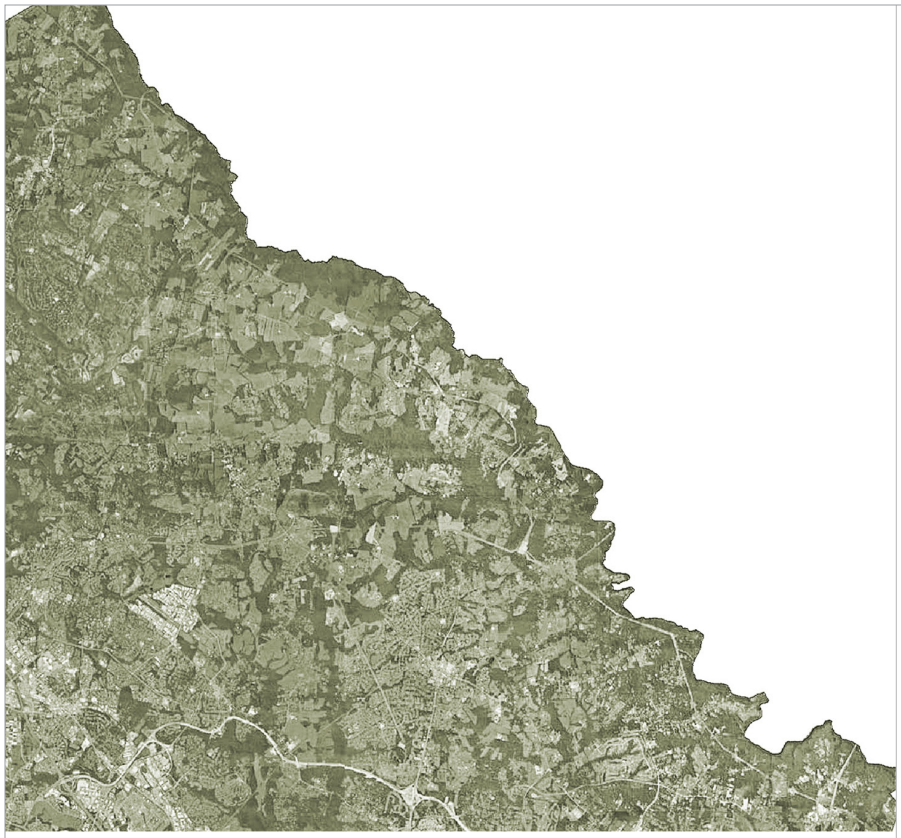
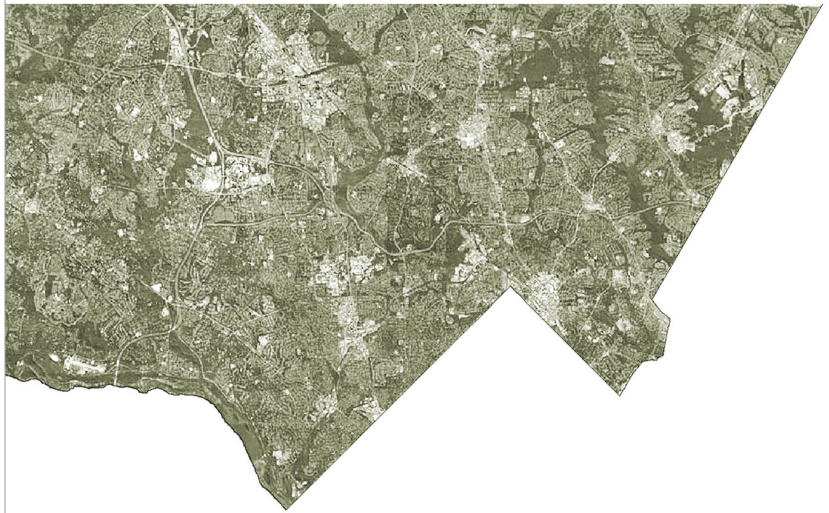


mobility assessment report

October 2011



montgomery county planning department
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Mobility Assessment Report

Abstract
This report documents how well the County is meeting its goals for mobility of cars, cyclists, pedestrians, and transit, by measuring and analyzing historical, current, and future traffic congestion data and trends.

Source of Copies
The Maryland-National Capital Park and Planning Commission
8787 Georgia Avenue
Silver Spring, MD 20910

Also available at www.MontgomeryPlanning.org/transportation

Staff Draft

mobility assessment report October 2011

Prepared by the Montgomery County Planning Department
October 2011

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Introduction

Montgomery County has an extensive road network coupled with a pattern of development that generally reflects suburban growth—lots of roads but not a lot of connectivity. While this pattern functioned reasonably well during the early stages of the County's development, as the suburbs expanded the shortcomings of a predominantly auto-oriented development pattern has become increasingly evident.

Traditionally, the reliance on cars as a primary mode of travel has directed much of the focus of attention toward discussions and analysis of traffic congestion rather than community building. However, recent planning efforts in the County also address the expansion of transportation options with a focus on achieving sustainable community development patterns. The information provided in this report is consistent with County policy to develop a network of roads, transit service, bike paths and sidewalks that serves all communities and users.

Staff continues to evaluate and monitor the performance of the County's road system. With this Mobility Assessment Report over 50 real-time travel time observations have been collected along priority corridors. These corridors—MD 355, MD 185, US 29 and MD 586—are characterized by travel conditions that reflect some of the County's highest Critical Lane Volumes (CLVs) and arterial traffic volumes. These new data, supplied by INRIX and provided by MWCOG, supplements the GPS-travel time datasets used in previous mobility reports.

The priority corridors were selected by transportation planning staff based on:

- degree of interest and visibility
- location and history of congested conditions
- relevance to future planning studies.

This report's INRIX travel time data is a stable and sustainable new dataset provided to the Planning Department by the Metropolitan Washington Council of Governments (MWCOG), from an existing contract with the I-95 Corridor Coalition. As more corridors are sampled, this dataset will become more robust, allowing the comparison of travel time trends along major routes throughout the County.

The County will be unable to build its way out of traffic congestion. In addition to selected roadway capacity improvements, sustainable strategies such as consolidating development near transit stations and expanding non-auto mode travel options will be needed to accommodate growth.

Staff has begun to shift the method used to identify intersection improvement priorities in the Capital Improvement Program (CIP). This report continues to rank intersection performance by CLV congestion to remain consistent with previous reports. In addition, intersections are also ranked by how much observed CLVs at these locations exceed policy area LATR standards. Future studies will determine intersection priorities based on this latter method.

Mobility reports published prior to 2009 focused almost exclusively on auto-related traffic conditions. The 2009 Highway Mobility Report incorporated bus and walk travel into the analysis, supported by an array of non-auto mode performance measures. However, compared to observed data for automobile travel, travel-related data for bicycling and walking is far more limited. As a result, no reliable conclusions can yet be drawn for these modes. These modes will continue to be monitored and referenced in future mobility reports.

Transit performance is determined by evaluating ridership trends over time. The data collected show that safety and climate conditions are paramount and directly correlate with ridership volumes. Without the usually severe snowstorms and associated poor safety conditions that occurred during the winter of the past year, Metrorail ridership levels may have continued to exhibit a steady annual increase despite the recent economic downturn.

Similar to the way in which intersection traffic count data collections have been prioritized to focus on congested corridors, **pedestrian counts** should be focused on intersections in the urban areas where pedestrian travel is significant. In addition to providing a more robust observed dataset, these counts would support the assessment of planning policies in the County's urban areas.

Highlights

Current mobility conditions in the County are generally comparable to conditions reported in the 2009 report. These conditions appear likely to remain relatively stable during the next few years. The Department will develop and integrate multimodal measures of effectiveness into future mobility assessment reports.

Also, if the Department continues to use CLVs to evaluate intersection performance, intersections should be ranked based the ratio of observed CLV to LATR CLV policy area standards, rather than simply the raw CLVs observed at these intersections. This method is consistent with County planning policies.

Arterial mobility is the ratio of average congested travel speed to the posted speed.

This report has identified the following key findings.

Total Vehicle Miles Traveled

- The Federal Highway Administration's National Vehicle-Miles of Travel (VMT) Trend Data indicate a national decline in annual travel in 2009, a slight increase from 2009 to 2010 and a modest decline from 2010 to 2011.
- 2010 VMT has also declined in Montgomery County, about one percent relative to 2009. However, this decrease is not as sharp as many other jurisdictions throughout the Country.

Intersections

- Nearly half of the sampled intersections approach or exceed Policy Area LATR CLV standards as stated in the County's LATR/PAMR Guidelines.
- Given that the first phase of the Intercounty Connector has only recently opened to traffic, it is too soon to determine the impact this facility has on local intersections in the vicinity of the highway. Future mobility reports will assess traffic congestion along arterials and major highways after the ICC is complete.

Roadways

- Of the roadways sampled during 2010, morning peak period traffic traveling southbound on US 29, from Howard County to University Boulevard (MD 193) exhibited the slowest travel time and the lowest arterial mobility. evening peak period traffic traveling eastbound on University Boulevard, between Georgia Avenue (MD 97) and New Hampshire Avenue (MD 650), exhibited the second lowest arterial mobility of the roadways sampled.
- MD 193, a major east-west route connecting Montgomery and Prince George's Counties, exhibited roughly comparable travel times in both directions during both the morning and afternoon peaks. This pattern contrasts with north-south arterials connecting Montgomery County to the District of Columbia, such as US 29 and MD 355, where travel in one direction dominates during the peak.
- Randolph Road has slower travel times and higher congestion traveling east to west during the morning peak relative to traffic traveling west to east during the evening peak. This pattern is generally consistent with observed traffic on the Capital Beltway.
- Most of the intersections that are performing near or above capacity are located in the area between the Intercounty Connector and the Capital Beltway, specifically in the Gaithersburg-Rockville area and along US 29.

Pedestrians

- Much of the observed pedestrian activity on the County's arterial roads is concentrated along roadways in communities that are well-served by bus transit, such as Takoma Park, Silver Spring, White Flint, Wheaton, Rockville, and Gaithersburg.

Bicyclists

- The Planning Department is building its bicycle database and has created a Bicycle Heat map, a tool that estimates potential demand for bike routes and bikeshare programs.

Ride On

- Montgomery County Ride On daily ridership in FY10 was reported at 87,990—a decline from 95,000 in FY08. Service reductions of five percent over the past two years have been identified as the main factor contributing to decreased ridership.

Metrobus

- The average daily FY10 Metrobus ridership in the County was 63,254, significantly lower than Ride On. This can be attributed to the relatively limited Metrobus route coverage in the County compared to the more extensive coverage provided by Ride On service.

Metrorail

- Generally, Metrorail ridership has remained relatively stable during the past two years. The five percent ridership decline reported during FY10 is partly attributed to the February 2010 blizzard.
- Shady Grove Metro Station, a terminal station almost exclusively serving commuters, exhibits the most uneven ridership of Red Line stations operating in the County by time of day and direction. Metrorail stations located in communities with a balanced employment and residential land uses, such as Friendship Heights, exhibit ridership patterns that are relatively even throughout the day.

National, State, and Local Vehicle Miles Traveled

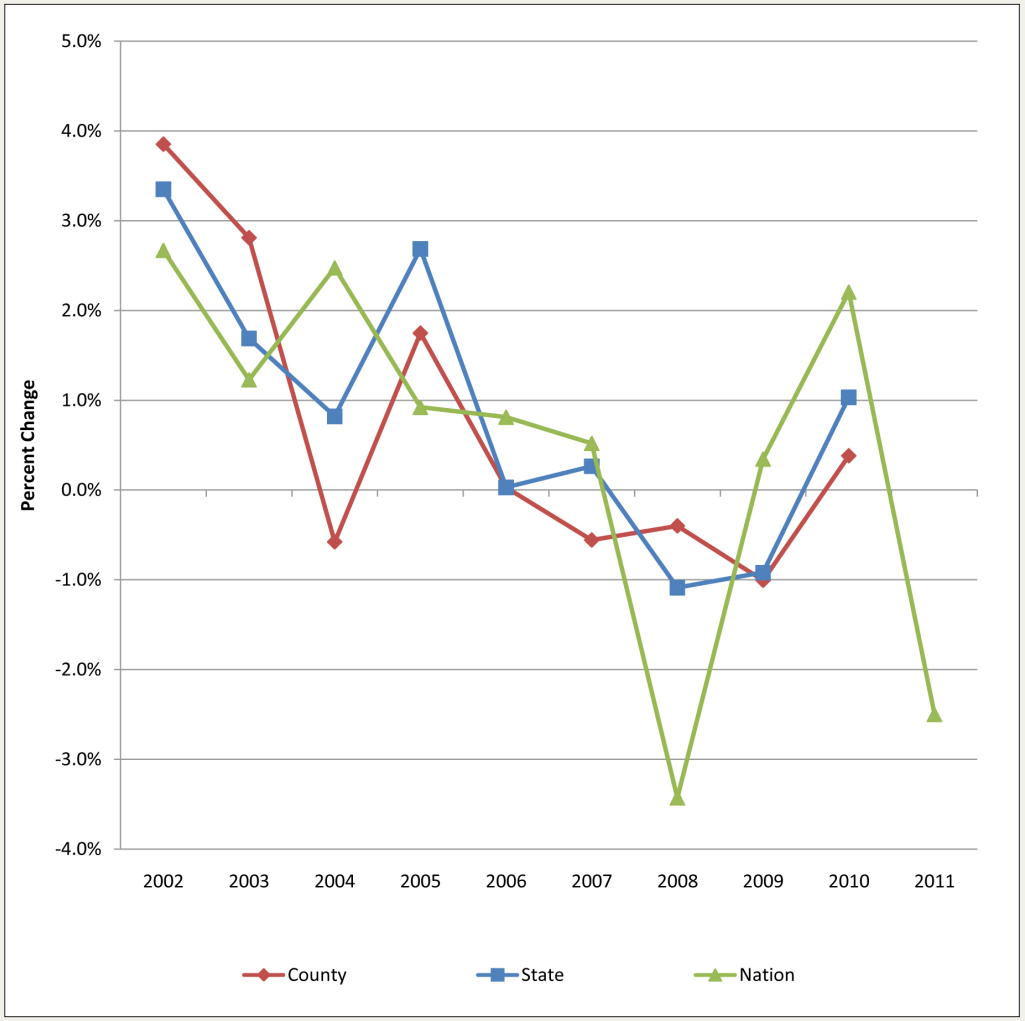
National trend data collected by the Federal Highway Administration in 2011 indicated that the nation has seen a steady increase of 2.5 percent in vehicle miles traveled (VMT) since 2008 when the recession affected travel behavior.

As of July 2011, however, monthly national trend data shows a drop of 2.5 percent in VMT since July 2010. This year's decrease is due in part to the current economic situation in various parts of the U.S. affecting positive trends in other areas.

Maryland SHA data for 2009-2010 shows a statewide VMT increase of 1.0 percent and a 0.4 percent increase in Montgomery County. INRIX congestion data released in spring 2011 shows that commuters are steadily getting back on the road, particularly in major metropolitan areas such as Washigton, D.C.

So while national trends show a drop in VMT, local trends show a slight increase. Future counts will show whether local travel behavior will follow national trends.

Illustration 1: National, State, and Local Vehicle Miles Traveled



Congested Intersections

This ranking of the County's most congested intersections is based on Critical Lane Volume (CLV) data gathered between 2008 and 2011 for 50 intersections. CLV provides a snapshot of intersecton performance at a particular time and place. This measure, consistent with previous mobility reports, allows comparison with previous years.

Each year the ranking based on CLV changes as new development and transportation projects come online. This year, of the ten most congested intersections, four are along priority corridors and the other six are along other major arterials. Only three are inside the Beltway

This report also measures intersection congestion in a new way, by comparing the CLV traffic conditions with the policy area standard established by Local Area Transportation Review (LATR). A CLV/LATR ratio of one or greater indicates that an intersection is operating at or below standard. Of the 317 intersections analyzed, nearly half (48 percent) are approaching or exceed the LATR standard adopted for each policy area. Since 2009, there has been very little change in the ratios with a decrease of only 0.3 percent.

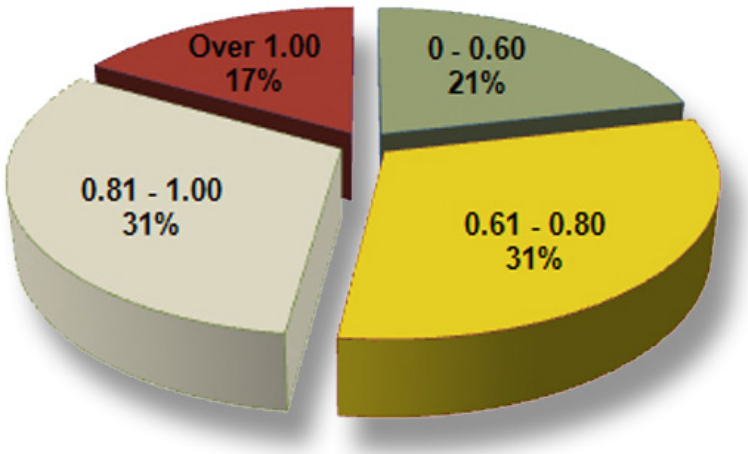
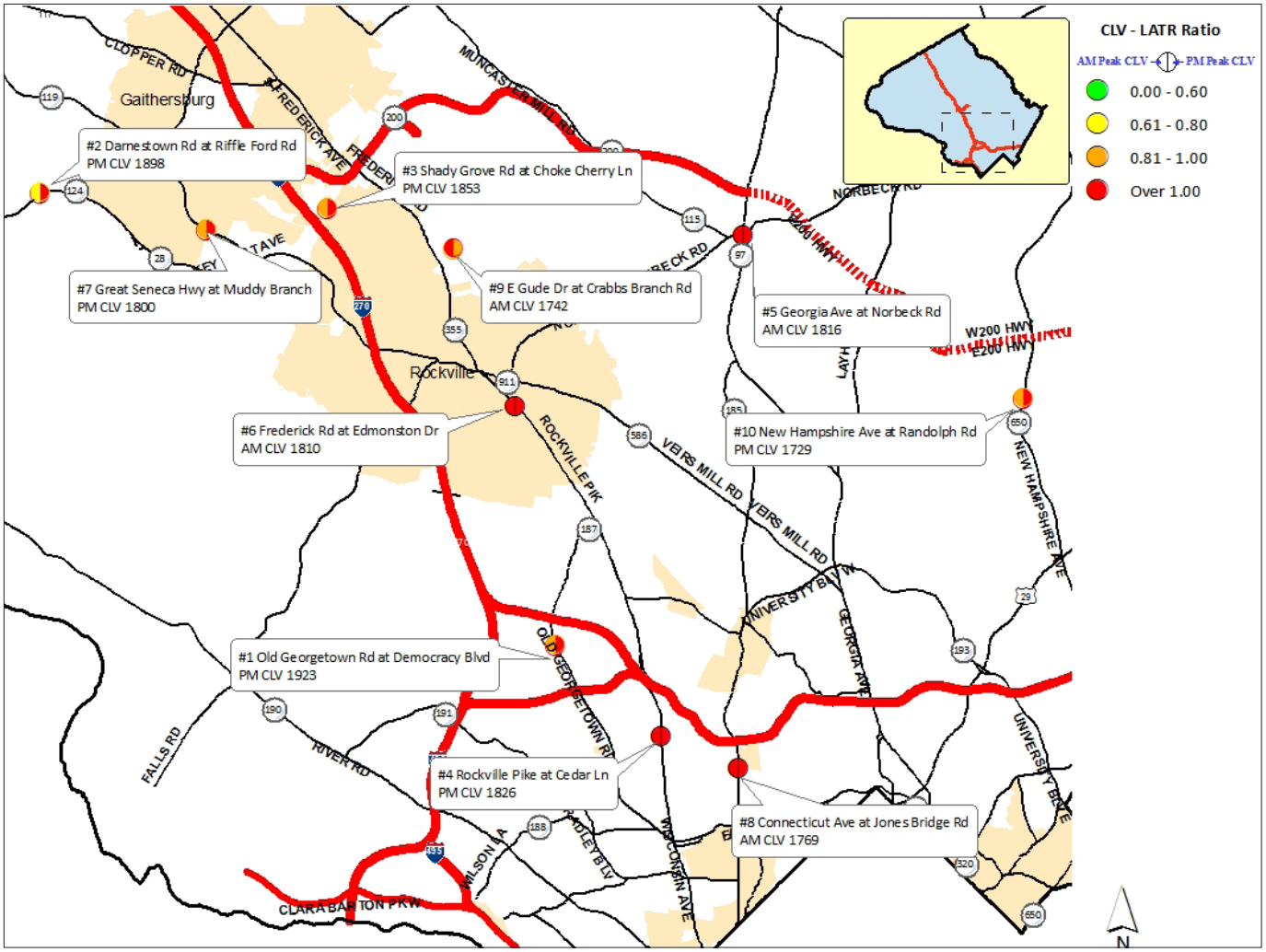


Illustration 2: CLV/LATR Ratios 2004-2011

Map 1: Most Congested Intersections



Most Congested Intersections

Illustration 3

Intersection 1 Old Georgetown Road at Democracy Boulevard

This intersection (a new traffic count in the Department's intersection database) ranks as the County's most congested. The North Bethesda/Garrett Park Master Plan recommends a transit line between the Grosvenor Metrorail Station and Rock Spring Park, extending to Montgomery Mall and farther west to the multifamily residential areas.

Illustration 4

Intersection 2 Darnestown Road at Riffle Ford Road

This intersection is also a new traffic count in the Department's intersection database. The westbound through movement on Darnestown Road appears to be the source of the evening congestion. This through movement shares a lane with right turning movement onto Riffle Ford Road and as a result, traffic volume builds up both through and turning vehicles. By comparison, the eastbound leg has one separate through lane and a shared through lane, which supports through movements during the morning peak.

Illustration 5

Intersection 3 Shady Grove Road at Choke Cherry Lane

This intersection is also a new traffic count in the Department's intersection database. Shady Grove Road provides access to the Intercounty Connector as well as the Shady Grove Metrorail Station. This intersection is one of a series of congested intersections along Shady Grove Road. In 2009, Shady Grove Road at Mid-County Highway (see Intersection 26, below) exhibited the highest CLV. The Montgomery County Department of Transportation is studying the Mid-County Highway corridor to determine an appropriate alignment for this master-planned roadway.

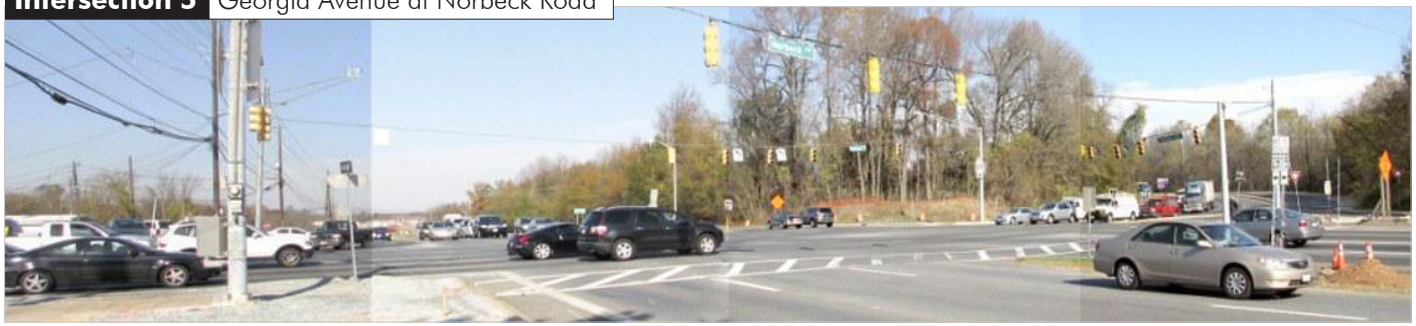
Illustration 6

Intersection 4 Rockville Pike at West Cedar Lane

The Maryland Consolidated Transportation Program (CTP) includes the construction of a grade-separated interchange at this location. This is one of several intersections to be improved as part of Base Realignment and Closure (BRAC). This project is currently in the design phase and is scheduled to begin construction in late fall 2011.

Illustration 7

Intersection 5 Georgia Avenue at Norbeck Road



A grade-separated interchange here is included in the CTP. This project is in the design and evaluation phase; construction has been deferred. Congestion is aggravated along northbound on Georgia Avenue, which temporarily lost a turn-lane as a result of the ICC-related construction.

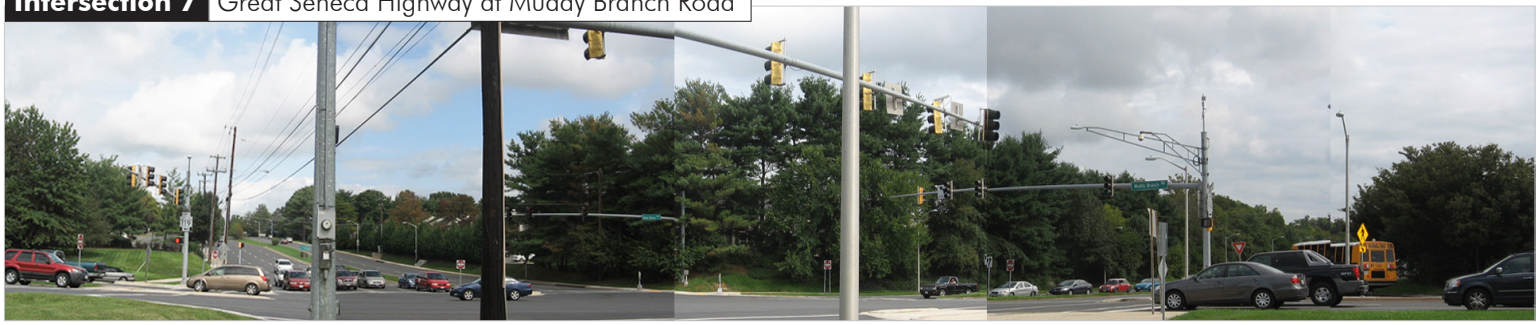
Illustration 8

Intersection 6 MD 355 at Edmonston Drive

Edmonston Drive connects Wootton Parkway, MD 355, and MD 586. Northbound traffic originating south of Edmonston Drive can use this intersection to reach I-270 via Wootton Parkway.

Illustration 9

Intersection 7 Great Seneca Highway at Muddy Branch Road



In 2009, this intersection was 29th on the list though on previous lists it was ranked higher. Its 2009 CLV was 1647 compared to 2179 in 2008. Between 2008 and 2009, capacity improvements helped drop the CLV at this location. This year, the intersection exhibited a CLV increase from 1647 to 1800, well above the LATR standard of 1400, which reflects increasing congestion in the area.

Illustration 10

Intersection 8 Connecticut Avenue at Jones Bridge Road

BRAC-related improvements include an additional southbound lane from I-495 with dedicated right turn onto Jones Bridge Road and the widening of Jones Bridge Road. This project is currently in the design and engineering phase in the CTP. Congestion at this intersection is reflected by traffic back-ups on both north and south legs of Connecticut Avenue during morning and evening peaks.

Other Congested Intersections

Each year, intersections drop in and out of the top ten or top fifty most congested, but looking at all fifty illustrates locations that are "repeat offenders." (see Table 1 and Map 2). More than half of the top 50 congested intersections are located along the priority corridors, confirming the need to study these corridors. Additional roadways that exhibit a considerable number of intersections with chronically high CLV levels that should be considered for traffic data collection include Piney Branch Road, Shady Grove Road, Randolph Road, and New Hampshire Avenue.

Table 1 Fifty Most Congested Intersections
The ranking is developed by applying the LATR standard to Critical Lane Volume

Ranking			Intersection Name	Count Date	CLV	LATR Standard	Policy Area
2011	2009	2008					
1	*	*	Old Georgetown Rd at Democracy Blvd	6/9/2009	1923	1550	North Bethesda
2			Darnestown Rd at Riffle Ford Rd	3/12/2009	1898	1450	North Potomac
3	*	*	Shady Grove Rd at Choke Cherry Ln	5/19/2010	1853	1500	Rockville City
4	2	5	Rockville Pike at W Cedar Ln	11/7/2010	1826	1600	Bethesda/Chevy Chase
5	5	18	Georgia Ave at Norbeck Rd	1/22/2009	1816	1475	Aspen Hill
6	6	*	MD 355 at Edmondston Dr	3/12/2008	1810	1500	Rockville City
7	29	1	Great Seneca Hwy at Muddy Branch Rd	1/4/2011	1800	1450	Gaithersburg City
8	9	4	Connecticut Ave at Jones Bridge Rd	5/13/2009	1769	1600	Bethesda/Chevy Chase
9	11	*	E Gude Dr at Crabbs Branch/Cecil	3/24/2009	1742	1475	Derwood
10	3	10	Randolph Rd at New Hampshire Ave	1/13/2011	1729	1475	Fairland/White Oak
11	8	11	Veirs Mill Rd at Twinbrook Pkwy	6/3/2010	1721	1550	North Bethesda
12	14	*	Rockville Pike at Jones Bridge/Center	5/6/2009	1714	1600	Bethesda/Chevy Chase
13	15	47	Shady Grove Rd at Epsilon/Tupelo	2/11/2009	1704	1475	Derwood
14	*	*	University Blvd at Piney Branch Rd	1/22/2009	1703	1600	Silver Spring/Takoma Park
15	17	8	Connecticut Ave at East West Hwy	4/16/2009	1693	1600	Bethesda/Chevy Chase
16	18	*	E Gude Dr at Southlawn Ln	3/5/2009	1692	1500	Rockville City
17	4	*	Connecticut Ave at Plyers Mill Rd	11/30/2010	1683	1600	Kensington/Wheaton
18	20	*	Piney Branch Rd at Philadelphia Ave	1/21/2009	1680	1600	Silver Spring/Takoma Park
19	21	*	Colesville Rd at University Blvd (S)	1/22/2009	1680	1600	Kensington/Wheaton
20	23	27	Montrose Rd at Tower Oaks Blvd	11/14/2006	1663	1550	North Bethesda
21	24	*	Bradley Blvd at Wilson Ln	3/12/2009	1660	1600	Bethesda/Chevy Chase
22	*	*	Falls Rd at Maryland Ave/Pot. Valley	9/16/2008	1658	1500	Rockville City

continued Table 1 Fifty Most Congested Intersections

Ranking			Intersection Name	Count Date	CLV	LATR Standard	Policy Area
2011	2009	2008					
23	26	2	Georgia Ave at Randolph Rd	3/31/2009	1657	1800	Glenmont
24	*	*	Rockville-Pk/Twinbrook/Rollins	5/25/2010	1654	1500	Rockville City
25	28	*	Colesville Rd at Dale Dr	2/26/2009	1645	1600	Silver Spring/Takoma Park
26	1	6	Shady Grove Rd at Midcounty Hwy	11/18/2010	1644	1475	Derwood
27	31	15	Old Georgetown Rd at Tuckerman Ln	1/22/2009	1640	1550	North Bethesda
28	39	33	Connecticut Ave at Veirs Mill Rd	5/25/2010	1637	1600	Kensington/Wheaton
29	33	*	Montgomery Village Ave at Stedwick	10/4/2007	1633	1425	Montgomery Village/Airpark
30	34	*	Ridge Road at Skylark Rd	4/16/2009	1629	1350	Goshen
31	35	*	Georgia Ave at Forest Glen Rd	7/2/2008	1626	1600	Kensington/Wheaton
32	36	32	Colesville Rd at Sligo Crk Pkwy/St Andre	3/6/2008	1624	1600	Silver Spring/Takoma Park
33	37	31	Georgia Ave at Columbia Blvd/Seminary Ln	1/8/2009	1613	1600	Silver Spring/Takoma Park
34	32	29	Columbia Pike at Fairland Rd	3/2/2011	1612	1475	Fairland/White Oak
35	*	*	Aspen Hill Rd at Arctic Ave	11/6/2008	1609	1475	Aspen Hill
36	38	20	Norbeck Rd at Muncaster Mill Rd	1/29/2009	1609	1475	Aspen Hill
37	40	34	Columbia Pike at Greencastle Rd	11/15/2006	1607	1475	Fairland/White Oak
38	41	12	Veirs Mill Rd at First St	3/5/2009	1605	1500	Rockville City
39	42	*	Columbia Pike at Lockwood Dr	4/2/2009	1603	1475	Fairland/White Oak
40	43	*	Randolph Rd at Parklawn Dr (W)	2/11/2009	1601	1550	North Bethesda
41	44	36	Columbia Pike at Southwood	3/5/2008	1601	1600	Kensington/Wheaton
42	45	52	First St at Baltimore Rd	1/22/2009	1601	1500	Rockville City
43	46	*	Democracy Blvd at Falls Rd/S Glen Rd	4/1/2009	1594	1450	Potomac
44	46	*	Darnestown-Germantown Rd at Wisteria Dr	10/18/2007	1594	1600	Germantown Town Center
45	47	*	New Hampshire Ave at Oakview	1/24/2006	1591	1600	Silver Spring/Takoma Park
46	48	*	Colesville Rd at University Blvd (N)	9/13/2006	1589	1600	Kensington/Wheaton
47	7	*	Connecticut Ave at Randolph Rd	11/9/2010	1580	1600	Kensington/Wheaton
48	52	37	Layhill Rd at Ednor Rd/Norwood Rd	4/27/2010	1579	1450	Olney
49	51	*	River Rd at I-495 (E)	3/10/2009	1579	1600	Bethesda/Chevy Chase
50	54	*	East West Hwy at Jones Mill/Beach	3/5/2009	1574	1600	Bethesda/Chevy Chase

Twenty-eight of the 50 most congested intersections are located between the Capital Beltway and the Intercounty Connector. Fourteen are inside the Beltway and eight are beyond both areas in the suburban-rural parts of the County.

Map 2: Fifty Most Congested Intersections

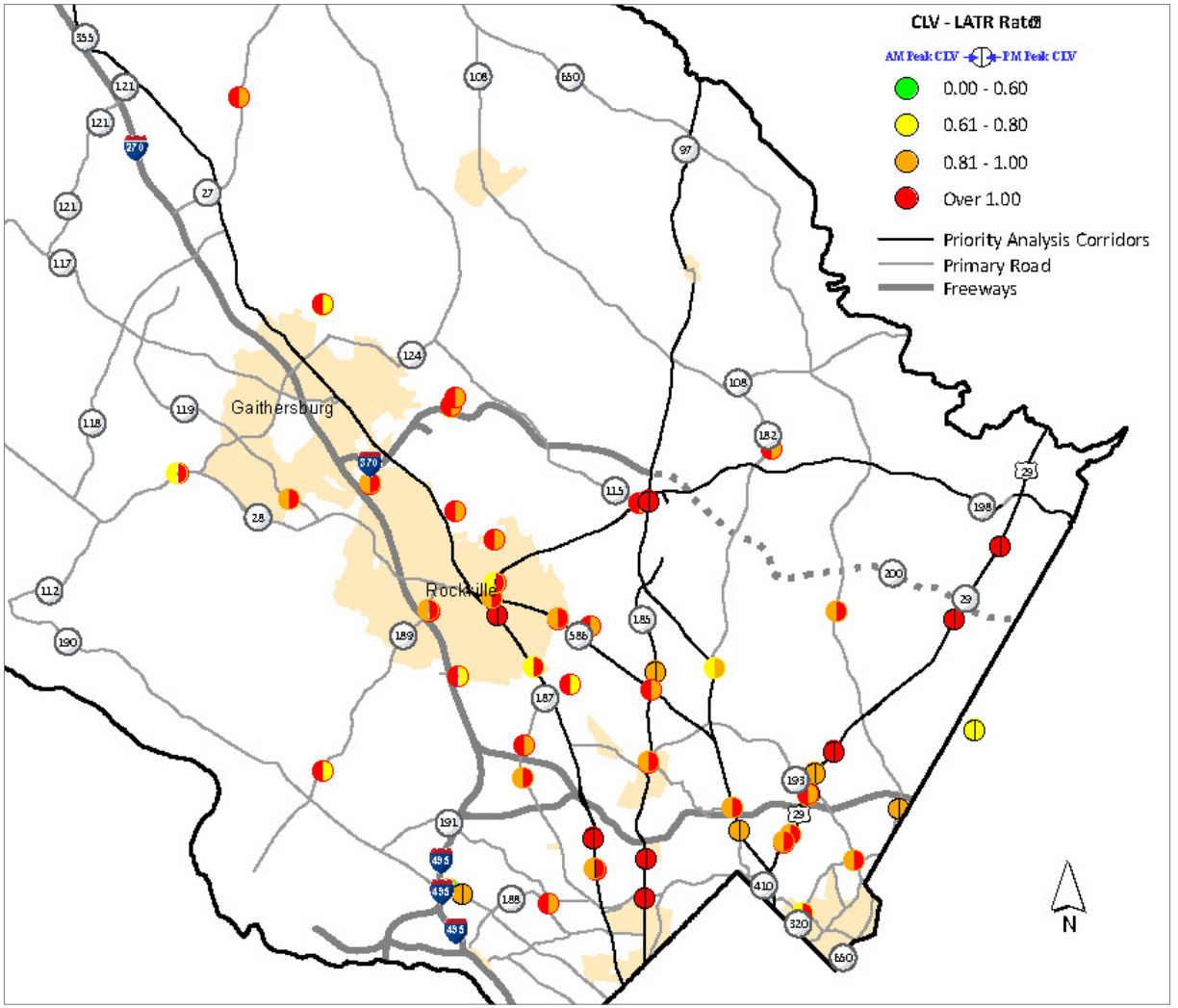


Illustration 11

Intersection 11 Veirs Mill Road at Twinbrook Parkway

This intersection dropped in the ranking from last year but remains one of the County's most congested. It is slated for improvements and is being considered for Bus Rapid Transit. Improvements to the north, at Veirs Mill Road and MD 28, may have contributed to the drop in CLV.

Illustration 12

Intersection 15 Connecticut Avenue at East West Highway

Despite capacity improvements in 2006, CLVs at this intersection have grown worse in recent years. No new improvements are recommended.

Illustration 13

Intersection 23 Georgia Avenue at Randolph Road

This intersection was the second most congested in 2008, dropped to 26th in 2009, and now is 23rd on the list. The recommended interchange at this location is in the design and evaluation phase in the CTP.

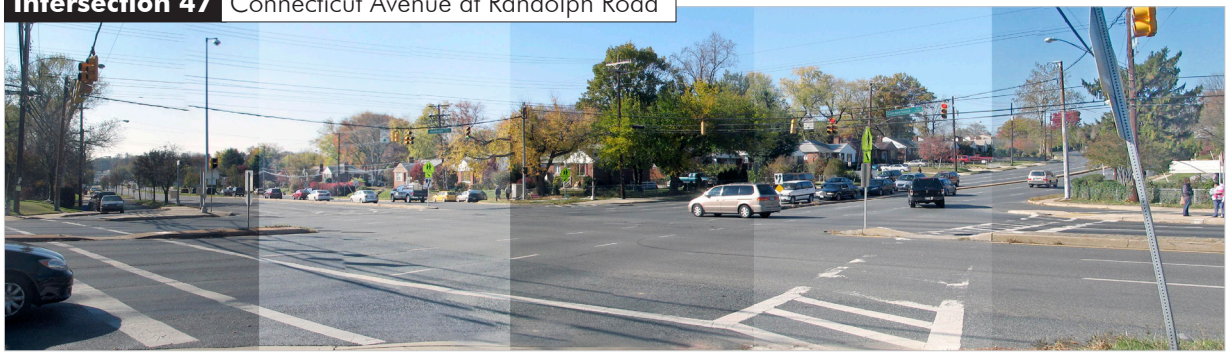
Illustration 14

Intersection 26 Shady Grove Road at Mid-County Highway

In 2009, this was the County's most congested intersection. While the CLV at this location dropped by more than 200, it still exceeds the 1475 LATR standard in the Derwood Policy Area. The difference between the 2009 CLV and this year's 2010 CLV shows the variability in roadway congestion and flow.

Illustration 15

Intersection 47 Connecticut Avenue at Randolph Road



The CLV at this intersection, one of the most congested in the Kensington/Wheaton Policy Area, has decreased significantly since 2009. The most recently observed CLV at this location is now approaching the LATR standard of 1600.

Table 2: Intersections with Increased Critical Lane Volumes

Intersection Name	Previous CLV	Previous Count Date	Current CLV	Current Count Date	% Change	Comments
Rockville-Pk/Twinbrook/Rollins	1277	2/24/2009	1654	5/25/2010	22.79322854	1277 appears too low, due to the high MD 355 thru traffic
Woodfield Rd at Muncaster Mill Rd	984	2/18/2009	1241	3/31/2009	20.70910556	Varies on NB 115, SB 124 right-turn lane is too short

Table 2 identifies intersections with the largest percent increases (over 15 percent)—Rockville Pike at Twinbrook Parkway and Rollins Avenue, and Woodfield Road at Muncaster Mill Road. Given the high through volumes on Rockville Pike, the current CLV of 1654 is a more accurate reflection of traffic than the previous count of 1277. Woodfield Road at Muncaster Mill Road has a short right-turn lane going southbound. High through-volumes are believed to be the cause of vehicle queues for traffic turning right, which are caught in the through lane until eventually reaching the right turn lane.

Table 3: Intersections with Decreased Critical Lane Volumes

Intersection Name	Previous CLV	Previous Count Date	Current CLV	Current Count Date	% Change	Comments
Montgomery Village Ave at Russell Ave	1755	3/6/2008	1218	4/22/2009	-44.08866995	
Georgia Ave at 16th St	1685	7/1/2008	1269	3/4/2009	-32.78171789	1269 is abnormal, 1685 is the best reflection
Muncaster Mill Rd at Bowie Mill Rd	1853	4/1/2008	1328	5/7/2009	-39.53313253	
River Rd at Bradley Blvd	1562	1/24/2008	1329	2/11/2009	-17.53197893	
Frederick Rd (MD 355) at King Farm Blvd	1538	1/6/2008	1262	5/19/2010	-21.87004754	

Table 3 identifies intersections with the largest percent decreases (over 15 percent), including one with a drop of 44 percent—Montgomery Village Avenue at Russell Avenue. In 2008, its CLV was 1755; the 2009 CLV is 1218. The 2009 CLV is more consistent with everyday conditions than the 2008 count. Other intersections with CLV decreases are located in policy areas throughout the County. Changes in development and infrastructure projects are likely the cause of most CLV increases.

Congested Roadways

Although each corridor is unique, travel conditions among roadways can be compared by measuring arterial mobility—a travel time measure expressed as the ratio of the slowest time traveled along a corridor compared to the speed limit travel time.

The new data collected for this report can be compared to previous travel time data even though longer segment lengths and a different set of roadways were studied. The 2009 report focused on selected priority corridors: MD 355, MD 97, MD 586, MD 198, US 29, and MD 185. In this report, INRIX data is available for MD 355 and US 29. INRIX has also supplied data for MD 193 and Randolph Road, which are just as congested as the priority roadways, and are recommended to be added as priority corridors for further traffic count collection.

The County's Subdivision Staging Policy grades level of service (LOS) from A to F based on the urban street delay methodology described in the 2000 Highway Capacity Manual published by the Transportation Research Board. LOS A is when the congested travel speed is less than 25 percent of the free flow speed. At LOS F, travel during congested times of day takes more than four times longer than travel at free flow speeds. LOS A is the best system performance for travelers. However, the highest levels of throughput occur at LOS E, which means this condition is the most efficient use of roadway capacity.

The County's current Subdivision Staging Policy requires area-wide conditions to be LOS D or better, recognizing that some individual roadway segments will operate below standard. Most sampled roadways in this report are at LOS C, with arterial mobility ranging between 55 and 70 percent. Three are at LOS D, ranging between 40 and 55 percent.

Table 4: Corridor Travel Times

Route	Distance (Miles)	From	To	Slowest	95th Percentile	Average Peak Period	Average Reported	Free Flow	Level of Service	2011 Artial Mobility
MD 355 (NB)	6.63	DC Line	Randolph Rd	19.82	17.07	18.04	14.7	12.44	C	62.8%
MD 355 (SB)	6.63	Randolph Rd	DC Line	20.6	17.8	17.6	15.2	11.3	D	54.9%
US 29 (NB)	9.53	MD 193	Howard County	18	15.01	15.8	13	11.4	C	63.3%
US 29 (SB)	9.53	Howard County	MD 193	23.61	15.17	18.6	12.8	10.7	D	45.3%
MD 193 (EB*)	5.24	MD 97	MD 650	15.66	12.38	12.4	10.86	8.34	D	53.3%
MD 193 (WB*)	5.24	MD 650	MD 97	14.66	12.56	12.9	11	9.1	C	62.1%
Randolph (EB*)	6.59	MD 355	MD 650	16	14.1	14.44	12.5	10.7	C	66.9%
Randolph (WB*)	6.59	MD 650	MD 355	16.8	13.9	14.8	12.4	11	C	65.5%

Slowest, 95th percentile, average peak period, average reported, and free flow are all travel time measures calculated for all of 2010. These measures are drawn from the Federal Highway Administration's Travel Time Reliability http://ops.fhwa.dot.gov/publications/tt_reliability/brochure/ttr_brochure.pdf

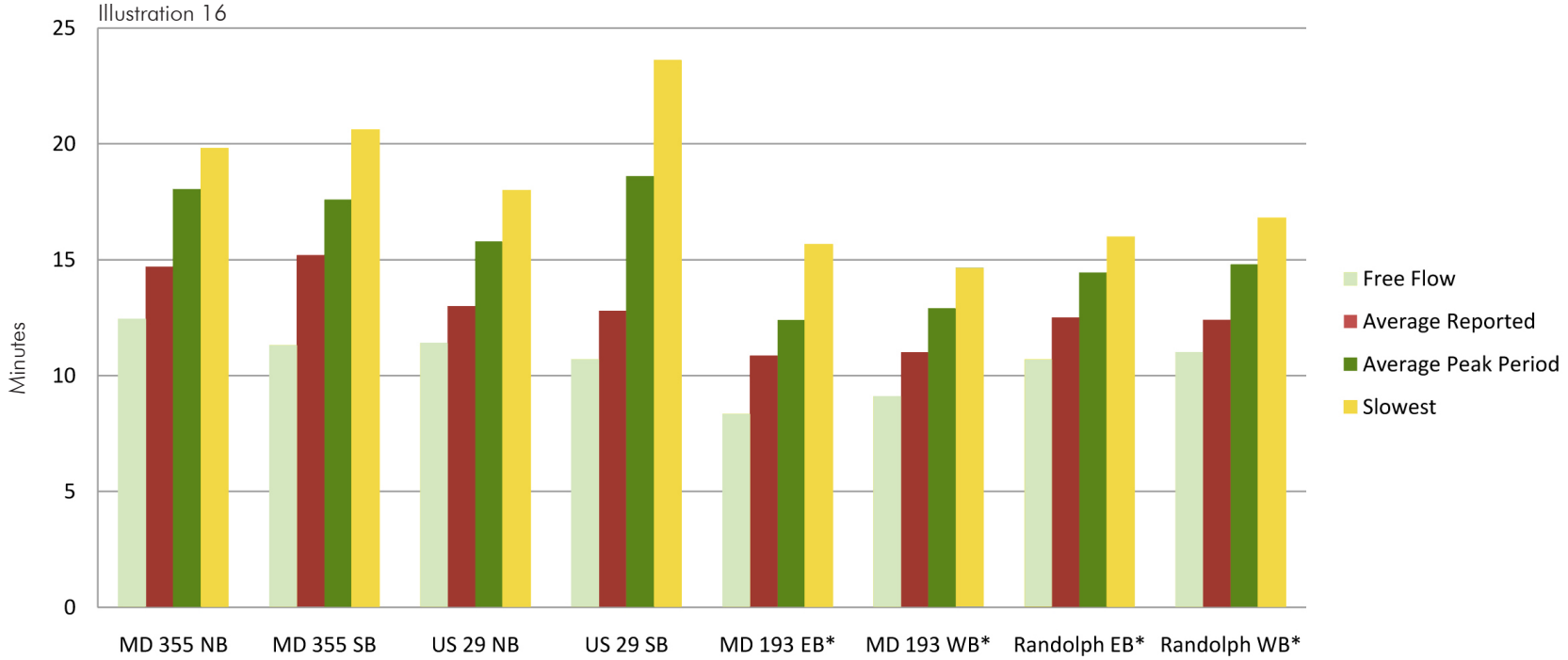
- Slowest: represents the worst single time in 2010; the highest travel time in minutes.
- 95th percentile: A travel time in the 100th percentile would be a measure of an extreme event. The 95th percentile takes the 100th percentile time and normalizes it, making the travel time results more reflective of the average experience of congestion.
- Average peak period: represents the average travel time during both morning and evening peak periods throughout the year.
- Average reported: represents all averaged times throughout the day for the entire year.
- Free flow: represents the uncongested travel time, based on posted speeds throughout the corridor and is also used to compare with other travel time measures.

Southbound travel along US 29 and MD 355 has the slowest times and the slowest 95th percentile times.

MD 193 has slightly more congested travel times in the westbound direction. However, the difference with eastbound traffic is small. These comparable travel times show that vehicles are generally using this major thoroughfare equally in both directions during any given point of the day. Randolph Road exhibits similar travel time patterns. Both roadways are heavily used east-west routes providing access to other major corridors such as Wisconsin and Connecticut Avenues.

2010 Montgomery County Sampled Corridors

Illustration 16



The travel times were broken into four categories: Free Flow, Average Reported, Average Peak Period, and the Slowest.

The four corridors were also measured using a travel time index (TTI), which measures the ratio between the free flow time and reported time of travel on a particular road. Values of 1 indicate that traffic is moving at roughly free flow, or an LOS A. Any value above 1.00 is considered a travel time tax (expressed as a percentage), which is the additional cost of travel above uncongested conditions.

The TTI illustrations for each road are hourly measurements for a 24-hour period, from Sunday through Saturday. Each line represents the day of the week throughout an entire 24-hour period for the year 2010, based on the most congested TTI.

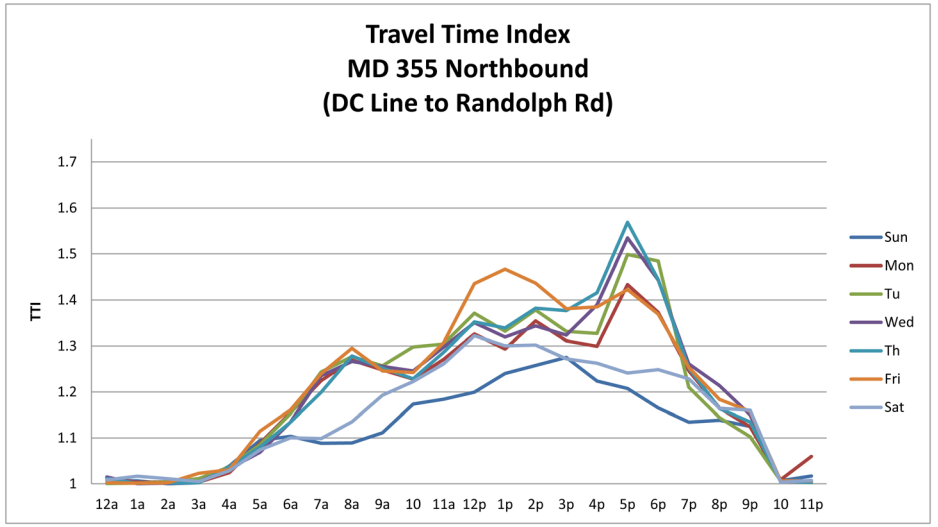
Westbound movements during the morning peak period are slightly higher, at 1.5, than evening peak period (going the reverse direction). Wednesday, Thursday, and Tuesday (in that order), are the most congested days.

MD 355 Northbound

Limits: DC Line to Randolph Road

The most congested days are Tuesday, Wednesdays, and Thursdays. The TTI values for these days are around 1.55. Friday reflects persons leaving early from work. This pattern is exhibited in higher congestion levels from 12:00 p.m. to 3:00 p.m., and lower congestion during traditional evening peak period, by about 15 percent.

Illustration 17

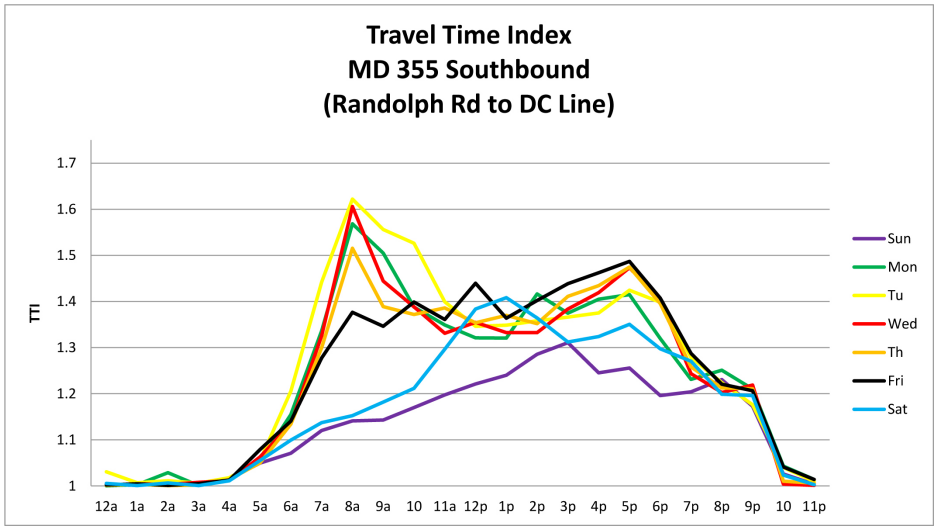


MD 355 Southbound

Limits: Randolph Road to DC Line

Generally, congestion levels are highest in the morning peak period, with the highest TTI reported as 1.6 on Tuesday and Wednesday. Friday mornings have the lowest congestion of the work week, and is the only weekday that has a higher evening peak congestion level (1.48) than the morning peak of 1.35. The Friday morning movements are dictated by employment vacation days and flexible work weeks. The evening peak congestion levels for the rest of the weekdays are the same as Fridays, exhibiting a relatively constant level of congestion.

Illustration 18

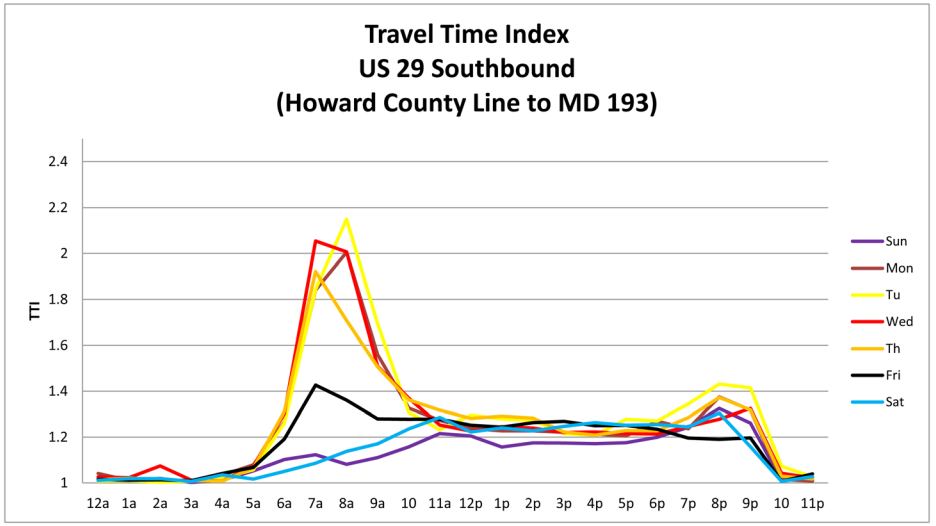


US 29 Southbound

Limits: Howard County Line to MD 193 University Boulevard

Southbound travel during the morning peak period on US 29 has the highest congestion of all of the samples in this report. Tuesdays show the highest congestion, above 2.0, indicating that it takes more than double the amount of time to travel from the Howard County Line to MD 193/University Boulevard compared to traveling at free-flow uncongested speeds. Wednesday and Monday exhibit similar congestion, at slightly less at 2.0, taking nearly twice the travel time than in uncongested conditions.

Illustration 19

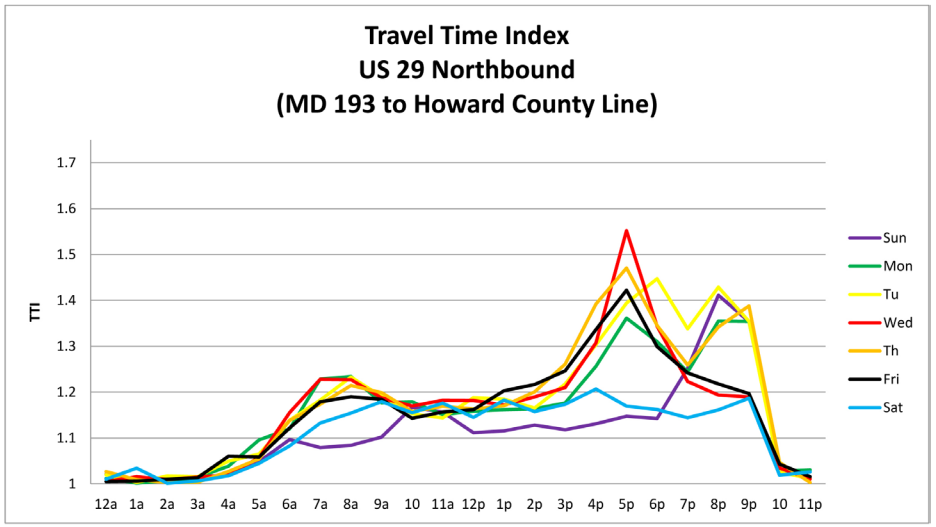


US 29 Northbound

Limits: MD 193/University Boulevard to Howard County Line

Congestion on Sunday evenings is comparable to weekday evening peak periods. It's likely that most of that congestion is caused by travel home from weekend activities.

Illustration 20

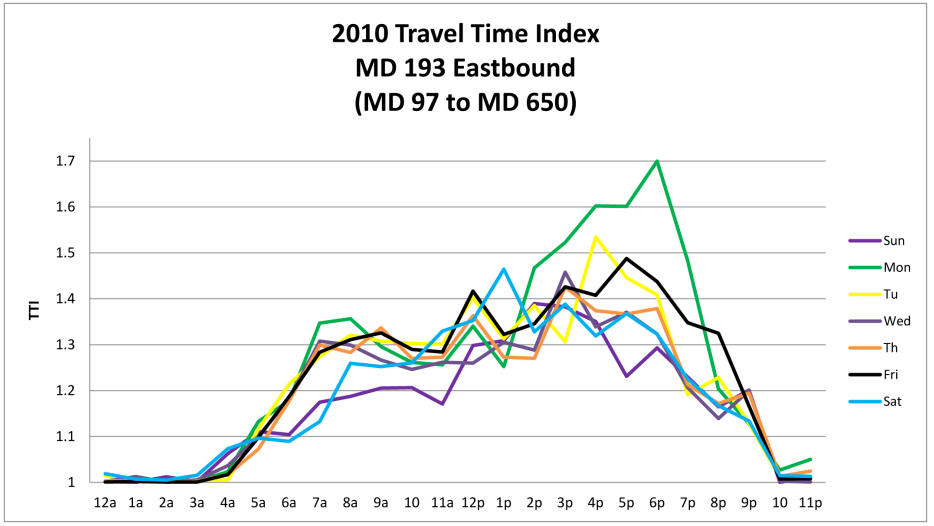


MD 193 Eastbound

Limits: MD 97/Georgia Avenue to
MD 650/New Hampshire Avenue

MD 193 is most congested during Monday, Tuesday, and Friday during the evening peak period with a TTI ranging from 1.4 to 1.7. But even the morning peak period into early and mid-afternoon, all days of the week show TTI levels between 1.2 and 1.4.

Illustration 21

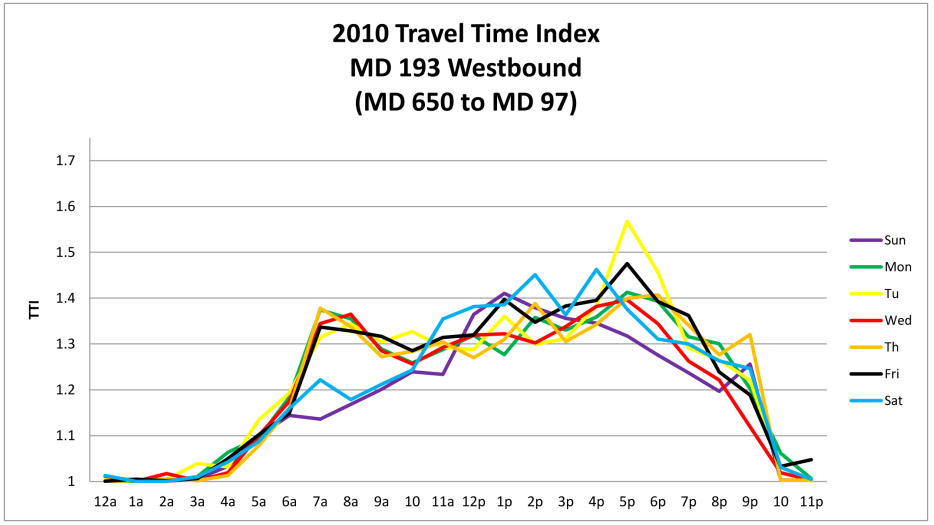


MD 193 Westbound

Limits: MD 650/New Hampshire Avenue to
MD 97/Georgia Avenue

All weekdays have a similar TTI level. Tuesday has the highest congestion level, 1.55 during the evening peak and congestion westbound is a little less than eastbound by about 15 percent. Generally, there is constant congestion throughout the day, indicating the heavy use of MD 193 as a major east-west route from Prince George's County.

Illustration 22

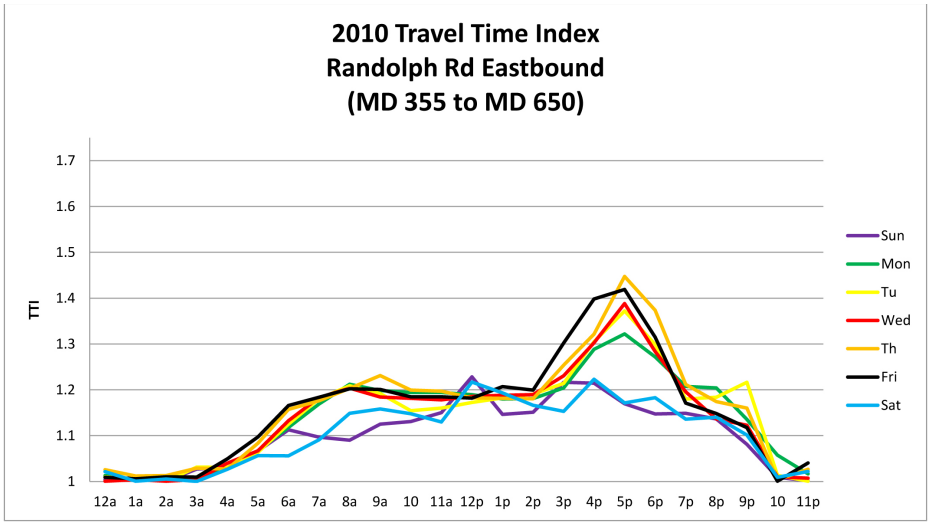


Randolph Road Eastbound

Limits: MD 355/Wisconsin Avenue to
MD 650/New Hampshire Avenue

Thursday and Friday evening peak periods are the most congested, with TTI levels between 1.4 and 1.45. Randolph Road eastbound is a major cross-county connection between the Bethesda-White Flint and the Wheaton-Silver Spring communities.

Illustration 23

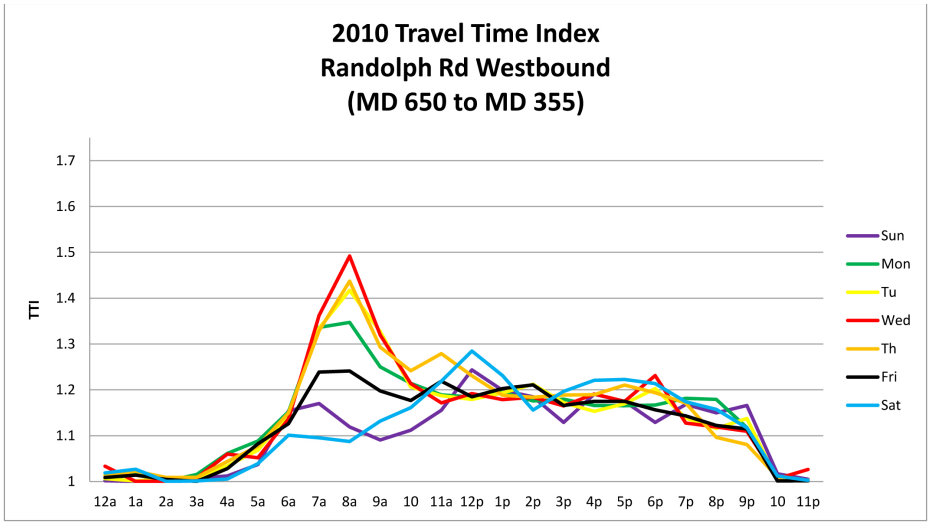


Randolph Road Westbound

Limits: 650/New Hampshire Avenue to
MD 355/Wisconsin Avenue

Randolph Road westbound is most congested during the morning peak, most likely the result of traffic from neighborhoods connecting to Connecticut and Wisconsin Avenues southbound, onto the Beltway or into D.C.

Illustration 24



Future Congestion

Estimates of future congestion are based on the Department's PAMR (Policy Area Mobility Review) analysis, which has been applied in various subdivision staging policy and master planning studies.

Its demographic assumptions include the existing base plus pipeline of approved but un-built development as of January 1, 2011. Land use in the region is based on MWCOG's Round 8.0 cooperative land use forecast. Within Montgomery County, most of the current pipeline development is in the northern half of the I-270 corridor, from Rockville City north to Clarksburg.

PAMR's transportation network includes Base Realignment and Closures (BRAC) employment totals at the Naval Medical Center in Bethesda as well as anticipated employment at the Food and Drug Administration in White Oak. It also includes projects that are fully-funded in the current six-year County Capital Improvement Program (CIP) and the State Consolidated Transportation Program (CTP), as well as projects to be built by the private sector as a condition of development pipeline approvals. The regional network includes projects identified in the MWCOG Constrained Long-Range Plan (CLRP) to be completed by 2015.

The PAMR analysis was based on a 2010 baseline and MWCOG's 2017 scenario, which have significantly different levels of development (see Table 6).

By 2017, the growth in population and jobs is anticipated to increase the average volume-to-capacity (V/C) ratio on the County's transportation system by 8.9 percent. In addition, both vehicle-miles traveled (VMT) and vehicle-hours traveled (VHT) are forecasted to increase by 10.7 percent and 11.6 percent, respectively. Some of that increase will come from increased travel on the Intercounty Connector (ICC) and other road improvements.

These figures indicate that by 2017, more vehicles are predicted to travel the County's roadways and, relative to current conditions, are forecasted to travel in slightly more than average congested conditions. However, planned capacity improvements (most notably the ICC) are anticipated to maintain current average levels of mobility in the County as reflected in the minimal change in average travel speeds.

Table 5 Comparison of Countywide 2010 and 2017 TRAVEL/3 Model Results

	2010 Network	2017 PMAR Network	Percent Change from 2010
Households	362,000	389,500	7.6
Jobs	510,000	603,310	18.3
Total lane-miles	2,842	2,949	3.8
PM vehicle miles traveled (in 000s)	5,676	6,281	10.7
PM vehicle hours traveled (in 000s)	335.4	374.3	11.6
PM average speed (mph)	16.9	16.8	-0.8
PM average V/C ratio (4-7 PM)	0.76	0.83	8.8

Analysis of non-freeway and freeway facilities forecasts a higher increase in the average V/C ratio for the freeway facilities (10.2 percent) than for non-freeway facilities (8.7percent) (see Table 6). Similarly, the number of drivers and the time they spend (VMT and VHT) is expected to increase on freeway facilities (22.3 percent and 16 percent, respectively) more than on non-freeway facilities (5.4 percent and 10.7 percent, respectively). One reason for the increase in freeway travel is that there is more freeway, with the construction of the full length of the ICC between I-370 and US Route 1. The ICC is anticipated to carry a significant amount of the additional traffic traveling on County roadways by 2017. As evidenced by the V/C ratio result, congestion on non-freeway and freeway facilities is anticipated to be roughly comparable between 2010 and 2017, due largely to the presence of the ICC.

The model results also indicate that roughly 25 percent of the congested lane-miles (roadways with V/C ratios greater than 0.8) will be on freeways (I-495 and I-270), while the remaining 75 percent will be on the major non-freeway facilities such as Columbia Pike (US 29), Georgia Avenue (MD 97), and Connecticut Avenue (MD 185).

Not surprisingly, traffic volumes are generally forecasted to increase throughout the County. The opening of new facilities is anticipated to have a beneficial effect on roadways located in the immediate vicinity of these projects. For example, adding the ICC as a primary east-west route will likely reduce evening peak period travel volumes on local roadways located in the immediate vicinity, including Norbeck Road (MD 28), Spencerville Road (MD 198), Muncaster Mill Road (MD 115), and sections of Olney-Laytonsville Road (MD 108). Similarly, modest reductions in volumes along the Beltway and along I-270 between the ICC and Montrose Road are also projected. These findings provide some indication that east-west mobility in the County will be enhanced, at least for the short-term, with the addition of the ICC.

In the long-term, however, the County will be unable to build its way out of congestion. In addition to selected roadway capacity improvements, sustainable strategies such as consolidating development near transit stations and expanding non-auto mode travel options will be needed to accommodate growth.

Table 6 Comparison of 2010 and 2017 TRAVEL/3 Model Results – Non-freeway vs. Freeway

	Non-freeway Facilities			Freeway/Ramp Facilities		
	2010 Network	2017 PAMR Network	% Change from 2010	2010 Network	2017 PAMR Network	% Change from 2010
Total lane-miles	2,433	2,444	0.5	409	505	23.5
PM vehicle miles traveled (in 000s)	3,913.7	4,127	5.4	1,762.1	2,154.5	22.3
PM vehicle hours traveled (in 000s)	250.6	275.9	10.7	84.8	98.4	16.0
PM average speed (mph)	15.6	14.9	-4.2	20.8	21.9	5.4
PM average V/C ratio (4-7 pm)	0.76	0.82	8.7	0.77	0.85	10.2

The County's transportation system users are not only auto drivers, but also include pedestrians, bicyclists, and transit riders. To that end, the Planning Department recognizes the importance of assessing non-auto travel modes and has begun to explore the utility of measuring person throughput compared to vehicle throughput—in a given area, the number of people moving through versus the number of vehicles moving through.

For example, if a lane on an existing multiple lane roadway is converted into a rapid bus lane, the number of vehicles passing any given point may be reduced but more people are moving through. Though initial data is incomplete, it establishes a baseline for future counts and policy decisions.

Pedestrian Analysis

Pedestrian activity can be measured by comparing the number of vehicles to the number of pedestrians walking across an intersection during a particular time period. This vehicle-to-pedestrian ratio is derived from two sources. Private consultants submit traffic studies to M-NCPPC providing both traffic counts and pedestrian counts for morning and evening peak hours at selected intersections. The State Highway Administration also collects traffic and pedestrian counts from 6:00 a.m. to 12:00 p.m. and from 12:00 p.m. to 7:00 p.m. for its roadway improvement projects. To date, the pedestrian database contains counts at 219 locations. This information can provide an initial snapshot of the County's pedestrian environment.

Future pedestrian counts should focus on priorities in Urban Areas designated in the Montgomery County Road Code. Just as intersection traffic counts have been prioritized by the County's most congested corridors, pedestrian counts should be prioritized for intersections in Urban Areas where land use densities and pedestrian travel demand are high and where pedestrians can most easily connect to bicycle and transit facilities.

Future pedestrian counts will be a total of counts between 6:30 a.m. to 9:30 a.m. and 4:00 p.m. to 7:00 p.m. to determine peak volume. Of the 172 signalized intersections in Urban Areas only 35 have pedestrian counts, highlighting the lack of a complete dataset. Increased data collection in the Urban Areas will create a more robust dataset and would allow for more conclusive analysis of pedestrian activity, which is particularly important in supporting subdivision staging policies and identifying infrastructure needs in the County's Urban Areas.

The pedestrian crossing at Fenton Street and Colesville Road was a scramble intersection in the 1980s. This image illustrates how a scramble intersection reduces the chances for pedestrian-vehicle conflict.

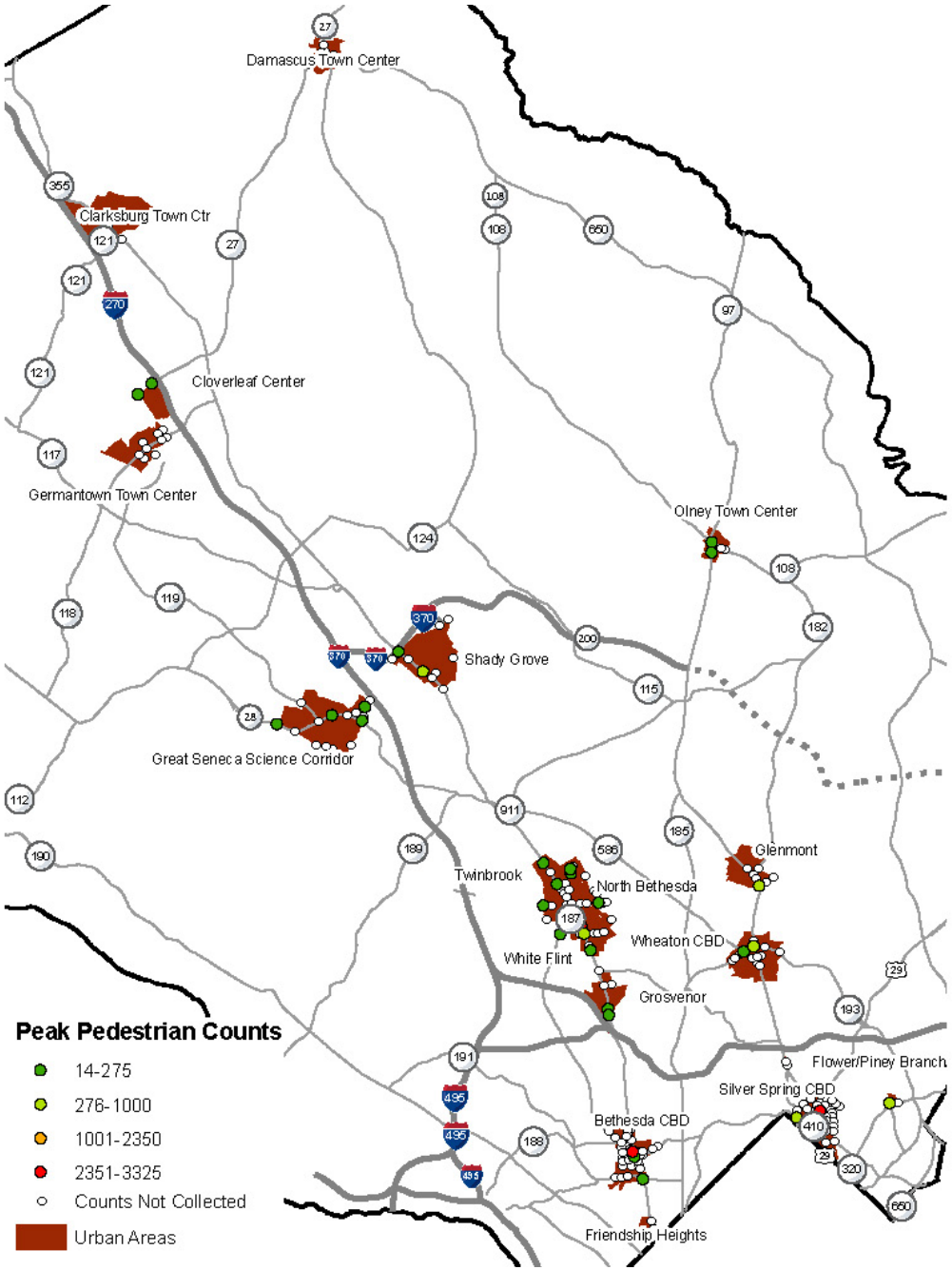
At scramble intersections, vehicle traffic stops in all directions while people cross at all directions. Application at some of the world's busiest intersections show that that scramble intersections improve pedestrian and vehicle capacity and safety for all users, including the disabled.

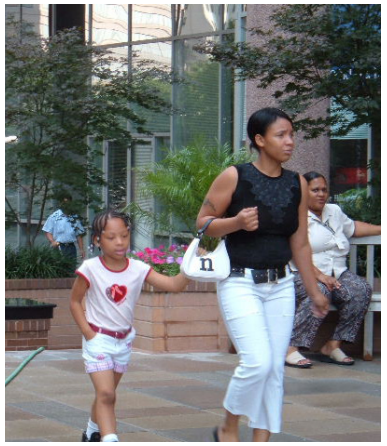
Although the pedestrian dataset is incomplete, it does include the Silver Spring, Bethesda, and Wheaton CBDs. Four intersections in the White Flint urban area are among the top ten intersections with the highest vehicle to pedestrian ratios. The higher pedestrian counts in the CBDs and White Flint have a high correlation with walkability and access to public transit.

Table 7 Pedestrian Volume – Morning and Evening Peaks

Intersection	Urban Area	Peak Volume	Peak Pedestrian Volume	Pedestrian to Vehicle Ratio
Rockville Pike at East-West/Old G'town	Bethesda CBD	21080	3309	0.1570
Colesville Rd at Georgia Ave	Silver Spring CBD	27188	3052	0.1123
Rockville Pike at Marinelli Rd	White Flint	22541	2356	0.1045
Colesville Rd at East West Hwy	Silver Spring CBD	18785	1841	0.0980
Piney Branch Rd at Flower Ave	Flower/Piney Branch/Arliss	11989	701	0.0585
East-West Hwy at 16th St	Silver Spring CBD	24714	985	0.0399
Georgia Ave at University Blvd	Wheaton CBD	27352	517	0.0189
Georgia Ave at Randolph Rd	Glenmont	34102	479	0.0140
Old Georgetown Rd at Nicholson/Tilden	White Flint	20306	263	0.0130
University Blvd at Veirs Mill Rd	Wheaton CBD	24850	250	0.0101
Twinbrook Pkwy at Fishers Ln	Twinbrook	13561	123	0.0091
Wisconsin Ave at Montgomery Ln	Bethesda CBD	24624	219	0.0089
Rockville Pike at Congressional Ln	Twinbrook	23571	196	0.0083
Wisconsin Ave at Bradley Blvd	Bethesda CBD	22302	160	0.0072
Parklawn Dr at Twinbrook Pkwy	Twinbrook	18038	123	0.0068
Georgia Ave at Morningwood/Spartan	Olney	17632	115	0.0065
Frederick Rd (MD 355) at King Farm Blvd	Shady Grove	52476	338	0.0064
Rockville Pike at Nicholson Ln	White Flint	58283	354	0.0061
Randolph Rd at Parklawn Dr (E)	North Bethesda	16517	95	0.0058
Randolph Rd at Parklawn Dr (W)	North Bethesda	19789	97	0.0049
Rockville Pike at Edson/White Flint Mall	White Flint	26715	114	0.0043
Rockville-Pk/Twinbrook/Rollins	Twinbrook	22470	77	0.0034
Montrose Rd at E Jefferson St	North Bethesda	20418	67	0.0033
MD 355 at Tuckerman (S)	Grosvenor	23044	64	0.0028
I-270 SB ramp at Father Hurley Blvd	Cloverleaf Center	11518	30	0.0026
Frederick Rd at Shady Grove Rd	Shady Grove	34705	87	0.0025
Georgia Ave at MD 108	Olney	25773	63	0.0024
Rockville Pk at Grosvenor/Beach	Grosvenor	30683	58	0.0019
Darnestown Rd at Muddy Branch Rd	Great Seneca Science Corridor	22753	39	0.0017
Key West Ave at Broschart/Diamondback	Great Seneca Science Corridor	19209	32	0.0017
Key West Ave at Shady Grove Rd	Great Seneca Science Corridor	27541	34	0.0012
Father Hurley Blvd at Crystal Rock Dr	Cloverleaf Center	14879	14	0.0009
Shady Grove Rd at Corporate Dr	Great Seneca Science Corridor	20437	4	0.0002

Map 3 Pedestrian Counts in Urban Areas





Bicycling Analysis

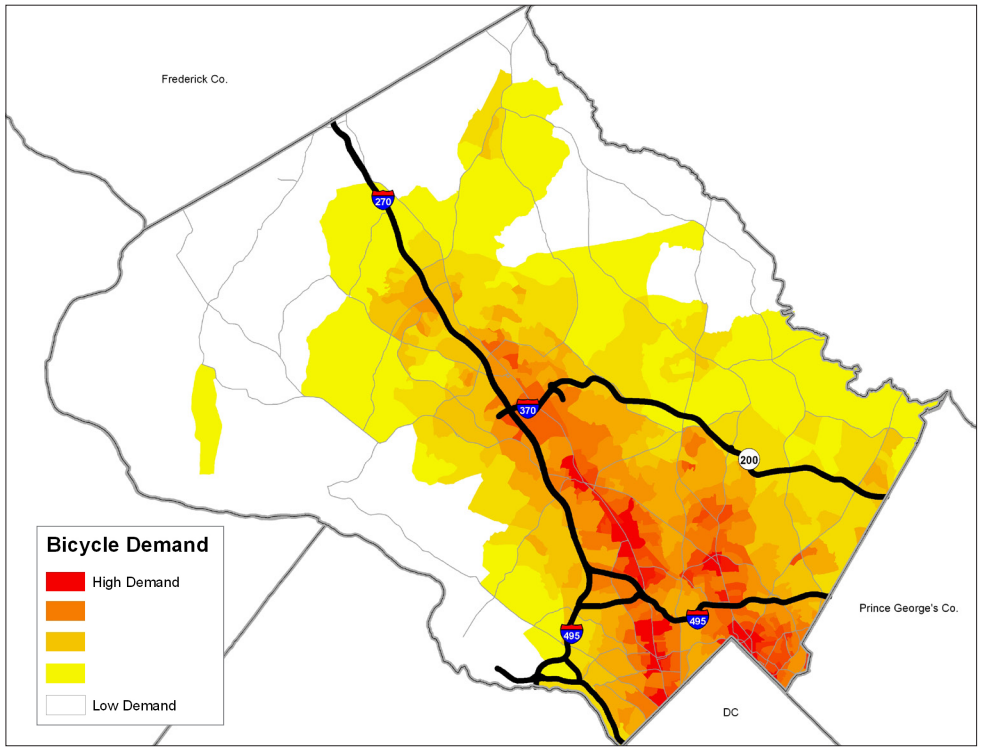
As with pedestrian data, the Planning Department is beginning to build its bicycling database. As part of Local Area Transportation Review, developer applications are required to include a Pedestrian and Bicycle Impact Statement. Though the LATR review guidelines currently state "pedestrian and/or bicycle counts at intersections," in practice, most applications include both types of counts. To ensure more complete data, the guideline language could be clarified to require both pedestrian and bicycle counts.

Another source of bicycle data is SHA, which counts bicyclists and pedestrians, recognizing the potential conflict between cars and pedestrians and bicyclists at state-controlled intersections.

Some bicycle data is available from MWCOG's 2007/2008 Household Travel Survey. The findings from this source, presented in the 2009 Highway Mobility Report (http://www.mwcog.org/uploads/committee-documents/YV5cV1ZX20090520110217.pdf), show an increase in bicycling from 1994 across the region and in Montgomery County. While most of the bicycle trips reported are commuting and social/recreational, people also use their bikes for school, shopping, and other personal business trips.

As bikes become a more widely used transportation mode, the Planning Department has developed a bicycle heat map (see Map 4) that highlights the areas of greatest demand for cycling in the County. Areas in red are estimated to have the highest demand; areas in yellow and white are estimated to have the lowest demand. Several factors were used to develop the map, including residential density, employment density, travel between activity centers, proximity to transit, universities, and community facilities such as schools, libraries, and recreation centers.

Map 4 Bicycle Demand



Areas in red are estimated to have the highest demand; areas in yellow and white are estimated to have the lowest demand.

Bikeways in Montgomery County are planned at two geographic levels. Countywide bikeways provide connections to major destinations such as municipalities, central business districts, town centers, employment centers, transit centers, and regional parks and trails. They function as the skeleton of the County's bikeway network. Countywide bikeways are identified in both the 2005 Countywide Bikeways Functional Master Plan and local area master plans and are designated as shared use paths, bike lanes, signed shared roadways, and dual bikeways.

Local and neighborhood bikeways provide important connections from countywide bikeways to community facilities such as schools, libraries, community and recreation centers, and local retail centers. They are identified as part of community master plans and sector plans.

Table 8 Bicycle Routes – Proposed and Built

Facility Type	Proposed (miles)	Built (miles)	Percent Built
Shared Use Paths	393	128	33
Bike Lanes	152	30	19
Signed Shared Roadways	458	n/a	n/a

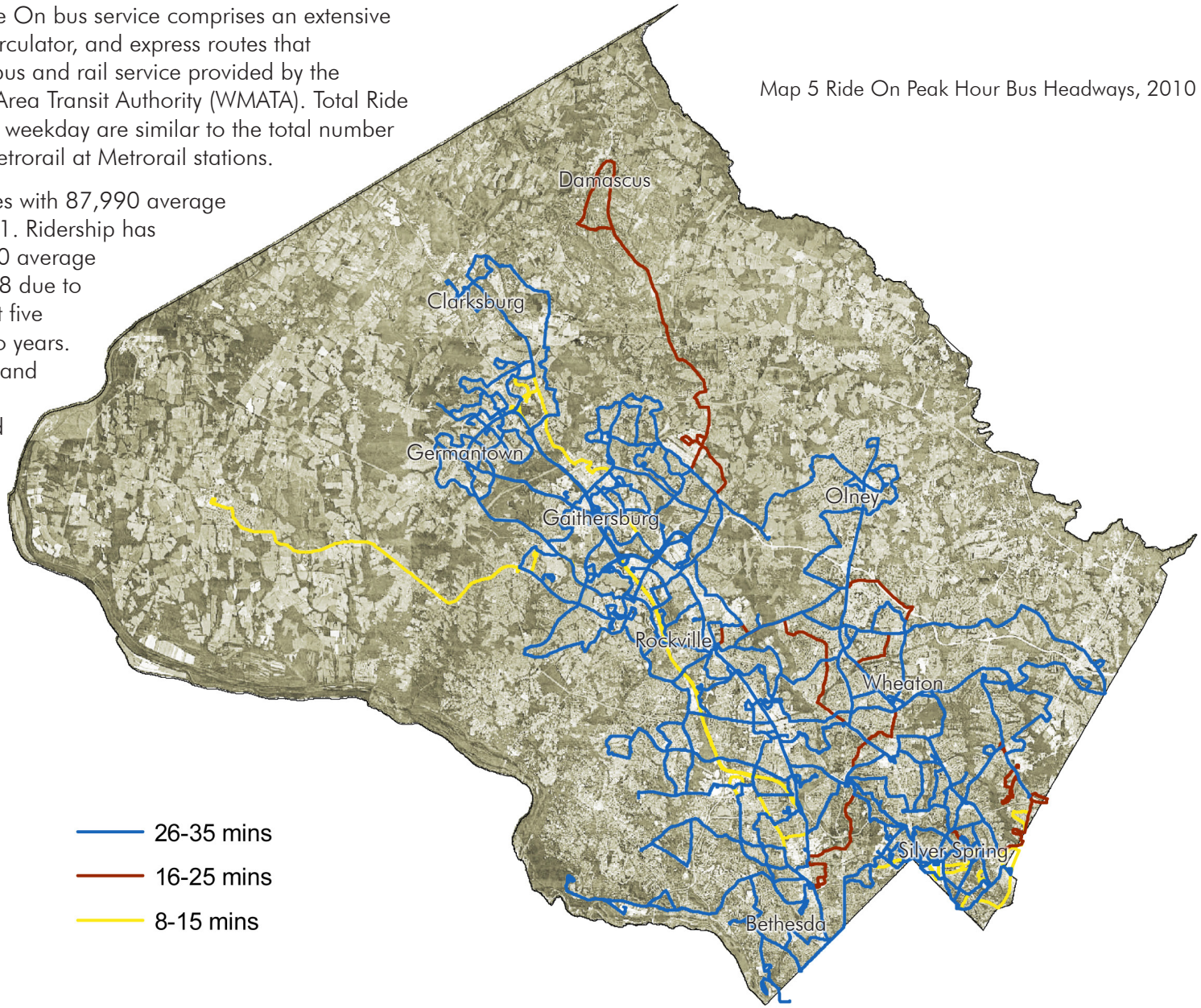
Transit Analysis

Ride On Bus

Montgomery County's Ride On bus service comprises an extensive network of local, feeder, circulator, and express routes that complement the regional bus and rail service provided by the Washington Metropolitan Area Transit Authority (WMATA). Total Ride On boardings on a typical weekday are similar to the total number of passengers boarding Metrorail at Metrorail stations.

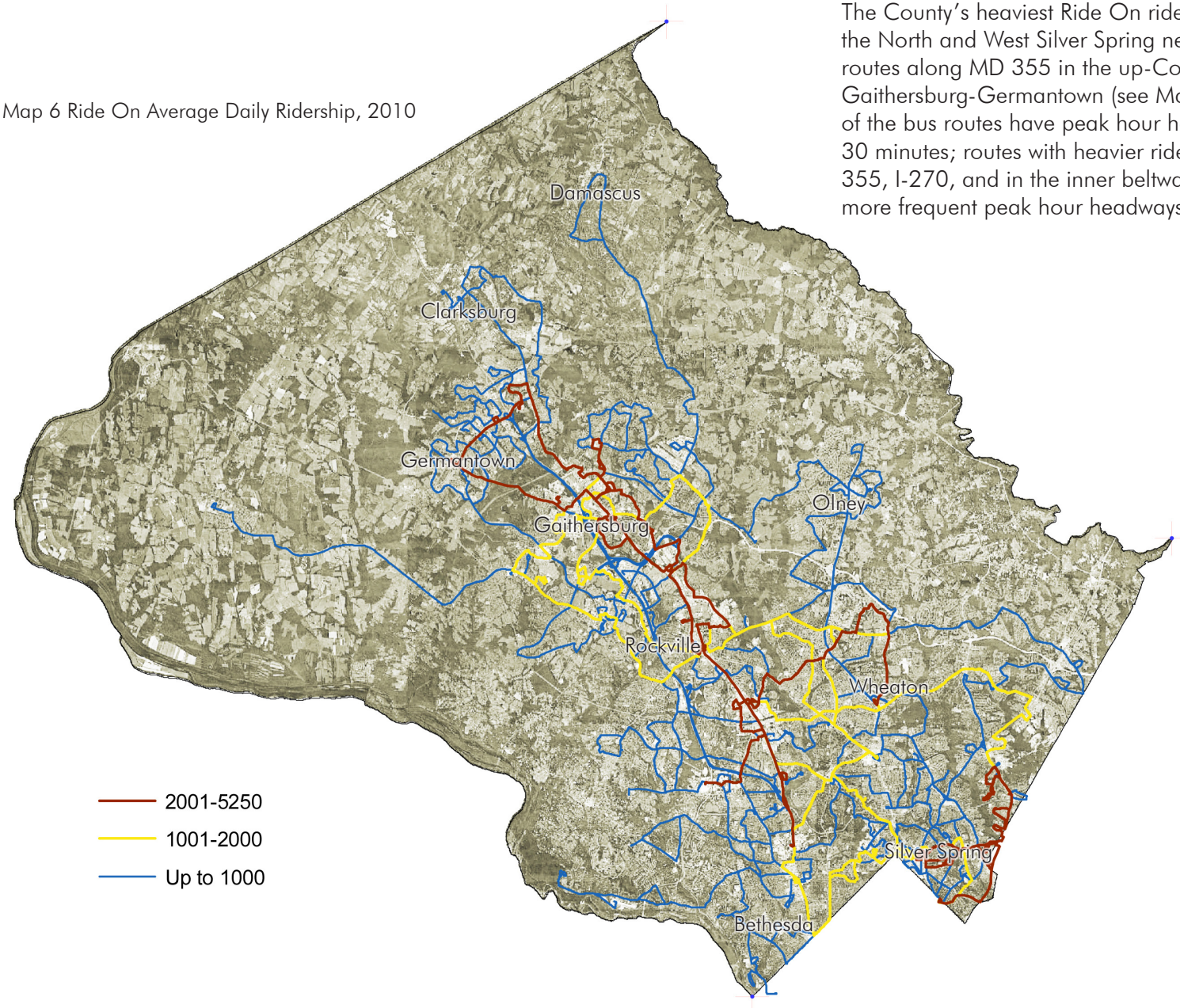
Ride On operates 80 routes with 87,990 average weekday boardings in FY11. Ridership has decreased from the 95,000 average weekday boardings in FY08 due to service reductions of about five percent during the past two years. In addition, fare increases and eliminating free fare programs have contributed to decreased ridership.

Map 5 Ride On Peak Hour Bus Headways, 2010



Map 6 Ride On Average Daily Ridership, 2010

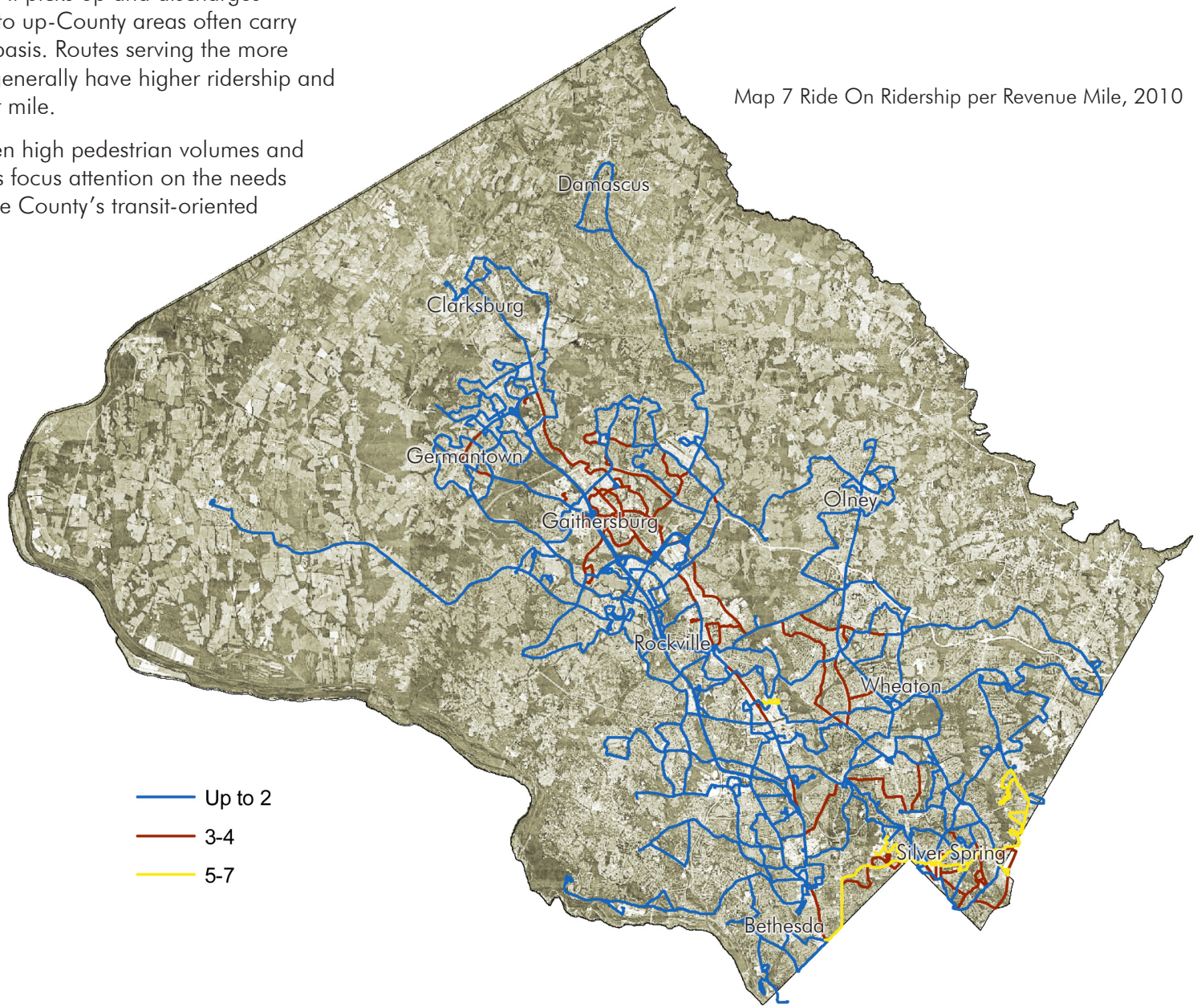
The County's heaviest Ride On ridership is along routes in the North and West Silver Spring neighborhoods, as well as routes along MD 355 in the up-County region of Rockville-Gaithersburg-Germantown (see Map 6). About 65 percent of the bus routes have peak hour headways between 20 to 30 minutes; routes with heavier ridership volumes, along MD 355, I-270, and in the inner beltway neighborhoods, have more frequent peak hour headways of 15 minutes or less.



Ridership per revenue mile is one measure of route productivity (see Map 7). A revenue mile is one bus traveling a mile along a route where it picks up and discharges passengers. Longer routes to up-County areas often carry fewer riders on a per mile basis. Routes serving the more dense down-County area generally have higher ridership and generate more revenue per mile.

Establishing the link between high pedestrian volumes and heavily used bus lines helps focus attention on the needs of public transit riders as the County's transit-oriented development areas grow.

Map 7 Ride On Ridership per Revenue Mile, 2010

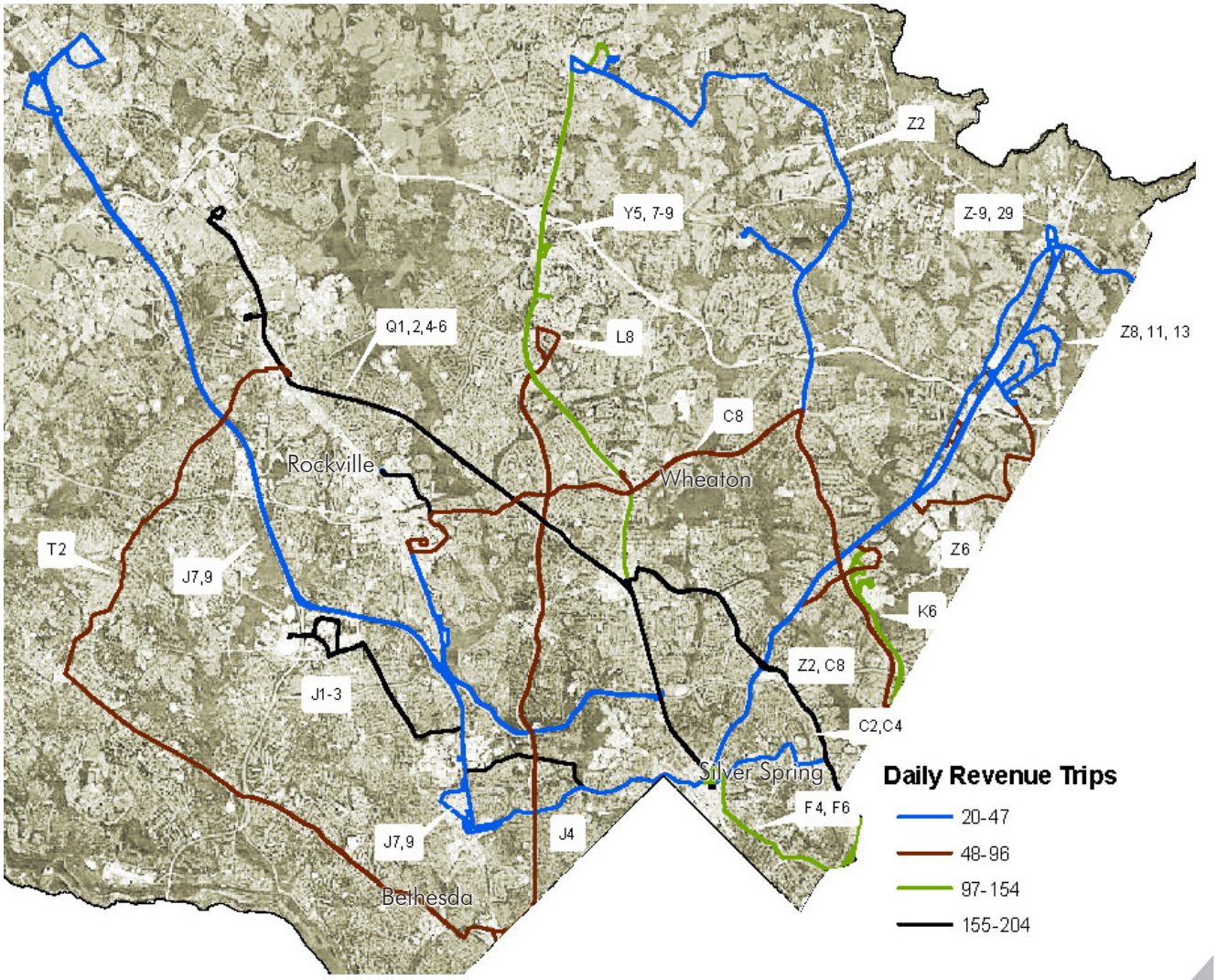


WMATA Metrobus

WMATA Metrobus data—daily revenue trips, headways, and ridership per revenue mile—is also part of the bus dataset that allows comparison to previous years and will allow future comparisons.

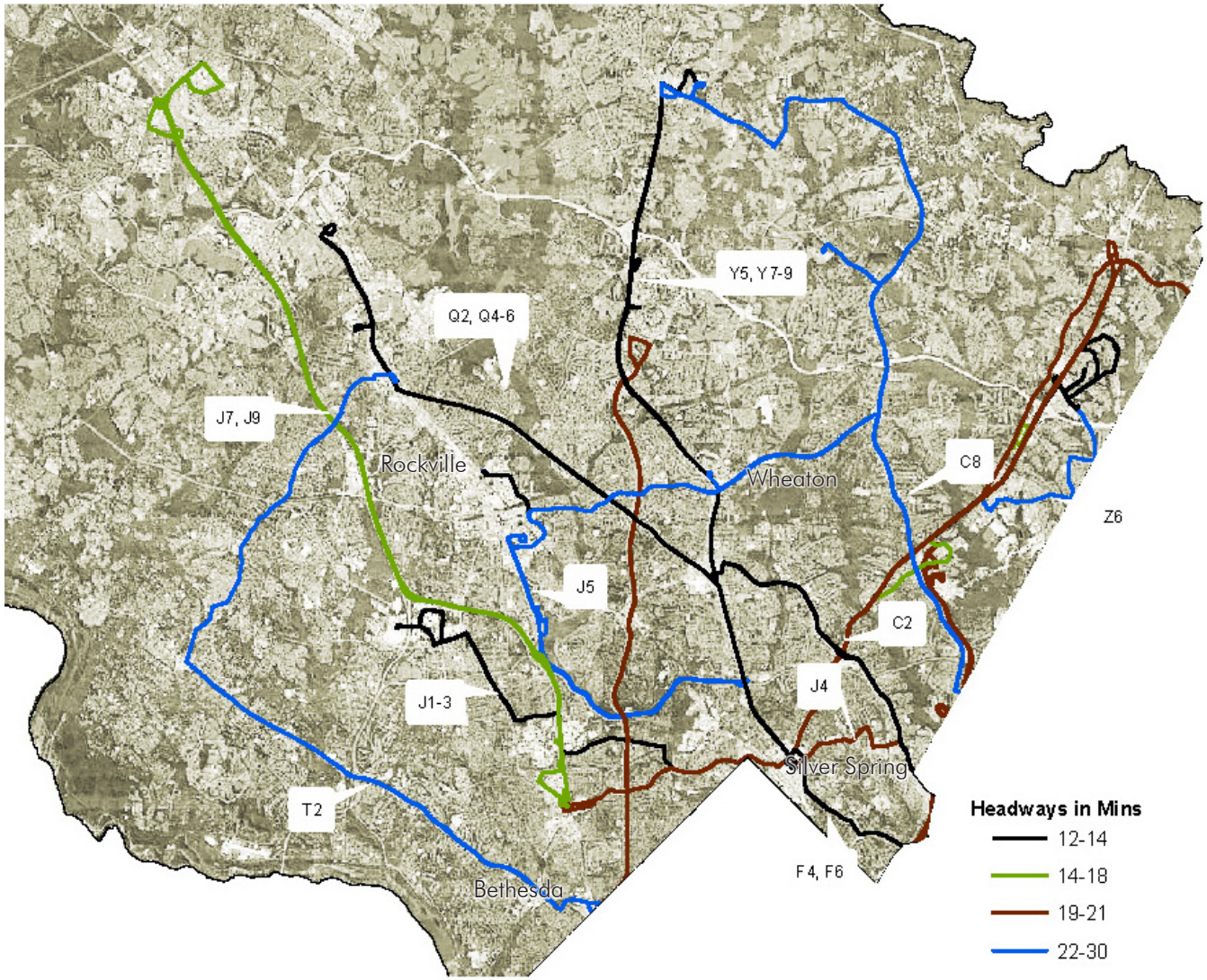
The County's average daily WMATA bus ridership is 63,254 compared to Ride On's average daily ridership of 87,990. Ride On ridership is higher than Metrobus because the system provides more routes and broader coverage, while Metrobus generally covers selected major corridors. For example, in many up-County, multifamily neighborhoods, some transit-dependent residents are reliant on public transit to get to work. Ride On is the only transit service avaialble in these areas, with routes connected to Metro stations or Metro bus stops along main travel corridors.

Map 8 Metrobus Daily Revenue Trips



Metrobus' shortest headways are along the Y5-Y9, J1-3, and T-2 lines, between 12 and 14 minutes (see Map 9). By comparison, Ride On's shortest headways were between seven and 15 minutes.

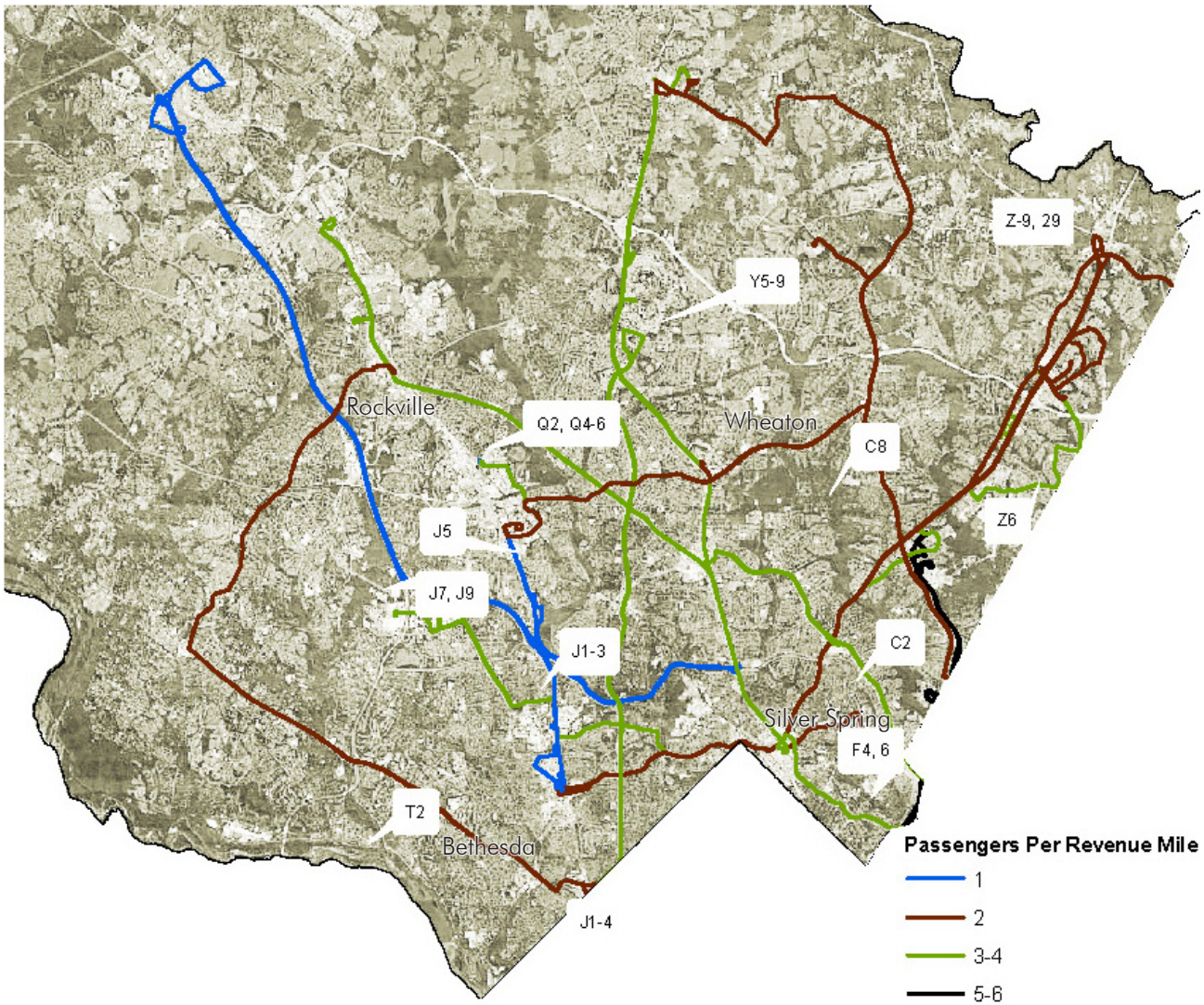
Map 9 Metrobus Daily Headways



The WMATA routes that generate the most revenue trips are C2 and J1-4, which travel in the down-County and around the Capital Beltway, serving Montgomery Mall, the Bethesda, Silver Spring, and Wheaton CBDs, and Twinbrook (see Map 10).

Map 10 illustrates ridership on a per revenue mile basis, which sheds light on how cost effective Metrobus Lines are in the County. Lines Y5-Y9, K6, F4,and F6 show between four and six riders per revenue mile and are consistent with the highest amount of daily revenue trips combined with the fastest headways. Along similar down-County routes, Ride On has high riders per revenue mile, thus indicating its cost effectiveness.

Map 10 Metrobus Ridership per Revenue Mile



WMATA Metrorail

Metrorail ridership by volume and time is measured at each of Montgomery County's Red Line stations (see illustrations 25, 26, and 27).

Metrorail ridership volume increased by approximately five percent between February 2006 and February 2009. Illustration 26 shows that average weekday ridership is heaviest at the Silver Spring, Shady Grove, Bethesda, and Friendship Heights stations.

In FY10, Shady Grove had the highest average weekday ridership of 30,952 in July. Summer months are often the heaviest traveled overall, with ridership declining during the winter. Weather events like the blizzards of February 2010 affected Metrorail ridership for essentially the entire month. The ridership decline in February 2010 was generally uniform for all stations in the system.

Illustration 25 Average Daily Metrorail Ridership by Station

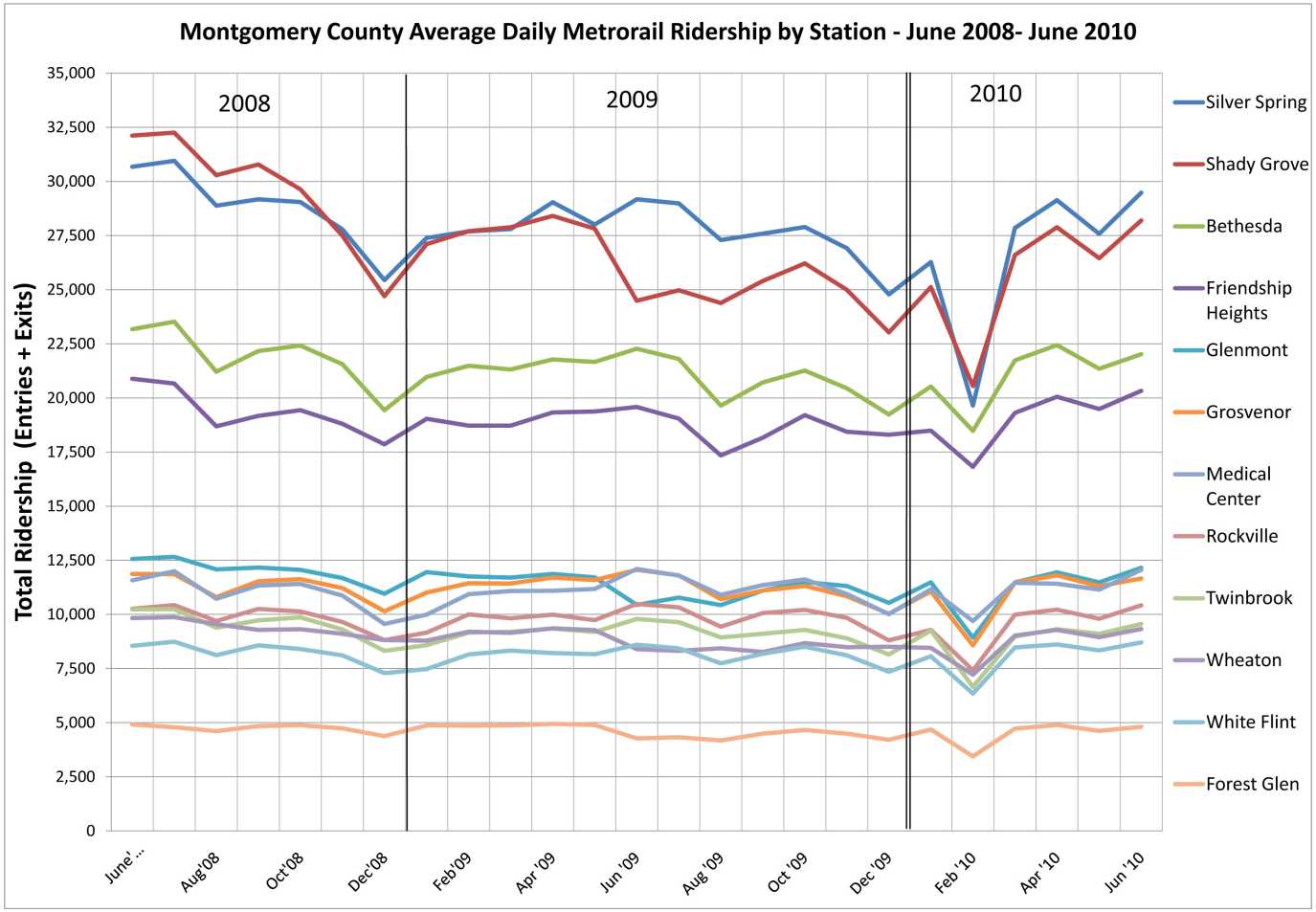


Illustration 26
Metrorail Ridership Entries

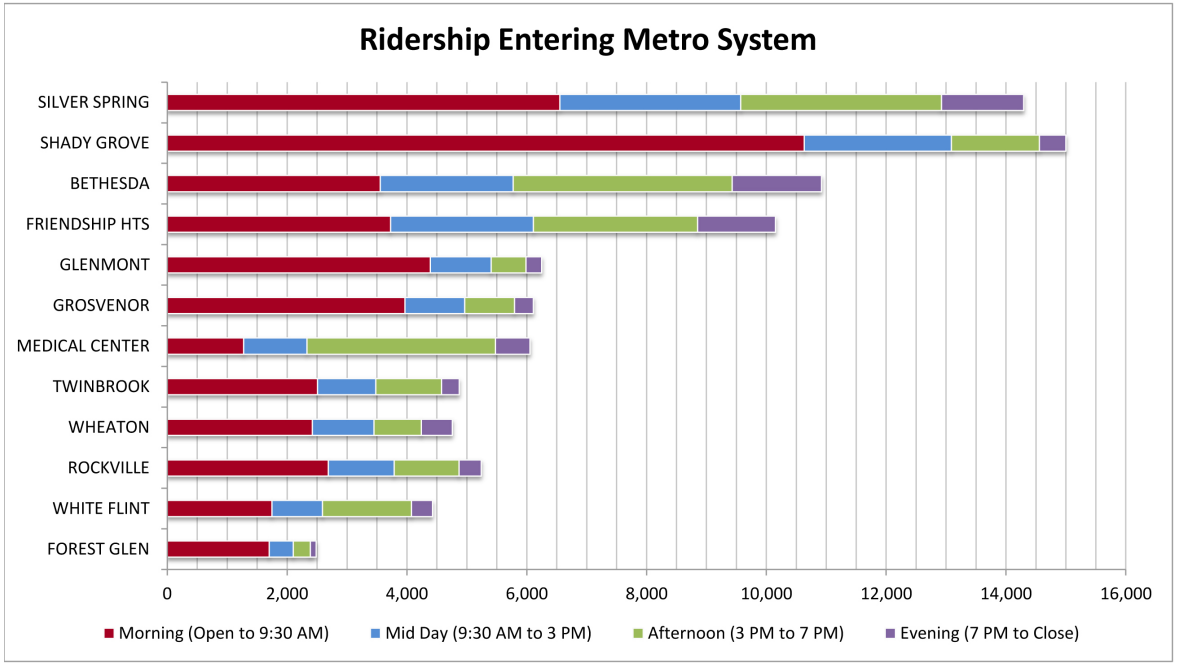
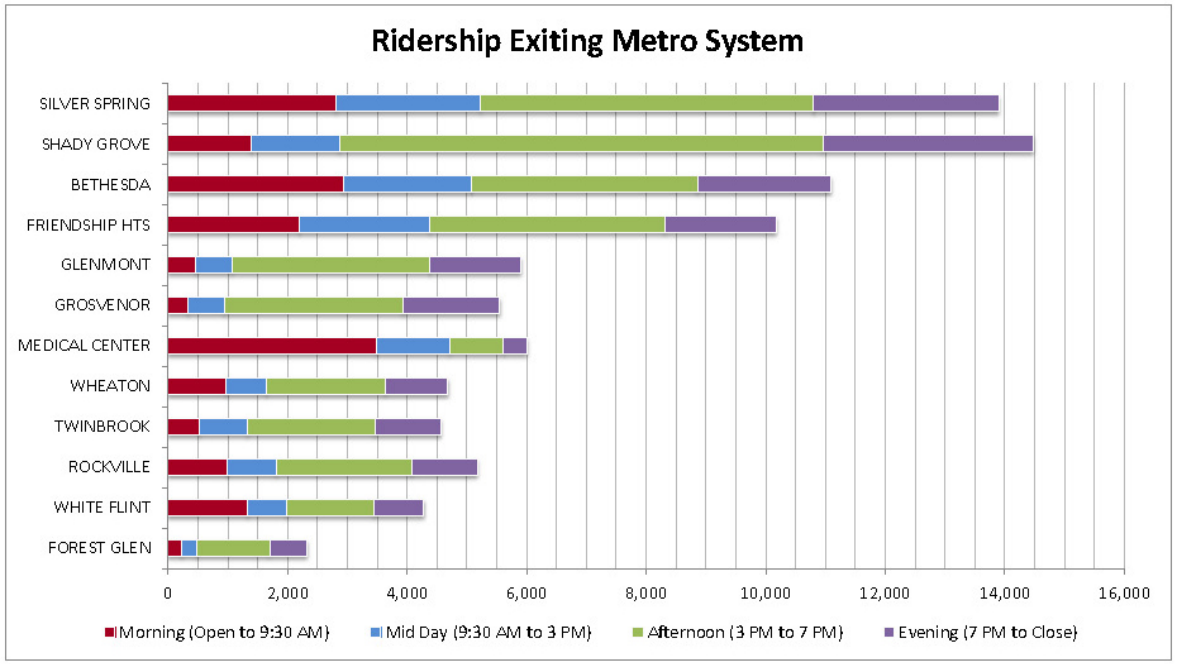


Illustration 27
Metrorail Ridership Exits



All stations suffered a drop between 20 and 40 percent during February, which in turn affected the ridership volume for all of FY10 (see Table 9). Between FY09 and FY10, ridership dropped five percent from the 2009 level, and four percent from the 2008 level.

The time of day patterns in Montgomery County reflect the predominantly residential nature of the areas surrounding many Metrorail stations. Monitoring exits and entries indicates that Metrorail stations in communities with a mix of jobs and housing tend to have an even pattern of entries and exits throughout the day. For example, ridership at the Friendship Heights station is relatively steady through the morning, midday, afternon, and evening. By contrast, nearly three quarters of all entries to the Shady Grove station, which serves a high commuter population occur during the morning hours and two thirds of exits are in the evening hours.

Table 9 Average Daily Metrorail Boardings, 2010

FY 08 & 10 Average Daily Boardings

	FY 08	FY 10		FY 08	FY 10		FY 08	FY 10		FY 08	FY 10	
	Shady Grove		% Change	**Silver Spring**		% Change	**Bethesda**		% Change	**Friendship Heights**		% Change
Jul	29781	28982	-2.8	30373	24969	-21.6	21970	21797	-0.8	19620	19043	-3.0
Aug	28006	27298	-2.6	28887	24388	-18.4	20317	19644	-3.4	17974	17345	-3.6
Sep	28133	27594	-2.0	29940	25402	-17.9	21045	20715	-1.6	19230	18161	-5.9
Oct	28746	27895	-3.1	29996	26215	-14.4	21748	21265	-2.3	19680	19207	-2.5
Nov	27770	26913	-3.2	28857	24994	-15.5	21102	20444	-3.2	19312	18432	-4.8
Dec	25205	24780	-1.7	25605	23026	-11.2	19445	19234	-1.1	18409	18299	-0.6
Jan	27379	26272	-4.2	28042	25116	-11.6	20931	20528	-2.0	18704	18485	-1.2
Feb	26515	19649	-34.9	27878	20548	-35.7	20745	18483	-12.2	18530	16822	-10.2
Mar	27924	27856	-0.2	28955	26,600	-8.9	20962	21740	3.6	18772	19306	2.8
Apr	28990	29132	0.5	27160	27886	2.6	22160	22443	1.3	20094	20060	-0.2
May	28644	27576	-3.9	30293	26459	-14.5	22200	21351	-4.0	20347	19486	-4.4
Jun	30676	29477	-4.1	32120	28198	-13.9	23174	22016	-5.3	20882	20329	-2.7
	337769	323424		348106	303801		255799	249660		231554	224975	
	FY 08	FY 10		FY 08	FY 10		FY 08	FY 10		FY 08	FY 10	
	Glenmont		% Change	**Grosvenor**		% Change	**Medical Center**		% Change	**Rockville**		% Change
Jul	12221	10780	-13.4	11025	11808	6.6	11074	11796	6.1	9531	10319	7.6
Aug	11688	10425	-12.1	10146	10698	5.2	10065	10904	7.7	8793	9432	6.8
Sep	12036	11098	-8.5	10895	11102	1.9	10373	11354	8.6	9497	10061	5.6
Oct	12033	11487	-4.8	11239	11307	0.6	10538	11616	9.3	9651	10208	5.5
Nov	11768	11312	-4.0	10948	10841	-1.0	10045	10948	8.2	9317	9844	5.4
Dec	10934	10539	-3.7	9738	10031	2.9	8985	10004	10.2	8439	8805	4.2
Jan	11482	11485	0.0	10721	11055	3.0	10026	11161	10.2	8972	9281	3.3
Feb	11135	8928	-24.7	10638	8565	-24.2	9826	9695	-1.4	8815	7416	-18.9
Mar	11592	11479	-1.0	10875	11465	5.1	10037	11456	12.4	8970	9986	10.2
Apr	12025	11945	-0.7	11568	11809	2.0	10410	11422	8.9	9454	10214	7.4
May	11972	11480	-4.3	11303	11305	0.0	10655	11144	4.4	9437	9801	3.7
Jun	12563	12156	-3.3	11871	11658	-1.8	11571	12061	4.1	10266	10415	1.4
	141449	133114		130967	131644		123605	133561		111142	115782	
	FY 08	FY 10		FY 08	FY 10		FY 08	FY 10		FY 08	FY 10	
	Twinbrook		% Change	**Wheaton**		% Change	**White Flint**		% Change	**Forest Glen**		% Change
Jul	9654	9639	-0.2	9876	8315	-18.8	8343	8434	1.1	4457	4328	-3.0
Aug	9001	8932	-0.8	9517	8432	-12.9	7643	7741	1.3	4230	4172	-1.4
Sep	9374	9106	-2.9	9514	8261	-15.2	8112	8179	0.8	4530	4495	-0.8
Oct	9709	9286	-4.6	9674	8670	-11.6	8379	8511	1.6	4524	4658	2.9
Nov	9305	8900	-4.6	9448	8490	-11.3	8041	8107	0.8	4426	4491	1.4
Dec	8490	8144	-4.2	9314	8502	-9.6	7269	7349	1.1	3947	4212	6.3
Jan	9120	9257	1.5	9016	8449	-6.7	7749	8064	3.9	4378	4684	6.5
Feb	8966	6661	-34.6	8931	7212	-23.8	7581	6345	-19.5	4322	3438	-25.7
Mar	9348	8979	-4.1	9136	9022	-1.3	7889	8477	6.9	4489	4725	5.0
Apr	9668	9317	-3.8	9356	9288	-0.7	8099	8606	5.9	4747	4887	2.9
May	9762	9103	-7.2	9383	8946	-4.9	8143	8339	2.4	4659	4617	-0.9
Jun	10226	9558	-7.0	9825	9326	-5.4	8543	8708	1.9	4909	4812	-2.0
	112623	106882		112990	102913		95791	96860		53618	53519	
	FY 08 TOTAL	**2055413**										
	FY 10 TOTAL	**1976135**										
	% Change	-4.01177045										

Appendix

The Mobility Assessment Report Appendix is available online at
www.montgomeryplanning.org/transportation

Appendix 1 Data Sources and Methodology

- Data Sources and Inventory
  - INRIX
- Methodology
  - Critical Lane Volume (CLV)
  - CLV and Local Area Transportation Review (LATR)

Appendix 2 Future Congestion

Appendix 3 Scheduled Road Construction Projects

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Staff Draft

mobility assessment report

October 2011

Montgomery Planning Department

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