Status Report on the Bus Systems in the National Capital Region

Report of the TPB Regional Bus Subcommittee
Fall, 2007

Introduction

The Regional Bus Subcommittee of the TPB Technical Committee was established in January 2007. Since then, the subcommittee has met monthly to provide a forum for regional bus planning and coordination. This report provides an overview of the subcommittee's work to date, and highlights current operational issues and long-range planning needs which have been identified. After review and discussion by the subcommittee, it is recommended that these issues should be brought to the attention of the TPB Technical Committee and then to the Transportation Planning Board.

Background

The Regional Bus Subcommittee

The Regional Bus Subcommittee (RBS) of the TPB Technical Committee was established by TPB resolution R13-2007 on January 17, 2007. Its mission is to "provide a permanent process for the coordination of bus planning throughout the Washington region, and for incorporating regional bus plans into the Constrained Long Range Plan (CLRP) and Transportation Improvement Program (TIP)." The subcommittee coordinates with and engages staff from the following transit services:

Metrobus	Fairfax Connector
Montgomery County Ride On	Loudoun Commuter Transit
Prince George's County The Bus	PRTC Omni Ride
DC Circulator	MTA Commuter Bus
Alexandria Dash	Metrorail
Arlington Transit (ART)	Virginia Railway Express
Falls Church George	Maryland Commuter Rail
City of Fairfax CUE	DC Streetcar

Since its first meeting, the subcommittee has covered the following topic areas:

- Review of an agreement between the TPB, the state departments of transportation and public transportation operators on the roles and responsibilities for metropolitan transportation planning in the region, as required by SAFETEA-LU.
- Incorporation of bus transit networks into the regional travel demand model and long-range planning work.
- Review of a methodology developed by TPB staff to map bus transit "availability" for use as a tool for long-range bus transit planning.
- The need for more daytime commuter bus vehicle parking in the regional core.
- The possibility of conducting a regional "Costs of Congestion" analysis which would quantify the costs incurred by bus transit operators due to increasing traffic congestion.

- Bus transit related activities of other subcommittees and the TPB task forces.

During a review of long-range planning topics, members of the subcommittee raised several operational concerns which, unless addressed, would limit the ability of the region's transit operators to focus on long-range planning. The subcommittee members agreed that these shorter term planning and operational issues should be brought to the attention of the TPB Technical Committee and the TPB, in order to raise the profile of the regional bus transit system and communicate its importance and pressing needs to regional decision makers. This report is the TPB Regional Bus Subcommittee's first effort towards that goal.

The Bus System of the National Capital Region

Different Bus Systems for Different Needs

The functions served by bus transit in the region have changed over the past 30 years. First, private operators provided local bus service to and around the regional core. Those services were then folded into Metrobus, which provided distributor services within the District and ran radial routes into the core from the suburban jurisdictions. The opening and gradual expansion of the Metrorail system between 1976 and 2001 allowed many bus routes to be replaced by rail routes. This resulted in the restructuring of many Metrobus lines to feed into the rail system. Over the past 20 years, local jurisdictions established their own transit agencies, providing local/circulator service to suburban downtowns as well as feeder service to Metrorail stations. Some jurisdictions in the region operate commuter/express bus services, which provide direct access between park-and-ride lots and the regional core or Metrorail stations.

~~First, buses are a primary mode of transportation for many trips, providing end-to-end transportation. This type of trip is generally provided by *local bus* systems. *Express bus* systems, such as commuter buses, collect riders from park-and-ride lots and transit stations and provide direct service to a given location, often more rapidly than either commuter rail or Metrorail. On the other end of the spectrum, buses also provide *feeder* service to the regional rail system, extending its reach beyond its immediate service areas. Finally, buses provide *circulator/distributor* services which move people within a downtown or urban area.~~

Many Bus Transit Agencies

The Washington Metropolitan Region is served by Metrobus and 11 local bus systems. These agencies are listed in Table 1.

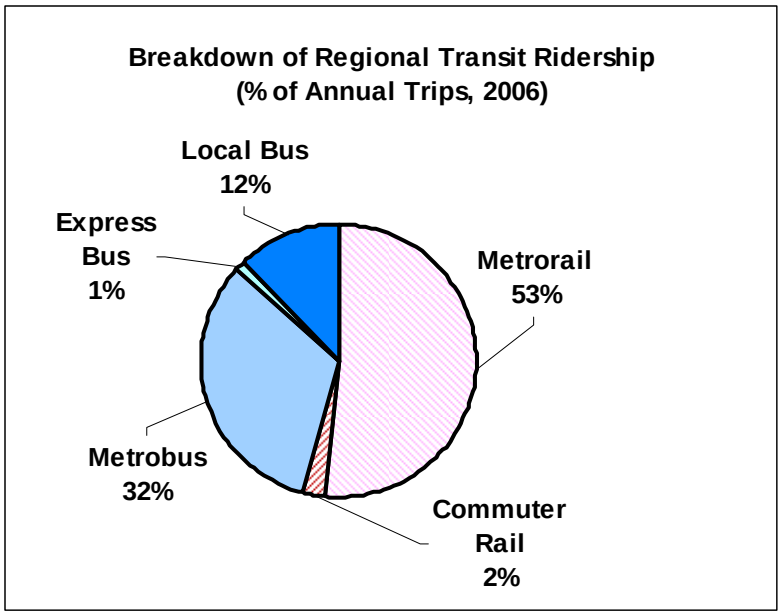
Table 1: Bus Transit Operators in the TBP Planning Area

Jurisdiction	Transit Service	Type of Service
WMATA Compact Area	Metrobus	express, local/feeder
District of Columbia	DC Circulator	circulator
Montgomery County	Ride-On	express, local/feeder
Prince George's County	The Bus	local/feeder

State of Maryland	MTA	express
Laurel/Columbia MD	Howard Area Transit Service[1]	local/feeder
Arlington County	ART	local/feeder
Fairfax County	Connector	local/feeder
Loudoun County	LC Transit	express, local/feeder
Prince William	PRTC (OmniRide, OmniLink)	express, local/feeder
The City of Alexandria	Dash	local/feeder
The City of Fairfax	Cue	local/feeder
The City of Falls Church	George	local/feeder

Bus Services are Important to the Regional Transportation System

The regional bus system is a large component of the region's transit system. According to the Regional Bus Survey[2], buses provided 45% of the annual transit trips in the region. Of that total, 32% of the trips were provided by Metrobus, 12% by other local transit agencies, and 1% by commuter buses.



In addition to having a large share of the region's transit market, bus systems in the Washington region have a much greater reach than the Metrorail system. The maps in Figure 1 illustrate the collective service area of the local and express bus services compared to Metrorail. The first map shows the reach of the local bus system, as determined by drawing a half-mile radius around local bus stops. The second map shows the reach of the express bus system, as determined by drawing a one-mile radius around express bus stops (generally park-and-ride lots or transit stations). The bus stop data points were taken from bus transit inputs to the TPB regional travel demand model.

[1] HATS ridership data was not available at the time of this writing.
[2] Regional Bus Conference White Paper, November, 2006

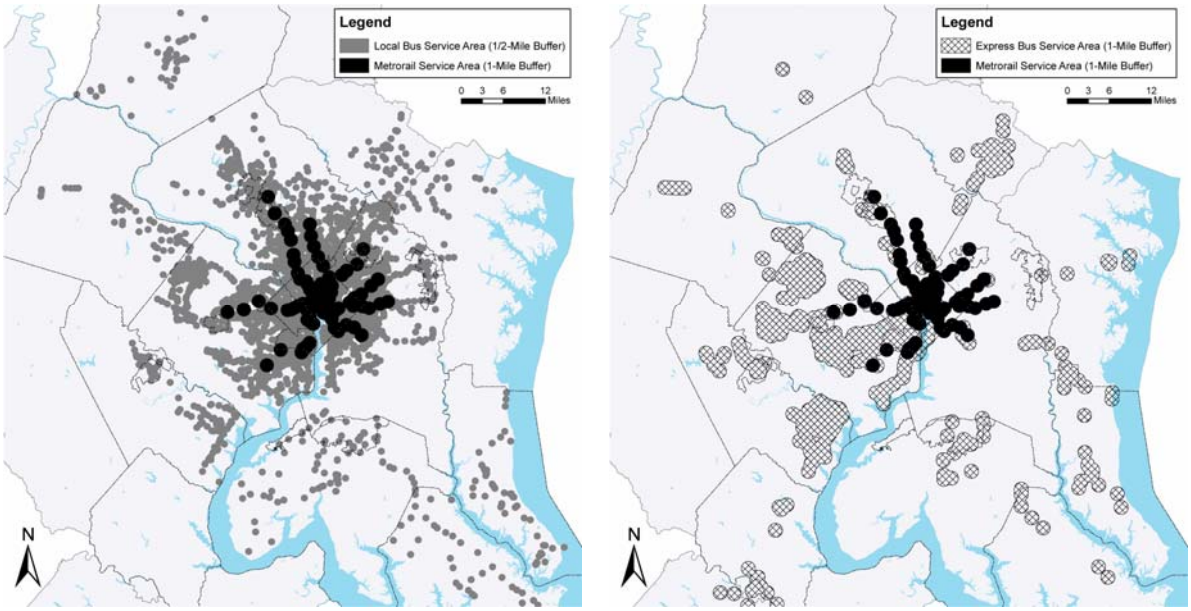


Figure 1: Comparison of the service area of regional bus service versus Metrorail.

The continued increasing use of Metrorail has been well publicized. According to the National Transit Database, Metrorail ridership has increased by 39% between 1997 and 2006, or about 4% per year. WMATA announced on August 6, 2007, that Metrorail broke its all-time ridership record in July, carrying 19.2 million people during that month. As of July 19, 2007, five of Metrorail's Top 10 ridership days were in the year 2007. Metrorail's annual unlinked trips from 1996 to 2006 are displayed in Figure 2.

This record-breaking usage is not without its drawbacks. Metrorail is swiftly reaching capacity along many of its lines. The cost of accommodating future Metrorail ridership is projected to exceed available identified funding after 2010. As a result, the TPB travel demand model caps rail capacity at 2010 levels in the future, as no funding has been identified to increase capacity beyond that date.

What is less well known is that the region's bus system is also swiftly reaching capacity due to rapid ridership growth. The growth in bus ridership over the past ten years is discussed below. Many transit operators report problems with maintaining headways on current lines, let alone expanding service. These problems are resulting from limited resources for acquiring new buses and limited bus storage and maintenance space. These issues are discussed in more detail in the next section of this report.

Trends in Regional Bus Ridership

Ridership on the regional bus system has been growing steadily over the past 10 years. However, most of the growth has experienced by the local transit providers.

<u>Metrobus</u>

Metrobus ridership between 1996 and 2006 has grown 8%, an average of about 1% annual growth. However, according to the data provided the number of annual unlinked trips between 2005 and 2006 dropped by over 20-million. This drop does not seem to be

reflective of the growth trend experienced by Metrobus over the preceeding years. [Discuss this data further? Reasons for it?] Ignoring this potential outlier, Metrobus has experienced a growth of about 3-million trips per year, our about 2%annually. The Metrobus annual unlinked trips statistics from the National Transit Database are displayed in Figure 2. The Metrobus ridership data is compared against the ridership data from the non-WMATA local and commuter bus systems in Figure 3.

Local Feeder and Circulators Services

As mentioned above, the local bus transit systems have been receiving the bulk of the growth in regional bus transit use. The local circulator and feeder systems in the region have experienced a steady growth rate of about 7% per year since 1996. Between 1996 and 2006, ridership on the local circulators/feeders has grown 74%. The collective annual ridership data grouped by Metrobus, circulator/feeder systems and commuter bus systems is graphed in Figure 3: Comparison of ridership on Metrorail, local bus and commuter bus services.Figure 3.

Of the local systems, some showed moderate growth while others' ridership skyrocketed. For example, ridership on the City of Fairfax Cue system grew by 27% between 1996 and 2006. By contract, ridership on PRTC's OmniLink and Arlington County's ART grew by 440% and 790% respectively over the same period. Growth in annual unlinked trips since 1996 for the individual locally operated bus systems is displayed in Figure 4.

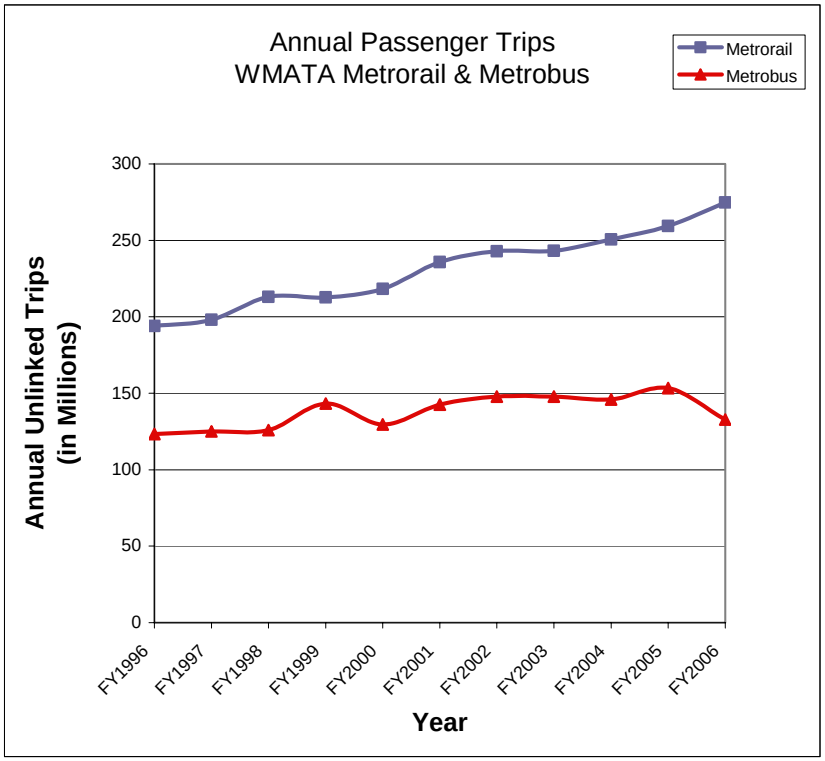


Figure 2: WMATA Metrorail and Metrobus annual unlinked trips, 1996 - 2006. ***Source, National Transit Database.***

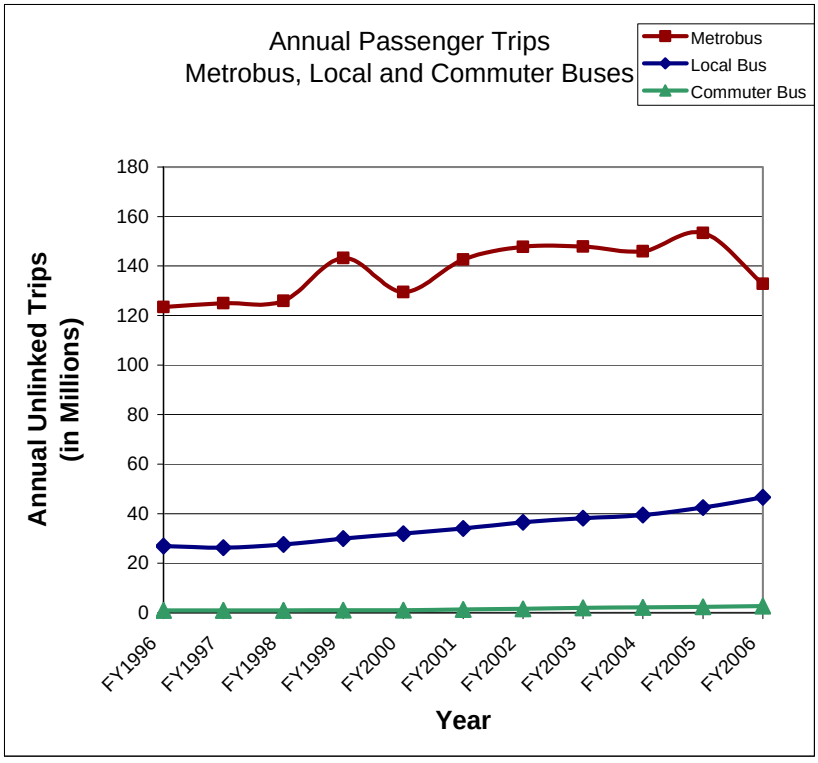


Figure 3: Comparison of ridership on Metrorail, local bus and commuter bus services.

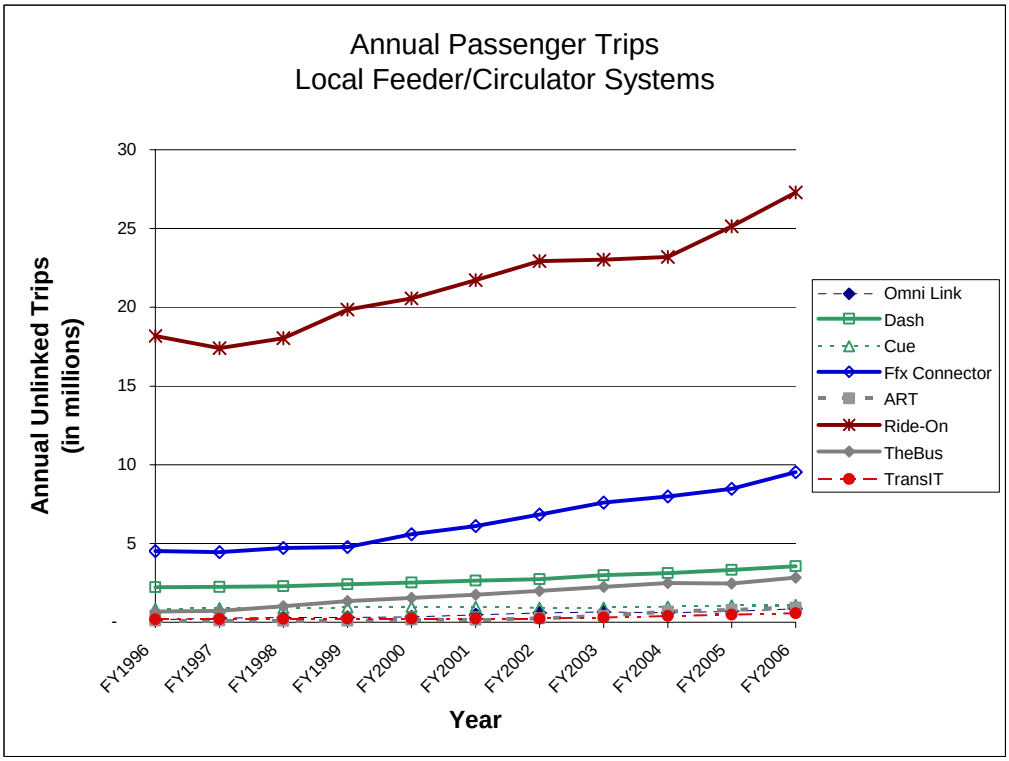


Figure 4: Growth in annual unlinked trips by local feeder and circulator systems since 1996. ***Source, National Transit Database***

Commuter/Express Systems

Locally operated commuter bus services have seen the greatest growth in percentage terms in the past 10 years. These systems collectively have experienced 180% growth in that time period. However, as visible from the graph in Figure 5, the real growth in these long-distance express carriers began in the year 2000. Between 2000 and 2006, the locally run commuter bus systems experienced an average annual growth rate of 17%, resulting in 150% growth over 6 years. The growth in ridership of the individual locally operated commuter/express bus systems between 1996 and 2006 is presented in Figure 6.

~~*Short-Term Needs vs. Long-Term Goals*~~

~~As mentioned above, the tremendous growth in bus ridership throughout the region over the past ten years has put a strain on the regional bus transit system. Bus operators throughout the region have reported the need for additional funding to maintain existing levels of service and expand service offerings. The specific issues are discussed in the next section, "Short-Term Issues in Regional Bus Planning." These pressing needs supersede the urgency of longer-term bus planning.~~

Recent Bus Planning Efforts

In 2003, WMATA and its consultant team released the final report of their Regional Bus Study. The Regional Bus Study was "initiated and conducted by WMATA in cooperation with the jurisdictions in its service area." The study's final report "presents a plan to address the short and long term requirements for both regional and non-regional bus services in the District of Columbia, Montgomery County and Prince George's County in Maryland, Arlington, Fairfax and Loudoun Counties and the Cities of Alexandria, Fairfax and Falls Church in Virginia."

The plan's recommended improvements are organized into service improvements and capital improvements. Service improvements include strategies for providing new or improved services throughout the region. Capital improvements include upgrades to the region's bus fleet and facilities and Intelligent Transportation Systems (ITS) implementations that are required to facilitate the service improvements. The service and capital improvements described in the plan are outlined in Figure 7.

The final section of the Regional Bus Study report reconfirms that the study's recommendations are not financially constrained. While the study's recommendations plot a clear course for enhancing the region's bus transit system, the funding sources needed to move the plan forward are not identified.

In 2006, WMATA hosted a regional bus summit, …

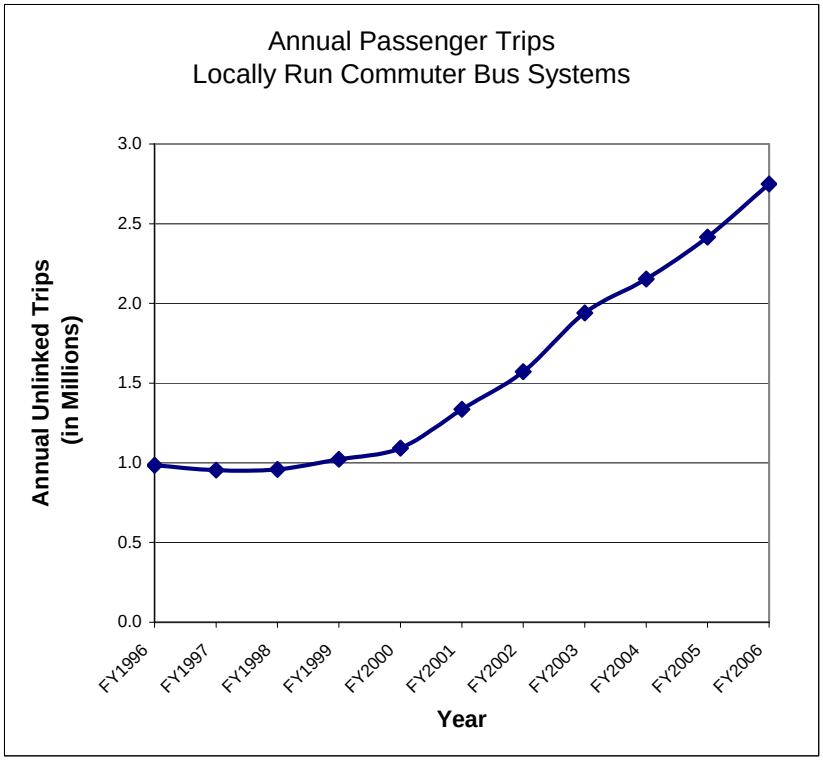


Figure 5: Locally Run Commuter Bus annual unlinked trips, 1996 - 2006. ***Source, National Transit Database.***

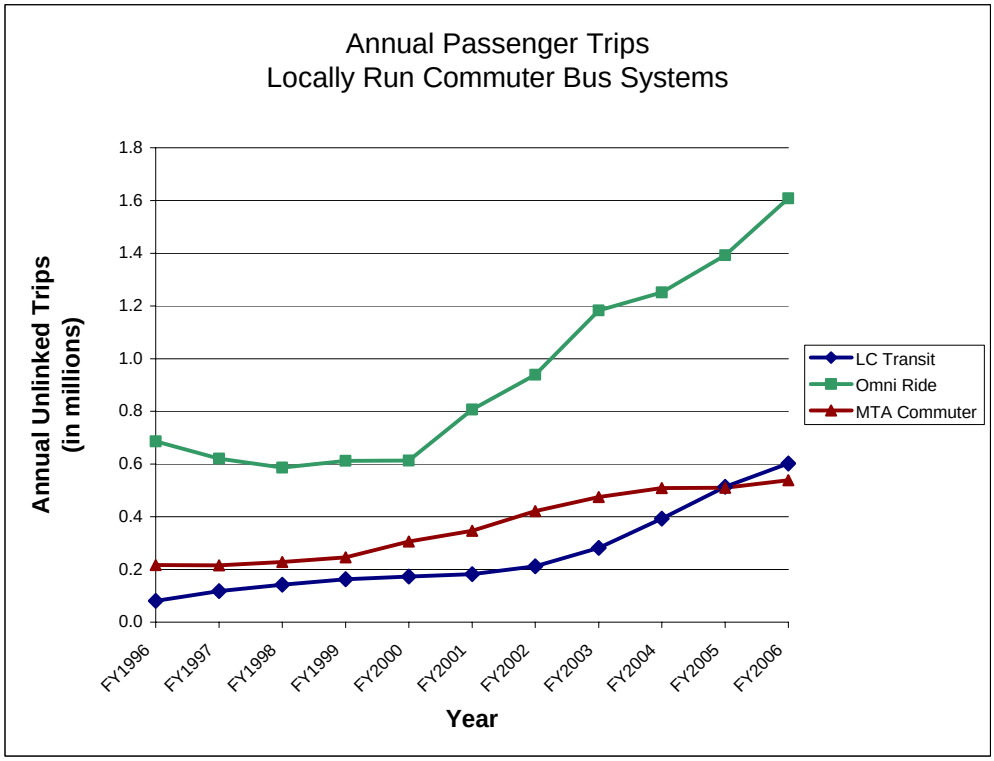


Figure 6: Annual unlinked trips by individual locally operated commuter/express bus systems. ***Source, National Transit Database.***

Recommendations from the WMATA Regional Bus Study

- Service Improvements
  - Improvements to the Existing Routes
    - Increased Frequency
    - Increased Time-Span
    - Restructuring of Routes
  - New Routes
    - New Fixed Route Services
    - New/Improved Feeder Services
    - New Circulator Routes and Demand Responsive Services
    - New Cross-Regional Services (Radial and Reverse Commute)
  - High Performance Services
    - Rapid Bus: using Bus Rapid Transit (BRT) technologies and features to increase the level of service of long-haul bus lines.
    - Express Bus Services: premium commuter bus routes in corridors not served by Metrorail.
    - Rail Relief Services: express bus services intended to relieve crowded Metrorail corridors and provide downtown circulator services.
- Capital Improvements
  - Fleet
    - Provide new vehicles needed to implement the plan
  - Passenger Facility Amenities
    - Provide passengers with a seamless transit system; increased mobility; improved access and circulation; and reliable service and good information.
  - Running Way Treatments
    - Improve the level of bus service by: removing on-street parking during peak service hours; providing signal priority to transit vehicles; providing left-hand turn lanes; and providing bus-only lanes or queue jumpers
  - ITS Technology
    - Use technology to improve bus services through: enhanced communications; better scheduling, real-time traveler information (pre-trip, wayside and in-vehicle); transit signal priority;
  - Bus Maintenance and Storage Garages
    - Facilities to house and maintain the increased fleet of buses.

Figure 7: Summary of recommendations from the 2003 Regional Bus Study

Current Issues in Regional Bus Operations

The Regional Bus Study described above highlights mid- and long-range bus transit recommendations for the Washington region. However, there are current concerns: the existing systems must be maintained, and there are pressing demands for new services that must be addressed before focusing on long-range bus transit planning. These current needs and their causes are discussed in the following sections.

Real Monetary and Infrastructure Needs

The regional bus systems have pressing monetary and infrastructure needs. First, the existing bus fleet is aging and funding is required to replace older buses retired from the fleet. The issue of bus replacement is compounded as local governments struggle with local air pollution concerns and rising fuel costs, resulting in added pressure to replace an aging fleet of diesel-fuel buses with more fuel-efficient, low-emissions, and alternative-fuel vehicles.

Local transit agencies are also working to increase their bus fleet size. Transit agencies are purchasing buses to serve new bus lines and to reduce congestion or maintain headways on established lines.

Finally, transit agencies are in need of new bus maintenance and storage garages. These locally undesirable facilities are hard to locate in our heavily developed urbanized area.

Operational cost pressures, proposed fare increase, more local subsidies

Factors Creating Current Situation

Many factors interact to create the current situation, including regional growth, changing development patterns, congestion and the growing ridership on the Metrorail system.

Increased demand for public transportation stems from the region's healthy growth rate. Regional employment and housing demand grow at a faster rate than the region's highway system, which result in greater demand for transit services. Additionally, growth patterns are shifting toward transit oriented developments in or around regional activity centers. Many of these activity centers are not served by the Metrorail system and rely on bus transit to provide transportation alternatives.

Traffic congestion also increases the need for more buses. Travelers and commuters wishing to avoid sitting in traffic and driving in stop-and-go conditions may switch to transit. Additionally, buses are slowed by congestion, and transit agencies must add additional buses to traffic-congested routes in order to maintain schedules and meet level of service goals.

Finally, the growing ridership on the Metrorail system has increased the need for expanded bus services in two ways. First, buses assist the rail system by providing feeder service to the rail lines: increases in rail ridership are accompanied by corresponding increases the feeder bus ridership. Secondly, growing rail ridership has brought the

Metrorail system close to capacity along several corridors. WMATA is currently planning "rail relief" bus routes which aim to take pressure off of the congested rail system. This puts even greater strain on the regional bus systems, requiring even more new buses and new routes.

All of the factors described above work to greatly increase the fleet sizes of the region's bus operators that are required to satisfy the growing demand for bus transit service. And as bus operators' fleets grow, so does the need for additional bus maintenance and storage facilities.

Examples of Current Bus System Needs

Examples from local transit agencies illustrate the above factors resulting in increased needs for funding of bus transit systems. [*List examples by example type, or by agency?*]

Bus Fleet Replacement: The Arlington transit company (ART) is currently not expanding its bus service. Instead, it is working to replace a large percentage of its fleet, increasing the size of their buses. Many of their routes are currently operating at crush loads. The City of Fairfax is in the process of purchasing 6 new buses to replace vehicles in its existing fleet.

Bus Fleet Growth: Loudoun County's LC Transit commuter buses are currently operating at crush loads. The county is working to increase its fleet size to accommodate the growing demand caused by increased development and congestion in Northern Virginia.

Bus Garages: Montgomery County's Ride On bus system recently opened a new bus garage near the border with Frederick County. Ride On was unable to site the facility closer to its primary service area. As a result, much time and money is wasted as their buses themselves "commute" to their service areas and routes.

Daytime Parking Facilities: The Potomac and Rappahannock Transit Commission (PRTC), which operates the OmniRide commuter bus service, reported its 6th straight year of double-digit ridership increases, and has recently surpassed 10,000 passengers per day. PRTC has reported that its biggest barrier to expansion is the lack of daytime parking for commuter buses in the regional core.

Long-Range Planning Activities

The Regional Bus Subcommittee is currently engaged in long-range planning activities as well as addressing the current operational challenges. TPB staff is working with the subcommittee to develop mapping tools which portray current and future bus transit service from a regional perspective. Maps of future bus service are overlaid with land-use changes and regional activity clusters, identifying for long range bus planning efforts where new routes and services may be needed.

The subcommittee also has expressed interest in gathering a set of regional bus transit level-of-service standards. These standards, based on land use patterns, can then be

compared against planned bus transit levels of service to spotlight areas in need of enhanced transit.

Other TPB Planning Activities Involving Bus Transit

Additionally, the TPB's Regional Mobility and Accessibility Study (RMAS) incorporates transit enhancements (including Bus Rapid Transit) into packaged scenarios of transportation and land-use changes. These scenarios are then analyzed in an effort to answer the question, "What if the Washington Region grew differently?" These scenarios are intended to inform future land-use and transportation decisions throughout the region.

One of the RMAS scenarios is a network of Variably Priced Lanes (VPLs). VPLs are defined as tolled traffic lanes where the toll varies dynamically to ensure congestion-free travel for those willing to pay the toll. The Virginia implementation of VPLs will be HOT Lanes, or High-Occupancy/Toll Lanes, which allow vehicles with three or more occupants (HOV-3) to travel toll-free in the VPLs. Maryland and the District plan to implement Express Toll Lanes (ETLs), which do not allow HOVs toll-free access. As part of the study of a Regional Network of Variably Priced Lanes, enhanced bus transit is added to the new lanes. In this scenario, buses use the congestion-free toll lanes and provide a higher level of service than currently possible, at costs less than new rail or BRT lines.

Summary

Bus services are very important to our region. The region's bus systems provide nearly as many trips annually as the Metrorail system. Just as with Metrorail, ridership on Metrobus and the 11 locally operated bus systems is rapidly increasing. This increasing demand for bus transit, combined with increased congestion on the region's roadways, is presenting unique challenges to the bus operators in the region, who are faced with real monetary and infrastructure needs.

The challenges facing the Metrorail system have been widely publicized and discussed among our region's decision makers. While the region's bus system is facing similar current operational challenges, these challenges go relatively unrecognized. The Regional Bus Subcommittee of the National Capital Region Transportation Planning Board wishes to raise the profile of the region's bus systems, in the hope that their issues can be explored, discussed, and eventually solved.

The Regional Bus Subcommittee is also pursuing long-range planning for the region's bus systems. However, long-range planning cannot be accomplished in earnest until the current operational challenges of the region's bus systems have been met.