

Section 6

Dunn Loring/Merrifield



Dunn Loring/Merrifield

The Dunn Loring/Merrifield activity center study area consists of the area between I-66, Old Gallows Road, Arlington Boulevard, and Prosperity Avenue/State Route 699. Some areas south of Route 50, specifically the Exxon-Mobil headquarters and the Inova Fairfax Hospital complex, were considered as part of the field investigation for this study.

Located in Fairfax, Virginia, the Dunn Loring/Merrifield area is an employment activity center characterized by relatively high-density existing and proposed office development in several locations. Bounded by the Exxon-Mobil headquarters and the Fairview Business Park on the south and the Prosperity Business Campus and new residential and office development surrounding the Merrifield/ Dunn Loring Metro Station on the north, the area is being redeveloped from a light industrial/strip development to a more upscale and higher-density environment. The area on Lee Highway west of Gallows Road still contains many light industrial businesses, including a large USPS facility. Truck traffic in the area is moderate to heavy. Figure 6-1 shows existing and proposed land use.

According to the 2000 census as analyzed by the Metropolitan Washington Council of Government's (COG) 2002 Regional Activity Centers report, there were 2,200 households in the study area and 36,000 jobs, a significant employment center. COG predicts a 40 percent increase in jobs to 51,000 in 2025, and a more modest increase in households to 3,500.

Dunn Loring/Merrifield is expected to be the site of significant job growth in the next twenty years. It has received planning attention from Fairfax County in its comprehensive plan. Objectives of that plan include revitalization of the study area into a more pedestrian-friendly and transit-oriented environment. There is significant effort related to focusing development with a more urban feel and density at the transit station area and serving the new development with transit options in order to mitigate traffic impacts.

Additionally, a transportation goal in the County's Policy Plan calls for at least 15 percent of the commuter trips to Suburban Centers and Transit Station Areas, such as Dunn Loring/Merrifield, to be made by modes other than single-occupancy vehicles. Consequently, there is strong attention to demand management in the study area, including a very active transportation committee consisting of area business representatives.

Private developers have submitted joint development proposals to WMATA for the Dunn Loring station area. Several office and condominium buildings are under construction across from the station.

Summary characteristics of the center:

- High employment area, not concentrated, with some residential.
- Connection to Metrorail station could be significantly improved.

- Potential future transit oriented development site.
- Potential for new ridership with improvements to existing service is high.

Mode share data for the Dunn Loring/Merrifield study area demonstrates that for work end, driving alone is the predominate mode. Home end, although driving alone is still significant at 62 percent, there is some gain for transit which constitutes 20 percent of the mode share. This may reflect the proximity of medium-density housing to the Metrorail station.

Table 6-1 Dunn Loring/Merrifield Mode Share

	Home End			Work End		
	Transit	Drive Alone	Walk/Bike	Transit	Drive Alone	Walk/Bike
Dunn Loring/Merrifield	20%	62%	0%	3%	85%	1%

Source: 2000 Census Transportation Planning Package

Figure 6-1 Dunn Loring / Merrifield Land Use



Transportation System Characteristics

Traffic congestion is moderate on Lee Highway as well as US 50 during off-peak hours. During observed peak hours, traffic was congested, particularly at the intersection with Old Gallows Road. Traffic queued behind Metrobuses and typically did not clear the intersection in a single cycle. Moderate traffic volumes also exist during peak periods on Gallows Road from the I-66 interchange to US 50.

Pedestrian Environment

The current land use, light-industrial intermixed with auto-oriented retail, and physical layout of the study area discourage pedestrian activity. In addition, although there are pedestrian connections between the Dunn Loring Metrorail station and nearby residential and office areas (eight-minute walk) along Gallows Road, the pedestrian connection to the new office uses along Prosperity Avenue is incomplete. Waiting for the signal at Gallows Road and Prosperity Avenue is long and encourages crossing without a signal during non-peak hours. Other than along Prosperity Avenue, there are relatively few trees and little grass, and no buffer for pedestrians from the traffic along either Lee Highway or Gallows Road. Lighting is adequate along the major roads within the center for pedestrian visibility and safety, and lighting within the Metrorail station area meets WMATA's design standards.

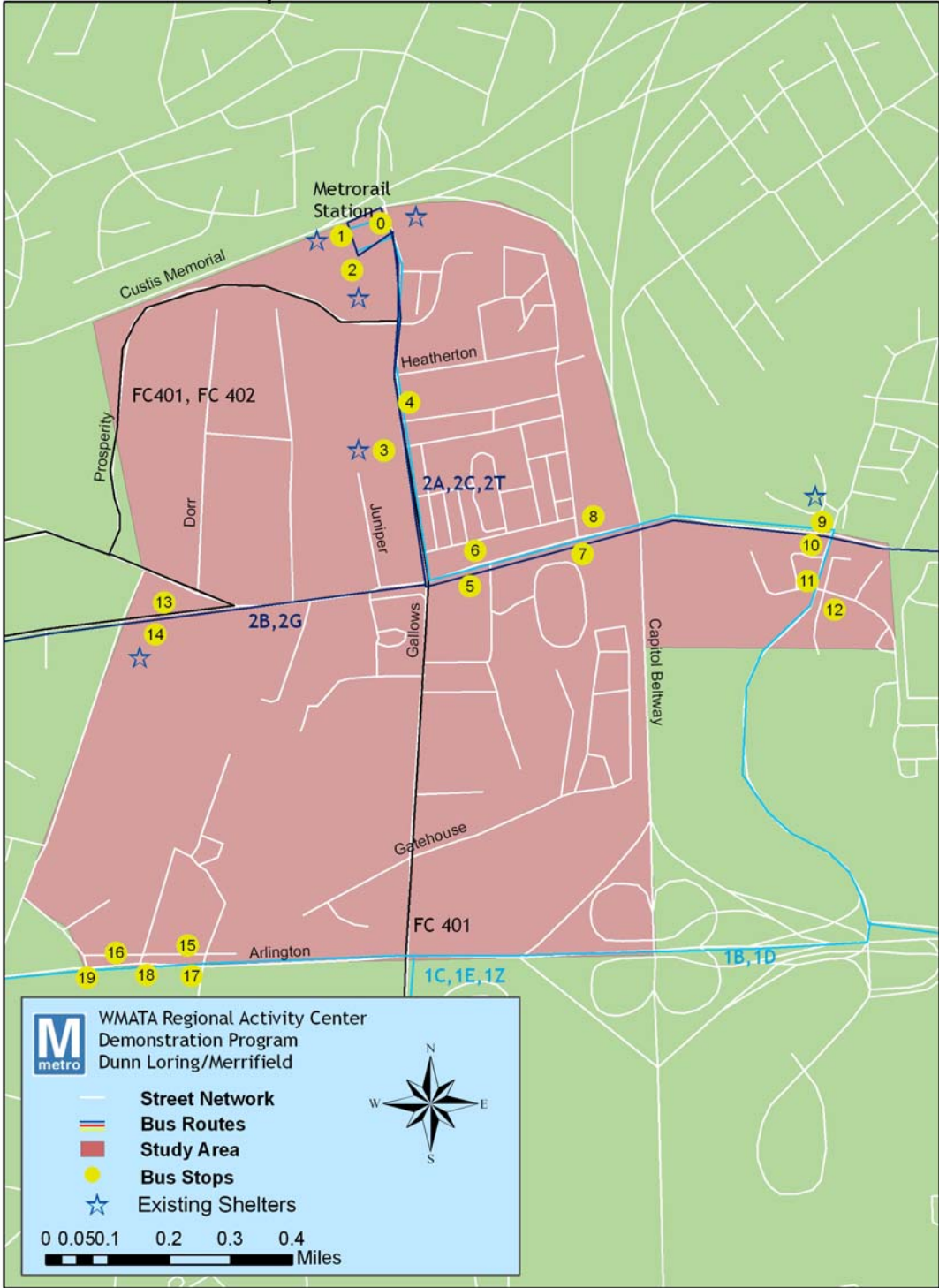
The intersection of Lee Highway and Gallows Road is ranked 18th among intersections in Fairfax County for pedestrian crashes. There were five at this intersection between 1995 and 2001. In addition, multiple curb cuts interrupt sidewalks throughout most of the study area, contributing still further to the inhospitable pedestrian environment.

Transit Facilities and Operations

The primary streets within the study area contain approximately 19 bus stops as shown on Figure 6-2. Of those, only seven stops have shelters. The two bus stops with the highest passenger volume, at the intersection of Lee Highway at Gallows Road, do not have shelters, and waiting patrons have very little space.

Transit services include the WMATA's Orange line rail service at the Dunn Loring/Merrifield Metrorail station, two Metrobus routes with several sub-routings, and two Fairfax Connector routes. The Dunn Loring/Merrifield Metrorail station is at the north end of the study area. From the station, Fairfax Hospital, on the south side of study area, is a 10-minute bus ride on Fairfax Connector route FC401. WMATA operates two bus lines through the study area, with several routings along Lee Highway and Arlington Boulevard. The Fairfax Connector routes operate along Gallows Road and within Prosperity Business Park. Bus lines and routings within the study area are shown in Table 6-2 and Figure 6-2.

Figure 6-2
 Dunn Loring/Merrifield
 Bus Routes & Stops



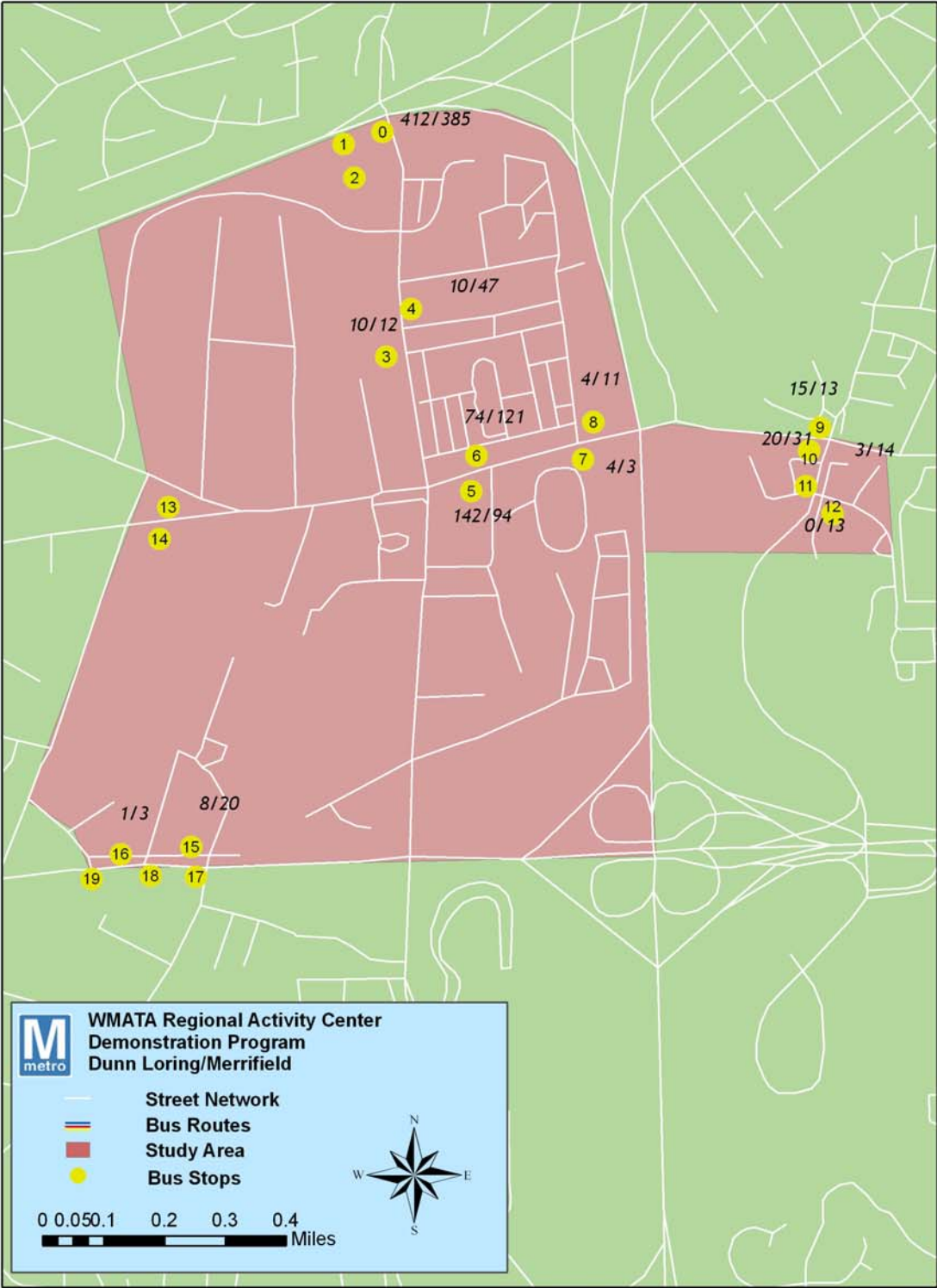
**Table 6-2
Existing Bus Service within the Merrifield Study Area**

<u>WMATA</u>	<u>Headway</u>	
	<u>Peak</u>	<u>Off-Peak</u>
Line 1 - Wilson Boulevard-Fairfax Line		
1B/D - Ballston Metro/US 50/Fairview Bus. Pk/Dunn Loring Metro	30	60
1C/Z/F - Ballston Metro/US 50/Inova Fairfax Hospital/ Inova Fair Oaks Hospital	30	60
Line 2 - Washington Blvd. Line		
2A/C - Ballston/US 29/Dunn Loring Metro/Tysons Corner	30	60
2B/G - US 29	30	60
<u>Fairfax Connector</u>		
Line 401 - Backlick-Gallows Road Line		
Franconia-Springfield Metro/Fairfax Hospital/ Gallows Road/Dunn Loring Metro/Tysons Corner	30	60
Line 402 - Vienna Metro/Dunn Loring Metro/Prosperity Bus. Park	30	n/a

Transit Ridership

The heaviest bus passenger volumes in the study area occur at the Dunn Loring/Merrifield Metro Station. The second highest is at the intersection of Lee Highway and Gallows Road with about 220 daily boardings. Other than these locations, transit ridership within the study area is relatively light. The Fairview Business Park has modest ridership with 50 daily boardings. The majority of remaining stops have fewer than 20 daily boardings. Figure 6-3 shows daily weekday ridership at each stop. Ridership information for the Fairfax Connector routes was provided for each line in the center as shown in Table 6-3. This data was provided by Fairfax County Department of Transportation for 2004.

Figure 6-3
 Dunn Loring/Merrifield
 Boardings & Alightings by Stop



**Table 6-3
Bus Ridership by Route within the Dunn Loring/Merrifield Study Area**

WMATA					
Route	Average Weekday Ridership	AM Peak Riders	PM Peak Riders	Percentage Daily Riders During Peak	Check Date
1B,C,D,E,F,Z Eastbound	1,407	467	478	67%	February 2000
1B,C,D,E,F,Z Westbound	4,147	2,056	875	71%	February 2000
2A,B,C,G Eastbound	1,679	578	514	65%	January 2000
2A,B,C,G Westbound	1,758	586	631	69%	January 2000
Fairfax Connector					
401	2,694				
402/403	211				

Ridership from July 1, 2003-June 30, 2004

**Table 6-4
Rail Ridership, Trip Purpose, and Mode of Access for
Dunn Loring/Merrifield**

Ridership	AM Peak	PM Peak	Total				
Dunn Loring/Merrifield	2,498	855	4,468				
Reason for Trip	Work	Home					
Dunn Loring/Merrifield	17%	71%					
Mode Access	Metrobus	Fairfax Connector	Other Bus	Walk	Bike	Auto	Dropped Off
Dunn Loring/Merrifield	4%	6%	3%	16%	1%	51%	14%

Needs and Opportunities

The Dunn Loring/Merrfield area possesses a high-quality transit asset, the Dunn Loring/Merrfield Metrorail station, that should serve as an anchor for mobility within the activity center. The center's specific characteristics, and specific needs, as determined in the Regional Bus Study and the field review undertaken for this demonstration program, suggest a few opportunities for improving transit service. The following significant needs and opportunities were identified in the field review and stakeholder interviews:

Capital Issues

- Many of the bus stops with the highest number of boardings have insufficient information, incomplete schedules or no map, or do not have a shelter.
- Pedestrian connections between the Metrorail station and surrounding development are incomplete and existing pedestrian paths to the station are poorly marked.

Transit Operational Issues

- No serious operational issues were observed, though truck traffic does back up on some left turns, creating congestion that slows bus travel times.

Recommended Actions

Dunn Loring/Merrifield is a classic suburban area with land use leaning away from its light industrial past and toward a more transit-oriented, mixed use future. As with most of the centers identified in this demonstration program, in addition to service and capital enhancements, there are some demand management tools that could play a significant part in improving transit ridership. As mentioned earlier in this report, improving service, the lynchpin of transit agency strategies for capturing riders, should contribute to improved ridership at Dunn Loring/Merrifield. In particular, as described below, the circulator path could prove the best opportunity for improving mobility for center users, and improving the accessibility of the Dunn Loring/Merrifield Metrorail Station.

Proposed Bus Service and Capital Enhancements

Service

- **Metrobus Route 1B, D**

Test Metrobus routes 1B and 1D at higher frequencies during peak hours in order to establish better accessibility through the Dunn Loring Metrorail station. Currently routes 1B and 1D offer service throughout the week during normal service hours and 1B also offers service on Saturdays. It is recommended to test increasing the frequency of service offered during the weekday peak hours from 30-minute headways to 15-minute headways. No recommendations are suggested for off-peak and weekend service, other than to continue providing such service.

- **Metrobus Route 2C**

Increase the frequency of service from 30-minute headways to 15-minute headways during weekday peak periods to facilitate better connectivity at the Dunn Loring Metrorail station. Currently the Metrobus 2C service is offered seven days a week during normal service hours. No revisions are suggested for off-peak and weekend service.

- **Metrobus Route 2T**

Metrobus route 2T currently provides service seven days a week during normal service hours. In order to provide better connectivity at the Dunn Loring Metrorail station, it is proposed to test increased service frequency of the Metrobus 2T route during weekday peak periods. Increase the peak frequency from 30-minute headways to 15-minute headways. Off-peak and weekend service should continue.

- **Fairfax Connector Route 401**

This popular route is currently provided weekdays and weekends during normal operating hours. An extended peak service is offered during the week at 30-minute headways and 60-minute headways off-peak. It is recommended to test increasing the peak and off-peak service on weekdays to 15-minute and 30-minute headways respectively to better facilitate the connections at the Dunn Loring Metrorail Station.

- **Fairfax Connector Route 402/403**

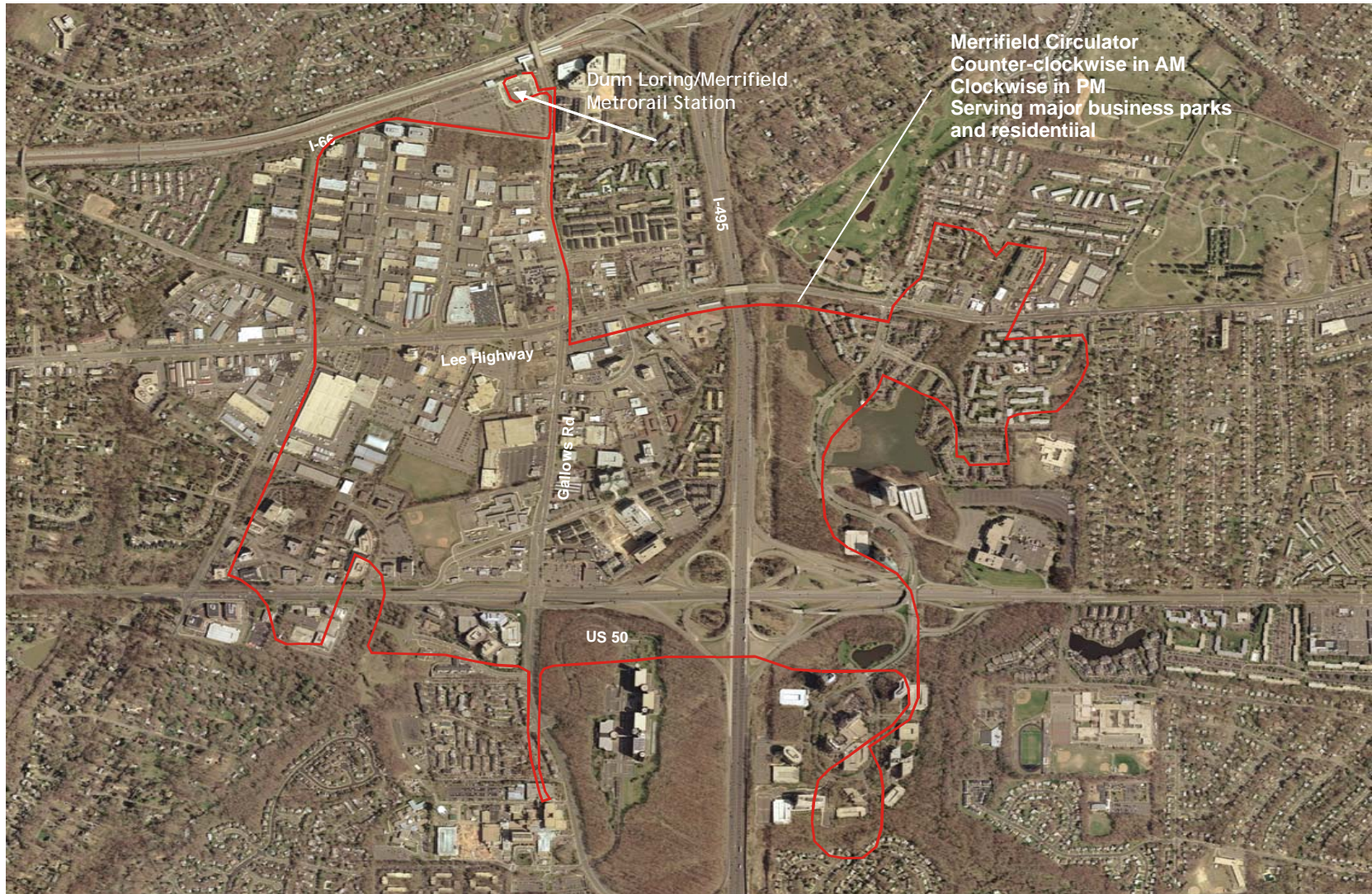
Route 402 service is currently offered eastbound during the weekday morning peak and westbound during the weekday evening peak. Route 403 is currently offered westbound during the weekday morning peak and eastbound during the weekday evening peak. The existing service operates on about 30-minute headways. It is proposed to increase the frequency of service to 15-minutes to increase service at the Dunn Loring/Merrifield Metrorail station.

- **Dunn Loring/Merrifield Circulator**

This circulator, proposed in the Regional Bus Study, would improve transit access to Merrifield employment opportunities, especially for reverse commuters. It would provide a direct connection between Dunn Loring/Merrifield Metrorail station and area employers via Prosperity Avenue and Gallows Road. Service would operate six days a week. During the peak hours the service would be provided at 12-minute headways. All other times service would be provided at 24-minute headways. This report recommends greater coverage than that included in the Regional Bus Study. As shown in Figure 6-4, the extended routing would serve all major business centers as well as several residential areas. If the travel times are excessive to the farthest destinations, the route could be operated bi-directionally or split into two routes, each terminating at the Dunn Loring/Merrifield Metrorail station.



Figure 6-4 Detail of Revised Circulator Route



Regional Bus Study Recommendations

- **Springfield - Tysons Center Limited Stop**

Introduce a new peak-period, limited-stop service, as recommended by the Regional Bus Study. It would provide premium service in the Springfield-Annandale-Tysons Corner corridor. The proposed route would run every 15 minutes during the peak periods only with no weekend service.

Capital

Current boarding numbers indicate that there are significant numbers of patrons waiting at these stops. During field observations, it was noted that between 5-10 patrons were waiting, usually sitting on the grass swale separating the stop from adjacent parking. There is little space where patrons can wait, and no shelter from weather.

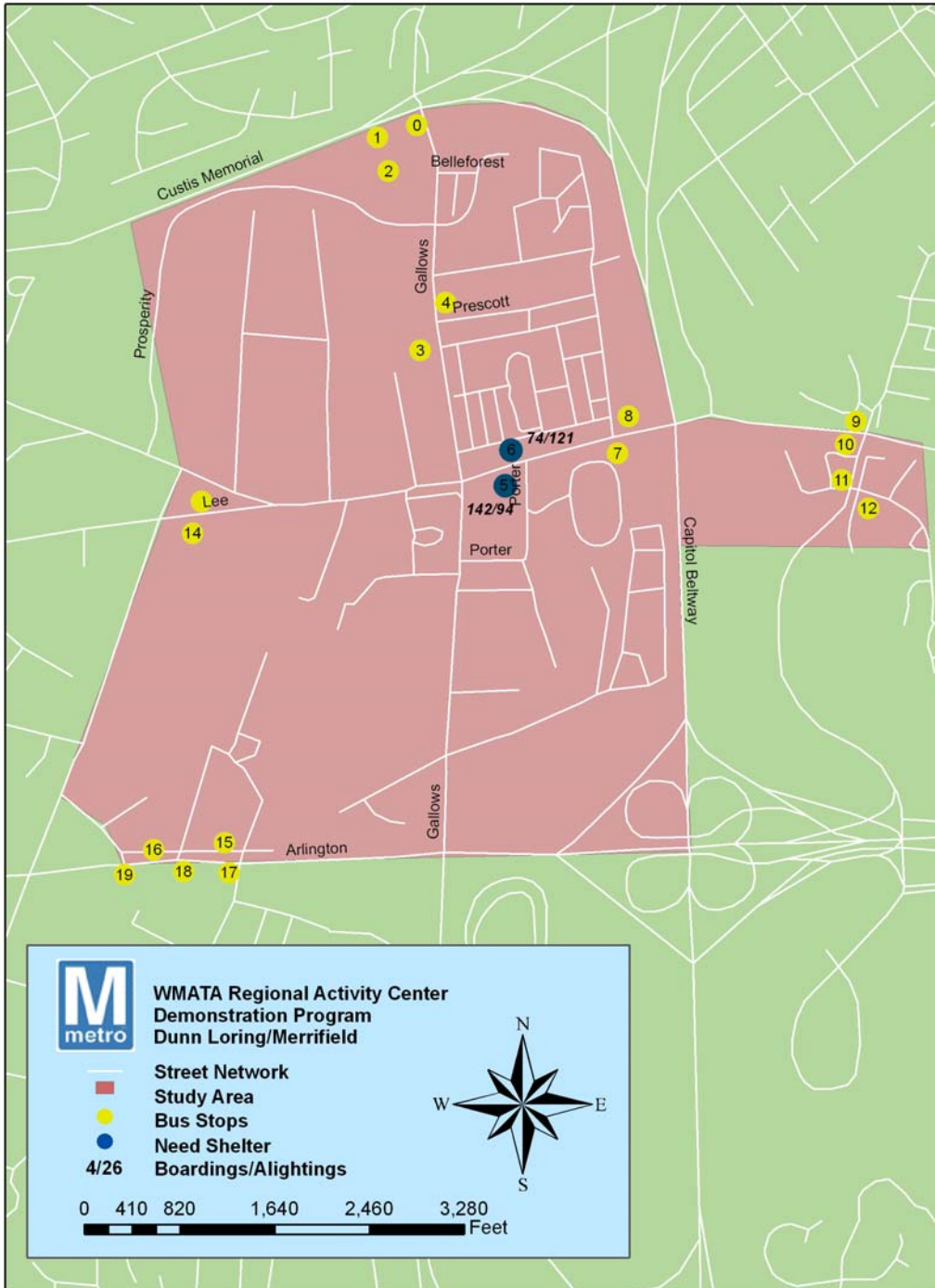
Shelters should be provided at:

- Stop #5 EB Lee Highway at Gallows Road
- Stop #6 WB Lee Highway at Gallows Road

Service and capital improvements are shown on Figure 6-5.



Figure 6-5
 Dunn Loring/Merrifield
 Bus Stops Recommended for Shelters



Summary

The recommended bus service improvements in the Dunn Loring/Merrifield activity center include higher-frequency service on several existing routes. In addition, a limited-stop service and a circulator are recommended to provide premium service in the heavily traveled corridor and better accessibility to employment opportunities. The enhancements described above would provide an additional 56,000 annual vehicle revenue hours at a cost of about \$5.4 million annually, and 24 additional peak buses would be required for a total capital investment of about \$8 million.

The service improvements operations matrix is shown on the next page. Costs shown are in 2005 dollars.

Dunn Loring/Merrifield Operating Plan Matrix

Proposed Service Enhancements		Additional Annual Vehicle Revenue Hours (VRH)	Additional Daily Peak Vehicles	Additional Annual Operating Cost	Additional Annual Operating Cost/VRH	Annual Ridership Change	Additional Capital Cost - Buses	Service Effectiveness: Ridership/Revenue hours
Metrobus 1B/1D : <i>Only peak hour service calculated</i>	Proposed Service	6,000	3	\$480,000	\$80	227,400	\$1,090,100	38
Metrobus 2C: <i>Only peak hour service calculated</i>	Proposed Service	6,000	3	\$480,000	\$80	69,700	\$1,090,100	12
Metrobus 2T: <i>Only peak hour service calculated</i>	Proposed Service	6,000	3	\$480,000	\$80	33,500	\$1,090,100	6
Fairfax Connector 401: <i>Peak and Off-Peak service calculated</i>	Proposed Service	4,750	1	\$380,000	\$80	263,700	\$363,400	56
Fairfax connector 402/403 : <i>Only peak hour service calculated</i>	Proposed Service	3,000	2	\$240,000	\$80	19,100	\$726,700	6
Springfield-Tysons Center Limited Stop	Regional Bus Study Enhancement	7,500	5	\$1,109,100	\$148	123,800	\$1,816,800	17
Merrifield-Dunn Loring Circulator	Regional Bus Study Enhancement	23,000	7	\$1,798,500	\$79	243,900	\$1,855,800	11
Center Total		56,000	24	\$5,040,000	\$90	981,100	\$8,032,800	18

Supportive policies to promote transit usage

As noted, the most significant way to improve transit usage is to upgrade existing service. However, there are several supportive policies that, as a package with service and capital improvements, would promote transit usage in Dunn Loring /Merrifield. These include information and programmatic strategies that might be appropriate for Dunn Loring/ Merrifield.

- Ensure that existing information at all area bus stops and signage and directions within the Dunn Loring/Merrifield station are up to date and accurate.
- Improve pedestrian and bike facilities at Dunn Loring/Merrifield station. The most direct pedestrian connection from new development along Prosperity Avenue is directly across from the station parking entrance, where there are no sidewalks. Currently the grass alongside the vehicle entrance is worn, indicating impromptu pedestrian activity through the parking lot and onto Prosperity Avenue.
- Improve utilization of SmarTrip cards by cross-section of workers in area. The use of SmarTrip for boarding area buses, including Fairfax Connector buses, would improve boarding times.
- Work with existing local business transportation committee as they develop into a transportation management association and assist with potential shuttle operations.
- Work with new developers to create transit incentive programs at both employment and residential sites.
- Coordinate with new development to encourage pedestrian access to bus and rail transit facilities.
- Partner with Fairfax County to serve transit oriented development with transit service.
- Advocate that Fairfax County ensure a seamless sidewalk network from new development and redevelopment in the study area to the Metrorail station.

Phasing and Timing of Activities

The service and capital improvements can be implemented as soon as funding is identified. The new shuttle, in particular, would help improve center transit usage by bringing patrons from the disparate center nodes to the principle transit asset, the Dunn Loring-/Merrifield station. These activities, combined with information at shelters and marketing campaigns to area employers and new residential communities should happen in the near term. Additionally, in the near term, coordination should continue with the existing business organization, including providing technical expertise concerning shuttle operations.

Short-Term Actions

2006	Implement service improvements in next round of operations adjustments
2006-2007	Implement shelter improvement with the next round of capital improvements
2006	Provide updated route maps and schedules at all area bus stops
2006	Improve pedestrian and bicycle facilities at Dunn Loring station
2007	Develop and execute an outreach campaign with area employers to educate area residents and employees about transit use, specifically SmarTrip and MetroChek programs
2006-2007	Work with area transportation committee as they consider forming a TMA, provide operations expertise

Long-Term Actions

As development progresses in the center, coordination should take place with area developers, Fairfax County, and the existing local business transportation committee to ensure that new development is served with transit, and that pedestrian connections are maintained and enhanced. In particular, new premium service from between the Dunn Loring/Merrifield activity center and Tysons Corner would, in the long-term, help to adjust the mode split in favour of transit.

Potential Costs and Jurisdictional Responsibilities

As stated above, the probable costs associated with the enhancements described would provide an additional 56,000 annual VRH at a cost of about \$5.4 million annually, and 24 additional peak buses would be required for a total capital investment of about \$8 million. The capital improvements would cost in a range described below:

Table 6-5 Potential Costs

Improvements	unit	Unit cost	Estimated Dollar Amount	WMATA	Fairfax County	Private
Capital						
Vehicles	24 buses	260,000	\$ 6,240,000	x		
New Shelters	2 shelters	10,000	\$ 20,000			x
Maps & Signs at bus stops	20 bus stops	500	\$ 10,000	x		
ITS displays	10 displays	25,000	\$ 250,000	x		
Crosswalk painting	6 crosswalks	120	\$ 720		x	
Traffic calming	4 neckdowns	240	\$ 960		x	
total			\$ 6,521,680	\$ 6,500,000	\$ 1,680	\$ 20,000
Maintenance -- annual						
Shelters	2	200	\$ 400			x
Information	20	100	\$ 2,000	x		
Crosswalk & traffic calming	10	120	\$ 1,200		x	
total			\$ 3,600	\$ 2,000	\$ 1,200	\$ 400
TOTAL			\$ 6,525,280	\$ 6,502,000	\$ 2,880	\$ 400

Measuring Performance

Establish base level ridership for each stop and Dunn Loring/Merrifield station.

- Do counts after improved information and signage are carried out.

Determine base level participation in the MetroChek program.

- Recount after information campaign and MetroChek outreach to new employers in the area.

Measure ridership on new circulator.

Conclusion

Like Largo Town Center, the Dunn Loring/Merrifield activity center is poised for substantial change. And like Largo Town Center, Dunn Loring/Merrifield already possesses a high-quality transit facility that should be capitalized upon, its Metrorail station. Implementing a well-routed circulator could do much to capture new riders and improve mobility in the center. Redevelopment of various parcels within the immediate vicinity of the Dunn Loring/Merrifield Metrorail station indicates the level and intensity of development that Fairfax County is eager to pursue in this study area in the future. More dense, more transit-oriented development will be easier for WMATA to match with tailored bus transit service. Another opportunity at Dunn Loring/Merrifield is the growing interest among the business community to implement shuttle service for the burgeoning growth. WMATA should form partnerships to supply operations and other technical expertise with area transportation committees and business organizations. However, the most significant opportunity for enhancing transit service in the corridor and demonstrating WMATA's commitment to customer service consists of supplying shelters at the two high-volume boarding stops. Although shelters were recommended for all of the centers in the demonstration program, these particular shelters would not only serve as a passenger amenity, but should act as an indicator to motorists of pedestrian activity in the area, and hopefully, improve the safety of pedestrians at this intersection.

