Fairfax County Transit Development Plan

DRAFT Final Service Recommendations

Developed by

TranSystems *and* ATCS®, P.L.C.
ENGINEERING • PLANNING • SURVEYING

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7 SERVICE RECOMMENDATIONS

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7.1 MARKET SEGMENTATION

Bus routes in Fairfax County offer many types of connections, such as local trips along arterial corridors, feeder service to Metrorail, circulator service in neighborhoods, and cross-county links. Different routes have different spans of service as well, with some routes operating all day, some during rush hours only, and some operating past midnight. This variety of connections and service spans indicates that the current routes are targeted to specific travel markets. For areas with many commuters to the urban core but relatively little need for transit in the midday or evening, rush hour services are provided. In more transit-dependent areas, full-day and weekend service is provided.

This concept of targeting service to particular travel markets will be an emphasis of the Transit Development Plan. It must be recognized that the development style in most of Fairfax County is not conducive to public transportation, walking or biking. Most of the housing stock and commercial development dates to the last three to four decades, and it was built with the assumption that the private automobile would be the primary form of transportation. Roadways are wide, allowing for fast-moving traffic, and where sidewalks are provided, they do not offer a safe, comfortable, and enticing pedestrian environment. There is discussion now about transforming places like Tysons Corner into more pedestrian- and transit-friendly areas, but much work needs to be done. The Town of Vienna has made a major investment in sidewalks (brick paving) and other pedestrian amenities, but further investments and greater access management (reduction of curb cuts) is necessary to produce a truly successful pedestrian environment.

All of this is introductory to noting that public transportation faces significant challenges in Fairfax County, especially with regard to choice riders. Thus, in the short term, bus service in areas with a low degree of transit dependency should continue to focus on the commuter market and not attempt to meet all mobility needs. The commuters most likely to use transit in these areas are those commuting to the urban core or any other areas where parking is expensive or inconvenient. One potential growth market for choice riders would be commuters traveling in corridors where HOV or HOT facilities exist, for whom bus service could offer commuting times competitive with or better than driving alone. The resident survey conducted as part of the TDP (see Chapter 5) indicates that there are portions of the population who, while they are not currently bus riders, would be willing to ride if it were reliable and cost and time competitive with the automobile.

In sections of the County where there are significant transit-dependent populations, bus service should continue to be upgraded to enhance mobility and economic opportunity. There has been explosive growth in ridership in several major corridors, including Richmond Highway (REX and 171), Backlick/Gallows (401), and Arlington Blvd (Metrobus 1 lines), and service has been increased on some routes to accommodate the demand. REX is an example of a limited-stop branded service that is intended to be a step toward future bus rapid transit.

A third segment of the population beyond choice riders and transit dependent riders is the fairly new phenomenon, in “suburban” counties such as Fairfax, of those who are transit dependent by choice. This means that, while they have the income and physical capability to drive, they have chosen to either not own an automobile or to limit their household auto ownership to one. Those people may show up as choice riders when looking solely at demographics due to their income level, however they, too, are in need of high quality transit service. As Fairfax County continues to add more urban villages and transit oriented developments, this market segment will continue to grow. The TDP tries to capture this market by providing good quality transit service in areas with high mixed-use densities, the type of areas where this population would choose to live.

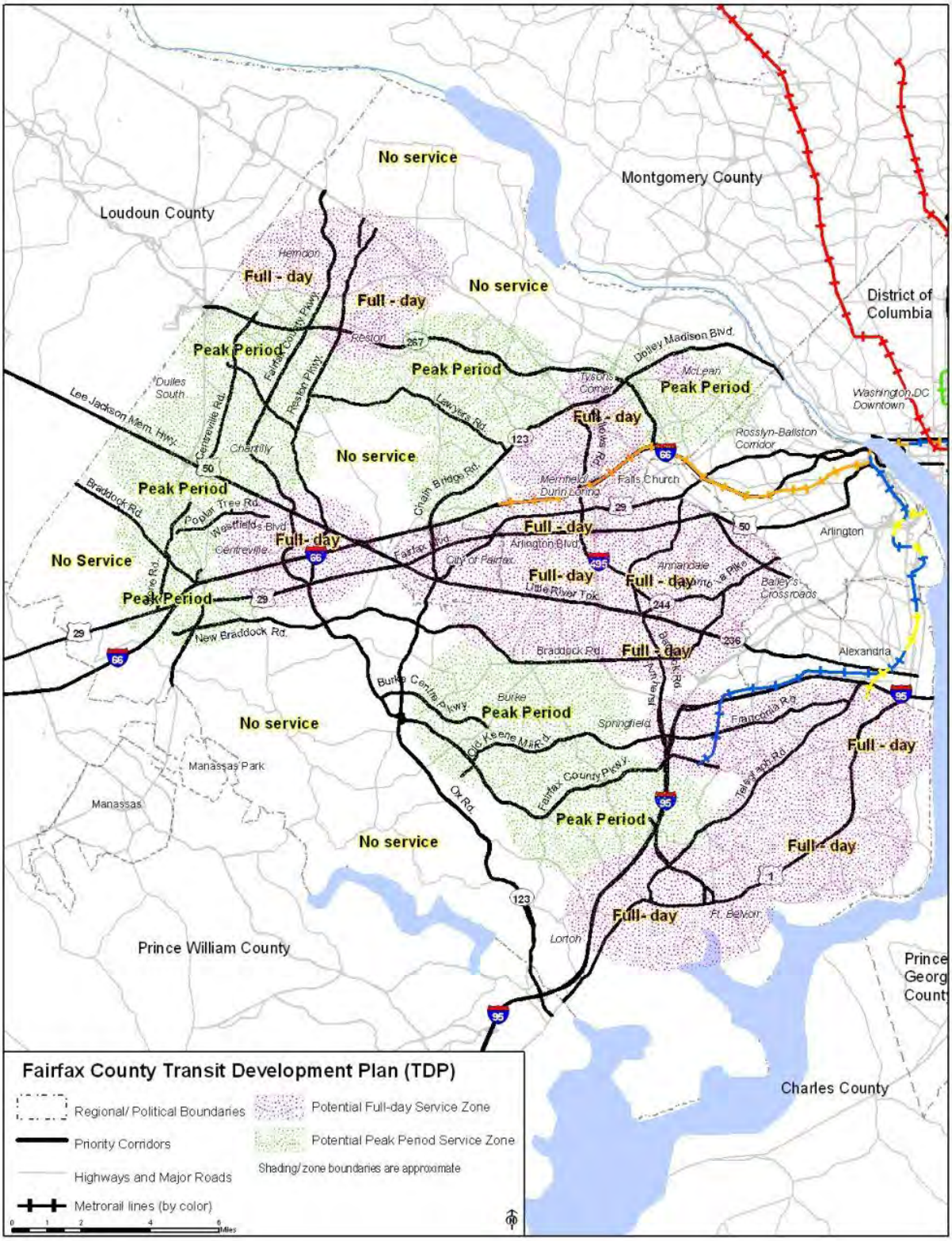
Figure 7.1 shows general guidelines for the type of service appropriate for various parts of the county. It cannot be emphasized enough that these are general guidelines for primary service in the areas and do not imply hard and fast rules about service. In the map, "Full-day" indicates areas that can support transit service throughout the day and on weekends, as there is demand for work trips and non-work trips. "Peak Period" indicates areas that have sufficient demand to warrant service during peak periods, providing connections generally oriented to the regional core. These areas, however, likely do not warrant midday, evening, or weekend service as virtually all non-work trip demand is handled by private automobile trips. "No Service" indicates areas that have insufficient residential density and/or high degrees of affluence to make conventional transit service not viable.

The County has defined Priority Corridors on many major roadways. Most of these have existing bus service, and the routes on these Corridors are among the best performers in the county. Service and facility upgrades in these corridors, especially on those that run through dense development with transit-dependent populations, will build ridership and support yet higher levels of service. The net result will be a more convenient and viable system that offers a real alternative to driving.

The next section describes specific policy guidance in developing service recommendations for the TDP. This guidance is intended to streamline the process of establishing the recommended plan, as well as providing justification to interested parties for the overall direction of the TDP.

The Transit Development Plan is intended to improve the efficiency and enhance the effectiveness of bus service in Fairfax County. The best measure of this goal is increasing ridership. The policy guidance contained in this document is intended to steer limited resources to their most effective deployment, providing a high level of service to county residents who need and frequently use public transportation, and a targeted, attractive service to those residents who rely on automobiles for most of their transportation. It is important to recognize where transit is attractive and competitive and to exploit those opportunities, but also recognize where bus service is unlikely to be successful and avoid or curtail service there. A plan that follows this guidance should be able to achieve these goals.

Figure 7.1 Current and Projected General Service Guidelines Based on Market Segmentation Analysis



7.2 CHALLENGES

It is currently a dynamic time for planning transit improvements in Fairfax County. There are many concurrent planning efforts underway that will change the future of the County and the County's transportation system.

7.2.1 BRAC

The Department of Defense (DoD) has recently completed a process of extensive review of its military installations nationwide to provide recommendations for reshaping the Department's infrastructure and force structure. As required by the 1990 Defense Base Closure and Realignment Act (with the accepted acronym of BRAC) as amended in 2005, the DoD submitted its recommendations for base closures and realignment to the 2005 BRAC Commission for public review and analysis. Based upon a set of criteria in the Act, the commission then issued its final recommendations of several hundred changes to the existing military installation infrastructure. Two of these actions will have an impact on the transportation resources located within the Mount Vernon and Lee Districts of Fairfax County, with significant growth to occur at Fort Belvoir and the Engineer Proving Grounds (EPG).

The Fort Belvoir Reservation, spread over 8,656 acres, is located near the southern tip of Fairfax County in the Mount Vernon District. The South and North Posts areas are bisected by Richmond Highway (US Route 1). The BRAC actions will cause the workforce at Fort Belvoir to grow by approximately 4,100 military and civilian personnel, to bring the total workforce to more than 27,700 by the end of September 2011. Housing for 2,070 families is available on-site along with traditional troop barracks; the total on-base living population is expected to grow to more than 8,000. DoD plans to relocate to Fort Belvoir medical personnel and responsibilities from the Walter Reed Medical Center in DC, numerous Army and DoD offices currently housed in leased space throughout the National Capital Region, and a host of other defense agencies and support functions from throughout the region and the country.

The 820-acre Engineer Proving Ground (EPG) is located in the Lee District within the Springfield community. The site is roughly bounded by I-95 to the east, Franconia-Springfield Parkway to the north and the future extension to the Fairfax County Parkway to the west and south. The existing facilities at EPG are located in the northeastern corner of the site. More than half of the site is completely unoccupied and some of the roadways are abandoned and overgrown. In recent years the site has been occupied by fewer than 50 personnel. EPG contains no living quarters and has enough parking to serve its minimal personnel. EPG will have approximately 8,500 employees move in to a 2.4 million square-foot newly constructed National Geospatial-Intelligence Agency (NGA) facility and other smaller support facilities by the end of September 2011.

More information about BRAC, its impact on the County's transit system, and proposed solutions can be found in the South County recommendations in Section 7.7. Given the uncertainties surrounding the exact timing of BRAC implementation and not knowing where the employees working at the new BRAC installations will live, the BRAC program presents a challenge when attempting to plan transit service in the County for the next ten years.

7.2.2 Silver Line (Dulles Rail)

The Metropolitan Washington Airports Authority (MWAA) signed a full funding grant agreement with the Federal Transit Administration (FTA) in March 2009 to secure funding to build Phase 1 of the Orange Line Metrorail extension, called the Silver Line, to Wiehle Avenue in Reston via Tysons Corner. Completion of Phase 1 is expected in late 2013; completion of the Phase 2 extension is anticipated in 2016. As each phase opens to passengers, bus service to existing Metrorail stations will need to be reconfigured to make optimal use of the new rail line. In addition, service to the new stations along the line will need to be implemented.

The TDP made use of existing plans for improving bus service to and around the new line. Three existing studies were used as baselines for developing recommendations on service around this corridor: 1) the Tysons Transportation Management Plan (TMP) that was developed to recommend improved bus service in the Tysons Corner area during the construction of Phase 1; 2) the Wiehle Avenue Station Access Study that looked at improvements surrounding the first end-of-line station for Phase 1; and 3) the Dulles Rail Final Environmental Impact Statement (FEIS) that looked at possible bus services to complement both phases of rail implementation.

Given the uncertainty of timing of Phase 2 of the Silver Line, as well as uncertainty about land use and roadway changes, particularly within the Tysons Corner area, the Silver Line rail extension presents another challenge to developing the County's ten-year transit plan.

7.2.3 HOT Lanes

The Virginia Department of Transportation (VDOT) has partnered with a private firm to design, build, operate and maintain High Occupancy Toll (HOT) Lanes along two major corridors in Fairfax County: I-95/I-395 and I-495, the beltway. The HOT lanes would be available for use for no charge to vehicles carrying three or more people and for buses, and would allow other vehicles in for a variable fee that would change on a regular basis throughout the day to maintain free flow conditions in the lanes.

The Beltway HOT lanes would run from the proposed I-95/I-395 HOT lanes to just north of the Dulles Toll Road (Route 267). Construction on the lanes began in the summer of 2008 and the lanes are expected to open in 2013. The I-95/I-395 HOT Lanes are still in the environmental review process, but, if approved, would run from Spotsylvania County through Fairfax County to Arlington County, connecting to the I-495 HOT lanes.

The HOT lanes present an opportunity for transit service, as they provide a right-of-way that, while in mixed traffic, is "guaranteed" to move at a free flowing speed. However, the uncertainty surrounding access points on the I-95/I-395 HOT lanes and the timing of those lanes, presents a challenge to planning transit service in the County. In addition, while a preliminary transit plan for the I-95/I-395 HOT Lanes has been developed, final decisions regarding the implementation of specific services will depend, at least in part, on funding allocation decisions which will be made by the Commonwealth Transportation Board (CTB).

7.2.4 Changing Land Use / Transit Oriented Development / TDM Plans

The County is in transition, with a greater emphasis on smart growth, transit oriented development, access to transit and walkability. The conversion, over the long term, of the County from a mostly suburban county into one full of focused, urban-like development at key activity centers, is an aspect that needs to be considered as bus service is planned for the mid- and long-terms.

The County is involved in many development projects where it requires the developer to put together a Transportation Demand Management (TDM) Plan, by which the developer agrees to encourage alternative modes for accessing the facility, with a goal being a share of trips (such as 20%) that will occur by means other than single-occupant vehicles. Fairfax County has been encouraging, to some success, that development projects go further in choosing a style of development called transit oriented development (TOD) that is intended to promote walking, bicycling and transit use through the mixing of land uses and design details to make the pedestrian environment safe and inviting.

As such developments come to fruition, the County will generally support them with bus service. Ideally, the developer should contact FCDOT early in the process to discuss the most effective way of incorporating new transit service to a development within the existing bus route structure. FCDOT would then be able to help the developer design the roads and passenger facilities correctly to allow for efficient bus service. If transit is to be a vital component of a TDM plan, then funding for any additional service that would be necessary to meet the TDM goals should be discussed between the developer and County staff. In many cases, the developer will have proffered funds that could be used to pay for part of the transit service.

7.3 POLICY GUIDANCE FOR SERVICE RECOMMENDATIONS

The following presents general guidelines and principles used in the development of the TDP. Different classes of road facilities and different types of land use (residential vs. commercial) have implications for the way bus routes are operated and for the type of vehicles that are used. This policy guidance should be understood as the approach taken by the planning staff when designing new and enhanced services for the various parts of Fairfax County.

7.3.1 Service on Express Highways

Routes that use express highways for part or all of their trips should use large buses. Over-the-road coaches would be preferable for such services. However, using transit buses outfitted in the "suburban" configuration, with coach-type amenities such as high-back reclining seats, overhead parcel racks, and reading lights can provide similar comfort at a somewhat lower capital cost, and without introducing an additional vehicle type into the fleet mix. Naturally, these roadways are appropriate for express routes that can collect riders in residential neighborhoods, but preferably at park-and-ride lots. Any stations along the express highway would need to have substantial passenger facilities and overpasses/underpasses to allow pedestrians to reach either side of the highway.

7.3.2 Service on Arterial Roads

Fixed route bus service using large buses (35 feet or more) is most appropriate for arterial roads. The route can serve origins and destinations along the arterial corridor, as well as feeding to an ultimate destination, such as a major activity center or a Metrorail station. The character of the development along the roadway will determine the level of service and related facilities.

- Roads with five or more lanes and travel speeds of 40 MPH or more are more appropriate for express or limited-stop routes due to pedestrian safety concerns. The wider the road and faster the traffic, the greater the need for passenger facilities, park-and-ride access, and pedestrian accommodations.
- Regular local bus service will be more successful on roads with 4 lanes or fewer and travel speeds no greater than 35 MPH. Sidewalks, traffic signals and crosswalks are necessary at all bus stops. Shelters should be placed at bus stops with 50 or more boardings per day. All bus stops should have a level concrete pad and adequate signage.
- Continuous, mixed-use development along the roadway is conducive to generating ridership. Corridors that have this type of development can support frequent, all-day service. If this type of corridor also has many transit-dependent riders, service span should extend from early in the morning (5:00 a.m.) to late in the evening (midnight) and on weekends as well, with frequencies of at least 4 trips per hour during peak periods and at least two trips per hour at other times.
- Strip-mall style development along arterial roadways should be served from the road, not by diversions into parking lots. Having the bus enter strip shopping centers causes delays for through passengers and creates potential conflicts with vehicles in the parking lots. The County should work with developers to improve pedestrian amenities at these locations to ensure safe and comfortable access from the arterial roadway to the front door of the mall.
- Roadways that run through residential areas and are bounded by noise walls will generate little ridership, especially in off-peak periods. This type of corridor can support only weekday rush hour service, with 4 to 8 trips per peak period, depending on residential density and income

levels surrounding the corridor.

- Ridership demand density increases with proximity to a major activity center (such as Baileys Crossroads). Additional short-turn service can be added to a corridor to accommodate this demand.

7.3.3 Service in Residential Neighborhoods

The type of bus service appropriate for a given residential neighborhood depends on the character of that neighborhood and its location with respect to major trip generators.

- Affluent neighborhoods with low density (less than 3 households per acre) should receive at most commuter-oriented feeder service to a radial transit line (bus or rail). Small buses (30 feet or less) should be considered for these feeder routes.
- Collection of riders at designated park-and-ride lots is preferable to circuitous routing through residential neighborhoods because of operating cost, travel time, and frequency penalties associated with the circuitous routing.
- The lower the income level and the closer the proximity to a rail station or major trip generator, the greater the likelihood that a neighborhood route will be successful. Nonetheless, routes in purely residential areas will generally be restricted to peak period commuter service, unless there is a demonstrated need for full-day service.
- Diversions of arterial bus routes into residential areas should be avoided, except if there is a demonstrated need for that diversion (due to pedestrian safety concerns), sufficient demand, and minimal travel time penalty for through riders.

7.3.4 Service in Commercial Zones

There are several sprawling commercial zones in Fairfax County that are too large and spread out to be easily walkable. Tysons Corner is the best example of this type of area. Bus service is needed in this area to support longer distance transit services that bring riders in from other areas, but that cannot carry them effectively "the last mile" within the commercial zone.

- In contrast to strip development, bus routes should provide direct access to regional malls, preferably at transit centers cooperatively developed with mall management on mall property. Such transit centers can provide a focus for bus service and allow for easy transfers to circulator services.
- Circulator services in commercial zones should generally operate during peak periods and during lunch time.
- These routes should be frequent in order to compete with automobile travel. Ideally, buses on these routes should have the means to bypass traffic congestion within the commercial zone.
- Branding and identification with the commercial zone can make riders feel more comfortable about using these routes.
- Multiple short and direct routes are preferable to a single circuitous route that attempts to serve all locations

7.3.5 Urban Core vs. Suburban Destinations

As mentioned earlier, transit is most competitive with the automobile for trips to places where parking is expensive and inconvenient and through corridor where transit can achieve travel time parity or an advantage because of exclusive right of way. For suburb-to-suburb trips, these conditions generally do not hold.

- Radial routes from suburban areas to the urban core (direct or via Metrorail) should run during peak periods only if the origin area is low-to-moderate-density and affluent, or all day if the origin area is high density and transit dependent.
- Crosstown routes (those not serving the urban core) should be provided only in corridors that serve major activity centers or have a continuous mix of commercial and residential development, and run through areas with transit dependent populations or high-density housing (greater than 6 households per acre).
- Circulators and shuttles can be successful if they connect dense residential areas with transit-dependent populations with commercial and retail areas that are within 5 miles. In some cases, these routes could operate only during off-peak periods (midday and weekend).

7.4 ORGANIZATION OF RECOMMENDATIONS

The Transit Development Plan process reviewed all existing Fairfax Connector service and Metrobus service in the County. In order to better understand the existing system and develop useful recommendations, the existing and proposed services were organized into 15 geographically-based groups, as outlined in Table 7.1.

The County identified fourteen corridors that they wanted to focus on for providing transit service in the County. The corridors are existing corridors on which transit service is operated, and these were kept in mind as the service recommendations were being developed. It made more sense in the process of developing the recommendations to focus on areas of the County and activity centers, rather than on a whole corridor at once, because it allowed the focus to remain on the passengers and where passengers in different parts of the County need to travel to and the type of service that makes the most sense for them. The corridors that the County chose to focus on were:

- VA-267 (Dulles Toll Road)
- US-29 (Lee Highway)
- US-50 (Arlington Boulevard / Fairfax Boulevard / Lee Jackson Memorial Highway)
- VA-123(Ox Road / Chain Bridge Road / Dolley Madison Boulevard)
- VA-236 (Little River Turnpike / Main Street)
- VA-244 (Columbia Pike), Backlick Road / Amherst Avenue / Annandale Road / Gallows Road
- Braddock Road / New Braddock Road
- Burke Center Parkway / Old Keene Mill Road / Franconia Road
- Centreville Road / Westfields Boulevard / Poplar Tree Road / Stone Road
- Reston Parkway / Lawyers Road / West Ox Road
- Telegraph Road
- I-66
- I-95/I-395 to the Pentagon
- US-1
- Franconia-Springfield Parkway / Fairfax County Parkway.

In addition to these corridors, it should be noted that WMATA is conducting concurrent work on identifying improvements to bus runningway, frequency, and other amenities on another set of "priority corridors." In Fairfax County, these corridors are: VA-236 (Little River Turnpike) from the King Street Metrorail station to Route 123 (Ox Road/Chain Bridge Road); VA-244 (Columbia Pike) from Arlington out to the intersection with Little River Turnpike; VA-7 (Leesburg Pike) from the King Street Metrorail station to Tysons West*Park; and US-1 (Richmond Highway) from the Eisenhower Avenue Metrorail station to Fort Belvoir. These corridors are mainly the same corridors as those prioritized by the County, and the improvements, when and if they are implemented, would allow bus service in Fairfax that operates along those corridors to provide superior service.

Table 7.1 Route Groupings for Analyzing Service

Group	Existing Routes	Corridor Level Analysis that Includes Existing Routes[1]
Dulles Airport	5A	VA-267
Silver Line (Dulles Rail): Tysons/McLean/Pimmit Hills	425/427; 574; 3T; 24T; 28T; 23AC; 15KL; 15M[2]	VA-267; VA-123
Silver Line (Dulles Rail): Reston	505; 550s[3]; 585; RIBS; 595/597	VA-267; Centreville Road; RIBS 1-4
Silver Line (Dulles Rail): Herndon	920s[4]; 950s; 980	VA-267; Centreville Road
Vienna/Merrifield/Oakton	462/463[5]; 466; 2T, 2W, 15M	VA-123; Backlick North of Little River Tpk
Centreville/Chantilly/Fair Lakes	12s and 20s (future Connector 630s-650s); 621; 622; 623	I-66; US-50 North of I-66; New Braddock Road; Reston Pkwy/Lawyers Rd./West Ox Rd.
US-29/US-50 Fairfax-Arlington	1C; 1ABEFZ; 2ABCG	
East Central	28AB; 28FG; 4ABH; 26AW[6]; 3AB; 25s	
Vienna Metrorail Connections		
Richmond Highway	REX; 171 (eastern segment); 9AE; 11Y; 101; 151/152; 161/162	Richmond Highway
Van Dorn	231/232; 321/322; 109; 303[7]	Telegraph Rd. North of Beulah Rd.
BRAC-Springfield/Lorton/Ft. Belvoir	171 (western segment); 304; 307; 331/332; 380	VA-236; I-95/I-395; Backlick South of Little River Tpk; Telegraph Rd. South of Beulah Rd.
Braddock Road	17ABFM; 17GHKL; 306	Braddock Rd; I-95/I-395; Backlick South of Little River Tpk

[1] The corridor level demographic analysis can be found in Appendix A. The area-based analysis was not based exactly on corridors, so the routes in each group may be divided among multiple corridor level analyses.
[2] Data for 15M is not provided throughout the report as the route is new as of December 2008, after ridechecks were completed.
[3] Route 556 was discontinued as part of the June 2009 service cuts.
[4] Route 922 was discontinued as part of the June 2009 service cuts.
[5] Formerly the 402/403 prior to June 29, 2009. All ridership data was collected while these routes were the 402/403.
[6] The 26A was discontinued on July 6, 2009.
[7] Route 303 was discontinued as part of the June 2009 service cuts.

Group	Existing Routes	Corridor Level Analysis that Includes Existing Routes[1]
Columbia Pike/Skyline/Little River Tpk	16ABDEFJP; 16GHKW; 16L; 7ABCDEFHPWX; 29CEGHX; 29KN	VA-236; I-95/I-395
Southern Burke/Western Springfield	18EF; 18GHJ; 18PRS; 305; 310 (western segment)	Backlick South of Little River Tpk; Burke Ctr Pkwy; Franconia-Springfield Pkwy/Fairfax County Pkwy
Franconia/Springfield	301; 310 (eastern segment); TAGS	Telegraph Rd. North of Beulah Rd.
Backlick/Gallows	401	

Detailed operating characteristics at a line and route level, including days of service, magisterial districts served, route length, rail connections, ridership, and demographics were used to analyze the existing routes and helped form the basis for recommendations for new routes and changes to existing routes. This detailed information can be found in Appendix A, Part 1.

In addition to data at the individual line and route level, some corridor-level demographics were developed based on the on-board surveys (see Chapter 5). This information, organized by corridor with the routes listed that are included in that corridor, can also be found in Appendix A, Part 2. The corridor-level data that is applicable to each route grouping is specified in Table 7.1.

7.5 RECOMMENDATIONS SUMMARY

In addition to regular fixed-route service as the County has been providing, the TDP includes recommendations for two additional types of service: Bus Rapid Transit (BRT)/Enhanced Bus and Neighborhood Shuttles/Circulators. In addition to these, proposed transit centers are also discussed throughout this document and are summarized below.

7.5.1 BRT/Enhanced Bus Recommendations

In corridors with high service frequency and ridership, the TDP recommends implementing BRT or Enhanced Bus services. Enhanced Bus could include elements of traditional BRT, including limited stops, traffic signal priority, queue jumps, off-board fare collection, and branding. BRT would include the elements of Enhanced Bus, plus would include a dedicated bus lane for all or part of the route. While many BRT systems use articulated buses, given the current level of service in Fairfax County, it was determined that within the time frame of the TDP it made more sense to improve the frequency of routes than to use articulated vehicles.

In determining where to look into the implementation of BRT or Enhanced Bus in Fairfax County over the next ten years, existing plans for BRT and Enhanced Bus were considered, including the WMATA Regional Bus Study and the corridors that are part of the WMATA Priority Corridor Network (PCN). In addition, a few additional BRT and Enhanced Bus corridor candidates were identified. In total, the TDP is recommending BRT/Enhanced Bus services on the following corridors:

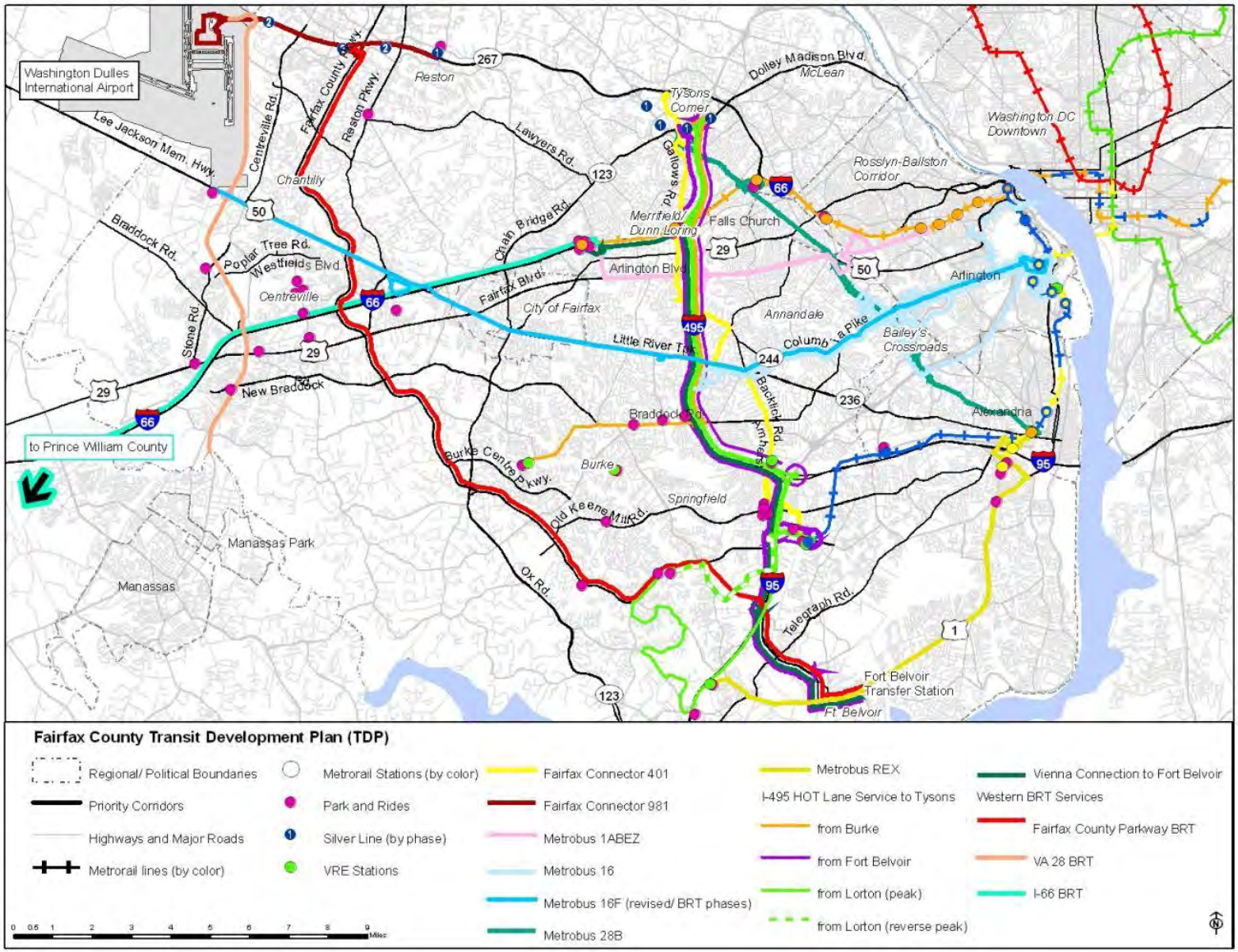
- Richmond Highway (REX)- Implemented
- Route 7 (Metrobus 28s)
- US-29/US-50 (Metrobus 1s)
- Columbia Pike – Implemented in Arlington, extend to Fairfax
- Columbia Pike/Little River Turnpike (VA-236)
- Backlick/Gallows (Connector 401)
- I-95/395 HOT Lanes
- I-495 HOT Lanes
- Route 28 (New Cross County service)
- Fairfax County Parkway (New Cross County Service)
- I-66 West of Vienna[8]

Figure 7.2 below shows an overview of all of the BRT/Enhanced Bus recommended throughout the report. This map shows the extent of the proposed enhanced bus network. Detailed information on these routes is available in the course of the detailed recommendations in the following two sections on North and South County Recommendations.

In addition to these new services, it should be noted that there are a number of limited stop and point to point services already in operation within the County and proposed throughout the course of the TDP. Existing limited stop service includes service along the Dulles Toll Road (Metrobus 5A and Fairfax Connector 505, 551, 552, 553, 554, 557, 585, 595, 597, 950, 951, 952 and 980); service along I-66 (Fairfax Connector 621, 622, 623, 630, 631, 632, 640, 641, 642, 644, 650, 651, 652); service along I-95/I-395 (Metrobus 18GHJP, 17GHKL, 17ABFM, 18EFGHJ, 29EGHX, Fairfax Connector 380.

[8] Additional service and bus running way improvements along I-66 will be identified, beyond the scope of the TDP, as part of an ongoing Virginia Department of Rail and Public Transportation study of enhanced bus on I-66. Fairfax County staff are involved in this study and will have extensive input into the bus route specifics.

Figure 7.2 Countywide BRT/Enhanced Bus Recommendations



7.5.2 Neighborhood Shuttles/Circulators

In addition to line-haul bus service, Fairfax Connector also operates some circulator bus service serving more local trips. As part of the TDP, recommendations were made to continue operating circulator service, as well as adding in some neighborhood shuttle service. In some cases, buses that are smaller than the full-size 40-foot buses that Fairfax Connector operates have been recommended and could be used on these routes. The neighborhood shuttles and circulators that are recommended are as follows, with the recommended bus sizes indicated in brackets. Small buses would be approximately 30 feet in length, medium buses approximately 35 feet, and full-sized buses the traditional 40-foot bus currently operated by Fairfax Connector.

It is hoped that the addition of more shuttle and circulator services operated by the County will meet some of the needs met by the private shuttles that are proliferating throughout the County. If some of those needs could be accommodated by public transit, some of the private shuttles could be removed from the roadways and transit stations.

While it was considered during the course of the development of the TDP recommendations, shuttle service to VRE stations was determined to be something that could be considered in the future, beyond the TDP timeframe. The relatively low frequency of the VRE service and the frequent modifications to VRE schedules make it very difficult to both provide service and also to make it attractive to riders.

Existing Circulators (some modifications proposed):

- RIBS 1-4 [small]
- Richmond Highway Circulators (151/152, 161/162) [full-size]
- Greater Springfield Circulators (321/322) [full-size]
- I-95 Circulators (331/332) [full-size]
- TAGS Shuttles [small]

New Circulators and Shuttles:

- McLean Connector [small]
- Wolf Trap Shuttle [TBD during Tysons Task]
- Tysons Shuttles [TBD during Tysons Task]
- Wiehle Avenue Area Circulator (959) [full-size]
- Merrifield Circulator [medium]
- Fairfax Connector 950 Conversion to Reston/Herndon Circulator [small]
- Burke Circulators [small]
- I-95 Circulators (333 and 334) [full-size]
- Springfield Circulators (341 and 342) [small]
- Annandale Circulator [small]
- BRAC Shuttles 1 and 2 [small]

Other routes for which smaller buses might be appropriate:

- Restructured Fairfax Connector 574 [small to medium]
- Restructured Fairfax Connector 466 [small]
- Restructured Fairfax Connector 462 and 463 [small]
- New Fairfax Connector routes 624 and 625 [small]
- Restructured Fairfax Connector 231/232 [small]
- Vienna South Feeder (464) [small]
- Restructured Metrobus 3A [medium]
- Restructured Fairfax Connector 304 [small]
- Restructured Fairfax Connector 305/307 into 309 [small]
- New Franconia-Springfield to GMU Route [medium]
- New Franconia-Springfield to Fair Oaks Mall Route [medium]

Figures 7.3 and 7.4 below shows an overview of all of the shuttles and circulators recommended throughout the report. This map shows the breadth of locations in which this type of service has been recommended. Detailed information on these routes is available in the course of the detailed recommendations in the following two sections on North and South County Recommendations.

Figure 7.3 North County Shuttle/Circulator Recommendations

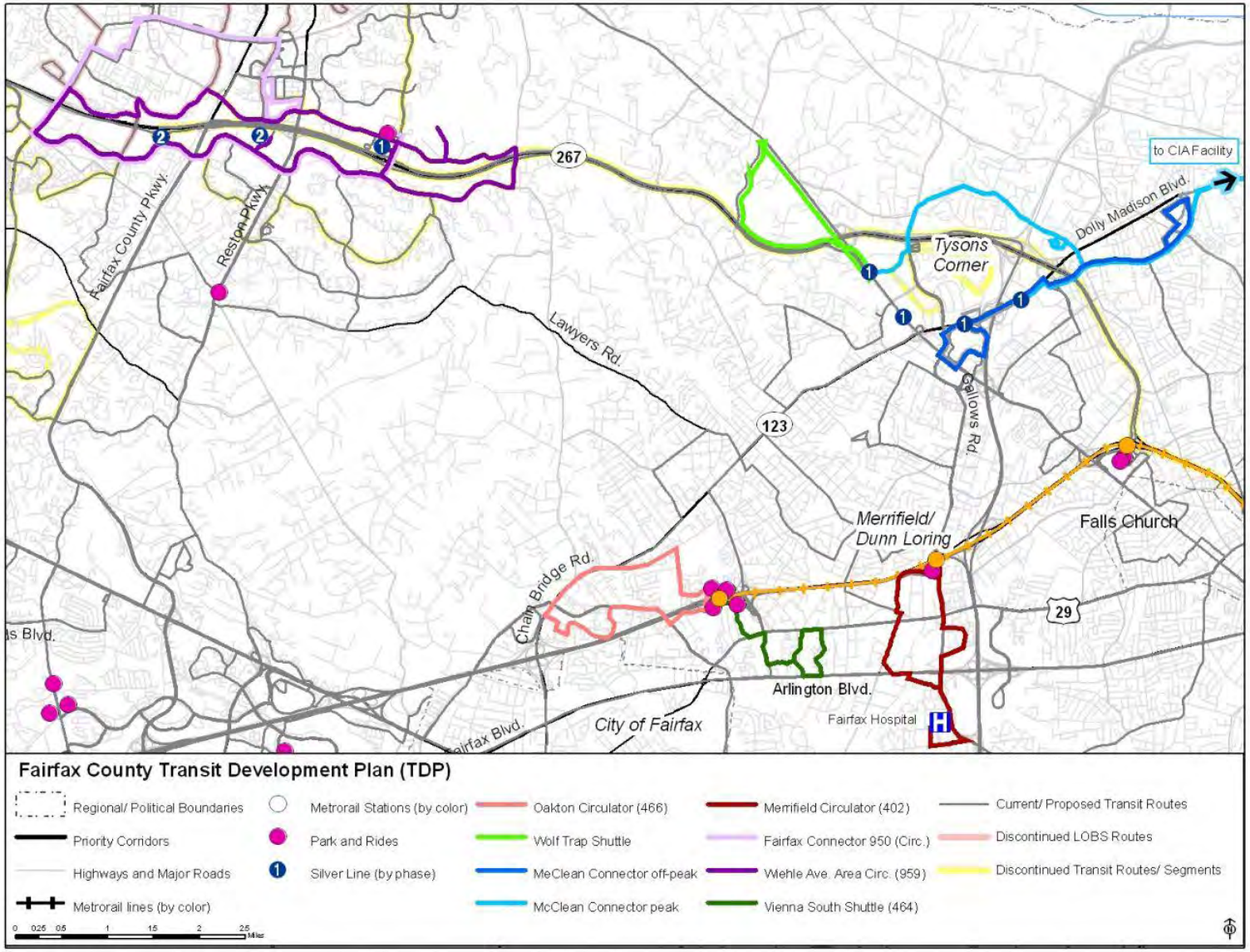
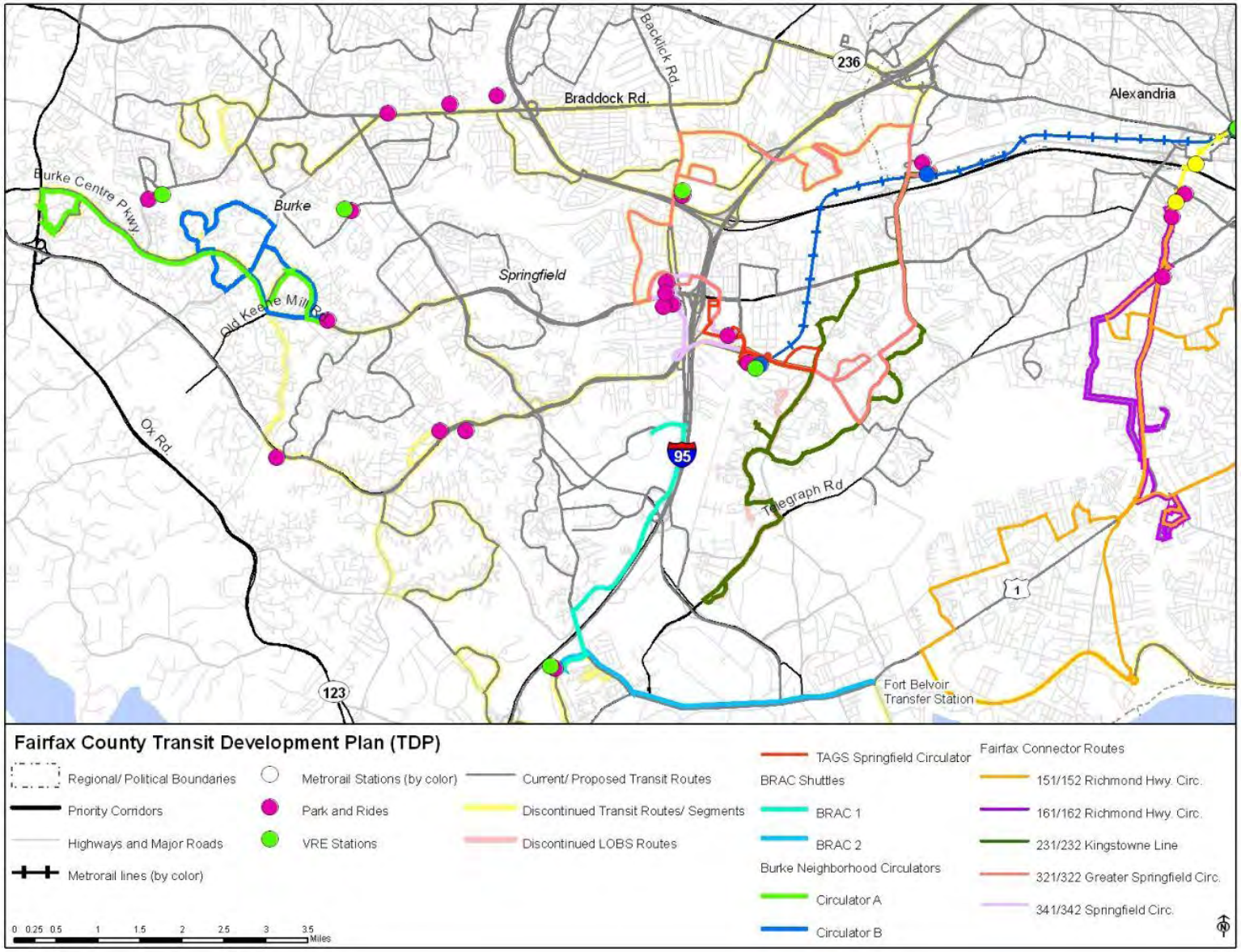


Figure 7.4 South County Shuttle/Circulator Recommendations



7.5.3 Transit Center Recommendations

As route recommendations were developed, the TDP considered the addition of transit centers throughout the County to facilitate bus-to-bus transfers, auto access to buses, and more comfortable waiting conditions with improved information for customers. Transit Centers are locations where a lot of bus transfer activity occurs, and can consist of bus shelters, bus bays, passenger information and other passenger amenities, such as Fairfax Connector Stores. A separate task to develop criteria for locating transit centers and applying those criteria throughout the County may result in more transit centers being recommended.[9] Currently, the County has two standalone locations that it identifies as transit centers:

- Tysons-West*Park
- Reston Transit Center (Reston Town Center)

In addition, the County has a number of transit centers that are co-located with either Metrorail Stations or large park-and-ride lots. Many of the transit centers at the Metrorail stations have reached their capacity, through Metrobus and Fairfax Connector bus service as well as the many private shuttles that serve the stations. The existing transit centers in the County that are co-located are:

- Herndon-Monroe Park-and-Ride
- Reston East (future Wiehle Ave station)
- Vienna Metrorail
- Dunn Loring-Merrifield Metrorail
- West Falls Church Metrorail
- Franconia-Springfield Metrorail
- Huntington Metrorail

The County is also currently working with the appropriate parties to add more transit centers. Design work is underway on these transit centers:

- Fair Oaks Mall
- Tysons Corner Center Mall
- Fairfax Hospital
- Seven Corners[10]
- Northern Virginia Community College
- George Mason University
- Annandale Transit Center (John Marr Drive)

Throughout the course of the route recommendations discussion, a number of new transit centers are discussed that would enhance the success of the route change recommendations. These transit centers, discussed further in the course of the detailed recommendations are:

- Fort Belvoir Transfer Stop[11]
- Rolling Valley Mall

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[9] This study is expected to be complete by November 2009.

[10] Close to breaking ground as of August 2009. It will be on Route 50 at the north end of the Seven Corners Center, just off Thorne Road.

[11] It is assumed that a full transit center as previously proposed by the DoD at Ft. Belvoir's Pence Gate will not be a viable option, so a transfer center is not assumed at this point but rather an enhanced bus stop is assumed to support transfers from the public buses to a Fort Belvoir internal shuttle bus.

Additional locations that may make sense to consider as transit centers beyond the 10-year timeframe of the TDP are:

- Burke Centre
- Lorton VRE station
- Centreville
- Chantilly

Finally, in addition to the transit centers listed here, 19 additional park-and-ride locations are identified in Chapter 10, many of which could become transit centers.

7.5.4 Service Recommendations

Table 7.2 shows the system-wide operating data and service productivity for the entire Fairfax Connector system and for the South County routes, operated out of the Huntington Garage, and for the North County routes, operated out of the Herndon Garage. (The new West Ox garage for West County routes was not in operation at the time of data collection for the TDP, thus all routes here are considered either north or south.) The service productivity for the routes individually is listed throughout this chapter as recommendations for each route are discussed. This table shows the information at a system level, for comparison purposes. It is important to note that all of the ridership information and service productivity data in this report are based upon schedules and ridership observations conducted for the TDP in Spring and Fall, 2008; they are a snapshot in time that may have changed for the better or for the worse since then, as a result of traffic congestion, the current economic climate, changes in gas prices, etc.. The boardings were determined by the average of two weekday ride checks conducted for this study; two Saturday and two Sunday ridechecks were also conducted and averaged for reviewing weekend service productivity. Associated revenue miles, platform hours and trips are from the schedules at the time the counts were conducted.

Table 7.2 Fairfax Connector and Metrobus Operating Summary and Service Productivity

	Routes	Peak Buses	Weekday Boardings	Boardings/ Rev-Mile	Boardings/ Platform-Hr	Boardings/ Trip
South County	24	72	20,591	1.78	22	26
North County	26	74	19,762	1.60	25	22
All Fairfax Connector	50	146	40,353	1.69	24	24
All Metrobus in County	41	238	72,463	2.57	36	56

Table 7.3 shows the system-wide rider demographics for “at-risk” riders of Fairfax Connector, Metrobus, and the combination of bus services in the County. The demographics of these riders by individual route and at the corridor level are listed throughout this chapter as recommendations for each route are discussed. Data on demographics is from on-board surveys conducted in Spring 2008. Surveys on Fairfax Connector Routes were conducted as part of the TDP. Surveys on Metrobus were conducted by MWCOG as part of a regional on-board survey effort. The survey efforts were coordinated such that the data reviewed here are based on the exact same questions and choices of answers.

Table 7.3 Fairfax Connector and Fairfax County Metrobus Service At-Risk Rider Demographics

	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
All Bus Service in County	77%	41%	71%	40%	62%	63%
Metrobus[12]	85%	38%	69%	39%	60%	59%
Fairfax Connector	68%	43%	72%	40%	63%	67%
- **FC North County Routes**	72%	33%	62%	37%	57%	61%
- **FC South County Routes**	65%	51%	80%	43%	69%	73%

The next two sections detail the route recommendations for all Fairfax Connector routes and all Metrobus routes that operate in the County. Table 7.4 summarizes the recommendations that follow in four categories: no change to existing routes, proposals for modifications to existing routes, existing route elimination proposals, and new route proposals.

[12] Only Metrobus routes that operate in Fairfax County.

Table 7.4 Recommendations Summary

Group	No Changes	Modifications	Elimination	New Routes
Silver Line (Dulles Rail): Airport ***Map: Page 14***		• 5A: Restructure to no longer stop in Fairfax	5A (at completion of Phase 2 Silver Line)	• 981: Tysons to Dulles Airport (immediate); • Wiehle Ave to Dulles Airport (Phase 1 Silver Line); Remove after Phase 2 Silver Line
Silver Line (Dulles Rail): Tysons/McLean/Pimmit Hills ***Maps: Pages 35, 39, 41, 60, 61***		• 3T: Restructure • 28T: Restructure • 15K: Operate only between McLean and Rosslyn • 23A: Restructure • 24T: Restructure • 574: Restructure	425, 427, 15L, 23C	• Circulator Routes • McLean Connector • Wolf Trap Shuttle • Other Tysons Shuttles
Silver Line (Dulles Rail): Reston ***Maps: Pages 49, 50, 51, 52, 57, 59***		• 553, 557, 585, 950: Restructure once when Phase 1 Silver Line complete, again when Phase 2 Silver Line complete • RIBS 1-4, 605: Restructure when Phase 2 Silver Line is complete	505, 551, 595, 597, 554 (upon Phase 2 completion)	• 959: Wiehle Ave area circulator • 556a and 556b upon Phase 2 completion
Silver Line (Dulles Rail): Herndon ***Maps: Pages 57, 58, 59***		• 924, 926, 927, 929, 980: Restructure when Phase 1 Dulles is complete	951, 952	• 925 to area west of 7100 and north of West Ox (upon completion of Phase 1 Silver Line) • Herndon circulator (upon Phase 2 completion)

Group	No Changes	Modifications	Elimination	New Routes
Vienna/Merrifield/Oakton ***Map: Page 67***		• 2T: Restructure • 2W/466: Restructure • 462/463:[13] Restructure • 15M: Restructure		• Merrifield Circulator • Vienna South Feeder
Centreville/Chantilly/Fair Lakes ***Maps: Pages 74, 76***	630s, 640s, 650s[14]: keep as in CCO[15] Plan	• 622: Restructure		• 624/625: Fair Lakes to Vienna Metro • 653: Greenbriar to Vienna Metro • Centreville Expresses to Tysons and Reston • Centreville to GMU
US-29/US-50 Fairfax-Arlington ***Map: Page 83***	2AC	• 1ABEFZ: Overlay with BRT/Enhanced Bus • 1C: Restructure • 2BG: Restructure		• 2H: Route variation to serve additional locations
East Central	4ABH, 25ABCD, 26W, 28FG	• 3A: Restructure • 28AB: Overlay with BRT/Enhanced Bus		
Vienna Metrorail Connections ***Map: Page 94***				Vienna Metro to: • Dulles via Fair Oaks • Ft. Belvoir • Reston and Herndon

[13] Formerly the 402/403 prior to June 29, 2009. All ridership data was collected while these routes were the 402/403.
[14] Formerly the Metrobus 12s and 20s prior to June 29, 2009. All ridership data was collected while these routes were the 12s and 20s.
[15] CCO Plan: Centreville Chantilly Oakton Plan

Group	No Changes	Modifications	Elimination	New Routes
Richmond Highway ***Map: Page 105***	9AE	• 11Y: Keep 11Y between DC and Hunting Towers (no longer in Fairfax County) • REX: Restructure and extend • 101: Increase Service • 151/152: Increase Service and rename • 161/162: Increase Service and rename • 171: Restructure into 171 and 371		• 171: Huntington Metro to Lorton VRE • 371: Franconia-Springfield Metro to Mount Vernon Hospital via Lorton VRE
Van Dorn ***Map: Page 111***	109	• 231/232: Restructure and adjust service hours • 321/322: Increase service and adjust run times	303[16]	

[16] Route 303 was discontinued as part of the June 2009 service cuts.

Group	No Changes	Modifications	Elimination	New Routes
BRAC – Springfield/Lorton/Ft. Belvoir ***Map: Page 120, 122***		• 171: Restructure into 171 and 371 • 304: Increase service, expand span and add stops • 307: Restructure with 305 • 331/332: Modified into 333 and 334	305, 307, 380	• 171: Huntington Metro to Lorton VRE • 309: F-S Metro to Lorton VRE (current 305/307) • 371: F-S Metro to Mount Vernon Hospital via Lorton VRE • Lorton to Tysons HOT Lane Express • Tysons to Ft Belvoir HOT Lane Express • 333: F-S Metro to Rolling Road via NGA • 334: F-S Metro to Ft. Belvoir • BRAC Shuttle 1 Lorton VRE to NGA • BRAC Shuttle 2 Lorton VRE to Ft. Belvoir • 395: Springfield Area Park and Rides to Pentagon

Group	No Changes	Modifications	Elimination	New Routes
Braddock Road ***Maps: Pages 122, 126, 127***	17ABFL	• 17G: Restructure • 17K: Restructure • 306: Convert to midday 17A service	17HM	• 17C Parliament Rd to Pentagon • 17D Burke Lake Rd to Pentagon • Burke Center to Tysons HOT Lane Express
Columbia Pike/Skyline/Little River Turnpike[17] ***Maps: Pages 136, 137***	16BCEFJ 16GHKW 16L 7BCDEHPWX 29CEGHX	• 7AF: Restructure • 16A: Increase service • 16D: Restructure and increase service • 29K: Extend route • 29N: Extend route and add Saturday service		• Annandale Circulator
Southern Burke/Western Springfield ***Maps: Pages 143, 144, 146***	18H	• 18G: Restructure • 18P: Restructure • 305: Restructure with 307	18EFRS	• 18A F-S Metro to GMU • 18B F-S Metro to Fair Oaks Mall • Circulators A and B
Franconia/Springfield ***Map: Page 152***	TAGS	• 301: Decrease Service • 310: Increase Service		• 341/342: Springfield Circulator
Backlick/Gallows		• 401: Increase Service		• 401 Limited Stop
Cross County Connections ***Map: Page 157***				• VA-28: BRT/Enhanced Bus • Fairfax County Parkway: BRT/Enhanced Bus

[17] FCDOT supports Arlington County's plans for the Columbia Pike Streetcar, and these route recommendations will be revisited when the Streetcar project is closer to implementation, to ensure that Fairfax County's bus service in the corridor complements and enhances the service that would be provided by the Streetcar.

7.6 NORTH COUNTY RECOMMENDATIONS

SILVER LINE (DULLES RAIL) CORRIDOR

The Metrorail extension from West Falls Church to Dulles Airport via Tysons Corner and the Dulles Toll Road is one of the largest infrastructure projects in Fairfax County. The new line, to be built in two phases, will have far-reaching implications for bus service in the northern part of Fairfax County. Phase 1 construction includes four new stations in Tysons Corner and a terminal at Wiehle Ave (at the current Reston East park-and-ride). This phase is due to be complete by 2013. Phase 2 will extend rail through Reston and Herndon to Dulles Airport and beyond to Loudoun County, including stations at Reston Parkway, Herndon-Monroe (at the current garage), and Route 28.

The following sections describe restructuring of bus service in the Silver Line corridor to accommodate and complement the rail extension. Dulles Airport Service is discussed first, followed by service surrounding Tysons Corner, Reston, and Herndon.

7.6.1 Dulles Airport Service (5A)

Background

One route is currently operated for the full length of the Dulles Toll Road corridor, the Metrobus 5A. Fairfax Connector operates several routes that run express on the Dulles Toll Road, but these will be discussed in the following sections on Tysons Corner, Reston, and Herndon. Basic information about this route is provided in Table 7.5.

Table 7.5 Silver Line Corridor Bus Services

Route	Name	Magisterial District	Metrorail Connection	Weekday Boardings (Typ.)
Metrobus				
5A	DC-Dulles Line	Dranesville, Hunter Mill	Rosslyn - Orange/Blue L'Enfant Plaza - Yellow/Green/Orange/Blue	1,506

The 5A has proved to be very popular and WMATA has had to increase service to alleviate crowding. Originally running only once per hour, it now runs every 30 minutes during peak periods and every 40 minutes at other times on weekdays. On weekends, it runs once per hour. Productivity in terms of boardings per hour and per trip is very good, but because of the length of the line and the high average speed attained, the number of boardings per revenue mile is not as good. Operating statistics are shown in Table 7.6.

Table 7.6 Silver Line Corridor Bus Service Productivity

Route	Name	Boardings/ Rev-Mile	Boardings/ Platform-Hr	Boardings/ Trip
Metrobus				
5A	DC-Dulles Line	0.92	27	28

As shown in Table 7.7, the 5A carries a mix of riders, with the income and auto ownership levels similar to the average of all Metrobus riders in Fairfax County. The low level of work trips also suggests that the service is carrying a lot of air passengers, not the DC-based airport and Tysons Corner workers who were the original target market of this route.

Table 7.7 Dulles Airport Bus Service: At-Risk Rider Demographics

Route	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
Metrobus						
5A	64%	22%	60%	35%	57%	59%

Recommendations

Replace 5A with New Fairfax Connector 981

Upon completion of Phase 2 of the Dulles Metrorail extension, Metrobus 5A will be eliminated. In the interim, some adjustments to the 5A are warranted to provide better service within Fairfax County in the immediate term, and then to accommodate Phase 1 rail construction in the medium term.

Metrobus 5A was originally conceived as a reverse commuting service for residents of the District of Columbia to reach jobs at Dulles Airport. It has become a very popular route as it has been discovered by air travelers as an inexpensive alternative to Washington Flyer service. Besides stops at L'Enfant Plaza and Rosslyn stations, buses stop at the Herndon-Monroe Park-and-Ride on all trips, and also at Tysons West*Park during the midday period, in the evening, and on weekends.

To better serve County residents and to streamline the route's function, it is recommended that the 5A no longer make stops in Fairfax County and that a new Connector route, potentially called the 981, be initiated between Tysons Corner and Dulles Airport. This route would originate at Tysons Corner Center and make stops on every trip at Tysons West*Park, Reston Town Center, and Herndon-Monroe before reaching Dulles Airport. At the airport terminal, it is critical that the MWAA cooperate with the County to provide layover space, adequate passenger facilities, and otherwise allow for efficient bus operations.

After Phase 1 is completed, this Connector route would have the Wiehle Ave station as its eastern terminal instead of West Falls Church. Otherwise, operations would remain the same. Finally, the route would be eliminated once Phase 2 is complete. The following table presents a summary of the service levels recommended to be implemented over the TDP ten year horizon for the service recommended for Dulles Airport.

		Route
		981
	Operator	Fairfax Connector
Span	**Weekday**	5:00 AM – 11:00 PM
	Saturday	6:00 AM – 11:00 PM
	Sunday	6:00 AM – 11:00 PM
Headway (minutes)	**Weekday Peak**	30
	Weekday Midday	30
	Weekday Evening	30
	Saturday	30
	Sunday	60

7.6.2 Tysons Corner and McLean/Pimmit Hills (425/427, 574, 2T, 3T, 28T, 24T, 23AC, 15KL)

Background

The northeastern corner of Fairfax County includes the busy commercial center of Tysons Corner and the residential neighborhoods of McLean, Chesterbrook and Pimmit Hills. This area is bounded by Leesburg Pike (VA-7) to the southwest, VA-267 and Spring Hill Road to the west and the Potomac River, Arlington and Falls Church to the north, east and south. This area is served by a number of Metrobus and Connector routes, as listed below in Table 7.8. Connector Route 480 also operates in this area, but it did not operate during the data collection for the TDP, thus no information is included here. It is a special purpose route that connects the Wolf Trap Filene Center to West Falls Church station and only operates during Wolf Trap events.

It should be noted that since the time of the data collection for this project, weekend service on Route 425 was discontinued, and Metrobus 15K,L was restructured into two routes (as discussed further below). The data presented in these introductory tables represent service as it was operated during the data collection period in Spring 2008.

Table 7.8: Tysons Corner and McLean/Pimmit Hills Bus Services

Route	Name	Magisterial District	Metrorail Connection	Weekday Boardings (Typ.)
Fairfax Connector				
425	Tysons-WestPark Transit Stn/West Falls Church Metro Line	Dranesville, Providence	West Falls Church - Orange	806
427	Tysons-WestPark Transit Stn/West Falls Church Metro Line	Dranesville, Providence	West Falls Church - Orange	1,077
574	Tysons Corner-Reston Town Center Line	Hunter Mill, Dranesville, Providence	None	434
	Connector totals			2,317
Metrobus				
15KL	Chain Bridge Road Line	Dranesville, Providence, Hunter Mill, Braddock	Rosslyn - Orange	577
24T	McLean Hamlet-East Falls Church Line	Dranesville, Providence	East Falls Church - Orange	168
23AC	McLean-Crystal City Line	Dranesville, Providence	Ballston - Orange Crystal City – Blue/Yellow, VRE	4,811
28T	Tysons Corner-West Falls Church Line	Dranesville, Providence, Hunter Mill	West Falls Church - Orange	555
2T	Tysons Corner-Dunn Loring Line	Providence, Hunter Mill	Dunn Loring -Orange	1,146
3T	Pimmit Hills Line	Providence, Dranesville	West Falls Church - Orange	1,061
	Metrobus totals			8,318

The 425, 427, 574, 23AC, 2T, and 3T offer full day service on weekdays, and all but the 427 offer service on weekends as well. The 15KL, 24T, and 28T operate during peak periods only. Connector route 425 and 427 are significantly more productive than the average for the North County by all three measures. This level of ridership is part of the substantiation of demand for the future Metrorail stations in Tysons Corner. The Metrobus routes are also relatively productive, though much of the ridership on the 23A,C—the heaviest line among the six in this group—occurs outside of Fairfax County. The 24T is clearly the weakest route in this group.

Table 7.9 Tysons Corner and McLean/Pimmit Hills Bus Service Productivity

Route	Name	Boardings/ Rev-Mile	Boardings/ Platform-Hr	Boardings/ Trip
Fairfax Connector				
425	Tysons-WestPark Transit Stn/West Falls Church Metro Line	2.41	25	31
427	Tysons-WestPark Transit Stn/West Falls Church Metro Line	3.61	28	40
574	Tysons Corner-Reston Town Center Line	0.79	12	12
	Corridor Average	**1.96**	**21**	**26**
	North County Average	**1.60**	**25**	**22**
Metrobus				
15KL	Chain Bridge Road Line	1.10	18	23
24T	McLean Hamlet-East Falls Church Line	0.96	14	8
23AC	McLean-Crystal City Line	2.89	35	47
28T	Tysons Corner-West Falls Church Line	1.87	18	14
2T	Tysons Corner-Dunn Loring Line	2.19	27	23
3T	Pimmit Hills Line	1.65	20	17
	Corridor Average	1.73	25	27

As shown in Table 7.10, there is a range of demographics for the riders on buses in the Tysons Corner and McLean/Pimmit Hills area. The 425 and 427 Fairfax Connector Routes, while having very few low-income riders, have many riders with no auto in their household. This indicates a group of riders who most likely are transit riders by choice, since their incomes certainly do not limit them from using other forms of transportation. On the other hand, the Metrobus routes and the Fairfax Connector 574 both have a higher level of low-income riders. Another important factor to note is that while more than 75% of trips are work related on most of the routes, the 574 carries a very large percentage (56%) of riders taking non-work trips. This could be indicative of the rider demographics but could also be a result of the areas it is serving, Tysons Corner and Reston Town Center: both large retail, dining and entertainment destinations.

Table 7.10 Tysons Corner and McLean/Pimmit Hills Bus Service: At-Risk Rider Demographics

Route	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
Fairfax Connector						
425	94%	13%	58%	51%	64%	66%
427	94%	16%	52%	41%	52%	60%
574	44%	49%	82%	46%	80%	64%
Metrobus						
2T	97%	52%	81%	46%	73%	63%
3T	83%	29%	73%	26%	65%	54%
28T	96%	25%	79%	44%	71%	65%
24T[18]	97%	19%	39%	27%	49%	36%
23AC	75%	50%	79%	53%	74%	68%
15KL[19]	100%/76%	17%/13%	58%/76%	42%/63%	51%/75%	41%/75%

A Transportation Management Plan (TMP)and Rail Master Bus Plan was prepared for the Tysons Corner area in 2006 in preparation for construction of Phase 1 of the Dulles Metrorail extension. The recommendations below take account of the findings of these prior plans, and also set the stage for a more detailed examination of Tysons Corner service as part of another task in this Transit Development Plan.

The extension of Metrorail service to Tysons Corner will result in a major restructuring of bus service there. Current routes in Tysons Corner largely perform their own circulation and distribution functions. The Tysons TMP recommended internal circulators and the related Tysons work in the TDP will likely do the same. The degree to which routes connecting Tysons and surrounding areas will continue to perform circulation functions is yet to be determined. Table 7.11 presents a summary of the plans that were considered in the TMP, and the text that follows describes an initial set of TDP route recommendations that will be refined in the Tysons TDP task. That work will also consider span of service, which is a key factor in attracting ridership as business and retail opening and closing times must be taken into account.

[18] Data may not be statistically significant, as only 35 surveys were received for the 24T.
[19] Data may not be statistically significant, as only 9 surveys were received for the 15K and 8 for the 15L.

Table 7.11 Summary of Service Plans from Tysons TMP (assuming rail completion)

Route	Status	Description
2C	Altered	Change terminal to Tysons West Metro; coordinate with 401
2T	Altered	Change terminal to Tysons Central 123 Metro
3T	Altered	Change terminal to Tysons Central 123 Metro; eliminate midday and Saturday service
5A	Eliminated	Operate all trips into West*Park in the interim
15KL	Altered	Cut back route from Rosslyn to terminate at Tysons Central 123 Metro
23A	Altered	Change terminal to Tysons East Metro; eliminate midday and weekend service; coordinate with F1 and F2 (see below)
24T	Eliminated	Service replaced by F4, F5 and F6
28AB	Altered	Change terminal to Tysons Central 123 Metro
28T	Altered	Change terminal to Tysons West Metro
401	Altered[20]	Change terminal to Tysons West Metro; coordinate with 2C
462[21]	Altered	Significant restructuring; operate long peak periods (increase service)
463	Altered	Replaced by F7 (see below)
425	Eliminated	Replace with C2 service
427	Eliminated	Replace with C1 service
504	Eliminated	(Already discontinued)
574	Altered	Change terminal to Tysons West Metro; extend from Reston to Herndon Junction to meet 924/926
C1	New	Circulator to replace 427
C2	New	Circulator to replace 425
F1	New	McLean Central Connector via Chain Bridge Rd to Old Dominion at Dolley Madison
F2	New	West Falls Church – Tysons via Little Falls (overlaps with 23A)
F3	New	Wolf Trap Connector – shuttle to remote parking via Leesburg Pike and VA-267
F4	New	Tysons West – Tysons East via Lewinsville – replaces northern segment of the 24T
F5	New	Tysons East – WFC via Westmoreland – replaces middle segment of the 24T
F6	New	WFC – EFC via Westmoreland – replaces southern segment of the 24T
F7	New	Dunn Loring – Tysons via Electric Ave; restructured route 403 (new 463)
F8	New	Old Courthouse Connector – via Westwood Dr and Creek Crossing Rd
F9	New	Oak St. Connector – via Gallows Rd to Oak St and Idylwood Rd

[20] Additional modifications to the 401 in the Tysons area have been proposed as part of the TDP Tysons analysis. Refer to that information for more detail.

[21] 462 and 463 were formerly the 402/403 prior to June 29, 2009, when the Tysons TMP was developed.

The Tysons TMP included two sets of recommendations: one for a congestion management plan that did not include the Metrorail extension, and the other for a bus master plan to accommodate the rail extension. Table 7.11 presents a summary of the rail master plan for bus routes in and around Tysons Corner.

Recommendations

The TDP analysis of bus routes in and around Tysons Corner is presented below in roughly the same order as the list in Table 7.11. These recommendations will be refined during the Tysons task. Note that Metrobus 2C and 2T, and Connector routes 401, 462 and 463 are discussed later in this chapter rather than as part of the Tysons Corner group of routes. Metrobus 5A was discussed in the previous section.

Restructure Metrobus 3T

Metrobus 3T connects West Falls Church station to Tysons Corner, providing a significant amount of neighborhood coverage in between. Unfortunately, because it provides so much coverage, it is quite circuitous. In combination with changes to Metrobus 28T, this route can be made more direct. Conversion to Connector operation should also be considered, even though the 3T is a Regional route because it was broken off of the 3 line. Medium size (30 to 35 foot buses) would be appropriate for this route.

The new proposed alignment for the 3T has it following its current alignment out of West Falls Church Station as far as Griffith at Lisle (see Figure 7.5). At that point, instead of turning left onto Lisle, the bus would turn right, serving the Pimmit Hills Alternative High School more directly than the current alignment, and follow Lisle to Anderson Road. It would then turn left and rejoin the current route, crossing Magarity heading north to Dolley Madison Blvd. Once it reaches Tysons Corner, it would terminate at the mall (Tysons Central 123 station). The majority of current riders on the route do not travel north of the mall. Unlike the TMP recommendation, the TDP recommends that the current span of service (weekday full day plus Saturday) be retained as off-peak productivity on the 3T is respectable at roughly 18 riders per platform hour.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the 3T, both initially and further down the road.

		Route	
		3T (Initial)	**3T (Future)**
	Operator	Currently Metrobus, future Fairfax Connector	Fairfax Connector
Span	**Weekday**	5:30 AM – 11:00 PM	5:00 AM – 11:00 PM
	Saturday	6:00 AM – 11:00 PM	6:00 AM – 11:00 PM
	Sunday	None	8:00 AM – 8:00 PM
Headway (minutes)	**Weekday Peak**	20	15
	Weekday Midday	30	20
	Weekday Evening	60	30
	Saturday	60	30
	Sunday	None	60

Restructure Metrobus 28T

To cover the sections of the 3T left out of this streamlined alignment—most notably Magarity Road—it is recommended to reroute Metrobus 28T. Metrobus 28T currently provides some line haul service along Leesburg Pike, as well as some circulation and distribution service in and around Tysons Corner during peak periods. More than half of the ridership occurs between West Falls Church and Tysons Corner Center, with far fewer passengers using the stops along the circulator portion of the route. This suggests that the 28T is mainly functioning to augment service provided by the 28AB. Under this plan, shown in Figure 7.5, the 28T would divert from Leesburg Pike at Magarity Rd to cover the segment now served by the 3T. The new 28T would turn right onto Magarity and then left onto Anderson and left onto Dolley Madison to reach the Tysons Corner Center and ultimately a Metrorail station (likely Tysons Central 123). The current span of service on the 28T (weekday peak periods only) would be extended to full-day service similar to that of the 3T, since it would be covering a portion of the current 3T's alignment. This route could be converted to Connector operation and medium size (30 to 35 foot buses) would be appropriate.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the 28T, both initially and further down the road.

		Route	
		28T (Initial)	**28T (Future)**
	Operator	Currently Metrobus, future Fairfax Connector	Fairfax Connector
Span	**Weekday**	5:30 AM – 11:00 PM	5:00 AM – 11:00 PM
	Saturday	6:00 AM – 11:00 PM	6:00 AM – 11:00 PM
	Sunday	None	8:00 AM – 8:00 PM
Headway (minutes)	**Weekday Peak**	20	15
	Weekday Midday	30	20
	Weekday Evening	60	30
	Saturday	60	30
	Sunday	None	60

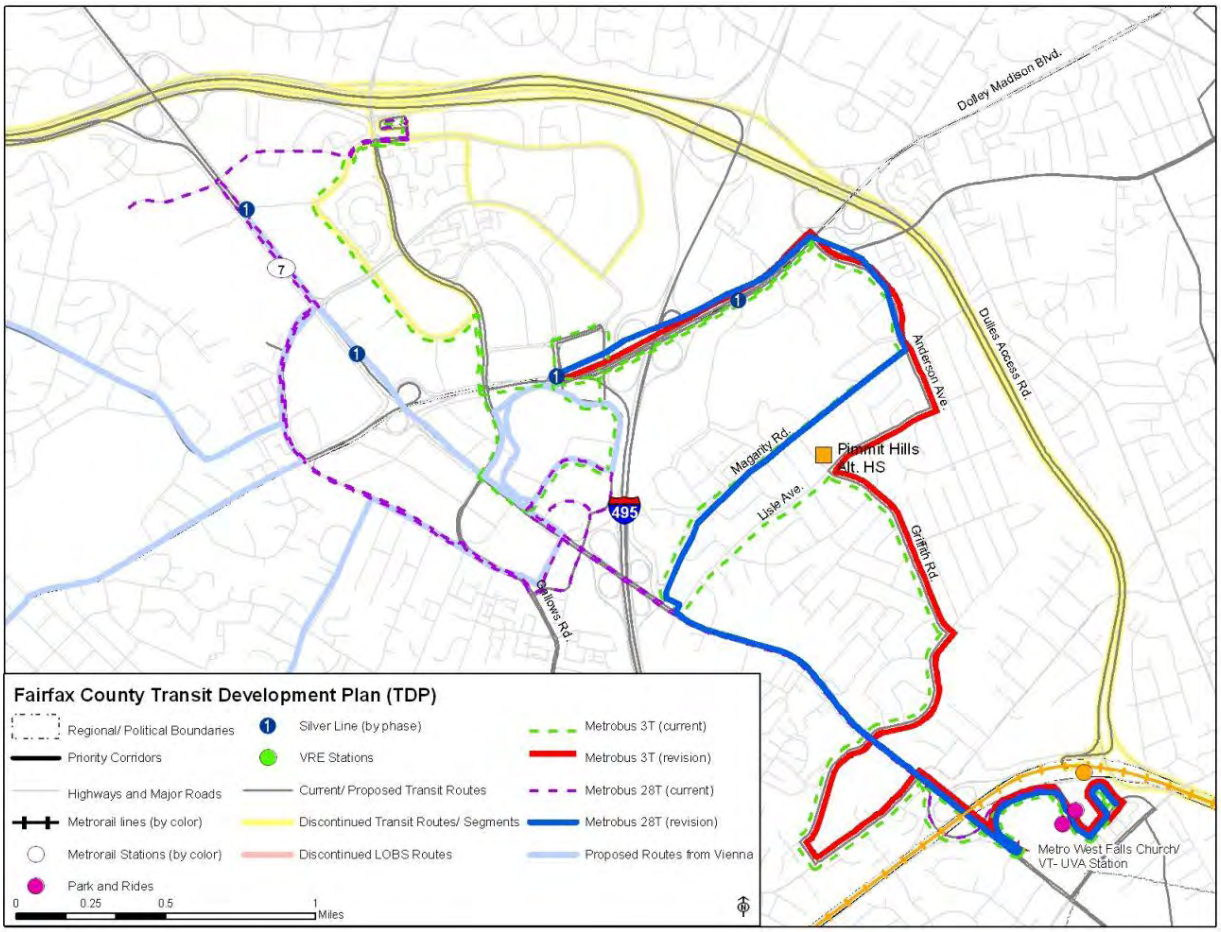
Adjust Metrobus 2C and Connector 401

The Tysons TMP recommended that the terminal of these routes be changed to Tysons West Metrorail station. In conjunction with new circulation within the Tysons area, the TDP recommends that the terminal for the 2C be the Tysons Central 123 station, in order to provide service to the Silver Line, connections to internal circulation routes, and Tysons Corner Center. The route would enter the Tysons area via Gallows Road and then turn onto the Mall Ring Road prior to reaching VA-123. The 2C would terminate at the proposed bus bays at the Tysons Central 123 Silver Line station and then proceed around the Ring Road back to VA-7 and then head northwest to Gallows Road to begin the trip southward.

The 401 would terminate at Tysons West Metrorail station. It would follow the same alignment as the 2C into Tysons Corner, but would turn left on Tysons Corner Center Road to go around the mall, then turn right onto Leesburg Pike, serving Tysons Central 7 Metrorail station and then Tysons West station. After Tysons West, it would return south by looping through Tyco Road to Spring Hill Road and turning left back onto Leesburg Pike. The map of this proposal can be seen in the Tysons recommendation

section of the report. Proposed service levels for these routes will be provided in later sections of this report.

Figure 7.5 Improvements to Metrobus 3T/28T



Replace Metrobus 15KL with Peak Shuttle to/from Rosslyn

In December 2008, WMATA implemented a recommendation from the Regional Bus Study to split the 15KL at Tysons Corner. The new 15M operates via VA-123 between Tysons and GMU, while the rest of the line still operates as the 15KL. The 15M can also be considered the implementation of the TMP recommendation for this line (though the TMP suggested eliminating the portion east of Tysons entirely).

The 15KL operates during weekday peak periods and carries relatively few riders. Much of the ridership boards at Rosslyn in the morning and alights at the CIA in Langley and at some locations in McLean while few ride through to Tysons (only about 20 people).

The TDP recommends that the line be truncated at McLean (see Figure 7.6). From Rosslyn the 15K would use its current alignment as far as Chain Bridge Rd at Old Dominion. From there it would turn right and then right again onto Beverly to return to Dolley Madison and then back to Rosslyn. The 15L alignment can be eliminated as Military Road generates virtually no ridership (4 passengers all day in 2006 checks) and the portion on Lee Highway is duplicative of the Metrobus 3 line. The 15K would continue to

operate during weekday peak periods only, and a medium size bus would be appropriate. This cutback will allow WMATA to save resources or improve the frequency on the 15K.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the 15K.

		Route
		15K
	Operator	Metrobus
Span	**Weekday**	6:00 AM – 9:30 AM 3:30 PM – 7:30 PM
	Saturday	None
	Sunday	None
Headway (minutes)	**Weekday Peak**	20
	Weekday Midday	None
	Weekday Evening	None
	Saturday	None
	Sunday	None

Restructure Metrobus 23AC

The 23AC route is a very productive route, but is also very long (20 miles) and has a run time of about 80 minutes during the peak period. About half of the ridership on the route occurs between Ballston and Shirlington. The Regional Bus Study had recommended splitting the route at Ballston Metrorail station. However, ridecheck data collected as part of the TDP shows that about 400 northbound and 330 southbound passengers (about half of the people on the bus) rode through Ballston. If the route were split, all of these passengers would be forced to transfer. Thus it is not recommended to split the route.

The 23C variation operates on weekdays during peak periods only and consists of an additional out-and-back along Dolley Madison Blvd to the CIA. The segment to the CIA is not well used and this TDP recommends other service to provide this connection. Thus the TDP recommends eliminating the 23C north of Ballston Metrorail station. All service on this line would follow the 23A alignment.

The TMP suggested reducing service on this line to weekdays only with a long peak period of service. Ridecheck data show a significant number of southbound boardings at Tysons Corner Center during off-peak and weekend periods, with concentrations of alightings in the center of McLean. Additional riders board in the center of McLean, heading toward Ballston. The number of boardings and alightings on Old Dominion Dr between Chain Bridge Road and the county line is not great. Assuming that a McLean Connector service would be in place for midday and weekend service (see below), and that the Tysons Metrorail stations would be operational, maintaining off-peak service on the 23A is not essential from a Fairfax County perspective. McLean riders who wanted to reach the Metrorail system would have to use one of the Tysons stations instead of Ballston, meaning a higher fare and less frequent service. There is enough demand in Arlington to warrant off-peak and weekend service on the 23A, and many of these riders are headed to Tysons Corner. While they could transfer to Metrorail and reach Tysons that way (at a higher fare and greater inconvenience), it may make sense from a regional perspective to maintain 23A service as it is on weekends rather than truncating it at the county line. The TDP recommends not eliminating off-peak and weekend service on the 23A as soon as the Tysons Metrorail stations open, but rather to reevaluate service at that point.

		Route
		23A
	Operator	Metrobus
Span	**Weekday**	5:30 AM – 1:30 AM
	Saturday	6:00 – 1:00 AM
	Sunday	5:30 AM – 10:30 PM
Headway (minutes)	**Weekday Peak**	15
	Weekday Midday	30
	Weekday Evening	30-70
	Saturday	30
	Sunday	60

Restructure Metrobus 24T

The 24T is a low ridership, low performing route between East Falls Church Metro and Tysons West*Park Transit Station. The Tysons TMP and master bus plan for the Silver Line project suggest replacing this route with three separate shuttles, one between Tysons West and Tysons East via Lewinsville Road, a second between Tysons East and West Falls Church, and the third between West Falls Church and East Falls Church. The portion of the route along Lewinsville Road gets very little ridership, but the Westmoreland Street portion does get ridership, especially at Kirby Road.

The TDP recommends streamlining this route and serving the Lewinsville Road segment with the McLean Connector (see Figure 7.6). The revised 24T would start at Tysons Central 123 station and use Dolley Madison Blvd and Chain Bridge Road to reach Westmoreland Street. It would then run south to East Falls Church as the present route does. Keeping this segment whole as one route rather than two shuttles as suggested in the TMP, will save resources and allow for better productivity.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the 24T.

		Route
		24T
	Operator	Metrobus
Span	**Weekday**	6:00 AM – 9:30 AM 3:30 PM – 7:30 PM
	Saturday	None
	Sunday	None
Headway (minutes)	**Weekday Peak**	20
	Weekday Midday	None
	Weekday Evening	None
	Saturday	None
	Sunday	None

Eliminate Connector routes 425 and 427

With the extension of rail serve to Tysons Corner, these routes will be eliminated, as their sole function is to shuttle passengers between the Metrorail at West Falls Church and Tysons Corner. This service will be converted into more focused distribution and circulation service in Tysons Corner to be determined during the Tysons task.

As part of the County's FY2010 service reductions, the 425 was reduced to weekday only operations. This was a good first step toward elimination of these routes upon the opening of rail to Tysons, given that the route only carries about five passengers per trip on weekends.

Create McLean Connector

The Regional Bus Study recommended a new McLean feeder service connecting the center of McLean to West Falls Church Metrorail station. The Tysons TMP recommends a McLean Central Connector linking Tysons Corner Center with McLean (see Figure 7.6). With the extension of Metrorail to Tysons Corner, it will be more appropriate to make the connection to Tysons Corner rather than West Falls Church.

Two separate alignments for this route are envisioned, one for peak periods and one for midday/evening service and possible weekend service. The peak service would link the CIA facility to central McLean, Tysons East Metrorail station, Lewinsville Road, and Tysons West Metrorail. The off-peak service would be more limited in coverage, linking central McLean to Tysons Corner, with a western terminal at Tysons Center 123 station. More details on the alignments are provided below.

During the morning peak period, the route would begin at Tysons East Metrorail and head eastbound on Chain Bridge Road. Joining VA-123, the eastbound trip would terminate at the CIA facility. The bus would then turn around and retrace its route to Tysons East. Next, it would follow Lewinsville Road around Tysons Corner to Spring Hill Rd, terminating at Tysons West in order to cover the territory not served by the new streamlined 24T. In the afternoon peak, the pattern would be reversed. This proposed routing of the McLean Connector would be instead of the F4 shuttle listed in the Tysons TMP.

During off-peak periods, an alignment similar to that recommended in the Tysons TMP would be operated. The route would begin at Tysons Corner Center or Tysons Central 123 Metrorail (to be determined in the Tysons planning task of the TDP). It would follow Chain Bridge Road to the east, serving central McLean and then turn left on Fleetwood. The route would follow Fleetwood to Elm Street and turn left and then right on Beverly. At the end of Beverly, the route would turn left on Ingleside and then right on Chain Bridge to return to Tysons Corner.

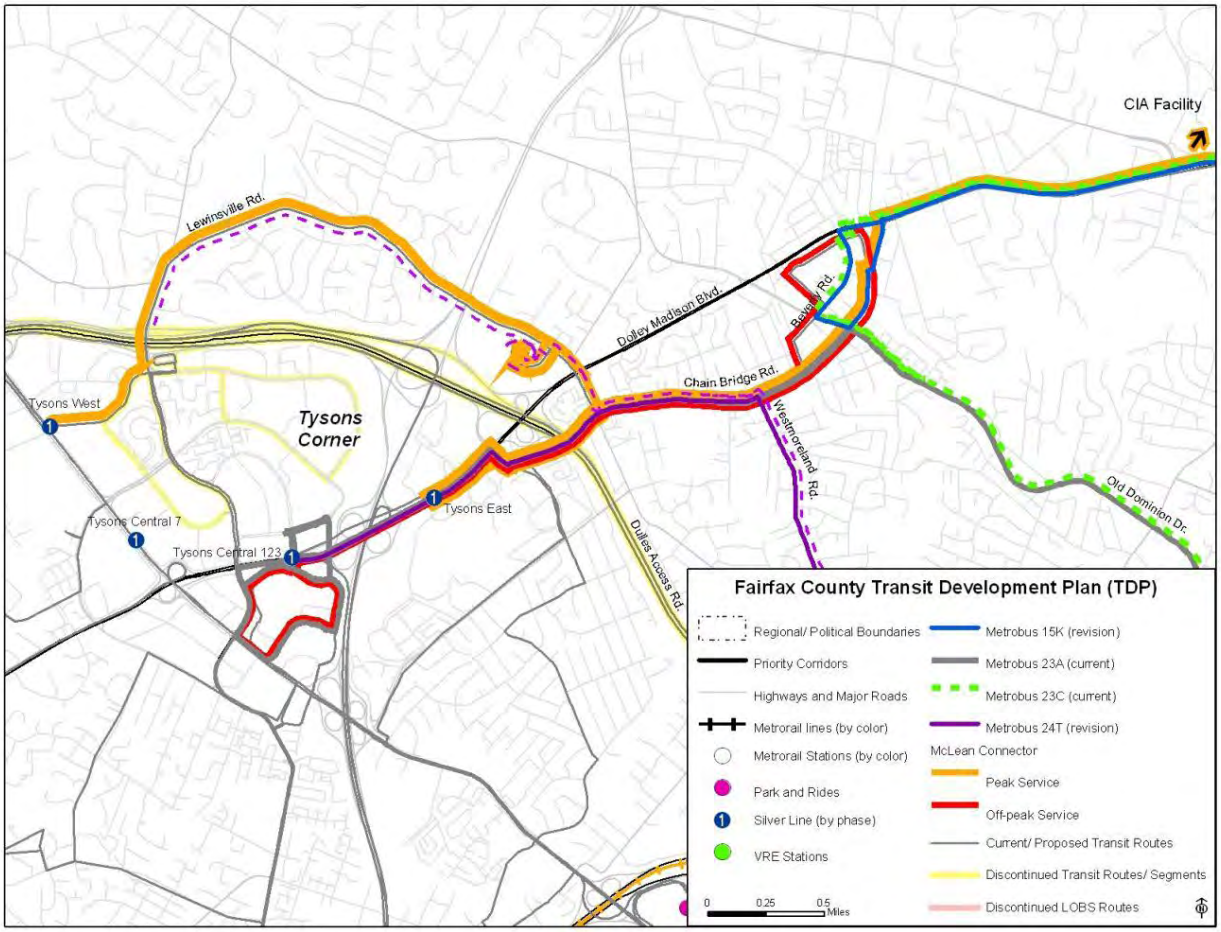
For both peak and off-peak service, an enhanced bus shelter, with excellent pedestrian access, bicycle parking and possibly commuter parking oriented to McLean residents should be located along the route, likely along Chain Bridge Road, to serve as a focus of bus service in downtown McLean.

Peak service would run every 20 minutes on weekdays from 6:00 a.m. to 8:30 a.m. and 4:00 p.m. to 6:30 p.m. Off-peak service would run between 8:30 a.m. and 4:00 p.m. and then again from 6:30 p.m. to 9:00 p.m. If weekend service on the 23A is eliminated, then the off-peak variant of the McLean Connector should be operated on weekends as a replacement. Further details of this service will be worked out in the TDP Task on Tysons restructuring. A small bus (30 feet) would be appropriate for this route.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the McLean Connector.

		Route	
		McLean Connector Peak	**McLean Connector Off-Peak**
	Operator	Fairfax Connector	Fairfax Connector
Span	**Weekday**	6:00 AM – 8:30 AM 4:00 PM – 6:30 PM	8:30 AM – 4:00 PM 6:30 PM – 9:00 PM
	Saturday	None	7:00 AM – 8:00 PM
	Sunday	None	8:00 AM – 8:00 PM
Headway (minutes)	**Weekday Peak**	20	None
	Weekday Midday	None	20
	Weekday Evening	None	40
	Saturday	None	20
	Sunday	None	40

Figure 7.6 McLean Improvements: Metrobus Changes and McLean Connector



Restructure Connector 574

The Tysons TMP suggested rerouting the 574 to Herndon Junction (intersection of Leesburg Pike and Dranesville Road) instead of serving Reston Town Center. This change, shown in Figure 7.7, would introduce new coverage to Leesburg Pike beyond Baron Cameron Avenue, which had been requested in

some public comments. At Herndon Junction, the 574 would connect with the 924 and 926 and with Loudoun County's "7 to 7 on 7" service that provides service between Herndon and Purcellville in Loudoun County. An additional change recommended to the 574 is to remove the deviation into the Tysons West*Park Transit Station upon the opening of Phase 1 of the Silver Line, as transfers could be made at Tysons West at that time.

The Leesburg Pike corridor has relatively low development density and relatively high affluence. The new territory proposed for this route would likely generate less ridership than the sections of Reston that are currently served by the 574. On the other hand, these sections of Reston are also served by other routes, including the RIBS 1/3, RIBS 4, and 552. When Metrorail is extended, residents of this area will have an easy bus-to-rail trip to reach Tysons Corner. While Leesburg Pike may not generate many riders, this corridor has no other transit options.

The realignment will also save resources. The scheduled time from Baron Cameron at Hunter Mill to Reston Town Center is 18 to 23 minutes. The trip from there to Herndon Junction would likely take no more than 10 to 12 minutes. In combination with moving the inner terminal from Tysons Corner Center to Tysons West Metrorail station, it may be possible to complete a one-way trip in about 25 minutes, allowing the route to operate its 60-minute headway with one vehicle instead of the current two. Alternately, the route could run a 30-minute headway with the two current buses, though it is unlikely that there is sufficient ridership demand in the Leesburg Pike corridor northwest of Tysons Corner to justify that level of service in the near term. A small to medium size (30-35 feet) bus should be operated on this route.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the 574, both for initially and further down the road.

		Route	
		574 (Initial)	**574 (Future)**
	Operator	Fairfax Connector	Fairfax Connector
Span	**Weekday**	5:00 AM – 11:00 PM	5:00 AM – 11:00 PM
	Saturday	6:00 AM – 11:00 PM	6:00 AM – 11:00 PM
	Sunday	6:00 AM – 8:00 PM	6:00 AM – 8:00 PM
Headway (minutes)	**Weekday Peak**	30	20
	Weekday Midday	60	30
	Weekday Evening	60	60
	Saturday	60	30
	Sunday	60	60

Create Wolf Trap Shuttle

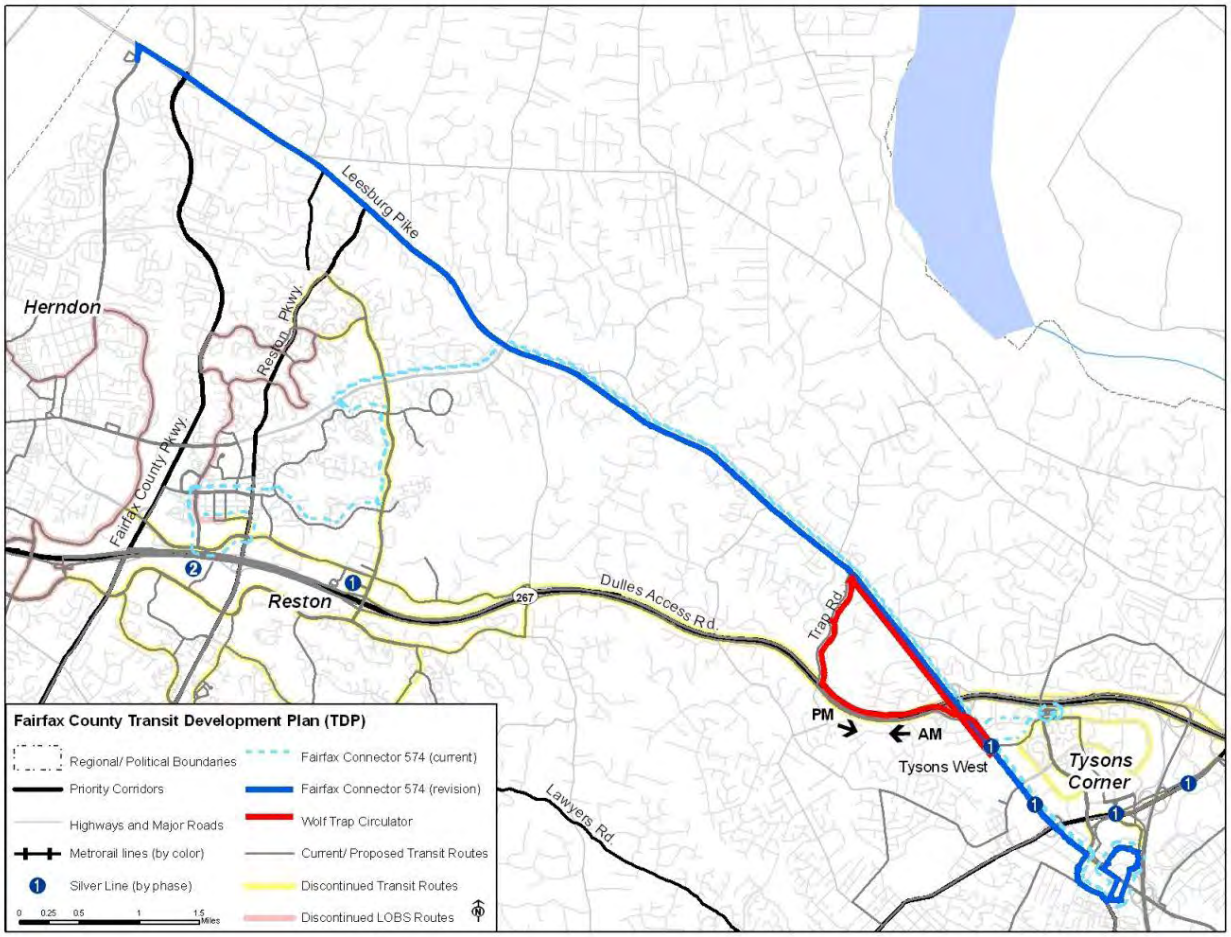
Early versions of the Tysons TMP proposed a new shuttle service between the Tysons West Metro station and Wolf Trap to provide remote parking capacity for the rail station, as a continuation of construction period service between Tysons West*Park Transit Station and Wolf Trap. The TMP recommended a loop using VA-267, Trap Road, and Leesburg Pike. The route would have been operated in a clockwise direction in the AM and a counterclockwise direction in the PM to avoid congestion on the ramps linking VA-7 and VA-267. Once the rail station is in operation, it can be determined whether there is sufficient demand to warrant the establishment of a remote parking arrangement with Wolf Trap and the shuttle service. If an agreement with Wolf Trap cannot be worked out, the McLean Bible Church on Route 7 could provide a suitable substitute remote parking facility. In

that case, the bus route would operate as a direct shuttle on Route 7 rather than the loop shown in Figure 7.7. The degree of demand would dictate the size of the buses to be used on this route.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the Wolf Trap Shuttle.

		Route
		Wolf Trap Shuttle
	Operator	Fairfax Connector
Span	**Weekday**	6:00 AM – 8:00 PM
	Saturday	None
	Sunday	None
Headway (minutes)	**Weekday Peak**	15
	Weekday Midday	30
	Weekday Evening	30
	Saturday	None
	Sunday	None

Figure 7.7 Revised Fairfax Connector 574 and Wolf Trap Shuttle



Circulator Routes from Tysons TMP

The Tysons TMP developed plans for circulator routes in Tysons Corner. These routes are about 6.5 miles long and serve most generators in Tysons, one running clockwise and the other counterclockwise. Assuming an average speed in the range of 12 miles per hour during congested weekday traffic, each trip would take more than 30 minutes. During peak lunchtime congestion, trips could take even longer than that.

Refining the internal circulation plan will be a key element in the Tysons task of the TDP, so detailed options are not presented here. One principle that will be employed is to consider a greater number of shorter and more direct circulators, rather than one route that tries to serve everything. The potential to bypass traffic congestion will also be evaluated, as circulator routes that go no faster than the rest of traffic will not be attractive enough to garner significant ridership. Small buses (30 feet) would be appropriate for this service.

Other Tysons Shuttles from Tysons TMP

The other shuttles recommended in the Tysons TMP will be further considered in the Tysons task. The F2 shuttle (West Falls Church to Tysons via Little Falls) depends on any changes to the 23A, since it overlaps with that route to a large extent. The F5 and F6 shuttles via Westmoreland are not recommended, as the TDP recommend maintaining the 24T in a streamlined fashion. The F7 shuttle, a restructuring of the existing 403 (future 463) will be discussed in the Vienna section below. The F8 Shuttle via Creek Crossing and Old Courthouse will also be discussed in the Vienna section. Finally the F9 shuttle will be evaluated as part of complementary service to the 401.

7.6.3 Reston Service (505, 551, 552, 553, 554, 556, 557, 585, 595/597, RIBS, 950/959)

Background

The community of Reston has a dense network of bus routes, serving both local and core-oriented trips. The last major restructuring of this service occurred in 1999 with the Dulles Corridor Plan. The construction of the Silver Line Metrorail extension will require new changes to these routes. It should be noted that a parallel study of the RIBS routes is ongoing and the results of that study will be incorporated into the TDP. The Connector routes serving Reston are listed below in Table 7.12.

Table 7.12 Reston Bus Services

Route	Name	Magisterial District	Metrorail Connection	Weekday Boardings (Typ.)
505	Reston Town Center Line	Dranesville, Providence, Hunter Mill	West Falls Church - Orange	1,370
551	South Reston Line	Dranesville, Providence, Hunter Mill	West Falls Church - Orange	704
552	North Reston Line	Dranesville, Providence, Hunter Mill	West Falls Church - Orange	500

Route	Name	Magisterial District	Metrorail Connection	Weekday Boardings (Typ.)
553	South Reston Line	Dranesville, Providence, Hunter Mill	West Falls Church - Orange	226
554	North Reston Line	Dranesville, Providence, Hunter Mill	West Falls Church – Orange	424
556[22]	Reston Town Center Line	Hunter Mill	West Falls Church – Orange (via 505)	85
557	South Reston Line	Dranesville, Sully, Hunter Mill	West Falls Church - Orange	373
585	Reston South Express Line	Dranesville, Providence, Hunter Mill	West Falls Church - Orange	500
595	Pentagon Express	Dranesville, Providence, Hunter Mill	Pentagon – Blue/Yellow	326
597	Crystal City Express	Dranesville, Providence, Hunter Mill	Pentagon City, Crystal City – Blue/Yellow	230
605	Fair Oaks-Reston Line	Hunter Mill, Sully, Springfield	None	621
RIBS 1	Lake Anne/Hunters Woods Line	Hunter Mill	None	708
RIBS 2	South Lakes/Herndon-Monroe Line	Hunter Mill	None	968
RIBS 3	Lake Anne/Hunters Woods Line	Hunter Mill	None	964
RIBS 4	North Point/Herndon Line	Hunter Mill, Dranesville	None	566
	Connector totals			8,565

The 505 and the RIBS routes offer full day service on weekdays and weekend service, but all of the other routes in this group operate only during weekday peak periods. Most of the peak commuter routes have express segments on the Dulles Toll Road, and thus the measure of boardings per revenue mile can be misleading. For this type of trip, boardings per trip is the most reliable measure, and virtually all of these routes perform better than the North County average on this measure. Route 556, which was discontinued in June 2009, is the notable exception; it is operated as an extension of some 505 trips rather than as a separate route.

[22] Route 556 was discontinued as of June 29, 2009.

Table 7.13 Reston Bus Service Productivity

Route	Name	Boardings/ Rev-Mile	Boardings/ Platform-Hr	Boardings/ Trip
505	Reston Town Center Line	1.12	27	14
551	South Reston Line	1.39	25	23
552	North Reston Line	1.29	26	26
553	South Reston Line	0.86	11	15
554	North Reston Line	2.04	28	30
556[23]	Reston Town Center Line	0.68	8	4
557	South Reston Line	1.46	17	27
585	Reston South Express Line	1.08	18	21
595	Pentagon Express	1.18	17	25
597	Crystal City Express	0.98	12	23
605	Fair Oaks-Reston Line	1.31	20	21
RIBS 1	Lake Anne/Hunters Woods Line	1.74	21	21
RIBS 2	South Lakes/Herndon-Monroe Line	2.46	28	28
RIBS 3	Lake Anne/Hunters Woods Line	2.21	28	28
RIBS 4	North Point/Herndon Line	1.15	18	17
	Corridor Average	**1.40**	**22**	**20**
	North County Average	**1.60**	**25**	**22**

With the exception of the 605 and RIBS Routes, all of the Reston area bus services are patronized by passengers who are, in general, wealthier than the average rider of the Fairfax Connector System. As seen in Table 7.14, the 950 has about the average proportion of passengers of lower incomes and no auto availability, but the 505, 550 series, 585, 595 and 597 all carry choice riders. Although some restructuring to the bus routes in this area is recommended below, largely due to the opening of the Silver Line, there would be no overall reduction in transit service, so there is no cause for concern about either at-risk riders or others losing any transit accessibility.

Table 7.14 Reston Area Bus Service: At-Risk Rider Demographics

Route	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
Fairfax Connector						
505	62%	26%	58%	28%	49%	51%
551	96%	4%	22%	10%	28%	36%
552	99%	8%	15%	5%	16%	35%
553	91%	3%	19%	1%	25%	27%
554	94%	1%	17%	1%	14%	30%
556[24]	92%	7%	28%	9%	24%	28%
557	92%	3%	16%	5%	16%	34%

[23] Route 556 was discontinued as of June 29, 2009.
[24] Data may not be statistically significant as only 35 surveys were received on the 556.

Route	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
585	97%	5%	22%	3%	14%	40%
595	100%	1%	19%	4%	6%	17%
597	99%	1%	9%	3%	16%	27%
605	47%	54%	84%	43%	79%	62%
RIBS 1[25]	57%	55%	90%	58%	100%	79%
RIBS 2	59%	60%	90%	56%	82%	72%
RIBS 3	61%	70%	95%	86%	91%	63%
RIBS 4	57%	59%	85%	54%	89%	74%
RIBS 1-4	59%	58%	93%	69%	85%	73%
950	47%	47%	74%	42%	65%	72%
VA-267 Corridor[26]	75%	25%	53%	29%	48%	58%

Recommendations

Implement Changes from Wiehle Ave/Reston Pkwy Station Access Plan (in Two Phases)

Bus service in Reston was the subject of a detailed study of future access to the Wiehle Avenue and Reston Parkway Metrorail stations. This study, conducted by Vanasse Hangen Brustlin (VHB), assumed that both phases of the Metrorail extension had been built (and thus both the Wiehle Avenue and Reston Parkway stations are open). To accommodate the rail extension, VHB revised the route structure to connect to the future Metrorail stations and made several modifications to streamline route alignments and reduce duplication.

The TDP used the VHB study as a starting point and devised a two-phase plan to restructure the route network in response to rail construction. For Phase 1 rail completion, the TDP makes several modifications to the VHB recommendations since the Reston Parkway rail station would not yet be built. The recommendations for Phase 2 rail completion are the same as the VHB recommendations, at least in terms of alignments.

The restructuring plan covers essentially all of the roads that currently have service, but in a more direct, streamlined way. Note that outer portion of the proposed 585, which covers territory now served by the 553 and 557, currently generates relatively little ridership. With rail service in the Dulles corridor, however, future ridership would be expected to grow. One of the routes heading west from Wiehle Ave station, such as the 585, could serve the USGS facility on reverse peak trips (westbound in the morning, eastbound in the afternoon).

It should also be noted that the June 2009 service cuts eliminated 557 service between Franklin Farm Road and Fairfax County Parkway. These service cuts also reduced the frequency of the Route 505 and

[25] Data may not be statistically significant, as only 25, 29, 24 and 48 surveys, respectively, were collected for the RIBS 1, 2, 3, and 4.
[26] Includes Routes 425, 427, 505, 551, 553, 554, 557, 585, 595, 597, 950, 951, 952, 980, 5A.

shortened the span of service on Route 553, which are proposed to be eliminated and altered, respectively, upon completion of Phase 1 rail. The 585 span of service was also reduced in June 2009. With respect to the 556, the RIBS study will attempt to provide a convenient replacement for the connection between the northern part of Reston and Reston Town Center that was lost when the 556 was eliminated.

Table 7.15 describes the changes on a route-by-route basis, and these are illustrated in Figures 7.8 to 7.14. Routes for which there are no changes are not included in the figures. The figures show both the Phase 2 future alignments and the adjustments necessary for Phase 1 operation. Note that the results of the parallel study of RIBS routes are not reflected in these tables.

Table 7.15 Adjustments to Reston Routes for Phase 1 Completion

Route	Status	Description
505	Eliminated	Replaced by rail service
551	Eliminated	Replaced by other routes
552	Altered	Cut back from West Falls Church (WFC) to Wiehle Ave station.
553	Altered	Cut back from WFC to Wiehle Ave station – simplified near Reston South Park-and-Ride
554	No change	Keep 554 with existing alignment until Phase 2 is complete
556	Eliminated	The 556 was eliminated in the service cuts implemented in June 2009.
557	Altered	Segment south of Glade Drive eliminated. New service on Glade Drive replaces portion of 551 and 553. Serves Wiehle Ave station. Reroute western end to begin at Herndon-Monroe Park-and-Ride (as 551 does currently)
585	Altered	Cut back from WFC to Wiehle Ave station. Extended beyond Reston South Park-and-Ride to Franklin Farm Rd to cover portions of the 553 and 557 dropped from those routes.
605	OK for Phase 1	Keep existing (2008) alignment until Phase 2 is complete
RIBS 1/3	OK for Phase 1	Keep existing (2008) alignment until Phase 2 is complete
RIBS 2	OK for Phase 1	Keep existing (2008) alignment until Phase 2 is complete
RIBS 4	OK for Phase 1	Keep existing (2008) alignment until Phase 2 is complete
950	Altered	Cut back from WFC to Wiehle Ave station. Retain current alignment from Reston Town Center but extend southern end of route to Wiehle Ave station via Sunrise Valley Drive.
959	New	Circulator covering Sunrise Valley Drive and Sunset Hills Road connecting Wiehle Ave, Reston Parkway, and Herndon-Monroe stations

Once Phase 2 rail construction is complete, the routes described above in Table 7.15 would need to be adjusted, mainly to accommodate the new Reston Parkway rail station. The changes necessary for Phase 2 rail completion are described in Table 7.16 below.

Table 7.16 Route Changes for Phase 2 Rail Completion

Route	Status	Description
552	No change	Phase 1 changes are appropriate for Phase 2
553	Altered	Extend to Reston Parkway station.
554	Eliminated	Replaced by 556b.
556a/b	New	556a covers former 556 except for segment connecting to North Point Village Center. 556b covers former 554 and North Point Village Center.
557	Altered	Extend to Reston Parkway station.
585	Altered	Cut back from Wiehle Ave to Reston Parkway station.
605	Altered	Minor rerouting to serve Reston Parkway station.
RIBS 1/3	Altered	Minor rerouting to serve Reston Parkway station.
RIBS 2	Altered	Rerouted through Reston Hospital Center. No longer serves Herndon-Monroe or Glade Drive west of Reston Parkway. Converted to bidirectional loop.
RIBS 4	Altered	Streamlined structure. Northernmost loop eliminated. Rerouted to serve Reston Parkway station and Sunset Hills Road. Segments east of Reston Parkway eliminated (much of it covered by 552 during peaks).
950	Altered	Convert into a circulator covering Reston Town Center, Herndon Municipal Center, and Sunrise Valley Drive.
959	Altered	Circulator covering Sunrise Valley Drive and Sunset Hills Road connecting Wiehle Ave, Reston Parkway, and Herndon-Monroe stations

The VHB study proposes headways for all of these routes based on multiples of 7, derived from the fact that the peak period headway of the Dulles Metrorail is planned to be 7 minutes. The TDP recommends, however, that more traditional clockface headways be used (15 minutes, 30 minutes, 60 minutes), or headways based on the cycle times of the routes. With peak period rail service running every 7 minutes, it is unnecessary to try to meet a specific train, as the wait for the next train would be short. It is also unrealistic to expect that these bus routes would run so reliably that a headway based on 7-minute multiples would have better coordination with train arrivals and departures than a clockface headway. Finally, off-peak rail service will not run every 7 minutes, so off-peak bus service with headways based on multiples of 7 provides no benefit to the riders even if the bus routes were to run perfectly on time.

Connector Route 605 formerly operated at a 30-minute headway but was cut back to hourly service in 2004. This proposal is to restore 30-minute headways at all times. Otherwise, no changes are proposed to the 605 alignment. This service increase would require two additional buses at all times and double the amount of revenue hours of service.

The following tables present a summary of the service levels recommended to be implemented over the ten year time horizon for Reston bus service related to both Phase 1 and Phase 2 of the Silver Line.

Phase 1 Rail		Route					
		55X Series	**585**	**RIBS 1-4**	**605**	**950**	**959**
	Operator	Fairfax Connector	Fairfax Connector	Fairfax Connector	Fairfax Connector	Fairfax Connector	Fairfax Connector
Span	**Weekday**	5:00 AM – 9:00 AM 3:30 PM – 7:30 PM	5:00 AM – 7:30 PM	5:00 AM – 1:00 AM	6:00 AM – 9:30 PM	5:00 AM – 12:00 AM	5:00 AM – 12:00 AM
	Saturday	None	None	6:00 AM – 12:00 AM	7:00 AM – 8:00 PM	6:00 AM – 12:00 AM	6:00 AM – 12:00 AM
	Sunday	None	None	6:00 AM – 9:00 PM	8:00 AM – 8:00 PM	6:00 AM – 12:00 AM	6:00 AM – 12:00 AM
Headway (minutes)	**Weekday Peak**	15	15	30	30	30	15
	Weekday Midday	None	60	30	30	30	30
	Weekday Evening	None	None	60	60	30	30
	Saturday	None	None	30	30	30	30
	Sunday	None	None	60	60	30	30

Phase 2 Rail		Route					
		55X Series	**585**	**RIBS1-4**	**605**	**950**	**959**
	Operator	Fairfax Connector	Fairfax Connector	Fairfax Connector	Fairfax Connector	Fairfax Connector	Fairfax Connector
Span	**Weekday**	5:00 AM – 9:00 AM 3:30 PM – 7:30 PM	5:00 AM – 7:30 PM	5:00 AM – 1:00 AM	6:00 AM – 11:00 PM	5:00 AM – 12:00 AM	5:00 AM – 12:00 AM
	Saturday	None	None	6:00 AM – 12:00 AM	7:00 AM – 8:00 PM	6:00 AM – 12:00 AM	6:00 AM – 12:00 AM
	Sunday	None	None	6:00 AM – 9:00 PM	8:00 AM – 8:00 PM	6:00 AM – 12:00 AM	6:00 AM – 12:00 AM
Headway (minutes)	**Weekday Peak**	15*	15	15	30	30	15
	Weekday Midday	None	30	30	30	30	30
	Weekday Evening	None	None	30	30	30	30
	Saturday	None	None	30	30	30	30
	Sunday	None	None	30	30	30	30

* Note 556a/b would “share” a 15-minute headway, each running at 30 minutes.

Figure 7.8 Fairfax Connector 553 for Silver Line Phases 1 and 2

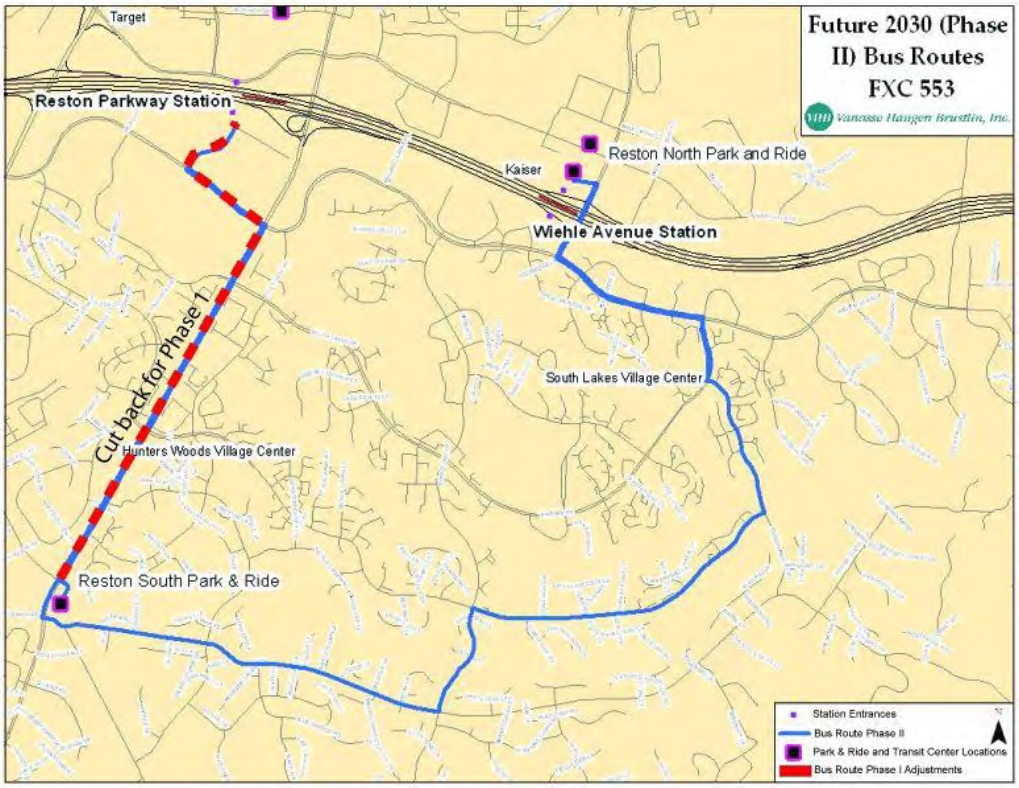


Figure 7.9 Fairfax Connector 556a for Silver Line Phase 2

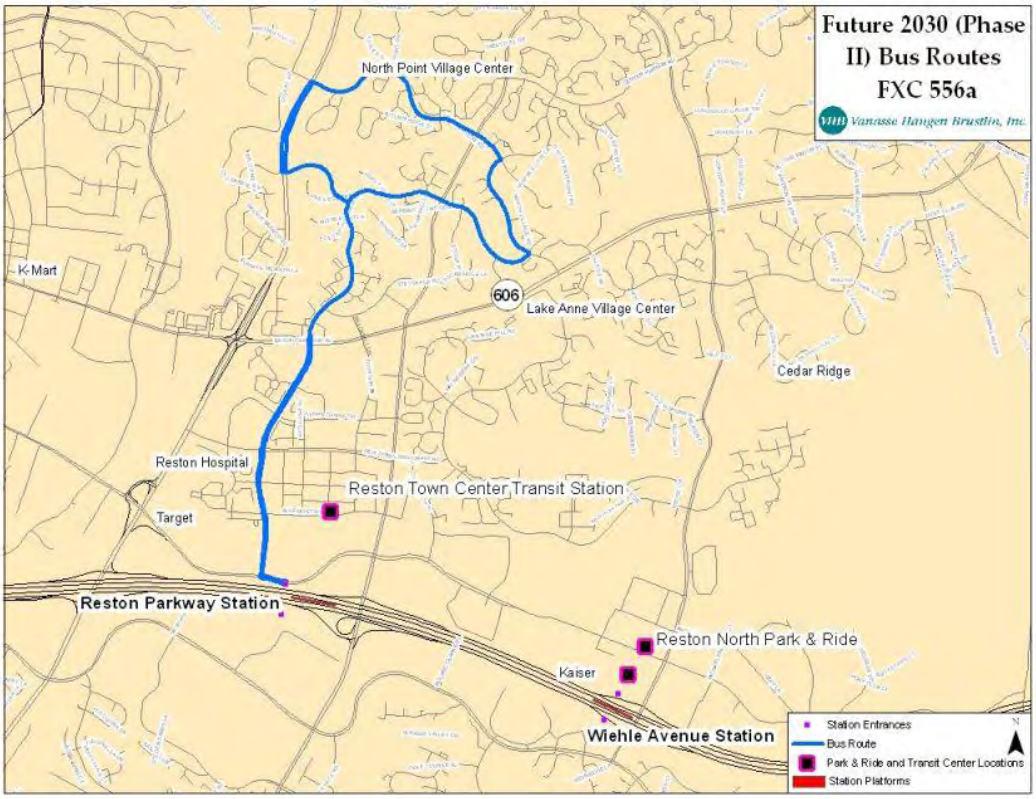


Figure 7.10 Fairfax Connector 556b for Silver Line Phase 2

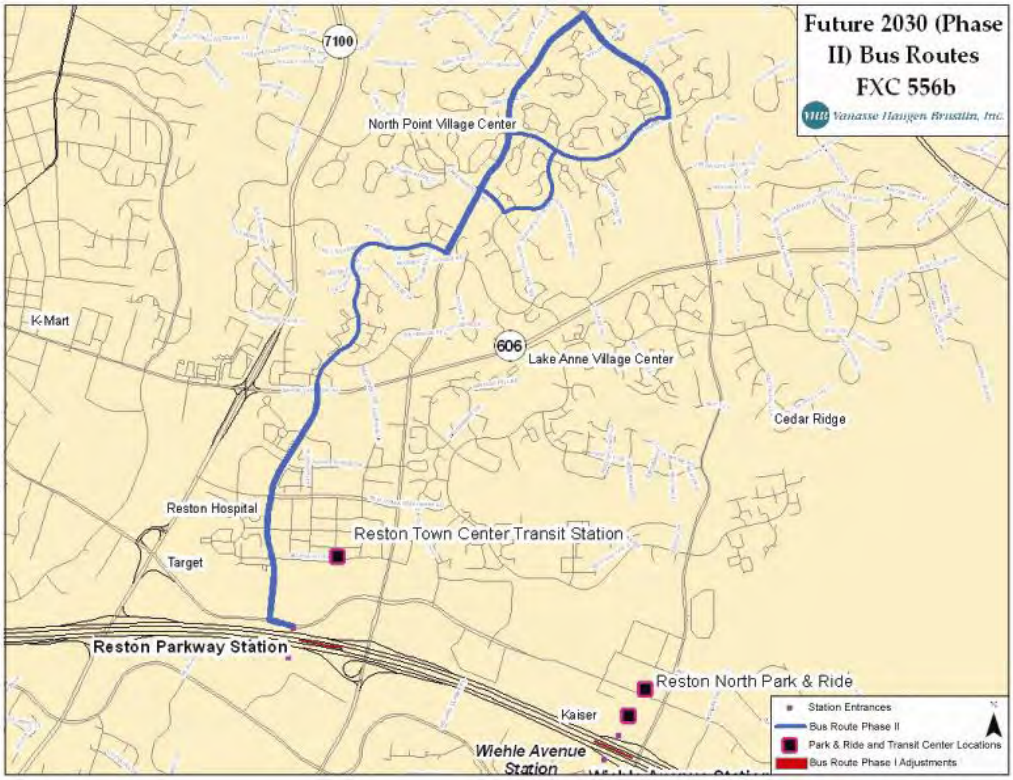


Figure 7.11 Fairfax Connector 557 for Silver Line Phases 1 and 2

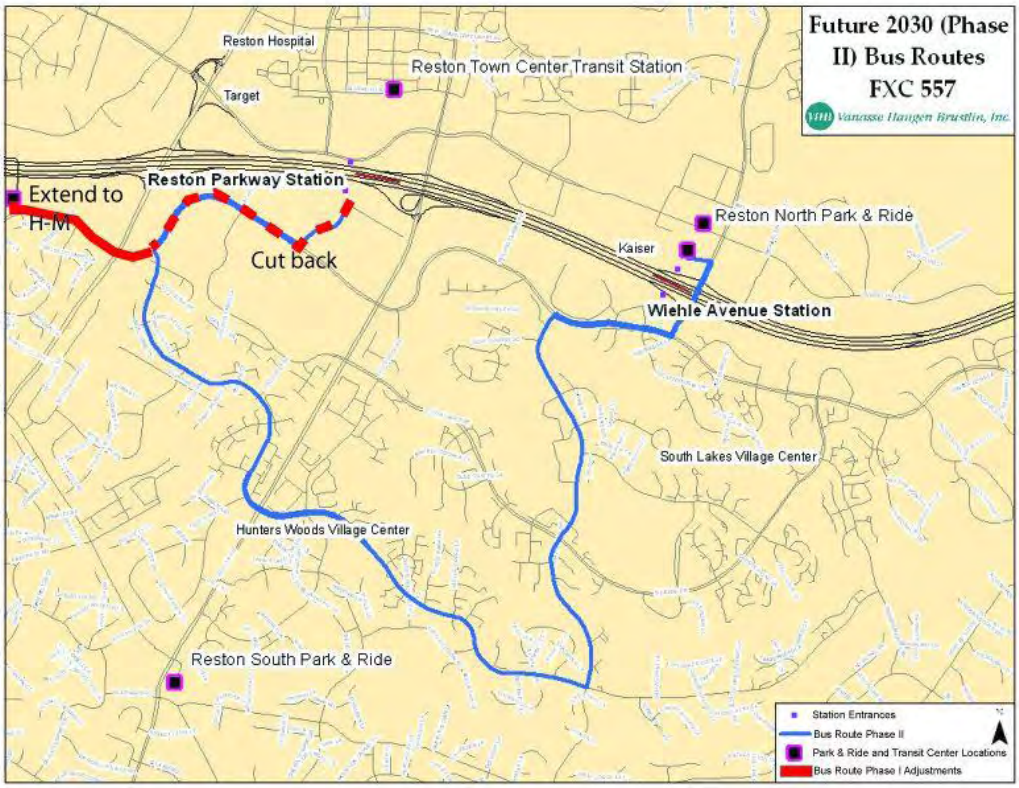


Figure 7.12 Fairfax Connector 585 for Silver Line Phases 1 and 2

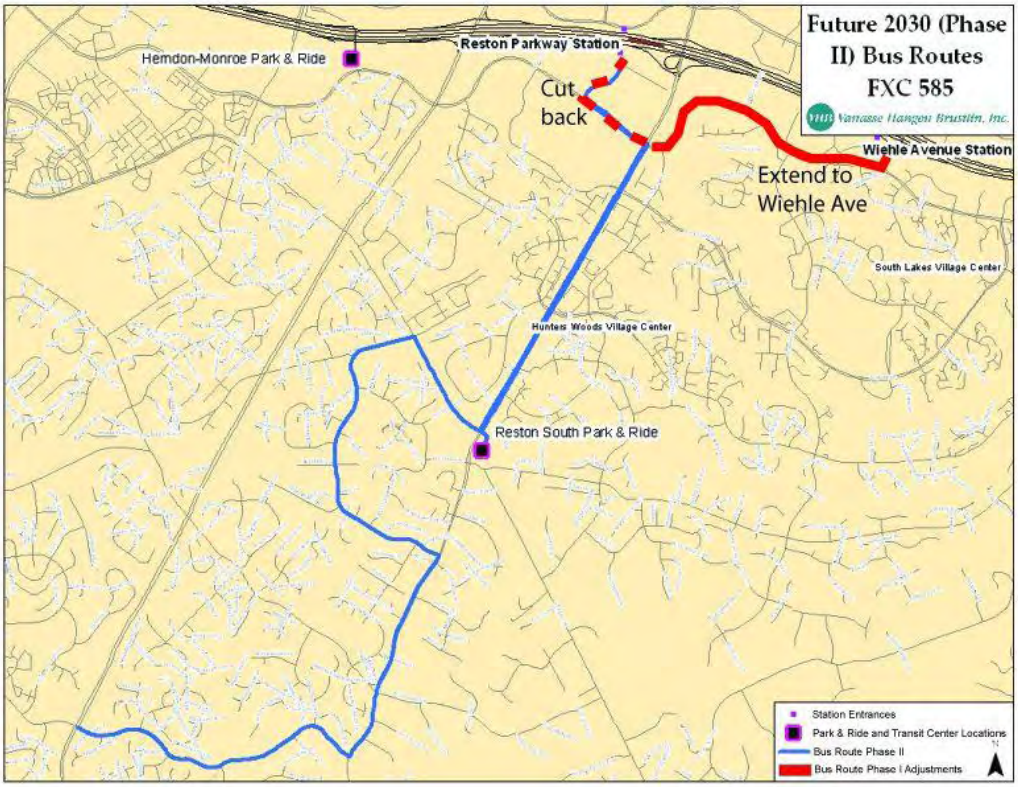


Figure 7.13 RIBS 1&3 for Silver Line Phases 1 and 2

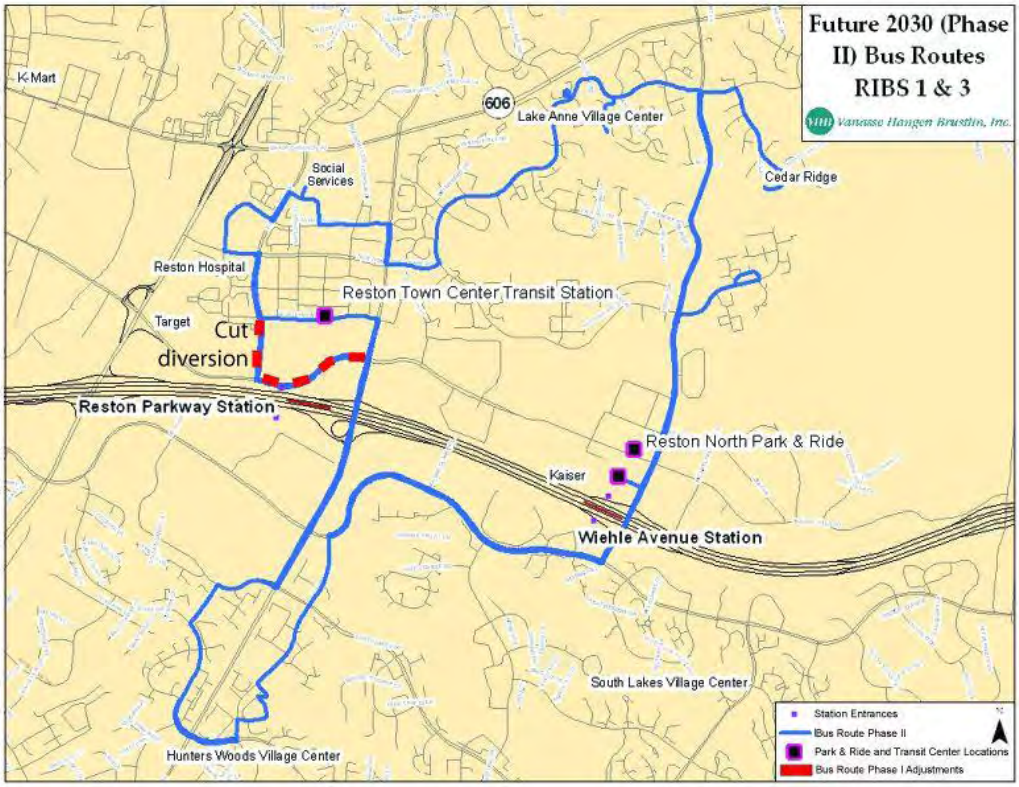
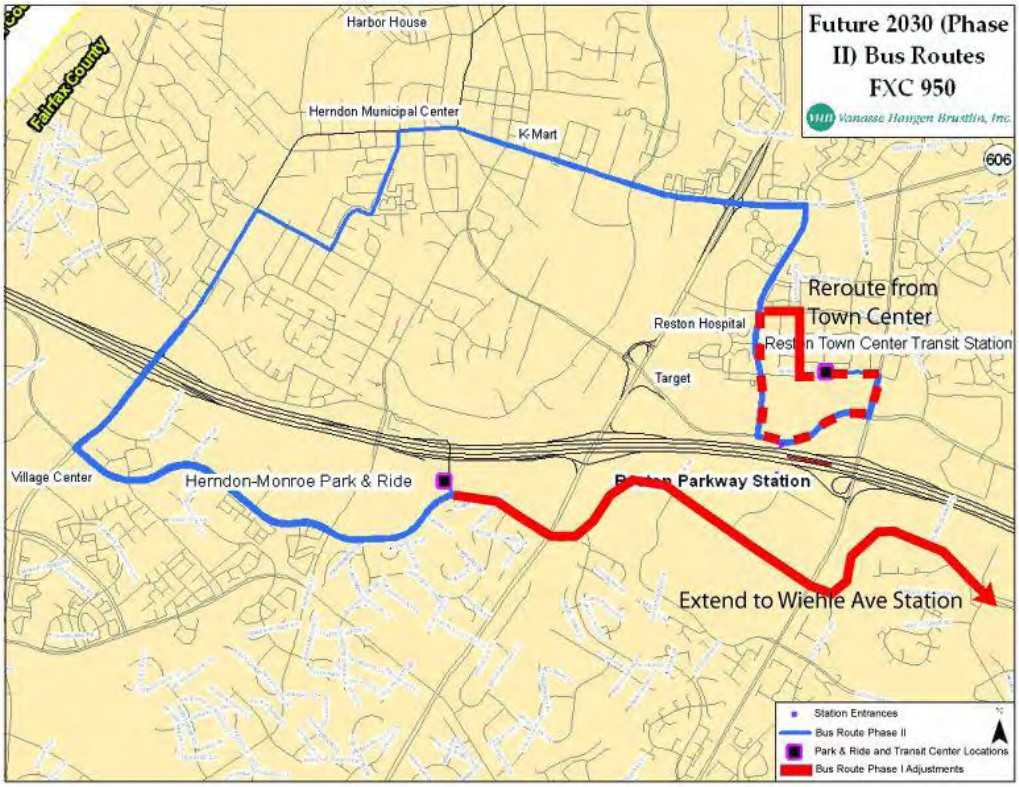


Figure 7.14 Fairfax Connector 950 for Silver Line Phases 1 and 2



Eliminate 595 and 597

The 595 and 597 routes consume a large amount of resources. While they are popular and have a farebox recovery rate far above the system average, they tie up seven buses in the morning and six in the afternoon. The trips that are served by these routes can be made with a combination of bus and rail (though 2 transfers are required: bus to rail at West Falls Church and Orange to Blue at Rosslyn), and when Silver Line Phase 1 is complete, they can be accomplished completely on rail with only one transfer. The convenience offered by these routes does not justify the necessary resources, not to mention the fuel use and environmental impacts of operating so many bus miles, especially when they could be employed for other more urgent transportation needs. It should be noted that the service changes implemented in June 2009 raised the fare on these routes to $7 each way. Early ridership figures indicate a relatively small loss in ridership, and nearly break-even performance for the routes. If ridership drops significantly in the future, especially after Phase 1 rail completion, it will become more imperative to eliminate these routes.

7.6.4 Herndon Service (922, 924, 926, 927, 929, 951, 952, 980)

Background

The northwestern corner of Fairfax County includes the community of Herndon and the fast-growing area south of the Dulles Toll Road including Chantilly Highlands. Herndon is an older community with some moderate to low-income households. The Connector routes serving Herndon are listed below in Table 7.17.

Table 7.17 Herndon Bus Services

Route	Name	Magisterial District	Metrorail Connection	Weekday Boardings (Typ.)
922[27]	Herndon Line	Dranesville, Hunter Mill	None	238
924	Herndon Line	Dranesville, Hunter Mill	None	190
926	Herndon Line	Dranesville, Hunter Mill	None	137
927	South Herndon Line	Hunter Mill	None	274
929	Centreville Road Line	Hunter Mill, Sully	None	191
950	Herndon/Reston Town Center Line	Dranesville, Hunter Mill	West Falls Church – Orange	3,428
951	Reston/Herndon Reverse Commute Line	Dranesville, Hunter Mill	West Falls Church - Orange	254
952	Reston/Herndon Reverse Commute Line	Dranesville, Hunter Mill	West Falls Church - Orange	243
980	Herndon/Reston Town Center Line	Dranesville, Hunter Mill	West Falls Church - Orange	2,690
	Connector totals			8,318

Only Route 950 offers a full service span including Saturday and Sunday. Route 927 offers full day service on weekdays and Route 922 offered early afternoon service before being discontinued in June 2009, but otherwise, the routes in this group offer weekday peak service only. Performance on the 950 and 980, the main express routes to West Falls Church, is excellent with high productivity on all of the measures. Productivity on the rest of the routes in the group is well below the North County average. It should be noted that Route 922 was discontinued in the June 2009 service cuts.

Table 7.18 Herndon Bus Service Productivity

Route	Name	Boardings/ Rev-Mile	Boardings/ Platform-Hr	Boardings/ Trip
922[28]	Herndon Line	0.77	10	9
924	Herndon Line	1.26	19	9
926	Herndon Line	1.06	17	7
927	South Herndon Line	1.14	17	9
929	Centreville Road Line	0.80	11	14
950	Herndon/Reston Town Center Line	2.31	44	45
951	Reston/Herndon Reverse Commute Line	0.95	19	13
952	Reston/Herndon Reverse Commute Line	0.81	18	14
980	Herndon/Reston Town Center Line	2.47	44	32
	Corridor Average	**1.82**	**32**	**25**
	North County Average	**1.60**	**25**	**22**

[27] Route 922 was discontinued as of June 29, 2009.
[28] Route 922 was discontinued as of June 29, 2009.

Herndon service, as shown in Table 7.19, is utilized mostly for work trips, and, with the exception of the 980, carries riders whose demographics mirror the average Fairfax Connector riders. The 980 riders are generally wealthier and have more travel options than the other Herndon area riders.

Table 7.19 Herndon Area Bus Service: At-Risk Rider Demographics

Route	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
Fairfax Connector						
922[29, 30]	90%	14%	55%	33%	45%	58%
924	84%	23%	52%	23%	45%	58%
926	84%	45%	79%	39%	58%	84%
927	76%	24%	62%	30%	46%	59%
929	100%	3%	27%	17%	59%	95%
951	98%	9%	52%	31%	50%	61%
952[31]	99%	19%	57%	29%	52%	67%
980	95%	6%	24%	5%	19%	52%
Centreville Road[32]	55%	45%	72%	41%	64%	72%
VA-267 Corridor[33]	75%	25%	53%	29%	48%	58%

Recommendations

Implement Most Herndon Recommendations from Dulles Rail FEIS

Revisions to bus service in Herndon to accommodate the rail extension were included in the Dulles Rail FEIS. Bus changes for each of two construction phases are described, with Phase 1 being the extension to Wiehle Avenue and Phase 2 being full completion to Dulles Airport with construction of Reston Parkway, Herndon-Monroe and Route 28 stations. A summary of the recommendations for each route by phase is shown in Table 7.20. It should be noted that as part of the June 2009 service cuts, the 980 service frequency was reduced on certain federal holidays.

[29] Data may not be statistically significant as only 23, 30, 20, 30 and 19 surveys, respectively, were received on the 922, 924, 926, 927 and 929.
[30] Route 922 was discontinued as of June 29, 2009.
[31] Data may not be statistically significant as only 47 surveys were received on the 952.
[32] Includes Routes 924, 926, 929, 950, 20F, 20Y (Centreville Road / Westfields Boulevard / Poplar Tree Road / Stone Road)
[33] Includes Routes 425, 427, 505, 551, 553, 554, 557, 585, 595, 597, 950, 951, 952, 980, 5A.

Table 7.20 Summary of Phase 1 Herndon Service Recommendations from Dulles Rail FEIS

Route	Status	Description
5A	Eliminated	
922[34]	Altered	Improved frequency and extended from Herndon-Monroe to Wiehle Ave station via Toll Road
924	Altered	Improved frequency and extended from Herndon-Monroe to Wiehle Ave station via Toll Road
925	New	New coverage in neighborhood immediately west of Fairfax County Parkway and north of West Ox Rd.
926	Altered	Improved frequency and extended from Herndon-Monroe to Wiehle Ave station via Toll Road
927	Altered	Extended from Herndon-Monroe to Wiehle Ave station via Toll Road
929	Altered	Extended from Herndon-Monroe to Wiehle Ave station via Toll Road
951	Eliminated	Replaced by 959 (see Reston table above)
952	Eliminated	Replaced by 959 (see Reston table above)
980	Altered	Cut back to Wiehle Ave station with slightly reduced frequency
981	New	Connection from Dulles Airport to Wiehle Ave station replacing that function of the Metrobus 5A

As discussed previously in the Dulles Airport Service section, the TDP does not recommend eliminating Metrobus 5A until completion of Phase 2 of the Metrorail extension. The Route 981 as described in the FEIS is equivalent to the proposed County-operated route in the Dulles Airport Service section, below. This new route would not replace the 5A but rather cover the stops in Fairfax County.

The routes serving Herndon are poor performers and relatively circuitous. The 922, which is the most circuitous, did serve local trips within Herndon as well as feeder trips to the express buses at Herndon-Monroe. With a future one-seat ride to rail, they are likely to become more attractive. A circulator/feeder service similar to the former 922 should be considered once Phase 2 rail is complete to provide all-day access to the Herndon-Monroe Metrorail station on weekdays and Saturdays.

A minor change to Route 927 is recommended. Instead of following Sunrise Valley Drive to Frying Pan Road, it is recommended to turn onto Coppermine Road so that the residential area can be served more directly. (See Figure 7.15) To the east of Centreville Road, the route would remain the same as at present. When the Route 28 Silver Line station is complete in Phase 2, this route would stop there, as well as at the Herndon-Monroe station.

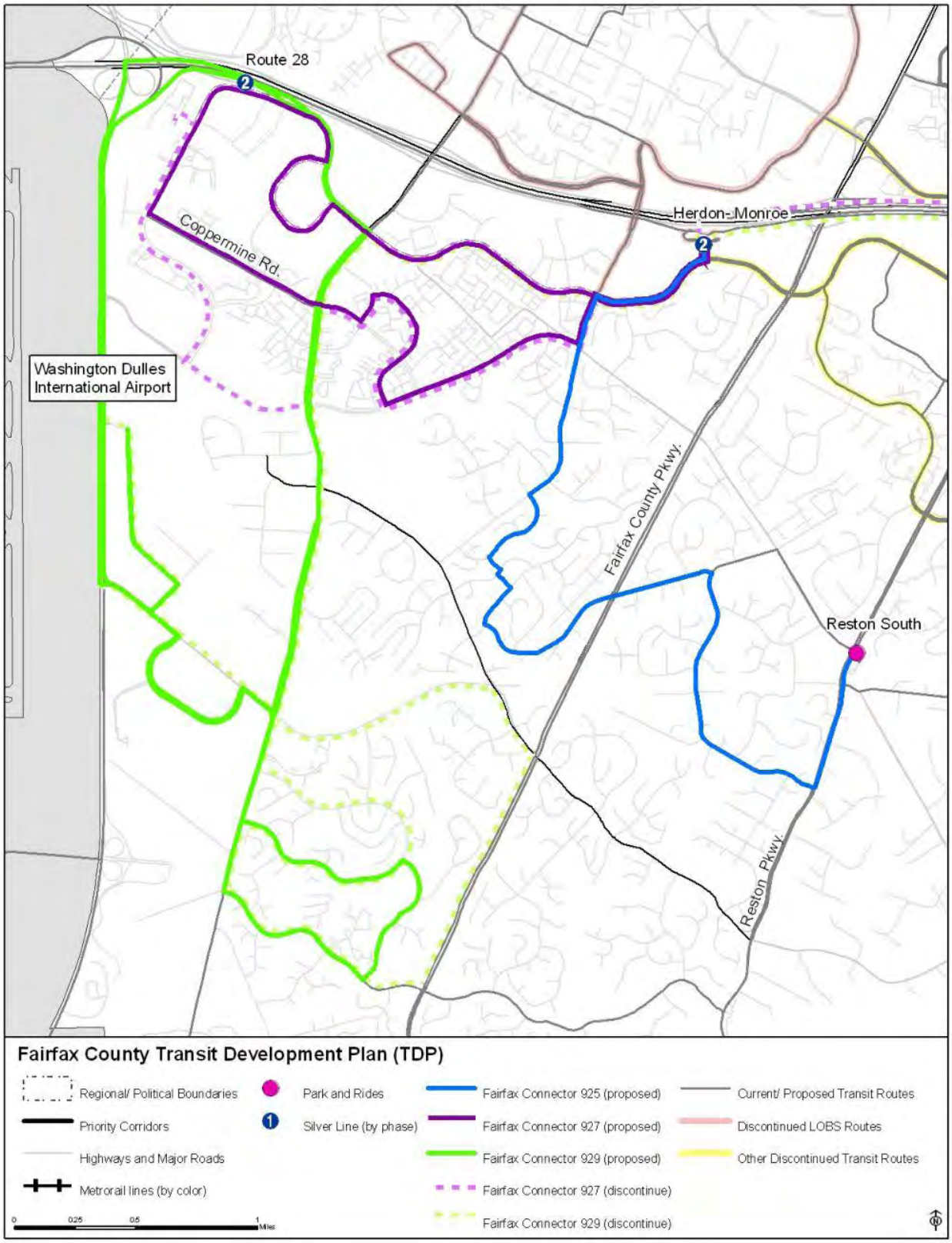
Route 929 is also circuitous and a poor performer. Ridecheck data show it attracting very few trips on the portion of the route serving McLearen Road east of Centreville and Franklin Farm Road (which will also be served by the 652). If ridership does not rise substantially on this portion of the route after Phase 1 rail completion, that loop should be eliminated and the route would instead run south on Centreville Road to the southerly intersection with Kinross Circle and operate a smaller loop through that neighborhood only. At the time of Phase 2 rail completion, the 929 should be restructured so that it

[34] Route 922 was discontinued as of June 29, 2009, however this table reflects what was written in the Dulles Rail FEIS, at which time the 922 still operated.

serves the Route 28 Silver Line station rather than the Herndon-Monroe station. As shown in Figure 7.15, the morning routing would head out from the Route 28 station onto Route 28 southbound to serve the employment along Park Center Road and EDS drive. It would then use McLearan and Centreville Road to reach the Kinross Circle neighborhood, serving also Heather Drive and Franklin Farm Road. After picking up residents there, the route would return to the Route 28 station via Centreville Road. In the afternoon, the pattern would be reversed.

In the Phase 2 plan, the FEIS recommends that the routes essentially return to present-day operation with a terminal at the future Herndon-Monroe rail station. One new route is added: Route 925 improving access for the neighborhood immediately west of Fairfax County Parkway and north of West Ox Rd (See Figure 7.15). At that point, it is recommended that ridership be evaluated and if there has been a significant increase due to the presence of rail, then service levels can be improved and new routes added to help improve directness without sacrificing coverage.

Figure 7.15 Herndon-Monroe and Route 28 Station South Circulators for Phase 2 Silver Line



In addition to the FEIS study of Herndon bus routes, a parallel study of potential trolley service in Herndon was completed in July 2009. This service would be a rubber-tire service, possibly using replica trolley-style buses, intended to improve circulation and distribution in downtown Herndon and the commercial areas such as Worldgate Lane. As a result of the study, the Herndon Town Council determined that the projected ridership on this Trolley was too low and the operating cost was too high to pursue this project in the near future.

Figures 7.16, 7.17 and 7.18 show a composite look at the proposed bus service that is proposed to be in place to support the Reston, Herndon and Tysons area following Phase 2 of Dulles Metrorail Implementation, as described above in sections 7.6.3 (Reston) and 7.6.4 (Herndon), above.

The following tables present a summary of the service levels recommended to be implemented over the ten year time horizon for Herndon bus service related to both Phase 1 and Phase 2 of the Silver Line.

	Phase 1 Rail	**Route**		
		924/926/929	**927**	**980**
	Operator	Fairfax Connector	Fairfax Connector	Fairfax Connector
Span	**Weekday**	5:00 AM – 9:00 AM 3:30 PM – 7:30 PM	5:00 AM – 9:00 PM	5:00 AM – 9:00 AM 3:30 PM – 7:30 PM
	Saturday	None	None	None
	Sunday	None	None	None
Headway (minutes)	**Weekday Peak**	15	15	10-15
	Weekday Midday	None	30	None
	Weekday Evening	None	None	None
	Saturday	None	None	None
	Sunday	None	None	None

	Phase 2 Rail	**Route**		
		924/925/926/929	**927**	**New circulator**
	Operator	Fairfax Connector	Fairfax Connector	Fairfax Connector
Span	**Weekday**	5:00 AM – 9:00 AM 3:30 PM – 8:00 PM	5:00 AM – 9:00 PM	5:00 AM – 9:00 PM
	Saturday	None	None	7:00 AM – 8:00 PM
	Sunday	None	None	8:00 AM – 8:00 PM
Headway (minutes)	**Weekday Peak**	15	15	20
	Weekday Midday	None	30	30
	Weekday Evening	None	None	60
	Saturday	None	None	30
	Sunday	None	None	None

Figure 7.16 Phase 2 Dulles Metrorail Bus Routes: Reston-Herndon North

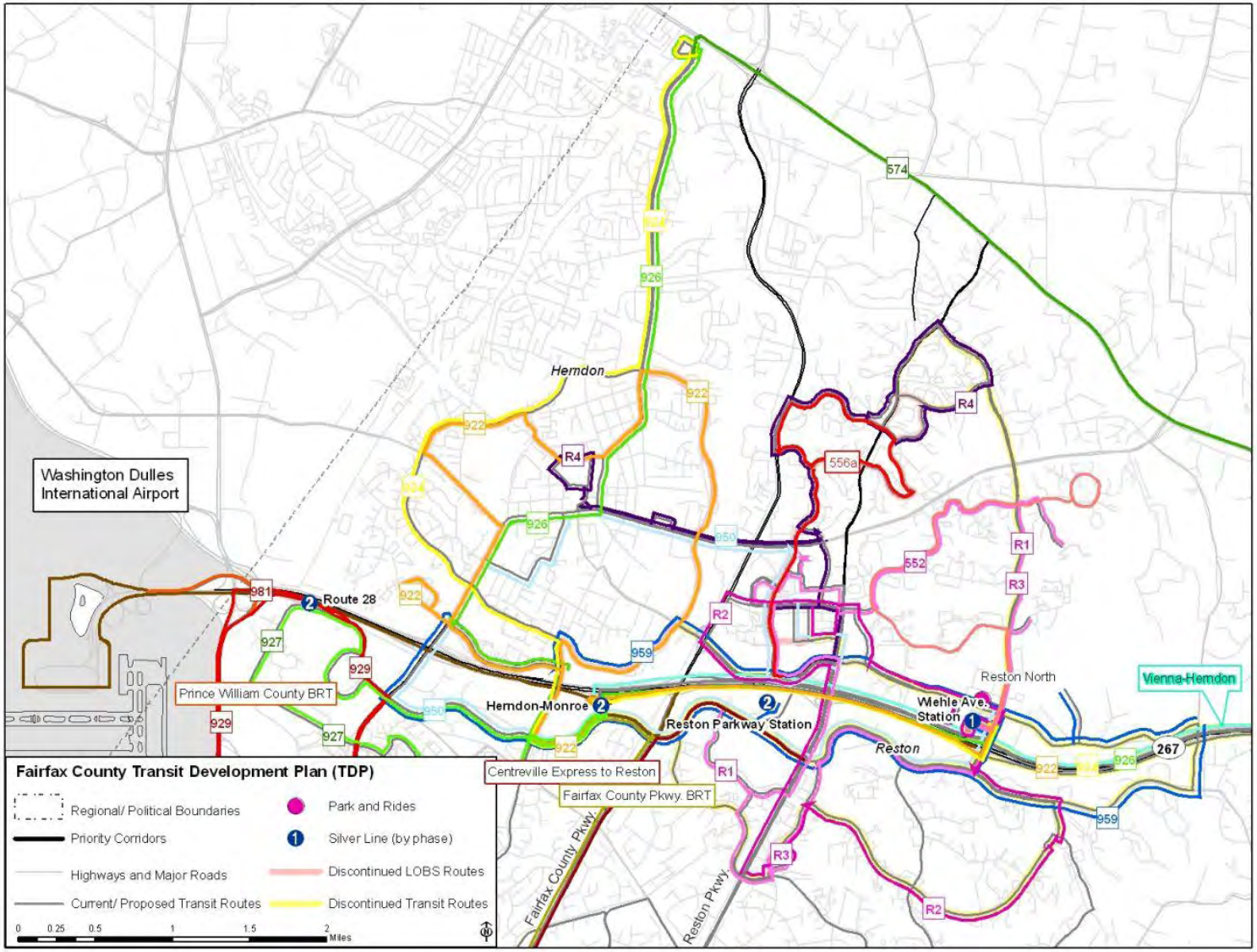


Figure 7.17 Phase 2 Dulles Metrorail Bus Routes: Reston-Herndon South

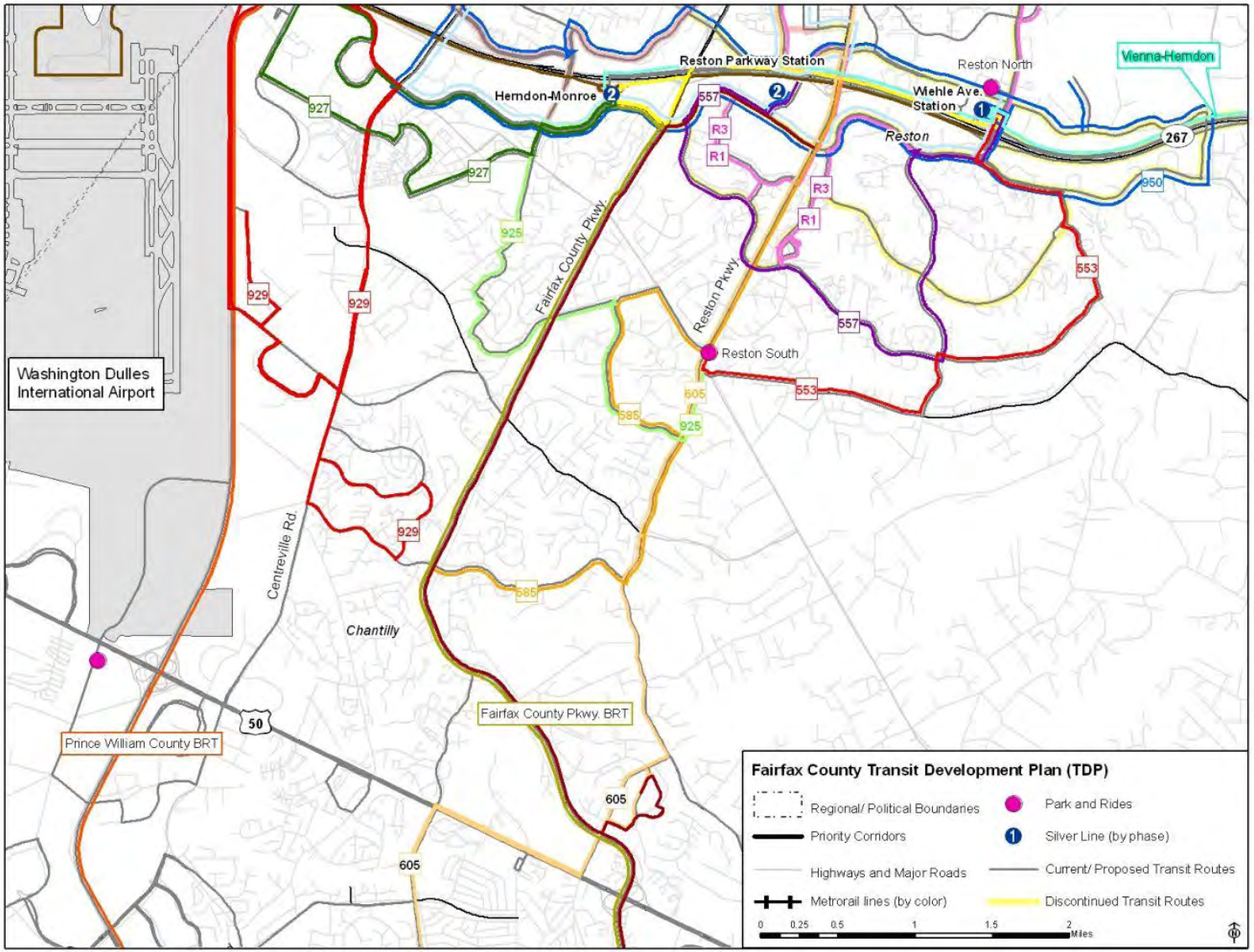
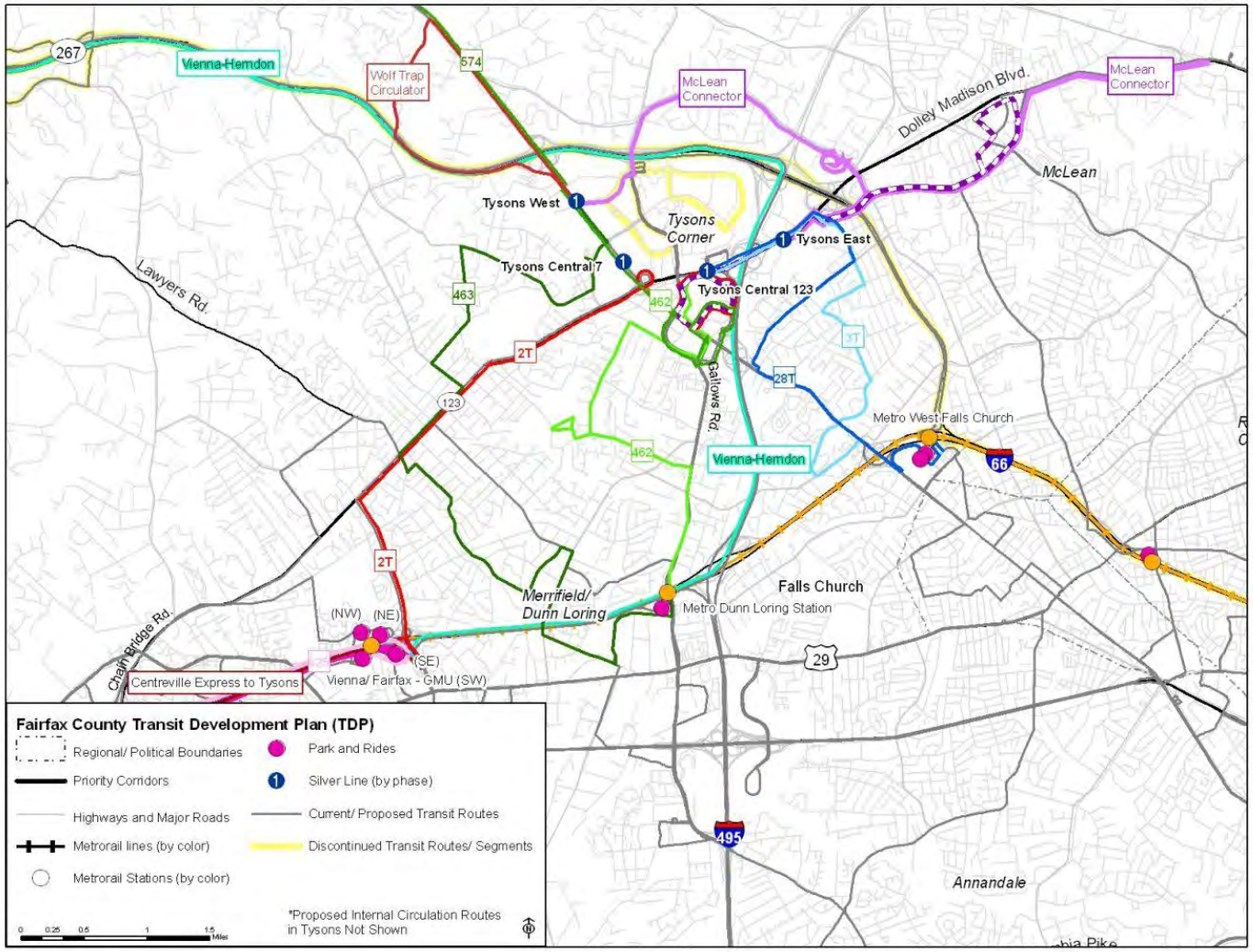


Figure 7.18 Phase 2: Dulles Metrorail Bus Routes: Tysons[35]



[35] Note that these services are a composite proposal of the full TDP, the Dulles FEIS, and the Wiehle Avenue Access Study. Additional analysis for routes to serve Tysons internal circulation has been conducted. See the Tysons Analysis for more detail.

OTHER NORTH COUNTY AREAS

7.6.5 Vienna-Merrifield Service (462/463, 466,[36] 2T, 15M)

Background

The Town of Vienna is located between I-66 and Tysons Corner, and is served by a number of bus routes that link those two locations, shown in Table 7.21. Metrobus 2T provides daily service with a generous span, while Connector routes 462 and 463 (former 402 and 403) offer peak service on weekdays. Connector Route 466 (former Metrobus 2W) serves the community of Oakton just west of Vienna. Route 15M, running between George Mason University and Tysons Corner, was split off from the Metrobus 15K,L line in December 2008. Ridership statistics for this route are not available.

Table 7.21 Vienna-Merrifield Bus Services

Route	Name	Magisterial District	Metrorail Connection	Weekday Boardings (Typ.)
402[37]	Vienna-Merrifield-Dunn Loring Line	Hunter Mill, Providence	Vienna - Orange Dunn Loring -Orange	77
403	Vienna-Merrifield-Dunn Loring Line	Hunter Mill, Providence	Vienna - Orange Dunn Loring -Orange	164
2T	Tysons Corner-Dunn Loring Line	Providence, Hunter Mill	Dunn Loring -Orange	1,146
2W	Vienna-Oakton Line	Hunter Mill, Providence	Vienna - Orange	240

The Metrobus routes in this corridor perform better than the two Connector routes. Taken together, the four routes perform near the North County average for all measures. The boardings per mile are slightly higher, reflecting the lack of express segments on these routes compared to much of North County service, while the boardings per hour are slightly lower.

Table 7.22 Vienna-Merrifield Bus Service Productivity

Route	Name	Boardings/ Rev-Mile	Boardings/ Platform-Hr	Boardings/ Trip
402[38]	Vienna-Merrifield-Dunn Loring Line	1.71	24	11
403	Vienna-Merrifield-Dunn Loring Line	1.45	13	15
2T	Tysons Corner-Dunn Loring Line	2.19	27	23
2W	Vienna-Oakton Line	2.23	35	17
	Corridor Average	**1.78**	**23**	**22**
	North County Average	**1.60**	**25**	**22**

Vienna-Merrifield Service carries riders with a wide range of demographics, from the 402 with only 13% of the riders with household incomes lower than the County median, to the 2T where 81% of the riders

[36] Formerly the 402/403 and the Metrobus 2W prior to June 29, 2009. All ridership data was collected while these routes used their former numbers.
[37] Ibid.
[38] Ibid.

have incomes lower than that threshold. The 2W demographics are much different from the 2T, however, with higher incomes and lower transit-dependence.

Table 7.23 Vienna-Merrifield Bus Service: At-Risk Rider Demographics

Route	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
Fairfax Connector						
402[39, 40]	110%[41]	0%	13%	9%	39%	29%
403[42]	90%	17%	52%	33%	57%	70%
Metrobus						
2T	97%	52%	81%	46%	73%	63%
2W[43]	94%	33%	47%	20%	27%	19%

Recommendations

Several requests were received from the public and Supervisors concerning improved service for the northern part of Vienna. It is also noted that there is no convenient connection from Vienna Metrorail to Tysons Corner. Improved access to Dunn Loring-Merrifield was also requested by the public and Supervisor Smyth. Figures 7.19 and 7.20 below show the current Vienna bus service and the service as recommended in the TDP.

Restructure Metrobus 2T

Metrobus 2T was formerly part of the longer 2C. As it stands now, the 2T appears to be more suited to operation by Fairfax County, though it is currently classified as a regional line by WMATA since it was formerly part of the 2 line. In this plan, the 2T would be reworked into a direct connection between the Vienna Metrorail station and Tysons Corner. From Vienna station, the route would use Nutley Street to reach Chain Bridge/Maple (VA-123) and then head straight into Tysons Corner. The proposed northern terminal is the future Tysons Central 123 Silver Line station, including a loop around the Ring Road at Tysons Corner Center. A full-size bus (40 foot) should be used for this route. The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the 2T.

[39] Data may not be statistically significant as only 24 surveys were received on the 402.
[40] The 402 and 403 were changed to the 462 and 463 as of June 29, 2009.
[41] If riders are going both to and from work (either between multiple jobs or from work to job related business, for example), the total work related trips can exceed 100%.
[42] Data may not be statistically significant as only 37 surveys were received on the 403.
[43] Data may not be statistically significant, as only 16 surveys were received for this route.

		Route	
		2T (Initial)	**2T (Future)**
	Operator	Currently Metrobus, future Fairfax Connector	Fairfax Connector
Span	**Weekday**	5:30 AM – 11:45 PM	5:30 AM – 11:45 PM
	Saturday	6:00 AM – 11:00 PM	6:00 AM – 11:00 PM
	Sunday	8:00 AM – 8:00 PM	8:00 AM – 8:00 PM
Headway (minutes)	**Weekday Peak**	30	15
	Weekday Midday	30	30
	Weekday Evening	60	60
	Saturday	30/60	30
	Sunday	60	30/60

Restructure Connector 466 (former 2W)

Connector Route 466 serves the western edge of Vienna and the Oakton neighborhood. To reduce duplication with the other routes and enhance service to the residential areas of Oakton, it is recommended that outbound trips from Vienna Metrorail head west on Saintsbury Drive and north on Vaden Drive to Country Creek Road, rather than using Nutley. The route would turn left on Country Creek and then right on Sutton at Oakton High School. From Sutton, the bus would turn left onto Courthouse Rd to parallel Chain Bridge Rd, but with superior access to the moderate density housing. Removing the service from Chain Bridge Road would have little impact, as it generates virtually no ridership on this stretch according to TDP and WMATA ridechecks. From Courthouse, the route would turn left onto Chain Bridge Rd to resume the original route. This change would reduce route mileage by about 1.2 miles and very likely allow the route to run on an even 30-minute headway rather than the 31 to 35 minute headway that is operated on the 466. This route should be operated with a small (30-foot) bus.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the 466.

		Route
		466
	Operator	Fairfax Connector
Span	**Weekday**	5:00 AM – 10:00 AM 4:00 PM – 9:00 PM
	Saturday	None
	Sunday	None
Headway (minutes)	**Weekday Peak**	30 (future 15)
	Weekday Midday	None
	Weekday Evening	None
	Saturday	None
	Sunday	None

Create New Vienna South Feeder

The Connector 466 and other routes connect neighborhoods on the north side of I-66 to the Vienna Metrorail station, but other than the major corridor lines on Lee Highway and Arlington Boulevard (the Metrobus 2 and 1 lines, respectively) there is relatively poor access from neighborhoods on the south side of I-66. This new route, shown in Figure 7.20 would serve residential areas along Hunters Glen Way and in the area between Lee Highway and Arlington Boulevard east of Nutley Street. This route, tentatively numbered 464, would operate with a similar level of service to the 466 and should be operated with a small (30-foot) bus.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the new Vienna South Feeder (464).

		Route	
		Vienna South (464) - Initial	**Vienna South (464) - Future**
	Operator	Fairfax Connector	Fairfax Connector
Span	**Weekday**	5:00 AM – 9:00 AM 4:00 PM – 7:30 PM	5:00 AM – 10:00 AM 3:30 PM – 8:00 PM
	Saturday	None	None
	Sunday	None	None
Headway (minutes)	**Weekday Peak**	30	15
	Weekday Midday	None	None
	Weekday Evening	None	None
	Saturday	None	None
	Sunday	None	None

Restructure Connector 462 and 463 (former 402 and 403) along with Metrobus 15M

Connector Route 462 (former 402) connects Vienna and Dunn Loring-Merrifield stations via residential areas of Vienna, as well as serving an industrial park immediately south of I-66 and west of Gallows Road. It is interlined with Route 463 (former 403) which serves sections of Vienna farther to the north. These routes run only during commuting hours. It is proposed to completely rework these routes in combination with a restructured Metrobus 15M (see Figure 7.20). The 15M is a new route (as of December 2008) that was formerly the western segment of the 15K,L. It runs between George Mason University and Tysons Corner via VA-123. It is a low ridership route (based on counts done on the 15KL by WMATA).

Most of the 462 (former 402) would be served by the restructured 15M. This route, which could be converted to Connector operation, would begin at GMU and serve the County Judicial Center on its way north. It would then follow VA-123 into Oakton. At Flint Hill Road, the route would turn left to Malcolm and then turn right. The route would cover the segments of Malcolm and Lawyers Road now served by the 463, and then after a short stretch on Maple Ave through the center of Vienna, turn right onto Park Street. After passing Moore Street, the route would follow the current alignment of the 462 to Dunn Loring Metrorail station and terminate there. The southern tail of the 462/463 (former 402/403) would be covered by the restructured 463.

The new 463 would serve Cottage Street and the northern section of Vienna. Exiting from Dunn Loring Metrorail station, the route would travel on Prosperity Ave and Hilltop. From Hilltop, the route would turn north onto Cedar as far as Park, in order to serve the high volume stops at the Cedar Lane Shopping

Figure 7.19 Vienna-Merrifield Bus Service: Existing Service

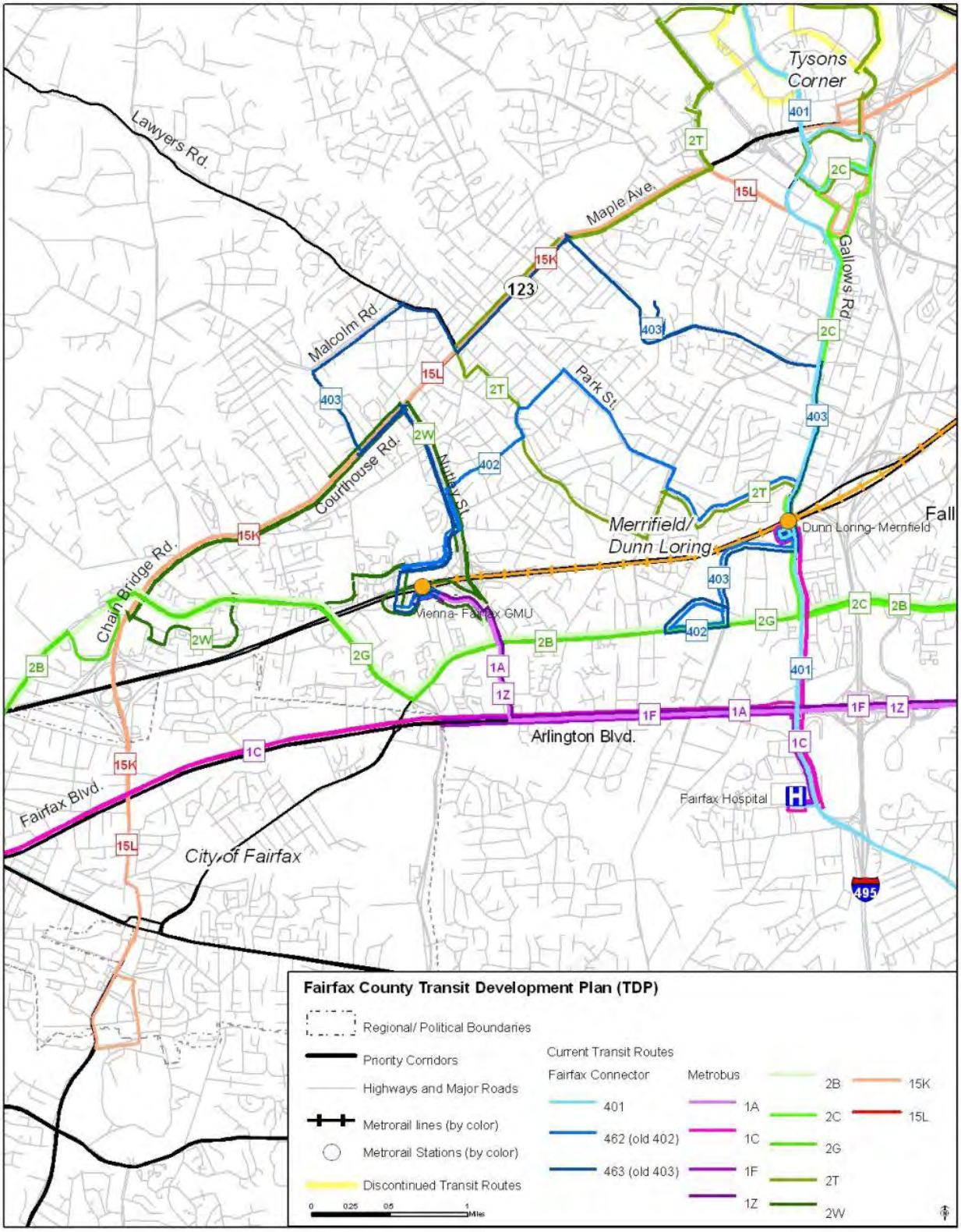
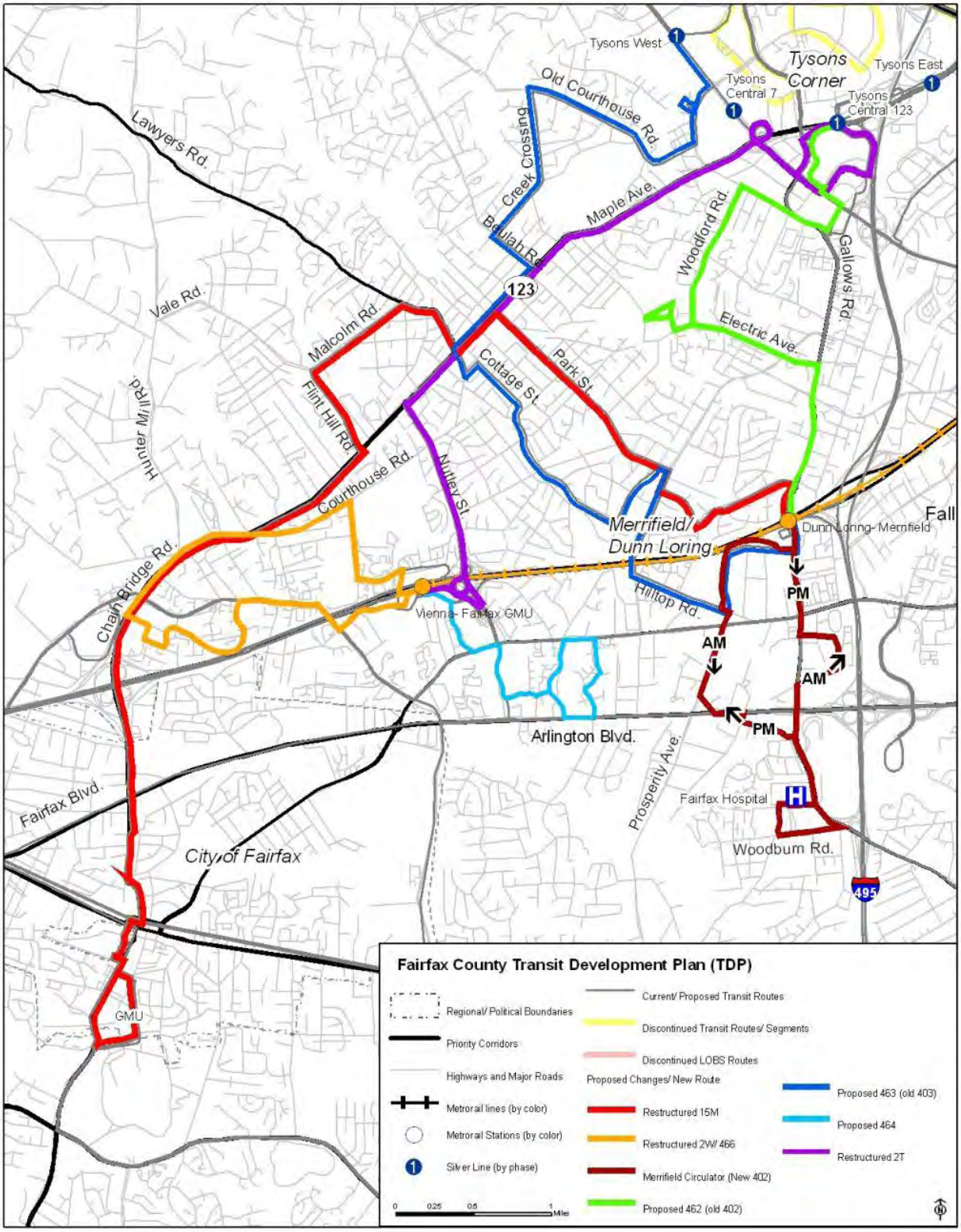


Figure 7.20 Vienna-Merrifield Bus Service: Recommended Service



Center. Turning left on Park and then left on Patrick, the route would follow the current alignment of the Metrobus 2T on Cottage. The route would serve the center of Vienna on Maple Ave and continue northeast. At this point, the route would turn left onto Beulah Rd and go as far as Creek Crossing Road. (There had been public requests to serve Beulah as far north as Leesburg Pike, but the housing density does not justify service that distance). The route would turn right onto Creek Crossing and follow this road to Old Courthouse Road at which point it turns right to finally reach Gosnell Rd. It would serve Tysons Towers (as the 2T does now) and terminate at the Tysons West Metrorail station.

The new Route 462 would cover other portions of the current 463. From Dunn Loring Metrorail station, the route would head north on Gallows Road and follow that to Electric Ave. From there the route would turn left to serve the Navy Federal Credit Union, turning around using Vega Lane. It would then head north on Woodford Rd to Old Courthouse. From there, it could take several routes into the heart of Tysons Corner, with the details to be worked out in the Tysons task.

At the start, the new 462 and 15M would operate during peaks only (as they do now), while the 463 would offer full day and weekend service, since it covers much of the territory of the current Metrobus 2T. After the implementation of the Silver Line, it may be feasible to expand service on the peak-only routes to cover the midday period. The Town of Vienna is investing in its pedestrian environment on Maple Ave, and has thus shown a commitment to becoming a more transit-friendly community. Given the residential nature of most of their route alignments, all three of these routes should be operated with small to medium size (30-35 foot) buses.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the restructured 462, 463, and 15M.

		Route					
		Initial			Future		
		462	463	15M	462	463	15M
	Operator	Fairfax Connector	Fairfax Connector	Currently Metrobus, future Fairfax Connector	Fairfax Connector	Fairfax Connector	Fairfax Connector
Span	Weekday	5:00 AM – 9:00 AM 3:30 PM – 7:30 PM	5:30 AM – 11:45 PM	5:00 AM – 9:00 AM 3:30 PM – 7:30 PM	5:00 AM – 11:00 PM	5:00 AM – 11:45 PM	5:00 AM – 11:00 PM
	Saturday	None	6:00 AM – 11:00 PM	None	7:00 AM – 8:00 PM	6:00 AM – 11:00 PM	7:00 AM – 8:00 PM
	Sunday	None	8:00 AM – 8:00 PM	None	None	8:00 AM – 8:00 PM	None
Headway (minutes)	Weekday Peak	30	30	30	15	15	15
	Weekday Midday		30		30	30	30
	Weekday Evening		60		60	60	60
	Saturday		30/60		30/60	30	30/60
	Sunday		60			60	

Create new Merrifield Circulator

The new Merrifield circulator (a shorter version of the one proposed in the Regional Bus Study which also served areas east of the Beltway) would run between the Dunn Loring Metro station and Fairfax Hospital, serving industrial areas and residential areas along the way. In the morning, the route would operate counterclockwise, following Prosperity Avenue south to Executive Park Ave, crossing Arlington Boulevard (US-50) and then using O'Connell and Willow Oaks Corporate Drive to reach Gallows Road. Thus far along the route, the development is exclusively commercial so the route would serve to distribute passengers from Metrorail to jobs and then to the hospital. After reaching the hospital (serving the proposed transit center there), the route would head north on Gallows Road to Gatehouse Road, turning right into the neighborhood bounded by the Beltway, Gallows Rd, US-50 and US-29. This area (Yorktowne Square) has high density housing including nearly 300 families in one development. From Gatehouse, the route would turn left onto Telestar and left again onto Porter, and then right on Gallows to return to the station. This route would provide more convenient access to the station than the current routes that run on Gallows past the neighborhood. In the afternoon, the route would operate clockwise so that the Yorktowne Square residents would have a quick return home from the station, and the employees along the western side of the route would have a direct trip back to the station. This route should operate with medium size buses. Future development and roadway construction associated with the proposed Merrifield Town Center could provide alternatives for the route alignment and access to new trip generators. A possible alignment from the hospital could run via Willow Oaks to Williams to Eskridge to Merrilee to Merrifield once all of those connections are possible.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the new Merrifield Circulator.

		Route	
		Merrifield Circulator (Initial)	**Merrifield Circulator (Future)**
	Operator	Fairfax Connector	Fairfax Connector
Span	**Weekday**	5:00 AM – 9:00 PM	5:00 AM – 11:00 PM
	Saturday	None	7:00 AM – 8:00 PM
	Sunday	None	None
Headway (minutes)	**Weekday Peak**	20	15
	Weekday Midday	30	30
	Weekday Evening	60	60
	Saturday	None	30/60
	Sunday	None	None

7.6.6 Centreville/Chantilly and Fair Lakes Service (Connector 630s, 640s, 650s (former Metrobus 12s and 20s)—Plus 621, 622, 623)

Background

Centreville, Chantilly, and Fair Lakes comprise a wedge-shape area of western Fairfax County roughly bounded by US 50 on the north and US 29 on the south. It includes the County Government Center, Fair Oaks Mall, and Fair Oaks Hospital. The routes that operate in this area are listed in Table 7.24. Note that the Metrobus 12 and 20 lines were converted to Connector operation in June 2009 and now operate as the 630, 640 and 650 series routes. At the time of data collection, these bus routes were still operated by WMATA and the tables below show them this way.

Table 7.24 Centreville/Chantilly/Fair Lakes Bus Services

Route	Name	Magisterial District	Metrorail Connection	Weekday Boardings (Typ.)
Fairfax Connector				
621	Fairfax County Government Center Line	Providence, Springfield	Vienna - Orange	233
622	Fairfax County Government Center Line	Providence, Springfield	Vienna - Orange	290
623	Fairfax County Government Center Line	Providence, Springfield	Vienna - Orange	480
	Connector totals			1,003
Metrobus				
12AEFG	Centreville South Line	Providence, Springfield, Sully	Vienna - Orange	753
12CD	Centreville North Line	Providence, Springfield, Sully	Vienna - Orange	432
12LM	Little Rocky Run-Vienna Line	Providence, Springfield, Sully	Vienna - Orange	346
12RS	Stringfellow Road-Vienna Line	Providence, Springfield, Sully	Vienna - Orange	398
20FWXY	Chantilly-Greenbriar Line	Sully, Springfield, Providence	Vienna - Orange	401
	Metrobus totals			2,330

All of these routes are commuter-oriented, peak-only services, with the exception of the 621 which offers midday service. The Connector routes in this corridor perform better than the (former) Metrobus lines. The Connector routes are near the North County average according to all three measures. The Metrobus lines score poorly on boardings per mile as they all contain lengthy express segments on I-66. Boardings per trip for these routes are fair compared to similar routes in the county.

Table 7.25 Centreville/Chantilly/Fair Lakes Bus Service Productivity

Route	Name	Boardings/ Rev-Mile	Boardings/ Platform-Hr	Boardings/ Trip
Fairfax Connector				
621	Fairfax County Government Center Line	0.95	16	17
622	Fairfax County Government Center Line	1.71	28	24
623	Fairfax County Government Center Line	2.21	36	34
	Corridor Average	**1.59**	**27**	**25**
	North County Average	**1.60**	**25**	**22**
Metrobus				
12AEFG	Centreville South Line	0.78	17	21
12CD	Centreville North Line	0.77	16	21
12LM	Little Rocky Run-Vienna Line	0.98	18	17
12RS	Stringfellow Road-Vienna Line	0.70	14	15
20FWXY	Chantilly-Greenbriar Line	0.63	14	14
	Corridor Average	0.75	16	17

Most of the routes in the Centreville/Chantilly and Fair Lakes area are encompassed in the I-66 Corridor demographic analysis, shown in Table 7.26. On average there are, surprisingly, a lot of non-work trips being taken on transit in this corridor, particularly on the 621 route. The 621 passengers, along with the 622 and 623 riders, are much more affluent than Fairfax Connector riders as a whole. The (former) Metrobus 12 and 20 Lines both have higher income riders than Metrobus riders in the County as a whole. In addition, most of the 12 and 20 Line riders had an automobile available for the trip and chose to use transit.

Table 7.26 Centreville/Chantilly and Fair Lakes Bus Service: At-Risk Rider Demographics

Route	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
Fairfax Connector						
621[44]	57%	18%	35%	14%	53%	14%
622	95%	7%	36%	11%	21%	46%
623	94%	5%	35%	7%	25%	49%
Metrobus						
12A,E,F,G	90%	4%	36%	3%	11%	32%
12C,D	94%/87%	12%/0%	33%/40%	11%/0%	26%/23%	36%/41%
12L, M[45]	100%	5%	34%	0%	12%	63%
12R, S[46]	88%/90%	10%/1%	20%/28%	12%/10%	15%/20%	61%/58%
20F,W,X,Y[47]	87%/102%	21%/29%	57%/72%	20%/42%	47%/60%	86%/75%
I-66 Corridor[48]	91%	9%	36%	11%	25%	47%
US-50 Corridor North of I-66 [49]	67%	49%	81%	42%	74%	66%

<u>Recommendations</u>

Add Route 653 to 630s, 640s, 650s (Formerly Metrobus 12s and 20s)

In June 2009, Fairfax Connector took over service in Centreville and Chantilly that had been operated by Metrobus as the 12 and 20 lines. Since these routes have already gone through a recent planning and public outreach process, significant changes are not proposed here. The County increased service on many of these routes in August 2009, adding trips to extend the span of service and improving coordination with Metrorail. In the future, the level of service on these routes should be increased, especially in terms of improved frequency.

[44] Data may not be statistically significant as only 19 surveys were received on the 621.
[45] Data is for 12L only. May not be statistically significant, as only 25 surveys were received for the 12L.
[46] Data may not be statistically significant, as only 31 surveys were received for the 12R. The 12S is statistically valid with 60 surveys received.
[47] Data may not be statistically significant, as only 15 surveys were received for the 20F and 25 for the 20X. Data for the 20W and 20Y were not available (only 2 and 7 surveys received, respectively).
[48] Includes Routes 621, 622, 623, 12C, 12D, 12E, 12F, 12L, 12M, 12R, 12S, 20F, 20W, 20X, 20Y
[49] 605, 20F, 20W, 20X, 20Y

The TDP recommends adding one more route to this series of feeder routes, improving service on the Lee Jackson Memorial Highway (US-50) corridor. Route 653 would connect the Greenbriar neighborhood to the Vienna Metrorail station. The route would operate in a clockwise loop on Majestic Lane, Poplar Tree Road and Stringfellow Road (see Figure 7.21). It would provide new transit access to a relatively densely-developed neighborhood, new service to Chantilly High School, and avoid problems for pedestrians needing to cross US-50 who are now riders on the 651.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the 630s, 640s, 650s and the new 653, both for initial implementation and further down the road.

		Route					
		Initial			Future		
		Current 63x-65x	630, 640, 650	653	Current 63x-65x	630, 640, 650	653
	Operator	Fairfax Connector	Fairfax Connector	Fairfax Connector	Fairfax Connector	Fairfax Connector	Fairfax Connector
Span	Weekday	4:30 AM – 9:30 AM 3:30 PM – 8:30 PM	9:00 AM – 4:00 PM 8:00 PM – 9:00 PM	5:00 AM – 9:00 AM 4:00 PM – 8:30 PM	4:30 AM – 9:30 AM 3:30 PM – 8:30 PM	9:00 AM – 4:00 PM 8:00 PM – 9:00 PM	5:00 AM – 9:00 AM 4:00 PM – 8:30 PM
Span	Saturday	None		None	None		None
Span	Sunday	None		None	None		None
Headway (minutes)	Weekday Peak	30-35		35	15-20		15-20
Headway (minutes)	Weekday Midday		60			30	
Headway (minutes)	Weekday Evening		60			30	
Headway (minutes)	Saturday						
Headway (minutes)	Sunday						

Expand Fair Lakes Service with New 624 and 625 and Modified 622 and 640

The Fair Lakes League, an association of homeowners, building owners and tenants, currently runs a shuttle between the Fair Lakes neighborhood and Vienna Metrorail station. The shuttle does not charge a fare, but it is open to residents and employees only. The League has requested that the Connector investigate taking over this shuttle operation.

FCDOT staff prepared a set of alternatives to serve the Fair Lakes area. The following is a modification of that proposal for peak period service. For midday operation, the Connector will serve this area at little additional cost with its new Route 630 and a slightly modified Route 640.

During peak periods, there is little available time or capacity on existing Metrobus and Connector routes in the Fair Lakes area. Thus, service to replace the existing Fair Lakes shuttle would require new routes. Route 624 and 625, plus a modification of the 622, as proposed by FCDOT staff, are an appropriate solution for commuter service.

- Route 624 (Fair Lakes – Vienna Metro), would operate in the "reverse commute" direction, westbound during the morning peak and eastbound during the afternoon peak. This route would serve the Stringfellow Road Park-and-Ride Lot, Fair Lakes, Fair Oaks Mall, and the Vienna/Fairfax-GMU Metro south side bus facility. It would pass within a reasonable walking distance of all ten of the business sites, as well as Archstone Apartments, served by the Fair Lakes Shuttle. Route 624 would operate on 30-minute headways.

- The second directional route, Route 625 (Fair Lakes – Vienna Metro), would operate in the peak flow direction (eastbound during the morning peak and westbound during the afternoon peak). This route would serve the Stringfellow Road Park-and-Ride Lot, Fair Lakes, the Fairfax County Government Center, the Government Center Park-and-Ride Lot, Random Hills Road, and the Vienna/Fairfax-GMU Metrorail station. It would pass within a reasonable walking distance of all ten of the business sites, as well as Archstone Apartments, served by the Fair Lakes Shuttle. Route 625 would operate on 30-minute headways.

- From the intersection of Monument Drive and Fair Ridge Drive, the revised alignment for Route 622 would continue westbound on Monument Drive, then right on Meadowfield Drive, then left on Fair Ridge Drive, where the extension rejoins the current routing. This extension would bring these routes within convenient walking distance of Windsor Apartments and Summit Apartments, both of which are directly served by the Fair Lakes Shuttle. This extension would add 4 minutes of running time to the 622.

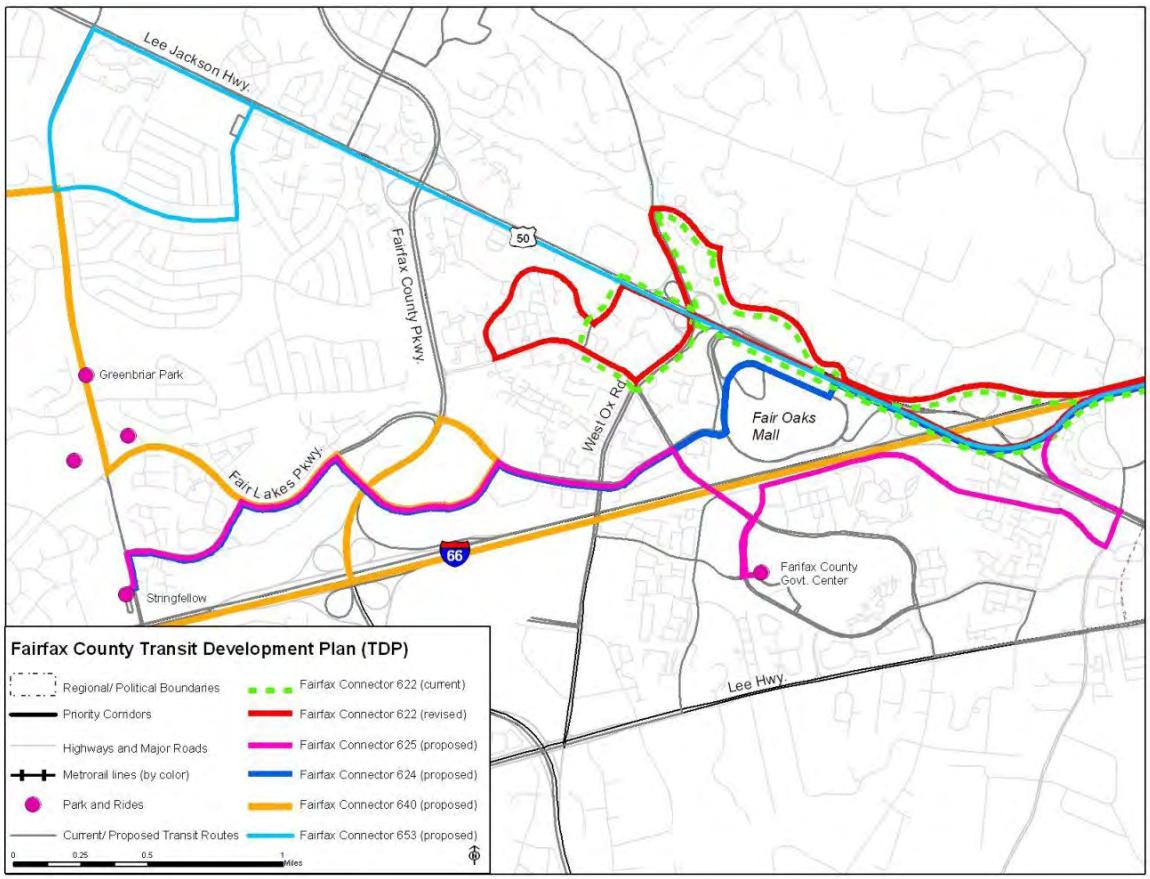
If the Fair Lakes League provides operating support for the new 624 and 625 routes, then residents and employees of member organizations should ride for free with proper ID. This arrangement is similar to the EcoPass program used very successfully in Boulder, CO. These routes would be operated with small buses.

The Fair Lakes Shuttle does not currently provide midday service, but the new Route 630, which began service in June 2009 as part of the 12s and 20s conversion, runs the length of Fair Lakes Parkway and serves most of the area now served by the Shuttle. A slight modification to the proposed 640 will allow all of the territory of the Shuttle to be covered. For eastbound trips, instead of taking Fair Lakes Parkway to the Fairfax County Parkway directly, the route can turn right on Fair Lakes Circle and then left on Fair Lakes Parkway to reach Fairfax County Parkway from the east. This change should only add about five minutes of running time at the most, and there is currently sufficient slack time in the proposed schedule to accommodate this change.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for Fair Lakes service, both for initial implementation and further down the road.

		Route					
		Initial			Future		
		622, 623	621	624, 625	622, 623	621	624, 625
	Operator	Fairfax Connector	Fairfax Connector	Fairfax Connector	Fairfax Connector	Fairfax Connector	Fairfax Connector
Span	**Weekday**	5:20 AM – 9:00 AM 3:30 PM – 7:30 PM	8:30 AM – 3:30 PM 7:00 PM – 11:00 PM	5:00 AM – 9:00 AM 3:30 PM – 7:30 PM	5:00 AM – 9:30 AM 3:30 PM – 8:00 PM	8:30 AM – 3:30 PM 7:00 PM – 11:00 PM	5:00 AM – 9:30 AM 3:30 PM – 8:00 PM
	Saturday	None	None	None	None		None
	Sunday	None	None	None	None		None
Headway (minutes)	**Weekday Peak**	30		30	15-20		15-20
	Weekday Midday		60			30	
	Weekday Evening		30/60			30	
	Saturday						
	Sunday						

Figure 7.21 Fair Lakes Services



Create new Centreville Expresses to Tysons and Reston

Centreville has some of the highest population densities in the western part of Fairfax County. To enhance commuter connections between Centreville and employment centers within Fairfax County, two new express routes are proposed. These routes are included in the County's CCO Plan. They are also a step toward a future Metrorail extension from Vienna westward along I-66 into and beyond Centreville as listed in the County Transportation Plan.

These routes would begin at the United Methodist Church Park-and-Ride, follow New Braddock Road to Centreville Farms Road to Stringfellow Road, crossing I-66 to the Stringfellow Park-and-ride. From there the routes would split into two directions as follows:

- The Reston bus would head east on I-66 to reach the Fairfax County Parkway, leaving the Parkway to reach Fair Oaks Hospital. After serving the hospital, it would return to the Parkway and follow that to Sunrise Valley Drive to Reston.
- The Tysons bus would turn south on Stringfellow to access I-66 via the special HOV on-ramp. It would take I-66 to Vienna Metrorail station, and then proceed east on I-66 to the Beltway HOT lanes, and then exit at Tysons Corner via either Leesburg Pike or VA-267.

These routes would run four trips in the peak direction in the morning and four in the afternoon. The routes are illustrated below in Figure 7.22.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the Centreville Express services.

		Route	
		Centreville-Reston	**Centreville-Tysons**
	Operator	Fairfax Connector	Fairfax Connector
Span	**Weekday**	6:30 AM – 8:00 AM 4:30 PM – 6:00 PM	6:30 AM – 8:00 AM 4:30 PM – 6:00 PM
	Saturday	None	None
	Sunday	None	None
Headway (minutes)	**Weekday Peak**	30	30
	Weekday Midday		
	Weekday Evening		
	Saturday		
	Sunday		

Create new Centreville to GMU route

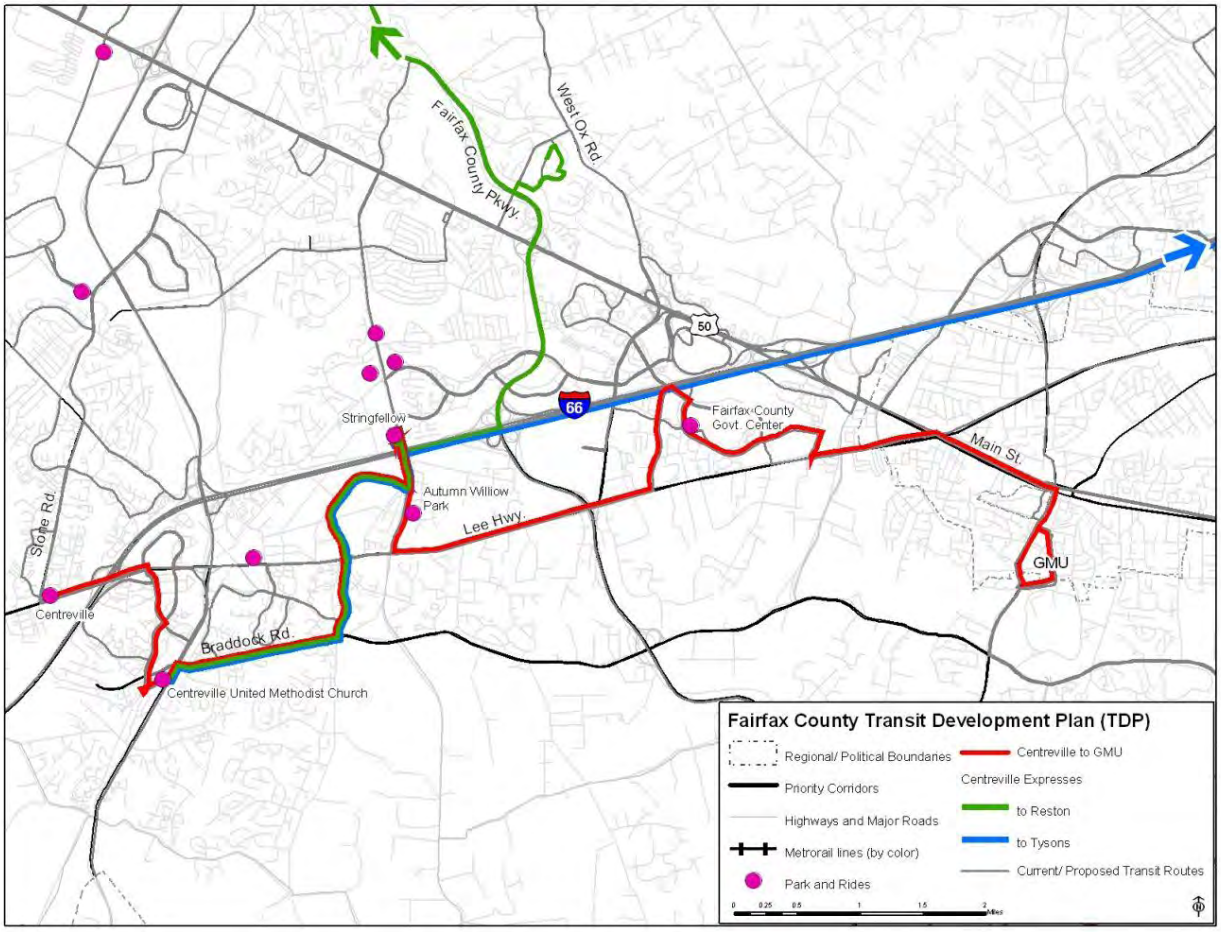
Another route included in Phase 2 of the County's CCO Plan is a connection between Centreville and George Mason University (see Figure 7.22). Unllike the express routes, it would begin at the Centreville Park-and-Ride at US-29 and Stone Road and then continue to the United Methodist Church Park-and-Ride via US-29 and Old Centreville Road. It would then follow New Braddock Road to Centreville Farms Road to Stringfellow Road, crossing I-66 to the Stringfellow Park-and-Ride. From there it would follow Stringfellow Road to Lee Highway and turn left to follow US-29 to Legato Road. From Legato, it would turn right on Post Forest Drive to Government Center Parkway and Ridge Top Road to serve the residential area along Legato, the Government Center, and the Wegmans Shopping Center. Returning to US-29, it would continue east to VA-236 and then follow Main Street to the center of Fairfax City,

serving the Judicial Center and then continuing to GMU, looping around campus as other bus routes do. This route would be an all-day local route. Full-size buses would be used for this service.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the Centreville to GMU service.

		Route	
		Centreville-GMU (Initial)	**Centreville-GMU (Future)**
	Operator	Fairfax Connector	Fairfax Connector
Span	**Weekday**	5:00 AM – 9:00 PM	5:00 AM – 11:00 PM
	Saturday	None	7:00 AM – 8:00 PM
	Sunday	None	None
Headway (minutes)	**Weekday Peak**	30	15
	Weekday Midday	30	30
	Weekday Evening	60	60
	Saturday	None	30/60
	Sunday	None	None

Figure 7.22 Centreville Express Routes and Connection to GMU



New Centreville and Chantilly Circulators

The Regional Bus Study (RBS) recommended fixed-route circulators for the Centreville and Chantilly areas to replace the Metrobus 12 and 20 lines. The current FCDOT plan calls for these routes to continue in modified form as the Connector 630-650 routes. These routes provide access to Vienna Metrorail station all day with some access to Fair Lakes and Fair Oaks Mall during the midday and evening. The RBS circulators were proposed to connect to line haul services at new transit centers in Centreville and Chantilly. However, while Centreville and Chantilly have a large amount of housing development, they have high degrees of auto ownership, and relatively few low-income households. The amount of transit demand from these areas during non-commuting hours is likely to be low, so fixed route transit does not appear to be an effective option for this area during the ten-year timeframe of the TDP. Such services should be kept in mind and revisited in the next TDP, at which point they should be investigated again for whether they would be effective services as the areas further develop.

7.6.7 US-29/US-50 Fairfax-Arlington Service (1C, 1ABEFZ, 2ABCG)

Background

The primary east-west arterial roads in the center of Fairfax County are US-29 and US-50. Each of these roads is served by an important Metrobus line: the 1 line serves US 50 and the 2 line serves US-29. These lines extend to Fair Oaks Mall on the west and into Arlington on the east, both terminating at Ballston Metrorail station. Statistics for these lines are provided in Table 7.27 below.

Table 7.27 US-29/US-50 Fairfax – Arlington Bus Services

Route	Name	Magisterial District	Metrorail Connection	Weekday Boardings (Typ.)
Metrobus				
1ABEFZ	Wilson Blvd Line	Providence, Mason	Vienna - Orange Dunn Loring - Orange Ballston - Orange	4,864
1C	Fair Oaks-Dunn Loring Line	Providence, Springfield	Dunn Loring -Orange	1,275
2ABCG	Washington Blvd Line	Providence, Springfield	Vienna - Orange Dunn Loring - Orange Ballston - Orange	4,182
	Metrobus totals			10,321

All three of these lines are highly productive. While a portion of the ridership on the 1ABEFZ and 2ABCG lines occur in Arlington, stops in Fairfax County on these lines also generate significant ridership. All of these lines operate full weekday service plus weekend service.

Table 7.28 US-29/US-50 Fairfax – Arlington Bus Service Productivity

Route	Name	Boardings/ Rev-Mile	Boardings/ Platform-Hr	Boardings/ Trip
Metrobus				
1ABEFZ	Wilson Blvd Line	3.19	40	41
1C	Fair Oaks-Dunn Loring Line	2.52	28	25
2ABCG	Washington Blvd Line	2.33	35	40
	Corridor Average	2.55	35	37

As seen in Table 7.29, routes in the US-29/US-50 Corridor between Fairfax and Arlington have a high level of low-income riders with no available auto. The number of minorities riding is about average for all Metrobus routes in Fairfax County.

Table 7.29 US-29/US-50 Fairfax-Arlington Corridor Bus Service: At-Risk Rider Demographics

Route	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
Metrobus						
1ABEFZ	80%	54%	84%	54%	80%	66%
1C	83%	56%	91%	61%	83%	69%
2ABCG	92%	47%	79%	44%	63%	62%

Recommendations

Overlay Metrobus 1ABEFZ with Limited Stop BRT-Type Service

The Wilson Boulevard Line is one of the most heavily used in Fairfax County with nearly 5,000 riders per weekday and a productivity of 40 passengers per platform hour. A June 2007 restructuring split Route 1C from the rest of the line and thus shortened the longest trips, leading to improved reliability. Weekday service mostly alternates between the 1A (to Vienna station) and the 1B (to Dunn Loring-Merrifield station), with some short-turn routes to Seven Corners, and a limited-stop version (1Z) which bypasses stops on the inner segment in Arlington during peak periods in the peak direction.

The current structure of the route, while not simple, is clearer than it used to be prior to the 2007 restructuring. The alternating 1B and 1A trips allow access to both outer Orange Line stations and transfer opportunities for 1C passengers at both Fairfax Hospital and Dunn Loring-Merrifield station. The 1B also provides service to the Fairview Park Marriott and other employers, and access to Lee Highway and the Metrobus 2 line.

Even with the restructuring, trips are somewhat long, at nearly 60 minutes for the 1A, about 50 minutes for the 1B, and 49-52 minutes for the 1Z. The current policy of running 1Z trips express between Ballston and Livingston Street saves about a minute or two on average, but passengers may perceive greater savings. It would be possible to operate some or all 1B trips in the same manner, as current ridership at stops on this inner segment is light (38 ons and 32 offs inbound, and 56 ons and 36 offs outbound—but 25 of those ons occurred at Taylor Street). Given these figures, eliminating local stops on the 1B in Arlington (perhaps with the exception of Taylor Street) may save a minute or two of running

time, but will give the perception of faster service. It would lead to some passenger confusion and consternation in the short term until people became accustomed to the change.

In the longer term, the primary means of speeding up service in the corridor would be to consider bus rapid transit-style improvements. For operations, this would include limited-stop service along the whole corridor. A preliminary analysis of ridecheck data suggest the following limited stops (presented in the eastbound direction):

- Vienna Metrorail Station
- Arlington Blvd at Covington St
- Arlington Blvd at Prosperity Ave
- Arlington Blvd at Williams Dr
- Fairfax Hospital
- Arlington Blvd at Jaguar Trail
- Arlington Blvd at Loehmanns Plaza
- Arlington Blvd at Wayne Rd
- Arlington Blvd at Annandale Rd
- Arlington Blvd at Leesburg Pike
- Seven Corners Shopping Center
- Patrick Henry Dr at Greenwood Dr
- Patrick Henry Dr at Arlington Blvd
- Wilson Blvd at Peyton Randolph Dr
- Wilson Blvd at Livingston St
- Wilson Blvd at Harrison St
- Wilson Blvd at George Mason Drive
- Wilson Blvd at Taylor Street
- Ballston Metrorail Station

This number of stops results in an average spacing of about two-thirds of a mile, which is in the average range for on-street BRT-style services.

Roadway priority treatments should also be considered, including queue jumps and signal priority at traffic signals. With or without BRT, passenger facilities could be upgraded as there some stops with no shelters or crosswalks. Consideration also could be given to streamlining the routing through the Seven Corners area, although the stop at the Seven Corners shopping center generates a large number of riders, as do the stops on Patrick Henry Drive. Very likely most riders prefer the convenience of direct access to the shopping and shorter walks to a few minutes of time savings.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the Metrobus 1 Line and the limited stop service along the route.

		Route	
		1ABEFZ	**Limited stop**
	Operator	Metrobus	Metrobus
Span	**Weekday**	5:00 AM – 12:00 AM (until 3:45 AM on Fridays)	6:00 AM – 10:00 PM
	Saturday	5:30 AM – 12:45 AM	None
	Sunday	7:30 AM – 10:45 PM	None
Headway (minutes)	**Weekday Peak**	10 (average for line)	12
	Weekday Midday	30	20
	Weekday Evening	30	30
	Saturday	30	
	Sunday	30 (60 west of 7 Corners)	

Restructure Metrobus 1C

Metrobus 1C was restructured in June 2007 to split it from the rest of the 1 routes and improve reliability of the line overall. Ridership has increased since then on all of the involved routes. This proposal would reroute the outer end of the line to improve coverage in the Fairfax Corner and Government Center area and reduce duplication of service on US-50.

As shown in Figure 7.23, westbound trips, instead of turning northwest on US-50 would continue straight on US-29 at Kamp Washington Shopping Center. The route would then turn north on Monument Drive to serve the Fairfax Corner and Wegmans shopping centers and turn left on Government Center Parkway, serving the high-density housing at Runabout Lane. The route would continue on Government Center Parkway with a stop at the County Human Services Center, stops in each direction on Government Center Parkway to serve the Herrity Building, and a stop at 12000 Government Center Parkway, the main building at Government Center, before turning left on Monument Drive to cross over I-66 and reach Fair Oaks Mall via Fair Lakes Parkway. The route would then exit the mall and terminate at the new West Ox garage. Eastbound trips would retrace these steps. In the longer term, as ridership develops, it is recommended to increase the level of service on the 1C so that it runs every 30 minutes at all times.

Running time would increase slightly on the 1C, but there should be additional ridership due to the coverage of previously unserved areas. Service along US-50 would remain from Metrobus 2B/2G. The 1C stops there generated only 39 boardings, and these riders would have the option of walking to US-29 if they need access to the Fairfax Boulevard corridor.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the Metrobus 1C.

		Route	
		1C (Initial)	**1C (Future)**
	Operator	Metrobus	Metrobus
Span	**Weekday**	4:50 AM – 11:50 PM	4:50 AM – 11:50 PM
	Saturday	6:30 AM – 11:00 PM	6:30 AM – 11:00 PM
	Sunday	7:30 AM – 9:30 PM	7:30 AM – 9:30 PM
Headway (minutes)	**Weekday Peak**	25-30	20
	Weekday Midday	60	30
	Weekday Evening	60	60
	Saturday	60	30/60
	Sunday	60	60

Restructure Metrobus 2B, G; Maintain 2A, C; Add 2H

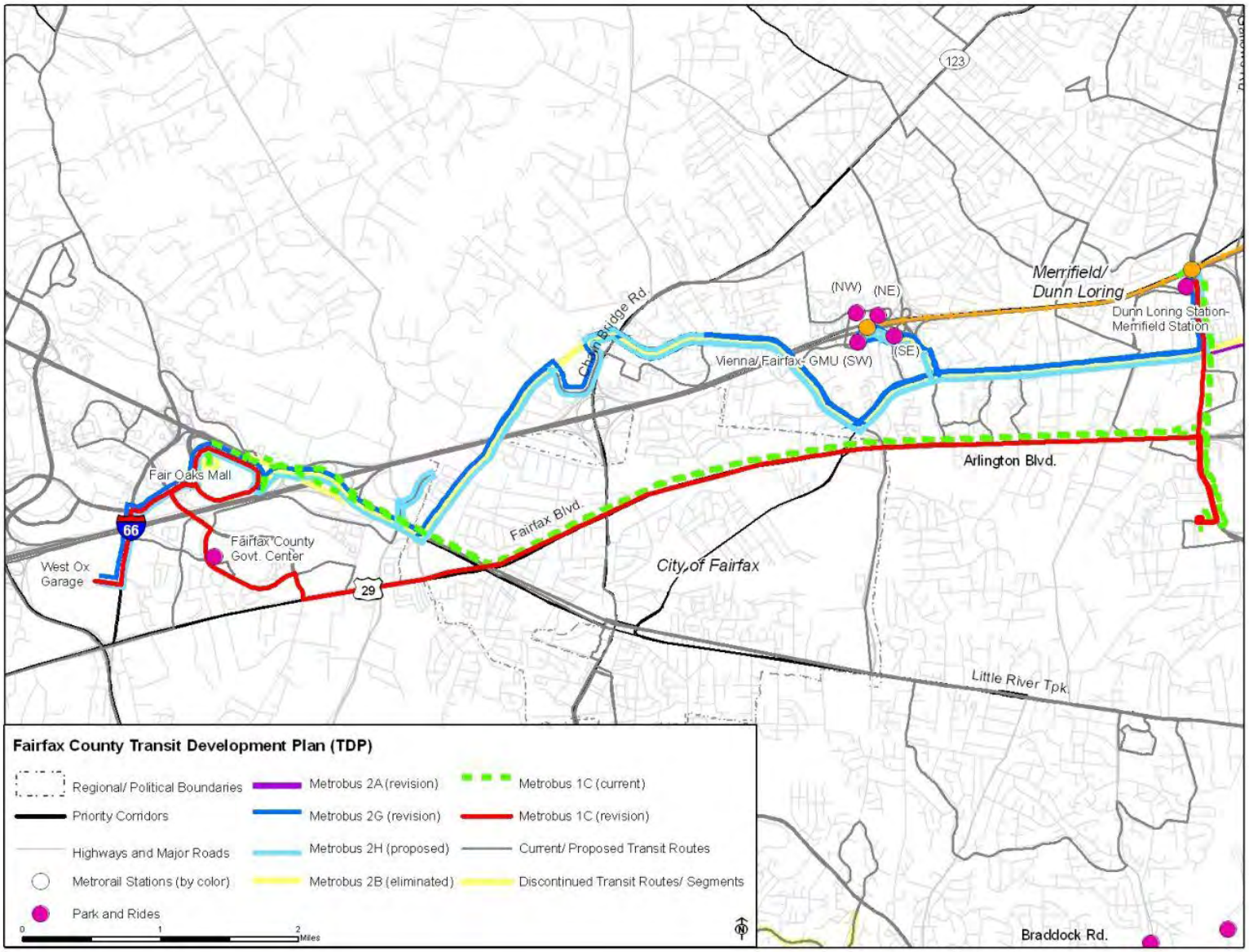
The Washington Boulevard line (serving Lee Highway in Fairfax County) is another very important radial route, though its ridership totals are slightly less than the Metrobus 1 line. The 2A and 2C routes leave the main corridor at Gallows Road with the 2A terminating at Dunn Loring Merrifield Metrorail and the 2C continuing to Tysons Corner. The 2A operates only at the very beginning and end of service, while the 2C operates throughout the day and comprises the majority of service on Sunday. The 2B and 2G extend further west, terminating at Fair Oaks Mall after serving Vienna Metrorail station.

The Regional Bus Study recommended, and the TDP concurs, that the very long Metrobus 2B be split at Dunn Loring, similar to the plan that was implemented for the 1C. Essentially, all 2B trips would be converted to 2A trips. This split would improve reliability on this route. The segment west of Dunn Loring would follow the 2G route (via Rosehaven and Arrowhead) to Fair Oaks Mall, also stopping at Vienna Metrorail station. This route would thus be numbered Route 2G – Dunn Loring to Fair Oaks Mall. Selected trips during weekday peak and midday periods would turn on Waples Mill Road to Pender Drive to service the Social Security office and the Office of Housing and Community Development so that residents and employees could reach these buildings. These trips could be classified as another route, tentatively numbered 2H. (See Figure 7.23) Evening trips on the 2H to serve classes at Virginia International University may also be warranted, though these may be more effectively served by diversions from CUE routes, if the City of Fairfax is willing to operate these.

The 2A and 2C routes should be maintained as they are (with minor adjustments in the Tysons Corner area), though service on Gallows Road should be coordinated with the 401 as much as possible. Because the 2A and 2C alignments overlap between Arlington and the Dunn Loring-Merrifield Metrorail station, the actual headway experienced by passengers at the station and east is half of what is shown in the tables below. The table below presents a summary of the service levels recommended to be implemented over the ten year time horizon for the Metrobus 2 Line.

		Route					
		Initial			Future		
		2A	2C	2G, H	2A	2C	2G, H
	Operator	Metrobus	Metrobus	Metrobus	Metrobus	Metrobus	Metrobus
Span	**Weekday**	5:00 AM – 1:00 AM	5:45 AM – 12:15 AM	5:30 AM – 11:30 PM	5:00 AM – 1:00 AM	5:45 AM – 12:15 AM	5:30 AM – 11:30 PM
	Saturday	6:00 AM – 1:00 AM	6:00 AM – 11:00 PM	6:00 AM – 11:00 PM	6:00 AM – 1:00 AM	6:00 AM – 11:00 PM	6:00 AM – 11:00 PM
	Sunday	6:00 AM – 10:30 AM 8:00 PM – 11:00 PM	10:30 AM – 8:00 PM	None	6:00 AM – 10:30 AM 8:00 PM – 11:00 PM	10:30 AM – 8:00 PM	8:00 AM – 8:00 PM
Headway (minutes)	**Weekday Peak**	30	30	30	30	30	20
	Weekday Midday	40	40	60	40	40	30
	Weekday Evening	40	40	60	40	40	60
	Saturday	60	60	60	60	60	30/60
	Sunday	60	60		60	60	60

Figure 7.23 Metrobus 1C and 2 Line Improvements



7.6.8 East Central (Metrobus 3AB, 4ABEH, 25ACD, 25B, 26AW, 28AB, 28FG)

Background

The remaining portion of the northern half of the county is the east-central portion bordering Arlington and Alexandria. All of the service is in this area is operated by Metrobus and much of the ridership and service occurs outside of Fairfax County. Statistics for these lines are presented below in Table 7.30. Since the time of data collection, the 26A has been discontinued.

Table 7.30 East Central Bus Services

Route	Name	Magisterial District	Metrorail Connection	Weekday Boardings (Typ.)
Metrobus				
3ABEF	Lee Highway Line	Dranesville, Providence, Mason, Braddock	West Falls Church - Orange East Falls Church - Orange Rosslyn – Orange/Blue	2,608
4ABEH	Pershing Dr.-Arlington Blvd Line	Mason	Court House - Orange Rosslyn - Orange/Blue	2,241
25ACD	Ballston-Bradlee-Pentagon Line	Mason	Ballston – Orange Pentagon – Blue/Yellow	1,570
25B	Landmark-Ballston Line	Mason	Ballston – Orange Van Dorn - Blue	1,294
26A	East Falls Church Line	Dranesville, Mason	East Falls Church - Orange West Falls Church - Orange	79
26W	West Falls Church Line	Dranesville, Providence	East Falls Church - Orange West Falls Church - Orange	153
28AB	Alexandria-Tysons Corner Line	Providence, Dranesville, Mason	West Falls Church - Orange King Street – Blue/Yellow	5,352
28FG	Skyline City Line	Mason	Pentagon – Blue/Yellow	846
	Metrobus Totals			14,143

The productivity of these lines is relatively high, but again, much of that is due to boardings outside of Fairfax County. The Metrobus 28 line, which runs mainly on Leesburg Pike, is the most productive service.

Table 7.31 East Central Bus Service Productivity

Route	Name	Boardings/ Rev-Mile	Boardings/ Platform-Hr	Boardings/ Trip
Metrobus				
3ABEF	Lee Highway Line	2.46	28	25
4ABEH	Pershing Dr.-Arlington Blvd Line	2.70	31	19
25ACD	Ballston-Bradlee-Pentagon Line	1.88	25	21
25B	Landmark-Ballston Line	2.02	24	29
26A	East Falls Church Line	1.36	11	10
26W	West Falls Church Line	1.95	18	10
28AB	Alexandria-Tysons Corner Line	3.28	44	69
28FG	Skyline City Line	3.00	49	50
	Corridor Average	**2.47**	**31**	**29**

As shown in Table 7.32, the "East Central" area of the County is served entirely by Metrobus, and the rider demographics are generally on par with the average Metrobus and Fairfax Connector bus riders in Fairfax County. The 26W and 28F and G are exceptions to this, with high proportions of higher income choice riders than average.

Table 7.32 East Central Area Bus Service: At-Risk Rider Demographics

Route	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
Metrobus						
3,B	83%	29%	62%	30%	55%	49%
4ABEH	88%	47%	64%	42%	62%	44%
25ACD[50]	73%	48%	75%	29%	62%	61%
25B	72%	47%	77%	42%	74%	73%
26AEW[51], [52]	88%/97%	35%/6%	70%/19%	29%/10%	53%/24%	58%/34%
28AB	81%	47%	80%	49%	67%	64%
28FG[53]	99%/96%	14%/14%	50%/47%	9%/15%	30%/29%	73%/49%

Recommendations

Split Metrobus 3A at East Falls Church; Increase Service for Metrobus 3B

Metrobus 3A is a long route that runs from Annandale through Falls Church to Rosslyn. It takes about an hour to run in each direction (more than that in peak periods). The Regional Bus Study (RBS) had recommended splitting the route at East Falls Church and extending the Fairfax County portion to Northern Virginia Community College (NVCC).

An analysis of recent ridecheck data (2006 data collected by WMATA) confirms the RBS recommendations. On weekdays, there are roughly 350 eastbound boardings in Fairfax County, about 30% of the line total (including 3B and 3E). Some 140 passengers alight at East Falls Church station; the vast majority of these are Fairfax County riders. Smaller numbers alight along Lee Highway in Arlington and then the rest alight at Rosslyn Metrorail. It is estimated that about 65 Fairfax riders alight along Lee Highway. Presumably, the rest of the riders are either destined for Rosslyn, or are boarding the Orange Line there to obtain a lesser fare compared to East Falls Church (saving $1.10 each way during peak hours).

[50] When this data was collected in Spring 2008, the Ballston-Bradlee-Pentagon Line contained the routes 25AFGJPR. Data may not be statistically significant, as only 44 surveys were received for the 25A. No surveys were collected on the other routes on this line.

[51] Data may not be statistically significant, as only 24 surveys were received for the 26E and 24 for the 26W. No surveys were collected on the 26A.

[52] The 26A was discontinued as of July 6, 2009. Also as of July 6, 2009, operation of the 26EW was taken over by Arlington Transit. During the data collection phase they were operated by WMATA.

[53] Data may not be statistically significant, as only 41 surveys were received for the 28F and 38 for the 28G.

With a split route, people who ride between Fairfax County and Lee Highway destination in Arlington, and those who do not transfer to Metrorail at Rosslyn would be forced to transfer instead of the one-seat ride they have now. This number of riders, though, is relatively small compared to the line ridership. A larger number of riders would be forced to pay a higher rail fare.

The benefits of splitting the route are greater reliability on each segment of the route and the ability to scale service to meet demand. The 3A already has a minimal level of service: 30-minute headway in the peaks and 60-minute headway in off-peak and weekend periods. This current service level attracts roughly 15 passengers per trip at stops in Fairfax County. The forced transfers and higher rail fare resulting from splitting the route would likely cause some ridership loss, but the increase in reliability and the potential extension to NVCC would attract new riders.

On balance, the data support the RBS recommendations. With the extension to NVCC, the peak one-way running time would be less than an hour, allowing four buses to operate the 30-minute service. During off-peak times, the route would need to be interlined with another service to operate efficiently at a 60-minute headway. The portion of the 3A in Arlington (that would no longer be part of the 3A after the split) should be operated as 3E trips; these are not considered here as they do not enter Fairfax County. Medium size buses (35 feet) would be appropriate for the 3A route.

The Metrobus 3B runs from the West Falls Church Metro Station to the Rosslyn Metro Station via the City of Falls Church and Lee Highway in Arlington County. With the exception of the West Falls Church Station, the 3B does not serve Fairfax County. Given that the ridecheck data from WMATA indicates that there is decent ridership on the existing 3B, and that it does not operate much in the County, no specific changes are recommended for this route.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the Metrobus 3A and 3B, both initially and further down the road.

		Route			
		Initial		Future	
		3A	3B	3A	3B
	Operator	Metrobus	Metrobus	Metrobus	Metrobus
Span	**Weekday**	5:00 AM – 10:00 PM	5:00 AM – 10:00 PM	5:00 AM – 10:00 PM	5:00 AM – 10:00 PM
	Saturday	6:45 AM – 9:00 PM	6:45 AM – 9:00 PM	6:45 AM – 9:00 PM	6:45 AM – 9:00 PM
	Sunday	8:00 AM – 9:00 PM	None	8:00 AM – 9:00 PM	8:00 AM – 8:00 PM
Headway (minutes)	**Weekday Peak**	30	30	20	20
	Weekday Midday	60	60	30	30
	Weekday Evening	60	60	60	60
	Saturday	60	60	30/60	60
	Sunday	60		60	60

No Change for Metrobus 4ABEH

The Metrobus 4ABEH line serves Arlington Boulevard in Arlington and the section of Leesburg Pike in Fairfax County between Seven Corners Shopping Center and Glen Carlyn Drive, plus the Culmore

neighborhood and shopping center on Glen Carlyn Drive. The stops in Fairfax County are among the most heavily used on this line according to WMATA ridecheck data. The line has a relatively high level of service, which is appropriate for this predominantly low-income area.

No specific changes are recommended for this route in the immediate term. If ridership continues to grow, service should be added in the future to avoid crowding. The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the Metrobus 4ABEH Line.

		Route
		4ABEH
	Operator	Metrobus
Span	**Weekday**	5:30 AM – 12:45 AM
	Saturday	6:20 AM – 11:30 PM
	Sunday	6:30 AM – 10:20 PM
Headway (minutes)	**Weekday Peak**	10 (average for line)
	Weekday Midday	20 (average for line)
	Weekday Evening	30
	Saturday	30
	Sunday	60

No Change for Metrobus 25 Lines in Fairfax

The Metrobus 25ACD and 25B lines operate primarily in Arlington and Alexandria. They cross into Fairfax County to reach Skyline Plaza and travel for a short distance on Leesburg Pike. These routes were restructured in December 2008.

Given the small amount of mileage in Fairfax County on these lines and the fact that they were so recently changed, the TDP has no recommendations for these lines. The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the Metrobus 25ACD and 25B lines.

		Route	
		25ACD	**25B**
	Operator	Metrobus	Metrobus
Span	**Weekday**	6:00 AM – 10:00 PM	6:00 AM – 10:00 PM
	Saturday	7:45 AM – 9:30 PM	6:00 AM – 9:00 PM
	Sunday	8:00 AM – 9:00 PM	None
Headway (minutes)	**Weekday Peak**	10-15 (average for line)	30
	Weekday Midday	60	60
	Weekday Evening	60	60
	Saturday	60	60
	Sunday	60	

No Change for Metrobus 26EW Routes in Fairfax

The Metrobus 26EW routes operate primarily in the city of Falls Church and are branded as the City's George service (the 26A, for which data is presented above, was discontinued effective July 6, 2009). The 26W crosses into Fairfax County to reach West Falls Church Metrorail station. The 26EW operates during weekday peak periods only. Also effective July 6, 2009, Arlington Transit took over operations for the 26EW from WMATA. Peak service on the 26EW is relatively productive, carrying nearly 20 passengers per revenue hour (18 passengers per platform hour). Given the minimal amount of mileage in Fairfax County, the adequate performance of this route, and the fact that it is now operated by Arlington Transit, the TDP has no recommended changes.

		Route
		26W
	Operator	City of Falls Church/ART
Span	**Weekday**	6:00 AM – 9:40 AM 4:30 PM – 7:50 PM
	Saturday	None
	Sunday	None
Headway (minutes)	**Weekday Peak**	25
	Weekday Midday	
	Weekday Evening	
	Saturday	
	Sunday	

Overlay Metrobus 28A, B with Limited Stop BRT-Type Service

The Alexandria-Tysons Corner Line is one of the highest ridership lines in Fairfax County. About one third of the line is in Alexandria, split between Seminary Road/Janneys Lane (28B) and King Street/Braddock Road (28A). The rest is in Fairfax County and the city of Falls Church, acting as the line-haul trunk route on Leesburg Pike. Major generators served in Fairfax County include Bailey's Crossroads, Seven Corners Shopping Center, West Falls Church Metrorail, and Tysons Corner Shopping Center.

WMATA recently commissioned a study of the corridor served by the 28AB line. While it is still in draft form, preliminary recommendations from the study can be incorporated into the TDP. There are a number of immediate term recommendations having to do with crowding and circulation patterns through Tysons Corner. These will not be discussed here, as the former will be addressed directly by WMATA staff as appropriate and the latter will be considered in the Tysons TDP task. Rather, the main focus of the study was the development of a limited stop service—the 28X—to run in parallel with the existing local routes, and to serve as a step toward future bus rapid transit in the corridor.

The study proposed five options with varying service levels for this route structure. The basic concept is that the 28X would run along the current 28A alignment, but instead of serving the nearly 100 stops in each direction, it would only stop at 17. The proposed stop locations are as follows:

- King Street Metro
- Seminary Road at Kenmore Avenue
- Southern Towers
- Fillmore Avenue at West Campus Drive (NVCC)
- South George Mason Drive

- Leesburg Pike (Route 7) at South Jefferson Street
- Columbia Pike at Spring Lane
- Leesburg Pike (Route 7) at Payne Street
- Leesburg Pike (Route 7) at Glen Carlyn Road
- Leesburg Pike (Route 7) at Patrick Henry Drive
- Seven Corners Transit Center
- Broad Street at Lee Highway (Route 29)/Washington Street
- Broad Street between West Street and Virginia Avenue
- West Falls Church Metro
- Leesburg Pike (Route 7) at Pimmit Drive
- Leesburg Pike (Route 7) at Lisle Avenue/Ramada Road
- Tysons Corner

Under Option 1, the 28X would run weekdays only from 5:00 a.m. to 8:30 p.m. and would operate with 20-minute headways during peak periods and 30-minute headways at other times. The current routes 28A and 28B would both operate at 40-minute headways to provide a 20-minute combined headway on the trunk portion (Leesburg Pike). Each of these routes now run with approximately 60-minute headways, resulting in a combined 30-minute headway on the trunk, though there are a few extra trips added to the schedule in the peak direction in the peak periods, reducing the average headway.

In Option 2, the 28A within Alexandria is taken over by DASH and all WMATA service is shifted to the 28B. In Option 3, the limited-stop route would extend only between Tysons Corner and Southern Towers. Option 4 would be similar to Option 2, except that the 28X would have reduced hours, operating only during peak periods. Finally, Option 5 would be similar to Option 3, but again the limited-stop route would operate only during peak hours. The draft report includes the following table to summarize the options:

	Existing 28A	Existing 28B	Add Trippers	Increase Service Span	28X	28XL	Peak 28X	Peak 28XL
Existing Service	X	X						
Short Term Improvements	X	X	X	X				
Option 1	X	X	X	X	X			
Option 2		X	X	X	X			
Option 3		X	X	X		X		
Option 4		X	X	X			X	
Option 5		X	X	X				X

Option 1 is the most expensive option, but it is also the least disruptive for current passengers. If funding is available, it would be the recommended option for implementation.

As of June 2009, WMATA intends to implement short term changes similar to Option 4 by the end of December 2009. The service plan would be as follows:

> Weekday: (Peak) – Convert 28A trips to short 28B trips (between Skyline and Tysons only) and establish new 28X limited stop. The combined headway for these routes would be 15 minutes.

Some additional 28B short trips would be operated in the peak direction (morning toward Tysons, afternoon toward Skyline). (Off-peak) – 30-minute service on the 28B between Tysons and NVCC/Skyline, with every other trip cut back at Skyline. Late evening, operate eastbound 15-minute headway from Tysons 9-10 PM as needed. (All local trips): Add 5 minute scheduled recovery time at Seven Corners as recommended in the study (requires two time points for Seven Corners on headway, one arrive, one leave).

On weekdays, the elimination of the 28A segment between NVCC and King Street will be picked up by DASH Route AT6 so that there will continue to be 30 minute service between NVCC and King Street station.

Saturday - Change all 28A trips to 28B (no AT6 service on weekends, so to maintain 30 minute service to/from King Street station and eliminate Braddock/Russell routing, all trips will operate as 28B). Add 5 minute recovery time at Seven Corners on all trips.

Sunday: No change in current 30 minute 28B service, except add 5 minute recovery time at Seven Corners on all trips.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the Metrobus 28B and 28X routes.

		Route	
		28B	**28X**
	Operator	Metrobus	Metrobus
Span	**Weekday**	5:30 AM – 12:20 AM	6:00 AM – 9:30 AM 3:30 PM – 7:30 PM
	Saturday	6:00 AM – 12:00 AM	None
	Sunday	6:00 AM – 12:00 AM	None
Headway (minutes)	**Weekday Peak**	30 (15 combined with 28X)	30 (15 combined with 28B)
	Weekday Midday	30	
	Weekday Evening	15-30	
	Saturday	30	
	Sunday	30	

No Change for Metrobus 28FG

The 28F and 28G are an interlined pair of routes connecting Pentagon Metrorail station to Skyline City via Seminary Road in Alexandria and I-395. The 28G runs inbound to Pentagon in the morning and outbound in the afternoon (the traditional commute), while the 28F runs in the opposite direction (the reverse commute). According to ridecheck data collected as part of the TDP, both of these routes are well used in both directions. In one round of checks, afternoon service on the 28G, which operates at a 20-minute headway, performed less well, with loads ranging between 10 and 23. In the other round, though, loads were consistently in the 20s. Because of the satisfactory performance of this line, without any apparent crowding, no changes are recommended.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the Metrobus 28FG line.

		Route
		28FG
	Operator	Metrobus
Span	**Weekday**	5:50 AM – 9:20 AM and 3:15 PM – 7:20 PM
	Saturday	None
	Sunday	None
Headway (minutes)	**Weekday Peak**	20-30
	Weekday Midday	
	Weekday Evening	
	Saturday	
	Sunday	

7.6.9 Vienna Metrorail Connections

Background

Vienna Metrorail station is a major hub at the center of Fairfax County. A great deal of bus service feeds into the station from the west, and two major radial routes, the Metrobus 1 and 2 lines run parallel to the Orange Line to the east. Cross-county connections at Vienna station are limited though. The recommendations in this section include a series of new bus connections beginning at Vienna and going to various parts of the county (see Figure 7.24). Also refer to section 7.7.5 for the proposed extension of Metrobus 29N to Vienna Metrorail station. These connections would take advantage of HOV and HOT lanes, and make transit a viable option for many more origin-destination pairs within Fairfax County.

Recommendations

New Route: Vienna Metrorail to Dulles via Fair Oaks

Numerous public comments requested better connections to Dulles Airport. In addition, with the restructuring of the 1 line in 2007, the connection from Vienna to Fair Oaks hospital was lost. This proposal seeks to establish these connections and thus improve cross-county mobility.

The proposed route would run from the Vienna Metrorail station express to Fair Oaks mall via I-66. It would serve the transit hub there, offering additional connections to routes serving Centreville and Chantilly (such as the midday 630). The route would then head north on West Ox Road to serve Fair Oaks Hospital. It would then return to US-50 via Rugby Road and head west to the Smithsonian National Air and Space Museum/Udvar-Hazy Center via Air & Space Museum Parkway. From there, it would take VA-28 and run express to the Dulles Airport Terminal. As mentioned earlier, it is critical that the MWAA cooperate with the County to provide layover space, adequate passenger facilities, and otherwise allow for efficient bus operations at Dulles Airport.

The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the new Vienna Metrorail to Dulles Airport service.

		Route	
		Vienna-Dulles (Initial)	**Vienna-Dulles (Future)**
	Operator	Fairfax Connector	Fairfax Connector
Span	**Weekday**	5:00 AM – 10:00 PM	5:00 AM – 11:00 PM
	Saturday	None	7:00 AM – 8:00 PM
	Sunday	None	None
Headway (minutes)	**Weekday Peak**	30	20
	Weekday Midday	30	30
	Weekday Evening	30	30
	Saturday		30/60
	Sunday		

New Route: Vienna Metrorail to Ft. Belvoir

Due to BRAC development, a significant amount of new demand to Ft. Belvoir is expected (see below in Ft. Belvoir section). A new express route from Vienna to Ft. Belvoir via the HOT Lanes on the Beltway would provide quick and convenient access to Ft. Belvoir for residents of the western portion of Fairfax County.

The express route would operate four trips in the peak direction (toward Ft. Belvoir in the morning) in both the morning and afternoon peaks via I-66, I-495 and I-395, taking advantage of HOV lanes on I-66 and the HOT Lanes on I-495. Note that this route will not be able to use the Shirley Highway (I-95) HOT lanes in the peak direction, as this facility will operate northbound only during the AM peak and southbound only during the PM peak. The trip would take 30 to 40 minutes depending on traffic.

New Route: Vienna Metrorail to Reston and Herndon

Another connection that is facilitated by the Beltway HOT Lanes is from Vienna to the Dulles Corridor, particularly Reston and Herndon. Once the Silver Line is completed, this trip would be accomplished through a rail transfer at East Falls Church or Tysons East, but until that time this express route could build a market for this service.

The express route would operate four trips in the peak direction (toward Dulles Corridor in the morning) in both the morning and afternoon peaks via I-66, I-495 and VA-267, taking advantage of HOV and HOT Lanes. The trip would take about 25-30 minutes to Reston (Wiehle Ave) and 35-40 minutes to Herndon. Times would need to be coordinated with local bus routes in Reston and Herndon to allow for feeding and distributing passengers.

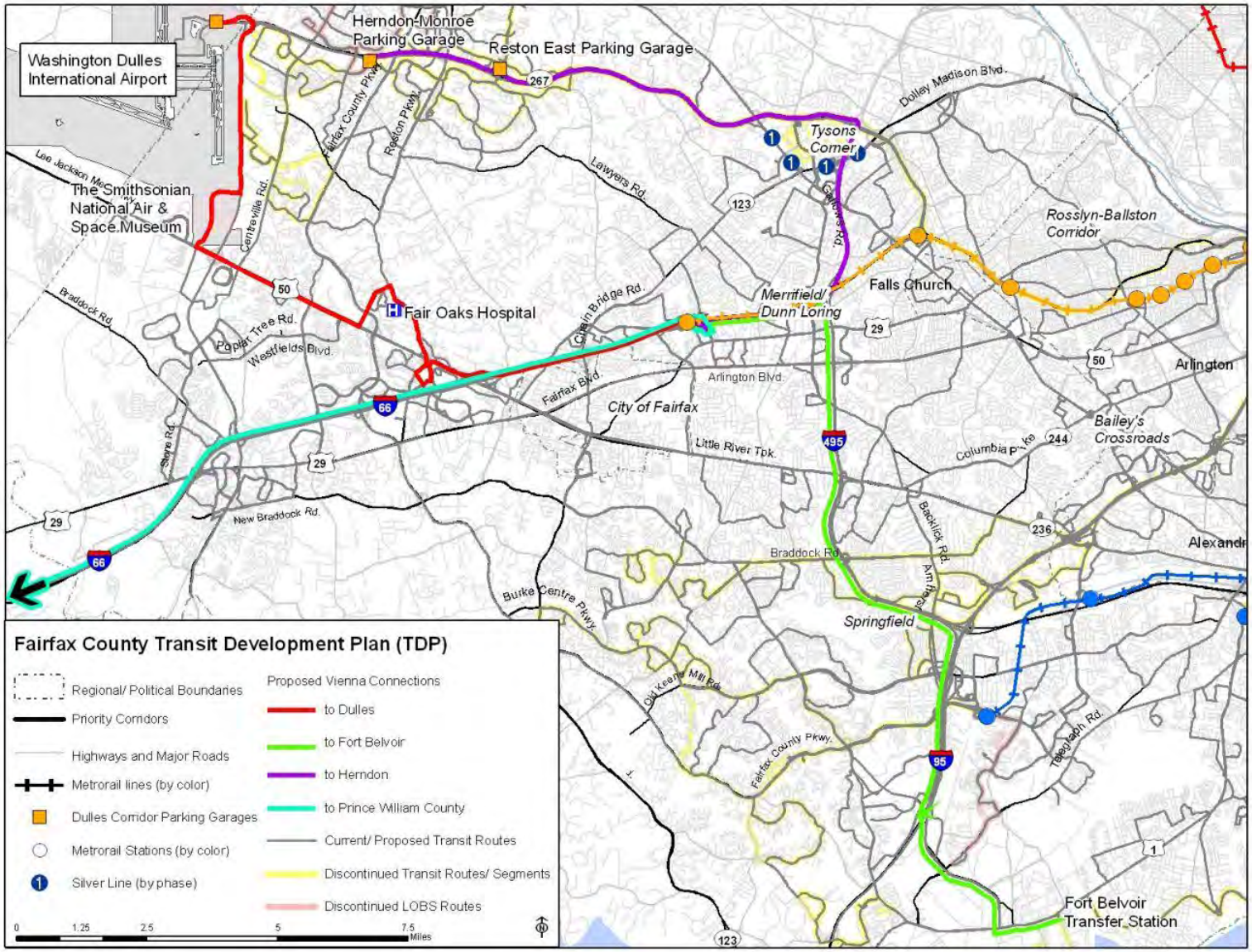
The following table presents a summary of the service levels recommended to be implemented over the ten year time horizon for the new Vienna Metrorail to Fort Belvoir and Reston/Herndon services.

		Route	
		Vienna-Ft. Belvoir	**Vienna-Reston/Herndon**
	Operator	Fairfax Connector	Fairfax Connector
Span	**Weekday**	6:30 AM – 8:00 AM 4:30 PM – 6:00 PM	6:30 AM – 8:00 AM 4:30 PM – 6:00 PM
	Saturday	None	None
	Sunday	None	None
Headway (minutes)	**Weekday Peak**	30	30
	Weekday Midday		
	Weekday Evening		
	Saturday		
	Sunday		

New Enhanced Bus/BRT Route: Vienna to Prince William County via I-66

One of the future BRT corridors being considered in Fairfax County is the I-66 corridor west of the Vienna Metrorail station. In this case, BRT would function as an extension of the Metrorail Orange Line, perhaps setting the stage for a future rail extension. BRT stations would be located at the major interchanges. This route is the subject of an ongoing parallel study being conducted by DRPT, and thus no specific operating statistics are offered here.

Figure 7.24 New Vienna Metrorail Connections



7.7 SOUTH COUNTY RECOMMENDATIONS

7.7.1 Richmond Highway Corridor

Background

The Richmond Highway Corridor is centered on US Route 1 through a number of densely populated neighborhoods located within the Mount Vernon and Lee Districts of Fairfax County. There is relatively low employment density within the Mt. Vernon and Lee Districts compared to the more significant commercial and industrial zones located elsewhere in the county. The passenger survey data suggests that residents of these districts use the bus services to travel to work and other purposes outside of Fairfax County (e.g. Alexandria, Arlington and the District of Columbia), often using the local buses to reach a Metrorail station for connecting services. The peak travel heads in a northeasterly direction toward the regional core during the morning commuting hours and returns in the reverse direction in the evening hours.

US-1 itself serves as the boundary between the Mount Vernon and Lee districts as it traverses the corridor between South Kings Highway and Frye Road. Six Fairfax Connector bus lines provide local service within this corridor while WMATA operates three Metrobus regional bus lines within the corridor. These nine bus lines are listed in Table 7.33 which provides an overview of these services. Eight of the nine routes are operated daily including midday and evening hours. Only WMATA's 11Y Mount Vernon Express follows a limited weekday-only peak hour peak direction service schedule.

On a typical weekday, these nine bus lines serve more than 15,700 passenger boardings as observed in the ridecheck surveys conducted for this study. Approximately 14,000 of these boardings occur within Fairfax County with more than 8,600 boardings (61.4%) served by Fairfax Connector buses. These 8,600 boarding comprise approximately 25% of the typical Connector system-wide weekday boardings. This level of use clearly indicates the importance of transit for the densely populated communities located within the Richmond Highway corridor which is acknowledged by Fairfax County by the current service span and quantity of the service schedules. Full size transit buses should be continued to be assigned to all routes in the Richmond Highway corridor.

Table 7.33 Richmond Highway Corridor Bus Services

Route	Name	Magisterial District	Metrorail Connection	Weekday Boardings (Typ.)
Fairfax Connector				
101	Fort Hunt Line	Mt. Vernon	Huntington (North) – Yellow Line	780
151/152	Richmond Highway Circulator	Lee, Mt. Vernon	Huntington (South)– Yellow Line	3,035
161/162	Richmond Highway Circulator	Lee, Mt. Vernon	Huntington (South) – Yellow Line	1,250
171	Richmond Highway Line	Lee, Mt. Vernon	Huntington (North) – Yellow Line	3,575
	Connector totals			**8,640**
Metrobus				
9AE	Huntington – Pentagon Line	Mt. Vernon	Huntington (North) – Yellow Line	1,984
11Y	Mt. Vernon Express Line	Mt. Vernon	Farragut West – Blue/Orange Lines	430
REX	Richmond Highway Express	Lee, Mt. Vernon	Huntington (North) – Yellow Line King Street – Blue/Yellow Lines	4,741
	Metrobus totals			**7,155**

The Richmond Highway corridor Connector bus services perform slightly above the system productivity average for the Connector bus services operated within South County. Estimates of the route productivity are presented in Table 7.34. The six Fairfax Connector routes average approximately two boardings per revenue-mile, 25 boardings per platform-hour, and 36 boardings per trip.

The regional bus service operated by WMATA within the Richmond Highway corridor including the 9AE, 11Y and REX lines, are more productive than the Connector services operated in this corridor, particularly on a boardings/revenue-mile basis. Given the express nature of much of the Metrobus service in this corridor, its average operating speed is greater than the Connector services that largely circulate through the local Mount Vernon and Lee District neighborhoods. The Metrobus REX and the Fairfax Connector Routes 151/152, 161/162 and 171 have been designed to be complementary systems: the REX and 171 provide fast and direct service providing connection to the regional system while operating along major arterial and limited access roadways. The Connector routes 151/152 and 161/162 are designed to provide convenient service penetrating local neighborhood streets to directly serve major residential communities and important attractors (e.g. Mount Vernon Hospital) that are not reasonably accessible by foot from the major roadways.

Table 7.34 Richmond Highway Corridor Bus Service Productivity

Route	Name	Boardings/ Rev-Mile	Boardings/ Platform-Hr	Boardings/ Trip
Fairfax Connector				
101	Fort Hunt Line	1.52	19	15
151/152	Richmond Highway Circulator	1.96	26	47
161/162	Richmond Highway Circulator	1.98	21	22
171	Richmond Highway Line	2.17	29	53
	Corridor Average	**1.99**	**25**	**36**
	South County System Average	**1.78**	**22**	**26**
Metrobus				
9AE	Huntington – Pentagon Line	2.92	28	21
11Y	Mt. Vernon Express Line	2.04	25	33
REX	Richmond Highway Express	3.56	44	49
	Corridor Average	**3.22**	**35**	**36**

As shown in Table 7.35, riders in the Richmond Highway Corridor are relatively transit dependent compared to other parts of the County. With the exception of the 11Y, there are a lot of non-work trips, indicating a higher level of transit dependence. In addition, most of the routes in this corridor have a high percentage of riders coming from households with incomes of less than $30,000 per year, with several of the routes serving up to 60% low-income riders. There is also a large minority population riding these buses, with a figure of nearly 80% minority for the corridor average. It is important to keep the transit dependence of these riders in mind as changes are recommended in this corridor.

Table 7.35 Richmond Highway Corridor Bus Service: At-Risk Rider Demographics

Route	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
Fairfax Connector						
101	48%	24%	52%	24%	63%	24%
151	62%	45%	79%	45%	74%	67%
152	54%	53%	86%	43%	73%	75%
161	63%	37%	76%	49%	63%	73%
162	52%	48%	89%	53%	70%	78%
171	61%	60%	86%	46%	69%	85%
Metrobus						
9AE	83%	60%	89%	54%	81%	78%
11Y	100%	5%	39%	6%	20%	12%
REX	68%	60%	87%	50%	81%	79%
Richmond Highway Corridor[54]	62%	55%	85%	47%	72%	79%

[54] REX, 171, 151, 152, 161, 162 only, not an average of all the routes in this table.

Recommendations

No Change to Metrobus 9AE Huntington – Pentagon Line

The Metrobus 9AE Line provides an important connection via the 9A routing for Fairfax County residents and businesses from the Huntington Metrorail station North bus bays to the neighboring City of Alexandria and Arlington County. The northbound routing originates at the North bus bay of the Huntington Metrorail Station, serving stops in Fairfax County along Huntington Avenue and then follows the US Route 1 corridor through Old Town Alexandria (along Washington Street) with continuing service along the Jefferson Davis Highway into Crystal City and to the Pentagon Metrorail station with direct service to the growing Crystal City and Potomac Yard mixed-use development sites. The 9E is a short-line variation complementing the 9A operation within Arlington. The neighboring communities of Alexandria and Arlington have conducted a transit alternative analysis for this corridor evaluating options for high capacity transit services including BRT and Light Rail Transit (LRT) service options.

Less than one mile of the nearly eight mile long 9A route operates within the County, and none of the 9E operates within the County. As the existing route serves nearly 2,000 weekday riders including more than 20% with origins in Fairfax County no change is recommended at this time particularly in light of the future plans for this corridor. Fairfax County DOT staff should continue to closely monitor on-going activity by their neighbors to develop transit improvement plans designed to expand transit capacity to support the rapid growth that is occurring along the northern segment of this route.

The following table presents a summary of the service level recommended to be implemented over the TDP ten year horizon for the 9A.

		Route
		9A
	Operator	Metrobus
Span	Weekday	4:30 AM – 1:37 AM
	Saturday	5:24 AM – 3:56 AM
	Sunday	5:00 AM – 12:53 AM
Headway	Weekday Peak	30
	Weekday Midday	30
	Weekday Evening	30

Eliminate Fairfax County Segment of Metrobus 11Y Mt. Vernon Express Line Trips

This Metrobus express bus operates a limited peak period/peak direction service for a ridership that slightly exceeds 200 round trip passengers, with passenger origins split evenly between Mount Vernon District neighborhoods and Alexandria. These riders continue to advocate for a one-seat ride into the center of the District of Columbia. Although Fairfax County provides only about 50% of the passengers, more than 11 of the 14 (80%) Virginia local route miles traverse County roadways. The other 3 route miles are operated within Alexandria before the route returns to the parkway for its approximate six mile express segment into DC. Since the completion of the ridechecks, WMATA has changed the schedule to add several short trips between the Hunting Towers and DC. This change likely caused a decline in the passenger loads on the long-line trips from Mount Vernon. Given the availability of

nearby parallel service (e.g. Connector 101 or 151/152) and FCDOT policies to feed the Metrorail system for connection into the urban area, the long-line trips should be eliminated.

This proposal would eliminate the Fairfax County segment of the 11Y Mount Vernon Express line, changing the route to be the Hunting Tower Express Line into the District of Columbia. WMATA could evaluate an option to incorporate the 11Y resources into a more frequent 9B Hunting Towers – Crystal City Line service schedule. Otherwise, the short line trips that terminate at the Hunting Towers could continue unchanged.

Eliminating the 11Y route service for Mount Vernon would require approximately 100 Fairfax-based passengers to modify their travel use. These riders could use other services such as the 101 Fort Hunt Line or the 151/152 Richmond Highway Circulator Line. Each of these routes operates every day and is scheduled with service spans that extend into the evening hours. It is likely that the existing Metrobus 11Y riders use these routes on occasion as an option when travelling during hours that the 11Y does not run. Both routes could accommodate the added riders within existing capacity, though along with expected regional growth it may hasten the time when service frequencies will need to be improved.

Although travel times between Mount Vernon neighborhoods and DC should not increase significantly for riders who switch to a local feeder route, the one-way fare for these passengers will increase from the express bus fare of $3.00 to $3.95 ($1.25 local bus fare plus $3.20 Metrorail zone fare and a $0.50 transfer discount assuming use of a SmarTrip card). Given the higher incomes for the riders on this route (only 5% are low income and more than half have annual household incomes greater than $100,000), the cost increase would not be a large deterrent and would become identical to the fares paid by riders for similar trips from other Mount Vernon neighborhood (e.g. for riders that board within the 151/152 service area). Rather, due to the inconvenience of the transfer, passengers would view the required transfer at the Huntington Metrorail station negatively.

Restructure and Improve Metrobus REX – Richmond Highway Express

The REX limited-stop regional bus service operates between the King Street Metrorail Station in Alexandria to the Fort Belvoir South Post located in the Mount Vernon District of Fairfax County. The route already has some of the characteristics of an enhanced bus service, with branded buses, limited stops, and green extension on some of the traffic signals. This route continues to grow in popularity and WMATA has experienced some crowding which has generated requests for more frequent service. Since the time of the ridechecks for this study, WMATA has improved the peak period headway from 15 minutes to 12 minutes to reduce crowding on the buses and to reduce service trip time variability.[55]

The Department of Defense plans to relocate more than 6,000 new military and civilian personnel to work at Fort Belvoir by September of 2011 will likely impact the operation of this route as it will add a new source of ridership growth to this route.

Several actions are recommended to enhance service reliability and to add passenger capacity:

[55] WMATA operated the REX service with 15 minute peak headways during September 2008 when the ridechecks were conducted for the TDP study. Subsequent to this time, WMATA has improved the peak periods, morning and afternoon, service levels in two steps to a 12 minute headway effective with their Winter 2009 timetable (effective December 28, 2008).

- The REX service should discharge passengers outside the Fort Belvoir gate on Belvoir Road near the intersection of Richmond Highway.[56] This action would reduce scheduled trip time by approximately 5 minutes in each direction as well as eliminate the need for the bus to pass through the security checkpoint prior to entering the South Post installation. See the BRAC route grouping for further recommendations on BRAC-related transit requirements.
- Peak headways should be improved to 10 minutes to add capacity during the peak commute hours.
- Scheduled one-way trip run times should be extended by two to four minutes each way between the hours of 7:00 AM and 10:30 AM and again between the hours of 2:30 PM and 6:00 PM to improve schedule adherence on the segment of the route between the Huntington Metrorail station and Fort Belvoir.
- The REX should be extended past Fort Belvoir along Richmond Highway turning onto Pohick Road and Lorton Station Boulevard with a new terminal at the Lorton VRE Park-and-Ride. This route extension is compatible with future plans to upgrade the Lorton VRE Park-and-Ride facility to a transit center that would facilitate connections among several existing and proposed local, limited-stop and express bus routes including a planned pedestrian connection to a proposed I-95 in-line express bus station.

The proposed actions will result in the following service and passenger impacts:

- Peak service will operate at closer headways reducing wait time for passengers travelling within the corridor
- With extended and adjusted run times, schedules should become more dependable for all passengers
- Eliminating the portion of the route that currently serves the South Post while serving the DoD proposed new transfer facility outside the main gate to the Fort Belvoir South Post will require the Fort Belvoir command to institute a shuttle service for credentialed military and civilian personnel. This shuttle could be operated with two buses during peak hours and one bus during the off-peak hours with a schedule designed to meet each REX arrival/departure.
- Continuing beyond Fort Belvoir to the Lorton VRE station will provide a more direct connection to the VRE station for travel destined for Fort Belvoir as well as bring the limited-stop REX service to Lorton area residents. As mentioned, in conjunction with a proposed upgrade of this facility, access to the REX will be greatly enhanced.

The run time savings associated with the elimination of the South Post routing would approximately offset the additional run time required to improve service reliability. It is estimated that WMATA will require three additional buses to operate the recommended peak period schedule with the extension to the proposed Lorton VRE transit center. Currently, nine buses support a REX schedule with 12 minute headway for the winter 2009 schedule.

An option to alternate the northbound terminal between the Huntington and King Street stations, with alternating peak hour trips originating and terminating at each Metrorail station was investigated. The

[56] Service after 8:30 PM currently terminates prior to the Fort Belvoir gate along the Richmond Highway at Old Mill Road; evening service could be extended with the addition of one minute run time to extend the REX service to Pence Gate where the DoD has developed a preliminary proposal to establish an enhanced bus stop to facilitate transfers from public buses to an internal shuttle service.

intent would be to turn alternate trips so that these trips avoid the congested route beyond the Huntington Metrorail station, enhancing reliability for the riders on the short-turn trips. After some analysis, this proposal as well as other short-turn options is not recommended, as it would cause a significant imbalance in the maximum passenger loads between the short and long line trips. More than half the maximum load continues past the Huntington Station to King Street, which would result in passenger loads significantly above the WMATA load standard for most of the trips bound for or departing from the King Street Metrorail station, further exacerbating reliability on these long line trips likely resulting in bus bunching along the entire route.

The following table presents a summary of the service level recommended to be implemented over the TDP ten year horizon for the REX service.

		Route
		REX
	Operator	Metrobus
Span	**Weekday**	5:00 AM – 11:00 PM
	Saturday	5:00 AM – 11:00 PM
	Sunday	5:00 AM – 10:00PM
Headway (minutes)	**Weekday Peak**	10
	Weekday Midday	30
	Weekday Evening	30

Increase Service on Connector 101, 151/152 and 161/162

As stated above, the Richmond Highway Corridor currently serves approximately 25% of all Fairfax Connector boardings. According to FCDOT historical ridership reports, these routes, especially the Richmond Highway Circulators, have seen ridership grow by more than 25% since 2005. Ridership on these routes should continue to grow as it serves a growing transit-dependent population. In addition, passengers from the Metrobus 11Y which may no longer service Mount Vernon will be required to use these routes. Service frequencies must be increased to accommodate these new riders.

Route headways should be improved as follows:

- 101 – Improve the peak period service headway to 20 minutes.
- 151/152 – Improve the peak period service headway to 15 minutes in steps. (i.e. from the current two trips/hour to three trips/hour and eventually to four trips/hour). Coinciding with the final improved peak period headway, alternate trips should operate express along Richmond Highway between the Huntington Station south bus bays and Buckman Road (i.e. for 151 trips leaving Huntington and the 152 trips destined for Huntington).
- 151/152 – Improve Saturday and midday service to 30 minutes from the current 60 minutes.
- 161/162 – improve the peak period service headway to 20 minutes.

Improved service headways are required to accommodate the expected increase in ridership. This will require the allocation of additional buses to the periods of the day where service levels will be improved

on these three routes as detailed in the implementation plan. These improved service levels in turn should encourage further ridership increases.

In addition to the improved service, the TDP recommends renaming Connector 151/152 and 161/162, as both routes carry the name "Richmond Highway Circulator," which is a source of some confusion for riders. New names would enhance the identity of these circulator services, improving public recognition. In turn, the public will have a more visible understanding of the different service areas covered by these routes.

New names should be presented to the riding public during planned TDP public review sessions. The new name for each route should continue to be descriptive of the type of service 'neighborhood circulator' but also characteristic of the different service coverage area accessible by these two sets of circulators. Names such as those that follow could be submitted for public opinion.

- 151/152 options
  - Mount Vernon/Fort Hunt Circulator
  - Fort Hunt/Belle View Circulator
  - Engleside/Mount Vernon Circulator
  - Mount Vernon/Washington Homestead Circulator
- 161/162 options
  - Hybla Valley Circulator
  - Richmond Hwy/Hybla Valley Circulator

The following table presents a summary of the service levels recommended to be implemented over the TDP ten year horizon for the 101, 151/152 and 161/162 services.

		Route			
		101	**151/152 (Initial)**	**151/152 (Future)**	**161/162**
	Operator	Fairfax Connector	Fairfax Connector	Fairfax Connector	Fairfax Connector
Span	**Weekday**	4:30 AM – 10:30 PM	4:00 AM – 12:00 AM	4:00 AM – 12:00 AM	4:30 AM -11:30 PM
	Saturday	6:30 AM – 10:30 PM	5:30 AM – 12:00 AM	5:30 AM – 12:00 AM	6:30 AM – 11:00 PM
	Sunday	6:30 AM –8:00 PM	5:30 AM -12:00 AM	5:30 AM -12:00 AM	6:30 AM – 10:00 PM
Headway (minutes)	**Weekday Peak**	20	20	15	20
	Weekday Midday	60	30	30	60
	Weekday Evening	60	30	30	60

Restructure Connector 171 Richmond Highway Line

The 171 is a long route serving more than 3,500 weekday passenger trips. The 171 provides the local service along Richmond Highway between the Huntington Metrorail station and Fort Belvoir complementing the WMATA REX limited stop service. This proposal offers the following:

- Restructure service to improve reliability;
- Expand service coverage along a segment of the Richmond Highway presently not served;
- Provide service and connections to other routes at the proposed upgraded Lorton VRE Station transit center
- Provide the residents of the growing Lorton community with enhanced transit service; and
- Improve regional access to Fort Belvoir and to other important South County destinations (e.g., Mount Vernon Hospital.).

The 171 is essentially a combination of two route segments 1) Huntington Metro – Fort Belvoir along Richmond Highway and 2) Fort Belvoir – Franconia/Springfield Metro via Lorton and I-95. There is a reasonable volume of through-riders between these two segments, thus this proposal creates service that overlaps along the middle section of the current 171.

This proposal would restructure the 171 route by splitting it into two routes, as follows:

- New Route 171 – Huntington Metrorail Station via Richmond Highway to the Lorton VRE Transit Center[57]
    - This route would provide the complementary local service along the REX corridor, operating from the Huntington Metrorail Station through the proposed Fort Belvoir bus transfer stop. It would then continue along Richmond Highway following the existing route 171 to Lorton Station Boulevard into the proposed enhanced Lorton VRE Station transit center.
    - Selected trips could be timed to connect with the VRE service at the Lorton station.
    - Peak headways should be improved to 20 minutes.
    - In 2012, peak headway should be further improved to 15 minutes.
- Proposed Route 371 – Franconia/Springfield Metro – Mount Vernon Hospital via Lorton VRE Transit Center
    - This route would originate at the Mount Vernon Hospital, serve the Mount Vernon Government Center and the Sherwood Regional Library and then travel on Richmond Highway in a westerly direction through the Fort Belvoir and Island Cove areas along Richmond Highway. It would then follow Gunston Cove Road, Cranford Street, Gunston Hill Lane, Groom Cottage, Lorton Market Street (serving the Lorton Market Park and Ride), Lorton Road, Lorton Station Boulevard and the Lorton VRE Station. From the VRE Station, proposed route 371 would continue on Lorton Station Boulevard to Pohick Road, crossing I-95 at Pohick Road to follow Rolling Road to Fullerton Road (for service to the industrial area) before turning on to Backlick Road to serve the Backlick Park and Ride and then continuing to the Franconia Springfield Parkway and terminating at the Franconia-Springfield Metrorail station.
    - Initially, peak headways should be established at 30 minutes, with future improvements to 20 minutes timed to the completion of the proposed commercial development on Backlick Road on property abutting the southeast corner of the EPG.

The restructuring of service in the Lorton area would accomplish the following:

[57] It is noted that, beyond the timeframe of the TDP, it may make sense to extend US-1 service south into Prince William and Stafford Counties. This should be discussed with those jurisdictions at that time.

- Provide Lorton/Laurel Hill and Newington Forest area residents with connecting service to the Fort Belvoir area and along Richmond Highway into the Huntington Metrorail station via a convenient transfer at the proposed Lorton VRE Station transit center to either the extended REX or new route 171 service.
- Provide new service along the section of Richmond Highway between the Fairfax County Pkwy and Lorton Station Boulevard including service to the Island Cove area (route 171).
- Provide connecting service to Fort Belvoir bus transfer stop from the Metrorail Blue Line at Franconia/Springfield station as well as direct service from points in Lorton and Laurel Hills.
- Existing route 171 is more than 24 miles long with its peak operation along I-95 as a frequent cause of delay. Breaking the route into two routes and bypassing I-95 at least during peak periods should improve route reliability.
- Provide enhanced service from points in Lorton, Laurel Hill and Newington Forest area to the South County Government Center, the Mount Vernon Government Center, and the Mount Vernon Hospital via connecting service at the proposed Lorton VRE station transit center. See section 7.7.3 regarding proposed restructuring of route 305 and 307.

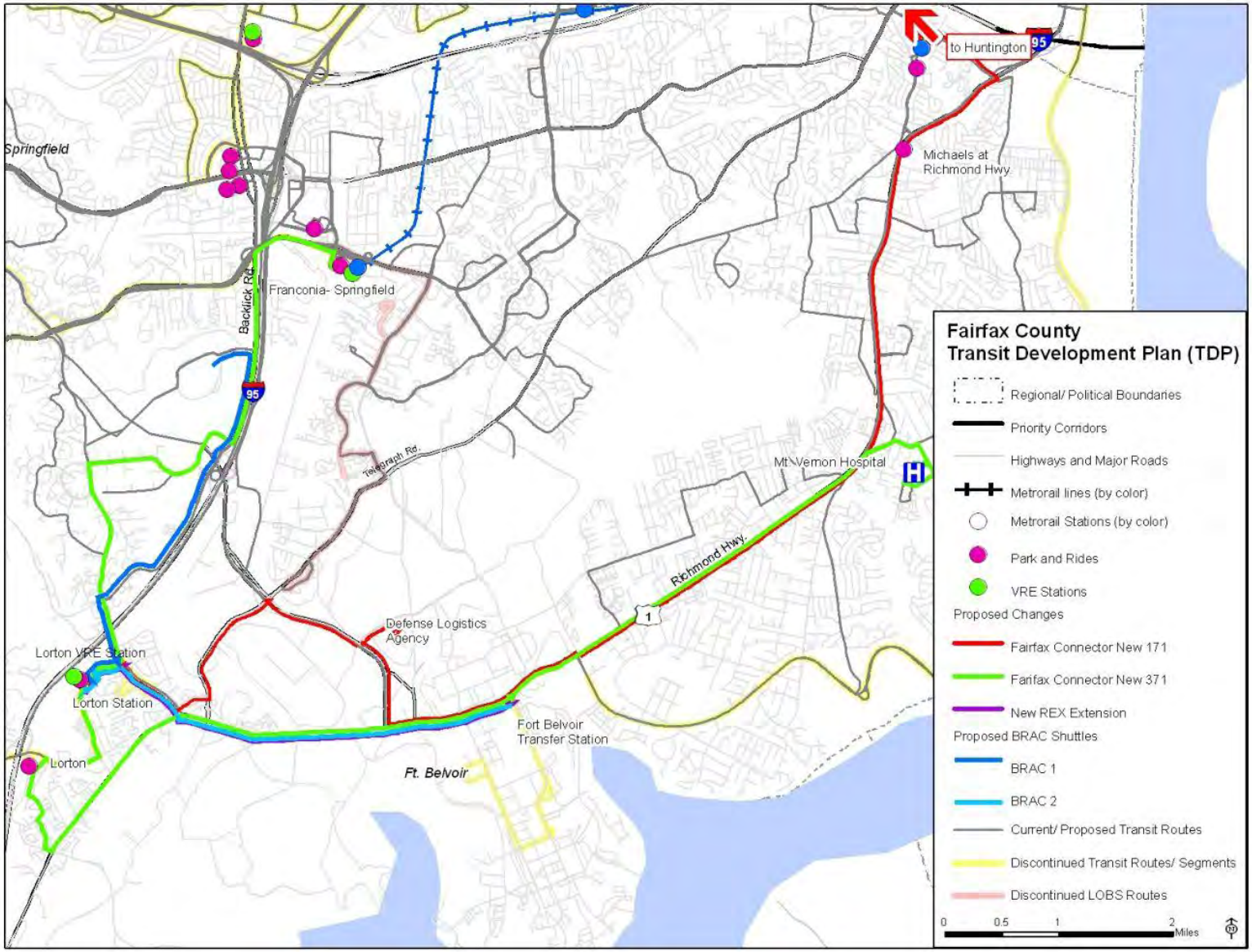
Breaking the 171 through-route will require a few passengers to transfer between the new 171 and the new 371 at the Lorton VRE Transit Center site to travel between the Springfield and Huntington areas.

The following table presents a summary of the service level recommended to be implemented over the TDP ten year horizon for the 171 service.

		Route
		171
	Operator	Fairfax Connector
Span	**Weekday**	3:23 AM – 1:25 AM [58]
	Saturday	5:40 AM – 3:02 AM
	Sunday	5:40 AM – 1:11 AM
Headway (minutes)	**Weekday Peak**	15
	Weekday Midday	30
	Weekday Evening	30

[58] Monday through Thursday shown in table, Friday service operates until 3:31 AM

Figure 7.25 Restructured Routes 171 and 371 and Metrobus REX



7.7.2 Van Dorn (109, 231/232, 303, 321/322)

Background

The Van Dorn services include five routes that serve the Van Dorn Street Metrorail Station located in Alexandria and travel into Fairfax County along South Van Dorn Street before branching in different directions at Franconia Road. The 303 Island Creek Line is also included in this group as it serves the Kingstowne vicinity, common to two of the other routes.[59] A summary of these six routes is provided in Table 7.36. The typical daily ridership on these six routes totals more than 3,800 weekday riders. Only the 321/322 Greater Springfield Circulator operates throughout the week, with the 109 Rose Hill Line providing local service every day except Sunday. The 231/232 Kingstowne route as well as the 303 Island Creek route operates weekdays only mostly during the peak hours with limited off-peak service.

It should be noted that the neighboring City of Alexandria and WMATA have been cooperating on the design of a proposed new BRT service which would originate in Kingstowne Village, follow South Van Dorn Street to I-395 and then continue to the Pentagon Metrorail station, with stops at the Mark Center (the location of the BRAC 133 development) and Shirlington. Although this BRT route begins within Fairfax County, County transportation officials have not been actively involved with this proposal.

Table 7.36 South Van Dorn Street Bus Services

Route	Name	Magisterial District	Metrorail Connection	Weekday Boardings (Typ.)
Fairfax Connector				
109	Rose Hill Line	Lee	Van Dorn – Blue Line Huntington (North) – Yellow Line	811
231/232	Kingstowne Line	Lee	Van Dorn – Blue Line	604
303	Island Creek Line	Lee, Mt. Vernon	Franconia-Springfield – Blue Line	254
321/322	Greater Springfield Circulator	Lee	Huntington – Yellow Line Franconia-Springfield – Blue Line	2,178
	Connector totals			**3,847**

The Van Dorn Street Connector bus services perform slightly below the system productivity average for the Connector bus services operated within South County. Estimates for the route productivity are presented in Table 7.37. The six Fairfax Connector routes average approximately 1.56, 19 and 19 boardings per revenue-miles, per platform-hour and per trip respectively. The 303 Island Creek Line's performance is the weakest of these routes, achieving productivity levels only slightly better than half of the South County average, justifying FCDOT's decision to discontinue this route. Standard full size buses

[59] Route 303 was discontinued by the FCDOT effective June 28, 2009. However, survey data for the TDP project was collected in 2008 along with all other Fairfax County routes including Connector and Metrobus. Recommendations presented in this chapter consider both the TDP analyses and the recent FCDOT action.

should be assigned to routes 109 and 321/322, however the reconfigured 231/232 route could be covered with a small (30') low-floor bus.

Table 7.37 South Van Dorn Street Bus Service Productivity

Route	Name	Boardings/ Rev-Mile	Boardings/ Platform-Hr	Boardings/ Trip
Fairfax Connector				
109	Rose Hill Line	1.99	25	14
231/232	Kingstowne Line	0.90	14	13
303	Island Creek Line	0.88	12	6
321/322	Greater Springfield Circulator	2.00	23	39
	Corridor Average	**1.56**	**19**	**19**
	South County System Average	**1.78**	**22**	**26**

The riders on routes in the Van Dorn area of the County vary in their demographics, from the 321/322 where more than 70% of the riders have no auto available to make the trip, to the 231/232 and 303 where more than half of the riders had an available auto to make the trip if they had so chosen. All of the routes in this area of the County get riders with a wide variety of trip purposes, with the exception of the 231/232 where 90% of the riders are using the service to go to or from work.

Table 7.38 Van Dorn Area Bus Service: At-Risk Rider Demographics

Route	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
Fairfax Connector						
109	74%	45%	76%	34%	58%	61%
231[60]	91%	40%	62%	5%	31%	43%
232	90%	26%	53%	25%	48%	57%
303	71%	22%	50%	23%	32%	66%
321	60%	56%	82%	50%	72%	77%
322	61%	45%	79%	46%	71%	75%

<u>Recommendations</u>

No Change to Route 109

Since the South County Bus plan was implemented in 2005, the ridership level on Route 109 has remained very constant showing some modest growth with the current observations. Although one of the shorter routes in the South County service area, this route provides important access to Metrorail services available at both ends of the line, with an estimated 96% of the route ridership having at least one end of their trip passing through one of these Metrorail stations. This suggests the residents of Rose Hill are using the route as their first leg to travel outside of the immediate area seeking to transfer

[60] Data may not be statistically significant as only 48 surveys were received on the 231.

to services to reach destinations either elsewhere in Fairfax County (e.g. transfer to route 171) or outside of Fairfax County (e.g. transfer to Metrorail, Metrobus or DASH services). Given a better than average productivity and high transfer rates from this route, it is suggested that Route 109 be maintained as currently routed.

The following table presents a summary of the service level recommended to be implemented over the TDP ten year horizon for the 109 service.

		109
	Operator	Fairfax Connector
Span	**Weekday**	5:00 AM – 11:30 PM
	Saturday	6:30 AM – 10:30 PM
	Sunday	
Headway (minutes)	**Weekday Peak**	30
	Weekday Midday	60
	Weekday Evening	60
	Saturday	60
	Sunday	

Adjust service hours on Route 231/232 - Eliminate Connector Route 303 Island Creek Line

The 231/232 route currently provides extended peak-hour services from 5:00 AM – 10:00 AM and 3:00 PM – 10:00 PM. Overall the ridership on this route is weak as much of this route is duplicated by other available services (e.g. 321/322.) Passenger volumes for the early morning trips are extremely light: often 4 or fewer riders per trip. Meantime as noted, the 303 route is even a lower performing route whose ridership has remained fairly constant at about 250 daily passenger trips over recent years with much of the route duplicated by the 231/232 service. As previously noted, Fairfax County chose to eliminate the 303 service effective June 29, 2009, in response to FY2010 budget reductions. Much of the route is duplicated by Route 231/232, making the impact of that service cut less severe.

It is recommended that the service hours on Routes 231/232 be adjusted, delaying the morning hours by one hour to operate between 6:00 AM and 11:00 AM and adjusting the afternoon hours to have the route operate between 2:30 PM and 10:00 PM. In addition the service should be restructured to extend the Route 231/232 down Telegraph Road to the Mt. Air Drive terminal to cover a portion of the former Route 303 that would be otherwise unserved (see Figure 7.26).

The combined coverage provided by Routes 231/232 and 303 is not justified by the current ridership volume. Restructuring these services to provide coverage by a single modified Route 231/232 maintains a base level of service for transit dependent commuters and will restore service along the outer segment of route 303 that no longer has direct service to Metrorail. With this change, the combined ridership could result in a reasonable performance level by the single route. It is important to know that the slight reduction in service will not be affecting a particularly at-risk ridership group, as shown by the ridership demographics.

The early morning trips can be eliminated to offset the cost of extending the service into midday hours. On average there are only five passengers per trip on the 231 before 6:00 AM, while there is only an average of three passengers per trip on the 232 before 6:00 AM.

A simplification of the 231/232 route was considered which would remove it from operating along South Van Dorn Street into the Van Dorn Metrorail station, leaving the 231/232 with one Metrorail connection at the Franconia-Springfield station. However, this proposal is not recommended due to adverse impacts on those riders who choose to transfer to Metrorail at Van Dorn to benefit from lower zone fares on the order of 75 cents per trip. Meanwhile, Connector riders will continue to be offered the ability to transfer to Metrobus and DASH services for travel to destinations in Alexandria. The following table presents a summary of the service level recommended to be implemented over the TDP ten year horizon for the 231/232 service.

		231/232
	Operator	Fairfax Connector
Span	**Weekday**	Peak only
	Saturday	
	Sunday	
Headway (minutes)	**Weekday Peak**	30
	Weekday Midday	
	Weekday Evening	
	Saturday	
	Sunday	

Improve Route 321/322 Greater Springfield Circulator Service Levels and Reliability

The 321/322 circulators have experienced considerable growth since the implementation of the South County Bus Plan. According to FCDOT historical ridership reports, daily weekday boardings on this route have increased by nearly 100% since FY2005, becoming one of the more productive services in the South County service area. A review of the ridecheck data for these routes indicates that approximately 70% of the trips either run early or within the zero to five minute late on-time window. During the peak periods, about 35% percent of the trips run late, defined as six minutes or greater, with an equal percent falling within the on-time window (zero to five minutes late). For the most part, scheduled recovery time is ample enough to ensure a high degree of on-time departures. The ridecheck observations indicate that the number of boardings for a trip is highly correlated with an increase in the actual running time, particularly during the midday period. During this period, there is more passenger turnover with some trips with as many 75 boardings and alightings. As a result, the midday services are required to make more stops per trip than during the peak service hours. With the high numbers of ons and offs during the midday, the route is on the verge of running up against run time issues that would prevent the route from maintaining reliable performance. The recommendation to head off this issue is to begin with a reduced headway, and, in the longer term, possibly increase the run time of the route.

The recommended service adjustments with reduced headways throughout the day will support the following improvements:

- Improved service levels will help to speed up each bus trip as the number of stops for boarding and alighting passengers should decline to improve actual in-service travel time for passengers.
- Improved headways should decrease the run time variability ensuring maintenance of a high level of on-time service.

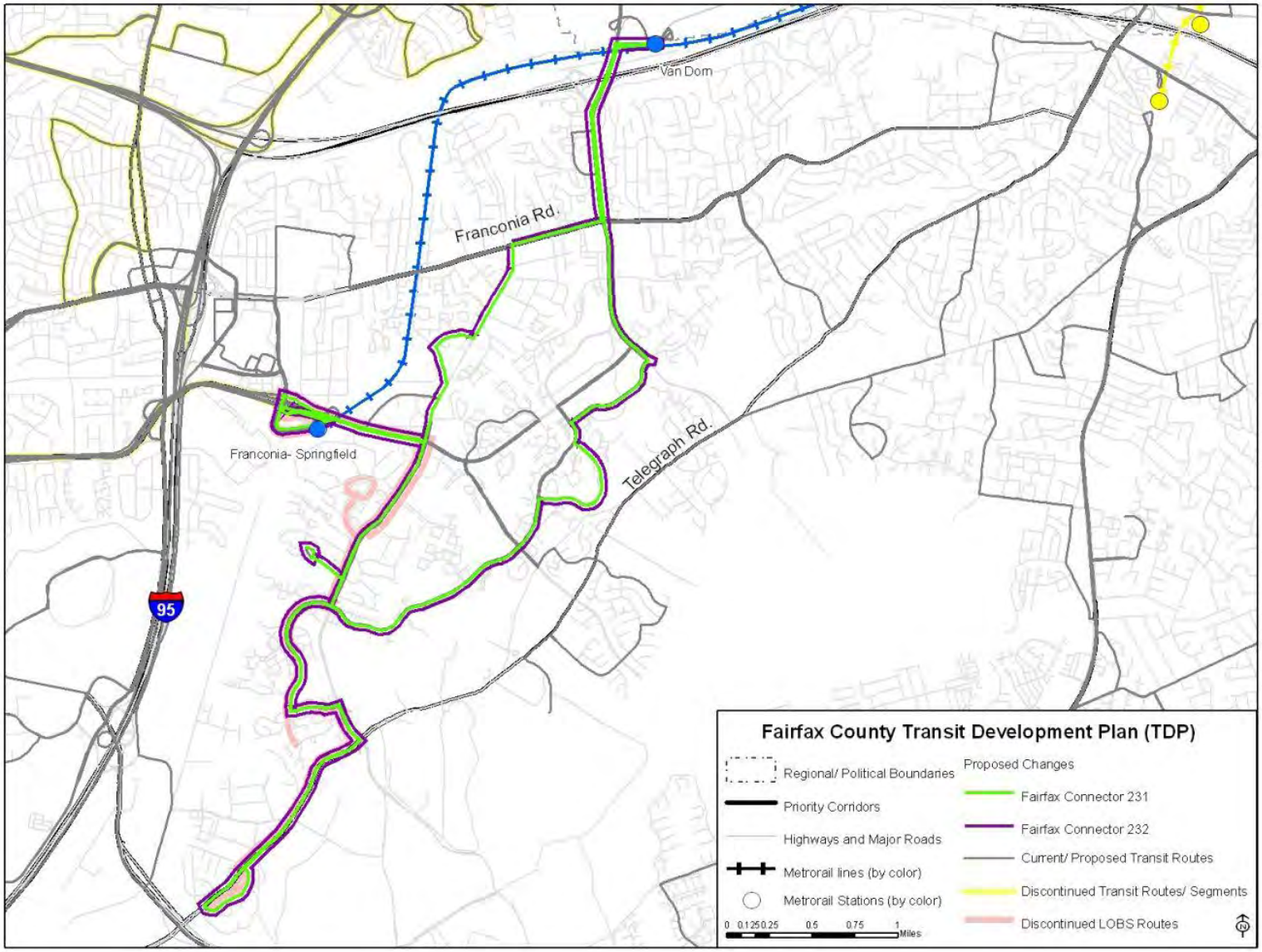
- Improved service levels which will reduce passenger wait times.

These actions will maintain the level and quality of services provided by the 321/322 positioning this service to adequately serve a ridership base that is expected to continue to grow. As a result, bus requirements will increase for all time periods, despite the utilization of as much interlining as possible. It is important to note that the Van Dorn Metrorail station is very limited in terms of the number of bus bays available. In conjunction with increasing services into the Van Dorn Metrorail station, it would make sense to look into the possibility of expanding the bus transfer facilities at that station.

The following table presents a summary of the service level recommended to be implemented over the TDP ten year horizon for the 321/322 service.

		321/322
	Operator	Fairfax Connector
Span	**Weekday**	4:00 AM – 11:00 PM
	Saturday	6:30 AM – 11:00 PM
	Sunday	6:30 AM – 10:00 PM
Headway (minutes)	**Weekday Peak**	20
	Weekday Midday	30
	Weekday Evening	60
	Saturday	30
	Sunday	60

Figure 7.26 Van Dorn Service Recommendations



7.7.3 BRAC Related Improvements: Springfield/Lorton/Ft. Belvoir, I-95 South Corridor

Background

The service area for this corridor runs roughly parallel to I-95 south of the Capital Beltway through the communities of Springfield, Newington and Lorton. Six Connector routes currently operate in this area either along I-95 or a parallel road including Backlick, Loisdale and Lorton Roads. The area is expected to experience explosive growth as planned residential developments come on-line in Lorton and the Department of Defense plans to expand two military installations are completed in late 2011.

An overview of the six Connector routes is presented in Table 7.39. Typical weekday ridership on these routes exceeds 5,100 passengers, but this total includes the portion of the Route 171 which continues from this area along the Richmond Highway corridor (see section 7.7.1).

Table 7.39 Springfield/Lorton Area Bus Services

Route	Name	Magisterial District	Metrorail Connection	Weekday Boardings (Typ.)
Fairfax Connector				
171	Richmond Highway Line	Lee, Mt. Vernon	Franconia-Springfield – Blue Line	3,575
304	Saratoga Line	Lee	Franconia-Springfield – Blue Line	241
307	Laurel Hill/Lorton Line	Mt. Vernon	none	55
331/332	I-95 Circulator	Lee, Mt. Vernon	Franconia-Springfield – Blue Line	683
380	Franconia-Springfield / Pentagon Express Bus	Lee	Franconia-Springfield – Blue Line Pentagon – Blue/Yellow Line	560
	Connector totals			**5,114**

A summary of the performance of the routes in this area is provided in Table 7.40. Besides route 171[61], the other five routes perform at a marginal level at best; on average significantly less than the South County system average, as reported in Table 7.41. With route 171 statistics, the area performs slightly below the average for the South County services. As previously noted, standard full size transit buses are required on the route 171, however the remaining routes in this area are candidates for assignment of small (30') low-floor buses.

[61] Route 171 is a long route that displays a load profile as if it operated as two routes that are thru-routed. However, it is difficult to divide the operating and ridership statistics between the western and eastern segment as numerous riders use the route to ride between the two segments. A visual display of the load profile would show distinct peak loads on each end with reduced load levels through the middle segment. The Eastern segment, however, is the heavier used segment

Table 7.40 Springfield/Lorton Area Bus Service Productivity

Route	Name	Boardings/ Rev-Mile	Boardings/ Platform-Hr	Boardings/ Trip
Fairfax Connector				
171	Richmond Highway Line	2.17	29	53
304	Saratoga Line	0.90	17	7
307	Laurel Hill/Lorton Line	0.33	3	1
331/332	I-95 Circulator	0.74	11	14
380	Franconia-Springfield / Pentagon Express Bus	1.00	21	12
	Area Average	**1.43**	**22**	**20**
	Area Average w/o 171	**0.80**	**12**	**9**
	South County System Average	**1.78**	**22**	**26**

The 171 and 307 routes both have high proportions of low-income riders, and all routes in this area with the exception of the 380 have high levels of riders who have no auto alternative for this trip. Those factors need to be accounted for when deciding what changes to make to existing services.

Table 7.41 Springfield/Lorton Area Bus Service: At-Risk Rider Demographics

Route	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
Fairfax Connector						
171	61%	60%	86%	46%	69%	85%
304[62]	94%	8%	48%	16%	50%	46%
307[63]	80%	54%	63%	18%	59%	93%
331	57%	37%	79%	33%	48%	72%
332	59%	32%	78%	18%	37%	69%
380	98%	6%	18%	4%	9%	38%
Backlick Rd. South of Little River Tpk.[64]	79%	32%	70%	24%	49%	66%

<u>Fairfax County BRAC Installations</u>

As described in the Challenges section at the beginning of this chapter of the TDP, the Department of Defense (DoD) has recently completed a process of extensive review of its military installations nationwide to provide recommendations for reshaping the Department's infrastructure and force structure. The BRAC actions will result in the workforce at Fort Belvoir to grow by approximately 4,100 military and civilian personnel to bring the total workforce to more than 27,000 no later than September

[62] Data may not be statistically significant as only 30 surveys were received on the 304.
[63] Data may not be statistically significant as only 5 surveys were received on the 307.
[64] Includes 304, 17B, 17M, 18E, 331, 332 only, not an average of all the routes in this table.

15, 2011. Housing for 2,070 families is available on-site along with traditional troop barracks, with the total on-base living population expected to grow to more than 8,000.

The 820 acre Engineer Proving Ground (EPG) is located in the Lee District within the Springfield community. The site is roughly bounded by I-95 to the east, the Franconia-Springfield Parkway to the north and the future extension to the Fairfax County Parkway to the west and south. The existing facilities at EPG are located in the northeastern corner of the site. More than half of the site is completely unoccupied and some of the roadways are abandoned and overgrown. In recent years the site has been occupied by fewer than 50 personnel. EPG contains no living quarters and has enough parking to serve its minimal personnel. EPG will have approximately 8,500 employees move in to a 2.4 million square-foot newly constructed National Geospatial-Intelligence Agency (NGA) facility and other smaller support facilities no later than September 15, 2011.

The local bus services provided by Fairfax County and WMATA may experience an increase in demand on the Connector and Metrobus routes that serve the vicinity to these two BRAC sites. Use of the local bus will hinge on the effectiveness of several DoD policies and practices and to what extent visitors are allowed access to these sites. These factors include among others:

- Parking – current goals allow for the construction of one space per 1.67 employees
- Mode Share – targets have been set for Virginia BRAC sites to achieve a 40% transit mode share
- Access – security gates will restrict entry by other than credentialed personnel. Visitors will be directed to specified entry points.
- Public Bus Access[65] – In specific cases, buses will be subject to time-consuming security checks and in other cases, buses will not be allowed to operate within the installation confines.
- Private Shuttle Buses – The DoD allows each installation at the discretion of the local commander to institute shuttle buses for credentialed personnel use, if public services do not adequately meet needs. These shuttles routes could be either on-base shuttles designed to meet public buses at the access gates or could serve to shuttle personnel to and from remote sites (e.g. other military installations or major transit nodes such as Metrorail stations).
- Transit Center – Willingness of DoD to permit use of the planned Fort Belvoir bus transfer stop at the Pence Gate for general transfer activity between public bus routes.[66]

Several service recommendations are suggested in this section to address the expected increase in transit use to access the Fairfax County BRAC military installations.

Recommendations

Restructure Connector 171 Richmond Highway Line; Restructure Connector Routes 305 and 307; Create New Connector Route 309; Create New Connector Route 371

The 171 is a long route serving more than 3,500 weekday passenger trips as previously presented in section 7.3.1. The 171 provides the local service along Richmond Highway between the Huntington

[65] Currently the WMATA REX service is permitted access to the Fort Belvoir South Post but all passengers are subject to a security check.

[66] As of this writing, it is assumed that a full transit center as previously proposed by the DoD at Ft. Belvoir's Pence Gate will not be a viable option, so a transfer center is not assumed at this point, but rather an enhanced bus stop is assumed to support transfers from the public buses to a Fort Belvoir internal shuttle bus.

Metrorail station and Fort Belvoir complementing the WMATA REX limited stop service. This proposal offers an option to restructure service to improve reliability, expand service coverage, provide the residents of the growing Lorton community with enhanced transit service with enhanced connections to the Metrorail, connection to Mount Vernon government services and medical facilities and improve regional access to Fort Belvoir.

Route 307 is the lowest performing route by far among the South County Bus Services. The route serves an area of Laurel Hill and Lorton that is expected to see explosive growth over the next decade. However, the route is a short route and is the only one in the area that does not connect to a Metrorail station.

As previously presented in section 7.7.1, it is recommended that route 171 be split to create two overlapping routes. New Route 171 would be formed by terminating the eastern segment of Route 171 at the upgraded Lorton VRE Station transit center (see Figure 7.27).

In addition, proposed route 371 would be created by extending the western segment of the 171 from Franconia-Springfield Metro Station along Backlick and Fullerton Roads to Lorton Station Boulevard to Richmond Highway. The route would serve a section of Richmond Highway currently not served (as shown in Figure 7.24 in the Richmond Highway section) and continue along Richmond Highway with a stop at Ft. Belvoir, eventually terminating at the Mount Vernon Hospital off of Sherwood Hall Lane.

Under this proposal, Route 307 would be through-routed over a portion of Route 305 creating the new 309 Laurel Hill/Lorton/Newington Forest service running between the Franconia-Springfield Metrorail Station and the Lorton VRE station via the Sydenstricker Park and Ride and the Fairfax County/Franconia-Springfield Parkway. Linking the two services in the near future provides residents of the high growth Lorton and Laurel Hill areas with better service and maintains service to the Newington Forest area with more attractive service opportunities. This change provides area residents with a greater choice of destinations reachable within a one or two-seat ride as well as a direct connection to the Metrorail service.

As reported previously, the restructuring of the Lorton area service would accomplish the following:

- Provide Lorton, Laurel Hill, and Newington Forest area residents with connecting service at the Lorton VRE Station to the Fort Belvoir area and beyond along new Routes 171 and 371.
- Provide new service along the section of Richmond Highway between the Fairfax County Parkway and Lorton Station Blvd including service to the Island Cove area (Route 371).
- Provide connecting service from points in Lorton and Laurel Hill to the Mount Vernon Government Center and the Mount Vernon Hospital via a convenient transfer at the proposed upgraded Lorton VRE Station transit center.

As described, merging the route 307 and 305 has no negative impact as passengers are now provided with a much more comprehensive service. The fact that the overall service will be improved despite eliminating two short routes is important to keep in mind as the changes are implemented and advertised, especially given the transit dependence of the current Route 307 riders.

The following table presents a summary of the service level recommended to be implemented over the TDP ten year horizon for the new 309 and 371 services.

		Route	
		309	**371**
	Operator	Fairfax Connector	Fairfax Connector
Span	**Weekday**	Peak only	4:00 AM – 12:00 AM
	Saturday		5:30 AM – 12:00 AM
	Sunday		6:00 AM – 12:00 AM
Headway (minutes)	**Weekday Peak**	30	20
	Weekday Midday		30
	Weekday Evening		30
	Saturday		30
	Sunday		60

Improve Connector 304 Saratoga Line

The 304 serves the section of Rolling Road along the outer perimeter of the EPG site. BRAC plans will house more than 8,500 personnel moving into the new NGA campus by the end of September 2011. This provides an opportunity to expand services on this route. The Regional Bus Study had suggested a minor extension for the peak period spans of service, and the TDP concurs with this recommendation.

In conjunction with the move-in of personnel to the new NGA campus, a new stop should be established at the EPG secondary gate on Backlick Road at Barta Road. With the potential for transit demand in the area to grow as NGA employees relocate to housing in the abutting communities, the service schedule should be expanded, which will also benefit the local communities along the route.

The following table presents a summary of the service level recommended to be implemented over the TDP ten year horizon for the 304 service.

		304
	Operator	Fairfax Connector
Span	**Weekday**	Peak only
	Saturday	
	Sunday	
Headway (minutes)	**Weekday Peak**	30
	Weekday Midday	
	Weekday Evening	
	Saturday	
	Sunday	

Restructure Connector 331/332 I-95 Circulators into New Fairfax Connector Routes 333 and 334

Realignment of the 331/332 circulators can add important destinations to the route including the expanded Fort Belvoir facility and the new military installation being constructed for the NGA at the Engineer Proving Ground. These sites are expected to see an increase of more than 12,500 military and civilian personnel. Saturday service also becomes viable on this route.

With the completion of the Fairfax County Parkway (VA-7100) extension between I-95 and the Franconia-Springfield Parkway, the existing at-grade intersection between VA-7100 and Fullerton Road will be replaced by an overpass carrying VA-7100 over Fullerton. These roadway changes would require a reroute for the 331/332 that would negatively affect the run time for the route. As a result, it is recommended that the Route 331/332 be split into two new routes as follows:

- Proposed Route 333 Rolling Road/NGA would serve west of I-95 operating from Franconia-Springfield Metro station via Franconia-Springfield Parkway, Backlick Road, Barta Road, the new National Geospatial Intelligence Agency (NGA) east campus, Rolling Road, Fullerton Road and Boston Boulevard to the Fullerton Industrial Park and the Virginia I-95 Industrial Park. The return route would follow Fullerton road, Backlick Road, Franconia-Springfield Parkway to the Metrorail station. The morning service would operate in the counter-clockwise direction, with the afternoon service operating clockwise.
- Proposed Route 334 Loisdale Road/Ft. Belvoir would serve the area east of I-95 between the Franconia-Springfield Metro station and Fort Belvoir Pence Gate. The route would leave the station on Frontier Drive and follow Spring Mall Road, Loisdale Road, Newington Road, Cinderbed Road, Fairfax County Parkway, John J. Kingman Road, and Richmond Highway to Pence Gate.

Saturday service should be established and should run hourly from approximately 6:30 a.m. to 6:30 p.m.This proposal provides a local transit option to supplement service to both BRAC sites with service to Fort Belvoir and the NGA installation being constructed at the Engineer Proving Grounds (EPG).

The following table presents a summary of the service level recommended to be implemented over the TDP ten year horizon for the new 333/334 service.

		Route	
		333	**334**
	Operator	Fairfax Connector	Fairfax Connector
Span	**Weekday**	6:00 AM – 8:00 PM	6:00 AM – 8:00 PM
	Saturday	6:30 AM – 6:30 PM	6:30 AM – 6:30 PM
	Sunday		
Headway (minutes)	**Weekday Peak**	30	30
	Weekday Midday	60	60
	Weekday Evening		
	Saturday	60	60
	Sunday		

Eliminate Route 380 Franconia-Springfield Metro – Pentagon Metro and Create New Connector Route 395

Route 380 duplicates the Metrorail Blue Line service between these two stations, serving approximately 280 passengers each way. On average each bus trip serves only about 12 passengers, although higher than this average for peak direction trips. This route is recommended for termination. As part of its service proposals responding to budget reduction in their FY2010 budget, FCDOT had recommended

elimination of this route. As a compromise, the route has been maintained but that the express fare for this route and several others that serve destinations outside of Fairfax County has been more than doubled to $7.00.

FCDOT will likely find that Route 380 riders can easily be serviced by the more frequent Metrorail service between the two terminals. Especially in light of the steep fare increase, riders would greatly benefit from a reduction in fares from the new $7.00 express bus fare to a $2.35 Metrorail fare. Total travel time including station access and egress time may increase slightly but is offset by the greater frequency provided by the rail service. If riders respond to the recent fare increase as expected, Route 380 ridership levels will decline, further reducing the productivity of this service.

If the productivity of the 380 continues to decline, the resources assigned to the Route 380 should be re-allocated to establish new express route (called Route 395) serving several existing park and ride lots located within the communities west of I-95. The $7.00 fare would be charged to passengers choosing to use the new Route 395.

The Route 395 would alternate trips originating at the Syndensticker and the Backlick Road Park and Ride Lots. The trips from the Syndenstricker Lot would also pick-up at the Gambrill Lot before entering the Fairfax County Parkway which merges into the Franconia Springfield Parkway before entering I-95 for the express portion of the trip to the Pentagon Metrorail station. The Backlick Road lot trips would follow Backlick to Franconia Road to access the ramps to I-95/I-395.

Potential passengers would be provided convenient and quick service from the free neighborhood park and ride lots, in place of current options requiring a longer drive to the $4.50 fee Franconia-Springfield Metrorail garage where they can transfer to Connector Route 380 or the Metrorail paying these additional transit fares.

The following table presents a summary of the service level recommended to be implemented over the TDP ten year horizon for the new Route 395 service.

		Route	
		395A Sydenstricker	**395B Backlick**
	Operator	Fairfax Connector	Fairfax Connector
Span	**Weekday**	Peak Only	Peak Only
	Saturday		
	Sunday		
Headway (minutes)	**Weekday Peak**	15	15
	Weekday Midday		
	Weekday Evening		
	Saturday		
	Sunday		

Proposed BRAC Related Shuttle services

The I-95/I-395 Transit/TDM Study suggests that two new shuttle routes with small buses should be established to service the increased demand for transit travel to the military installations being constructed at the EPG for the NGA and the expansion of the Fort Belvoir. These routes described below should be timed to meet VRE trains at the Lorton station, which currently operate during peak periods only with the exception of one midday trip. These services could be augmented in the future when the I-95 HOT Lane project is completed, which has proposed to construct an in-line bus station on I-95 with a pedestrian connection to the Lorton VRE station.

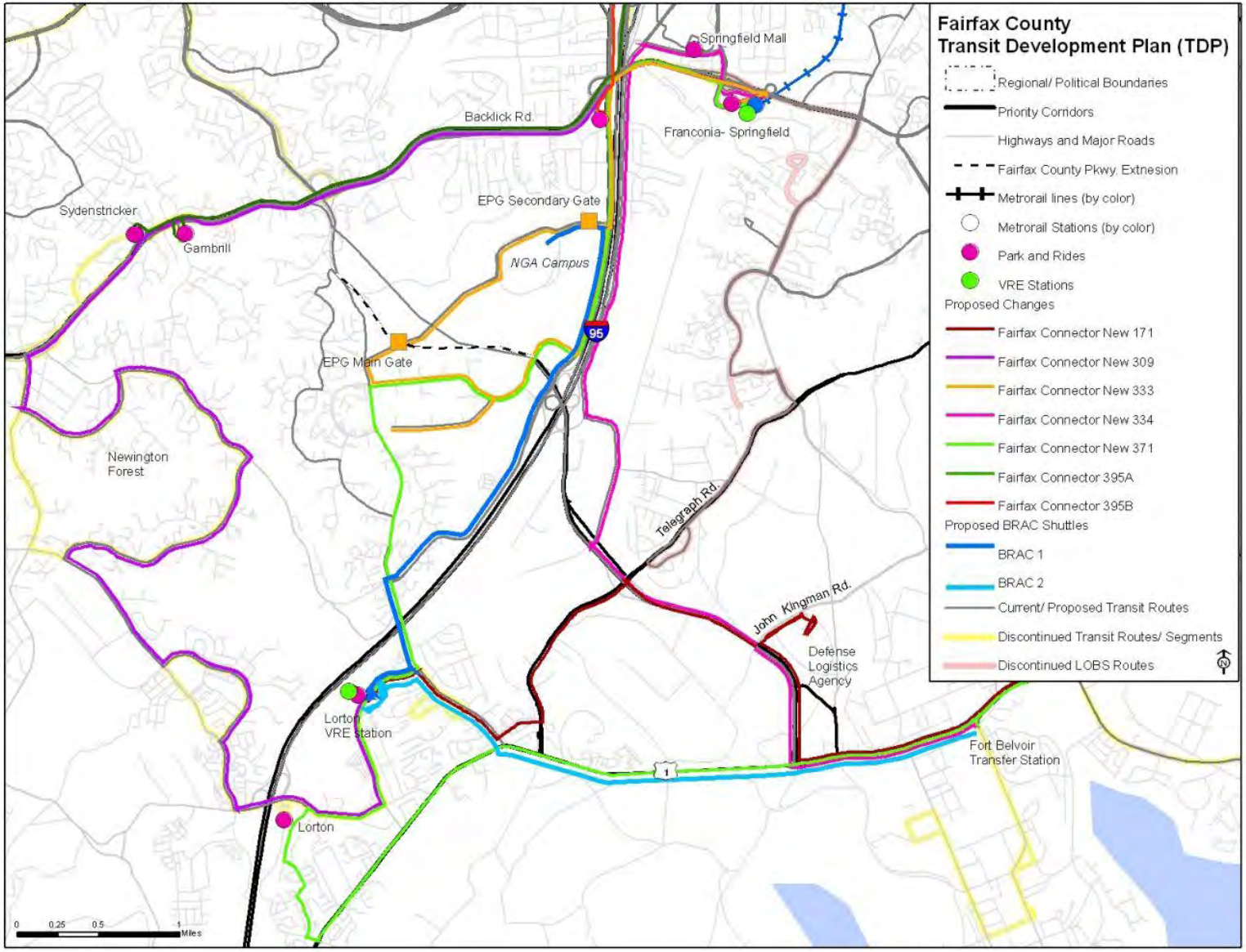
- Shuttle 1 – Lorton VRE station to the National Geospatial-Intelligence Agency New Campus East (NGA NCE) under construction at the EPG. The NGA campus will support a workforce expected to exceed 8,500 military and civilian personnel.
- Shuttle 2 – Lorton VRE station to Fort Belvoir with stops at the Defense Logistics Agency near Kingman Gate and Pence Gate at Fort Belvoir serving the South Post area. Fort Belvoir is expecting some 6,500 new personnel largely to support the expansion of the DeWitt Military Community Hospital.[67]

The following table presents a summary of the service level recommended to be implemented over the TDP ten year horizon for the new BRAC Shuttle services.

		Route	
		BRAC Shuttle 1	**BRAC Shuttle 2**
	Operator	Fairfax Connector	Fairfax Connector
Span	**Weekday**	Peak Only	Peak Only
	Saturday		
	Sunday		
Headway (minutes)	**Weekday Peak**	15	15
	Weekday Midday		
	Weekday Evening		
	Saturday		
	Sunday		

[67] The BRAC plans for Fort Belvoir will require that an estimated 6,500 new personnel be relocated to Fort Belvoir and that approximately 2,400 current personnel will be moved from Fort Belvoir to other DoD facilties, for a net gain of personnel of approximately 4,100.

Figure 7.27 Springfield/Lorton/Ft. Belvoir Service Recommendations



Create Tysons HOT Lane Express Services

The construction of the new HOT Lanes along the Capital Beltway (I-495) between Springfield and the Dulles Toll Road and on I-95 and I-395 provides an opportunity to establish cross county express BRT services connecting South County and North County communities. The 14-mile long I-495 HOT Lanes are currently under construction with an expected completion in 2013 and will provide two lanes in each direction. The construction of the I-95/I-395 HOT lanes is due to begin in 2010 and will provide two reversible lanes to serve peak HOV traffic.

Three routes as shown in Figure 7.28 are recommended as follows:

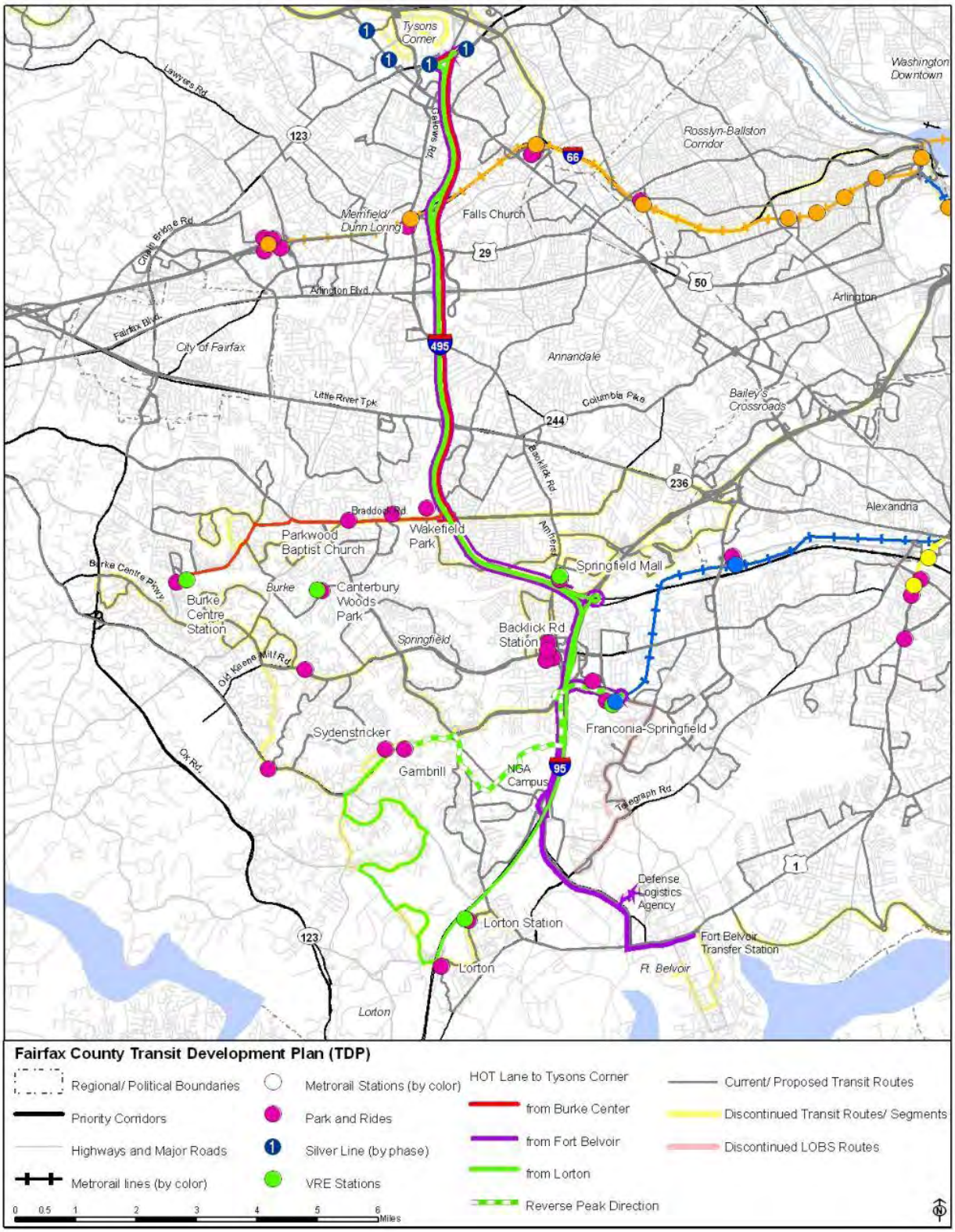
- Lorton – Tysons: This route will provide peak period express service connecting Lorton with Tysons Corner via the Franconia-Springfield Metro Station. Lorton is a fast growing area that should generate significant ridership for commuting to growing employment opportunities in Tysons. This route would begin at the Sydenstricker Park and Ride and follow the alignment of the proposed new route 309 until the I-95 entrance ramp. Reverse peak trips which otherwise would deadhead on this route would provide revenue service to the Engineering Proving Ground (EPG), providing access to the new NGA campus for people who currently reside in northern Fairfax County and the Tysons Corner area.[68] Upon serving the NGA, this route would continue to the Sydenstricker Park & Ride via Rolling Road and the Fairfax County Parkway. The route would also complement Fairfax Connector 401, which would continue to provide local service.
- Tysons – Ft. Belvoir: This route would provide an opportunity for easy access to Springfield and Ft. Belvoir by providing a direct and fast transit option for North County residents that work at Fort Belvoir. Secondarily, it would provide additional capacity for Springfield area residents traveling to the Tysons area supplementing the Lorton route.
- Burke Center – Tysons: This route will provide express bus service from the Braddock District to Tysons connecting the Braddock residential communities with the Tyson area employment opportunities. (further discussion can be found in section 7.7.4)

The following table presents a summary of the service level recommended to be implemented over the TDP ten year horizon for the new express services using the HOT Lanes.

		Route	
		Tysons-Ft Belvoir	**Lorton-Tysons**
	Operator	Fairfax Connector	Fairfax Connector
Span	**Weekday**	Peak Only	Peak Only
	Saturday		
	Sunday		
Headway (minutes)	**Weekday Peak**	15	15
	Weekday Midday		
	Weekday Evening		
	Saturday		
	Sunday		

[68] An NGA employee survey report that an estimated 28% of the NGA employees who will be relocated to the EPG site currently reside in Northern Fairfax County and Loudon County.

Figure 7.28 HOT Lanes Recommendations (Lorton and Burke Center to Tysons/Tysons to Ft. Belvoir)



7.7.4 Braddock Road Corridor (17ABFM, 17GHKL, 306)

Background

The Braddock Road corridor is primarily served by two WMATA Metrobus lines, the 17ABFM Kings Park Line and the 17GHKL Kings Park Express Line that operate during the morning and afternoon peak commute hours, as shown in Table 7.42. The Fairfax Connector Route 306 supplements the Metrobus service by providing six midday round trips on the same routing as the 17A. In total, these services transport an estimated 1,500 passenger trips each weekday as reported in Table 7.42. WMATA charge riders the express bus fare of $3.00 for the Metrobus services while the fare on the Connector's 306 is currently the local fare of $1.35 (or $1.25 with a SmarTrip Card.)

Table 7.42 Braddock Road Corridor

Route	Name	Magisterial District	Metrorail Connection	Weekday Boardings (Typ.)
Fairfax Connector				
306	George Mason University Line	Braddock, Mason	Pentagon Station – Blue/Yellow Lines	201
Metrobus				
17ABFM	Kings Park Line	Braddock	Pentagon Station – Blue/Yellow Lines	450
17GHKL	Kings Park Express Line	Braddock	Pentagon Station – Blue/Yellow Lines	1,074
	WMATA Total			**1,524**

These routes are relatively long, mostly greater than 20 miles one-way, with lengthy express segments. As a result the performance of these routes is low with boardings per revenue-mile in the order of 0.75, about 38 percent of the South County average for Connector services. As presented in Table 7.43, the average boardings for each one-way trip are equal to about 15 passengers, suggesting that these routes, especially during the peak hours may be over serviced. Given the volumes on the Connector route 306, a small sized 30 foot low floor transit bus should be assigned to service this route, if maintained as a Connector service.

Table 7.43 Braddock Road Corridor Bus Service Productivity

Route	Name	Boardings/ Rev-Mile	Boardings/ Platform-Hr	Boardings/ Trip
Fairfax Connector				
306	George Mason University Line	0.75	15	17
Metrobus				
17ABFM	Kings Park Line	0.52	11	10
17GHKL	Kings Park Express Line	0.88	20	19
	Corridor Average	**0.73**	**16**	**15**

Riders in the Braddock Road Corridor tend to utilize the bus service for work trips more than for the County as a whole. However, they tend to have slightly lower household incomes than all bus riders in

the County. While the number of riders who come from zero income households is low, many of the riders, particularly on the Connector 306, did not have a car available for the trip at hand.

Table 7.44 Braddock Road Corridor Bus Service: At-Risk Rider Demographics

Route	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
Fairfax Connector						
306[69]	73%	55%	83%	22%	63%	59%
Metrobus						
17ABFM[70]	70/100/100%	15/100/0%	31/0/60%	27/50/0%	69/100/33%	46/100/73%
17GHKL[71]	100/100/103%	13/12/11%	13/32/26%	0/8/10%	40/14/23%	56/39/38%
Braddock Rd. Corridor[72]	97%	18%	43%	13%	33%	46%

Recommendations

Restructure Metrobus 17 Line

The 17 ABFM and 17GHKL operate with low productivity of 10 and 19 boardings per trip. These lines will be restructured to lengthen headways and maintain services to all neighborhoods while consolidating the route variations

The routes would be restructured as described in Tables 7.46 and 7.47 and shown in Figures 7.29 and 7.30.

[69] Data may not be statistically significant as only 37 surveys were received on the 306.
[70] Data may not be statistically significant, as only 7, 2 and 7 surveys were received for the 17A, B and F, respectively. No surveys were received on the 17M.
[71] Data may not be statistically significant, as only 10, 35 and 30 surveys were received for the 17G, H and K, respectively.
[72] 306, 17A, 17H, 17K, 17L, 17F only, not all routes in this corridor.

Table 7.45 17ABFM Kings Park Line Recommendations

Route	Name	Recommendations
17A	George Mason University to Pentagon Metro	**No change**
17B	Twinbrook Road to Pentagon Metro	**No change**
17F	Twinbrook Road to Pentagon Metro (reverse peak only)	**No change**
17M	Leesville Blvd to Pentagon Metro	**Replace with new 'C' & 'D'**
17C	Rolling Rd/Parliament Dr to Pentagon Metro	**New route:** Service extended to serve Parliament Dr, Southampton Dr, Clydesdale Rd, Danbury Forest Dr, Braddock Road, Queensberry Ave
17D	Rolling Rd/Burke Lake Rd to Pentagon Metro	**New route:** Service extended to serve Burke Lake Rd, Braddock Rd

Table 7.46 17GHKL Kings Park Express Line Recommendations

Route	Name	Recommendations
17G	GMU to Pentagon Metro via I-495/I-395	**Revise route:** New segment services, Twinbrook Rd, Guinea Rd, Burke Rd, Lake Braddock Dr, Burke Lake Rd, Rolling Rd
17H	Twinbrook Rd to Pentagon Metro	**Discontinue:** Segments merged into new 17C and 17D, and revised 17G and 17K
17K	Twinbrook Rd to Pentagon Metro via I-495/I-395	**Revise route:** New segment services Twinbrook rd, Guinea Rd, Pommeroy Dr, Commonwealth Blvd, Gainsborough Dr
17L	Twinbrook Rd to Pentagon Metro via I-495/I-395	**No change:** Via Burke Center Park & Ride

The express service route variations that currently operate peak direction service only typically operate with headways that range between 20 and 25 minutes. The proposed restructuring would increase headways for the 17C and 17D to 30 minutes each and the 17G, 17K and 17L to 25 minute headways, with trips scheduled during the same span of hours currently provided.

This proposal to restructure the Kings Park routings and schedules is estimated to reduce annual operating costs. Peak bus requirements are estimated to drop by one.

Figure 7.29 Braddock Road Corridor Recommendations: Changes to Kings Park Express Line

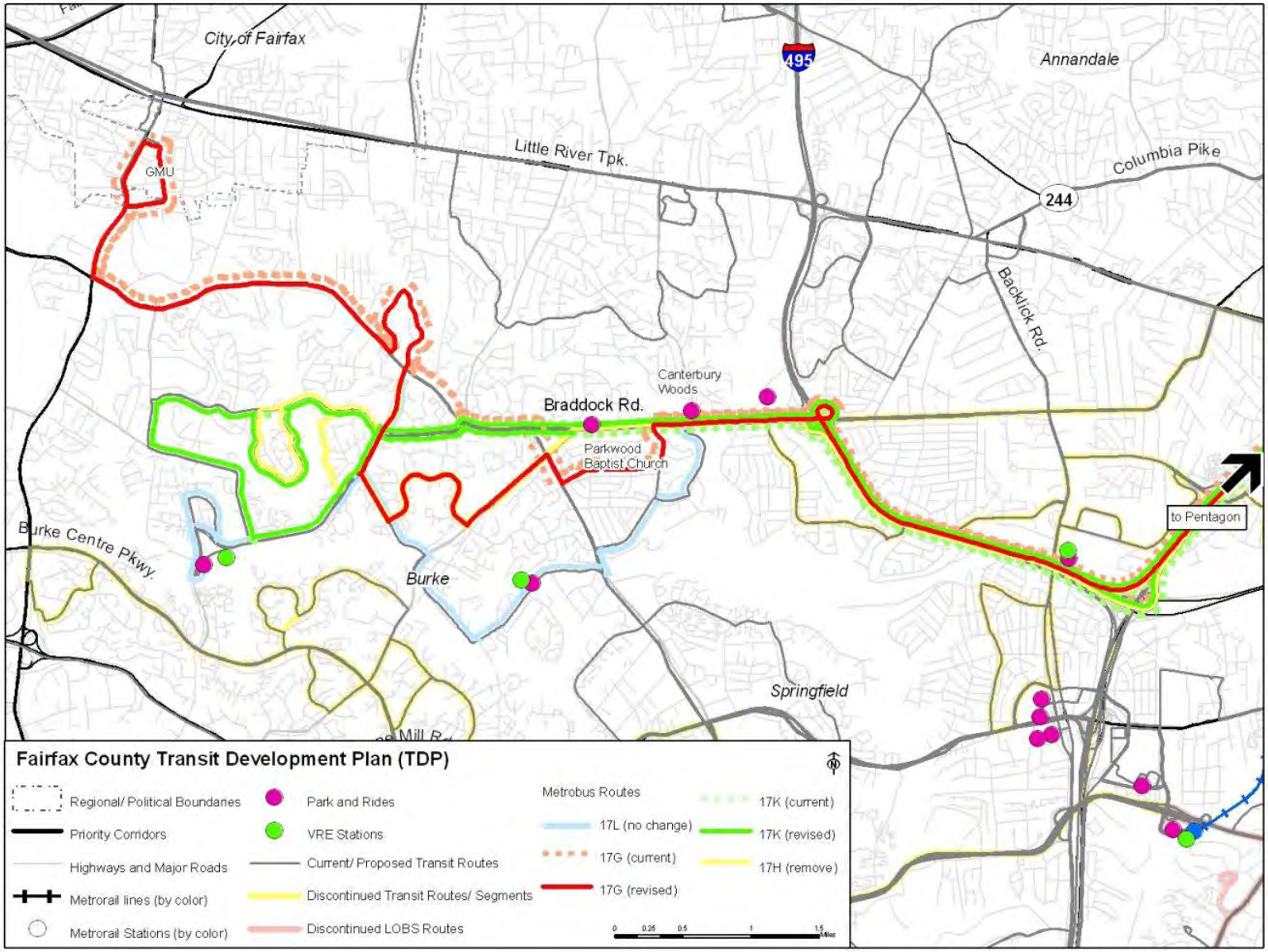
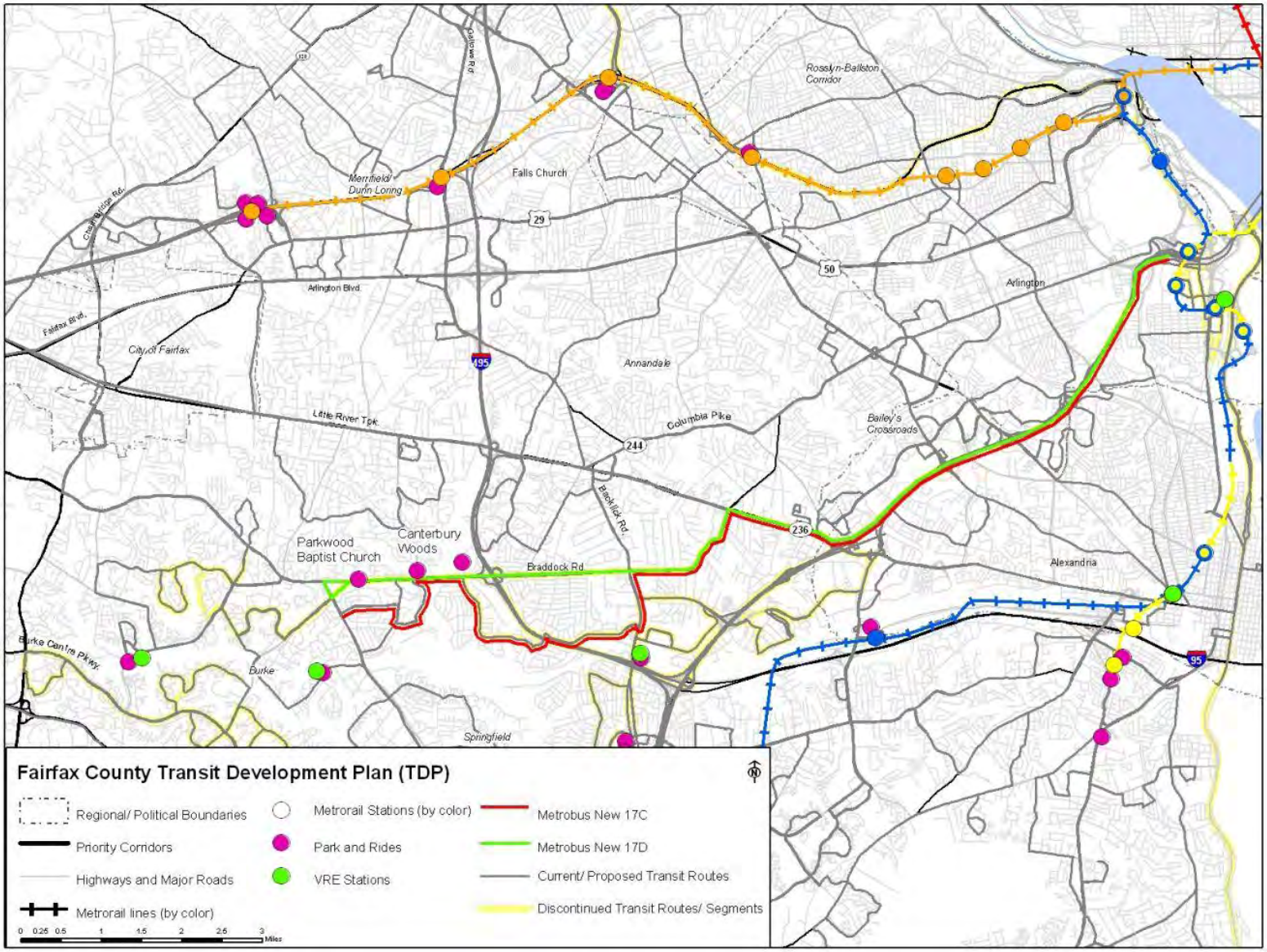


Figure 7.30 Braddock Road Corridor Recommendations: Changes to Kings Park Line



Replace Connector Route 306 with Metrobus 17A Midday Service

The Connector Route 306 operates six midday round trips as a supplement to the Metrobus 17's that currently operate peak service only. The 306 service follows the same routing as the 17A. Therefore, it is recommended that WMATA assume the 306 by providing all day service on the Metrobus 17A in order to acquire efficiencies of all day operation by reducing non-revenue operations as required from two separate operations at different times of day.

The following table presents a summary of the service levels recommended to be implemented over the TDP ten year horizon for the Metrobus 17 Line.

		Route	
		17ABCDF	**17GKL**
	Operator	Metrobus	Metrobus
Span	**Weekday**	6:00 AM – 11:00 PM	Peak-only
	Saturday		
	Sunday		
Headway (minutes)	**Weekday Peak**	30	10
	Weekday Midday	60	
	Weekday Evening	60	
	Saturday		
	Sunday		

Create Burke Center to Tysons Express

This route would provide peak period express service connecting Burke Center with Tysons Corner. [73] Burke Center is a residential area with many employees forecast to work in the Tysons area. There is no current transit connection between these parts of the county. This route would also serve a proposed park and ride lot to be constructed on Braddock Road between Rolling Road and Burke Lake Road.

This route would provide weekday service from Burke Centre Park-and-Ride to the future Tysons Central station via Guinea Road, Braddock Road and I-495 HOT Lanes. Service would operate from 6:00 a.m. to 9:00 a.m. and 4:00 p.m. to 7:30 pm. The route would run every 30 minutes during peak periods, or more frequently if demand warrants.

A new route is recommended to provide a future link to service residents of the Burke Center area to the growing employment center in Tysons Corner. A map of this route can be seen in Figure 7.27, in the Springfield/Lorton/Ft. Belvoir section.

[73] The I-495 HOT Lanes final design does not include access ramps from Little River Turnpike. Because of this, concerns surfaced during the review of the TDP preliminary recommendations that commuter traffic would be diverted down Wakefield Chapel Road to Braddock Road for access to the HOT Lanes. At this time there is not enough information to determine if and to what extent there might be an impact on traffic along Wakefield Chapel and Braddock Roads. However, upon completion of the HOT Lanes in 2013, FCDOT should observe traffic patterns in this area to determine if there are any impacts on Wakefield Chapel and Braddock Road operations. At that time, additional HOT lane bus route options originating along Little River Turnpike (e.g., Northern Virginia Community College transit center) should be considered.

The following table presents a summary of the service levels recommended to be implemented over the TDP ten year horizon for the new Burke Center to Tysons Express HOT Lane route.

		Route
		Burke Center -Tysons
	Operator	Fairfax Connector
Span	**Weekday**	Peak Only
	Saturday	
	Sunday	
Headway (minutes)	**Weekday Peak**	15
	Weekday Midday	
	Weekday Evening	
	Saturday	
	Sunday	

7.7.5 Columbia Pike/Skyline/Little River Turnpike (16ABDEFJ; 16GHKW; 16L; 7ABCDEFPWX; 29CEGHX; 29KN)

Background

This corridor has been designated a "priority corridor" by both Fairfax County and WMATA. Regional transportation plans have chosen this corridor to be upgraded to BRT operations, with certain segments likely to be further upgraded to Light Rail Transit (LRT). LRT, in the form of the Columbia Pike Streetcar, is currently under study by Arlington County, in conjunction with WMATA and Fairfax County. When the Streetcar plans become more solidified, Fairfax County will revisit the bus service in this corridor to ensure that it complements the Columbia Pike Streetcar operations. WMATA operates six Metrobus lines along this corridor, as listed in Table 7.47, serving nearly 23,000 passengers trips on a typical weekday. All six lines serve the Fairfax County Mason District with three of the lines also serving parts of the Braddock District. One route, the 29C-X, covers a small portion of the Lee District as well.

Table 7.47 Columbia Pike/Skyline/Little River Turnpike Corridor Bus Services

Route	Name	Magisterial District	Metrorail Connection	Weekday Boardings (Typ.)
Metrobus				
7ABCDEFPWX	Lincolnia-North Fairlington Line	Mason	Pentagon - Blue/Yellow	4,860
16ABDEFJ	Columbia Pike Line	Mason, Braddock	Pentagon - Blue/Yellow	8,611
16GHKW	Columbia Heights West-Pentagon City Line	Mason	Pentagon City - Blue/Yellow	5,057
16L	Annandale-Skyline City- Pentagon Line	Mason	Pentagon - Blue/Yellow	253
29CEGHX	Annandale Line	Mason,	Pentagon - Blue/Yellow	1,137

		Braddock, Lee		
29KN	Alexandria-Fairfax Line	Mason, Braddock	King Street - Blue/Yellow	3,043
	Metrobus totals			22,959

As a group, these routes perform better than the average among the WMATA route operations within Northern Virginia with the outer ends of these services originating in Fairfax County. A review of the ridership of Routes 16ABDEFJ shows that these are some of the better performing WMATA routes in the area. These routes average 42 passengers per trip and there are 30 or more passengers on the bus at the peak load point for many of the trips. These routes also tend to have straightforward routing with few deviations or loops. The only loop in the Fairfax County portion of the service is along Ravensworth Road and Jayhawk Street. The 29CEGHX are all rush hour, peak direction service. These routes exhibit mediocre performance, averaging 18 passengers per inbound trip and 11 passengers per outbound trip, resulting in about 0.65 passenger boardings per revenue-mile of operation. WMATA reports that the since the route was designated as an express fare a decade ago, ridership on the 29CEGHX has declined significantly. Many riders were diverted to the 16AD where only a local fare is required. The service productivity for these six lines are measured based on recent observations as presented in Table 7.48.

Table 7.48 Columbia Pike/Skyline/Little River Turnpike Corridor Bus Service Productivity

Route	Name	Boardings/ Rev-Mile	Boardings/ Platform-Hr	Boardings/ Trip
Metrobus				
7ABCDEFPWX	Lincolnia-North Fairlington Line	2.13	33	23
16ABDEFJ	Columbia Pike Line	4.05	48	44
16GHKW	Columbia Heights West-Pentagon City Line	4.30	44	24
16L	Annandale-Skyline City-Pentagon Line	1.94	38	42
29CEGHX	Annandale Line	0.65	14	15
29KN	Alexandria-Fairfax Line	3.28	43	69
	Corridor Average	**2.74**	**38**	**31**

As a large part of this corridor is located in Arlington County and the City of Alexandria, many of the riders are not Fairfax County residents or employees. However it is nevertheless important to look at the at-risk populations on these routes, shown in Table 7.49. On average, the riders in this corridor reflect the average of riders on all Fairfax County bus routes in terms of household income, auto availability and minority status.

Table 7.49 Columbia Pike/Skyline/Little River Turnpike Corridor Bus Service: At-Risk Rider Demographics

Route	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
Metrobus						
7ABCDEFPWX	92%	28%	73%	35%	52%	61%

Route	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
16ABDEFJ	77%	54%	78%	57%	69%	59%
16GHKW [74]	79%	42%	67%	45%	64%	51%
16L [75]	100%	0%	67%	33%	3%	33%
29CEGHX	76%	48%	71%	35%	63%	63%
29KN	64%	60%	85%	50%	74%	71%
VA-236 Corridor [76]	76%	48%	71%	35%	63%	63%

Recommendations

Simplify Metrobus Routes 7A and 7F

The northbound routing of the 7A and 7F is circuitous and ridership is very low along Quantrell and Lincolnia on northbound trips. In order to address this, the TDP recommends removing Routes 7A and 7F from Lincolnia Road and Quantrell Avenue on northbound trips when serving Landmark Center. Removing northbound trips from Lincolnia and Quantrell would improve the reliability of 7A and 7F. Northbound trips would remain on Beauregard Street and would not serve Lincolnia and Quantrell.

This proposal to eliminate service to Lincolnia and Quantrell on northbound trips would have only a slight impact on ridership (approximately 20 riders per day) and would improve reliability of the service.

The following table presents a summary of the service levels recommended to be implemented over the TDP ten year horizon for the revised 7A and 7F routes.

		Route
		7ABCDEFHPWX [77]
	Operator	Metrobus
Span	Weekday	5:00 AM – 1:00 AM
	Saturday	6:30 AM – 4:00 AM
	Sunday	7:30 AM –12:30 AM
Headway (minutes)	Weekday Peak	3
	Weekday Midday	30
	Weekday Evening	30
	Saturday	35
	Sunday	60

[74] Data is only available for 16G.
[75] Data may not be statistically significant, as only 3 surveys were received for the 16L.
[76] 29CEGHKN only, not all routes in this corridor.

[77] Monday through Thursday shown in table. Friday service operates until 4:00 AM

Replace Metrobus 16D from Ravensworth Road / Jayhawk Street Loop with New NVCC Extension

Remove Route 16D from the Ravensworth / Jayhawk loop and extend the route west on Little River Turnpike to serve the proposed park-and-ride at the Annandale Campus of Northern Virginia Community College (NVCC). The loop only generates about 10% of the ridership and is also served by the 29H. The segment generates 40% of the 29H's ridership. If approximately half of the 16D passengers use the 29H, it would experience a 20% growth in ridership.

This proposal to eliminate service along the Ravensworth / Jayhawk loop would have a minor impact on ridership (approximately 80 riders per day). These passengers could use the 29H which serves the Pentagon Transit Center, or passengers can transfer to other Columbia Pike service. The savings from eliminating this service could be used to extend the 16D to NVCC, a connection that has been requested by the public.

Create new Annandale Circulator

This recommendation establishes a new circulator route for the Annandale community to replace the removal of the Metrobus 16D from Ravensworth Road. This circulator would operate from the proposed transit center to be located near the intersection of Columbia Pike, Little River Turnpike, Annandale Road and Ravensworth Road where it would make a connection to the Connector Route 401 and connections with Metrobus services operating on Columbia Pike (16ABDE, 16L) and on Little River Turnpike (3A, 29KN, 29C). The circulator will provide service to the, K-Mart Plaza, Little River Shopping Center and Annandale High School. The circulator should operate with small buses in one direction over the following routing: Annandale Transit Center Annandale Road, Markham Street, Little River Turnpike, Heritage Drive, Ravensworth Road, Jayhawk St, Backlick Road, John Marr Drive, Columbia Pike, Little River Turnpike to return to the Transit Center.

The following table presents a summary of the service levels recommended to be implemented over the TDP ten year horizon for the new Annandale Circulator.

		Route
		Annandale Circulator
	Operator	Metrobus
Span	**Weekday**	6:30 AM – 6:30 PM
	Saturday	
	Sunday	
Headway (minutes)	**Weekday Peak**	30
	Weekday Midday	30
	Weekday Evening	
	Saturday	
	Sunday	

Increase Frequency on Metrobus 16A and16D

Routes 16A and 16D have the highest ridership of the routes in this corridor, with both routes averaging 57 passengers per trip. A review of the eastbound ridership shows that approximately 1,300 (65 percent) of the 2,000 daily riders board at stops within Fairfax County, about even with the 60 percent of the route miles in Fairfax County. The remaining riders board in the neighboring communities of Alexandria and Arlington. Increasing frequency would also be one of the first steps in turning the Columbia Pike/ Little River Turnpike corridor into a BRT corridor. The Columbia Pike / Little River Turnpike corridor from GMU through Annandale to Arlington was identified as a RapidBus corridor in the Regional Bus Study and is also a WMATA priority corridor. These routes would serve proposed park-and-rides at NVCC, Annandale Road at Little River Turnpike, and Mason Government Center.

The recommendation is to increase frequency on Routes 16A and16D from every 60 minutes to every 40 minutes. The combined headway would be every 20 minutes. Implementing this recommendation would require additional vehicle revenue hours and additional peak vehicles with the improved service level likely to attract new riders. The detailed level of service information is provided below, after the 16F recommendation.

Extend 16F as future BRT/Enhanced Bus Line

In the past few years, the Pike Ride service in Arlington along Columbia Pike has increased bus service and introduced a limited-stop route, the 16F. In the Regional Bus Study and the WMATA Priority Corridor Network plan, enhanced bus service and related capital improvements were recommended for Columbia Pike in Fairfax County and Little River Turnpike extending to George Mason University and beyond.

In this TDP recommendation, the current 16F would be extended as a limited-stop route into Fairfax County in phases. In the first phase, the route would not divert into the Culmore neighborhood, where the 16F currently terminates, but would rather continue west on Columbia Pike and Little River Turnpike to Northern Virginia Community College (NVCC). In the second phase, a further extension west to George Mason University and the County Judicial Center would be implemented. In the third phase, the route would extend to the transit center at Fair Oaks Mall. Finally, in a fourth phase, very likely beyond the timeframe of the TDP, the route would extend to Chantilly via US-50. A potential list of limited stops between Fair Oaks Mall and Culmore is presented below in the eastbound direction:

- Fair Oaks Mall
- Waples Mill Road
- Lee Highway
- County Judicial Center
- GMU
- Little River Turnpike at Roberts Road
- Burke Station Road
- Pickett Road
- NVCC
- Heritage Drive
- Medford Drive
- Backlick Road
- John Marr Drive at Columbia Pike
- Columbia Pike at Maplewood Drive
- Ashwood Place
- Powell Lane
- Barcroft View Terrace
- Moray Lane
- Jefferson Street
- Current stops in Arlington on 16F

The 16F currently runs in the peak direction only for about 90 minutes during peak periods, at headway of 10 to 20 minutes. As this route is upgraded to a future enhanced bus line, it would run in both directions at least for the full peak period at a 15-minute headway, and eventually for the full service day with 10-minute peak service and 20-minute off-peak service.

The following table presents a summary of the service levels recommended to be implemented over the TDP ten year horizon for the entire 16 Line.

		Route		
		16AD	**16F**	**16BEJ**[78]
	Operator	Metrobus	Metrobus	Metrobus
Span	**Weekday**	4:30 AM – 11:00 PM	6:30 AM – 6:30 PM	4:30 AM – 1:30 AM
	Saturday			5:30 AM – 4:00 AM
	Sunday			6:00 am – 1:00 AM
Headway (minutes)	**Weekday Peak**	20	10	12
	Weekday Midday	20	20	30
	Weekday Evening	40		20
	Saturday			15
	Sunday			30

		Route	
		16GHKW	**16L**
	Operator	Metrobus	Metrobus
Span	**Weekday**	5:00 am – 11:30 PM	Peak Only
	Saturday	5:15 AM – 11:15 PM	
	Sunday	5:45 AM – 10:15 PM	
Headway (minutes)	**Weekday Peak**	6	30
	Weekday Midday	12	
	Weekday Evening	12	
	Saturday	30	
	Sunday	30	

Metrobus Route 29K , 29CEGHX

The TDP does not make any recommendations for changes to these routes and suggest that they continue to operate as they currently do.

Extend Metrobus Route 29N to Vienna Metrorail and Add Sunday Service

This recommendation is to extend all trips on Metrobus 29N to the Vienna Metrorail Station from the route's current terminus at Fairfax Circle, via Old Pickett Road, US-29, and Fairlee Drive. This route extension would facilitate access to Little River Turnpike and Northern Virginia Community College from

[78] Monday through Thursday shown in table. Friday service operates until 4:00 AM

western Fairfax County. This proposal was recommended in the Regional Bus Study and addresses comments received from stakeholders and the public.

Service on the Metrobus 29 Lines is largely limited to weekdays. WMATA operates a limited Saturday service on the 29N and approximately every hour on the 29K. This recommendation would establish 29N service on Sundays on an hourly schedule similar to the Saturday schedule between the hours of approximately 7:00 AM and 7:00 PM.

The following table presents a summary of the service levels recommended to be implemented over the TDP ten year horizon for the entire 29 Line.

		Route	
		29CEGHX	**29KN**
	Operator	Metrobus	Metrobus
Span	**Weekday**	5:30 AM – 9:30 AM and 3:00 PM – 10:30 PM	5:45 AM – 11:30 PM
	Saturday		6:00 AM -10:30 PM
	Sunday		7:00 AM – 7:00 PM (29N only)
Headway (minutes)	**Weekday Peak**	5	30
	Weekday Midday		60
	Weekday Evening	60	60
	Saturday		60
	Sunday		60

Figure 7.31 Columbia Pike/Skyline/Little River Turnpike Corridor Route Recommendations (29 Line)

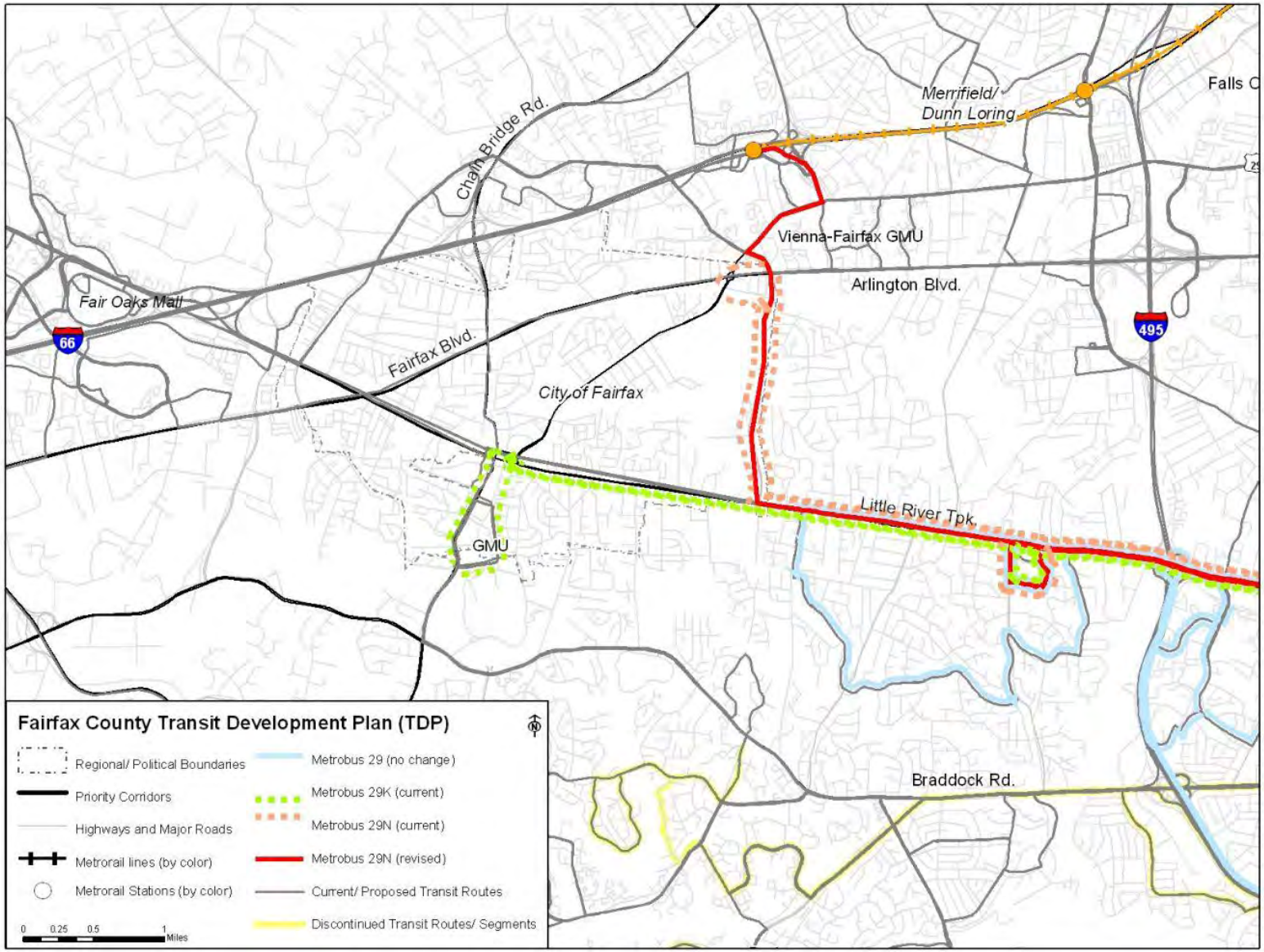
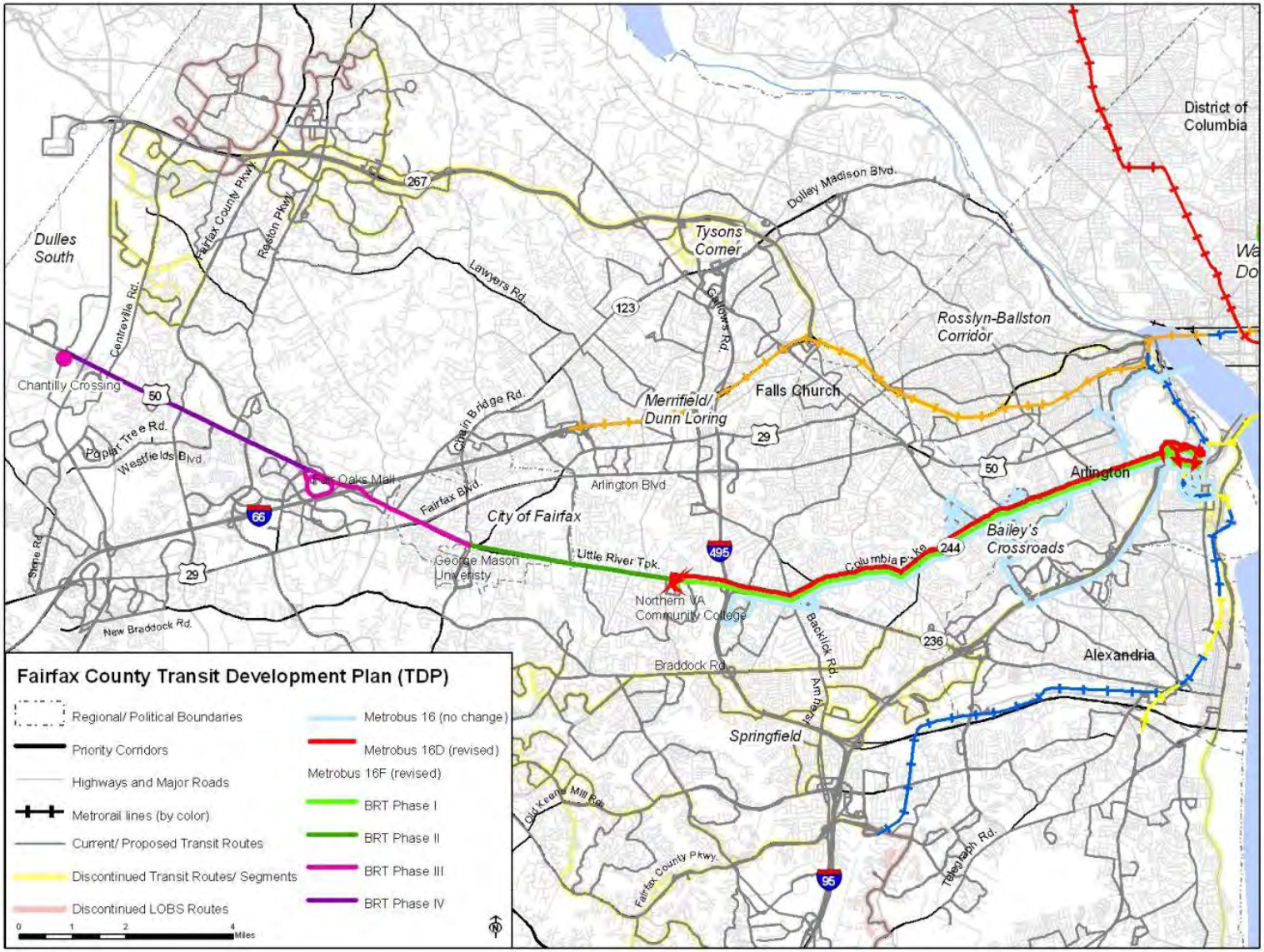


Figure 7.32 Columbia Pike/Skyline/Little River Turnpike Corridor Route Recommendations



7.7.6 Southern Burke/Western Springfield (18EF; 18GHJ; 18PRS; 305; 310 – western segment)

Background

This corridor is located west of the Franconia/Springfield Metro station with service from Downtown Springfield running along both the Franconia-Springfield/Fairfax County Parkways and Old Keene Mill Road, ending in Burke Centre. The Connector operates two local routes in this corridor while WMATA operates one mixed local and express service in the corridor and two express lines that connect this area to the Pentagon Metrorail station via I-395, as summarized in Table 7.50. The Metrobus lines serve more than 1,800 passengers per weekday, and more than 1,200 passengers board Connector services on a typical day within this corridor. Only the Connector route 310 operates during off-peak hours including weekday midday and early evenings, and Saturdays and Sundays. The 310 also serves the area east of the Franconia-Springfield Metro station, providing through service for corridor residents along Franconia Road passing through the Van Dorn Street service area (refer to Van Dorn Section) [79]

Table 7.50 Southern Burke/Western Springfield Bus Services

Route	Name	Magisterial District	Metrorail Connection	Weekday Boardings (Typ.)
Fairfax Connector				
305	Newington Forest Line	Mount Vernon, Lee	Franconia-Springfield – Blue Line	200
310	Rolling Valley Line	Springfield, Lee	Franconia-Springfield – Blue Line	2,010
	Connector totals			**2,210**
Metrobus				
18EF	Springfield Line	Mason, Lee	Pentagon - Blue/Yellow Line	259
18GHJ	Orange Hunt Line	Mason, Braddock, Springfield, Lee	Pentagon - Blue/Yellow Line	658
18PRS	Burke Centre Line	Mason, Braddock, Springfield, Mt. Vernon, Lee	Pentagon - Blue/Yellow Line Franconia/Springfield – Blue Line	928
	Metrobus totals			**1,845**

The 1,845 passengers estimated to use the three 18 line services are split among the service types as follows:

- Express – peak direction services 1,433 passengers
- Express – reverse peak direction 116 passengers
- Local services 296 passengers

Table 7.51 presents a breakdown of the individual routes that comprise the Metrobus 18EF, 18GHJ, and 18PRS Line services.

[79] The route 310 boardings are split approximately equally between the western and eastern segment relative to the Franconia-Springfield Metrorail station.

Table 7.51 WMATA Metrobus 18 Line – Summary of Individual Route Characteristics

Line	Route	Route Type	Direction of Travel	Fare[80]	Inbound Terminal	Outbound Terminal
18EF	18E	Express	Peak	$3.00	Pentagon Metro	Commercial Dr @ Industrial Rd
	18F	Express	Reverse Peak	$1.25	Pentagon Metro	Commercial Dr @ Industrial Rd
18GHJ	18G	Express	Peak	$3.00	Pentagon Metro	Rolling Valley Park-and-Ride
	18H	Express	Peak	$3.00	Pentagon Metro	Huntsman Boulevard
	18J	Express	Reverse Peak	$1.25	Pentagon Metro	Rolling Valley Park-and-Ride
18PRS	18P	Express	Peak	$3.00	Pentagon Metro	Burke Centre
	18R	Local	Peak	$1.25	Franconia-Springfield Metro	Burke Centre
	18S	Local	Both[81]	$1.25	Franconia-Springfield Metro	Burke Centre

The service productivity for the Metrobus lines in this corridor on the whole appears weak, averaging only 15 and 17 passengers per revenue-hour and per trip, respectively. Due to the lengthy express segment of these routes, the passenger per revenue-mile of operation is low, with an average of 0.68. However, upon a closer examination, the ridership reports show that the 18G and 18P express services are the better performing routes in this group, averaging over 32 passengers per trip while serving nearly 1,000 daily passengers. Many of the remaining routes average less than 15 passengers per trip as they largely serve local and reverse peak direction travel. Each of these routes wind through subdivisions with mixed results.

Route 310 provides all day service from Rolling Valley Park & Ride to Huntington Metro Station via Old Keene Mill Road and Franconia Road. Ridership on this route has been growing. Table 7.52 provides a summary of the service productivity in the Southern Burke/Western Springfield Corridor**.** As presented in the table, the two Connector bus routes perform slightly above the system average for the South County routes. The service on these routes should be operated with standard full size 40 foot transit buses.

Table 7.52 Southern Burke/Western Springfield Bus Service Productivity

Route	Name	Boardings/ Rev-Mile	Boardings/ Platform-Hr	Boardings/ Trip
Fairfax Connector				
305	Newington Forest Line	1.15	18	13
310	Rolling Valley Line	2.08	23	31
	Corridor Average	**1.94**	**23**	**27**
	South County System Average	**1.78**	**22**	**26**
Metrobus				
18EF	Springfield Line	0.77	15	14
18GHJ	Orange Hunt Line	0.77	18	22
18PRS	Burke Centre Line	0.62	14	15
	Corridor Average	**0.68**	**15**	**17**

[80] WMATA SmarTrip adult fares listed, cash fares slightly greater.

[81] The 18S operates on a short line for reverse peak direction to Franconia-Springfield Parkway

Table 7.53 shows that the two Fairfax Connector Routes in this area vary greatly in terms of the demographics of its riders. The 305 has mostly choice riders, with 27% of the riders coming from households with more than the $125,000 in annual income. Conversely, more than half of the 310 riders are from low-income households and 75% report that they had no auto available to make the trip. The Metrobus 18 Line is mostly made up of choice riders, with the exception of the 18F. Most of the riders surveyed on the 18 Line come from relatively high income households with high levels of auto availability. At the corridor level, the Franconia Springfield Parkway/Fairfax County Parkway riders are mostly choice riders, whereas the Burke Centre Parkway is more of a captive market.

Table 7.53 Southern Burke/Western Springfield Bus Service: At-Risk Rider Demographics

Route	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
Fairfax Connector						
305[82]	67%	10%	58%	5%	11%	28%
310	53%	55%	81%	47%	75%	73%
Metrobus						
18EF[83]	100%/100%	8%/34%	46%/68%	14%/32%	38%/78%	56%/73%
18GHJ[84]	103%/102%	0%/4%	22%/11%	7%/6%	26%/22%	27%/32%
18PRS[85]	95%/101%	9%/13%	32%/30%	0%/6%	20%/37%	22%/38%
Franconia Springfield Pkwy/Fairfax County Pkwy[86]	85%	11%	43%	5%	24%	33%
Burke Centre Pkwy[87]	61%	47%	72%	39%	66%	65%

[82] Data may not be statistically significant as only 32 surveys were received on the 305.
[83] Data may not be statistically significant, as only 30 surveys were received for the 18E and 27 for the 18F.
[84] Data on the 18G may not be statistically significant, as only 49 surveys were received. Data for the 18J were not available (only one survey received).
[85] Data may not be statistically significant, as only 26 surveys were received for the 18P and 22 for the 18R. Data for 18S were not available.
[86] 305 and 18R only, not all routes in this area.
[87] 310, 18P and 18R only, not all routes in this area.

Recommendations

Eliminate Metrobus Routes 18R and 18S

With proposed restructuring of the Southern Burke/Western Springfield bus services, these local services would be eliminated as separate routes and effectively incorporated into new services as described in the following sections.

Replace Eastern Portion of Metrobus Route 18S with new 18A Franconia-Springfield Metro Station to George Mason University Route

This new route Metrobus 18A would provide weekday service between Franconia-Springfield Metro Station and GMU. The route is recommended to provide service to areas that are projected to have large increases in employment.

The route would use Franconia Springfield Parkway, Rolling Road, Braddock Road, and Ox Road and would replace the 18S along Rolling Rd and Franconia Springfield Parkway. Service would operate from 6:00 a.m. to 9:00 p.m. and would operate every 30 minutes. This route could possibly operate to Fair Oaks Mall via Ox Road and Lee Jackson Highway to meet service requests from the public. Service start-up should be operated with a small 30 foot transit coach. The detailed level of service information is provided below, after all of the 18 Line recommendations.

Replace Western Portion of Metrobus Route 18S with new 18B Fair Oaks Mall to Franconia-Springfield Metro Station Route

This route proposed as Metrobus 18B would provide a weekday connection between Fair Oaks Mall (and the future transit center there) and Franconia-Springfield Metro Station. Stops would include the County Government Center, GMU, and Burke Centre VRE Station. Proposed park-and-ride lots that would be served by this route include Burke Town Plaza and Old Keene Mill and Rolling Road. The route is recommended to serve the growth in home based work trips to the Springfield area.

The route would start at Fair Oaks Mall and use Fairfax Boulevard, Ox Road, Sideburn Road, Roberts Road, Roberts Parkway, Burke Centre Parkway and Old Keene Mill Road. The route would replace the 18S from Burke Centre to Rolling Road. Service would operate from 6:00 a.m. to 9:00 p.m. and would operate every 30 minutes. Service start-up should be operated with a small 30 foot transit coach. The detailed level of service information is provided below, after all of the 18 Line recommendations.

Modify Metrobus Express Routes 18G and 18P, Maintain 18H,

These express routes provide a popular one-seat express service for Southern Burke and Western Springfield residents to travel to the Pentagon Metrorail Station. The routes however are long and circuitous as they divert through a number of local neighborhoods. Ridership along the outer portions of the routes is light, and the trip is time consuming as the bus weaves through neighborhood streets. Then-Braddock District Supervisor Bulova (among other stakeholders) requested that service in neighborhoods be provided by smaller buses rather than the large buses that are operated on the 18 lines. To address this need, this proposal modifies the service as follows:

- Truncates the express routes at the Rolling Valley Park-and-Ride.
- Institutes several new neighborhood circulators working in conjunction with the new route to Fair Oaks Mall (above).

The 18G and 18P express routes currently each operate on 30 minute headways and would be modified as described below, while the 18H express routing would remain unchanged and operate at the same 30 minute headway as the G and P. These routes should operate with standard Metrobus 40 foot transit coaches.

- 18G – Originate at Rolling Valley Park-and-Ride, travel along Old Keene Mill Road through Hillside Road -Forester and Greeley Boulevards loop, return to Old Keene Mill Road continuing along existing route to I-395 to the Pentagon Metrorail Station.
- 18P – Rolling Valley Park & Ride, along Old Keene Mill Road following existing route to I-395 to the Pentagon Metrorail Station.

It is expected that the 18P will become the more popular service as it follows the most direct and faster route from the Rolling Valley Park and Ride to I-95/I-395. As ridership increases, the headway on the 18P should be improved to 15 minutes providing more frequent express services from Rolling Valley. The detailed level of service information is provided below, after all of the 18 Line recommendations.

Restructure and Promote Metrobus Reverse Direction Service - Route 18J

This reverse commute service averages only five passengers on inbound trips and one passenger on outbound trips. It is essentially a deadhead movement for Routes 18G and 18H funded with a JARC grant. Additional promotion may be needed to increase awareness of this service. In addition, with the elimination of the 18E and 18F, the 18J should be routed along the current 18F to provide reverse peak service to the Springfield Industrial area and then continue to the Rolling Valley Park-and-Ride. The detailed level of service information is provided below, after all of the 18 Line recommendations.

Eliminate Metrobus Line 18EF

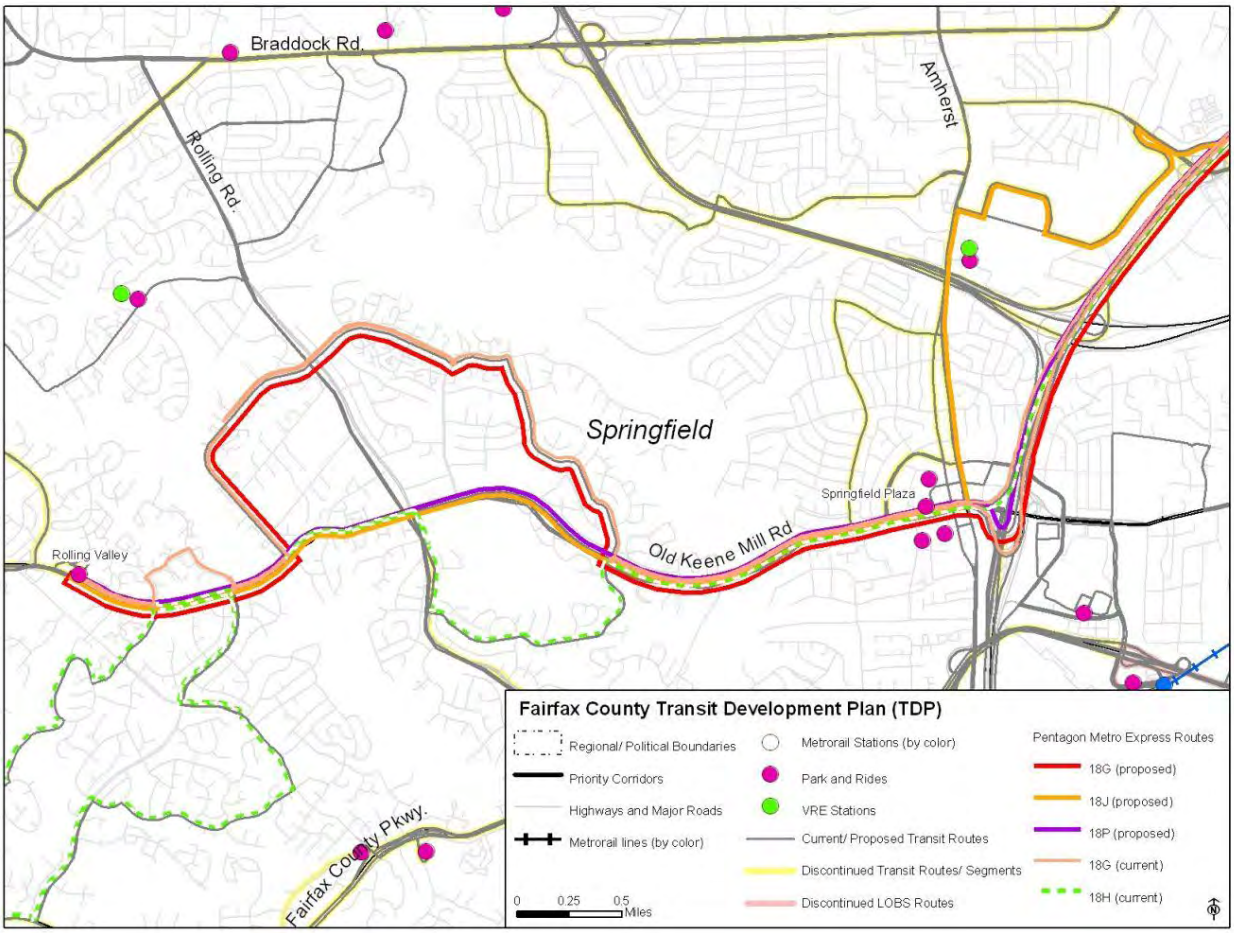
Metrobus line 18EF serves approximately 250 daily passenger trips. This area is also served by Fairfax Connector Routes 321/322 as well as the reconfigured 18GHP express routes. While the one-seat ride to Pentagon Metrorail is popular among riders, the amount of duplication in this area and the availability of service to Van Dorn and Franconia-Springfield Metrorail stations both argue in favor of eliminating this express service.

The headway for Route 321/322 has been recommended to be decreased, which will mitigate the elimination of 18EF. Passengers could either use the local routes to access either the Van Dorn or Franconia-Springfield Metrorail stations or use the 18GHP express services to access Pentagon Metrorail. Elimination of the 18EF will save three peak vehicles.

The following table presents a summary of the service levels recommended to be implemented over the TDP ten year horizon for the entire 18 Line.

		Route			
		18A	**18B**	**18GH**	**18JP**
	Operator	Metrobus	Metrobus	Metrobus	Metrobus
Span	**Weekday**	6:00 AM – 9:00 PM	6:00 AM – 9:00 PM	Peak Only	Peak Only
	Saturday				
	Sunday				
Headway (minutes)	**Weekday Peak**	30	30	15	15
	Weekday Midday	30	30		
	Weekday Evening	30	30		
	Saturday				
	Sunday				

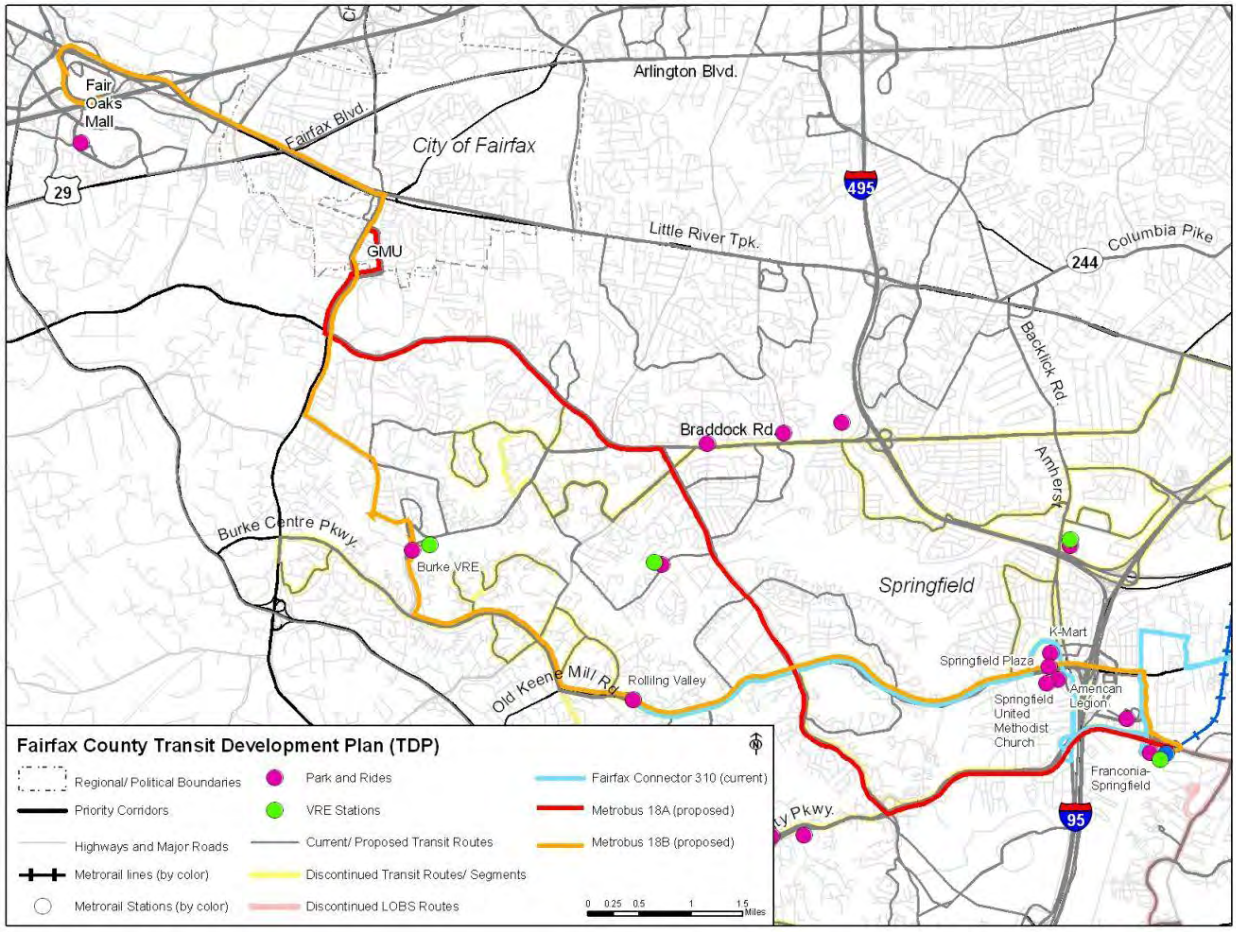
Figure 7.33 Southern Burke/Western Springfield Route Recommendations (18GHJP)



Increase Frequency on Fairfax County Route 310

Ridership on Route 310 has been growing. Although current ridership does not warrant an immediate increase in frequency, it likely will in the future. This recommendation is to improve peak hour headway from every 30 minutes to every 20 minutes. Implementing this recommendation would require additional vehicle revenue hours and additional peak vehicles. The 310 has a high level of transit dependent users, so it can be assumed that this trend will continue, requiring more service in the future. Detailed level of service data for route 310 is presented in section 7.7.7.

Figure 7.34 Southern Burke/Western Springfield Route Recommendations (310; 18AB)



Establish Burke Circulators

Neighborhood circulator routes would be established using small buses as follows:

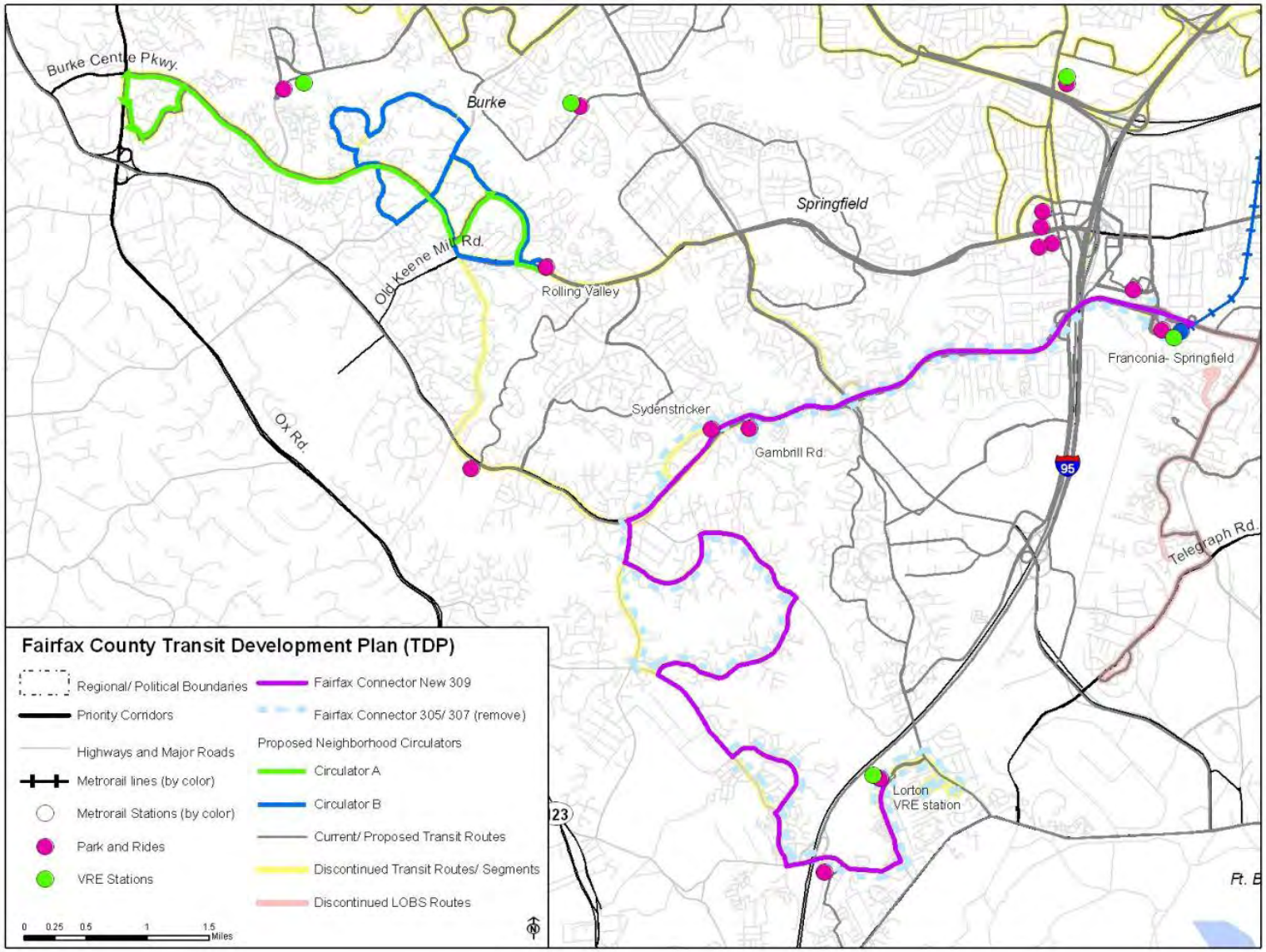
- Circulator A – From Rolling Valley Park-and-Ride – follow current 18P westerly to Burke Centre Parkway at Oak Leather Drive – Trip time would be approximately 15 minutes in each direction.
- Circulator B – From Rolling Valley Park & Ride – follow current 18R westerly to Coffer Wood Road – Trip time would be approximately 15 minutes in each direction.

Some riders that currently board the 18 Line express trips within local neighborhoods would be required to use a circulator route to travel an average of five minutes to the park-and-ride where they can transfer to an express trip to the Pentagon.

The following table presents a summary of the service levels recommended to be implemented over the TDP ten year horizon for the two Burke Circulators.

		Route	
		Burke Circulator A	**Burke Circulator B**
	Operator	Fairfax Connector	Fairfax Connector
Span	**Weekday**	Peak Only	Peak Only
	Saturday		
	Sunday		
Headway (minutes)	**Weekday Peak**	15	15
	Weekday Midday		
	Weekday Evening		
	Saturday		
	Sunday		

Figure 7.35 Burke Neighborhood Circulators



Link Fairfax County Route 305 with Route 307

As presented in section 7.7.3, it is proposed to create new route 309 as a through-route created from linking segments of former routes 305 and 307. Both routes are weak, serving less than 300 daily passengers between the two. In fact, Route 305 was recommended for elimination, though ultimately not cut, in the 2010 Fairfax County Budget. The new route will operate from the Franconia-Springfield Metrorail Station, travel out along the Franconia-Springfield and Fairfax County Parkways, serve the Sydenstricker Park-and-Ride via the outer Newington Forest loop of the Route 305 then to Hooes Road to Silverbrook Road to follow the Route 307 to a new terminal at the Lorton VRE train station, where a new transit center has been proposed. Detailed level of service data for new Route 309 level of service detail is presented in section 7.7.3.

7.7.7 Franconia/Springfield Area (301, TAGS – S81 and S90, 310 – eastern segment)

Background

Four routes are included in this group that serves the Franconia/Springfield area.[88] These routes include two Connector routes that operate between the Franconia-Springfield and Huntington Metrorail stations, the Fairfax Connector Route 301 and the eastern segment of Route 310. Additionally, WMATA operates two routes for the Transportation Association of Greater Springfield (TAGS) that serve as circulators around the downtown Springfield area. As summarized in Table 7.54, the Connector Routes serve more than 1,500 daily passengers while approximately 940 passengers use the TAGS routes on a daily basis.

Table 7.54 Franconia/Springfield Area Bus Services

Route	Name	Magisterial District	Metrorail Connection	Weekday Boardings (Typ.)
Fairfax Connector				
301	Telegraph Road Line	Lee, Mt Vernon	Franconia-Springfield – Blue Line Huntington (North) – Yellow Line	503
310	Rolling Valley Line	Springfield, Lee	Franconia-Springfield – Blue Line Huntington (North) – Yellow Line	2,010[89]
	Connector totals			**2,513**
TAGS (WMATA)				
S80	Springfield Circulator	Lee	Franconia-Springfield – Blue Line	750
S91	Springfield Circulator	Lee	Franconia-Springfield – Blue Line	190
	WMATA TAGS totals			**940**

Connector Route 301 operates peak period service only, while the route 310 operates a full day schedule on weekdays, Saturdays and Sundays. As presented in Table 7.55, when combined these two routes perform slightly below the South County system average, while the Route 310 on its own exceeds

[88] Several other routes assigned to other service areas overlap the service to the Franconia/Springfield area but were evaluated as part of other service areas (refer to sections on Van Dorn and Springfield/Lorton/Ft. Belvoir)
[89] The route 310 boardings are split approximately equal between the western and eastern segment relative to the Franconia-Springfield Metrorail station

this average (Refer to Southern Burke/Western Springfield section for additional background on the 310 route). The WMATA TAGS routes are short circulators with the S80 operating a full weekday schedule between 6:00 AM and 7:30 PM while the S91 supplements the S80 during the morning and afternoon peak periods as it operates over a short-route segment of the S80 route alignment. The TAGS service is highly productive in terms of boardings per trip considering its use of small capacity 22 passenger Cut-Away buses.

Table 7.55 Franconia/Springfield Area Bus Service Productivity

Route	Name	Boardings/ Rev-Mile	Boardings/ Platform-Hr	Boardings/ Trip
Fairfax Connector				
301	Telegraph Road Line	0.92	12	11
310	Rolling Valley Line	2.08	23	31
	Corridor Average	**1.66**	**19**	**23**
	South County System Average	**1.78**	**22**	**26**
TAGS (WMATA)				
S80	Springfield Circulator	2.23	17	14
S91	Springfield Circulator	5.34	32	10
	WMATA TAGS totals	**2.53**	**19**	**13**

The two Fairfax Connector Routes operating in this area have very different rider demographics, with the 301 consisting of more affluent riders, although many did not have a vehicle available to make the trip. The 310 consists more of lower-income riders, with most (81%) from households with annual incomes below the County median, about $70,000. The TAGS service, which operates as a shuttle service around Springfield connecting the Franconia-Springfield Metrorail station and the Springfield Mall, carries riders with demographics similar to the 301, with higher levels of affluence and auto ownership.

Table 7.56 Franconia/Springfield Area Bus Service: At-Risk Rider Demographics

Route	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
Fairfax Connector						
301	84%	18%	37%	13%	43%	50%
310	53%	55%	81%	47%	75%	73%
TAGS (WMATA)						
S80[90]	91%	7%	52%	25%	33%	47%
S91[91]	91%	8%	39%	7%	37%	50%

[90] Data may not be statistically significant, as only 48 surveys were received for the S80.
[91] Data may not be statistically significant, as only 24 surveys were received for the S91.

Recommendations

Decrease Frequency on Fairfax Connector Route 301

Approximately 500 passengers ride Route 301 with less than 1 passenger boarding per revenue mile. A 40% reduction in service on Route 301 was recommended in the FY 2010 Fairfax County Budget. These changes were implemented on June 29, 2009, reducing the span of service in both the morning and afternoon service period as well as generally reducing the headway from 30 minutes to 60 minutes, with the exception of a brief two hour period within each peak period.

Implementing this recommendation would save vehicle revenue hours and peak vehicles. Alternate bus service is available along the route convenient to nearly half the existing riders. In addition, as discussed above, this route does carry more choice riders (57% had an auto available) than the average on Connector routes (37%).

The following table presents a summary of the service levels recommended to be implemented over the TDP ten year horizon for the Route 301.

		Route
		301
	Operator	Fairfax Connector
Span	Weekday	Peak only
	Saturday	
	Sunday	
Headway (minutes)	Weekday Peak	30
	Weekday Midday	
	Weekday Evening	
	Saturday	
	Sunday	

Increase Frequency on Fairfax County Route 310

As discussed in the previous section, ridership on Route 310 has been growing. Although current ridership does not warrant increased frequency, it likely will in the future. This recommendation is to improve peak hour headway from every 30 minutes to every 20 minutes in FY2012. Implementing this recommendation would require additional vehicle revenue hours and additional peak vehicles. The 310 has a high level of transit dependent users, so it can be assumed that this trend will continue, requiring more service in the future.

The following table presents a summary of the service levels recommended to be implemented over the TDP ten year horizon for the Route 310.

		Route
		310
	Operator	Fairfax Connector
Span	Weekday	4:15 AM -1:00 AM
	Saturday	6:00 AM – 1:00 AM
	Sunday	6:00 AM – 12:00 AM
Headway (minutes)	Weekday Peak	20
	Weekday Midday	30
	Weekday Evening	60
	Saturday	30
	Sunday	60

Maintain TAGS Service (Metrobus S80 and S91)

The TAGS (Transportation Association of Greater Springfield) service provides branded shuttle bus connections between the Franconia-Springfield Metrorail station and the Metro Park, Springfield Mall, and the Springfield Hilton. A review of the ridership of the TAGS service shows that the S80 averages 24 passengers per peak period trip, while the S91 averages only 10 passengers per trip. The S91 complements the S80 service to the Springfield Hilton in the peak hours, resulting in headways of 7 minutes in the peak hours. The feasibility of eliminating the S91 was investigated, however given the use of the small capacity specialty vehicles, observed ridership patterns would likely create crowding on many peak trips.

In July 2009, the Fairfax County Board of Supervisors approved a plan to renovate the Springfield Mall and further develop its 80 acre site to include residential, hotel, and office buildings. Its location adjacent to the Franconia-Springfield Metrorail Station and the Springfield Interchange for I-95 and I-495 makes the site attractive for both vehicular and transit access. In addition, this development is expected to service visitors and contractors to Fort Belvoir and the new NGA campus (refer to section 7.7.3). The developers have committed to improve both roadway and transit access, as they will contribute funds to improve local roadways, improve access from the mall to the Metrorail station, and to enhance local bus services, which could include possible improvements and extensions to the TAGS services. FCDOT staff should work with the TAGS board to develop transit plans to complement the other local transit services.

The following table presents a summary of the service levels recommended to be implemented over the TDP ten year horizon for the TAGS service.

		Route	
		S80	**S91**
	Operator	Metrobus	Metrobus
Span	**Weekday**	6:00 AM – 8:00 PM	Peak only
	Saturday		
	Sunday		
Headway (minutes)	**Weekday Peak**	15	15
	Weekday Midday	15	
	Weekday Evening		
	Saturday		
	Sunday		

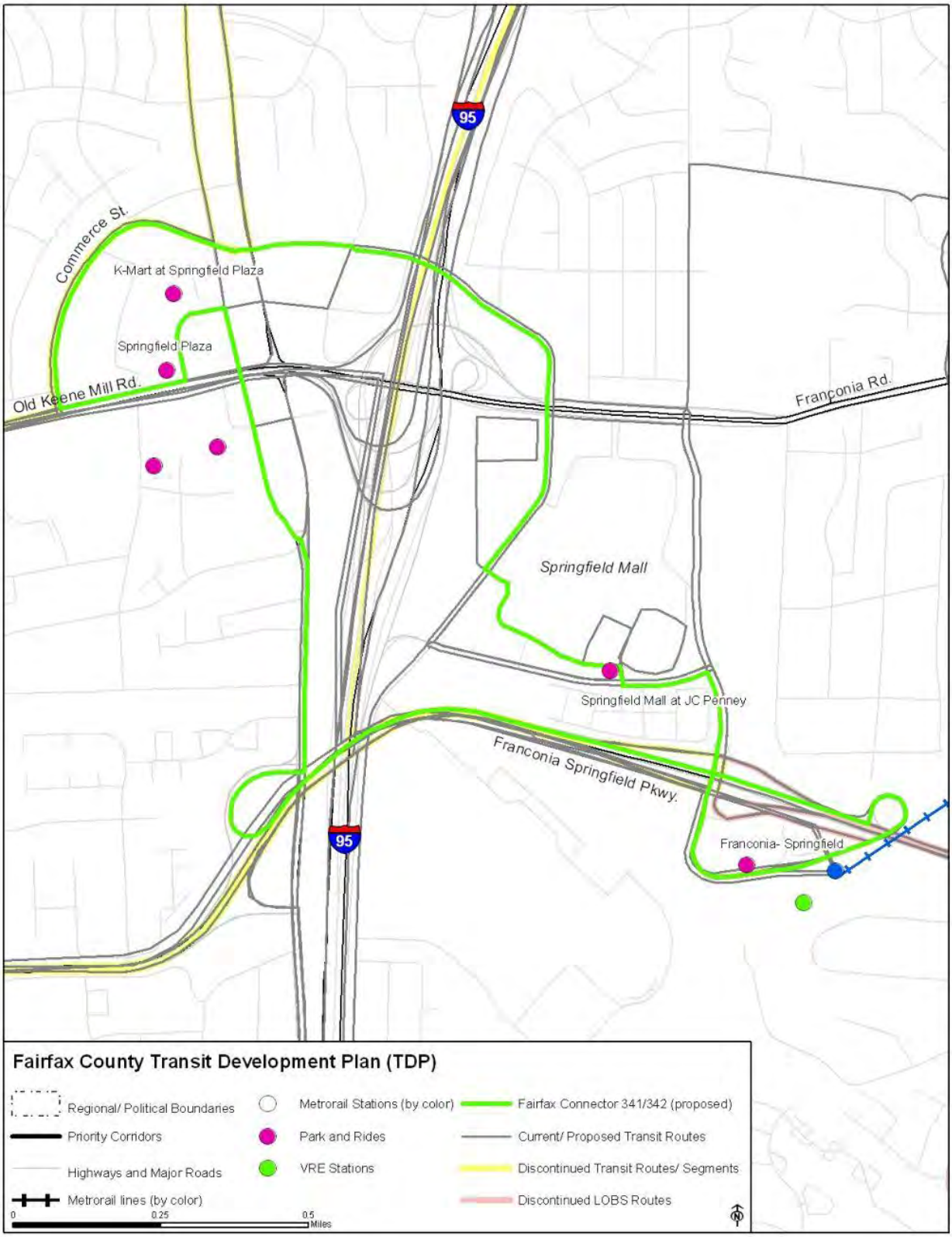
Establish New Route 341/342: Springfield Circulator

The Springfield Connectivity Study commissioned by the County suggested several shuttle and circulator services emanating from the Franconia-Springfield Metrorail Station to supplement the existing local bus transit services to provide quicker connection to existing commercial centers and planned future developments. A circulator route is recommended that would connect the Metrorail station, the Springfield Mall area and the Commerce Street retail and commercial area and replace a route segment from the proposal to restructure the route 331/332 I-95 Circulator that would be dropped from this route. The proposed circulator would be routed clockwise as follows: Metrorail station, Franconia-Springfield Parkway, Backlick Road, Amherst Avenue, Bland Street, Old Keene Mill Road, Commerce Street, Loisdale Road, Springfield Mall Ring Road, Spring Mall Road, Franconia Road, Frontier Drive and return to Metrorail Station. The counterclockwise route would follow this same route in reverse except it would stay on Old Keene Mill Road to Backlick Road. This route would pass the site of a former Circuit City on Old Keene Mill Road that has been proposed by the County to be converted to a commuter parking facility that would serve express bus riders, carpool and sluggers, as well as local bus transit services including this proposed circulator.

The following table presents a summary of the service levels recommended to be implemented over the TDP ten year horizon for the new Springfield Circulator service.

		Route
		341/342
	Operator	Fairfax Connector
Span	**Weekday**	7:00 AM – 10:00 PM
	Saturday	8:00 AM – 10:00 PM
	Sunday	
Headway (minutes)	**Weekday Peak**	12
	Weekday Midday	12
	Weekday Evening	20
	Saturday	12
	Sunday	

Figure 7.36 New Springfield Circulator Routes



7.7.8 Backlick/Gallows (401)

Background

This corridor is served by Fairfax Connector Route 401. Over 3,600 passengers use this service on weekdays. This route attracts more weekday riders than any of the other Connector routes. Its productivity measures rate among the highest in the Connector system, as it is the highest ranking route with boardings per revenue mile of 4.02 passengers and 61 boardings per trip.

Table 7.57 Backlick/Gallows Cross-County Bus Service Summary and Productivity

Route	Name	Magisterial District	Metrorail Connection	Weekday Boardings (Typ.)
Fairfax Connector				
401	Backlick- Gallows Road Line	Lee, Braddock, Mason, Providence	Franconia-Springfield – Blue Line Dunn Loring-Merrifield – Orange Line	3,657
		Boardings/ Rev-Mile	**Boardings/ Platform-Hr**	**Boardings/ Trip**
401	Backlick- Gallows Road Line	4.02	38	61

Riders on the Fairfax Connector 401 are definitely more transit dependent than bus riders as a whole in Fairfax County, with more passengers coming from low-income households (64%) on this route than the average bus passenger in the County (41%). In addition, there are more than the average number of riders who have no auto available for the trip and have no auto at all in their household.

Table 7.58 Backlick/Gallows Bus Service: At-Risk Rider Demographics

Route	Trip Purpose: Work	Household Income <$30,000	Household Income <$70,000	No Auto in Household	No Auto Available for This Trip	Minority Riders
Fairfax Connector						
401	69%	64%	89%	51%	80%	83%

Recommendations

Increase Frequency on Fairfax County Route 401

Ridership on Route 401 has been growing and is expected to continue to grow in response to regional development programs and route changes, such as the expansion of the Fairfax Hospital located along this route. A review of ridership shows that the trips in the late afternoon through the early evening peak have the most ridership. Increasing the frequency from every 30 minutes to every 15 minutes for both the morning and afternoon peak period and to 20 minutes in the late afternoon is recommended. Implementing this recommendation would require additional vehicle revenue hours and additional peak vehicles. Detailed level of service information is presented below after the 401 Limited Stop description.

In addition to increasing frequency on the 401, some modifications for the terminus of the 401 in Tysons Corner, in conjunction with the opening of the Silver Line, are described in Section 7.6.2.

Create Fairfax County Route 401 Limited Stop

This route would provide peak-period limited-stop service in the Springfield – Annandale – Tysons Corner corridor, complementing the existing Fairfax Connector 401. This route would provide premium service in this heavily traveled corridor and support reverse commuting by providing connections to Metrorail and VRE.

In the morning peak, the route would provide limited-stop service from Springfield to Tysons. Return trips would use Capital Beltway between Tysons and Little River Turnpike and then provide limited-stop service to Franconia-Springfield Metrorail. Service in the afternoon peak would reverse this pattern. Major stops would include Franconia-Springfield Metro, Backlick Road VRE, and Dunn Loring-Merrifield Metrorail. The route would run every 15 minutes during peak periods.

Potential stops for this route could include the following (presented in the northbound direction):

- Franconia Springfield Metrorail
- Springfield Mall at JC Penney
- Frontier at Franconia
- Backlick at Cumberland
- Backlick at Cabin John
- Backlick at Hechinger
- Backlick at Braddock
- Backlick at Kandel
- Backlick at Jayhawk
- Little River at Ravenworth
- Little River at Medford
- Little River at Hummer
- Gallows at Dolce
- Gallows at Hemlock
- Fairfax Hospital
- Gallows at Willow Oaks Corporate Dr
- Gallows at Lee
- Dunn Loring Metro
- Gallows at Iliff
- Gallows at Railroad
- Gallows at Madrillon
- Tysons Corner Center

Implementing this recommendation would require additional vehicle revenue hours and additional peak vehicles.

The following table presents a summary of the service levels recommended to be implemented over the TDP ten year horizon for the routes operating along the Backlick/Gallows cross county corridor.

		Route	
		401	**401 Limited**
	Operator	Fairfax Connector	Fairfax Connector
Span	**Weekday**	4:20 AM – 12:00 AM	Peak only
	Saturday	5:30 AM – 11:00 PM	
	Sunday	6:00 AM – 10:00 PM	
Headway (minutes)	**Weekday Peak**	15	15
	Weekday Midday	20	
	Weekday Evening	30	
	Saturday	30	
	Sunday	60	

7.8 NEW CROSS-COUNTY CONNECTIONS VIA BRT/ENHANCED BUS SERVICE

The Regional Bus Study recommended several new routes—including expresses and complementary local routes—that provided cross-county connections and linkages to major generators outside of Fairfax County. Many of these routes may be appropriate for long-term implementation beyond the time horizon of this TDP. In the shorter term, cross-county connections in the inner part of the county (near the Beltway) are the most likely to be successful. Residential and employment densities are higher and more continuous in the eastern part of the county and distances are shorter. Development of Fort Belvoir and expansion and redevelopment of Tysons Corner in conjunction with the rail extension will also magnify the demand for north-south travel in the eastern half of the county. Therefore, it is recommended that new cross-county routes for the eastern part of the county be implemented first before any central or western cross-county routes are established. These routes are discussed at various points in this chapter.

In the longer term, the western cross-county corridors that would be candidates for express routes or bus rapid transit include the VA-28 corridor from the Prince William County line to Dulles Airport, and Fairfax County Parkway from the Dulles Toll Road south at least as far as US-29 and then beyond to Springfield farther in the future. Both Loudoun County and Prince William County have also included enhanced bus service in the VA-28 corridor in their transit plans. The opportunity to initiate potential tri-county service, and to address the challenges inherent in such an effort, should be pursued by all three jurisdictions. The Virginia Department of Rail and Public Transportation (DRPT) is also studying potential BRT service in this corridor between Centreville and Dulles Airport. Since both the VA-28 and Fairfax County Parkway roadways are more like express highways than arterial roads with frequent local access, the express bus routes that run on them would run from station to station, with significant passenger facilities and park-and-rides located at highway interchanges. Transfers to local and radial routes, some modified and other new, would occur at these stations. Shorter services that start and/or end at major generators, such as Fair Oaks Hospital, the County Government Center, or Fair Oaks Mall could also be overlaid on the longer cross-county service to improve access to such locations without requiring an additional transfer.

7.8.1 VA-28 Corridor

For the VA-28 corridor, station locations could include the following:

- Dulles Airport
- McLearen Road
- US-50
- Westfields Boulevard
- US-29
- New Braddock Road
- Manassas

Level of service information is presented below the Fairfax County Parkway section.

7.8.2 Fairfax County Parkway Corridor

For the Fairfax County Parkway corridor, station locations could include the following:

- Herndon-Monroe Park-and-Ride
- West Ox Road
- US-50
- Fair Lakes Parkway
- US-29
- Braddock Road
- VA-123
- Burke Lake Road
- Lee Chapel Road
- Rolling Road
- EPG
- I-95
- Telegraph Road
- Ft. Belvoir/Richmond Highway

The following table presents a summary of the service levels recommended to be implemented for the proposed new Cross County Enhanced bus services, although it is anticipated that these would be implemented beyond the ten year time horizon of the TDP.

		Route	
		VA 28	**Fairfax County Parkway**
	Operator	Fairfax Connector	Fairfax Connector
Span	**Weekday**	6:00 AM – 10:00 PM	6:00 AM – 10:00 PM
	Saturday	7:00 AM – 7:00 PM	7:00 AM – 7:00 PM
	Sunday		
Headway (minutes)	**Weekday Peak**	15	15
	Weekday Midday	30	30
	Weekday Evening	30	30
	Saturday	30	30
	Sunday		

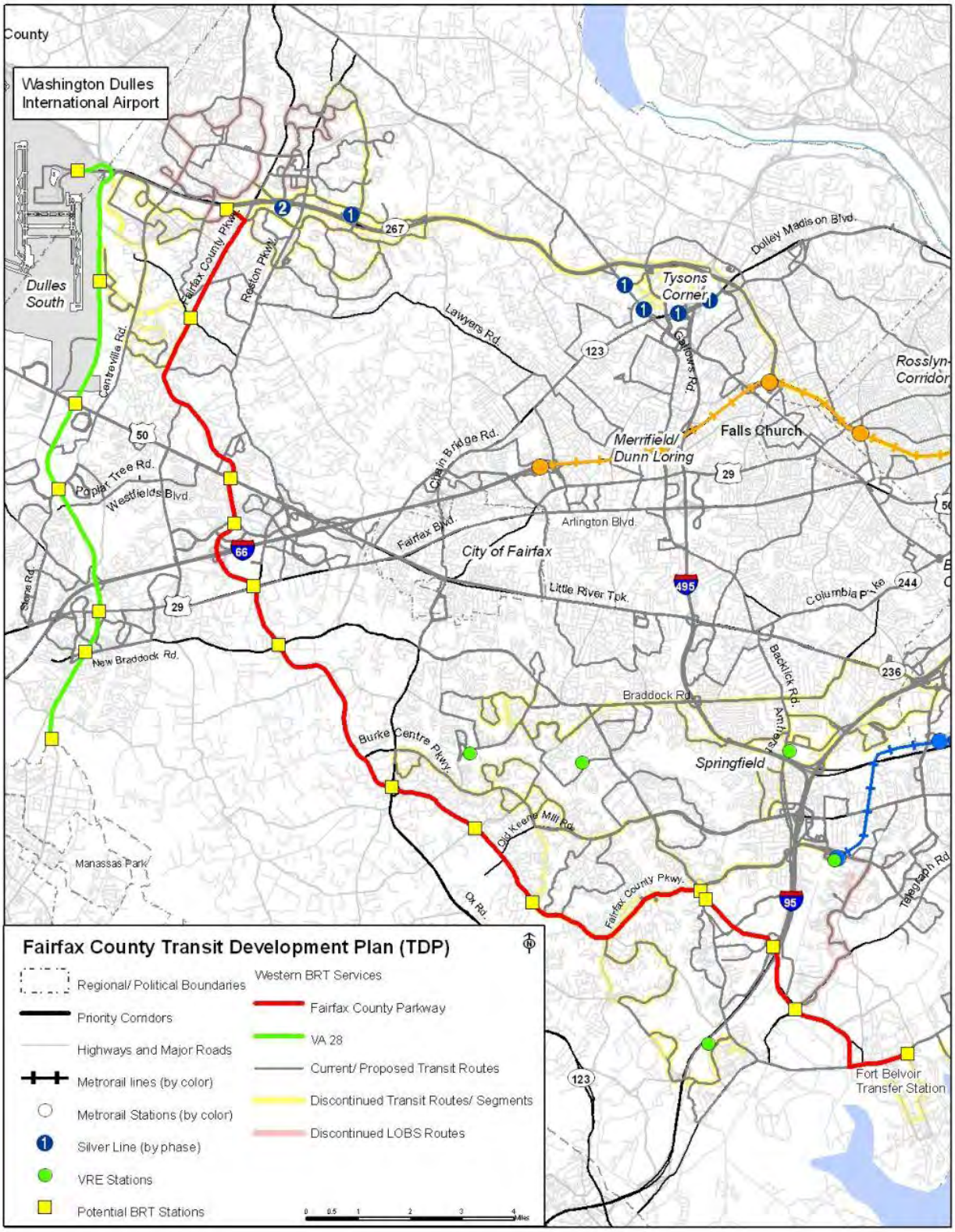



Figure 7.37 New Cross County BRT/Enchanced Bus Service: VA-28 and Fairfax County Parkway