services Overview- Provides a description of the existing Montgomery County area transit services including the current Washington Metropolitan Area Transit Authority's Metro Rail and Metro Bus, and Maryland Area Regional Commuter services.

Section 3: Montgomery County Ride On – Provides information on Montgomery County Ride On bus services including ridership and service history, 2013 service summary, ridership projections and demand for revenue vehicles.

Section 4: Ride On Fleet and Vehicle Maintenance –Presents a description of the Ride On fleet and maintenance performance.

Section 5: Maintenance Facilities – Describes the three maintenance facilities where Ride On vehicles are maintained.

Section 6: Peer Review – Provides system comparison based on 2012 National Transit Database information. Ride On operating data are compared to four Washington, DC area systems and four peer systems.

Section 7: Fleet Acquisition – Includes fleet acquisition schedules.

Section 8: Future Facility Needs –Identifies the need for facility investments.

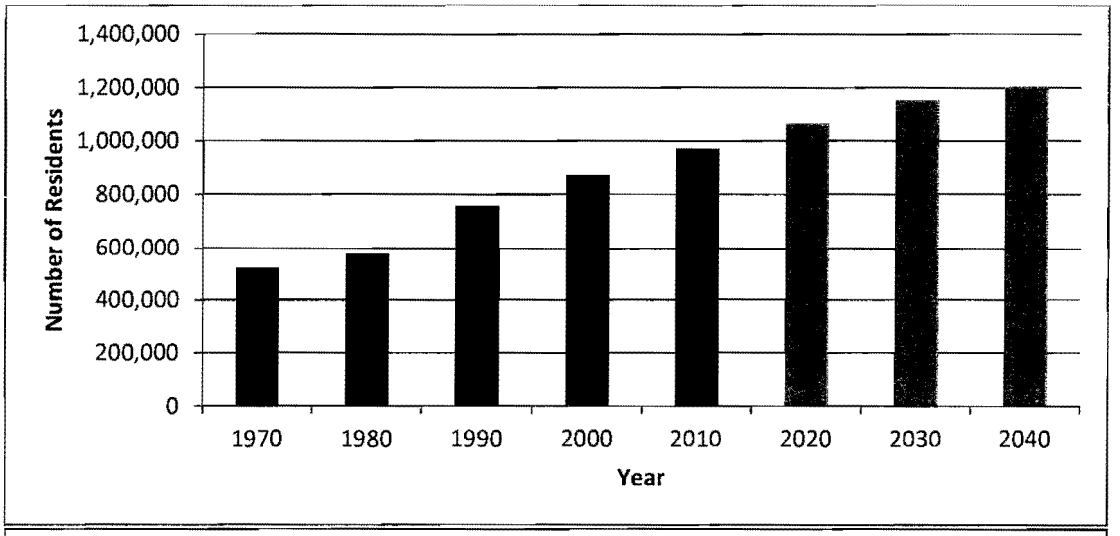
Section 9: Ride On Financial Information – Describes operating and capital budgets.

1.2. Montgomery County, Maryland

Montgomery County is located in Maryland northwest of the Washington, D.C. It is Maryland's most populous county with a 2010 population of 971,777. Montgomery County operates the second largest bus service in Maryland and the second largest bus service the Washington Metropolitan Area.

From 1970 to 2010, the County's population increased by 175 percent growing from 522,809 persons to 971,777 persons. Population growth is forecast to continue although at a slower rate. The County is forecast to add 232,000 residents resulting in a 2040 population of 1,204,100. Figure 1-1 illustrates the County's rapid population growth.

Figure 1-1: Montgomery County Actual and Forecasted Population



SOURCE: Center for Research & Information Systems, Montgomery County Planning Department, Round 8.1 Cooperative Forecast

1.3. Prior Related Studies

Montgomery County Strategic Transit Plan, March, 2004- This strategic transit plan was prepared to guide the development of the County's transit services, facilities, and policies. The purpose of the plan was to advance "Go Montgomery" (2002) a comprehensive package of transit, highway, pedestrian and bicycle initiatives. The Plan defined transit as "one of the keys to addressing the increasing traffic congestion within the region. Montgomery County has long recognized the value of transit, and has worked with state and local agencies to build one of the most successful, effective transit networks in the United States".[1] The main goal of the Plan was to assess the Ride On system and guide the county in improving the system by focusing on operations and facilities. In defining the purpose and need for improved transit in the county the Plan noted that along with increasing population and employment, trip type and distribution were changing as well.

In 2008 Montgomery County updated the 2004 Strategic Plan. The goal of the update was to take a "comprehensive look at transit operations and facilities in the County and long range actions for the future (2020)".[2] The Plan called for the County to look at future transit within the context of an overall system which incorporates WMATA, MTA, Ride On, proposed BRT, CCT, Purple Line and ancillary transit facilities. It also evaluated bus storage facilities, transit fleet and bus service needs.

Among the key challenges cited in the Plan were facilities, availability of buses, impact of congestion on service reliability and fiscal constraints. In anticipation of the population growth in the County exceeding one million residents and continued ridership growth, the Plan's 2020 vision called for bus facility capacity for 600 buses. The Plan called for the construction of a North County garage by 2012, a new/relocated EMOC by 2013 and expansion of the North County garage to full 250 capacity by 2017. The Plan also addressed the transit fleet, park and ride facilities, customer service, and passenger facilities.

North County Maintenance Depot Study, February, 2008 - In 2007 the County's Department of Public Works and Transportation initiated a planning and design study for a North County Maintenance Depot which was programmed for a capacity of 250 buses. Although the County acquired the property and completed the design, the project was cancelled due to the environmental concerns of the Ten Mile Creek watershed.

1.4. Ongoing Initiatives

There are currently two New Starts Transit projects in the Washington Region that would expand transportation options: the Purple Line and Corridor Cities Transitway.

1.4.1.Purple Line Light Rail Transit

The Purple Line is a proposed 16.2 mile transit line located north and northeast of Washington DC, inside the circumferential I-95/I-495 Capital Beltway. The line would extend between Bethesda in

[1] Montgomery County Strategic Transit Plan, March, 2004, Pg.4
[2] Montgomery County Strategic Transit Plan, September, 2008, Pg. 2

Montgomery County and New Carrollton in Prince George's County and connects the major central business districts and activity centers of Bethesda, Silver Spring, Takoma/Langley Park, College Park/University of Maryland, and New Carrollton. Figure 1-2 shows the Purple Line Preferred Alternative.

The Purple Line will provide direct connections to WMATA Metrorail at Bethesda, Silver Spring, College Park, and New Carrollton; linking the Red, Green, and Orange lines. It will link to the three MARC lines, Amtrak, and local bus routes. There are no definitive plans for changes in Ride On service as a result of the Purple Line. As proposed, the Purple Line will have 21 stations, and a hiker/biker trail along the Georgetown Branch between Bethesda and Silver Spring. The Purple Line Final Environmental Impact Statement and Draft Section 4(f) Evaluation was published on August 28, 2013.

1.4.2.Corridor Cities Transitway

The Corridor Cities Transitway (CCT), located entirely within Montgomery County, is a proposed 15 mile Bus Rapid Transit (BRT) Project which would extend from Shady Grove Metrorail station to COMSAT near Clarksburg. The Locally Preferred Alternative was identified in 2012 by the State of Maryland and is to be implemented in two phases.

Phase I would operate along a 9-mile corridor from Shady Grove Metrorail station to the Metropolitan Grove MARC station. Project Planning for this phase is in progress. Phase II would be a six mile extension from Metropolitan Grove to COMSAT near Clarksburg. The second phase of the project is not funded for planning, design or construction at this time. Figure 1.3 shows the Preferred Alternative for the Corridor Cities Transitway.

The CCT will serve local and long distance commuters and provide service to new and existing commercial centers, residential, and educational development, King Farm, Crown Farm, Life Sciences Center, the Universities at Shady Grove, Kentlands, and Metropolitan Grove. The CCT will provide access to transit services into the District of Columbia, MARC Brunswick service at Metropolitan Grove and the WMATA Red Line at Shady Grove. There are no definitive plans for changes to Ride On operations as a result of the CCT. However, plans for future CCT operations and maintenance facilities may be considered in regard to future Ride On facility needs.

Transit service on the CCT will be provided via two bus routes. CCT Direct Service will operate between the Shady Grove and Metropolitan Grove stations along the CCT and serve stations along a dedicated transitway. CCT Service via Universities at Shady Grove will operate along the transitway, stopping at all stations, but will divert off the transitway to serve two additional stations. The projected ridership on the CCT is 35,900 trips per day in 2035.

1.4.3.Montgomery County Rapid Transit Service

The Countywide Transit Corridors Functional Master Plan amends the County's Master Plan of Highways. The goal of the master plan was to identify a bus rapid transit (BRT) network to improve

accessibility and mobility throughout the County. BRT service on the recommended transit corridor network will provide service between dense redeveloping areas inside the Beltway, emerging mixed-use activity centers, and commuter corridors.

The starting point for the plan was the 150-mile BRT network described in the MCDOT Feasibility Study Report that was completed in 2011 and subsequent recommendations of a County Executive Transit Task Force.

The plan envisions three levels of BRT service:

- Activity Center Corridor- High speed, moderate frequency, peak period service.
- Express Corridor – High speed, moderate frequency, peak period service.
- Commuter Corridor- Moderate speed, moderate frequency, peak period service.

This Plan shown in Figure 1-4 and ten transit corridors listed in Table 1-1 identifies the network of corridors and specifies rights-of-way and treatments.

On July 11, 2013, the Planning Board approved the transmittal of the Planning Board Draft of the Countywide Transit Corridors Functional Master Plan to the County Council. The Maryland State Highway Administration is currently conducting bus rapid transit project planning on the following two recommended corridors:

- MD 586/Veirs Mills Road – Rockville Metrorail Station to Wheaton Metrorail Station
- MD 97/Georgia Avenue - Wheaton to Olney

Figure 1-2: Purple Line Preferred Alternative

Figure 1-3: Corridor Cities Transitway Preferred Alternative

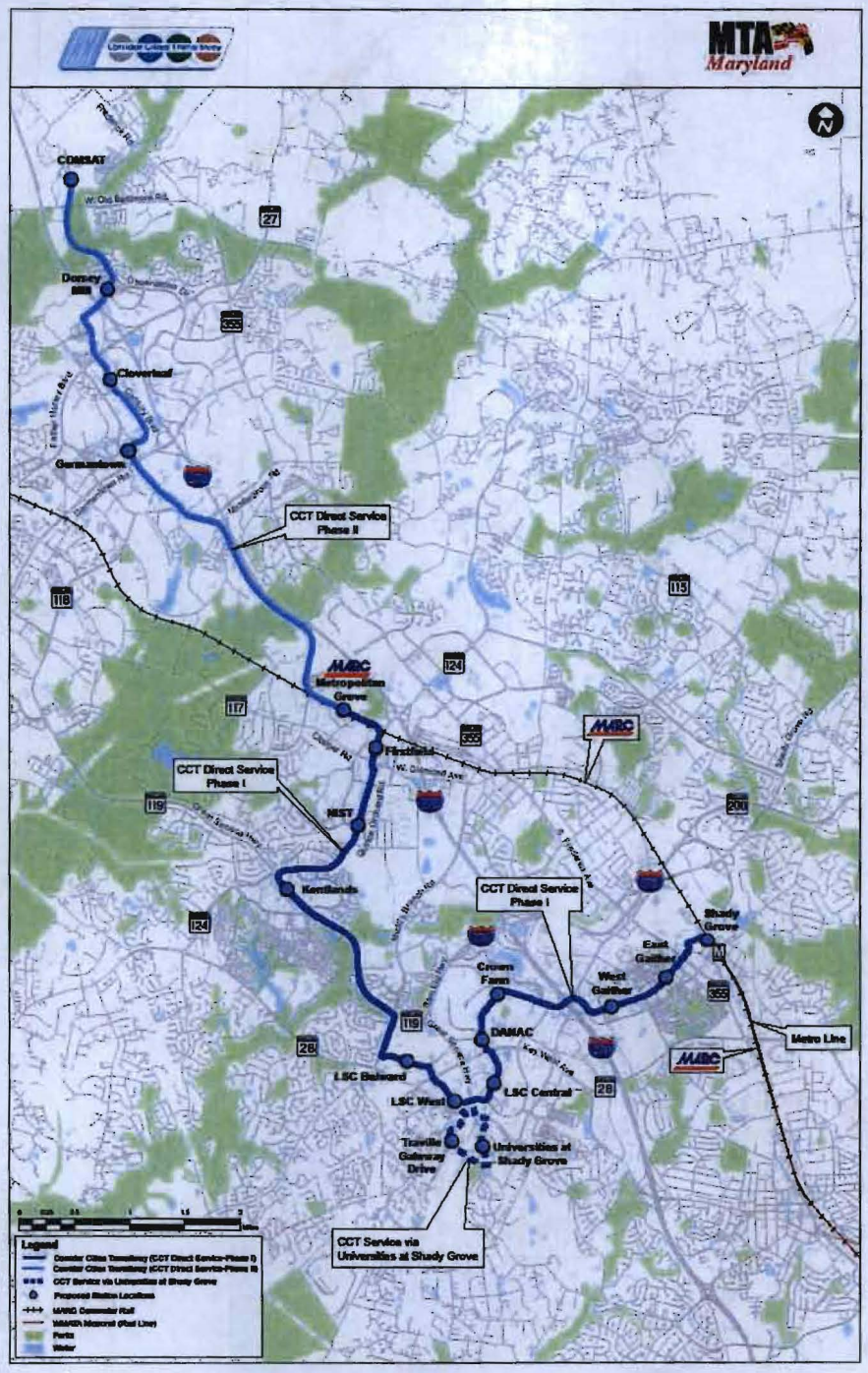


Figure 1-4: County Wide Transit Corridors Master Plan

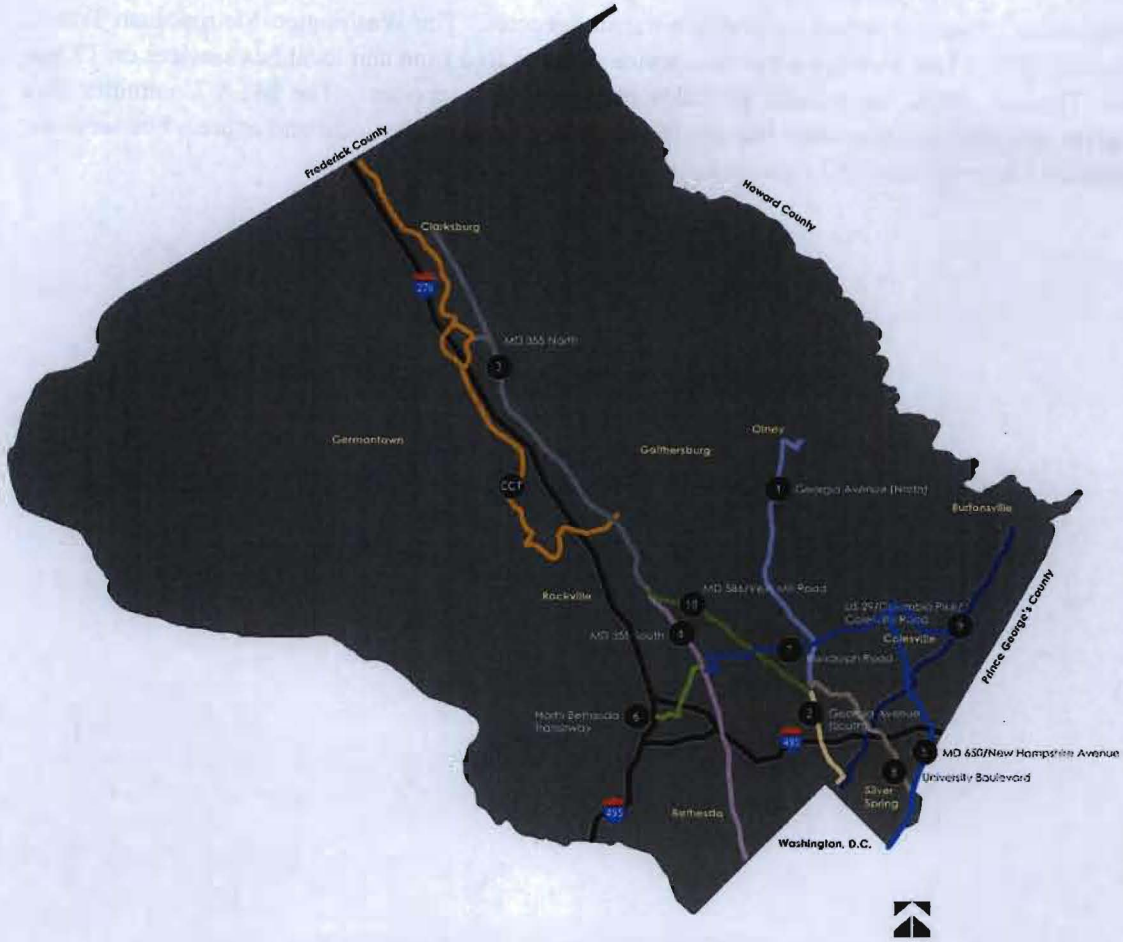


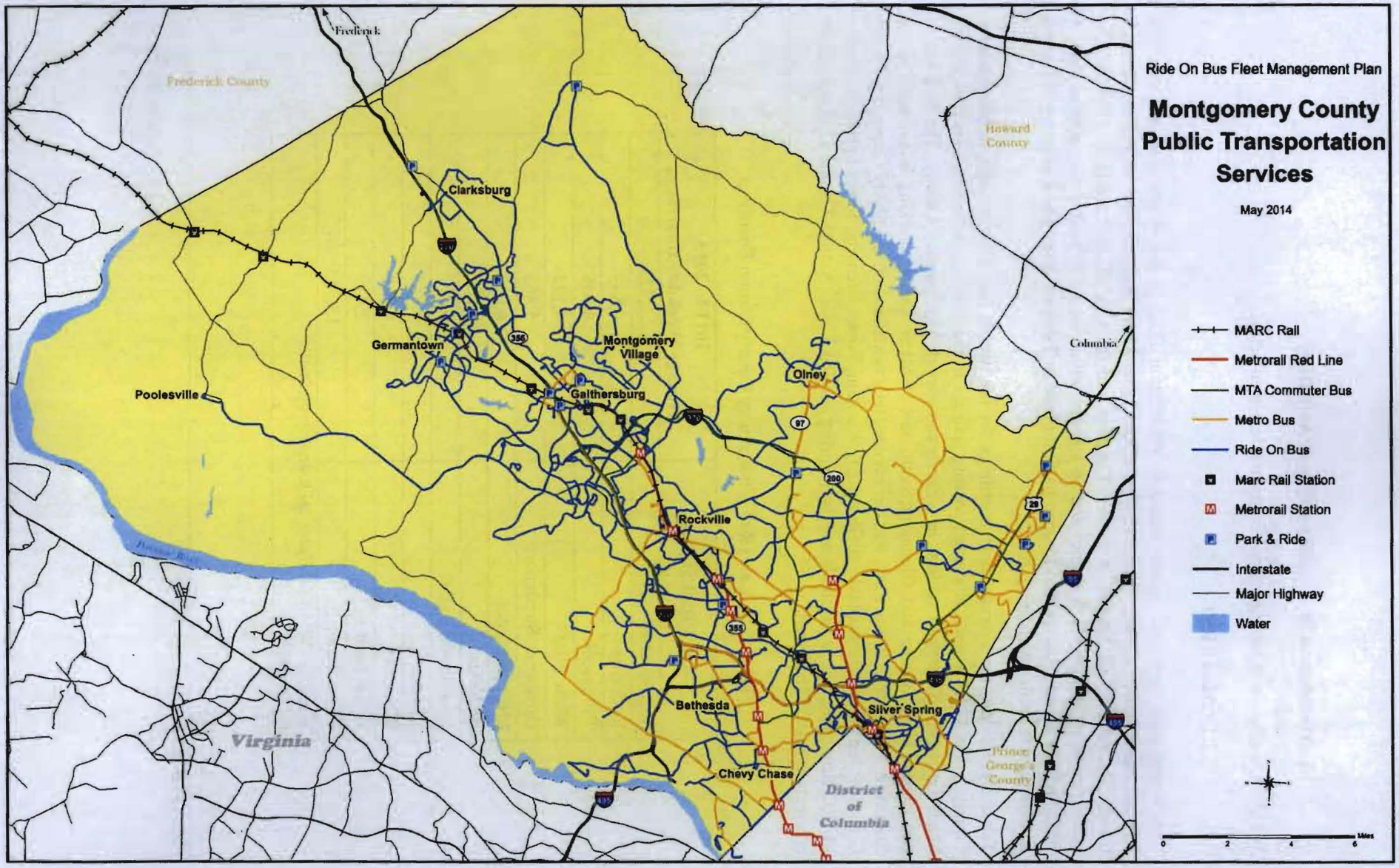
Table 1-1: Countywide Transit Corridors Master Plan

Corridor 1	Georgia Avenue North
Corridor 2	Georgia Avenue South
Corridor 3	MD 355 North
Corridor 4	MD 355 South
Corridor 5	New Hampshire Avenue
Corridor 6	North Bethesda Transitway
Corridor 7	Randolph Road
Corridor 8	University Boulevard
Corridor 9	U.S. 29
Corridor 10	Veirs Mill Road

2. SUBURBAN MARYLAND TRANSIT SERVICES OVERVIEW

Montgomery County is served by multiple transit agencies. The Washington Metropolitan Transit Authority (WMATA) provides rapid rail service with the Red Line and local bus services on 17 bus lines. Through MTA, the MARC provides commuter rail services. The MTA Commuter Bus program also provides commuter bus services and Ride On provides local and express bus services. Figure 2-1 illustrates the public transportation services in the County.

re 2-1: Montgomery County Public Transportation Services



2.1. Washington Metropolitan Transit Authority

WMATA's services in Montgomery County are described below.

2.1.1.Metro Rail

The Washington Metrorail system connects Washington D.C. to the Washington Metropolitan Region. Montgomery County is served by the Red Line. Metro Rail also serves Prince George's County, Maryland, and Fairfax, Arlington Counties and the City of Alexandria in Virginia. The system provides service via five lines and 86 stations within its 1,500 square mile service area. A sixth line, the Silver, is scheduled to open its first phase to Tysons Corner and Reston by 2014 with an extension to Dulles Airport by 2020.

Table 2-1 provides the average daily boardings for the twelve Red Line stations in Montgomery County. Via a "U" shaped alignment serving stations in the District, its terminal stations are the Shady Grove and Glenmont stations in western and eastern Montgomery County. The Red Line's two routes, Shady Grove and Glenmont, both start at Metro Center. Parking is available at the Rockville, Twinbrook, White Flint, and Grosvenor Heights stations on the Shady Grove leg. On the Glenmont leg parking is available at Glenmont, Wheaton, Forest Glen and Silver Spring. Access to MARC Brunswick line is available at Silver Spring and Rockville. Amtrak Capital Limited service connects at Rockville as well.

Table 2-1: Metro Rail Montgomery County Station Boardings

Metro Rail Station	2011 to 2013 Average Weekday Boardings
Shady Grove	13,723
Rockville	4,849
Twinbrook	4,658
White Flint	4,123
Grosvenor-Strathmore	5,865
Medical Center	6,032
Bethesda	10,753
Friendship Heights	9,777
Glenmont	6,063
Wheaton	4,313
Forest Glen	2,419
Silver Spring	13,383
SOURCE: WMATA Historical Ridership by Station Revised 6/2013	

2.1.2.Metro Bus

Through agreements with Maryland and Montgomery County, WMATA operates 17 bus lines in the County. Many of the bus lines are regional in nature and cross county boundaries serving the Maryland suburban counties and the District of Columbia. Table 2-2 lists the routes, FY 13 average weekday boardings and the FY 10 to FY 13 average annual growth rate.

Table 2-2: Metro Bus Lines Serving Montgomery County

Line/Sector Name	Route(s)	FY 13 Average Weekday Boardings	FY 10 to FY 13 Average Annual Growth Rate
College Park-White Flint	C8	2,433	3.4%
New Carrollton-Silver Spring	F4,6	8,475	6.9%
New Hampshire Avenue-Maryland	K6 and K9	6,316	4.3%
Colesville-Ashton	Z2	1,128	-3.0%
Calverton-Westfarm	Z6	2,515	0.9%
Fairland	Z8	3,131	2.8%
Laurel-Burtonsville Express	Z9,29	703	-4.5%
Greencastle-Briggs Chaney Express	Z11,13	1,039	0.9%
Greenbelt-Twinbrook	C2,4	11,582	1.5%
Bethesda-Silver Spring	J1,2,3	6,400	5.1%
College Park-Bethesda	J4	1,105	9.1%
Twinbrook-Silver Spring	J5	315	3.2%
I-270 Express	J7,9	465	-0.7%
Connecticut Avenue-Maryland	L8	2,571	-0.5%
Veirs Mill Road	Q1,2,4,5,6	8,745	1.5%
River Road	T2	1,740	-1.5%
Georgia Avenue-Maryland	Y5,7,8,9	7,495	3.2%
Metro Bus Total		66,158	2.8%
Source: WMATA – Metro Bus Monthly Total Ridership by Line			

2.2. Commuter Rail and Bus

The MTA operates commuter rail and bus services for the Washington, DC and Baltimore metropolitan areas. Montgomery County is served by the MARC Brunswick Line with eleven stations: Silver Spring, Kensington, Garrett Park, Rockville, Washington Grove, Gaithersburg, Metropolitan Grove, Germantown, Boyds, Barnesville and Dickerson.

According to MARC Ridership Reports (based on counts taken on 7/22/13, 8/14/13 and 9/11/13) average daily boardings at the eleven County MARC stations were approximately 3,254. The busiest stations are Germantown (830 average), Silver Spring (604 average), Rockville (591average), and Gaithersburg (538 average).

Transfer to other transit services can be made at the following stations: Silver Spring, Kensington, Garrett Park, Rockville, Washington Grove, Gaithersburg, Metropolitan Grove and Germantown.

2.2.2.MTA Commuter Bus Service

MTA's Commuter Bus service connects suburban residents to jobs in Baltimore City and Washington D.C. Commuter Bus services generally operates weekdays during peak periods. The service has grown over time with passenger demand and available public funding. Table 2-3 lists the bus routes that serve Montgomery County and the number of trips and ridership. Commuter routes 201, 202, 203, 915, 929 and 991 provide intermodal connections in Montgomery County at the Shady Grove, Metropolitan Grove, Medical Center and Silver Spring Metro Rail Stations.

Table 2-3: MARC Commuter Service – Montgomery County Routes – As of 2013

Line	Origin	Destination	Trips				Weekday Riders (6/12)
			AM	PM	Mid-Day	Total	
201	GAITHERSBURG	BWI AIRPORT / MARC	15	19	0	34	254
202	METROPOLITAN GROVE/ MARC	NSA / FORT MEADE	3	3	1	7	73
203	COLUMBIA	BETHESDA	3	3	1	7	87
204	FREDERICK	COLLEGE PARK	4	5	0	9	159
915	COLUMBIA	SILVER SPRING / WASHINGTON D.C.	11	12	0	23	857
929	COLUMBIA	SILVER SPRING / WASHINGTON D.C.	12	12	1	25	960
991	HAGERSTOWN / FREDERICK	SHADY GROVE / ROCK SPRING BUSINESS PARK	17	17	1	35	1,366
Montgomery County - Commuter Service Total			**65**	**71**	**4**	**140**	**3,756**
Source: MTA							

3. RIDE ON

Ride On is a local transit service owned and operated by Montgomery County. Since starting as a feeder bus service to Washington's Metro, Ride On has grown to its current 281 peak vehicles on 78 different bus routes. On an average weekday, Ride On carries 88,370 riders and operates 2,591 revenue hours.

3.1. Montgomery County Service Areas

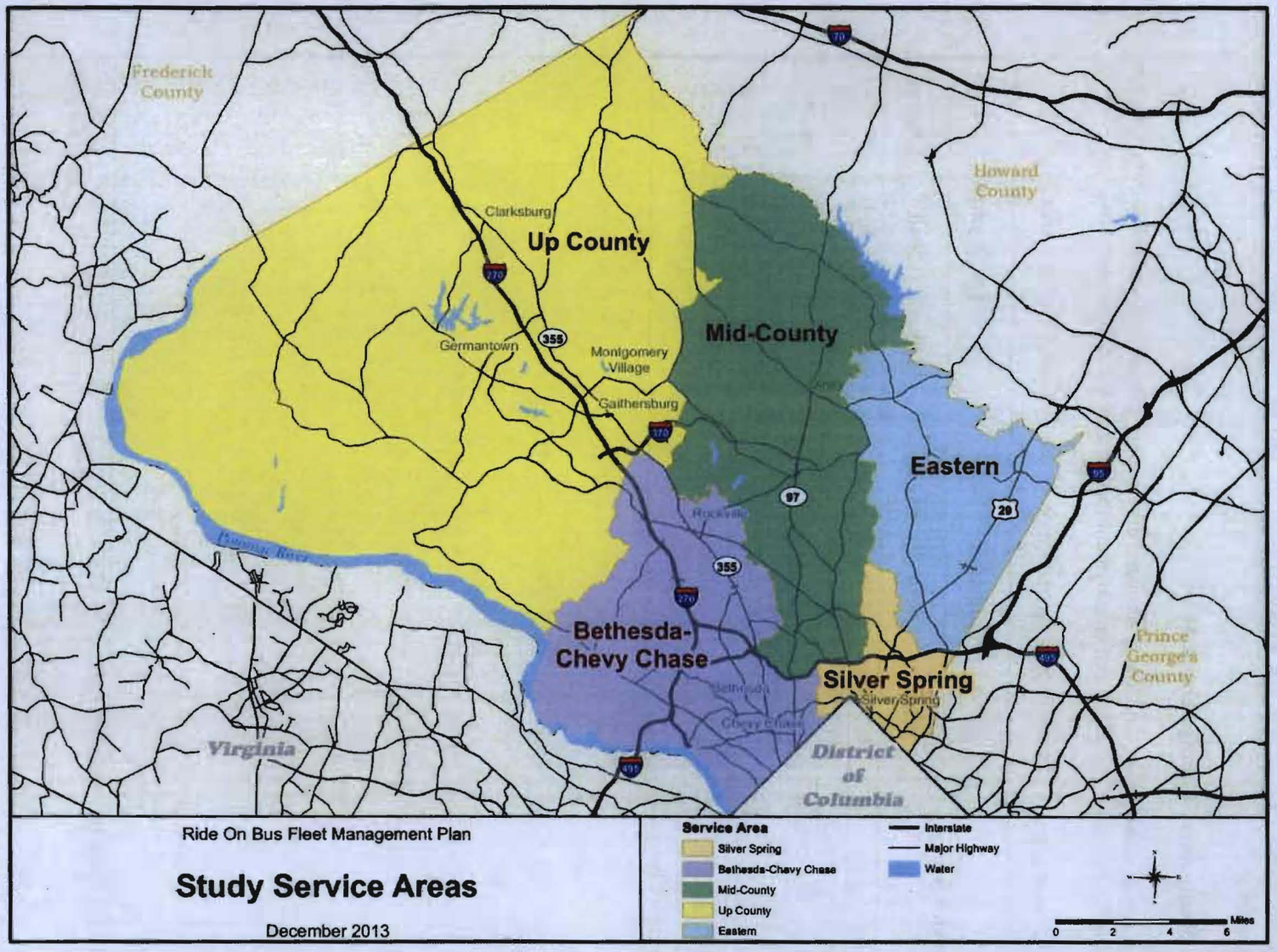
For the purpose of this study, the County has been divided into five service areas as shown in Figure 3-1. Table 3-1 provides population and employment forecasts by County Service Area.

Table 3-1: Montgomery County Population and Employment by County Service Area

Service Area	Population			Employment		
	2010	2040	Change	2010	2040	Change
Silver Spring	110,846	129,262	18,416	49,765	59,644	9,879
Eastern Montgomery	99,079	100,826	1,747	35,629	54,215	18,586
Bethesda - Chevy Chase	261,252	345,623	84,371	244,187	324,648	80,461
Mid County	190,599	216,025	25,426	48,381	52,245	3,864
Upcounty	309,813	412,172	102,359	132,379	246,859	114,480
County Total	971,589	1,203,908	232,319	510,341	737,611	227,270

SOURCE: Center for Research & Information Systems, Montgomery County Planning Department, Round 8.1 Cooperative Forecast

Figure 3-1: Study Service Areas



3.2. Strategic Goals and Service Standards

In September 2008, Montgomery County adopted the Strategic Transit Plan for Ride On services for the period 2008 to 2020. The Plan established long range goals to:

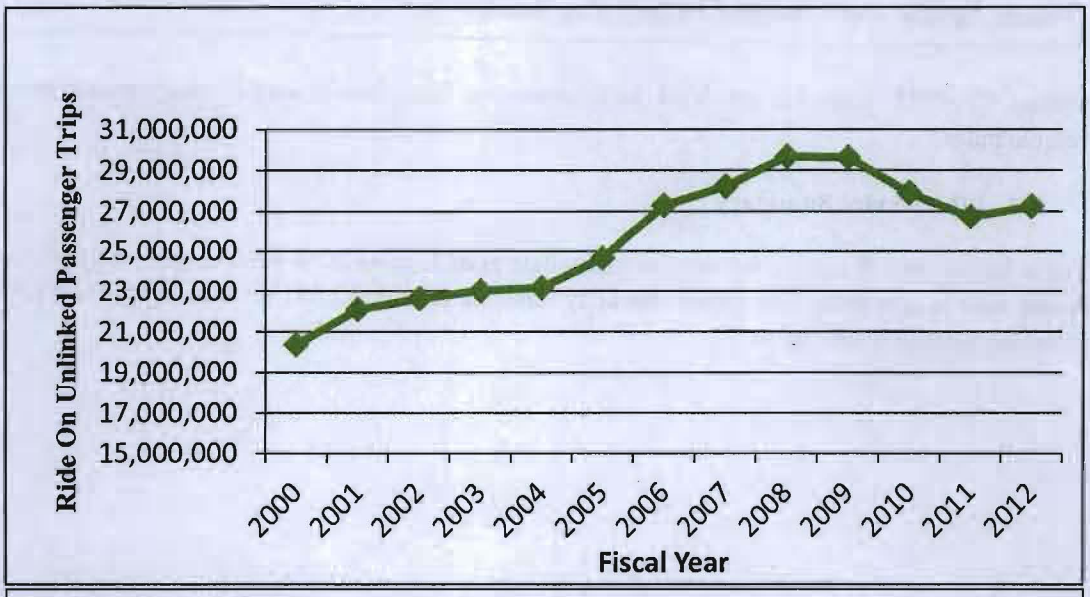
- Double transit ridership by 2020
- Develop maintenance capacity for 600 buses
- Provide service to all areas that have an average of 3+ households and 4+ jobs per acre
- Increase peak hour frequency to every 10 minutes or better
- Target pockets of low-income areas with non-traditional services
- Provide 100% fleet reliability
- Provide 95% on-time performance

Largely due to the economic downturn experienced by Montgomery County and the State, progress has been delayed in achieving these goals.

3.3. Ridership and Service History

From 2000 to 2008, Ride On ridership increased by 46 percent or an average of 4.8% per year. From 2008 through 2011, ridership fell by 10 percent. The decrease has been attributed to fare increases, economic conditions, reductions in transit service, and problems resulting from Champion bus breakdowns and their subsequent removal from revenue service. Figure 3-2 shows the change in unlinked passenger trips from fiscal years 2000 to 2012.

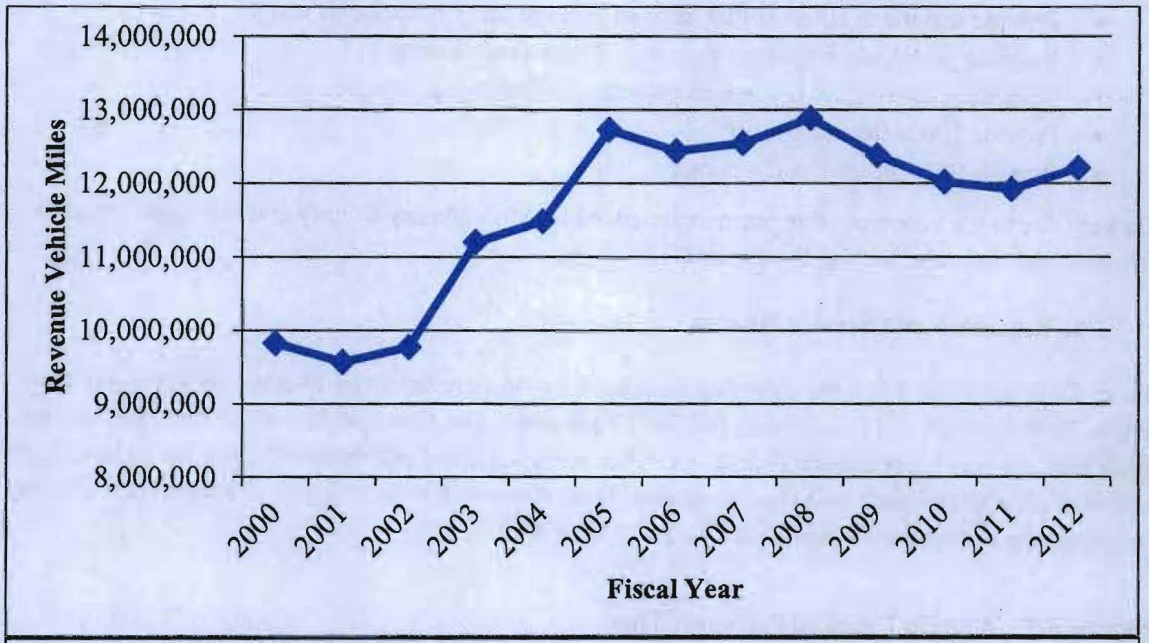
Figure 3-2: Ride On Unlinked Passenger Trips



Source: National Transit Database, FY 2011 Time Series

Figure 3-3 shows annual revenue vehicle mileage data from the National Transit Database (NTD). The number of miles buses that are operated in revenue service, has fluctuated over a several year period. From 2000 to 2008, Ride On revenue vehicle mileage increased by 31 percent. Since 2008 as the service was reduced due to limited operations funding, revenue vehicle mileage decreased by 7.5 percent.

Figure 3-3: Ride On Revenue Vehicle Miles



Source: National Transit Database, FY 2011 Time Series

During FY 2012, Ride On provided 16.6 percent of Maryland's public transportation revenue vehicle miles.

3.4. 2013 Service Summary

Table 3-2 presents Weekday Service Summary data as of January 2013 when seventy-eight Ride On routes were in operation. The typical weekday schedule provided 2,591 revenue hours and 88,370 riders on average were carried.

Table 3-2: Ride On Weekday Service Summary – January 2013

Route	Route Description	Route Type	Average Weekday Riders	Daily Revenue Hours	Riders Per Revenue Hour
1	Silver Spring-Leland St.-Friendship Heights	Local	2,460	33.2	74.1
2	Lyttonsville-Silver Spring	Local	910	20.2	45.0
3	Takoma-Dale Dr.-Silver Spring	Local	44	2.3	19.1
4	Kensington-Walter Reed-Silver Spring	Local	239	15.0	15.9
5	Twinbrook-Kensington-Silver Spring	Local	1,970	68.4	28.8
6	Grosvenor-Parkside-Montgomery Mall Loop	Loop	253	18.1	14.0
7	Forest Glen-Wheaton	Local	58	2.1	27.6
8	Wheaton-Forest Glen-Silver Spring	Local	668	33.3	20.1
9	Wheaton-Four Corners-Silver Spring	Local	1,174	41.7	28.2
10	Twinbrook-Glenmont-White Oak-Hillandale	Local	2,191	68.5	32.0
11	Silver Spring-East/West Hwy-Friendship Heights	Ltd	808	14.8	54.6
12	Takoma-Flower Avenue-Wayne Avenue-Silver Spring	Local	1,760	42.5	41.4
13	Takoma-Manchester Rd.-Three Oaks Dr.-Silver Spring	Local	302	9.1	33.2
14	Takoma-Piney Branch Road-Franklin Ave.-Silver Spring	Local	802	25.2	31.8
15	Langley Park-Wayne Ave.-Silver Spring	Local	3,555	50.5	70.4
16	Takoma-Langley Park-Silver Spring	Local	3,410	94.6	36.0
17	Langley Park-Maple Ave.-Silver Spring	Local	1,313	34.3	38.3
18	Langley Park-Takoma-Silver Spring	Local	739	34.7	21.3
19	Northwood-Four Corners-Silver Spring	Local	172	6.3	27.3
20	Hillandale-Northwest Park-Silver Spring	Local	3,182	73.7	43.2
21	Briggs Chaney-Tamarack-Dumont Oaks-Silver Spring	Local	207	12.9	16.0
22	Hillandale-White Oak-FDA-Silver Spring	Local	423	19.4	21.8
23	Sibley Hospital-Brookmont-Sangamore Road-Friendship Heights	Local	684	23.2	29.5
24	Hillandale-Northwest Park-Takoma	Local	318	6.4	49.7
25	Langley Park-Washington Adventist Hosp-Maple Ave-Takoma	Local	453	14.9	30.4
26	Glenmont-Aspen Hill-Twinbrook-Montgomery Mall	Local	3,124	96.7	32.3
28	Silver Spring Downtown (VanGo)	Loop	751	28.3	26.5
29	Bethesda-Glen Echo-Friendship Heights	Local	699	30.8	22.7
30	Medical Center-Pooks Hill-Bethesda	Local	641	29.6	21.7
31	Glenmont-Kemp Mill Rd.-Wheaton	Local	150	7.2	20.8
32	Naval Ship R&D-Cabin John-Bethesda	Local	227	11.1	20.5
33	Glenmont-Kensington-Medical Center	Local	345	16.4	21.0
34	Aspen Hill-Wheaton-Bethesda-Friendship Heights	Local	2,790	75.3	37.1

Route	Route Description	Route Type	Average Weekday Daily Riders	Daily Revenue Hours	Riders Per Revenue Hour
36	Potomac-Bradley Blvd.-Bethesda	Local	369	22.0	16.8
37	Potomac-Tuckerman La.-Grosvenor-Wheaton	Local	295	15.8	18.7
38	Wheaton-White Flint	Local	783	32.0	24.5
39	Briggs Chaney-Glenmont	Local	226	9.3	24.3
41	Aspen Hill-Weller Rd.-Glenmont	Local	744	16.9	44.0
42	White Flint-Montgomery Mall	Local	535	37.3	14.3
43	Traville TC-Shady Grove-Hospital-Shady Grove	Local	814	31.00	26.26
44	Twinbrook-Hungerford-Rockville	Local	125	7.90	15.82
45	Fallsgrove-Rockville Senior Center-Rockville-Twinbrook	Local	959	45.70	20.98
46	Shady Grove-Montgomery College-Rockville Pike-Medical Center	Local	3,812	97.20	39.22
47	Rockville-Montgomery Mall-Bethesda	Local	1,578	54.20	29.11
48	Wheaton-Bauer Dr.-Rockville	Local	2,283	48.80	46.78
49	Glenmont-Layhill-Rockville	Local	2,235	44.80	49.89
51	Norbeck P&R-Hewitt Ave.-Glenmont	Local	241	10.20	23.63
52	MGH-Olney-Rockville	Local	153	12.10	12.64
53	Shady Grove-MGH-Olney-Glenmont	Ltd	296	28.70	10.31
54	Lakeforest-Washingtonian Blvd-Rockville	Local	2,084	53.20	39.17
55	GTC-Milestone-MC,G-Lakeforest-Shady Grove-MC,R-Rockville	Local	8,091	146.50	55.23
56	Lakeforest-Quince Orchard-Shady Grove Hospital-Rockville	Local	2,110	68.70	30.71
57	Lakeforest-Washington Grove-Shady Grove	Local	2,291	49.10	46.66
58	Lakeforest-Montgomery Village-East Village-Shady Grove, Watkins Mill & MD355	Local	1,754	44.80	39.15
59	Montgomery Village-Lakeforest-Shady Grove-Rockville	Local	3,938	84.00	46.88
60	Montgomery Village-Flower Hill-Shady Grove	Ltd	348	7.10	49.01
61	GTC-Lakeforest-Shady Grove	Local	2,937	65.80	44.64
63	Shady Grove-Gaither Road-Piccard Dr.-Rockville	Local	621	19.70	31.52
64	Montgomery Village-Quail Valley-Emory Grove-Shady Grove	Local	1,321	37.50	35.23
65	Montgomery Village-Shady Grove	Ltd	220	3.40	64.71
66	Shady Grove-Piccard Drive-Shady Grove Hospital-Traville TC	Local	113	4.30	26.28
67	Traville TC-North Potomac-Shady Grove	Local	142	5.60	25.36
70	Milestone-Medical Center-Bethesda Express	Express	737	36.20	20.36
71	Kingsview-Dawson Farm-Shady Grove	Ltd	332	8.70	38.16
74	GTC-Great Seneca Hwy.-Shady Grove	Local	1,017	38.40	26.48
75	Clarksburg-Correctional Facility-Milestone-GTC	Local	439	20.50	21.41

Route	Route Description	Route Type	Average Weekday Daily Riders	Daily Revenue Hours	Riders Per Revenue Hour
76	Poolesville-Kentlands-Shady Grove	Local	883	32.50	27.17
78	Kingsview-Richter Farm-Shady Grove	Ltd	394	9.40	41.91
79	Clarksburg-Skylark-Scenery-Shady Grove	Ltd	228	13.10	17.40
81	Rockville-Tower Oaks-White Flint	Local	196	12.50	15.68
83	Germantown MARC-GTC-Waters Landing-Milestone	Local	495	33.40	14.82
90	Damascus-Woodfield Rd- Airpark Shady Grove	Local	902	44.80	20.13
93	Twinbrook-HHS-Twinbrook	Loop	39	2.60	15.00
94	Germantown MARC-parking overflow shuttle-Kingsview P&R	Shuttle	6	1.40	4.29
96	Montgomery Mall-Rock Spring-Grosvenor	Loop/ Local	599	24.30	24.65
97	GTC, Germantown MARC, Waring Station, GTC	Loop	644	19.40	33.20
98	GTC, Kingsview, GCC, Cinnamon Woods	Local	444	43.30	10.25
100	GTC-Shady Grove	Express	2,340	57.50	40.70
	Total - 78 routes		88,370	2,591	34.1

3.5. Ride On Strategic Service Planning Approach

Analysis was conducted to identify potential strategic service changes for Ride On between 2014 to 2020. Based on this strategic service planning, capital asset needs for buses and operating facilities will be programmed. It is intended that Ride On staff will plan the services annually based upon available funding, vehicles and public comment.

Strategic service planning for this analysis involved the following:

- **Service Coverage** – using the regional travel model and data from the 2010 census, the 2013 Ride On and Metro Bus routes were mapped to identify areas that exceed three households per acre and/or four jobs per acre without transit services.
- **Distribution by County Service Area** – using GIS tools, Ride On and Metro Bus ridership and weekday revenue hours were estimated by county service area.
- **Low Productivity Routes** – low productivity routes per platform hour were analyzed and reviewed with County staff in order to identify routes where service changes may result in a reduction in the number of peak buses required.
- **High Productivity Routes** – high productivity routes per platform hour were analyzed in order to identify areas where additional bus frequency and peak buses may be required because of overcrowding.
- **Population and Employment Change** – population and employment projections were analyzed to identify the amount of service that may be needed as the population and employment in the County is projected to increase.

- **Enhanced Services** – The Metro Bus Priority Corridors program and the Countywide Transit Corridor Functional Master Plan were reviewed to identify services that may be implemented in the 2014 to 2020 time frame.

3.5.1.Service Coverage

As previously stated, the 2008 Strategic Plan identified thresholds of 3 households per acre and 4 jobs per acre for transit services. The Plan also calls for targeting some low-income areas with non-traditional services. Figure 3-4 and 3-5 illustrate the areas that meet the household and job thresholds. Currently each of the traffic analysis zones meeting these thresholds has transit service for all or part of the traffic analysis zone.

Figure 3-6 shows the census block groups with high concentration of households lower than the federal poverty guidelines. Ride On staff is exploring alternative services for the Beallsville and Dickerson communities to the west of Germantown which such concentrations exist.

Figure 3-4 Traffic Analysis Zones with more than 3 Households per Acre

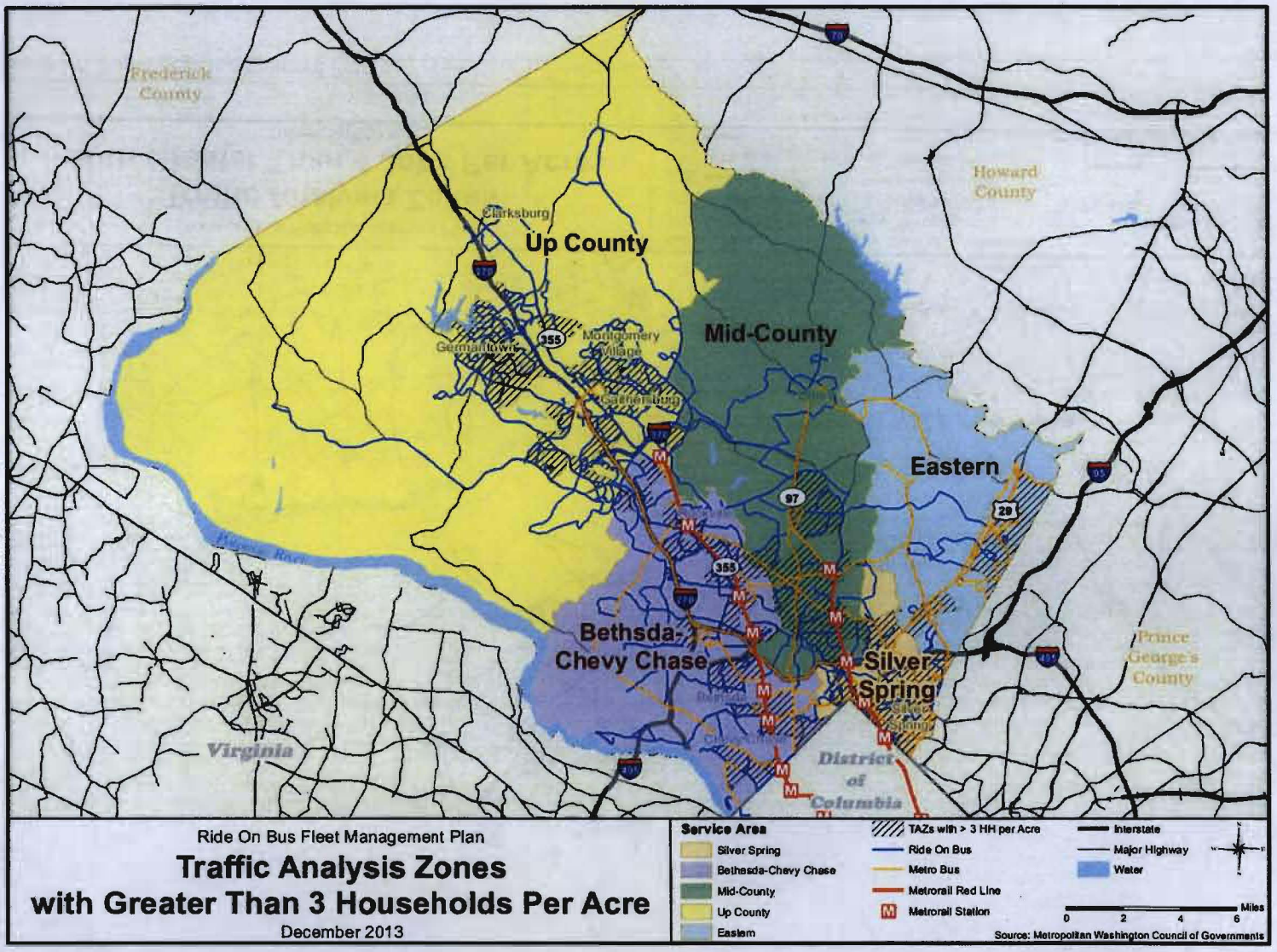
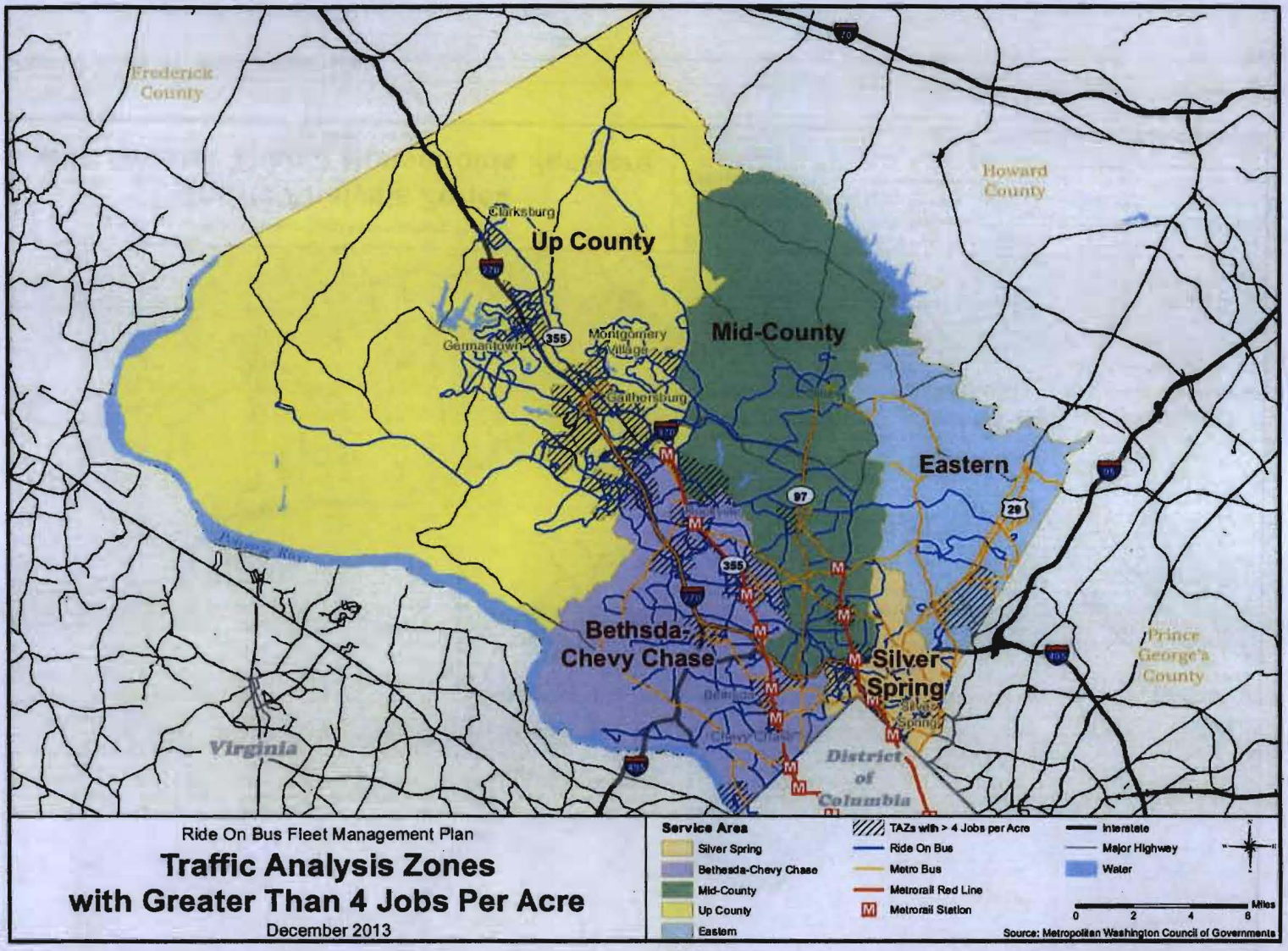


Figure 3-5: Traffic Analysis Zones with more than 4 Jobs per Acre



3.5.2.Distribution by Study Service Area

Ride On and Metro Bus routes were mapped by study service area. Platform hours and ridership were distributed to each service area based upon the distance each route operates within each service area. Average weekday platform hours and ridership were expanded to annual estimates by multiplying by 300 (assumed operating days per year). The 2010 census data enabled the calculation of boardings per capita and platform hours per capita. Table 3-3 shows the results and Figures 3-6 to 3-10 show the transit routes for each study service area.

Table 3-3: Transit Service Distribution by Study Service Area

Distribution by County Service Area		Ride On (2012)		Metro Bus (FY 13)		Annual Estimated		
Service Area	2010 Population	Weekday Boardings	Weekday Hours	Weekday Boardings	Weekday Hours	Boardings per hour	Boardings per capita	Hours per capita
Silver Spring	110,846	20,062	752.42	9,098	234.71	29.5	78.9	2.67
Eastern MC	99,079	2,997	138.63	6,998	236.80	26.6	30.2	1.14
Bethesda	261,252	12,152	579.68	7,822	236.61	24.5	22.9	0.94
Mid-County	190,599	19,092	873.28	9,033	229.09	25.5	44.3	1.74
UpCounty	309,813	33,632	1,288.69	209	7.46	26.1	32.8	1.26
MC Total	971,589	87,935	3,632.70	33,140	944.67	26.5	37.4	1.41

Observations from this analysis include:

- Productivity as measured by boardings per platform hour is consistent throughout the County ranging from 24.5 boardings per hour in the Bethesda area to 29.5 boardings per hour in the Silver Spring area.
- Silver Spring has the highest boardings and hours per capita.
- Bethesda has the lowest boardings and hours per capita
- Eastern Montgomery County, Bethesda and Upcounty have lower bus hours per capita which may indicate that additional services are warranted in these areas.

Figure 3-6: Silver Spring Service Area Bus Services

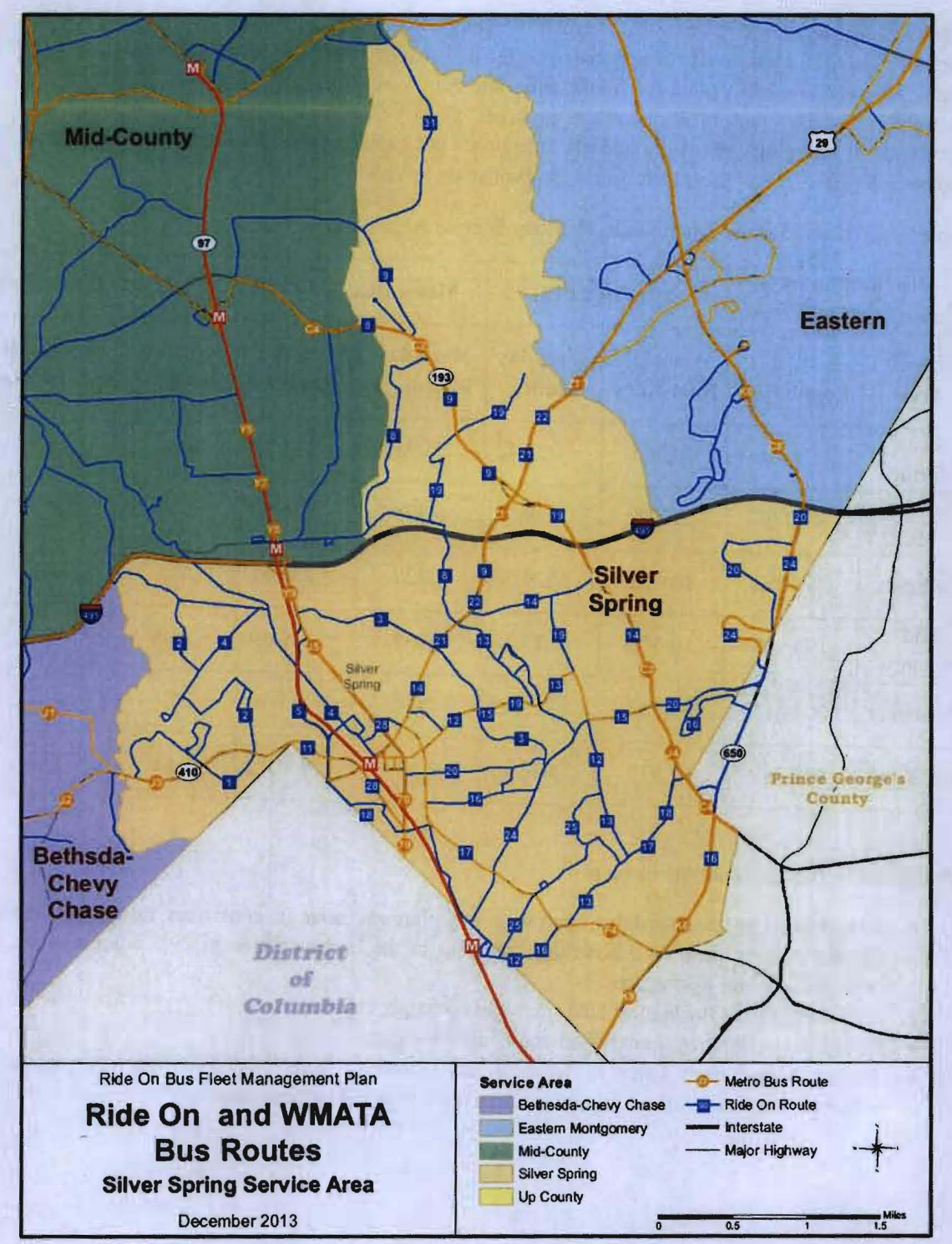


Figure 3-7: Eastern Montgomery County Service Area Bus Services

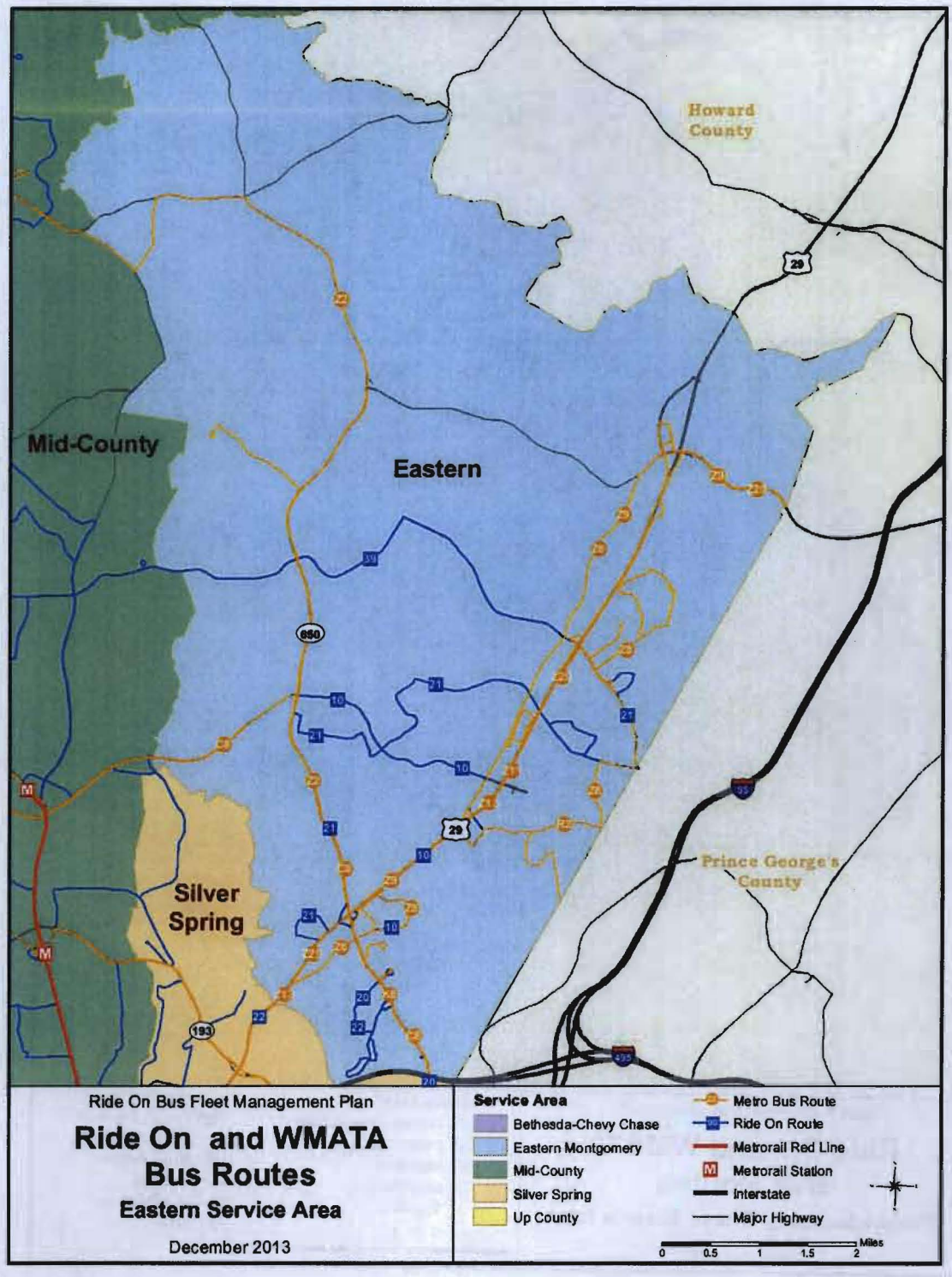


Figure 3-8: Bethesda-Chevy Chase Service Area Bus Services

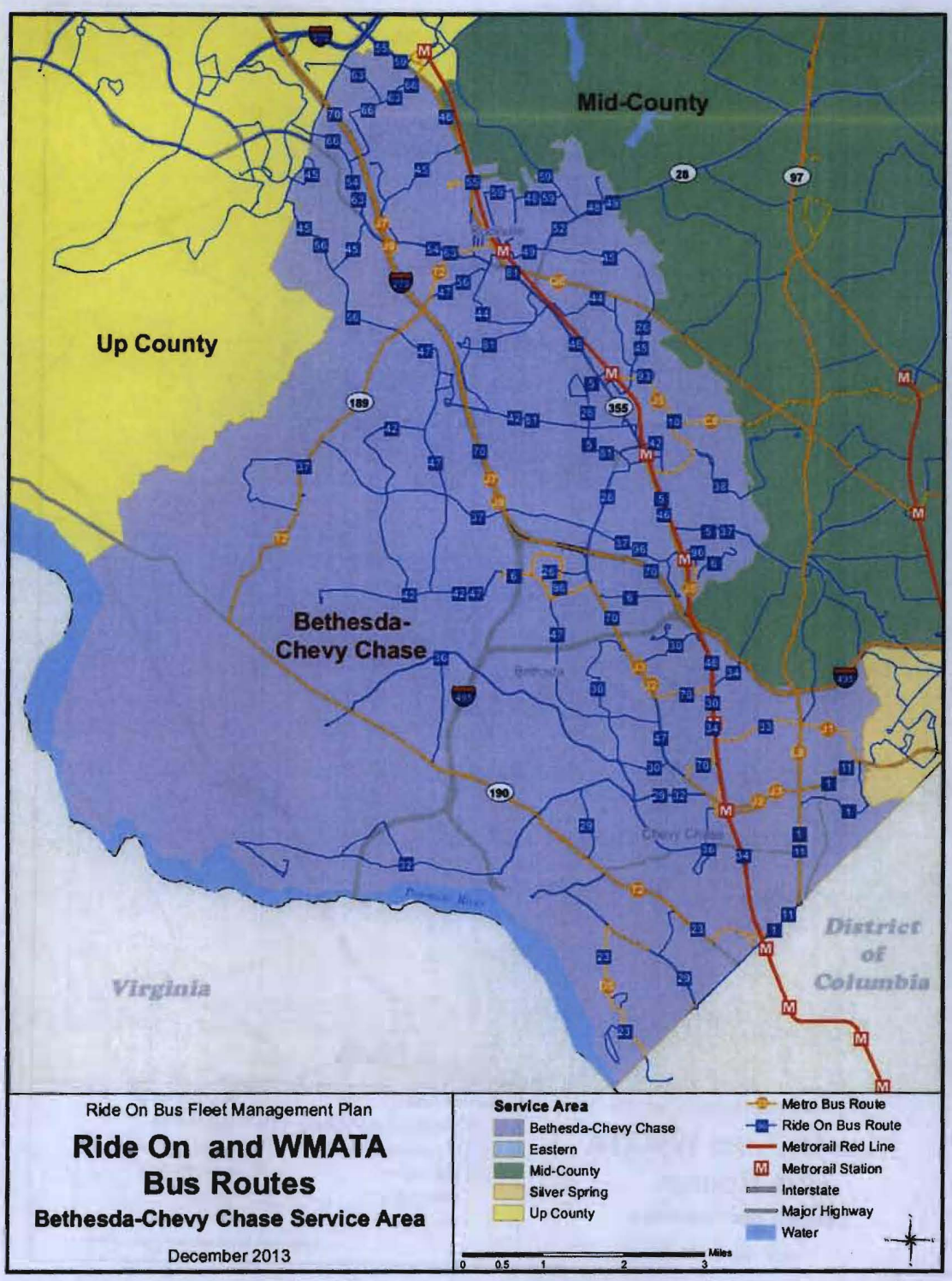


Figure 3-9: Mid County Service Area Bus Services

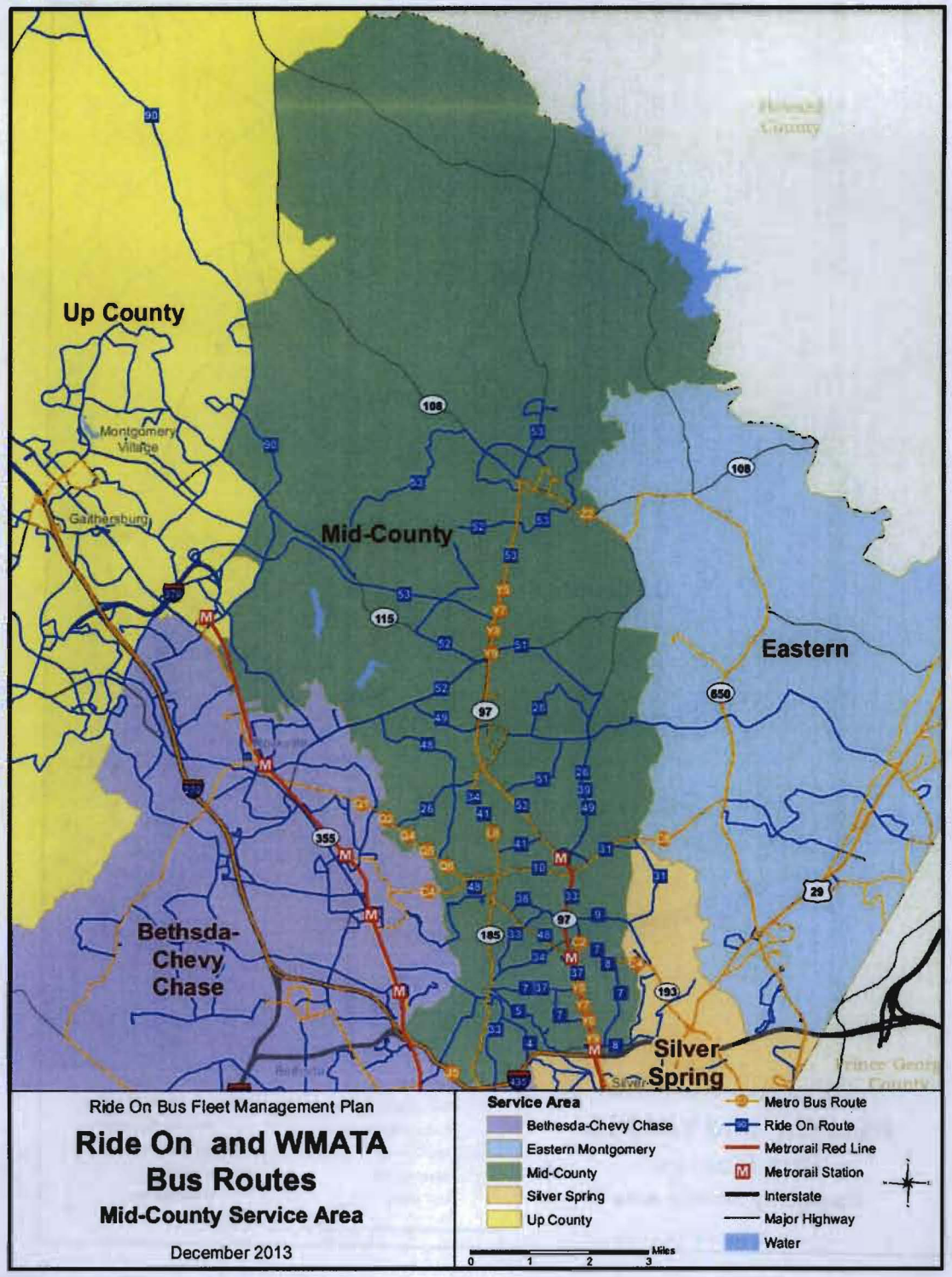
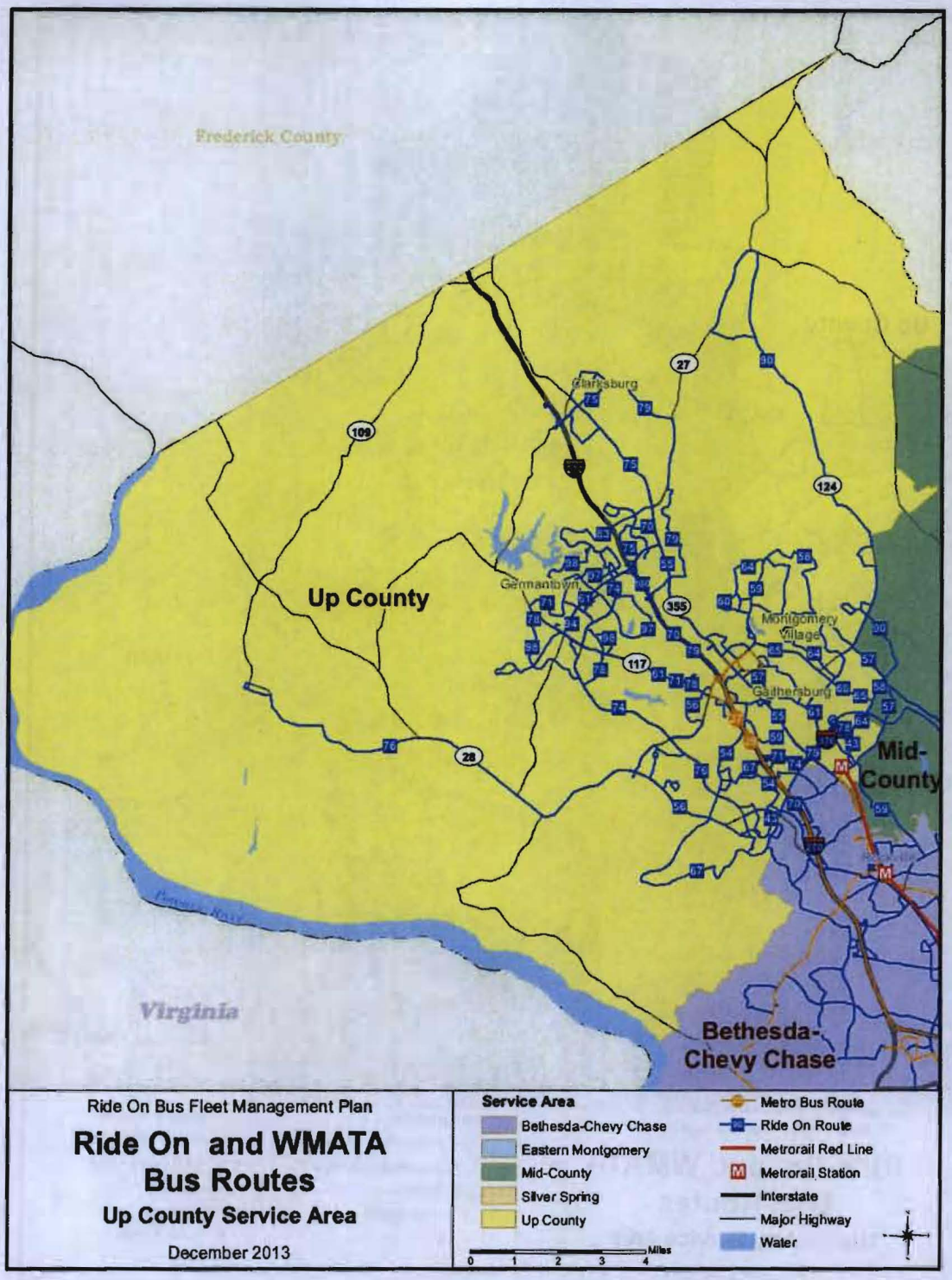


Figure 3-10: Upcounty Service Area Bus Services



3.5.3. Low Productivity Routes

Sixteen routes listed in Table 3- 4 that average less than 20 boardings per revenue hour were reviewed with County staff. Many of these routes have been studied in recent years and were revised to operate at the minimum policy headway.

Table 3-4: Ride On Low Productivity Routes

Route	Route Description	Route Type	Peak Buses	Riders Per Revenue Hour	FY 13 Ave Weekday Boardings	FY 10 to 13 Annual Growth Rate
94	Germantown MARC-parking overflow shuttle-Kingsview P&R	Shuttle	1	4.3	5	n/a
98	GTC, Kingsview, GCC, Cinnamon Woods	Local	2	10.3	289	5.7%
53	Shady Grove-MGH-Olney-Glenmont	Ltd	4	10.3	240	-6.0%
52	MGH-Olney-Rockville	Local	2	12.6	134	-2.7%
6	Grosvenor-Parkside-Montgomery Mall Loop	Loop	2	14.0	251	-5.3%
42	White Flint-Montgomery Mall	Local	1	14.3	425	n/a
83	Germantown MARC-GTC-Waters Landing-Milestone	Local	3	14.8	484	-14.0%
93	Twinbrook-HHS-Twinbrook	Loop	1	15.0	32	-38.1%
81	Rockville-Tower Oaks-White Flint	Local	2	15.7	181	-4.6%
44	Twinbrook-Hungerford-Rockville	Local	2	15.8	116	-10.9%
4	Kensington-Walter Reed-Silver Spring	Local	2	15.9	248	-5.7%
21	Briggs Chaney-Tamarack-Dumont Oaks-Silver Spring	Local	3	16.0	214	0.4%
36	Potomac-Bradley Blvd.-Bethesda	Local	3	16.8	389	-3.6%
79	Clarksburg-Skylark-Scenery-Shady Grove	Ltd	3	17.4	235	3.9%
37	Potomac-Tuckerman La.-Grosvenor-Wheaton	Local	3	18.7	300	9.7%
3	Takoma-Dale Dr.-Silver Spring	Local	1	19.1	44	11.6%

While it is recommended that Ride On staff continues regular reviews to identify ways to improve productivity, this analysis indicates that absent total route elimination there is limited opportunity for service cuts that would reduce the peak vehicle requirements. Nonetheless, in calculating future year peak vehicle requirements for this Plan it has been assumed that a reduction of four peak buses could be achieved by service eliminations on low productivity routes.

3.5.4. High Productivity Routes

Listed in Table 3-5 are high productivity routes with more than 40 average weekday boardings per revenue hour. Many of these routes experience significant overcrowding during peak periods. Route 70 – Germantown to Bethesda, while averaging less than 40 boardings per revenue hour has been added to the list because it experiences significant passenger overloads in the peak direction. Combined these routes carry nearly one half of Ride On's average weekday ridership.

Ten high productivity routes with more than 1,000 daily boardings were selected for additional analysis. They include:

- **Route 1 & 11 – Friendship Heights to Silver Spring** – 3,268 boardings; 10 minute peak frequency - 68.1 boardings per revenue hour
- **Route 15 – Silver Spring to Langley Park** – 3,410 boardings; 7.5 minute average peak; 70.4 boardings per revenue hour
- **Route 55 – Germantown to Rockville** – 8,020 boardings; 15 minute peak frequency; 55.2 boardings per revenue hour
- **Route 49 – Rockville to Glenmont** – 2,149 boardings; 20 minute peak frequency; 49.9 boardings per revenue hour
- **Route 59 – Montgomery Village to Rockville** – 3,875 boardings; 20 minute peak frequency; 46.9 boardings per revenue hour
- **Route 48 – Rockville to Wheaton** – 2,215 boardings; 20 minute peak frequency; 46.8 boardings per revenue hour
- **Route 57 – Lakeforest to Shady Grove** – 2,274 boardings; 25 minute peak frequency; 46.7 boardings per revenue hour
- **Route 61 – Germantown to Lakeforest to Shady Grove** – 2,863 boardings; 20 minute peak frequency; 44.6 boardings per revenue hour
- **Route 20 – Hillandale to Silver Spring** – 3,152 boardings; 10 minute peak frequency; 43.2 boardings per revenue hour
- **Route 100 – Germantown to Shady Grove** – 2,288 boardings; 6 minute peak frequency; 40.7 boardings per revenue hour

Table 3-5: Ride On High Productivity Routes

Route	Route Description	Route Type	Peak Buses	Riders Per Revenue Hour	FY 13 Ave Weekday Boardings	FY 10 to 13 Annual Growth Rate
1	Silver Spring-Leland St.-Friendship Heights	Local	4	74.1	2,367	16.80%
15	Langley Park-Wayne Ave.-Silver Spring	Local	6	70.4	3,410	-8.10%
65	Montgomery Village-Shady Grove	Ltd	2	64.7	203	5.40%
55	GTC-Milestone-MC,G-Lakeforest-Shady Grove-MC,R-Rockville	Local	10	55.2	8,020	1.10%
11	Silver Spring-East/West Hwy-Friendship Heights	Ltd	3	54.6	815	-2.40%
49	Glenmont-Layhill-Rockville	Local	4	49.9	2,149	1.10%
24	Hillandale-Northwest Park-Takoma	Local	2	49.7	314	1.10%
60	Montgomery Village-Flower Hill-Shady Grove	Ltd	2	49.0	360	-5.20%
59	Montgomery Village-Lakeforest-Shady Grove-Rockville	Local	7	46.9	3,875	-0.70%
48	Wheaton-Bauer Dr.-Rockville	Local	4	46.8	2,215	-4.50%
57	Lakeforest-Washington Grove-Shady Grove	Local	4	46.7	2,274	0.20%
2	Lyttonsville-Silver Spring	Local	2	45.0	886	-4.30%
61	GTC-Lakeforest-Shady Grove	Local	5	44.6	2,863	-3.20%
41	Aspen Hill-Weller Rd.-Glenmont	Local	2	44.0	740	0.10%
20	Hillandale-Northwest Park-Silver Spring	Local	7	43.2	3,152	-0.40%
78	Kingsview-Richter Farm-Shady Grove	Ltd	2	41.9	383	11.30%
12	Takoma-Flower Avenue-Wayne Avenue-Silver Spring	Local	4	41.4	1,730	-0.30%
100	GTC-Shady Grove	Express	8	40.7	2,288	0.40%
70	Milestone-Medical Center-Bethesda Express	Express	8	20.4	3,741	-3.40%
		Total	86			

Analysis indicates that over the 2014 to 2020 period these routes will require additional capacity to manage overcrowding. As shown in Table 3-6, a combination of larger vehicles and increased frequency is recommended to address these capacity issues.

Table 3-6: Estimated Number / Type of Buses for High Productivity Routes (2014 – 2020)

	Current				Recommended		
Route	**Boardings per Rev Hour**	**Peak Headway**	**Type Bus**	**# Buses**	**Peak Headway**	**Type Bus**	**# Buses**
1&11	68.1	10 min	40' transit	7	7.5 min	40' transit	10
15	70.4	7.5 min	40' transit	6	6 min	40' transit	10
55	55.2	15 min	40' transit	10	10 min	60' articulated	14
49	49.9	20 min	40' transit	4	15 min	40' transit	6
59	46.9	20 min	40' transit	7	15 min	40' transit	10
48	46.8	20 min	40' transit	4	15 min	40' transit	6
57	46.7	20 min	40' transit	4	15 min	40' transit	6
61	44.6	20 min	40' transit	5	15 min	40' transit	7
20	43.2	10 min	40' transit	7	7.5 min	40' transit	10
100	40.7	6 min	40' transit	8	4 min	40' transit	12
70	20.4	15 min	40' transit	8	10 min	40' transit	12

Sixty-foot articulated buses are recommended for Route 55 – Ride On's highest ridership route. Articulated buses require longer maintenance bays and specialized lifts. The new EMTOC facility has bays to accommodate articulated buses. Ride On's current 40' transit coaches have a seating capacity of 38 passengers and capacity for up to 37 standees yielding a full load of 75 customers.

Figure 3-11: 60' Articulated Bus – MTA Baltimore

Route 55 with more than 8,000 average weekday riders and 55 riders per hour, has regular passenger overloads. An articulated bus will seat 50 passengers and has capacity for up to 63 standees which yields a full load of 113 passengers. At peak periods, the articulated buses would provide approximately 50 percent more passenger capacity than the typical 40' transit bus. Route 55 is normally operated from the new EMOC Gaithersburg operating facility.

Figure 3-12: Ride On Route 55 Peak Period Passenger Loads

3.7.6.Population and Employment Change

Population and employment by Study Service Area has been estimated using the Round 8.1 Cooperative Forecast. Table 3-7 presents the population forecasts. During the 2015 to 2020 period, county wide population is projected to increase by .96% per year. Much of this population growth is forecast in the Bethesda, Mid County and Upcounty service areas.

Table 3-7: Montgomery County Population Forecasts by Study Service Area

Service Area	Population			Annual Rate of Change					
	2010	2040	Change	2010 to 2015	2015 to 2020	2020 to 2025	2025 to 2030	2030 to 2035	2035 to 2040
Silver Spring	110,846	129,262	18,416	1.61%	0.57%	0.25%	0.26%	0.26%	0.12%
Eastern Montgomery	99,079	100,826	1,747	0.02%	0.01%	0.20%	0.07%	0.00%	0.05%
Bethesda - Chevy Chase	261,252	345,623	84,371	1.43%	1.41%	0.57%	0.86%	0.69%	0.66%
Mid County	190,599	216,025	25,426	0.61%	0.74%	0.47%	0.35%	0.07%	0.26%
Upcounty	309,813	412,172	102,359	0.60%	1.14%	1.62%	1.33%	0.89%	0.16%
County Total	971,589	1,203,908	232,319	0.89%	0.96%	0.82%	0.79%	0.54%	0.31%
SOURCE: Center for Research & Information Systems, Montgomery County Planning Department, Round 8.1 Cooperative Forecast									

As shown in Table 3-8, during the 2015 to 2020 period, county wide employment is projected to increase by 1.55% per year. Much of this employment growth is forecast in the Bethesda, and Upcounty service areas.

Table 3-8: Montgomery County Employment Forecasts by Study Service Area

Service Area	Population			Annual Rate of Change					
	2010	2040	Change	2010 to 2015	2015 to 2020	2020 to 2025	2025 to 2030	2030 to 2035	2035 to 2040
Silver Spring	49,765	59,644	9.879	0.25%	0.68%	1.10%	1.05%	0.33%	0.23%
Eastern Montgomery	35.629	54,215	18,856	2.72%	2.19%	1.13%	1.12%	0.65%	0.66%
Bethesda - Chevy Chase	244,187	324,648	80,461	1.34%	1.21%	1.24%	1.04%	0.46%	0.44%
Mid County	48,381	52,245	3,864	0.26%	0.22%	0.29%	0.44%	0.17%	0.17%
Upcounty	132,379	246,859	114,480	1.28%	2.72%	2.80%	2.92%	1.80%	1.09%
County Total	510,341	737,611	227,270	1.22%	1.55%	1.58%	1.56%	0.87%	0.63%
SOURCE: Center for Research & Information Systems, Montgomery County Planning Department, Round 8.1 Cooperative Forecast									

Growth in population and employment will contribute to ridership on Ride On. In order to have an adequate supply of transit vehicles and service, an annual growth rate in service and peak buses for employment and population growth is 1.25 percent. This will require an additional 4 peak buses per year or 28 peak buses from FY 2014 to FY 2020.

3.7.7.Enhanced Services

Efforts have been underway for the past few years to develop enhanced transit plans throughout the Montgomery County. Traffic congestion is severe and increased public transportation is considered essential for continued economic growth throughout the County. The Purple Line is advancing through the FTA New Starts process and three of the likely future BRT corridors (Veirs Mill, Georgia Avenue and the Corridor Cities Transitway) are under study by the State of Maryland.

Throughout the DC area Metro Bus has developed the Priority Corridors Network (PCN). This is their strategy for improving bus service quickly and efficiently. The plan includes 24 corridors across the region and will impact approximately 50% of current Metrobus services.

The goal of the PCN is to provide a faster and more comfortable service by improving and providing:

- Bus running ways, signal priorities and bus-only lanes or queue jumpers.
- Better passenger amenities, access, information and service reliability.
- New buses with low floors and hybrid technology.
- New limited stop services.

In Montgomery County, PCN studies have included:

- University Boulevard / East West Highway
- Veirs Mill Road
- Georgia Avenue
- East West Highway
- Greenbelt / Twinbrook

The PCN implementation would be tailored to each corridor as an incremental transit improvement. For example, in the New Hampshire Avenue Corridor Metro Bus has recently implemented the K9 limited stop service. Early reports are that this route is adding peak period capacity and attracting new riders.

In the Maryland 355 – Rockville Pike corridor Ride On is the primary local bus service provider. Three Ride On routes as shown in Table 3-9 carry more than 15,000 average weekday riders along MD 355.

Table 3-9: MD 355 Ride On Routes

Route	Route Description	Route Type	Average Weekday Daily Riders	Daily Revenue Hours	Riders Per Revenue Hour
46	Shady Grove-Montgomery College-Rockville Pike-Medical Center	Local	3,812	97.20	39.22
55	GTC-Milestone-MC,G-Lakeforest-Shady Grove-MC,R-Rockville	Local	8,091	146.50	55.23
59	Montgomery Village-Lakeforest-Shady Grove-Rockville	Local	3,938	84.00	46.88
	Total - 3 routes		15,841	327.7	48.4

Ride On staff has been studying the feasibility of limited stop service in this corridor. The express / limited stop service as currently conceptualized by Ride On staff would require 11 peak vehicles and could be implemented prior to 2020.

3.8. Peak Vehicle Requirements

Table 3-10 lists the existing peak vehicle requirements (PVR) and estimates the number of additional vehicles that will be needed by 2020. The fleet is recommended to grow from 342 buses to 441 buses. In regard to the 99 additional buses, it is recommended that Ride On procure:

- 85 forty foot transit buses
- 14 sixty foot articulated buses

Table 3-10: Proposed Peak Vehicle Requirement - 2020

2020 Peak Vehicle Estimate		PVR	Spares	Training	Total
Existing PVR		281	56	5	342
New routes	Underserved Areas	20	4	1	25
	Express Limited Stop	11	2	1	14
Low productivity routes service cuts		-4	-1		-5
High productivity routes additional capacity		26	5		31
Population and employment growth		28	6		34
Total 2020		362	72	7	441
* Assumes 20% spare ratio					

4 RIDE ON FLEET AND VEHICLE MAINTENANCE

4.1. Ride On Fleet

As of June 30, 2013, the Ride On fleet consisted of 342 buses as listed in Table 4-1. At that time, the fleet was going through a transition largely as a result of the emergency retirement of sixty-two 2007 Champion small buses and the delivery of replacement buses.

In 2011, the County recognized that the Champion buses which had been purchased with local and state funding were inadequate for the daily Ride On service cycle and would have to be removed from service. As a stop-gap measure in 2011 and 2012, the County acquired forty-five used buses including fifteen 2004 Mid Bus buses from the Port Authority of Allegheny County (Pittsburgh) and thirty 1997 Orion buses from WMATA. All of the Champion buses were removed from service by July 2012.

Table 4-1: Composition of Ride On Active Fleet as of June 30, 2013

Bus Model Year	Bus Manufacturer	Size/Type	Vehicle No's	No. Buses	Average Mileage	In Service Date	Useful Life (in years)	Eligible for Retirement
1997	Orion	30' Diesel	5100-5129	30	490874	8/1/2012	10	2007[3]
1999	Gilig	35' Diesel	5410 - 5423	12	595433	7/1/1999	12	2011
1999	Orion	40' Diesel	5705 - 5725	19	550744	10/1/1999	12	2011
1999	Orion	40' CNG	5803 - 5821	19	522016	3/1/2000	12	2012
2001	Orion	35' CNG	5580 - 5623	43	452022	3/15/2002	12	2014
2003	Orion	35' CNG	5901 - 5932	33	481299	7/26/2004	12	2016
2004	Mid Bus	28' Diesel	5232 - 5246	15	313111	9/24/2011	7	2011[4]
2005	New Flyer	40' CNG	5822 - 5836	15	400909	12/9/2005	12	2018
2005	Orion	35' CNG	5933 - 5957	24	426219	6/28/2006	12	2018
2006	Gillig	40' Hybrid	5301 - 5313	14	214796	6/1/2007	12	2019
2008	Gillig	40' Diesel	5726 - 5746	21	248114	12/11/2008	12	2020
2008	Gillig	30' Diesel	5001 - 5006	6	230392	11/17/2008	10	2018
2009	Gillig	30' Diesel	5007 - 5031	25	196670	10/1/2009	10	2020
2009	Gillig	40' Hybrid	5314 - 5348	35	175187	9/3/2009	12	2021
2009	Gillig	40' Diesel	5747 - 5757	11	195476	8/17/2009	12	2021
2011	Gillig	40' Diesel	5758	1	79554	10/31/2011	12	2023
2011	Gillig	40' Hybrid	5349 - 5360	12	78313	10/31/2011	12	2023
2012	Gillig	40' Hybrid	5361 - 5367	7	47853	6/25/2012	12	2024

As of June 2013, the County had 91 replacement buses on order or in the process of delivery. Of these 12 of the 40' Gillig diesel buses were delivered in June 2013; 28 of the 30' Gillig diesel buses were delivered in late 2013; 19– 40' Gillig CNG buses were delivered in February 2014 and 32 of

[3] The 1997 Orion buses were purchased after their minimum useful life had been met
[4] The 2004 Mid Bus small buses were purchased after their minimum useful life had been met.

the 30' Gillig diesel buses are to be delivered in July 2014. At the conclusion of the current fleet replacement project in September 2014, the Ride On Fleet will remain at 342 buses and the average fleet age will drop from 8.84 years to 6.01 years.

Because of service and facility requirements, the County uses a mixture of vehicle sizes and fuel types. Table 4-2 presents the projected fleet composition as of September 2014.

Table 4-2: Ride On Planned Fleet Composition as of September 2014

Bus Length	Fuel Type			Total	Percentage of Fleet
	Diesel	CNG	Hybrid		
30 foot	91			91	26.8%
35 foot		100		100	29.2%
40 foot	49	34	68	151	44.2%
Total	140	134	68	342	100.0%
Percentage	40.9%	39.2%	19.9%	100.0%	

4.2. Maintenance Strategy

The mission of the Division of Fleet Management Services (DFMS) is to plan for, acquire, maintain, and dispose of the County's fleet of motor vehicles, buses, heavy equipment, and other vehicular equipment in support of the transportation and service delivery needs of all County departments. Transit vehicles are maintained by DFMS at two County owned facilities, Brookville in Silver Spring and EMTOC in Gaithersburg, and one leased facility, Nicholson Court, in the White Flint area.

Considering service requirements and facility constraints the DFMS has developed a vehicle maintenance strategy with the primary goal of providing timely and cost effective maintenance services for the Ride On fleet. Table 4-3 shows the distribution of key maintenance activities conducted for the fleet.

Table 4-3: Ride On Fleet Maintenance Strategy

	County Facilities		
	Brookville (Silver Spring)	**EMTOC (Gaithersburg)**	**Nicholson Court (White Flint)**
# Buses Assigned	**139**	**133**	**65**
In-house Labor			
Preventive Maintenance	√	√	√
General Repairs	√	√	√
Brake Repair	√	√	√
A/C Repair	√	√	√
Body Repairs	√	√	
Body Painting	√	√	
Electronics Repair	√	√	√
Farebox Repair	√	√	√
On-Site Contractor			
Fueling and Cleaning	√	√	√
Tires	√	√	√
Off-Site Contractor			
Major Component Rebuild	√	√	√
Minor Component Rebuild	√	√	√
Vehicle Major Overhaul	√	√	√

4.3. Maintenance Staffing

As shown in Table 4-4, a total of 133 DFMS employees are responsible for bus maintenance. On average there are 3.8 buses per maintenance technician.

Table 4-4: Maintenance Staffing by Facility

Position	**Brookville**	**Nicholson**	**EMTOC**
Shop Superintendent	1	1	1
Crew Chiefs	7	4	6
Mechanic Technicians	35	16	35
Senior Supply Technicians	1	1	1
Supply Technicians	7	4	8
Autobody Repairers	4	0	0
Transit Welders	1	0	0
Total Maintenance Employees	56	26	51
Buses Assigned	137	65	133
Buses per Technician	3.9	3.8	3.8

4.4. Maintenance Performance

According to the National Transit Database Report Year 2012 statistics, Ride On is ranked 34th largest North American motor bus transit service in terms of annual vehicle miles operated. In managing this large transit agency, MCDOT and MCDGS have developed a comprehensive management system for tracking maintenance performance. What follows is a review of Ride On's preventive maintenance (PM) program, PM on-time performance, mechanical failures, road calls and missed trips.

4.4.1.Preventive Maintenance Cycle

Ride On preventive maintenance is performed through the four types of inspection as shown in Table 4-5.

Table 4-5: Ride On Preventive Maintenance Program

Inspection Type	A	B	C	D
Frequency	6,000	12,000	24,000	48,000
Estimated Annual Inspections	2,400	1,200	600	300
General Operations	√	√	√	√
Exterior	√	√	√	√
Under Chassis	√	√	√	√
Engine Compartment	√	√	√	√
Wheelchair Lift / Ramp	√	√	√	√
Air Conditioning	√	√	√	√
Oil / Lube / Filters	√	√	√	√
Steam Clean Engine	√	√	√	√
Fuel Filters		√	√	√
Crankcase Breather Filter		√	√	√
Transmission Fluid / Filters			√	√
Hydraulic Fluid Change				√
Differential Fluid Change				√

4.4.2.Preventive Maintenance Analysis

The log of preventive maintenance records for FY 2013 was analyzed to identify the number and type of inspections and the timeliness of the inspections. Table 4-6 lists the type of preventive maintenance inspections that were completed during the period.

Table 4-6: Ride On Preventive Maintenance Inspections – FY 2013

Type of PM Inspection	Number of Inspections	% of Inspections
"A"	1236	49.4%
"B"	967	38.6%
"C"	154	6.2%
"D"	145	5.8%
Total	2502	100%
Source: Division of Fleet Management		

The Ride On preventive maintenance interval is every 6,000 miles. During the period there were 2,502 inspections which yielded 2,089 intervals that were tested for compliance with preventive maintenance on-time performance standards. For each interval, the inspection is considered "On Time" if it is completed within 5,400 miles to 6,600 miles of the prior inspection. Table 4-7 classifies each interval for on time performance.

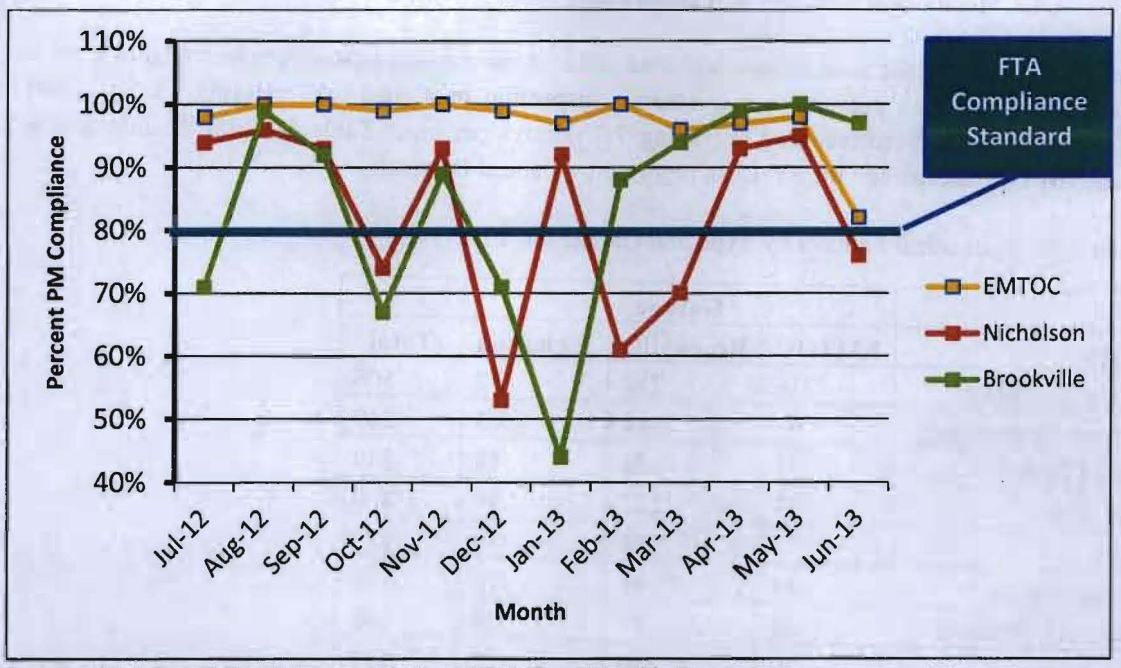
Table 4-7: PM Interval On Time Performance

Type of PM Interval	Miles Since Last Inspection	Number of Inspections	% of Inspections
Very Early	1,000 to 4,799	38	1.8%
Early	4,800 to 5,399	106	5.1%
On Time	5,400 to 6,600	1646	78.8%
Late	6,601 to 8,999	296	14.2%
Very Late	More than 9,000	3	0.1%
Total		2,089	100%
Source: Division of Fleet Management			

The Federal Transit Administration (FTA) compliance standard calls for 80 percent of an agency's preventive maintenance inspections to be completed on-time which is defined as within 10 percent before to 10 percent after the PM due mileage. According to the FY 14 Triennial Review Workbook, Rev 2, "the grantee is deficient if fewer than 80 percent of the inspections for any mode or operation occurred on time. Grantees are not penalized for early inspections, only late ones." Data shows that the Ride On maintenance operation met the FTA standard during FY 13.

DFMS monitors PM compliance monthly for each shop. Figure 4-1 shows the PM compliance by shop for FY 2013.

Figure 4-1: Monthly PM Compliance by Shop – FY 2013



Source: Division of Fleet Management June 2013 Fleet Monthly Report

4.4.3.Mechanical Failures and Road Calls

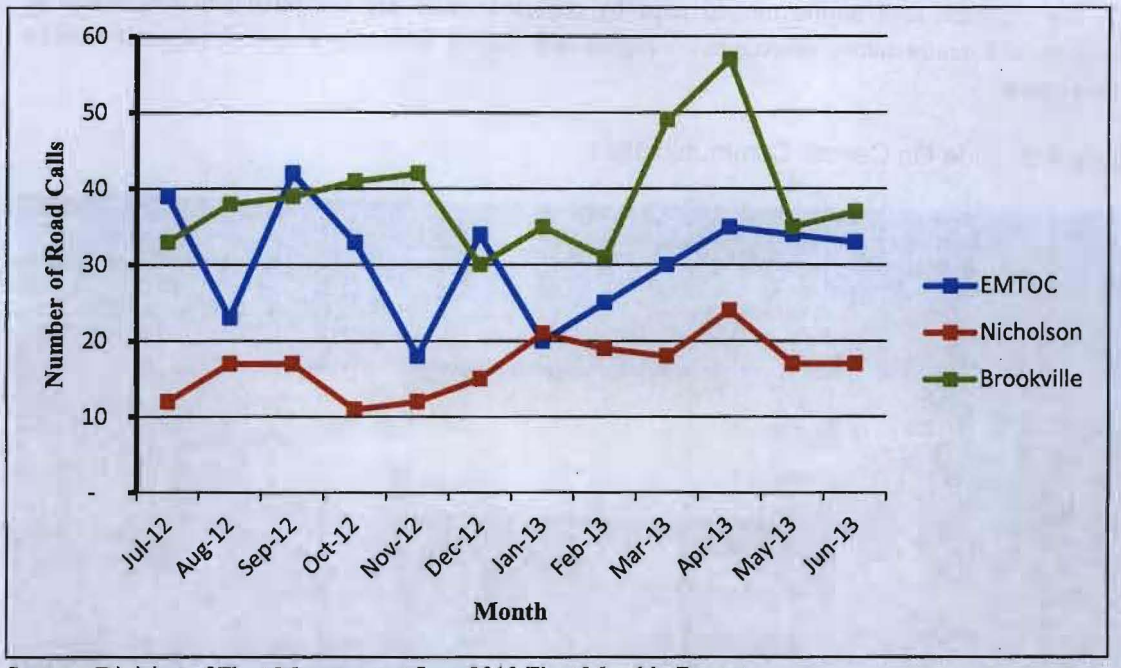
The DFMS tracks mechanical failures and road calls. A mechanical failure may be found as a result of a driver's report, a preventive maintenance inspection or a road call. During FY 13, 2,601 mechanical failures were recorded averaging 7.7 failures per bus. Table 4-8 lists the mechanical failures by type and garage for FY 13 as reported by Central Dispatch.

Table 4-8: Mechanical Failures by Type and Garage FY 2013

	Garage			
Type	**EMTOC**	**Brookville**	**Nicholson**	**Total**
Auto Shutdown	216	218	72	506
Check Engine Light	95	111	63	269
Fluid Leaks	78	122	48	248
No Start	73	127	34	234
Lift	70	84	59	213
Transmission	40	86	23	149
Low Air Pressure	49	71	28	148
Air Bags	29	66	22	117
Electrical	29	52	33	114
Front Door	16	18	57	91
Fire / Smoke	24	43	22	89
Other	12	46	23	81
Brakes	15	55	9	79
No Heat / AC	6	33	14	53
Overheat	12	24	9	45
Tires	24	11	7	42
Broken Belts	14	21	3	38
Fuel	9	9	12	30
Rear Door	14	5	4	23
Steering	6	10	5	21
Wipers	1	7	3	11
Total	832	1219	550	2601
Buses Assigned	133	139	65	337
Failures per Bus	6.3	8.8	8.5	7.7
Source: Division of Fleet Management June 2013 Fleet Monthly Report				

Road calls are defined as anytime that maintenance is required after a bus has left the operating facility. Figure 4-2 shows the number of road calls by month and facility and Table 4-9 lists the road calls by garage for the fiscal year.

Figure 4-2: Road Calls by Month and Garage



Source: Division of Fleet Management June 2013 Fleet Monthly Report

Table 4-9: Road Calls by Garage – FY 2013

	EMTOC	Brookville	Nicholson	Total
Road Calls	366	467	200	1,033
Buses Assigned	133	139	65	337
Road Calls per Bus	2.8	3.4	3.1	3.1
Bus Average Age	8.9	7.3	10.4	8.5
Miles per Road Call	18,357	10,990	12,302	13,854
Source: Division of Fleet Management June 2013 Fleet Monthly Report				

4.4.4.Missed Trips

A missed trip in public transportation normally means customers waiting an extended length of time for a bus. On some very high frequency routes this may be a minor inconvenience, however for most transit services with frequencies of 15 minutes or longer a missed trip means many delayed or unserved customers. At the very least, a missed trip results in a poor customer experience and ultimately lower ridership as customers find alternative transportation.

MCDOT and MCDGS have recognized an on-going problem with missed trips and routinely monitor and report missed trip information. Service interruptions and missed trip data are collected during the course of the service day by the central communications office. Transit vehicles are tracked and on-time performance is monitored using a GPS based real time management system. Each day dispatch logs noting missed trips by reported cause are compiled and distributed to operations and maintenance managers. Figure 4-3 shows Ride On's central communications control center.

Figure 4-3: Ride On Central Communications

An analysis of the June 2013 dispatch logs (Table 4-10) was completed to gain understanding of the extent and cause of the missed trips.

Table 4-10: Ride On June 2013 Missed Trips

	# Events	#Trips	Percent
Trips Operated		116,725	99.5%
Trips Missed by Type			
Accident	61	16	.01%
Mechanical	399	136	.12%
No Bus Available	145	141	.12%
No Operator Available	163	158	.13%
Other (farebox and operator error)	236	35	.03%
Passenger Incident	50	7	.01%
Traffic / Detour / Weather	94	36	.03%
Total Trips Scheduled		117,254	100%

During June 2013 there were 117,254 schedule trips. 529 of these scheduled trips were missed (.5% of all trips). There are three causes of missed trips including mechanical, no bus available and no bus operator available that can be minimized through management action such as investment in maintenance facilities, staffing, and vehicles.

5. MAINTENANCE FACILITIES

Transit vehicles are maintained at two County-owned facilities, Brookville and EMTOC, and Nicholson Court, the leased facility. Figure 5-1 shows the maintenance facility locations and Table 5-1 presents the maintenance spaces inventory. The three facilities are also described below.

Figure 5-1: Ride On Bus Maintenance Facilities

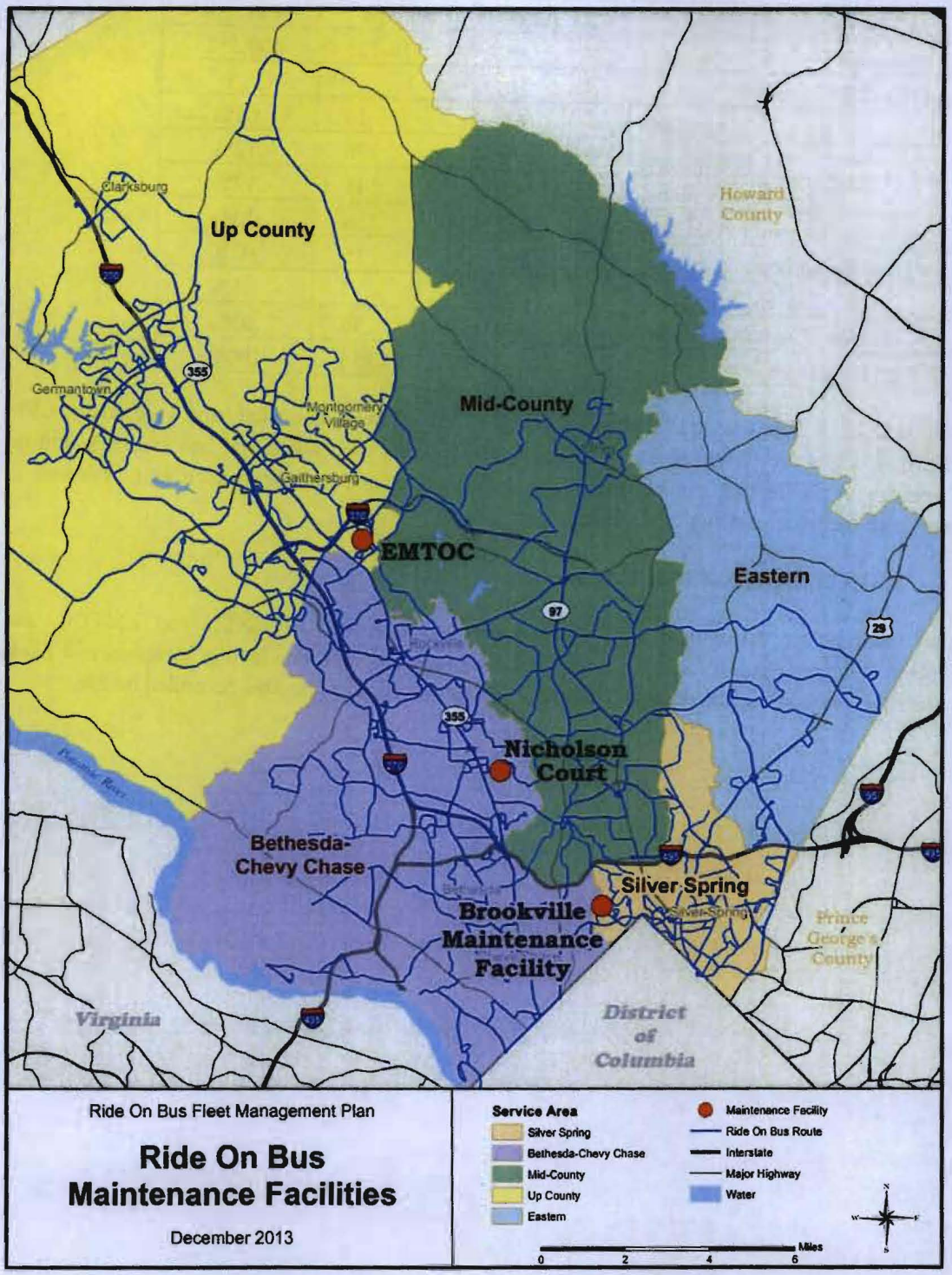


Table 5-1: Maintenance Spaces Inventory

Ride On Maintenance Spaces Inventory	Garage		
Area Type	**Brookville**	**Nicholson**	**EMTOC**
30' Bay with Mobile Column Lifts		4	
40' Bay with Mobile Column Lifts	9		6
40' Bay with Post Lifts			6
40' Bay with Service Pit			3
60' Bay with Post Lifts			1
60' Bay with Service Pit			1
Chassis Wash	1		1
Service Lane with Fuel without Wash	1		1
Service Lane with Fuel and Bus Wash	1	exterior	2
Fuel Island		1	
Parts Storage (square footage)	4000	1000	8000
Tire Storage	150 tires	40 tires	150 tires
Metal Fabrication Shop	1		1
Electronic / Farebox Shop	1	1	1
Maintenance Offices (square footage)	600	350	450
Maintenance Locker Rooms	400	250	2474
Buses Assigned	137	65	133
Operating Bus Parking	150	65	200
Dead Bus Storage	0	0	48

5.1 Brookville Maintenance Facility

The Brookville Maintenance Facility operates in a converted County owned warehouse at the end of Brookville Road. The facility is well located in Silver Spring and is critical for bus operations in the south eastern portion of the County. The 9 repair bay garage (Figure 5-3) can support a fleet size of 150 buses. The facility was not constructed as a transit operations and maintenance facility (see site plan – Figure 5-2) and is located on a steep slope with an average grade of more than five percent. Although some portions of the building have been renovated most of the building is in need of improvement. The bus maintenance bays (Figure 5-4) and bus service lane (Figure 5-6) are dark and poorly organized. The facility has a paint booth (Figure 5-7), body and metal shop and steam bay.

Figure 5-2: Brookville Maintenance Facility Site Plan

Along with the facility condition, two serious problems exist at the facility. The steeply sloped bus parking area drains into Rock Creek and the bus operator parking area is located approximately 1,000 feet from the driver's room. The grade of this site is steeper than desirable for a transit operations and maintenance facilities. In recent years there have also been noise complaints from the adjacent Coquelin Run Citizen's Association. Current plans for MTA's Purple Line Light Rail Project would have the bus operators' parking lot taken by the Lyttonsville light rail yard. A future parking deck proposed over the light rail yard would accommodate the Ride On employee parking. Interim parking facilities have not been identified.

While MCDOT and MCDGS have identified a need for Brookville Maintenance Facility improvements, there are no current plans for facility renovation or relocation.

Figure 5-3: Brookville Garage

Figure 5-4: Brookville Maintenance Bays

Figure 5-5: Brookville Operators Report Facility

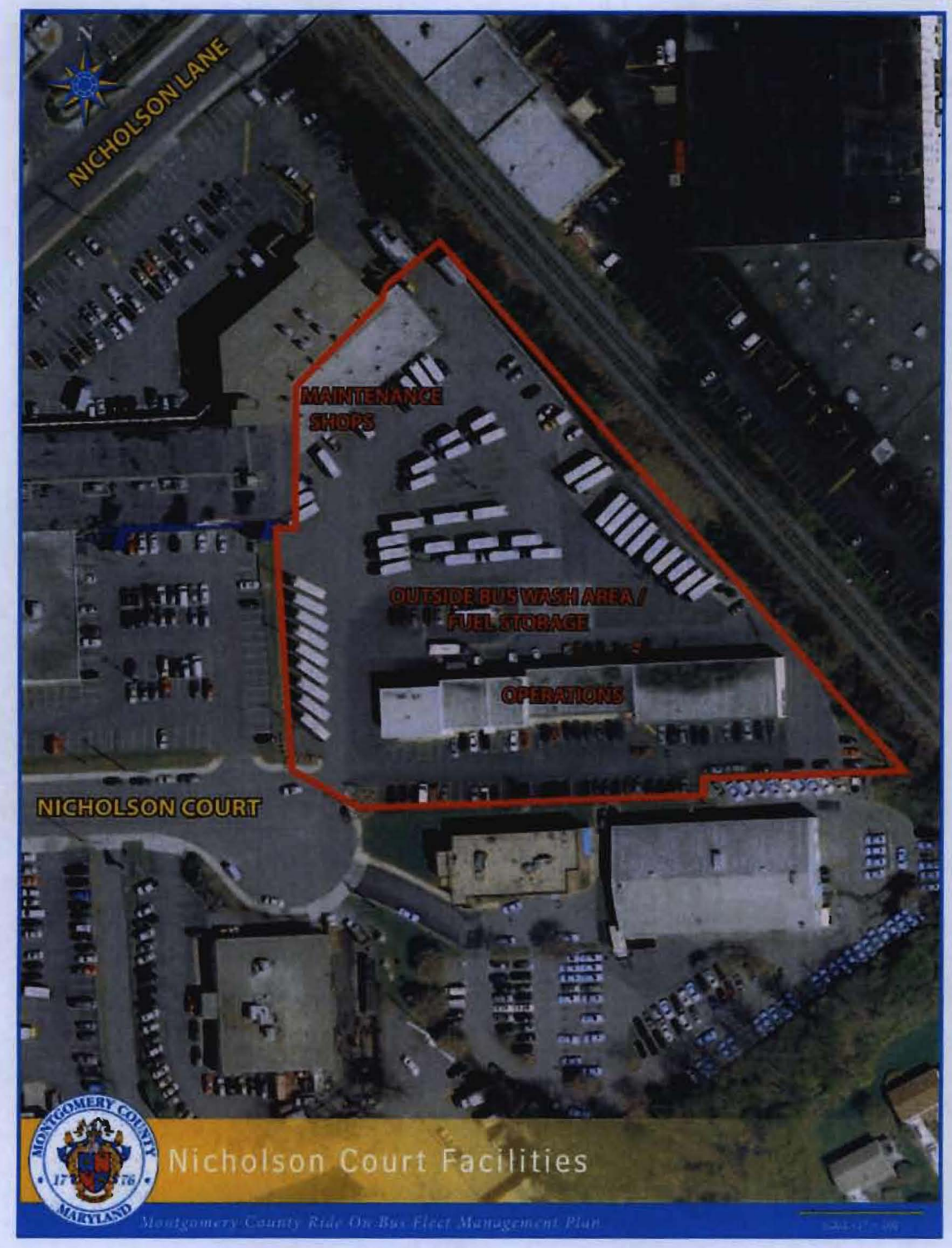
Figure 5-6: Brookville Bus Wash

Figure 5-7: Brookville Paint Booth

5.2 Nicholson Court

The Nicholson Court facilities were initially leased by a private contractor operating some Ride On routes. In 2007 the County entered into a five year lease agreement for the facility with three - five year renewals at the County's discretion. The County exercised the first option to continue the lease in 2012 and the current lease option expires as of May 2017. The lease, property taxes and operating costs of the Nicholson Court facility exceed $900,000 annually. Figure 5-8 shows the current site.

Figure 5-8: Nicholson Court Site Plan



The Nicholson Court facility has an operations office, four bus maintenance bays (Figure 5-10) and parking for approximately 65 buses. There is limited room for bus parts and storage (Figure 5-11). In the center of the bus parking area is an above ground fuel storage tank and dispensers (Figure 5-9). An outside bus wash area has been constructed on the site to permit bus cleaning by contractors.

The current lease agreement permits the County to only operate 30 foot buses from the site. The facility is well located for small buses required on routes in Bethesda and Silver Springs. However, Germantown routes requiring small buses have considerable deadhead mileage which contributes to non-revenue operating cost.

At this time it appears that Ride On will need to identify options to replace the current operations and maintenance space at this location. The Nicholson Court Facility is within the White Flint redevelopment.

Figure 5-9: Nicholson Fuel Tank, Bus Parking and Outside Bus Wash Area

Figure 5-10: Nicholson Maintenance Bay

Figure 5-11: Nicholson Parts Storage

5.3 EMTOC

The David F. Bone Equipment Maintenance and Transit Operating Center (EMTOC) (Figure 5-12) opened in October 2013. It is a collection of 12 buildings serving the MCDOT's divisions of Transit Services and Highway Services and the MCDGS's Division of Fleet Management. The onsite facilities (see site plan Figure 5-13) include administrative buildings; parking for 200 buses; bus service lanes; bus wash facility; fare collection area; bus service maintenance bays; parts room; heavy equipment storage shed; soil/gravel storage area; salt barn; Highway Services bays; compressed natural gas fast-fill, gasoline and diesel fueling stations; and employee and visitor parking.

Figure 5-12: Equipment Maintenance and Transit Operating Center (EMTOC)

The facility has 6 repair bays with in-ground lifts (Figure 5-14), 3 preventive maintenance bays with pits (Figure 5-15) and 6 flat repair bays with portable lifts. In addition to the 15 repair bays for regular transit buses there are two bays that can handle articulated buses. The 200 bus parking area is under a parking deck. The facility also offers improved accommodations for drivers and parts storage.

The EMTOC project was prompted by the County's Smart Growth Initiative to relocate old and overcrowded County government facilities in order to make way for a sustainable, transit-oriented community near the Shady Grove Metro Station. The cost of the new facility, including the transit and other County functions, was budgeted in FY 2010 at $134 million. These funds are provided from Montgomery County G.O. Bonds and the sale of County properties near the Shady Grove Metro Station. No federal or state funds were used in the construction of the EMTOC.

Figure 5-13: EMTOC Site Plan

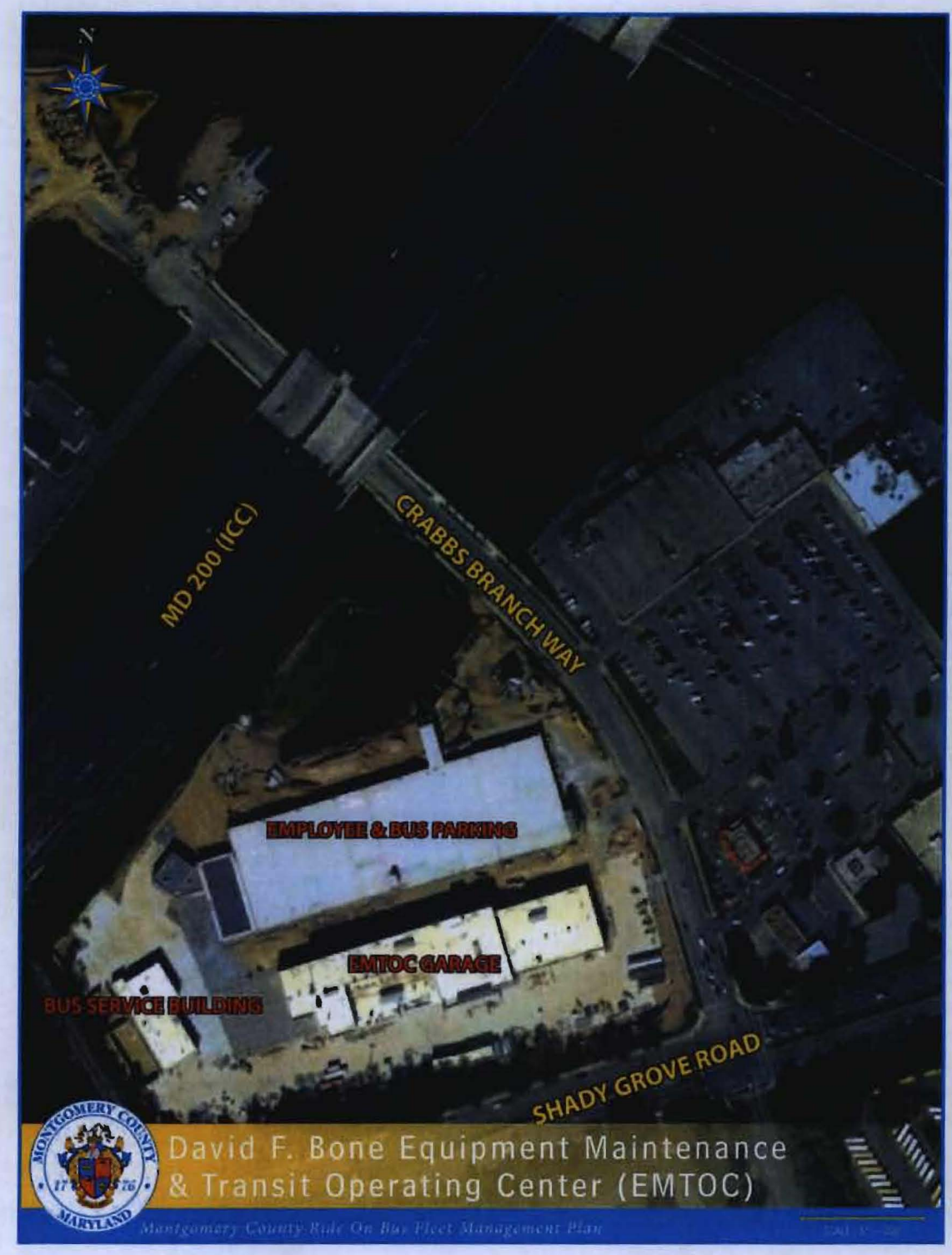
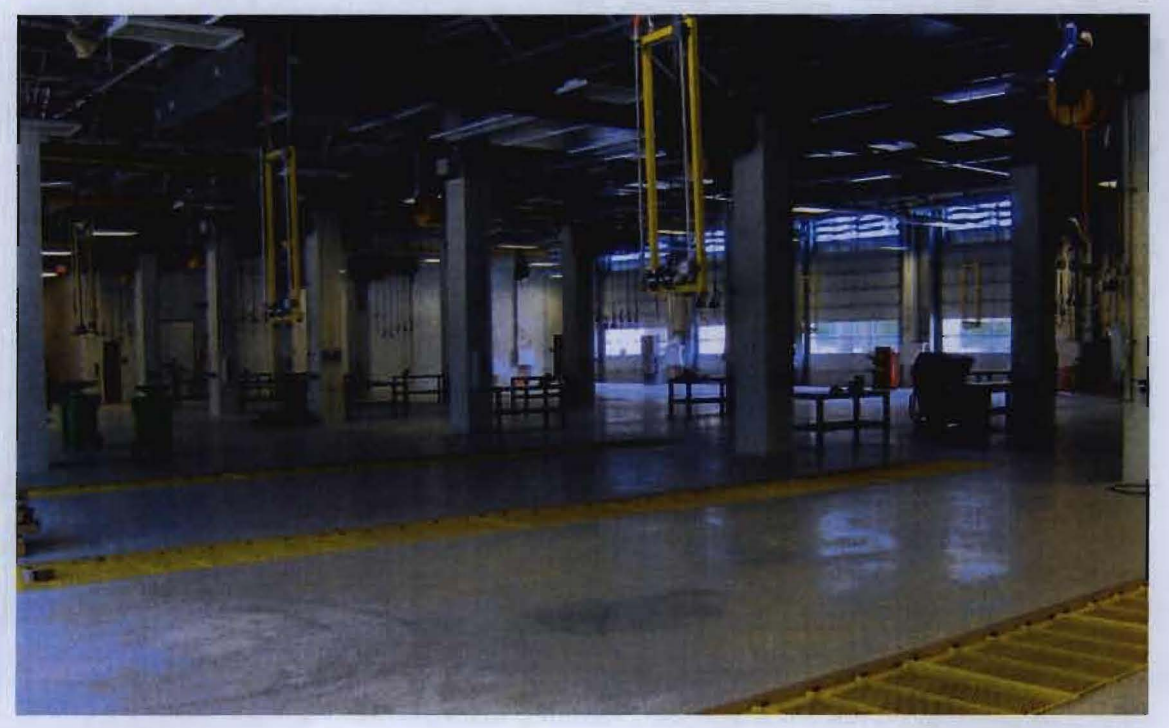


Figure 5-14: EMTOC Bus Repair Bays with In-ground Rotary Lifts

Figure 5-15: EMTOC Preventive Maintenance Repair Bays with In-ground Pits



6. PEER REVIEW

Ride On has been compared to systems in the Washington, DC area and the peer systems listed in Table 6-1. Using data from the National Transit Database peer systems were chosen based on similarity in size and operating environment. In the 2012 comparisons that follow, information for Ride On and the Washington, DC area systems is shaded and the peer systems are not.

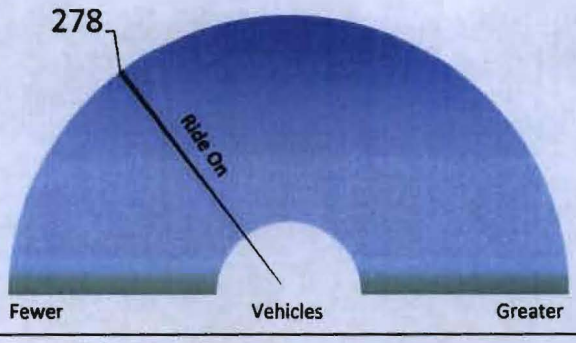
Table 6-1: Peer Systems

Washington, DC Area Systems	Peer Systems
MTA Core Bus Service – Baltimore, MD	Greater Richmond Transit Company (GRTC) , Richmond, VA
Metro Bus – Washington, DC	DART First State, Wilmington, DE
Fairfax Connector, Fairfax, VA	Broward County Transit, Fort Lauderdale, FL
The Bus, Prince George's County	Charlotte Area Transit System (CATS), Charlotte, NC

6.1 System Size

Data on revenue vehicle hours and vehicles operated in maximum service (VOMS) are used to compare the relative size of Ride On with other transit systems. Figure 6-1 puts Ride On in context with the Peers according to VOMS.

Figure 6-1: Vehicles Operated in Maximum Service

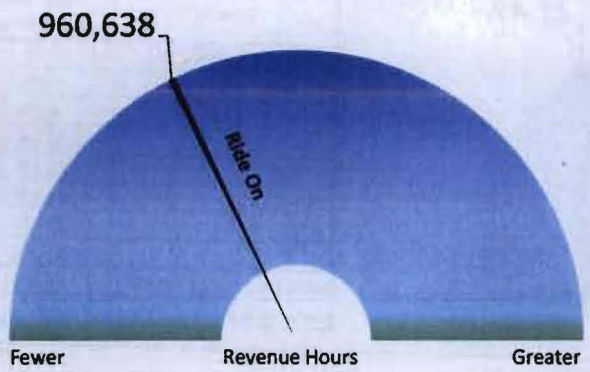


System	VOMS
The Bus	71
GRTC	135
DART First State	172
Fairfax Connector	188
Broward County Transit	253
CATS	258
Ride On	278
MTA Core Bus Service	599
Metro Bus, DC	1,281

Source: National Transit Database - 2012

Figure 6-2 puts Ride On in context with peers according to revenue vehicle hours. Ride On operates forty percent more vehicle hours than the Fairfax Connector but considerably less than Metro Bus.

Figure 6-2: Revenue Vehicle Hours

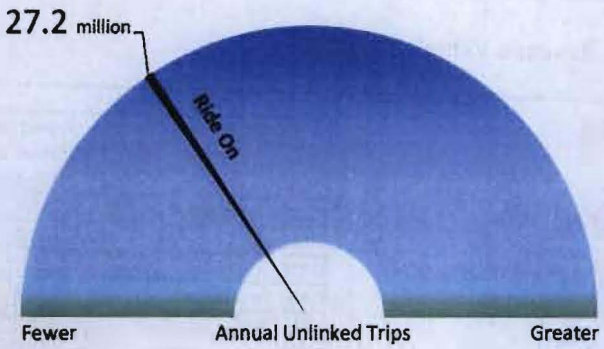


System	Revenue Vehicle Hours
The Bus	205,812
GRTC	397,288
Dart First State	410,487
Fairfax Connector	583,876
CATS	789,217
Ride On	**960,638**
Broward County Transit	985,598
MTA Core Bus Service	1,750,948
Metro Bus, DC	3,714,074
Source: National Transit Database - 2012	

6.2 Service Effectiveness

Data on unlinked passenger trips and farebox recovery ratio are used to compare service effectiveness. Figure 6-3 compares Ride On which provided 27.2 million unlinked passenger trips to the other systems.

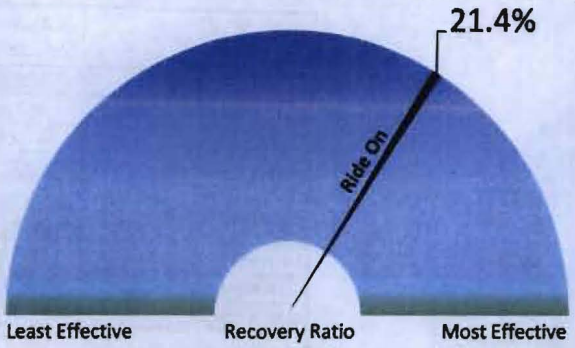
Figure 6-3: Annual Unlinked Passenger Trips



System	Unlinked Passenger Trips (in millions)
The Bus	4.1
GRTC	9.4
DART First State	10.3
Fairfax Connector	10.9
CATS	22.8
Ride On	**27.2**
Broward County Transit	37.8
MTA Core Bus Service	73.5
Metro Bus, DC	130.9
Source: National Transit Database - 2012	

The recovery ratio measures the share of the transit service operating expenses paid by passenger fares. As shown in Figure 6-4 Ride On recovered 21.4 percent from the farebox.

Figure 6-4: Farebox Recovery Ratio

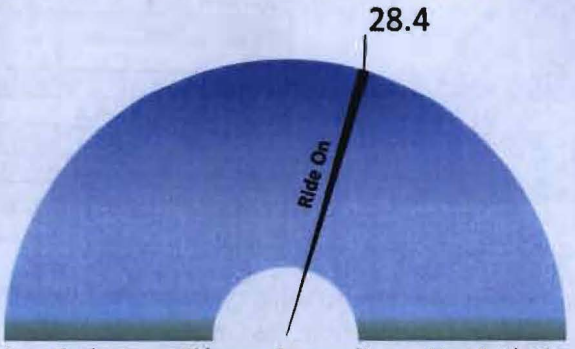


System	Farebox Recovery Ratio
Fairfax Connector	8.4%
The Bus	8.5%
DART First State	14.6%
MTA Core Bus Service	20.2%
Ride On	21.4%
Metro Bus, DC	24.4%
CATS	25.2%
GRTC	26.7%
Broward County Transit	33.9%
Source: National Transit Database - 2012	

6.3 Productivity

Unlinked passenger trips (riders) per revenue vehicle hour (Figure 6-5) are a key indicator of transit service productivity. The service design and transit market characteristics are important considerations for such a comparison. In the Washington, DC metropolitan area, Metro Bus primarily serves heavily traveled regional bus routes while the Fairfax Connector, The Bus and Ride On provide neighborhood service and rail station feeder routes. Consequently it is not surprising that Metro Bus carries more unlinked passenger trips per revenue vehicle hour than the suburban transit services. Considering its service design with a high number of neighborhood oriented routes, Ride On has a high number of unlinked passenger trips per revenue vehicle hour.

Figure 6-5: Unlinked Passenger Trips per Revenue Vehicle Hour



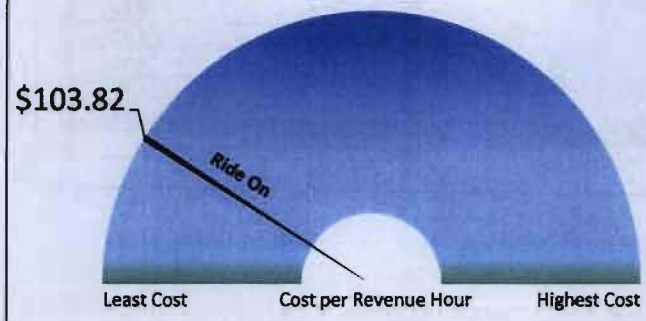
System	Unlinked Trips per Revenue Hour
Fairfax Connector	18.7
The Bus	20.0
GRTC	23.5
DART First State	25.1
Ride On	28.4
CATS	29.0
Metro Bus	35.2
Broward County Transit	38.4
MTA Core Bus Service	42.0
Source: National Transit Database - 2012	

6.4 Cost Effectiveness

Three indicators are used to compare cost effectiveness; operating cost per revenue vehicle hour, maintenance expense per vehicle mile, and net cost per unlinked passenger trip.

Figure 6-6 shows where Ride On Operating costs per revenue vehicle hour fall relative to the peer systems. Ride On operating cost per revenue vehicle hour were $103.82 which compares favorably to Metro Bus ($147.94) and MTA Core Bus service ($169.84.) Ride On's operating cost per revenue vehicle hour was slightly higher than Prince George's County's privately operated The Bus.

Figure 6-6: Operating Cost per Revenue Vehicle Hour



System	Cost per Revenue Hour
GRTC	$96.75
Broward County Transit	$98.52
CATS	$100.09
The Bus	$102.72
Ride On	**$103.82**
Fairfax Connector	$116.32
DART First State	$116.96
Metro Bus, DC	$147.94
MTA Core Bus Service	$169.84
Source: National Transit Database - 2012	

Ride On's maintenance expenses for FY 12 were impacted by the unsuitable Champion buses. Even with the additional maintenance expenses attributed to the Champion vehicles, Ride On's maintenance expenses per vehicle mile (Figure 6-7) were considerably less than Metro Bus or MTA Core Bus Service.

Figure 6-7: Maintenance Expenses per Vehicle Mile

System	Maintenance Expense per Mile
Broward County Transit	$1.10
GRTC	$1.25
The Bus	$1.37
DART First State	$1.50
CATS	$1.68
Ride On	**$1.70**
Fairfax Connector	$1.75
Metro Bus, DC	$2.83
MTA Core Bus Service	$2.56
Source: National Transit Database - 2012	

Net operating cost per unlinked passenger trip is defined as the amount of public funds spent on average for each unlinked passenger trip. Figure 6-8, compares Ride On to the other systems and indicates that only Broward County Transit and CATS have a lower net operating cost per unlinked passenger trip.

Figure 6-8: Net Operating Cost per Unlinked Passenger Trip

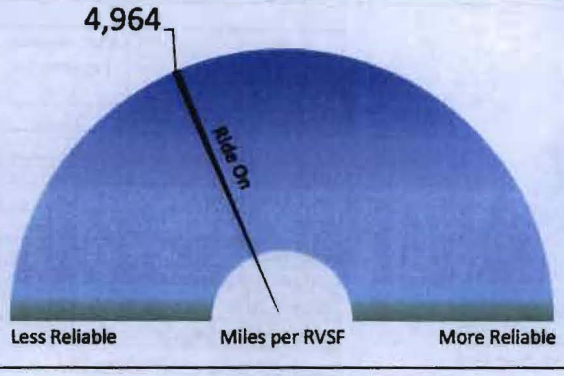
System	Net Cost per Unlinked Trip
Broward County Transit	$1.70
CATS	$2.58
Ride On	**$2.88**
GRTC	$3.01
Metro Bus, DC	$3.17
MTA Core Bus Service	$3.22
DART First State	$3.98
The Bus	$4.72
Fairfax Connector	$5.71

Source: National Transit Database - 2012

6.5 Maintenance Reliability

Local transit operations typically experience one maintenance failure every 4,000 to 15,000 vehicle miles operated. Reporting practices vary by system and only those systems generally falling in the normal industry range have been used for this comparison. Figure 6-9 shows where Ride On falls comparatively to the peer systems that are in the "normal range" During the FY 12 reporting period there were reliability problems with the Champion buses. With delivery of new buses during FY 14 and FY 15, the reliability of the Ride On fleet is expected to improve.

Figure 6-9: Vehicle Miles per Revenue Vehicle System Failure



System	Vehicle Miles per RVSF
GRTC	4,096
Ride On	**4,964**
DART First State	5,403
Metro Bus, DC	7,378
MTA Core Bus Service	7,930

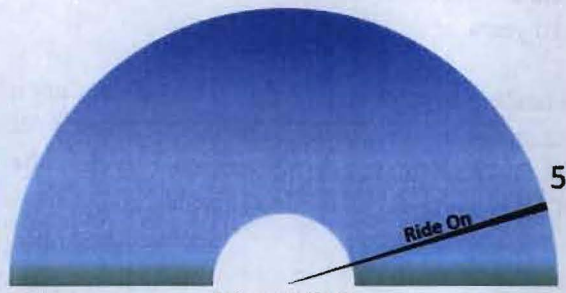
Source: National Transit Database - 2012

6.6 Vehicle Usage

Annual vehicle miles per vehicle operated in maximum service is an indicator of the intensity of vehicle use. As shown in Figure 6-10, Ride On operates vehicles more intensively than most of the peer systems. Transit vehicle maintenance activities are typically mileage based with preventive maintenance inspection every 6,000 miles. More annual miles operated per vehicle results in the

need for additional maintenance inspections, which in turn requires more mechanics and maintenance facilities. High annual vehicle mileage wears vehicles out more quickly.

Figure 6-10: Annual Vehicle Miles Operated per Vehicle Operated in Maximum Service

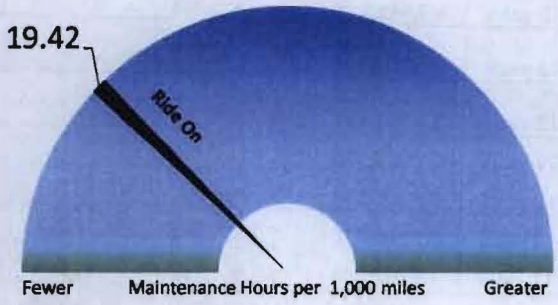


System	Vehicle Miles per VOMS
MTA Core Bus Service	35,995
DART First State	38,009
GRTC	38,380
Metro Bus, DC	38,960
The Bus	46,178
CATS	48,551
Fairfax Connector	50,488
Ride On	50,531
Broward County Transit	60,900
Source: National Transit Database - 2012	

6.7 Maintenance Staffing

A comparison of maintenance labor hours per 1,000 vehicle miles facilitates the review of maintenance staffing among different sized transit systems. As reported to the National Transit Database, maintenance labor hours include only in-house staff. Because Ride On is one of very few transit systems to use contractors to fuel and clean buses, Ride On's FY 12 maintenance labor hours have been increased to include service lane contract labor.

The number of maintenance hours per 1,000 per vehicle miles is an indicator of maintenance staffing.



System	Maintenance Hours per 1,000 vehicle miles
GRTC	16.94
Ride On	19.42
DART First State	22.14
Broward County Transit	22.37
CATS	25.34
MTA Core Bus Service	33.87
WMATA – Metro Bus	35.07
Source: National Transit Database - 2012	

7. FLEET ACQUISITION

Transit fleets are typically procured with a combination of federal, state and local funds. The FTA grants generally permit federal participation up to 80 percent of the cost of buses. Buses procured with federal funding are subject to minimum service life requirements. Full sized buses (35 to 40 foot long) typically have a service life of 12 years. Smaller buses such as the 30 foot buses operated by Ride On have a normal service life of 7 to 10 years.

Table 7-1 lists the existing Ride On fleet and funding sources since 2001. The list does not include the temporary replacement buses that were purchased by the County. The bus fleet had a delivered cost of $105 million with Montgomery County contributing $55.8 million (52.9%), the State contributing $15.3 million (14.5%) and the FTA providing $34.4 million (32.6%).

Table 7-1: Ride On Existing Fleet Procurement

Bus Model Year	Bus Manufacturer	Size/Type	# Buses	Useful Life	Total Cost	Federal	State	Local
2001	Orion	35' CNG	43	12 years	$11,956,074	$ 8,652,960	$ 270,405	$ 3,032,709
2003	Orion	35' CNG	33	12 years	$ 9,645,833	$ 1,457,921	$ 3,636,020	$ 4,551,892
2005	New Flyer	40' CNG	15	12 years	$ 5,213,325	$ 2,133,881	$ 1,583,961	$ 1,495,486
2005	Orion	35' CNG	24	12 years	$ 7,898,982	$ 2,030,170	$ 5,361,246	$ 507,566
2007	Champion	25' Diesel	50	7 years	$ 8,773,950	$ -	$ 2,807,664	$ 5,966,286
2007	Champion	25' Gas	12	7 years	$ 1,388,772	$ -	$ -	$ 1,388,772
2006	Gillig	40' Hybrid	14	12 years	$ 6,856,989	$ -	$ -	$ 6,856,989
2008	Gillig	40' Diesel	21	12 years	$ 6,671,964	$ 2,433,822	$ 593,889	$ 3,644,253
2008	Gillig	30' Diesel	6	10 years	$ 1,817,148	$ 971,779	$ 602,424	$ 242,945
2009	Gillig	30' Diesel	25	10 years	$ 7,948,275	$ 485,888	$ -	$ 7,462,387
2009	Gillig	40' Hybrid	35	12 years	$18,114,180	$ -	$ -	$18,114,180
2009	Gillig	40' Diesel	11	12 years	$ 3,701,444	$ 2,858,537	$ -	$ 842,907
2011	Gillig	40' Diesel	1	12 years	$ 353,038	$ 353,038	$ -	$ -
2011	Gillig	40' Hybrid	12	12 years	$ 6,255,144	$ 6,196,962	$ -	$ 58,182
2012	Gillig	40' Hybrid	7	12 years	$ 3,660,510	$ 2,858,537	$ -	$ 801,973
2013	Gillig	40' Diesel	12	12 years	$ 5,220,774	$ 3,961,272	$ 413,997	$ 845,477
				Fleet Total	$105,476,402	$34,394,767	$15,269,606	$55,812,004
				Participation Percentage		32.6%	14.5%	52.9%

Table 7-2 lists the replacement schedule for the existing Ride On fleet while Table 7-3 presents the projected capital cost of the different types of buses used by Ride On. The change in bus unit costs assumes an annual three percent inflation.

Table 7-2: Ride On Bus Replacement Schedule – As of June 2013

Model Year	Bus Manufacturer	Size/Type	#'s	# Buses	Average Mileage	In Service Date	Useful Life	Eligible for Retirement	2013	2014	2015	2016	2017	2018	2019	2020
1997	Orion	30' Diesel	5100- 5129	30	490874	8/1/2012	10 years	2007	30	0						
1999	Gilig	35' Diesel	5410 – 5423	12	595433	7/1/1999	12 years	2011	12	0						
1999	Orion	40' Diesel	5705 – 5725	19	550744	10/1/1999	12 years	2011	19	4						
1999	Orion	40' CNG	5803 – 5821	19	522016	3/1/2000	12 years	2012	19	0						
2001	Orion	35' CNG	5580 – 5623	43	452022	3/15/2002	12 years	2014	43	43	23	0				
2003	Orion	35' CNG	5901 – 5932	33	481299	7/26/2004	12 years	2016	33	33	33	23	0			
2004	Mid Bus	28' Diesel	5232 – 5246	15	313111	9/24/2011	7 years	2011	15	0						
2005	New Flyer	40' CNG	5822 – 5836	15	400909	12/9/2005	12 years	2018	15	15	15	15	15	0		
2005	Orion	35' CNG	5933 – 5957	24	426219	6/28/2006	12 years	2018	24	24	23	23	23	23	0	
2006	Gillig	40'Hybrid	5301 – 5313	14	214796	6/1/2007	12 years	2019	14	14	14	14	14	14	9	9
2008	Gillig	40' Diesel	5726 – 5746	21	248114	12/11/2008	12 years	2020	21	21	21	21	21	21	21	21
2008	Gillig	30' Diesel	5001 -5006	6	230392	11/17/2008	10 years	2018	6	6	6	6	6	6	6	6
2009	Gillig	30' Diesel	5007 – 5031	25	196670	10/1/2009	10 years	2020	25	25	25	25	25	25	25	25
2009	Gillig	40'Hybrid	5314 – 5348	35	175187	9/3/2009	12 years	2021	35	35	35	35	35	35	35	35
2009	Gillig	40' Diesel	5747 – 5757	11	195476	8/17/2009	12 years	2021	11	11	11	11	11	11	11	11
2011	Gillig	40' Diesel	5758	1	79554	10/31/2011	12 years	2023	1	1	1	1	1	1	1	1
2011	Gillig	40'Hybrid	5349 – 5360	12	78313	10/31/2011	12 years	2023	12	12	12	12	12	12	12	12
2012	Gillig	40'Hybrid	5361 – 5367	7	47853	6/25/2012	12 years	2024	7	7	7	7	7	7	7	7
2013	Gillig	40' Diesel	5759 – 5770	12			12 years	2025		12	12	12	12	12	12	12
2013	Gillig	30' Diesel	Replacement	28			10 years	2023		28	28	28	28	28	28	28
2014	Gillig	40' CNG	Replacement	19			12 years	2026		19	19	19	19	19	19	19
2014	Gillig	30'Diesel	Replacement	32			10 years	2024		32	32	32	32	32	32	32
2015	TBD	40'Diesel	Replacement	24			12 years	2027			24	24	24	24	24	24
2015	TBD	40' CNG	Replacement	1			12 years	2027			1	1	1	1	1	1
2016	TBD	40' CNG	Replacement	23			12 years	2028				23	23	23	23	23
2016	TBD	40' Diesel	Replacement	10			12 years	2028				10	10	10	10	10
2017	TBD	40'CNG	Replacement	23			12 years	2029					23	23	23	23
2018	TBD	40'CNG	Replacement	15			12 years	2030						15	15	15
2019	TBD	40'CNG	Replacement	23			12 years	2031							23	23
2019	TBD	40'Hybrid	Replacement	5			12 years	2031							5	5
Total Buses									342	342	342	342	342	342	342	342
Peak Vehicle Requirement									281	281	281	281	281	281	281	281
Training Buses									5	5	5	5	5	5	5	5
Spare Vehicles									56	56	56	56	56	56	56	56
Spare Ratio - *Fixed Route Bus Fleet*									20%	20%	20%	20%	20%	20%	20%	20%
Fixed Route Buses Average Age									8.84	6.01	5.97	5.58	5.64	6.07	5.94	6.94

Table 7-3: Projected Capital Cost per Bus by Fiscal Year

Unit costs	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20
40' CNG	$553,521	$570,127	$587,230	$604,847	$622,993	$641,683
40' Diesel	$461,557	$475,404	$489,666	$504,356	$519,486	$535,071
40' Hybrid	$589,477	$607,161	$625,376	$644,137	$663,462	$683,365
30' Diesel	$443,023	$456,314	$470,003	$484,103	$498,626	$513,585
60' Artic	$850,000	$875,500	$901,765	$928,818	$956,682	$985,383
Delivery cost / bus	$4,290	$4,290	$4,290	$4,290	$4,290	$4,290

The future year peak vehicle requirements and need for expansion buses is described in Table 3-10. There are four areas where expansion buses are needed: new routes that have been identified for underserved areas; high productivity routes where significant peak period overcrowding exists; a general increase in service for population and employment growth; and, for implementation of the express limited stop service along MD 355. Table 7-4 presents the recommendations for procurement of expansion buses over the plan period.

Table 7-4: Recommended Buses by Type of Expansion and Fiscal Year of Delivery

Type of Expansion	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	Total
New routes for underserved areas			8	4	12		24
Overcrowding relief		5	10	10	6		31
Population and Employment Growth			6	10	7	7	34
Express limited stop service						14	14
Total Expansion Fleet		**5**	**24**	**24**	**25**	**21**	**99**
Total Ride On Fleet	**342**	**347**	**371**	**395**	**420**	**441**	

The size of the bus and fuel type are also important considerations in the development of the bus procurement plan. As shown in Table 7-5 each garage has certain capacity and fuel type restrictions that limit bus utilization.

Table 7-5: Existing Facility Capacity, Bus Size and Fuel Type

Facility	Fleet Capacity	Bus Size			Bus Fuel	
		30 foot	40 foot	60 foot	Diesel	CNG
Brookwood, Silver Spring	155 buses	Yes	Yes	No	Yes	No
Nicholson Court, White Flint	67 buses	Yes	No	No	Yes	No
EMTOC, Gaithersburg	200 buses	Yes	Yes	Yes	Yes	Yes
Total	422 buses					

Utilizing the bus replacement schedule, the bus expansion table, the existing facility capacities by bus size and fuel type, and the bus unit cost estimates, Table 7-6 presents the Ride On proposed bus procurement schedule.

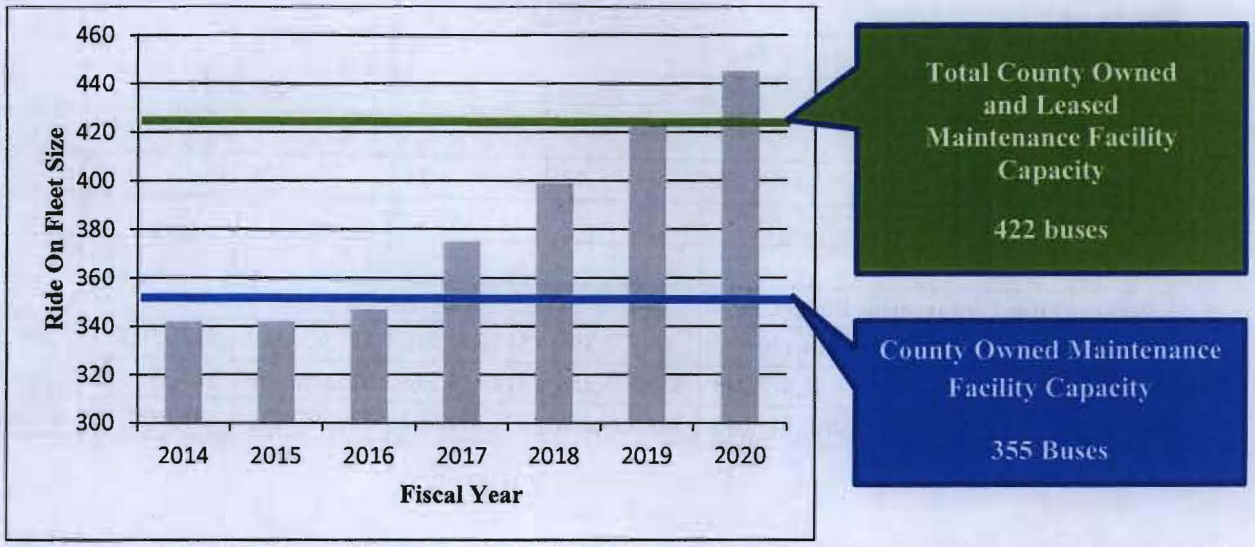
Table 7-6: Proposed Ride On Bus Procurement Schedule

Bus Type	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	Total
Replacement Buses							
40' CNG	10	23	15	23			71
40' Diesel	21	2				32	55
40' Hybrid				5	9		14
30' Diesel					31		31
Expansion Buses							
40' CNG		5	13	24	25	7	74
40' Diesel			11				11
60' Artic						14	14
Proposed Bus Procurement Budget							
Replacement	$15,360,897	$14,170,970	$8,872,806	$17,252,296	$21,600,169	$17,259,554	$94,516,692
Expansion		$2,872,083	$13,123,280	$14,619,296	$15,682,069	$18,377,229	$64,673,957
Total	$15,360,897	$17,043,053	$21,996,086	$31,871,592	$37,282,238	$35,636,782	$159,190,650

8. FUTURE FACILITY NEEDS

Maintenance facility capacity is a constraint to the growth of the Ride On service. As shown in Figure 8-1, the two facilities that are owned by the County (Brookville and EMTOC) have a capacity of 355 buses. With the use of the leased Nicholson facility in the While Flint area, the County has a total transit maintenance facility capacity of 422 buses. With the planned fleet expansion, maintenance facility capacity will be exceeded by 2020.

Figure 8-1: Ride On Fleet Size and Maintenance Facility Capacity



Since 2007, with the initiation of the North County Maintenance Depot Study, Montgomery County has recognized the need for additional transit maintenance capacity. The North County Maintenance Depot was proposed to have an initial capacity of 150 buses with a full build out of 250 buses. That facility along with the new EMTOC would have provided transit maintenance capacity for 605 buses which would allow for continued transit service growth through 2030. However, the development of the North County Maintenance facility has been deferred in order to preserve the Ten Mile Creek watershed. As noted previously, the leased Nicholson Court maintenance facility is restricted in its use and is a part of the White Flint redevelopment area. Higher density development is planned for the White Flint area.

To provide for sufficient future transit maintenance capacity, two facility projects are recommended.

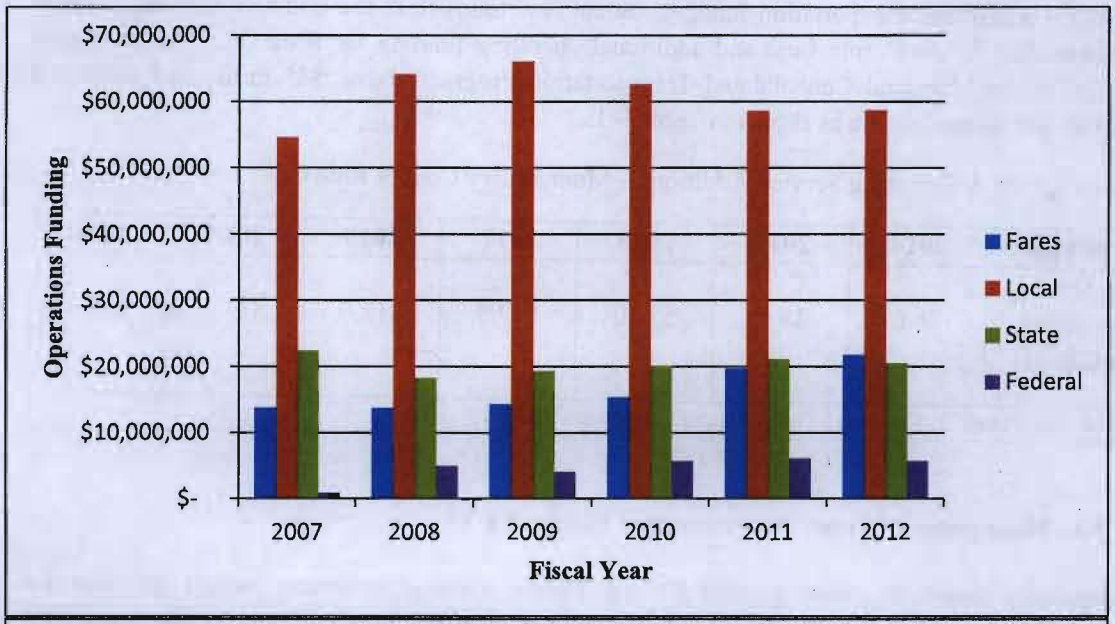
1. **Brookville Renovation** – The well located Brookville facility is in need of upgrades. A feasibility study should be should be undertaken in advance of the Purple Line light rail project to identify facility requirements and options for improvement.
2. **New Maintenance Facility** – A new bus maintenance facility with a capacity of 150 to 250 buses is needed by 2020. Such a facility would allow for the replacement of the Nicholson Court leased facility and planned system growth.

9. RIDE ON FINANCIAL INFORMATION

9.1. Operations Funding FY 07 to FY 12

Operating funds for Ride On comes from passenger revenues, state funds, federal funding for ADA services and preventative maintenance, and County funds. Figure 9-1 illustrates Ride On operating fund sources from FY 07 to FY 12.

Figure 9-1: Ride On Operations Funding FY 07 to FY 12



Source: National Transit Data Base – System Summaries - FY07 to FY12.

9.2. Passenger Revenues

Ride On bus fares have traditionally been set at the same levels as the WMATA fares. Since 2008 there have been four general fare increases:

- February 2008 - $1.25 to $1.35 with Smart Trip and $1.35 cash
- June 2010 - $1.35 to $1.50 with Smart Trip and $1.60 cash
- July 2012 - $1.50 to $1.60 with Smart Trip Card and $1.80 cash
- July 2014 - $1.60 to $1.75 with Smart Trip Card and $1.75 cash

As a result of these fare increases, annual passenger revenues have grown from $13.9 million in FY 07 to $21.8 million in FY 12. Annual passenger revenues are projected to reach $24.1 million in FY 15.

9.3. State and Federal Funding

The MTA is the FTA grantee for all of the transit services in the State. MTA balances the allocation of state and federal funding to address statewide needs. According to NTD reports, Ride On state funding has decreased from $22.5 million in FY 07 to $20.6 million in FY 12. Federal funding allocated for Ride On has normally been between $5 and $6 million per year. For FY 12 $5.7 million in federal funds were allocated.

During the spring of 2013, Maryland approved a transportation funding initiative to provide significant additional transportation funding. Some new funds from the initiative will be allocated to construction of the Purple Line and additional operating funding for Ride On. For the period 2014-2019, the Maryland Consolidated Transportation Program shows $85 million of additional Ride On operations funding as shown in Table 9-1.

Table 9-1: MTA Operating Service Additions – Montgomery County Ride On

Fiscal Year	2014	2015	2016	2017	2018	2019	Total
Ride On Operations (in millions)	$6.0	$8.0	$17.0	$17.5	$18.0	$18.5	$85.0
Source: Maryland Consolidated Transportation Program - 2014							

9.4. Montgomery County Recommended Budget FY 15

Montgomery County's Recommended FY 15 Transit Services operating budget provides for multiple programs including Ride On, Medicaid and Senior Programs, Commuter Services, and Taxi Regulation. Because of the additional programs, the total expenditures will be somewhat higher than the historical funding reported to the National Transit Database.

Hours of service, a primary indicator of the amount of transit service and future year expenditures has been estimated in the County operating budget. The estimate includes non-revenue trips and is projected to grow 1.1% in FY 15 and FY 16. For the purpose of estimating service levels this growth rate is forecast to continue through 2020. (Refer to Table 9-2).

Table 9-2: Ride On Hours Projected Service Hours – FY14 to FY20

	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20
Hours of Service	1,083,876	1,096,643	1,107,609	1,119,793	1,132,110	1,144,564	1,157,154
Source: Montgomery County Office of Management and Budget – County Executive's Recommended FY 15 Operating Budget							

Table 9-3 summarizes the FY15 Recommended Transit Services budget.

Table 9-3: Montgomery County Recommended FY15 Transit Services Budget

	Actual FY 13	Estimated FY 14	Recommended FY 15
Expenditures			
Personnel Costs	59,829,226	62,899,792	66,468,242
Operating Expenses	53,159,389	53,276,560	53,847,863
Total Transit Expenditures	**112,988,615**	**116,176,352**	**120,316,106**
Operating Revenues			
Passenger Fares	21,977,926	22,068,194	24,100,000
Other fees and charges	4,932,355	2,976,724	2,997,369
Total Operating Revenues	**26,910,281**	**25,044,918**	**27,097,369**
Net Operating Cost	**86,078,334**	**91,131,434**	**93,218,737**
State and County Funding			
State Aid	28,400,560	34,474,828	39,363,672
County Property Taxes	79,577,448	70,066,417	65,474,509
Total State and County Funding	**107,978,008**	**104,541,245**	**104,838,181**

Source: Montgomery County Office of Management and Budget – County Executive's Recommended FY 15 Operating Budget