9 CRITERIA AND STANDARDS FOR LOCATING TRANSIT CENTERS, PARK AND RIDE FACILITIES, AND CONNECTOR STORES

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9.1 SCOPE AND METHODOLOGY

The following analysis of criteria and standards to locate park and ride facilities, transit centers and Connector stores centers on the recognition that this additional infrastructure remains critical to the long-term success of the Fairfax Connector and Metrobus systems in Fairfax County. As operations grow in the coming decade to respond to increased demand for transit services, these facilities will be critical to effectively and efficiently provide patrons with access to the system, information about how to use it, and transfer points to aid in moving passengers through the system. The key question is how to most effectively locate future facilities.

The concepts presented here validate the planned facilities identified in this Transit Development Plan, but also support a consistent approach to future infrastructure driven by the thoughtful approach taken by Fairfax County to date. It should be stated at the outset that locating supportive transit facilities remains more an art than a science, driven by multiple variables that cannot be devolved into simple formulas or specific criteria. Such variables include land availability, transit opportunities, land use, local and regional congestion, cost/financial savings from transit, and other factors. The criteria explored here thus provide an analytic framework that Fairfax County DOT can apply to develop additional supporting infrastructure, providing a continuum of standards that reflect the diversity of the County and needed facilities. The intent, then, is to provide a consistent approach to how decisions will be made, but to offer Fairfax County a range of facility sizes to provide the system flexibility to meet the needs of its customers.

To develop these criteria and standards, a literature review was conducted to identify any possible practices that could be applied here. Additionally, Fairfax County DOT provided data regarding park and ride usage and Connector Store patronage. The concepts developed in reviewing research and other efforts provide an analytic context to review the collected boarding data, as well as service frequency details, to develop suitable standards.

9.2 TRANSIT CENTERS

9.2.1 Transit Center Data Analysis

Currently, the County has two locations served by bus but not by rail that it officially considers to be transit centers, Tysons West*Park and Reston Town Center. In order to set a baseline for the criteria development, each of these locations was reviewed against the types of criteria that may be used when determining where to locate a transit center. The criteria are based on previous studies and also on existing data, and are divided into four categories – location, land use, design and performance. Table 9.1 shows the list of criteria and checks the fulfillment of those criteria by the two existing transit centers. Most of the listed criteria under location, design and land use are satisfied by the existing transit centers.

Table 9.1 also shows the average weekday boarding data for Tysons West*Park and Reston Town Center. The boardings in Reston Town Center are almost three times that of Tysons West*Park, however the number of buses departing the centers is about the same. This suggests that the bus routes serving Reston Town Center are more utilized, and therefore Reston Town Center likely has more transfers than Tysons West*Park. Transfer data was not collected for this analysis, however a field observation at Reston Town Center was made to get a rough estimate of the rate of transfers that occur in Reston Town Center. From the field observation, it was estimated that more than 50% of people who

get off at Reston Town Center make a transfer. This rate is even higher (around 70%) if alightings from Route 505, an express route to the West Falls Church Metro station, are excluded from the analysis. These data further support that a high rate of transfers and a high number of boardings are important criteria for transit centers.

9.2.2 Criteria for Transit Centers

The ideal location and design for each transit center will depend on its intended purpose. For example, a transit center within a park and ride lot is better situated away from choke points and congested areas but closer to highways and major roads. Transit centers that are intended primarily to provide transfers between different bus lines are better situated close to high activity locations with good accessibility to residential or commercial areas and other bus lines. In general, transit centers are better situated at a central location with a high transfer rate, near high activity centers and accessible to nearby communities.

Table 9.1 Criteria for Transit Centers Compared to Existing Facilities

Criteria for Transit Centers		West*Park	Reston Town Center
Location	Close proximity to activity centers and communities	Yes	Yes
	Convenient access to local and regional buses	Yes	Yes
	Walking distance to transit generators	Less pedestrian accessible	Yes
	Minimal traffic delay	No	No
Land Use	High activity location	Located in Tysons Corner but away from the shopping areas	Yes, close to shopping, office, and mixed–use development
	Accessible to adjacent communities; Accessible to all modes such as pedestrian, bicycles and motor vehicles	Not very accessible to pedestrians and bicyclists	Yes
Design	Street connectivity	Yes	Yes
	Sidewalk coverage	Yes	Yes
	Ease of entry and egress	Yes	Yes
	Availability of space	Yes	Yes
	Drop off location for auto access	Yes	No
Performance	Total Daily Boarding > 500[1]	638	1,967
	Total Number of Transfers >100	n/a	Greater than 50% of boarding which is greater than 100
	Multiple transit routes	Connector 401, 425, 427, 574 Metrobus 24T, 28A, 28B, 28T, 3T, 5A	Connector 505,556,574,605,950 RIBS 1, 2, 3, 4
	Number of buses departing in a weekday	250	248

[1] Boarding data collected Spring 2008 and Fall 2008 as part of the TDP.

Transit centers can range from simple bus shelters and bus stops to larger facilities with multiple shelters and bus bays, to completely enclosed, temperature-controlled structures. Many metropolitan areas offer transit centers that support multi-modal connectivity, located at rail stations and otherwise supplemented by regional activity centers such as malls and retail/business districts, allowing patrons to transfer between feeder/distributer routes, express routes and cross-town routes. The Washington Metropolitan area offers many such locations through its suburban Metrorail stations and VRE stations.

It is challenging to provide effective transit service in an economically vibrant but predominantly suburban environment like Fairfax County, with its mix of dispersed low, moderate, and even some high density developments and activity centers. To efficiently serve the resulting diffuse trip origins and destinations, the Connector effectively uses a multi-node network. Bus lines operate along key travel corridors to link residential and activity centers. Critical to this approach is the placement of transit centers which support efficient transfers between routes to preclude the need for long, yet low-productivity services. Generally, transit centers are located opportunistically, driven either by demand exceeding capacity for existing facilities, or achieved through a proffer as new developments are built. But the County intends to take a more deliberate approach to locating these facilities through the development of standards based on defined criteria. The intent is to enhance the County's ability to plan for infrastructure needed to best serve its transit riders, providing flexibility to offer a range of transit center sizes and levels of amenity reflective of variations in intended purpose, land use and transit services available.

Other studies have explored the development of criteria for locating transit centers. For example, criteria in the *2003 WMATA Regional Bus Study* can be divided into two categories - location and design. In terms of location, the study indicates that transit centers are desired in high-activity locations that generate large numbers of transit trips. Since a transit center is a transfer point, it should be located where potentially high transfer volumes occur. The *Regional Bus Study* suggests that bus stops with multiple routes and over 500 boardings or 100 transfers per day should be examined in greater detail for conversion to a transit center. In terms of their design, transit centers should be multi-modal where practical, facilitating access for drop-offs by private automobile. But more importantly, transit centers should provide safe pedestrian access and circulation, since transit riders begin and end their trips on foot. Sidewalks provide a walking environment for pedestrians and easily connect people at the transit center to other activity centers and transportation modes. Also critical to the design of transit centers is easy entry and egress, a factor key to limiting travel time delays that negatively impact ridership (and revenues) while increasing costs. Transit centers also need a location large enough to accommodate site demands that include passenger drop-offs, multiple bus stops, bus shelters or bays, and park and ride lots.

Literature on the location of transit centers remains scarce, but research identified an ongoing study by Idaho's Kootenai Metropolitan Planning Organization (MPO) that is intended to assist the MPO to locate transit centers in the area.[2] The study evaluates potential sites for transit centers based on criteria and location preferences similar to those listed in the *Regional Bus Study*. While clearly there are differences between the Kootenai operating environment and that in Fairfax County, some relevant points can still be derived. The MPO's study explains its preference for a transit center to be centrally located to provide easy access to various modes of transportation, including bicycles and pedestrians. This

[2] Transit Center Location Study August 2009, Kootenai MPO, Idaho

provides further support that the most important aspects of a transit center are location and access, particularly for pedestrians.

9.2.3 Recommended Standards for Transit Centers

In determining which of these facilities to develop as transit centers, the following criteria should be used as general guidelines to help identify where to locate facilities and the level of amenities with which they should be equipped. By providing a range of facilities, Fairfax County can more effectively serve its riders and more efficiently operate its services. Although not a criteria per se, potential location of transit centers should consider the opportunities to create transit demand. Activity centers such as large shopping malls or employers concentrations provide such an opportunity. A description of critical features of proposed transit centers are shown in Table 9.2.

Table 9.2 Suggested Standards for Transit Centers

	Small	Medium	Large
Location	Immediate access to transit-serviceable trip generators	Immediate access to transit-serviceable trip generators	¼ mile to Immediate access to transit-serviceable trip generators
Land Use	Co-located with high activity location	Accessible to high activity locations	Accessible to high activity locations
Pedestrian Design	Safe pedestrian connections to activity centers; Sidewalk coverage	Safe pedestrian connections to activity centers; Sidewalk coverage	Safe pedestrian connections to activity centers; Sidewalk coverage
Vehicle Access*	Space for 1 – 2 buses	Space for at least 3 buses; Space for car drop-offs	Space for at least 4 buses; Space for car drop-offs
Level of Service	Departures: ≤100 Routes: 3 or more	Departures: 101 – 200 Routes: 5 – 7	Departures: Over 200 Routes: 8 or more

*For pulsed operations, where all buses depart simultaneously, the number of bus bays must equal the number of routes terminating at the facility plus twice the number of routes that service it without terminating there.

9.2.4 Recommended Transit Centers

Going forward, Fairfax County intends to locate several new transit centers throughout the County. Design is already underway at a number of facilities, including:

- Fair Oaks Mall
- Fairfax Hospital
- Seven Corners
- Northern Virginia Community College
- George Mason University
- Annandale (John Marr Drive)

These facilities present a range of characteristics, indicating Fairfax County's clear intent to serve the diversity of County constituents and land uses by providing facilities responsive to varying levels of demand, service, and supportive land uses. In addition to these facilities, the County has, through the

efforts associated with the Transit Development Plan, identified additional potential locations that could be developed as transit centers, such as:

- Rolling Valley Mall
- Burke Centre VRE
- Lorton VRE

The relative sizes proposed for the transit centers, shown in Table 9.7, are based on accepted existing plans, where available. In other cases, the size listed is conceptual in nature, and FCDOT should perform a detailed operations analysis to confirm that the transit centers will be designed and built at a size adequate to accommodate the expected use.

9.3 PARK AND RIDE FACILITIES

9.3.1 Park and Ride Data Analysis

Table 9.3 shows the park and ride utilization for all of the park and ride lots in Fairfax County that are not collocated with a Metrorail station, for the quarter ending June 2009.[3] The average utilization rate for all the park and rides lots in Fairfax County during this period was around 75%. The park and ride data in the table shows that some park and rides, such as American Legion, Centreville Park and Ride (Route 29 and Stone Road), Herndon-Monroe, Reston East, Reston North, Sydenstricker Road, VRE Rolling Road Station, Springfield Plaza, and Springfield United Methodist Church are utilized to their maximum capacity. In contrast, most of the smaller park and ride lots with fewer than 100 spaces have very low utilization rates.

The average weekday headway for bus service at the listed park and ride lots varies from 8 minutes to 60 minutes. Most of the parking lots seem to have transit routes with an average weekday headway of 30 minutes. Additional details on the attributes of existing park and ride lots can be found in Table 9.3.

[3] The latest available utilization rate for the park and rides was for the quarter ending September 2009; however, for this analysis, spring data are used as they are more representative than summer data.

Table 9.3 Spaces, Utilization and Service Levels for Existing Park and Ride Facilities

Lot Name	Address	Spaces	No. of Vehicles Parked	Usage Level	Bus Routes Serving Location	Route Headways
American Legion	6520 Amherst Avenue, Springfield	100	100	100%	NONE	n/a
AMF Centreville Lanes	13814 Lee Highway, Centreville	35	3	8%	630, 631	30 – 60
Apple Federal Credit Union	6831 Sir Viceroy Drive, Alexandria	12	0	0%	231,232	30
Autumn Willow Park	13090 Autumn Willow Drive, Centreville	100	5	5%	12M	30
Backlick North	6831 Backlick Road, Springfield	279	29	12%	310, 331, 332	30
Canterbury Woods	5018 Wakefield Chapel Road, Annandale	29	0	0%	306, 17A,B,F,G, H,K,L	20 -60
Centreville Park and Ride (Rt. 29 and Stone Rd)	14700 Lee Highway, Centreville	372	372	100%	640, 642, 644	30 – 60
Centreville United Methodist Church	6400 Old Centreville Road, Centreville	144	76	52%	641	25 – 30
Fairfax County Government Center	12000 Government Center Parkway, Fairfax	170	81	47%	605, 621, 623	60
Gambrill Road	7321 Gambrill Road, Springfield	225	95	42%	305, 18R	30
Greenbriar Park	4600 Stringfellow Road, Fairfax	60	0	0%	605, 632, 640	60
Herndon Monroe Park and Ride*	12530 Sunrise Valley Drive, Herndon	1,745	1,744	100%	551, 922, 924, 926, 927, 929, 950, 951, 952, 980, RIBS2, 5A	8-60
Lorton Market Street	9405 Lorton Market Street, Lorton	65	6	9%	171	30
Lorton Park and Ride	9300 Gunston Cove Road, Lorton	170	62	36%	307	30
Parkwood Baptist Church	8726 Braddock Road, Annandale	30	10	33%	306,17A,F,H,K	15 - 60
Poplar Tree Park	4718 Stringfellow Road, Chantilly	279	0	0%	605, 632, 640	30
Reston East*	1860 Wiehle Avenue, Reston	820	820	100%	505, 551, 552, 554, 557, 595, 597, RIBS 1,2,3	30
Reston North	11300 Sunset Hills Road, Reston	368	370	101%	505, 952	30

Lot Name	Address	Spaces	No. of Vehicles Parked	Usage Level	Bus Routes Serving Location	Route Headways
Reston South	2531 Reston Parkway, Reston	412	200	48%	553, 557, 585	20 – 30
Rolling Valley	9220 Old Keene Mill Road, Burke	664	468	70%	310, 18G,J,P,R,S	15-30
South Run District Park	7550 Reservation Drive, Springfield	52	0	0%	18R	30
Springfield Mall	6717 Frontier Drive, Springfield	500	177	35%	321, 322, 331, 332, 401, S80, S91	30
Springfield Plaza	6400 Springfield Plaza, Springfield	258	258	100%	331, 332, 18E	30
Springfield United Methodist Church	6501 Springfield Road, Springfield	56	56	100%	18G,H,J,P	15- 30
St. Paul Chung Catholic Church	4712 Rippling Pond Drive, Fairfax	100	9	9%	605, 632,640	30
Stringfellow Road	4920 Stringfellow Road, Centreville	385	385	100%	605, 632, 640	30 – 60
Sully Station	4900 Stonecroft Blvd., Centreville	38	0	0%	640, 642	30 – 60
Sydenstricker Road	8500 Hooes Road, Springfield	170	170	100%	305	30
Wakefield Park	8100 Braddock Road, Annandale	50	5	1%	306, 17A,B,F,G,H,K,L	20 – 60
VRE Backlick Road Station	6900 Hechinger Drive, Springfield	220	195	88%	321, 322, 401, 18E	30
VRE Burke Centre Station	5671 Roberts Parkway, Burke	1510	1317	87%	17B,L	20 – 60
VRE Lorton Station	8990 Lorton Station Boulevard, Lorton	466	256	54%	171, 307	30
VRE Rolling Road Station	9016 Burke Road, Burke	368	368	100%	17L	20

*Connector Store onsite.

It is clear from the data that some of the park and ride lots with high usage, in terms of both volume and utilization rates, are the ones that are served by multiple bus routes or a VRE commuter rail station. For example, Herndon-Monroe Park and Ride, Reston East and VRE Burke Center Station have both high capacity and high utilization rates. However, there are a few park and ride lots, such as Canterbury Woods, Springfield Mall and Wakefield Park, that are served by a relatively high number of bus routes that show relatively low utilization rates. This suggests that a park and ride lot served by numerous transit routes does not necessarily have a higher utilization rate. Instead, it appears that access to a reliable, time-saving route that reaches major employment destinations is more likely to result in relatively high park and ride demand. Also important to park and ride demand is access to residential areas, since lots serve essentially as collection points; the presence of a large number of homes that are

close to a park and ride will thus potentially increase demand. In sum, the success of a park and ride remains a complicated issue, influenced by surrounding land use, levels of transit service, time savings of provided transit, availability of competing alternative locations, and direct access to key destinations. This means that lots should be provided at various scales depending on the specifics of these and other variables.

9.3.2 Criteria for Park and Ride Lots

The general standard for evaluating the success of a park and ride facility is utilization – the percentage of spaces occupied. But this measure alone is not sufficient to evaluate the performance of a given facility. TCRP Report 95 *Traveler Response to Transportation System Changes* mentions several flaws with this measure of performance in its Chapter 3, *Park-and Ride/Pool*. First, the actual volume of usage is not reflected. For example, 50 cars in a 50-space lot cannot be considered more successful than 1,000 autos in a 1,500 space lot. On the same note, 50 autos in a 200-space park and ride lot is not as successful as 50 autos in a 100 space park and ride. Therefore, volume with utilization is a better measure than the utilization rate by itself.

TCRP Report 95 also shows historical data on the number of park and ride lots, available spaces, and utilization levels for Metrorail, commuter rail, and bus/rideshare facilities in the Washington, DC region. The report shows that utilization rates of park and ride lots vary by the transportation mode(s) that serve them. Metrorail and commuter rail lots have higher utilization rates compared to bus/carpool facilities. The average utilization rate for a park and ride facility in Washington DC region, including northern Virginia, for all modes was about 75% in 1995.[4]

The report further shows that park and ride facilities with more transit services and more hours of service perform better than facilities with fewer transit services and hours of service. As time between buses or trains become longer, park and ride lot demand declines, sharply so in the case of bus service headways in excess of every 15 minutes. The report states that the most frequently offered reason for success of the park and ride lots of 24 agencies that were interviewed was "…served by frequent transit service." TCRP Report 95 further elaborates: "About 60 percent of the lots had transit/rail service at 10-minute or closer intervals during the peak period and 83 percent received service at 15-minute or closer intervals."

Another general facility location factor that improves the performance of a park and ride location is the "distance to destination," generally meaning that park and ride lots that are relatively close (preferably five to ten miles) to activity centers will fare better than those further away. But park and ride lots for the Fairfax Connector are not generally shuttle lots (though the concept has been suggested in congested areas such as Tysons Corner). Indeed, the Connector operates line-haul services that may be well more than ten miles from the park and ride to the ultimate destination at an activity center or Metrorail station. The issue, then, is whether or not transit provides a time and/or cost savings for the trip. Also critical to success is the size of the lot, the size of the activity center reached, and the cost of parking on both ends of the trip. In other words, large, free park and ride lots served by routes that provide reliable and fast access to a large activity centers such as downtown Washington, where parking is expensive, are likely to do well. Access to current HOV facilities and future HOT facilities that will reach Tysons Corner and other destinations will also potentially result in greater park and ride activity

[4] This utilization rate does not account for lot size, nor does it differentiate between park and ride lots served by buses and carpools and those at Metrorail and VRE stations.

for lots with convenient access to these rapid routes. Another factor in the success of a park and ride lot is the presence of large, dense activity centers that will also attract more park and ride patrons.[5] More specifically, lots located in corridors that are heavily congested have higher demand for park and ride lots than those located in congestion-free corridors. Also, access to reliable transit services that reach large activity centers do very well; the VRE lots and Springfield Plaza underscore this fact. For all of these facilities, it is also important to locate sites that are highly visible and accessible from key travel corridors.

Easy accessibility is another important factor when choosing where to locate park and ride facilities. Easy access to and from park and ride lots adds convenience to the users of the facility. It also limits travel times, a benefit to both passengers (by reducing trip times) and service operators (by improving operational efficiency). Indeed, the second most frequently reported reason for success cited by the *Urban Transportation Monitor*, as described in the TCRP report was "located close to a major highway, good access." But the access can also be viewed as proximity to nearby neighborhoods that provide a catchment area for the lot, collecting passengers from suburban neighborhoods far more efficiently than could a large bus, and in turn providing needed line-haul services to allow patrons to reach their destinations.

[5] The availability and price of parking also play a role in determining transit use, and hence park and ride utilization. It should also be noted that Fairfax Connector and Metrobus experienced increased ridership and facility usage in response to the 2008 spike in gasoline prices.

9.3.3 Recommended Standards for Park and Ride Lots

Based on this research and a review of the existing conditions for the Fairfax County's Park and Ride facilities, recommended criteria and standards for facility location are provided in Table 9.4. These criteria and standards reflect the most critical attributes for locating facilities that will be fully utilized and supportive of Connector and Metrobus services. Larger lots should receive more frequent service to prevent passengers from being left behind (and thereby returning to their cars to complete their trips). In all cases, the facilities should provide safe travel between cars and buses, particularly at larger lots that justify more significant infrastructure investments, such as sidewalks, walkways between parking aisles, and larger shelters. Facilities should also be designed to support access by persons with disabilities, so that all sidewalks and facilities can be easily negotiated while staying out of the way of vehicular traffic to the extent possible.

Table 9.4 Suggested Standards for Park and Ride Facilities

Criteria	Park and Ride Lots ≤ 50 spaces (small)	Park and Ride Lots 51 – 100 spaces (mid-sized)	Park and Ride Lots More than 100 spaces (large)
Service Frequency	Less than 30 minutes headways	Less than 30 minutes headways	Headways of 15 minutes or less
Access to travel corridors	Close to major highways/priority corridors (within ½ mile)		
Visibility	Easily visible for potential patrons		
Egress/Ingress	Easy vehicular access for both buses and SOVs Kiss and Ride drop-off area		
% Utilization	Consider another facility of similar size in close proximity if full	Consider another small facility in close proximity if full	Add transit services to accommodate demand
Pedestrian mobility	Standard provisions	Sidewalks for bus boarding areas; ramps for disability access	Sidewalks for bus boarding areas; ramps for disability access; paths for pedestrians between parking aisles
Shelters	None or small shelter	Shelter	Multiple shelters

9.3.4 Recommended Park and Ride Lots

Based on the research conducted here, Chapter 10 goes into great detail to identify 26 potential new park and ride lots throughout the County that should be investigated further for their potential to serve existing and new transit service.

9.4 CONNECTOR STORES

9.4.1 Connector Store Data Analysis

The Connector Stores offer schedules, brochures, and information about different travel options. They also sell fare cards and let you recharge SmartTrip Cards. Currently, Connector Stores can be found in five different locations:

- Herndon-Monroe Park and Ride
- Reston East at Wiehle Avenue Park and Ride
- Reston Town Center Transit Station
- Franconia-Springfield Metro Station
- Tysons-West*Park Transit Station

It should be noted that the store at the Franconia-Springfield Metrorail station is much smaller than the other stores and operates more like a kiosk than a store that allows the customer to enter. However, it provides the same services as the other Connector Stores and is actually by far the most utilized of all of the existing Connector Stores.

Figure 9.1 shows the total customer volume by month for FY 2008 and FY 2009 for the five Connector stores listed above. The total number of customers using the Connector Store in FY 2009 was 171,237, an increase of 40% compared to the 122,353 in FY08. The monthly data for FY09 shows a big jump in the number of customers from around November/December 2008 to January of 2009, which was most likely a result of WMATA's conversion from Metrochek to SmartBenefits for providing transit benefits. The customer volume numbers have fluctuated in 2009 but remain higher that 2008 patronage. The trend of increasing usage, taken in the context of worsening regional congestion and the eventual return of higher gas prices, suggests that patronage of existing stores will remain steady if not grow.

Figure 9.1 Customer Volume at Fairfax Connector Stores FY08 – FY09

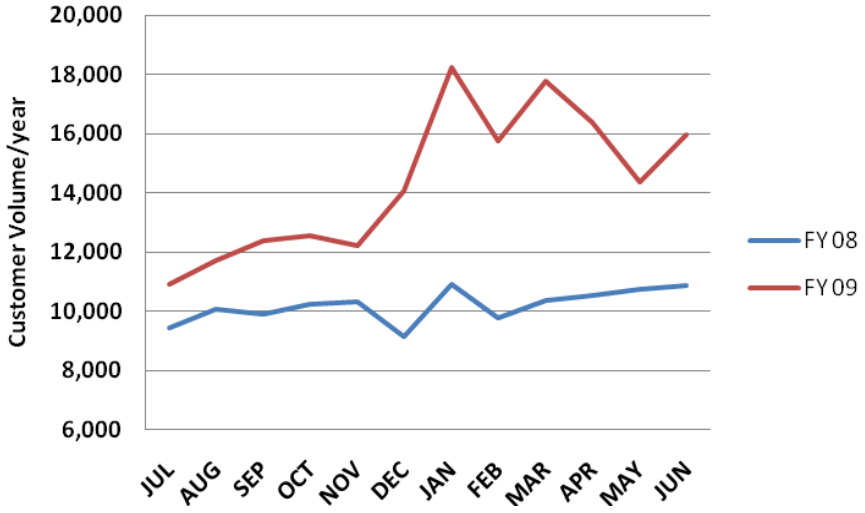
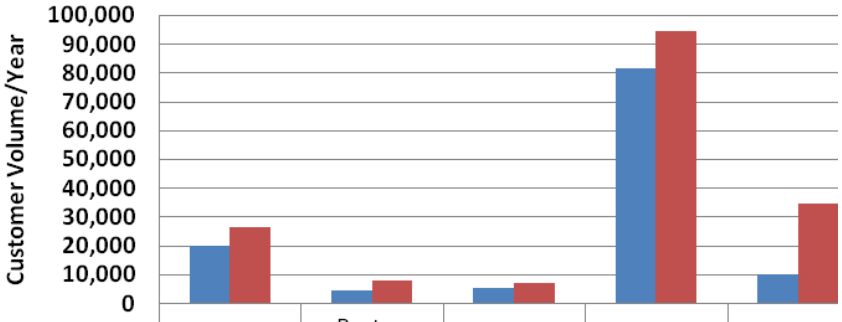


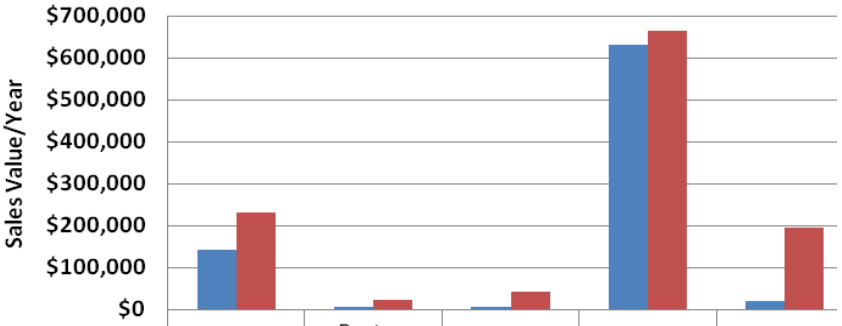
Figure 9.2 presents the customer volume data by each store for FY 2008 and FY 2009. Franconia-Springfield, situated at the Metrorail station that also serves multiple bus routes and houses a large park and ride facility, has the highest customer volume. This site is followed in usage by the Connector Stores at Reston Town Center and the Tysons West*Park Station. Figure 9.3 shows the value of sales for each of the Connector stores. Both Figures 9.2 and 9.3 show that customer volume and sales increased in FY 2009 from FY 2008. A point to note is that an increase in customer volume does not necessarily translate to an increase in sales. For example, the 2009 customer volume for Reston Town Center was higher than that of Tysons West*Park Station, however the value of sales for Reston Town Center is lower than that of Tysons West*Park Station. Unfortunately, the data are not robust enough to yield insight into why this happens. But some plausible hypotheses include potentially different demographics at the two facilities and the lack of parking (such that patrons at West*Park *must* continue their trips by transit, which necessitates purchase of fare media).

Figure 9.2 Customer Volume and Fairfax Connector Stores



	Tysons West*Park	Reston East at Wiehle Ave	Herndon-Monroe	Franconia Springfield	Reston Town Center
FY 08	20,242	4,896	5,376	81,690	10,149
FY 09	26,501	8,013	7,434	94,417	34,872

Figure 9.3 Sales Volume at Connector Stores FY08 and FY09



	Tysons West*Park	Reston East at Wiehle Ave	Herndon-Monroe	Franconia Springfield	Reston Town Center
FY 08	$140,467	$5,841	$4,852	630,605	$19,798
FY 09	$230,360	$21,953	$42,511	$663,896	$194,218

Table 9.5 compares the number of customers using the Connector Stores to the total boardings in each of the locations. The yearly boarding number is estimated by multiplying the average weekday boarding number by 254 which is the total number of days of weekday service and Connector Store operation.

Table 9.5 Bus Boardings and Traffic at Connector Stores

Connector Stores Location	Average weekday boardings	Yearly boardings*	No of visitors to Connector Stores	Ratio of store visitors to boardings
Tysons West*Park	638	162,052	26,501	0.16
Reston East	1,237	314,198	8,013	0.03
Herndon-Monroe	2,330	591,820	7,434	0.01
Franconia Springfield	2,888	733,552	94,417	0.13
Reston Town Center	1,967	499,618	34,872	0.07

*Yearly boardings are calculated by multiplying average weekday boardings by 254, the total number of weekday service days for Fairfax Connector, Metrobus, and Connector Store operations.

The above analysis shows that Tysons West*Park Station had the highest ratio of visitors to boardings in 2009 (0.16) and the Herndon-Monroe Park and Ride has the lowest (0.01). The Connector Store also seems to perform better at Reston Town Center, but not as well at the two park and ride lots (Reston East and Herndon-Monroe). The Herndon-Monroe Park and Ride and the Reston East at Wiehle Avenue Park and Ride are relatively large park and ride lots served by many transit routes that run very frequently, however their customer volume data is much lower than at transit centers such as Reston Town Center and Tysons West*Park. This suggests that a high rate of transfers (typical in transit centers) may be a key criterion for establishing Connector Stores. Also plausible is that patrons conduct fare transactions at the end of their work day, meaning that while they rush to get to a park and ride early in the morning, they may have more time and opportunity to purchase trips at the activity center.

9.4.2 Criteria and Standards for Connector Stores

Literature on the criteria to establish a transit store is very limited. However, these facilities generally should possess attributes similar to other supporting infrastructure: accessibility, high levels of service from multiple routes, and location along heavily traveled bus routes. Based on the data analyzed here, it appears that some attributes, such as location in a park and ride, are not conducive to high traffic or revenue for a store. It should also be considered that the two primary needs for a transit store – route planning and purchase of fare media – no longer require a store. Internet websites provide sophisticated, easily accessed and easily understood trip planning tools. Fare media can now be purchased at a large number of outlets, with electronic means of adding funds to transit passes at numerous locations.

An additional consideration is that Connector Stores have greater flexibility in their location. While these facilities can be located at traditional sites such as transit centers or park and rides, they can also be located in retail or other settings. Indeed, the data analysis here suggests that stores perform better, in terms of both traffic and revenues, when pedestrian traffic is higher. Neighboring jurisdictions have found success with locating transit stores in the form of kiosks in malls or near Metro stations, for example. In addition to providing pedestrian access, such facilities potentially impose a smaller financial burden by reducing the number of staff needed to operate the kiosk and lowering infrastructure costs. It is also possible that partnerships could be formed with other retailers to support the purchase of fare media. These types of arrangements should be explored as transit service and usage increases throughout the County.

Table 9.6 Suggested Standards for Connector Stores

Criteria	Kiosk/Smaller Store	Full Store
Proximity to Transit Services	½ mile	Co-located
Number of Routes	N/A	5 or more
Visibility	Easily visible for potential patrons	Easily visible for potential patrons
Pedestrian Access	Critical; this should be the primary access mode	Sidewalks from bus boarding areas

9.4.3 Recommended Connector Stores

Based on the criteria that have been developed here, the following new Connector Stores have been identified for the County to pursue over the TDP timeframe. No additional full-sized stores are recommended at this time due to space constraints and the fact that the small facilities can accommodate the needs of customers, as shown by the fact that the County's existing kiosk/smaller store at Franconia-Springfield does more business than the existing full-sized Connector Stores. Kiosks/smaller stores are smaller locations with more limited features, similar in size and scale to the existing Connector Store at the Franconia-Springfield Metro station. It should be noted that the stores at Seven Corners, George Mason University, and Skyline Plaza would be more aptly named "Transit Information Centers" than Connector Stores, as there is very limited service provided to these three locations by Fairfax Connector.

- Tysons Central 123
- Fair Oaks Mall
- Fairfax Hospital
- Seven Corners[6]
- Rolling Valley Mall
- Lorton VRE
- George Mason University
- Skyline Plaza
- Northern Virginia Community College
- Mason District Government Center[7]

It is important to note that it is not the intention that all of the stores listed below necessarily be implemented during the ten-year TDP timeframe, but that the County determine prioritize within the list below to further enhance the services that it provides through the Connector Stores.

[6] Space limitations at the Seven Corners Transit Center may limit the ability to implement a smaller store/kiosk at this location.

[7] Note that a transit fare media vending machine and small service counter are suggested for all County Supervisor offices.

9.5 RECOMMENDED TRANSIT FACILITIES

The following table summarizes the recommended transit facilities and additional transit amenities, based on the criteria discussed here. As mentioned at the outset, the recommendations are not prioritized, recognizing the many variables that come into play when deciding whether or not to locate a new transit facility. However the facilities listed below should be Fairfax County DOT's priority as opportunities arise. These facilities provide a rational approach intended to serve the County's transit patrons as the system grows.

Table 9.7 Recommended Transit Facilities

Location	Connector Store	Transit Center	Park and Ride Spaces	Bus Routes[8]
Fair Oaks Mall	Kiosk	Large	-	1C, 605, 630, 18B, 16F, 2GH, 681, 624
Fairfax Hospital	Kiosk	Medium	-	1C, 401, 401L, 467
Seven Corners	Kiosk	Medium	-	28B, 4A, 1ABDE, 28X, 1X, 28E
Rolling Valley Mall	Kiosk	Medium	Existing 664 spaces	310, Burke Circulators AB, 18P, 18GH
Burke Centre VRE	-	Medium	50-100	17B,L
Lorton VRE	Kiosk	Large	Existing 466 spaces	304, 309, 371, REX, BRAC Shuttles
George Mason University	Kiosk	Large	50-100	17AG, 15M, 29K, 18AB, 16F, 531
Annandale Transit Center (at John Marr)		Large	-	401, 401L, Annandale Circulator; Metrobus 29CEGH, 16 ABDE, 16L
Northern Virginia Community College	Kiosk	Medium	-	29KN, 29CEX, 16F, 467, 3A
Dulles Airport	Kiosk	-	-	5A, 981, 681
Skyline Plaza	Kiosk			16s, 25s, 28s
Tysons Central 123	Kiosk	-	-	3T, 23A, 24T, 28T, 28B, 28X, 2C, 2T, 462, Tysons Link routes, HOT Lanes routes, 731, 732
Woodlawn Center (Alexandria)	-	-	50-100	REX, 151/152, 171, 371, Ft Belvoir HOT Lane
Ladson Lane (Alexandria)	-	-	100-200	REX, 151/152, 171, 371
Beacon Center (Alexandria)	-	-	50-100	REX, 151/152, 161/162 171, 371
Baileys Crossroads at Jefferson	-	-	100-200	16ABDEFJ, 25A-R, 28AB, 28G
Baileys Crossroads (Circuit City)	-	-	100-200	16ABDEFJ, 28AB
Northern Virginia Community College at Church of the Nazarene	-	-	50-100	29KN, 29CEX, 16F, 467, 3A
Burke Town Plaza	-	-	50-100	18B, Burke Circulators A and B
Cardinal Forest Plaza (West Springfield)	-	-	<50	310, 18P, 18GH, 18AB

[8] Some routes are existing, some are revised, and some are new, as shown in Chapter 7.

Location	Connector Store	Transit Center	Park and Ride Spaces	Bus Routes[8]
AMF Annandale Lanes	-	-	100-200	3A, 16ABE, 29CE, 29NK, 401, 401L
Mason District Government Center*	Kiosk	-	50-100	16ABDEL, 16F
John Calvin Presbyterian Church (Bailey's Crossroads)	-	-	50-100	16ABDEL, 16F
Danor Plaza (Vienna)	-	-	<50	2T, 15M, 463
Langley Shop Center (McLean)	-	-	<50	15K, 731
Oakton United Methodist Church	-	-	<50	15M, 466
Chesterbrook (McLean)	-	-	50-100	23A, Kirby Rd Feeder
Former Circuit City (Springfield)[9]	-	-	100-200	310, 18P, 18GH, 18B 321/322, 341/342
Idylwood Plaza (Pimmit Hills)	-	-	<50	28AB, 28T, 3T
Westlawn Supermarket (Falls Church)	-	-	<50	1ABFZ, 3A, 1X
Town Center Plaza (Sterling)	-	-	<50	924, 926, VA 7 West Shuttle
Kings Park Center (Springfield)	-	-	<50	17ABCDF, 17GHK, 18A, Burke Centre HOT Lane
Battle of Dranesville Site (Herndon)	-	-	<50	VA 7 West Shuttle
Dranesville Methodist Church (Herndon)	-	-	<50	VA 7 West Shuttle
Church of the Brethren (Herndon)	-	-	<50	VA 7 West Shuttle
Great Falls Nike Park	-	-	>200	VA 7 West Shuttle
Capital Church (Vienna)	-	-	>200	VA 7 East Shuttle, 574
Andrew Chapel United Methodist Church (Vienna)	-	-	<50	VA 7 East Shuttle, 574
McLean Bible Church (Vienna)	-	-	>200	Wolf Trap Shuttle, VA 7 East Shuttle, 574

*A transit fare media vending machine and small service counter are suggested for all County Supervisor offices.

[9] This site, in conjunction with the adjacent former Long John Silver's and current Sunoco gas station, are planned for more than 400 parking spaces to support the I-95/-395 HOT Lanes project.