
FAIRFAX CUE TRANSIT DEVELOPMENT PLAN: FISCAL YEARS 2011-2016



Updated October 2010
(Final)

Prepared by:



Under Sub-Contract to:



Under Contract to:



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1.0 OVERVIEW OF FAIRFAX, VA TRANSIT SERVICES

The City of Fairfax is a City located within Fairfax County, VA. The City's 2000 census population was 21,498. The estimated 2008 population from the Census was 23,844, reflecting a 10.9% increase over the 8-year period. Primary employment centers are George Mason University, Old Town Fairfax, the Fair City Mall commercial area on the east side of the city, the Jermantown Town Road/Lee Highway commercial area on the west side of the city and the Fairfax County Judicial Center. Major roadways nearby or within the City of Fairfax include: I-66, US 50 and US 29 (Fairfax Boulevard and Lee Highway), Route 236 (Main Street) and Route 123 (Chain Bridge Road).

1.1 Transit Background/History

The City-University-Energysaver (CUE) bus system is owned and operated by the City of Fairfax, and is partially funded by George Mason University (GMU), through a long-standing partnership. CUE provides low-cost transit service within the city, to and from the Vienna/Fairfax-GMU Metrorail Station and to and from the GMU Fairfax campus. CUE buses operate seven days a week.

The CUE service started in 1980 in response to increased traffic and parking congestion on the George Mason University campus, and transit service needs of City residents and businesses.

There are other transit service providers within the City of Fairfax. WMATA provides service within Fairfax with several routes. WMATA's Vienna/Fairfax-GMU Metrorail station is also located just north of the City, at I-66 and Nutley Street. The Fairfax Connector provides limited service to/from George Mason University (however, this route provides service from the south, and not through the City of Fairfax). George Mason University has also begun its own shuttle services.

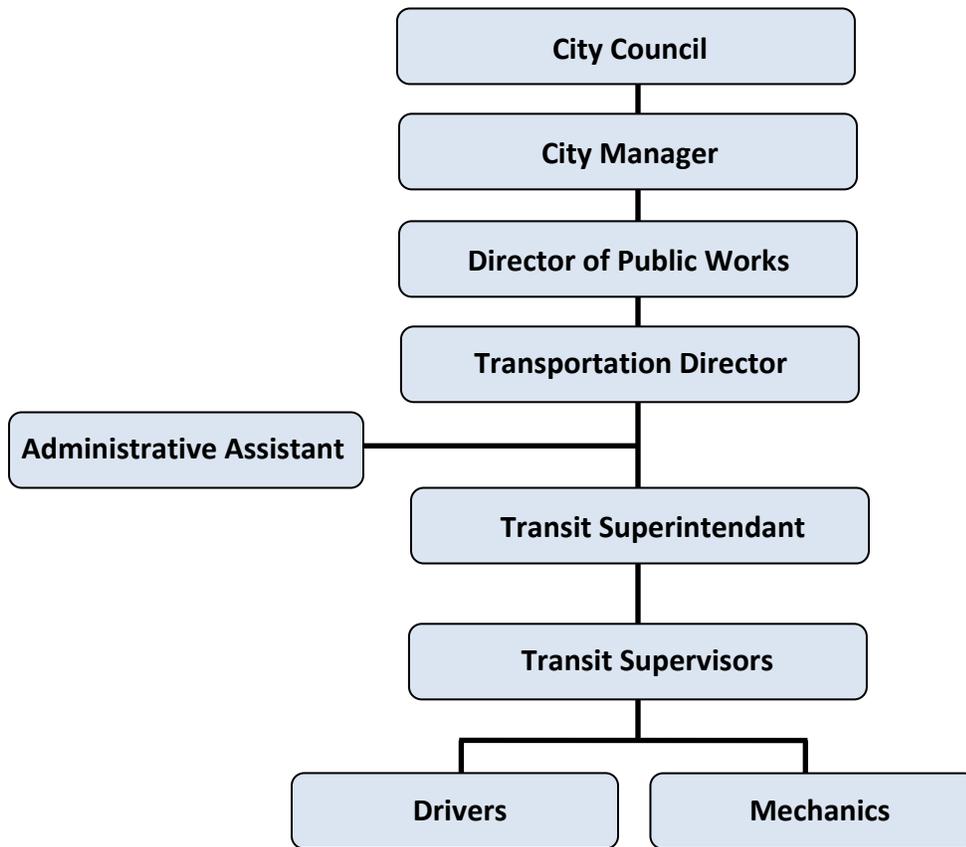
1.2 Organizational and Governance Structure

CUE is owned and operated by the City of Fairfax. Figure 1-1 illustrates an organizational chart for CUE service. Decisions regarding CUE service are ultimately made by the Mayor and City Council. The day-to-day operations are administered through the City's Public Works department.

The Fairfax City Council consists of a mayor and six City Council members. The Mayor and Council are elected on an at-large, non-partisan basis for concurrent two-year terms. The Mayor presides over Council meetings, casts the deciding vote in the event of a tie, and represents the City in a ceremonial capacity.

The City Council is responsible for establishing and appointing members to boards and commissions, and charging them with specific responsibilities. Many of the City's boards and commissions provide recommendations to the Council to assist in its decision making. City Council meetings are held on the 2nd and 4th Tuesdays of each month. Some transit-related issues may also be brought forth to the City's Planning Commission. Those meetings are held on the 2nd and 4th Mondays of each month.

**Figure 1-1
CUE Bus Service
Organizational Structure**



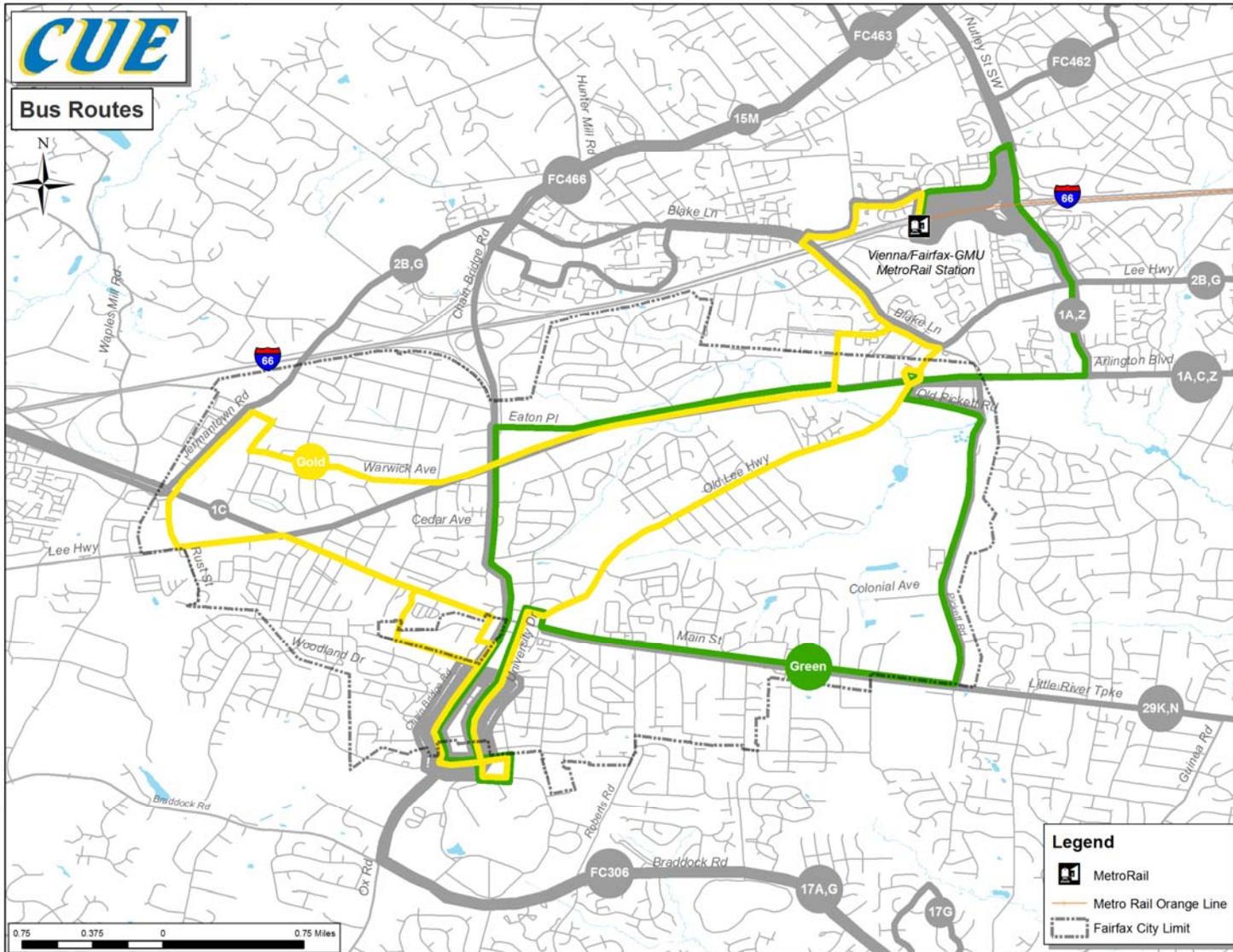
1.3 Transit Services Provided and Areas Served

As noted above, there are multiple transit operators providing service within the City of Fairfax, which are:

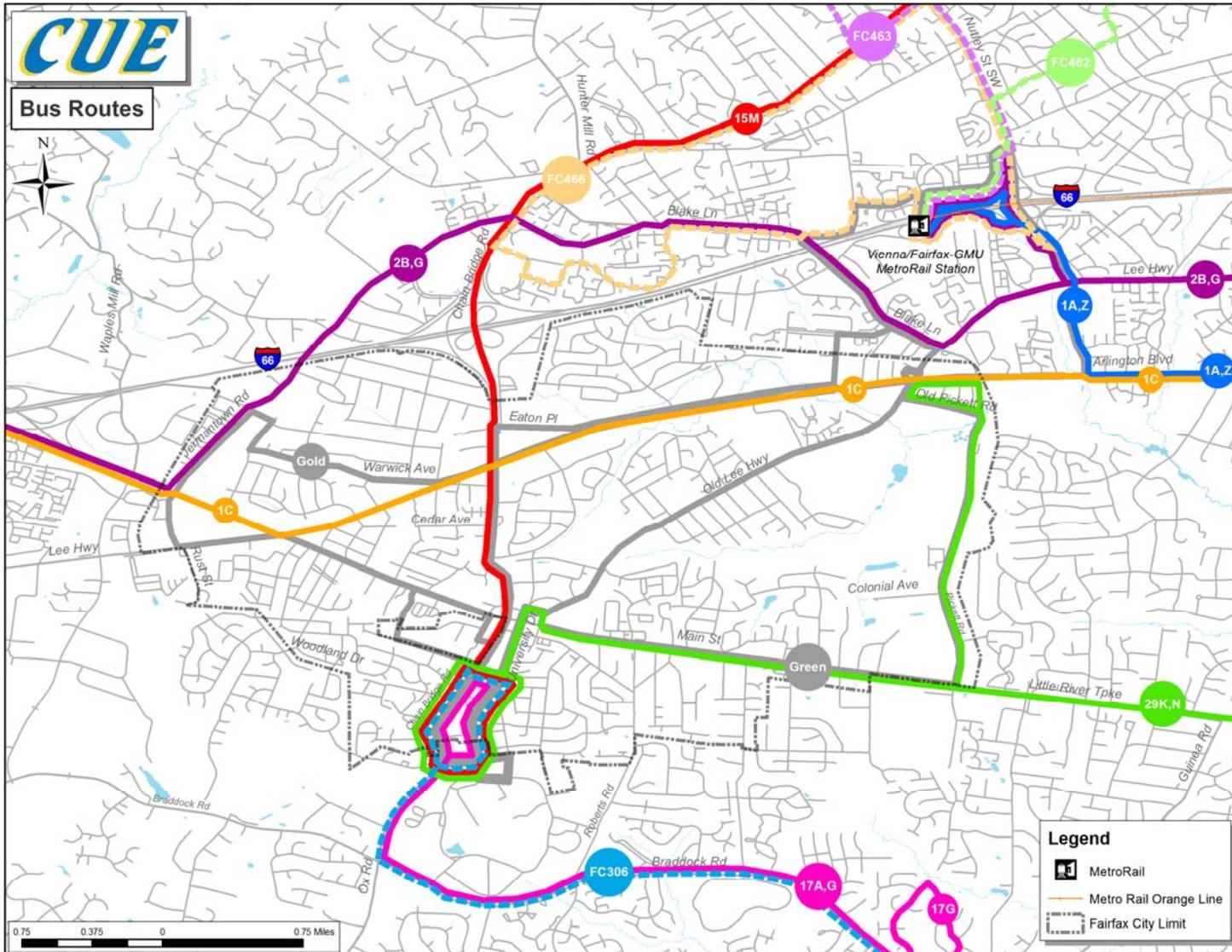
- City of Fairfax (CUE)
- George Mason University (Mason Shuttles)
- Fairfax County (Fairfax Connector)
- WMATA (Metrorail and Metrobus)

In addition to the above, WMATA provides paratransit service within Fairfax through its METRO ACCESS program. The City also provides specialized transportation services through its CITY WHEELS program. Following is a brief description of each transit service that is presently provided within the City of Fairfax. Figure 1-2 illustrates CUE route alignments. Figure 1-3 illustrates MetroBus and Fairfax Connector route alignments.

**Figure 1-2
CUE Bus Route Alignments**



**Figure 1-3
WMATA and Fairfax Connector Route Alignments**



1.3.1 City of Fairfax

The City operates CUE, which is comprised of two Green and two Gold bus routes. Both routes of the same color function primarily as one-way loops operating in opposite directions.

CUE Green 1

Green 1 operates in a clockwise pattern. From the GMU campus, this route follows University Drive, Chain Bridge Road, Eaton Place, and Fairfax Boulevard to Fairfax Circle. From here, Green 1 operates to and from the Metrorail station along the same alignment as Green 2 using Arlington Boulevard, Nutley Street, and Virginia Center Boulevard. Upon returning south to Fairfax Circle, Green 1 continues in a clockwise direction back to GMU along Old Pickett and Pickett Roads, Main Street, North Street, University Drive and George Mason Boulevard.

| CUE Green 1 | Approx. Span of Service | Approx. Freq. (in minutes) | | | |
|-------------|-------------------------|----------------------------|--------|------------|------------|
| | | Peak | Midday | Early Eve. | Late. Eve. |
| Weekday | 5:30 AM – 11:45 PM* | 35 | 35 | 65 | 60 |
| Saturday | 8:25 AM – 8:35 PM | 65 | | 65 | n/a |
| Sunday | 10:00 AM – 6:00 PM | 65 | | n/a | n/a |

* There is one additional round trip on Fridays, with service ending at 12:42 a.m.

CUE Green 2

Green 2 operates in a counterclockwise pattern. From the GMU campus, this route follows George Mason Boulevard, University Drive, North Street, Main Street, Pickett and Old Pickett Roads to Fairfax Circle and then along the same alignment as Green 1 using Arlington Boulevard, Nutley Street, and Virginia Center Boulevard to the Metrorail Station and back to Fairfax Circle. From here, Green 2 continues in a counterclockwise direction to GMU Campus along Fairfax Boulevard, Eaton Place, Chain Bridge Road, University Drive and George Mason Boulevard.

| CUE Green 2 | Approx. Span of Service | Approx. Freq. (in minutes) | | | |
|-------------|-------------------------|----------------------------|--------|------------|------------|
| | | Peak | Midday | Early Eve. | Late. Eve. |
| Weekday | 5:15 AM – 8:45 PM | 35 | 35 | 65 | n/a |
| Saturday | 8:00 AM – 8:15 PM | 65 | | 65 | n/a |
| Sunday | 9:30 AM – 5:30 PM | 65 | | n/a | n/a |

Each Green route requires two buses to operate its schedule for a total Green route vehicle requirement of four buses.

CUE Gold 1

Gold 1 operates in a clockwise pattern. From the GMU campus, this route follows University Drive, Chain Bridge Road, West Street, Main Street, Lee Highway, Jermantown Road, Orchard Street, Bevan Drive, Warwick Avenue and Fairfax Boulevard to Draper Drive and Kingsbridge Drive. From here, Gold 1 operates to and from the Metrorail station along Blake Lane, Sutton Road and Country Creek Road. Upon returning south to Fairfax Circle, Gold 1 continues in a clockwise direction along Old Lee Highway, North Street, University Drive and George Mason Boulevard to the GMU campus.

| CUE Gold 1 | Approx. Span of Service | Approx. Freq. (in minutes) | | | |
|------------|-------------------------|----------------------------|--------|------------|------------|
| | | Peak | Midday | Early Eve. | Late. Eve. |
| Weekday | 5:40 AM – 11:45 PM* | 30-35 | 30-35 | 65 | 60 |
| Saturday | 8:25 AM – 8:50 PM | 60 | | 60 | n/a |
| Sunday | 10:00 AM – 6:30 PM | 60 | | n/a | n/a |

* There is one additional round trip on Fridays, with service ending at 12:46 a.m.

CUE Gold 2

Gold 2 operates a counterclockwise pattern. From the GMU campus, the route follows George Mason Boulevard, University Drive, North Street and Old Lee Highway to Fairfax Circle. From Fairfax Circle, Gold 2 follows Lee Highway, Blake Lane, Sutton Road and Country Creek Road to the Metrorail Station. From the Metrorail Station, Gold 2 returns along Country Creek Road, Sutton Road and Blake Lane and turns west at Kingsbridge Drive and south on Draper Drive to Fairfax Boulevard. Gold 2 travels along Fairfax Boulevard, Warwick Avenue, Bevan Drive, Orchard Street, and Jermantown Road to Lee Highway. From there, this route follows Lee Highway, Main Street, Judicial Drive, Chain Bridge Road and University Drive to the GMU campus.

| CUE Gold 2 | Approx. Span of Service | Approx. Freq. (in minutes) | | | |
|------------|-------------------------|----------------------------|--------|------------|------------|
| | | Peak | Midday | Early Eve. | Late. Eve. |
| Weekday | 5:25 AM – 9:50 PM | 30-35 | 30-35 | 60 | n/a |
| Saturday | 8:00 AM – 8:30 PM | 60 | | 60 | n/a |
| Sunday | 9:30 AM – 6:00 PM | 60 | | n/a | n/a |

Each Gold route requires two buses to operate its schedule for a total Gold route vehicle requirement of four buses.

Paratransit Service

The City of Fairfax provides paratransit service through contracted taxi providers (a program called “City Wheels”). Eligibility requires certification by a doctor. Paratransit patrons traveling outside City limits (except to a hospital) will generally be referred to WMATA’s paratransit service.

1.3.2 George Mason University

George Mason University provides five shuttle routes for its students, faculty and staff. Collectively called “Mason Shuttles”, the service is part of the University’s Parking & Transportation Department and is operated by Reston Limousine. Any person with valid GMU identification can ride the shuttles free of charge.

Prince William Shuttle

This route travels between the University’s Fairfax and Prince William campuses, Monday through Friday, making stops at several places including the Manassas Mall.

| Prince William | Span of Service | Average Freq. (in minutes) | | |
|----------------|--------------------|----------------------------|--------|---------|
| | | Peak | Midday | Evening |
| Weekday | 6:30 AM – 11:00 PM | 60 | 60 | 60 |

Mason to Metro Shuttle

This route provides service between GMU’s Fairfax Campus and the Vienna/Fairfax-GMU Metrorail Station, including stops at the Commerce Building on University Drive. There is also late evening service on Fridays, Saturdays and Sundays, when the Fairfax CUE is not operating.

| Mason/Metro | Span of Service | Average Freq. (in minutes) | | |
|-------------|-----------------------------|----------------------------|--------|---------|
| | | Peak | Midday | Evening |
| Weekday | 6:00 AM – Midnight | 15-30 | 30 | 30 |
| Friday Late | 11:30 PM – 4:00 AM (Sat) | --- | --- | 30 |
| Saturday | 8:30 PM – 4:00 AM (Sun) | --- | --- | 30 |
| Sunday | 5:30 PM – Midnight | --- | --- | 30 |

Gunston’s Go-Bus

This shuttle operates two routes (“George” and “Mason”) during the afternoon and evening that circulate among area shopping centers. Gunston’s Go-Bus offers additional, late night service on Friday and Saturday nights.

| Gunston’s | Span of Service | Average Freq. (in minutes) | | |
|---------------|-----------------------------|----------------------------|--------|---------|
| | | Peak | Midday | Evening |
| Every Day | 3:00 – 10:00 PM | --- | --- | 60 |
| Friday Late | 10:00 PM – 2:00 AM (Sat) | --- | --- | 30 |
| Saturday Late | 10:00 PM – 2:00 AM (Sun) | --- | --- | 30 |

Campus Circulator

Two Campus Circulator routes (Green and Gold) connect the Field House, Recreation & Athletic Complex, President’s Park, the CUE shelter next to the Rappahannock Parking Deck, Sandy Creek Shuttle, and the West Campus Parking Lot. Buses operate every 40 minutes on weekdays although combined headways can provide more frequent service (20 minutes) depending on the stop. The Gold route also operates on Sunday afternoons and evenings. The Campus Circulator does not run on Saturdays.

| Campus Circ. | Span of Service | Average Freq. (in minutes) | | |
|------------------------|-------------------|----------------------------|--------|---------|
| | | Peak | Midday | Evening |
| Green Route Weekday | 7:00 AM – 1:25 AM | 40 | | |
| Gold Route Weekday | 7:00 AM – 1:35 AM | 40 | | |
| Gold Route Sunday | 1:40 PM – 1:35 AM | --- | --- | 40 |

Field House Shuttle

For those parking at the Field House, the shuttle route will run continuously from the Field House to the CUE bus stop adjacent to Rappahannock River Parking Deck and back from 8:00 AM until 11:00 PM Monday through Thursday, throughout the semester. When parking demand at the Field House general lots warrants, a second shuttle will be added to this route. With two buses running, the headway on this route will be approximately five minutes. When only one bus is in operation, service will be every ten minutes. There is no Field House Shuttle on Fridays, although those parking at Field House can still catch one of the Campus Circulators on its route back to East Campus.

1.3.3 Fairfax County

Route 306 – GMU Line

Route 306 is a Fairfax Connector route that operates between George Mason University and the Pentagon Metrorail Station. This route uses Chain Bridge Road, Braddock Road, Little River Turnpike and I-395, with deviations along Lake Braddock Drive and to the Landmark Center. Six trips are provided in each direction during the midday periods on weekdays.

| 306 | Span of Service | Average Freq. (in minutes) | | |
|---------|-------------------|----------------------------|--------|---------|
| | | Peak | Midday | Evening |
| Weekday | 9:00 AM – 4:00 PM | --- | 70 | --- |

1.3.4 WMATA Metrobus

1C – Fair Oaks-Dunn Loring Line

Route 1C operates between the Fair Oaks Mall and the Dunn-Loring-Merrifield Metrorail Station along Main Street, US 50 (Fairfax Boulevard and Arlington Boulevard), and Gallows Road. On weekdays, the earliest eastbound trips (before 7:20 AM) originate from Fairfax Circle.

| 1C | Span of Service | Average Freq. (in minutes) | | |
|----------------|--------------------|----------------------------|--------|---------|
| | | Peak | Midday | Evening |
| Weekday (West) | 6:40 AM – 11:50 PM | 36 | 50 | 40 |
| Weekday (East) | 4:50 AM – 11:20 PM | 36 | 45 | 50 |
| Saturday | 6:30 AM – 11:00 PM | 60 | | |
| Sunday | 7:30 AM – 9:30 PM | 60 | | |

15M – George Mason University-Tysons Corner Line

Route 15M provides weekday peak period service between GMU and Tysons Corner Shopping Center along Chain Bridge Road/Maple Avenue, Leesburg Pike, Gallows Branch Road and Towers Crescent Drive.

| 15M | Span of Service | Average Freq. (in minutes) | | |
|----------------|-----------------|----------------------------|--------|---------|
| | | Peak | Midday | Evening |
| Weekday (West) | 6:15 – 10:30 AM | 40 | --- | --- |
| | 4:00 – 8:00 PM | | | |
| Weekday (East) | 5:50 – 8:40 AM | 40 | --- | --- |
| | 3:00 – 6:40 PM | | | |

17A – Kings Park Line

Route 17A operates a few trips on weekdays between George Mason University and the Pentagon Metrorail Station. The alignment includes Chain Bridge/Ox Road, Braddock Road, Little River Turnpike, and I-395.

| 17A | Span of Service | Average Freq. (in minutes) | | |
|----------------------------|-----------------|----------------------------|--------|---------|
| | | Peak | Midday | Evening |
| Weekday - To Pentagon | 8:00 – 10:00 AM | 2 trips | --- | --- |
| | 4:00 – 7:00 PM | 4 trips | --- | --- |
| | 7:45 – 9:45 PM | --- | --- | 2 trips |
| Weekday - From Pentagon | 6:50 – 9:00 AM | 3 trips | --- | --- |
| | 2:55 – 4:00 PM | 1 trip | --- | --- |
| | 8:00 – 11:00 PM | --- | --- | 3 trips |

17G – Kings Park Express Line

Route 17G provides weekday service between George Mason University and the Pentagon Metrorail Station using Chain Bridge/Ox Road, Braddock Road, I-495, and I-395. This route provides a faster trip to/from the Pentagon rail station than 17A by using I-495 instead of Braddock road/Little River Turnpike.

| 17G | Span of Service | Average Freq. (in minutes) | | |
|----------------------------|-----------------|----------------------------|--------|---------|
| | | Peak | Midday | Evening |
| Weekday – To Pentagon | 6:00 – 8:30 AM | 25 (6 trips) | --- | --- |
| Weekday - From Pentagon | 4:00 – 7:30 PM | 20 (10 trips) | --- | --- |

2B/2G – Washington Blvd. Line

Routes 2B/2G provides service from Fair Oaks Mall to the Vienna/Fairfax-GMU Metrorail station, with continuing service to the Ballston-MU station. This route follows Hwy 50, Jermantown Road, Blake Lane, Lee Highway and Nutley Street to the Vienna/Fairfax-GMU rail station. The route then continues back on Nutley Street, Lee Highway and Washington Street to the Ballston-MU station. Service within the City of Fairfax is provided on these routes on weekdays and Saturdays, but not on Sundays.

| 2B/2G | Span of Service | Average Freq. (in minutes) | | |
|--------------|--------------------|----------------------------|--------|---------|
| | | Peak | Midday | Evening |
| Weekday | 5:30 AM – 11:30 PM | 30 | 60 | 60 |
| Saturdays | 6:30 AM – 11:00 PM | 60 | | |

29K – Alexandria-Fairfax Line

Routes 29K begins at George Mason University, goes north to downtown Fairfax, then east along Main Street, Little River Turnpike, and Duke Street to the King Street Metrorail station and downtown Alexandria. Service is provided on weekdays only.

| 29K | Span of Service | Average Freq. (in minutes) | | |
|------------|--------------------|----------------------------|--------|---------|
| | | Peak | Midday | Evening |
| Weekday | 6:00 AM – 11:30 PM | 30-60 | 60 | 60 |

29N – Alexandria-Fairfax Line

Routes 29N begins at the Fairfax Circle and travels down Pickett Road to Main Street/Little River Turnpike. This route then follows the 29K alignment to the King Street Station and downtown Alexandria. This route provides limited peak period service on weekdays, and all-day Saturday service. There is no service on Sundays.

| 29N | Span of Service | Average Freq. (in minutes) | | |
|------------|--------------------|----------------------------|--------|---------|
| | | Peak | Midday | Evening |
| Weekday | Peak Periods Only | 3 am/5 pm trips | n/a | n/a |
| Saturdays | 6:00 AM – 10:30 PM | 60 | | |

1.3.5 WMATA MetroRail

The City of Fairfax is also served by the nearby Vienna/Fairfax-GMU Metrorail station. This is the end-of-line station on the Orange Line. This station is located at I-66 and Nutley Street, with access from both the north and south sides of I-66. CUE buses stage at bus bays located on the north side. Parking is available at \$4.50 per day.

Rail service at this station begins at approximately 5:00 a.m. and ends at about 11:30 p.m. on weekdays, with Friday service extended until 2:30 a.m. Weekday frequencies range from 6-minutes (peak) to 20 minutes (evening). Saturday service is from approximately 7:00 a.m. until 2:30 a.m. on Sunday, with frequencies ranging from 12 to 20 minutes. On Sundays, service is from approximately 7:00 a.m. until 11:30 pm., with frequencies ranging from 15 to 20 minutes.

1.4 Fare Structure

CUE buses accept cash fares and SmarTrip cards. Prior to April 1, 2010, the base fare was \$1.35, or \$1.25 when using a SmarTrip card. Beginning April 1, 2010, the base fare increased to \$1.45, or \$1.35 when using a SmarTrip card. Although not a discounted fare, ten-ticket books are available for \$14.50 as a convenience. Transferring from one CUE bus to another requires payment of an additional base fare unless the passenger is using a SmarTrip card. A discounted fare of \$0.75 is available with proper identification for persons with disabilities, all citizens aged 60 or older, high school, intermediate and elementary students.

Free rides are available for:

- Children three years old and younger when accompanied by an adult,
- George Mason students, faculty and staff upon presenting a valid University ID card, and
- People with a Metro Access ID card.

The fare for a paratransit trip is \$2.90.

1.5 Vehicle Fleet

The City of Fairfax owns and operates an active revenue fleet of 12 buses. Model years for these vehicles are evenly divided between 2003 and 2009. The 2009 buses are hybrid-electric buses. In addition, the City has one older bus (1997 mode) that is used for special events. There are 5 other 1997 vehicles that are no longer in active use. All buses on every CUE route are fully accessible. Each bus also has a two-bicycle rack installed on the front. Table 1-1 summarizes the existing CUE fixed-route revenue fleet.

The City does not directly operate any paratransit service, choosing to contract with local taxi companies instead through a program called City Wheels. Therefore, no paratransit vehicles are owned by the City.

**Table 1-1
CUE Fixed-Route Revenue Fleet**

| Vehicle Id # | Year | Useful Life | Make | Seated Capacity | # of Vehicles |
|----------------------------|------|-------------|--------|-----------------|---------------|
| 815 | 1997 | 12 years | Gillig | 29 | 1 |
| 821-826 | 2003 | 12 years | Gillig | 29 | 6 |
| 827-832 | 2009 | 12 years | Gillig | 32 | 6 |
| Total Revenue Fleet | | | | | 13 |

The City also has the following four support vehicles for CUE service:

- 1997 Chevy Blazer
- 2001 Chevy Van
- 2004 Chevy S-10 Pick-Up Truck
- 2007 Chevy Trailblazer

1.6 Facilities

The City's transit facility is at the City's Property Yard. There is a trailer that houses the transit operations. This facility includes a maintenance building with two bus bays and a bus wash facility. The area where buses are stored and maintained is situated behind a chain link fence and gate.

The City of Fairfax also maintains bus stops along the CUE routes. The number of designated stops by route is as follows:

- Gold 1 – 64 stops
- Gold 2 – 66 stops
- Green 1 – 59 stops
- Green 2 – 56 stops

Many of these stops are common to two or more routes. For example, all four routes stop at the GMU Transit Center. Similarly, Green 1 and Gold 1 share the same stop at University Drive and Armstrong Street (City Hall). Stops typically have a sign that designates the stop as a CUE bus stop location, decals on the sign that identify route(s) that serve that stop, a phone number for information, and schedule. Trash receptacles are also at select stop locations.

The City of Fairfax has also taken great strides to have bus passenger shelters at many stops. There are a total of 42 passenger shelters at CUE bus stops. The City owns and maintains all but two of these stops. The other two passenger shelters are WMATA-owned shelters that are at stops shared by both WMATA and CUE bus service. Shelters include a bus map and schedule posted on a shelter panel. A list of shelter locations is provided in Appendix A at the end of this report.

The City of Fairfax has also invested in "NextBus". This system uses an Automatic Vehicle Locator (AVL) system that is on all CUE buses to track bus locations in "real time". The NextBus system generates an estimated time when buses will arrive at each stop. The "real time" information takes into consideration delays caused by traffic, accidents and other service interruptions. This real time information is available to riders via the internet on a computer or on a internet-enabled phone. Buses are also equipped with an AVL-based automated stop announcement system.

1.7 Transit Security Program

There is no specific transit security program in place for the CUE. City Police are called upon when incidents occur either on the bus or at the City's maintenance facility.

1.8 Public Outreach

The City does not have a specific program in place for public outreach regarding transit service. Any concerns raised by City residents are brought forward through e-mails and letters to the City's Transportation Director, or through City Council meetings and the annual budget process. Information regarding transit service changes is typically posted on buses and at shelters, posted on the City's web site, put in the City's newsletter, and/or, put on the City's cable television news channel. The recent fare change was handled in this manner and through the City Council meeting process.

2.0 GOALS, OBJECTIVES AND STANDARDS

The City's FY 2010 Adopted Budget identifies the following goals and objectives related to CUE transit service:

2.1 City Budget Document

The City's FY 2010 Adopted Budget identifies the following goals and objectives related to CUE transit service:

Goals:

- To provide the citizens of the City with effective transit service within the City and to the Vienna/Fairfax-GMU Metrorail station, and George Mason University.
- To meet the City's adopted goal of providing unsurpassed user-friendly, customer-focused business practices.
- To enhance quality of life measures and amenities with continued emphasis on recommendations of the Livability Task Force.
- To finalize and implement a more accelerated schedule for critical transportation projects involving state and federal funding.
- To continue emphasis on the reduction of the impact of increasing traffic through the City

Objectives:

- To provide convenient, frequent access to the Vienna-Fairfax/GMU Metrorail station
- To provide weekend service
- To meet our contractual requirements with George Mason University
- To meet all published schedules
- To meet all regional and local Americans with Disabilities Act requirements

2.2 City Comprehensive Plan Goals, Objectives and Strategies

The City's adopted 2004 Comprehensive Plan identifies the following general transportation goal:

Facilitate safe and convenient vehicular, pedestrian and bicycle circulation within the City while minimizing the adverse impacts of through-traffic and auto pollution.

Transit-related objectives and strategies that fall within this goal are as follows:

Objective T-7.1 – Actively promote the identification and development of regional solutions to improve traffic safety and efficiency.

- Strategy T-7.1.4 – Encourage the connection of City bus services to other mass transit routes and facilities.

Objective T-7.5 – Encourage the use of public transportation as an alternative to the private automobile.

- Strategy T-7.5.1 – Promote a regional approach to public transportation planning.
- Strategy T-7.5.2 – Enhance CUE bus service to maintain current ridership, encourage new users and provide the types of facilities that will make the CUE bus a unique and appealing alternative mode of transportation.
- Strategy T-7.5.3 – Encourage businesses to provide transit subsidies to their employees.

Objective T-7.8 – Design improvement projects to maximize the efficiency of the transportation system.

- Strategy T-7.8.2 – Make the CUE bus system more functional and user-friendly.

2.3 TDP Goals and Objectives

Based on the previously-established goals and objectives in the City’s current budget document and the Comprehensive Plan, the goals proposed for the TDP are structured to follow the goals identified in the City’s adopted budget, but with objectives that are modified to fit within each goal.

TDP Goal 1: Provide the citizens of the City with effective transit service within the City and to the Vienna/Fairfax-GMU Metrorail station and George Mason University.

Objective 1.1 – At least 70% of all City residents should be within ¼ mile of a CUE route alignment during peak travel hours.

Objective 1.2 – Provide CUE service to City residents 7 days a week.

Objective 1.3 – Provide a minimum of 30-minute service frequencies to the Vienna/Fairfax-GMU Metrorail Station and to George Mason University during the peak travel hours.

Objective 1.4 – Strive to maintain service standards, as presented in section 2.4 of this TDP.

TDP Goal 2: Meet the City’s adopted goal of providing unsurpassed user-friendly, customer-focused business practices.

Objective 2.1 – Provide up-to-date bus schedule information on the City’s web site and at major bus stops located along CUE bus routes.

Objective 2.2 – Maintain a Customer Service phone number where information such as route information, schedules and fares can be obtained.

Objective 2.3 – Explore new opportunities to market CUE service to City residents, City businesses and to George Mason University students, faculty and staff.

Objective 2.4 – Maintain a driver training program that emphasizes customer service best practices.

TDP Goal 3: Enhance quality of life measures and amenities with continued emphasis on recommendations of the Livability Task Force.

Objective 3.1 – Working with the City’s Community Development and Planning Department, promote transit-friendly design features in new development and redevelopment projects, such as the Fairfax Boulevard Master Plan.

Objective 3.2 – Working with the City’s Public Works Department, promote expansion of sidewalks and ADA-accessible crosswalks along CUE bus route alignments.

Objective 3.3 – Give preference to alternative-fuel buses when purchasing new buses, such as the hybrid-electric buses that are presently in the CUE bus fleet.

TDP Goal 4: Finalize and implement a more accelerated schedule for critical transportation projects involving state and federal funding.

Objective 4.1 – Pursue the implementation of Transportation Demand Management measures when feasible, such as signal prioritization for buses and cue-jumper lanes at congested intersections.

Objective 4.2 – Aggressively pursue funding for proposed Kamp Washington Intersection improvements. This intersection is often a major contributor to CUE on-time performance problems.

Objective 4.3 – Construct bus bay pull-outs along CUE alignments at bus stops with significant ridership activity, when feasible.

TDP Goal 5: Continue efforts to reduce the impact of increasing traffic through the City.

Objective 5.1 – Continue to coordinate on a regular basis regarding regional transportation issues with Fairfax County, the Virginia Department of Transportation and WMATA.

Objective 5.2 – Continue to work closely and coordinate with George Mason University’s Parking and Transportation Department regarding university-related traffic and transit issues

Objective 5.3 – Through regional governmental entities, such as the Virginia Department of Transportation and the Metropolitan Washington Council of Governments, promote TDM strategies such as alternative work schedules, carpools and van pools.

2.4 Service Performance Standards

CUE staff closely monitors service performance and tracks ridership, revenue and on-time performance characteristics. However, CUE does not currently have defined performance standards. This TDP recommends the establishment of service performance standards to measure the efficiency and effectiveness of CUE service.

Performance standards guide the decision-making process by tracking system and route performance. This process can help guide decisions regarding when service should be adjusted (both reduced and increased).

This TDP recommends service performance standards that focus on three metrics – ridership productivity, cost-effectiveness and on-time performance.

Ridership Productivity

The proposed evaluation measure for ridership productivity is ***passenger trips per revenue bus-hour***. Proposed standards for CUE service are based on a review of historical and current CUE performance characteristics, and are as follows:

- Weekdays – 25 passengers trips/revenue bus-hour
- Saturdays – 20 passenger trips/revenue bus-hour
- Sundays – 15 passenger trips/revenue bus-hour

Average ridership characteristics for 2009 exceeded these standards, with weekday ridership averaging 27.5 trips/revenue bus-hour, Saturday ridership averaging 25.5 trips/revenue bus-hour and Sunday ridership averaging 23 trips/revenue bus-hour. These standards should be monitored monthly. Corrective measures should be investigated if performance falls below these levels for three consecutive months. Corrective measures could include service adjustments (frequencies, alignments and/or span of service), and measures to promote ridership (such as marketing efforts/promotions).

Cost Effectiveness

Two measures are proposed for cost-effectiveness. Calculations for both measures should be based on financial figures as reported in the City's annual budget. The first measure is the ***farebox recovery ratio***. The farebox recovery ratio measures farebox revenues as a percentage of operating expenses. A decrease in the farebox recovery ratio over an extended period of time warrants corrective measures. Proposed standards for CUE service are based on a review of current CUE farebox revenues vs. operating costs, and on typical farebox recovery ratios for peer systems. The proposed standard is as follows:

- 15% farebox recovery ratio

CUE's farebox recovery ratio in 2009 was 16 percent, and is estimated to increase to 18% in FY 2010 and 20% in FY 2011 due in part to recent and proposed fare increases. It is important to note that this calculation only includes revenues collected from the farebox and does not include the GMU operating subsidy. This standard should be monitored monthly. Corrective measures should be investigated if performance falls below this level for three consecutive months. Corrective measures could include fare increases, measures to promote ridership, and/or reduced service costs.

The second proposed measure is the ***local subsidy required per passenger trip***. The local subsidy reflects the actual cost of service to the City of Fairfax after subtracting farebox revenues, state funds, and other miscellaneous revenues (such as advertising). The proposed standard for CUE service is as follows:

- \$1.40 per passenger trip

This standard includes support from the City's General Fund **and** GMU's annual contribution to CUE service. In FY 2009, the local subsidy was \$1.47 per passenger trip, but is estimated to be \$1.24 in FY 2010, and is projected to be \$1.00 in the FY 2011 budget. This standard should be monitored annually. There may be some years when the local subsidy may exceed this standard due to major capital purchases (e.g., bus purchases). However, if the local subsidy continually exceeds this standard, it may be appropriate to enact corrective measures such as a fare increase, additional financial contributions from GMU, and/or reduced service costs.

On-Time Performance

The last performance standard relates to **on-time performance**. Traffic conditions can vary substantially in the City of Fairfax. A traffic incident on I-66 can result in spillover traffic onto US 50, thus resulting in bus service delays. Thus, performance characteristics associated with on-time performance are likely to vary substantially. It is proposed that CUE on-time performance be measured at the time buses depart from the Vienna/Fairfax-GMU Metrorail station. Buses departing up to 2 minutes early to 5 minutes late will be considered "on-time". Buses departing outside of this time frame will be considered early or late buses. The proposed standard for on-time performance is as follows:

- 90% on-time departures from the Vienna/Fairfax-GMU Metrorail station during peak travel hours (6 to 9 a.m. and 3 to 6 p.m.)
- 95% on-time departures from the Vienna/Fairfax-GMU Metrorail station during non-peak travel hours on weekdays and on weekends

Data collected in mid-October 2009 indicates daily on-time performance averaged 90 to 96% from the Vienna/Fairfax-GMU Metrorail station for the four CUE routes (Gold 1/2 and Green 1/2). This standard should be monitored monthly. Corrective measures should be investigated if on-time performance falls below this standard for three consecutive months. Corrective measures could include adjustments to headways, layover times and/or running times.

3.0 SERVICE AND SYSTEM EVALUATION

As previously noted in Chapter 1 of this TDP, the City of Fairfax provides fixed-route service on its CUE system on weekdays beginning at about 5:30 a.m. Service runs in the evenings until midnight on the Green 1 and Gold 1 routes. Saturday service begins at about 8:00 a.m. and runs until about 9:00 p.m. Sunday service begins at about 9:30 a.m. and runs until about 6:30 p.m. Routes generally run at 30 to 35-minute frequencies on weekdays, and approximately 60 to 65-minute frequencies on weekday evenings, Saturdays and Sundays. Figure 3-1 presents the CUE fixed-route system. Route descriptions were provided in Chapter 1 of this TDP.

This chapter begins with information regarding existing CUE ridership and on-time performance characteristics. Historical ridership characteristics over the past six years are presented, followed by information regarding service coverage characteristics. Results from a peer review analysis are presented, as well as results from a recent on-board transit survey conducted for the Metropolitan Washington Council of Governments (MWCOG). Existing and future demographic characteristics are then noted, as well as information from the City of Fairfax' Comprehensive Plan, including the City's Existing and Future Land Use Maps.

3.1 Existing Ridership Characteristics

Existing CUE ridership performance was based on data provided by the City of Fairfax for Fiscal Year 2009 (July 1 2008 through June 30 2009). During this period, the City recorded 1,036,060 passenger boardings. Average weekday ridership was 3,610 passenger trips. Average Saturday and Sunday boardings were 1,319 and 738, respectively.

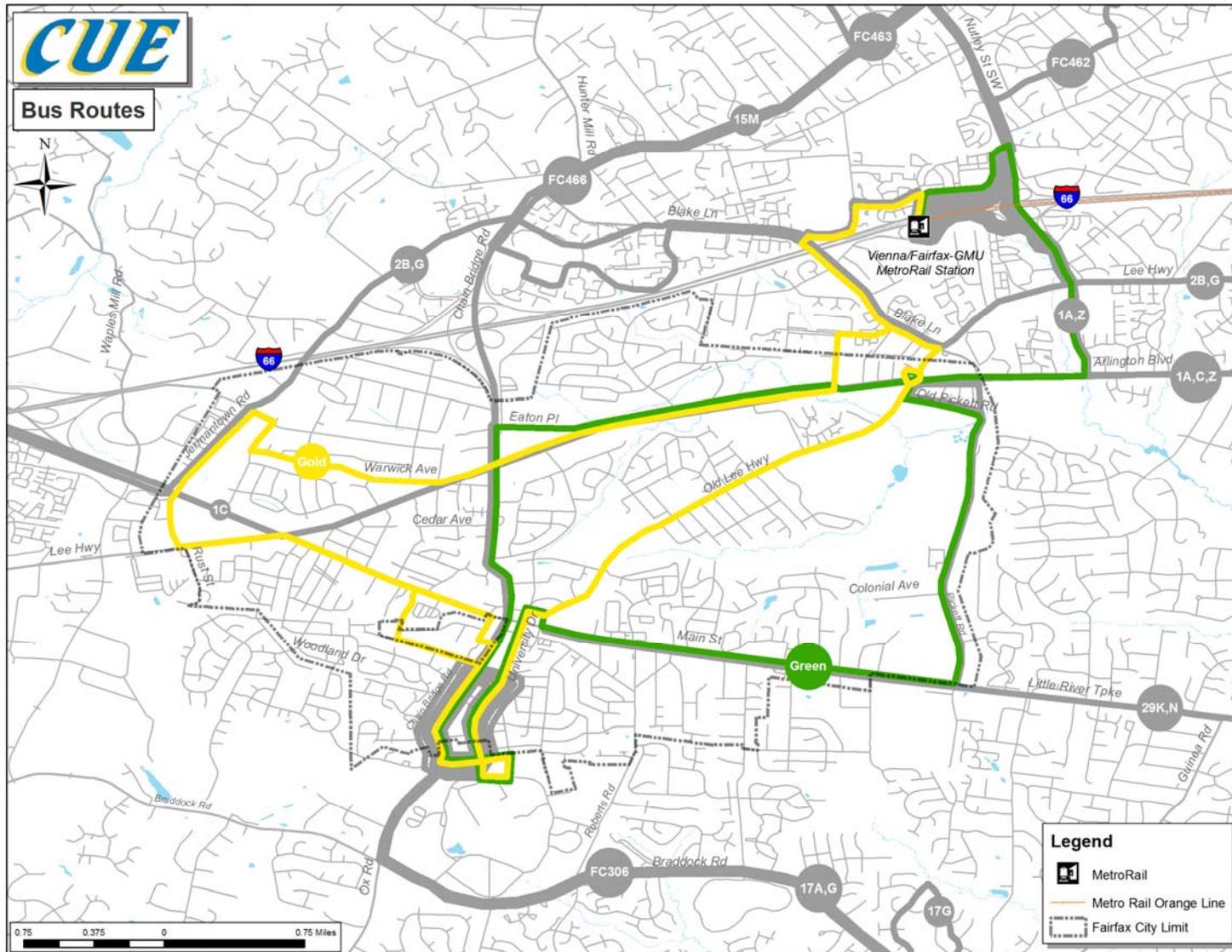
Average daily ridership is fairly similar between the four CUE routes, as noted in Table 3-1.

Table 3-1
2009 Average Daily Ridership by Route

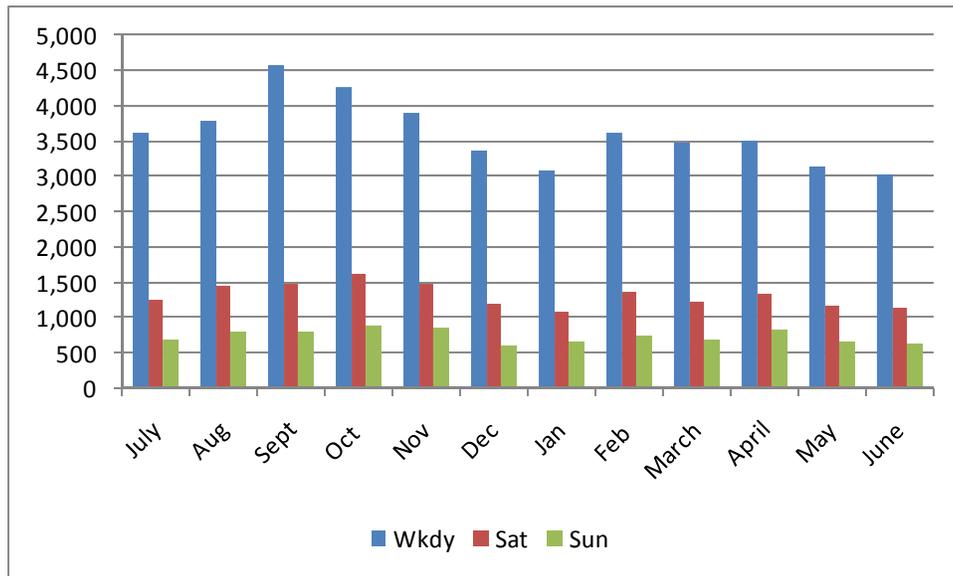
| Route | Weekday | Saturday | Sunday |
|--------------|----------------|-----------------|---------------|
| Green 1 | 852 | 342 | 148 |
| Green 2 | 867 | 311 | 184 |
| Gold 1 | 1,039 | 328 | 199 |
| Gold 2 | 852 | 338 | 207 |
| Total | 3,610 | 1,319 | 738 |

Ridership on CUE can vary significantly, depending on whether or not GMU is in-session. Figure 3-2 illustrates average weekday, Saturday and Sunday ridership by month during 2009. Average weekday ridership ranges from 3,026 in June to 4,579 in September. Weekday ridership is generally lowest in the summer months and highest in the fall and spring months. There is generally less variation in Saturday and Sunday ridership, with the exception of December 2009, which was impacted by the Christmas/New Year holidays.

**Figure 3-1
CUE Bus Route Alignments**



**Figure 3-2
2009 Average Daily Ridership by Month**



A substantial portion of CUE’s ridership activity occurs at the Vienna/Farifax-GMU Metrorail station and at the GMU bus stop. Ridership activity was tracked at these two stops on March 3rd and March 4th, 2010. Approximately 27% of daily ridership occurred at the Vienna/Farifax-GMU Metrorail station and another 19% occurred at the GMU bus stop. Thus, nearly ½ of all ridership activity is at these two stops.

As noted above, CUE ridership is significantly influenced by George Mason University, with about 30 percent of all riders boarding with a GMU student or faculty/staff ID, as noted below.

- Weekdays – 30.7%
- Saturdays – 30.5%
- Sundays – 29.4%

GMU faculty, staff and students appear to be using CUE for more than just trips to and from the GMU campus, since boardings recorded with a GMU ID are a higher percentage than recorded activity at the GMU bus stop. Tables 3-2 and 3-3 identify hourly ridership for GMU, non-GMU and total ridership for weekdays, Saturdays, and Sundays. Figures 3-3 through 3-5 graphically portrays the difference in GMU vs. non-GMU hourly ridership for weekdays, Saturdays and Sundays. Weekday ridership reflects a strong a.m. and p.m. peak, with GMU’s a.m. and p.m. ridership peaks slightly later than non-GMU’s peaks. On Saturdays, non-GMU ridership is highest in the a.m., and is relatively flat in the afternoon. GMU ridership is relatively flat from about noon through 6:00 p.m. GMU ridership is also similar to non-GMU ridership on Saturday evenings. On Sundays, non-GMU ridership has both morning and afternoon peaks. GMU ridership is relatively flat throughout the day.

**Table 3-2
FY 2009 Annual Ridership
By Time of Day**

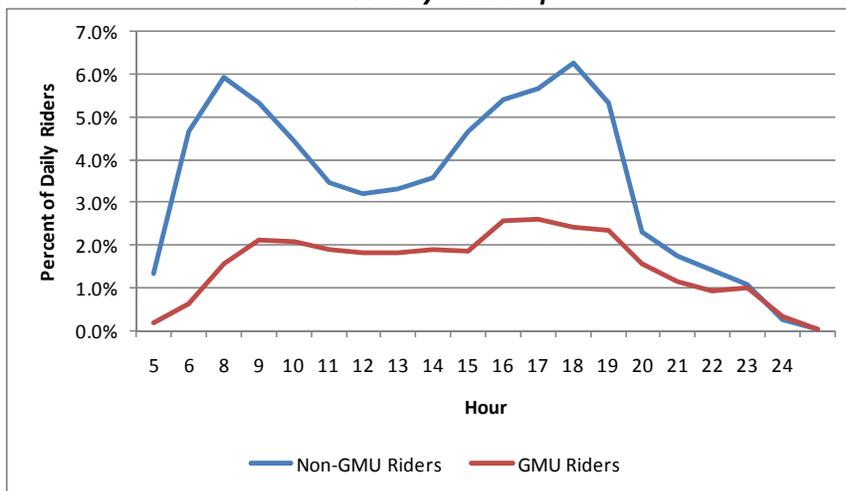
| Hour | Total Ridership | | | | | |
|--------------------|-----------------|--------------|---------------|--------------|---------------|--------------|
| | Weekday | %age | Saturday | %age | Sunday | %age |
| 5:00-5:59 | 14,045 | 1.53% | 0 | 0.00% | 0 | 0.00% |
| 6:00-6:59 | 48,401 | 5.26% | 0 | 0.00% | 0 | 0.00% |
| 7:00-7:59 | 68,767 | 7.48% | 76 | 0.11% | 0 | 0.00% |
| 8:00-8:59 | 68,714 | 7.47% | 5,106 | 7.45% | 26 | 0.07% |
| 9:00-9:59 | 59,696 | 6.49% | 5,693 | 8.31% | 2,047 | 5.23% |
| 10:00-10:59 | 49,374 | 5.37% | 5,722 | 8.35% | 4,892 | 12.50% |
| 11:00-11:59 | 46,013 | 5.00% | 4,704 | 6.87% | 4,071 | 10.40% |
| 12:00-12:59 | 46,995 | 5.11% | 6,285 | 9.17% | 4,613 | 11.79% |
| 13:00-13:59 | 50,086 | 5.45% | 5,968 | 8.71% | 3,872 | 9.89% |
| 14:00-14:59 | 59,953 | 6.52% | 6,275 | 9.16% | 4,899 | 12.52% |
| 15:00-15:59 | 73,237 | 7.96% | 6,158 | 8.99% | 4,683 | 11.97% |
| 16:00-16:59 | 75,960 | 8.26% | 6,350 | 9.27% | 5,156 | 13.17% |
| 17:00-17:59 | 79,741 | 8.67% | 5,586 | 8.15% | 4,366 | 11.16% |
| 18:00-18:59 | 70,339 | 7.65% | 5,024 | 7.33% | 512 | 1.31% |
| 19:00-19:59 | 35,471 | 3.86% | 4,044 | 5.90% | 0 | 0.00% |
| 20:00-20:59 | 26,543 | 2.89% | 1,512 | 2.21% | 0 | 0.00% |
| 21:00-21:59 | 21,416 | 2.33% | 0 | 0.00% | 0 | 0.00% |
| 22:00-22:59 | 19,276 | 2.10% | 0 | 0.00% | 0 | 0.00% |
| 23:00-23:59 | 5,327 | 0.58% | 0 | 0.00% | 0 | 0.00% |
| <u>24:00-00:59</u> | <u>341</u> | <u>0.04%</u> | <u>0</u> | <u>0.00%</u> | <u>0</u> | <u>0.00%</u> |
| Total | 919,695 | | 68,503 | | 39,137 | |

**Table 3-3
FY 2009 GMU and Non-GMU Weekday Ridership
By Time of Day**

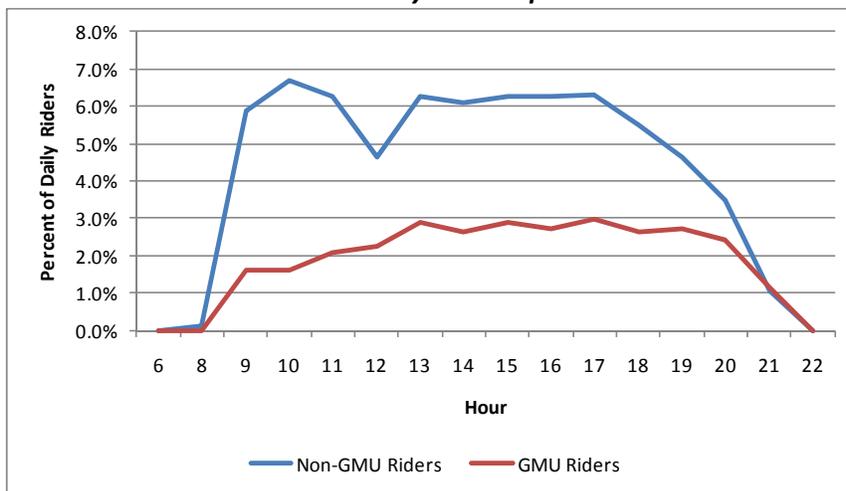
| Hour | GMU Ridership | | | | | | Non-GMU Ridership | | | | | | |
|--------------------|----------------|--------------|---------------|--------------|---------------|--------------|--------------------|----------------|--------------|---------------|--------------|---------------|--------------|
| | Weekday | %age | Saturday | %age | Sunday | %age | Hour | Weekday | %age | Saturday | %age | Sunday | %age |
| 5:00-5:59 | 1,802 | 0.64% | 0 | 0.00% | 0 | 0.00% | 5:00-5:59 | 12,243 | 1.92% | 0 | 0.00% | 0 | 0.00% |
| 6:00-6:59 | 5,717 | 2.02% | 0 | 0.00% | 0 | 0.00% | 6:00-6:59 | 42,684 | 6.70% | 0 | 0.00% | 0 | 0.00% |
| 7:00-7:59 | 14,368 | 5.09% | 5 | 0.02% | 0 | 0.00% | 7:00-7:59 | 54,399 | 8.54% | 71 | 0.15% | 0 | 0.00% |
| 8:00-8:59 | 19,644 | 6.95% | 1,091 | 5.22% | 0 | 0.00% | 8:00-8:59 | 49,070 | 7.70% | 4,015 | 8.44% | 26 | 0.09% |
| 9:00-9:59 | 19,032 | 6.74% | 1,112 | 5.32% | 288 | 2.50% | 9:00-9:59 | 40,664 | 6.38% | 4,581 | 9.63% | 1,759 | 6.37% |
| 10:00-10:59 | 17,343 | 6.14% | 1,432 | 6.85% | 1,286 | 11.17% | 10:00-10:59 | 32,031 | 5.03% | 4,290 | 9.02% | 3,606 | 13.05% |
| 11:00-11:59 | 16,665 | 5.90% | 1,533 | 7.33% | 1,154 | 10.02% | 11:00-11:59 | 29,348 | 4.61% | 3,171 | 6.66% | 2,917 | 10.56% |
| 12:00-12:59 | 16,647 | 5.89% | 1,992 | 9.52% | 1,355 | 11.77% | 12:00-12:59 | 30,348 | 4.76% | 4,293 | 9.02% | 3,258 | 11.79% |
| 13:00-13:59 | 17,362 | 6.15% | 1,797 | 8.59% | 1,388 | 12.06% | 13:00-13:59 | 32,724 | 5.14% | 4,171 | 8.77% | 2,484 | 8.99% |
| 14:00-14:59 | 17,193 | 6.09% | 1,970 | 9.42% | 1,508 | 13.10% | 14:00-14:59 | 42,760 | 6.71% | 4,305 | 9.05% | 3,391 | 12.28% |
| 15:00-15:59 | 23,632 | 8.37% | 1,866 | 8.92% | 1,470 | 12.77% | 15:00-15:59 | 49,605 | 7.78% | 4,292 | 9.02% | 3,213 | 11.63% |
| 16:00-16:59 | 23,916 | 8.47% | 2,027 | 9.69% | 1,483 | 12.88% | 16:00-16:59 | 52,044 | 8.17% | 4,323 | 9.08% | 3,673 | 13.30% |
| 17:00-17:59 | 22,139 | 7.84% | 1,810 | 8.65% | 1,509 | 13.11% | 17:00-17:59 | 57,602 | 9.04% | 3,776 | 7.94% | 2,857 | 10.34% |
| 18:00-18:59 | 21,478 | 7.60% | 1,854 | 8.86% | 71 | 0.62% | 18:00-18:59 | 48,861 | 7.67% | 3,170 | 6.66% | 441 | 1.60% |
| 19:00-19:59 | 14,280 | 5.06% | 1,654 | 7.91% | 0 | 0.00% | 19:00-19:59 | 21,191 | 3.33% | 2,390 | 5.02% | 0 | 0.00% |
| 20:00-20:59 | 10,506 | 3.72% | 775 | 3.70% | 0 | 0.00% | 20:00-20:59 | 16,037 | 2.52% | 737 | 1.55% | 0 | 0.00% |
| 21:00-21:59 | 8,358 | 2.96% | 0 | 0.00% | 0 | 0.00% | 21:00-21:59 | 13,058 | 2.05% | 0 | 0.00% | 0 | 0.00% |
| 22:00-22:59 | 9,316 | 3.30% | 0 | 0.00% | 0 | 0.00% | 22:00-22:59 | 9,960 | 1.56% | 0 | 0.00% | 0 | 0.00% |
| 23:00-23:59 | 2,856 | 1.01% | 0 | 0.00% | 0 | 0.00% | 23:00-23:59 | 2,471 | 0.39% | 0 | 0.00% | 0 | 0.00% |
| <u>24:00-00:59</u> | <u>219</u> | <u>0.08%</u> | <u>0</u> | <u>0.00%</u> | <u>0</u> | <u>0.00%</u> | <u>24:00-00:59</u> | <u>122</u> | <u>0.02%</u> | <u>0</u> | <u>0.00%</u> | <u>0</u> | <u>0.00%</u> |
| Total | 282,473 | | 20,918 | | 11,512 | | Total | 637,222 | | 47,585 | | 27,625 | |

**Figures 3-3 through 3-5
FY 2009 Ridership by Time-of-Day**

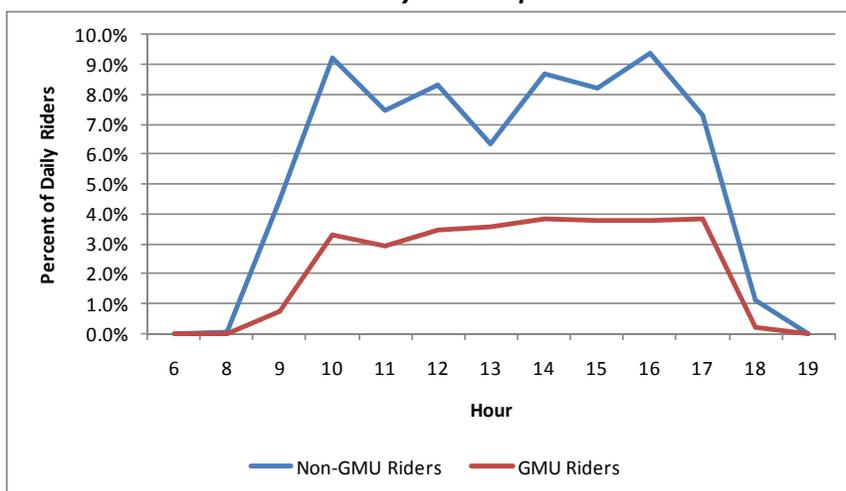
Weekday Ridership



Saturday Ridership



Sunday Ridership



The FY 2009 ridership reports were also reviewed to determine where ridership is coming from. As noted below in Table 3-4, the majority of ridership is categorized as “First Use”, with about 20% coming from transfers from other service providers.

**Table 3-4
FY 09 Ridership Origination**

| Ridership From: | % of Total |
|-----------------------------|-------------------|
| First Use was CUE | 86.22% |
| Metrobus Transfers | 3.55% |
| Metrorail Transfers | 7.14% |
| CUE Transfers | 2.00% |
| Fairfax Connector Transfers | 0.85% |
| Other Transfers | 0.24% |
| TOTAL | 100.0% |

Ridership reports were also reviewed to determine how CUE riders are paying for their fare. Table 3-5 identifies ridership by fare category.

**Table 3-5
FY 09 Ridership by Fare Category**

| Ridership Fare Category: | % of Total |
|---------------------------------|-------------------|
| Cash Fare | 18.4% |
| GMU | 33.3% |
| CUE Pass | 0.5% |
| Weekly Pass | 6.6% |
| SmartTrip | 41.2% |
| TOTAL | 100.0% |

3.2 On-Time Performance

Schedule adherence data was also collected for the month of October 2009 to determine on-time performance characteristics. Table 3-6 presents on-time performance characteristics by route. On-time is defined as being no more than 2-minutes early or 5-minutes late at designated timepoints along a route. It is important to note that Table 3-6 reflects on-time performance for buses leaving the Vienna/Fairfax-GMU Metrorail station. On-time performance characteristics at other time points along a route tend to vary significantly. Traffic conditions within the City of Fairfax vary throughout the day. For example, a traffic incident on I-66 often creates additional traffic congestion on US 50. On-time performance also tends to be much worse during the afternoons because of increased traffic congestion.

Table 3-6
On-Time Performance Characteristics
Leaving the Vienna/Fairfax-GMU Metro Station

| Route | Early | On-Time | Late |
|---------|-------|---------|------|
| Gold 1 | 1% | 96% | 3% |
| Gold 2 | 0% | 95% | 4% |
| Green 1 | 1% | 90% | 9% |
| Green 2 | 2% | 95% | 3% |

3.3 Historical Performance Characteristics

Historical and current ridership, service statistics and annual operating & maintenance cost data for the CUE was reviewed to determine ridership and cost performance trends. Data from the National Transit Database (NTD) was used to determine performance characteristics from 2004 through 2008. FY 2008 is the most recent data available from the NTD. Specific performance measures that were evaluated are as follows:

Riders per Revenue-Hour

This metric provides a means to determine service productivity. Figure 3-6 presents riders per revenue-hour for the CUE from 2004 through 2008. This metric has historically been around 30 riders per revenue-hour.

Riders per Revenue-Mile

This is another metric that reflects service productivity. Figure 3-7 presents riders per revenue-mile. This metric has historically been around 2.3 riders per revenue-mile.

Cost per Passenger Trip

This is a metric that reflects cost effectiveness. Figure 3-8 presents cost per passenger trip. This metric has steadily climbed since 2004.

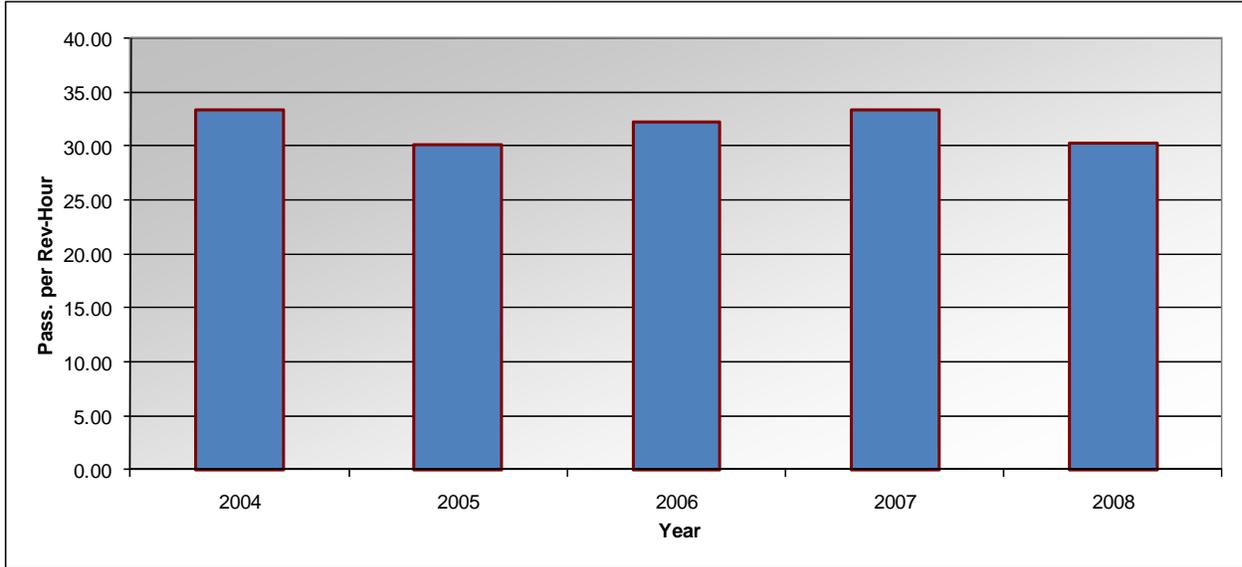
Cost per Revenue-Hour

This is another metric that reflects cost efficiency. Figure 3-9 presents cost per revenue-hour. This metric has been increasing slightly since 2005.

Local Subsidy per Passenger Trip

This metric measures the true cost of a passenger trip to the City of Fairfax. Figure 3-10 presents the local subsidy per passenger trip. Note that this figure includes GMU's contribution towards CUE bus service.

**Figure 3-6
Riders per Revenue-Hour**



**Figure 3-7
Riders per Revenue-Mile**

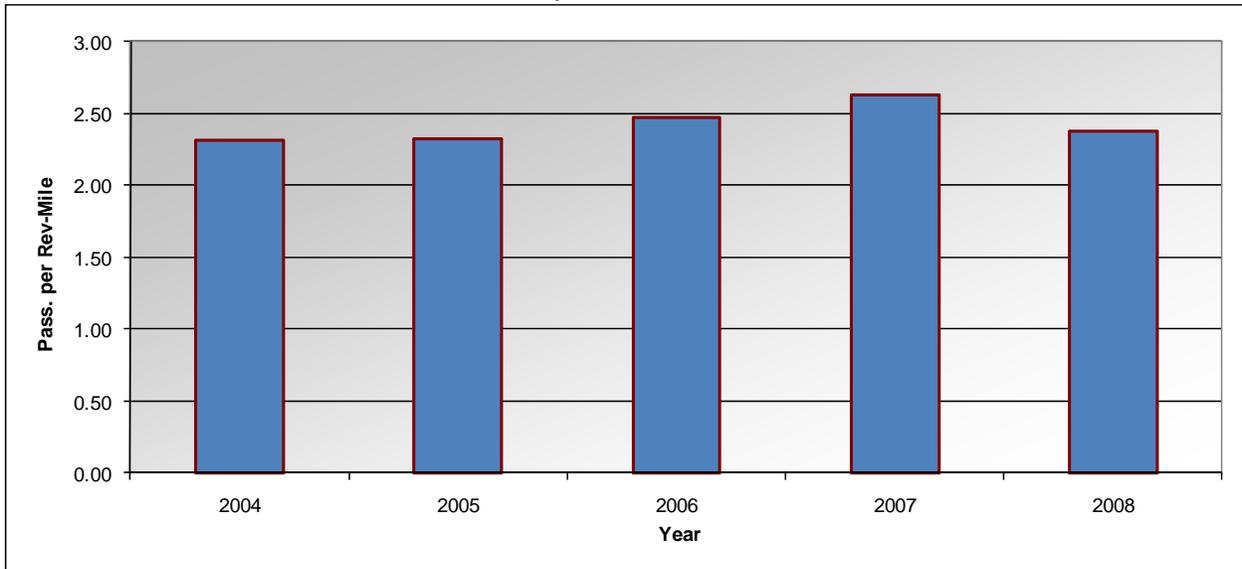


Figure 3-8
Cost per Passenger Trip

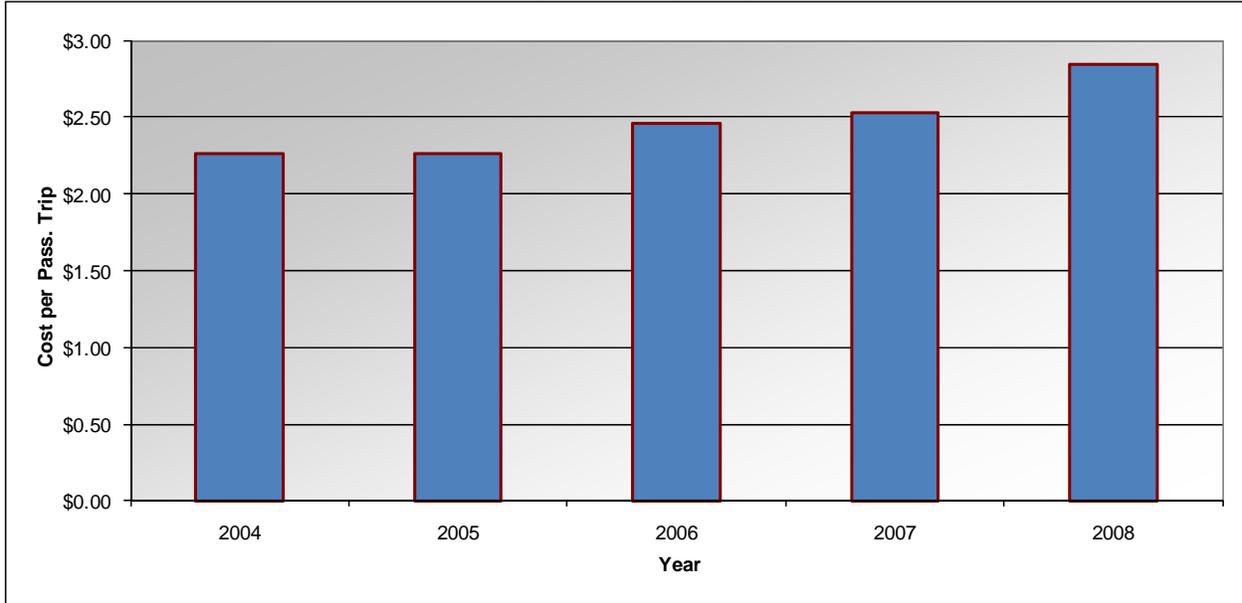
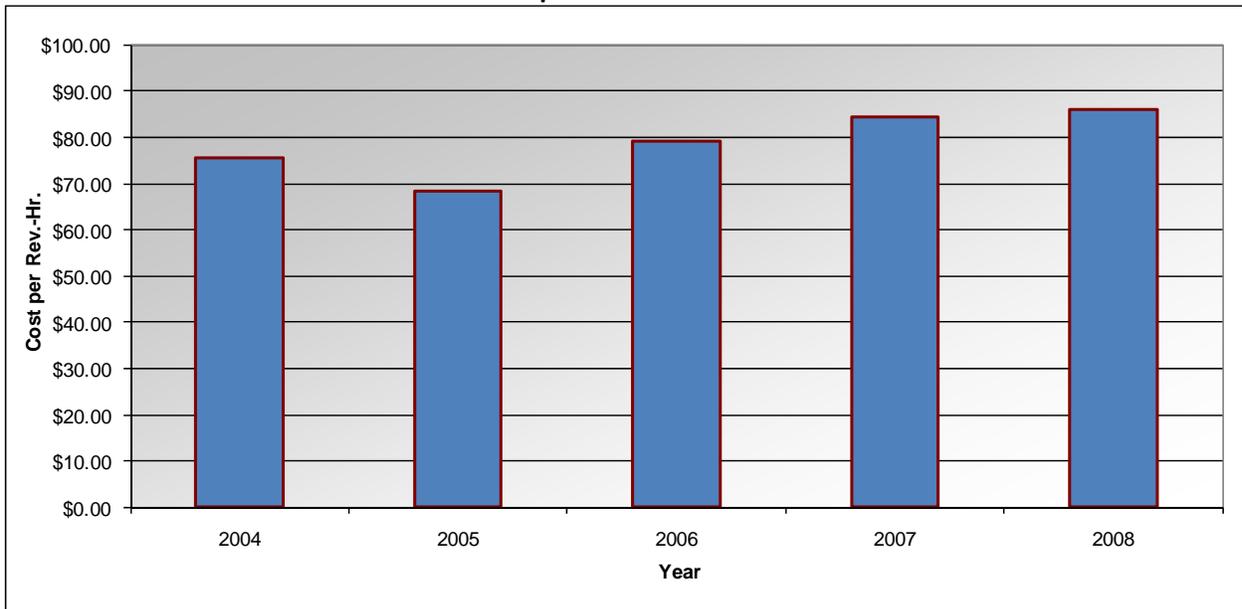
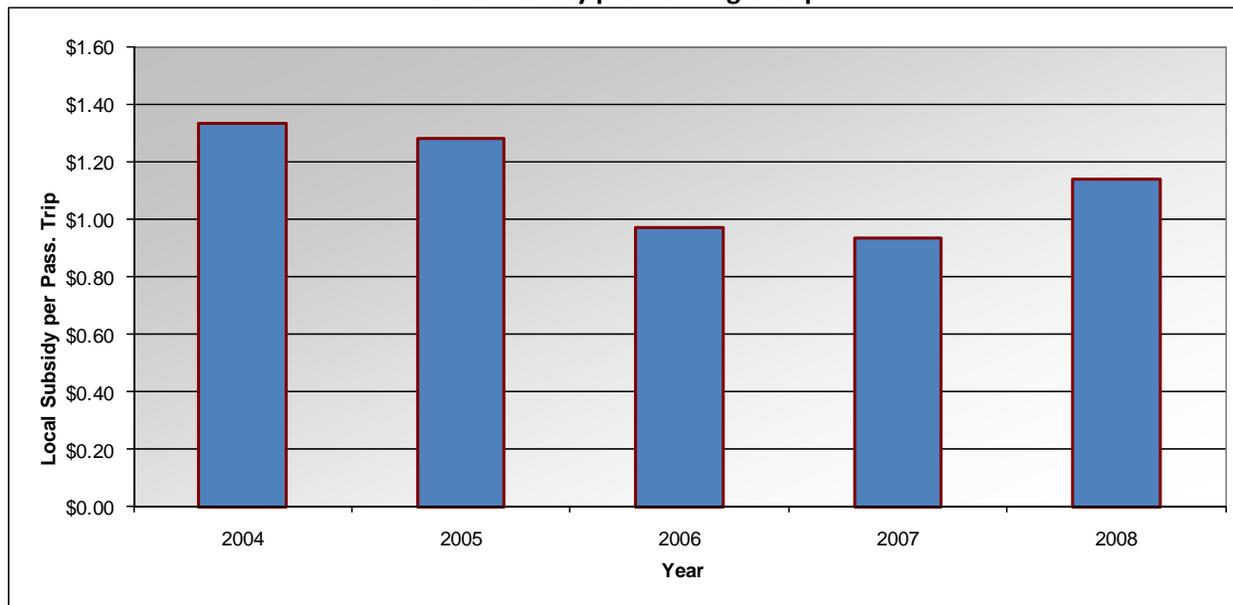


Figure 3-9
Cost per Revenue-Hour



**Figure 3-10
Local Subsidy per Passenger Trip**



Note: Local subsidy that is reported to NTD includes GMU contribution.

3.4 2009 Performance Characteristics

As noted in the previous section, NTD service statistics and cost data was only available through 2008. However, the City does have service and cost data available for FY 2009 in its FY 2011 budget document. Financial information in the City budget is reported in a slightly different than how it is reported in NTD. Pertinent findings from this review of 2009 City data is as follows:

- CUE ridership averaged 30.0 trips per revenue bus-hour in FY 2009, which is similar to prior year ridership productivity characteristics.
- The FY 2009 cost per passenger trip was \$2.73.
- The FY 2009 cost per revenue bus-hour was \$82.02.
- In FY 2009, general fund support from the City was \$1.02 million. Support from GMU was \$382,500. Combined, this reflects a local subsidy of about \$1.47 per passenger trip.

3.5 Service Coverage Characteristics

Population and employment estimates for 2010 from the Metropolitan Washington Council of Governments (MWCOG) were used to estimate accessibility to transit for various time periods and by day of week. It is estimated that CUE service is accessible (within ¼ mile) to 17,750 residents within the City (approximately 74% of all City residents) and 20,400 people that work within the City. Table 3-7 identifies transit accessibility characteristics within the City for all transit services by time-of-day (CUE, WMATA and Fairfax Connector).

**Table 3-7
City of Fairfax Population and Employment
Within ¼ Mile of a Transit Route (all service providers)**

| Day of Week | Time Period | Residents | Employees |
|-------------|-------------|-----------|-----------|
| Weekday | Peak | 18,500 | 21,300 |
| | Midday | 18,300 | 21,100 |
| | Evening | 18,300 | 21,100 |
| Saturday | Day | 18,100 | 20,900 |
| | Evening | 8,800 | 10,600 |
| Sunday | Day | 17,500 | 19,500 |
| | Evening | 6,600 | 8,900 |

The CUE provides accessibility to transit for many City residents and employees that work within Fairfax that otherwise would not have access. On weekdays (midday and evenings), 6,100 residents and 6,300 employees would lose access to transit if only WMATA MetroBus service were available. On Saturdays, 9,300 residents and 10,300 employees would lose access to transit without the CUE. On Sundays, 11,100 residents and 11,000 employees would lose access to transit without the CUE. For those that would still have access to MetroBus routes without the CUE, it is important to note that only Route 2B/G provides service to the Vienna Fairfax-GMU MetroRail Station. MetroBus Routes 15M, 1C and 29K/N do not provide service to this rail station. Figures 3-11 through 3-17 illustrate CUE, WMATA MetroBus and Fairfax Connector routes that are in-service for various time periods.

**Figure 3-11:
Weekday Peak Period Routes**

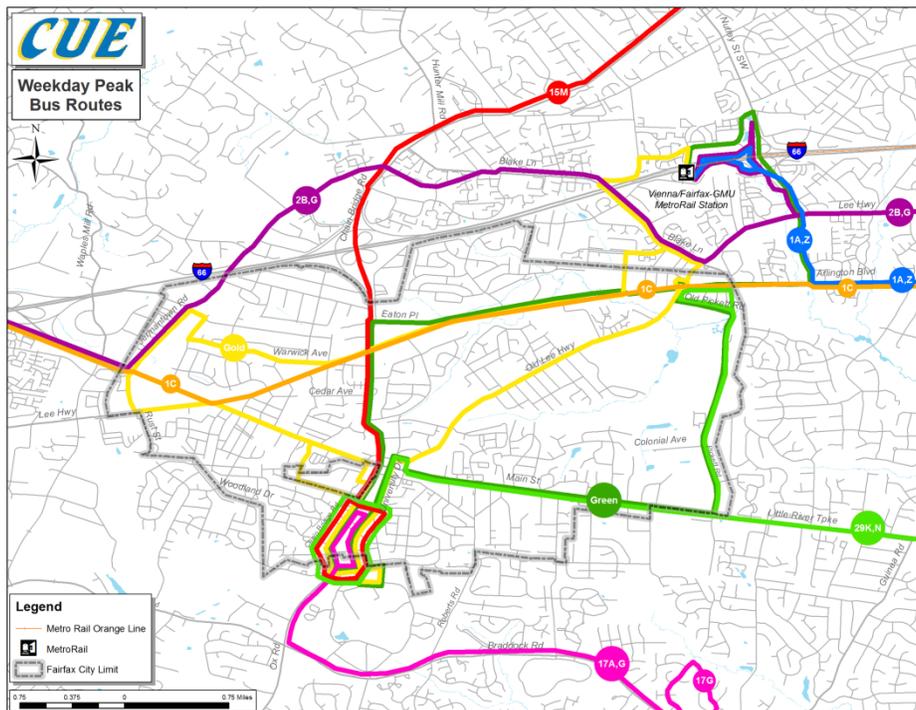


Figure 3-12
Weekday Midday Period Routes

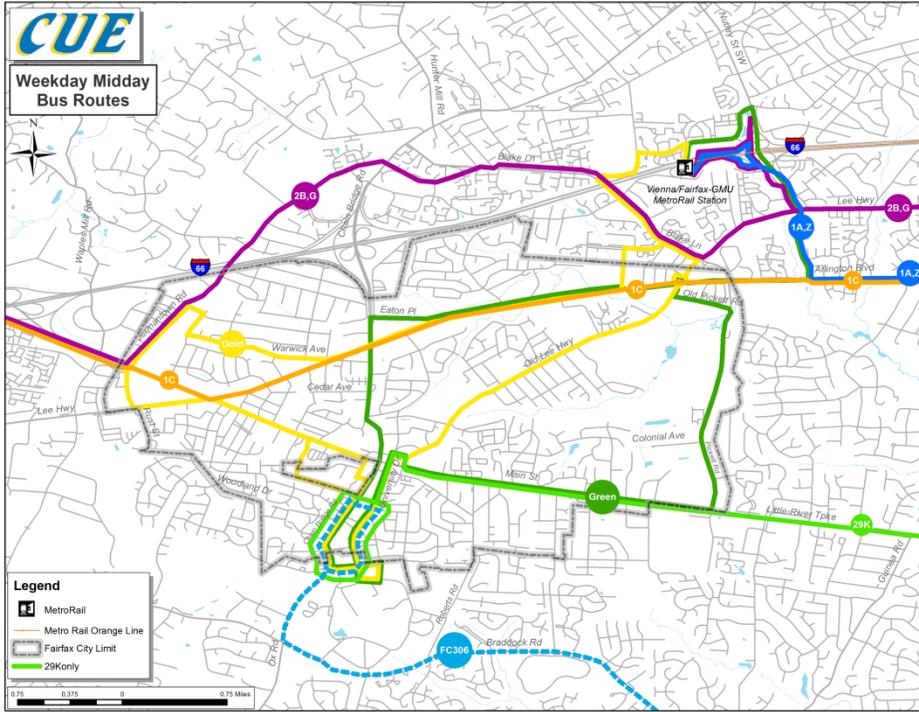


Figure 3-13
Weekday Evening Period Routes

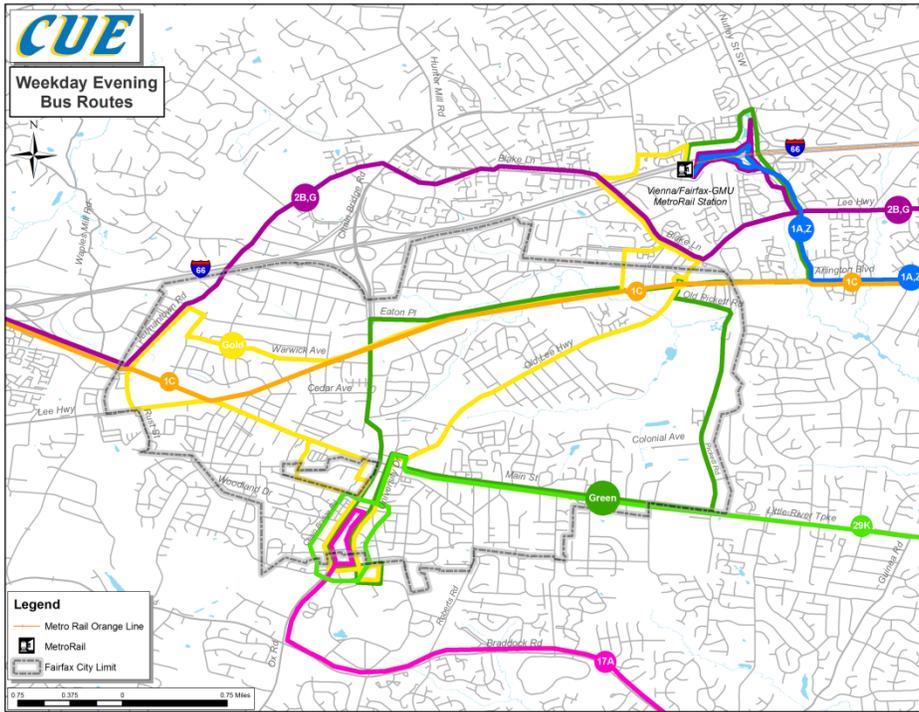


Figure 3-14
Saturday Day Period Routes

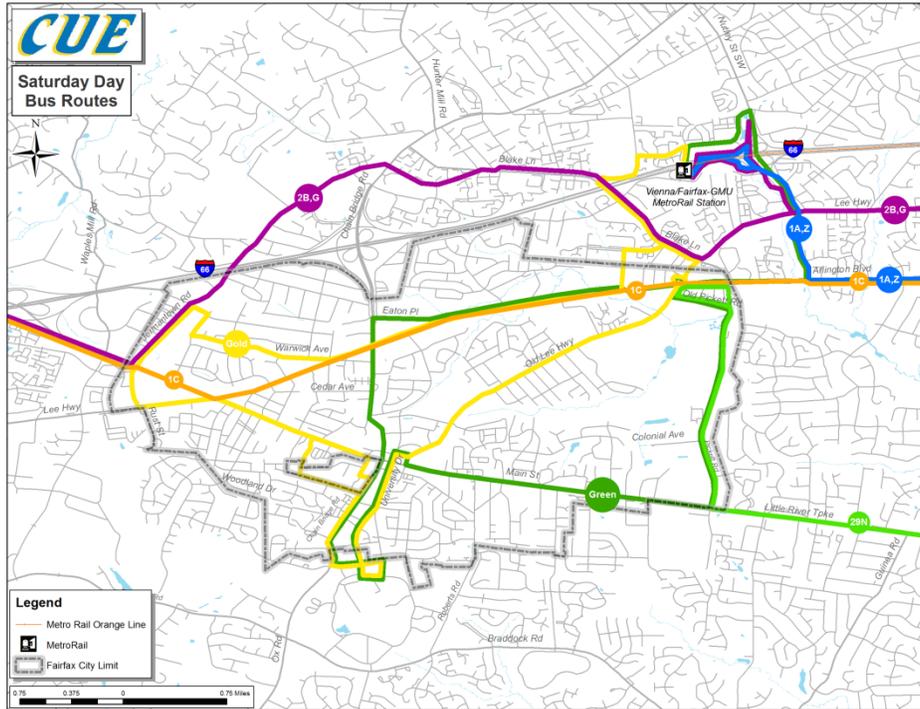


Figure 3-15
Saturday Evening Period Routes

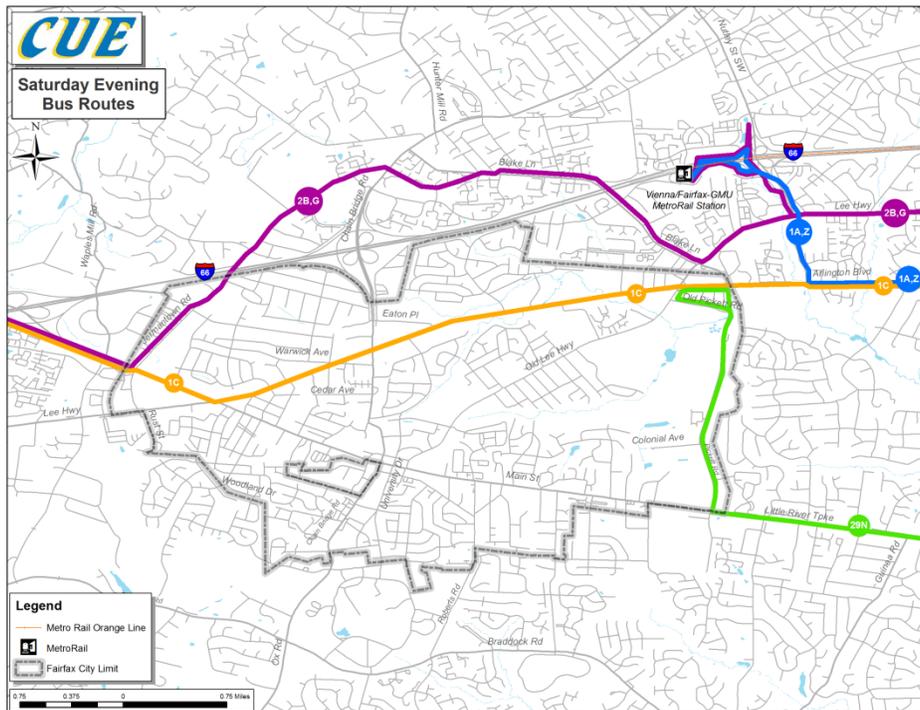


Figure 3-16
Sunday Day Period Routes

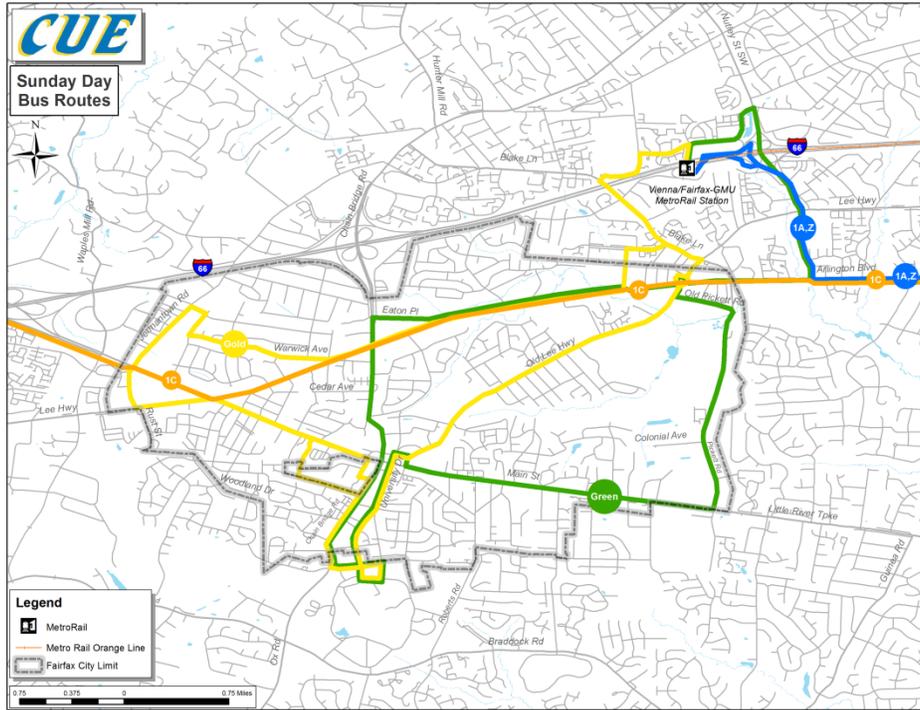
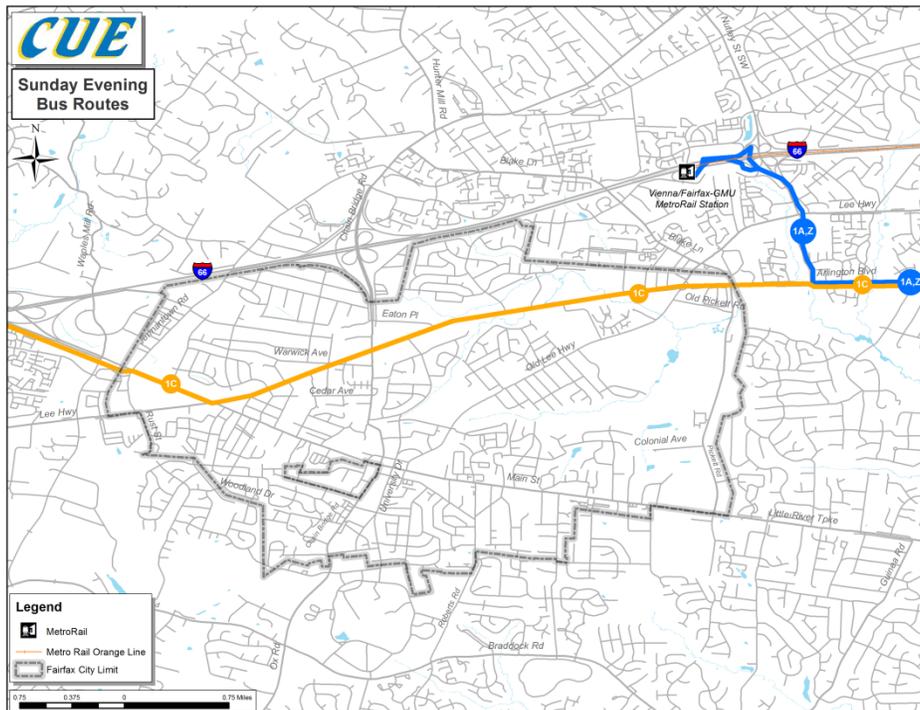


Figure 3-17
Sunday Evening Period Routes



3.6 Peer Review Analysis

A peer review analysis was conducted as part of this TDP work effort to determine if CUE service effectiveness, cost effectiveness and service efficiency characteristics are in-line with peer agencies. The following seven agencies were used as peer systems in this analysis based on transit system size, days of transit operations, service area population, population density, proximity to a major city, and proximity to a regional rail system:

- Falls Church, VA
- Redondo Beach, CA
- Petersburg, VA
- Union City, CA
- Frederick County, MD
- East Chicago, IN
- Laurel, MD

FY 2008 data was used for the peer analysis, with the National Transit Database (NTD) used to collect data for the peer systems. FY 2008 data is the most recent data available from NTD. Appendix B at the end of this report presents a Technical Memorandum with detailed findings from this peer analysis.

CUE's ridership, service and financial characteristics generally performed much better than the peer systems. Key findings were as follows:

Vehicle Utilization: CUE's peak bus utilization was higher than the peer average, with a higher number of revenue-hours and revenue-miles per peak bus than the average of the peer systems.

Service Supplied: CUE operated much greater revenue-hours and revenue-miles per capita than the peer average. However, CUE's hours and miles per square mile of service area were similar to the peer average.

Ridership Service Productivity: CUE's service was much more productive than the peer systems on a revenue-hour, revenue-mile and per capita basis.

Cost Efficiency: CUE's cost per passenger trip was much lower than the peer average (due to CUE's high ridership), but its cost per revenue-hour and cost per revenue-mile was slightly higher than the peer average.

Vehicle Maintenance Performance: CUE had fewer mechanical breakdowns than the peer systems.

Farebox Revenues: CUE did much better than its peer systems with regards to farebox recovery. CUE had a farebox recovery rate of 23% vs. 12% for the peer systems.

Source of O&M Funds: The primary difference between CUE and other systems is that CUE does not receive funding for operations from federal sources.

A limited peer review was also conducted with suburban transit systems in the Washington D.C. area. Bus systems used in this peer were:

- Arlington Transit (ART)
- City of Alexandria (DASH)
- City of Falls Church (GEORGE)
- Fairfax Connector System (Fairfax County, VA)
- Ride-On Montgomery County Transit (Montgomery County, MD) and
- Prince George's County Transit (Prince George's County, MD – The Bus)

Once again, 2008 data from the National Transit Database (NTD) was used for this assessment. This is the most current information available from NTD.

It is important to note that there are significant differences in demographic and service characteristics for these systems. However, they all share one common characteristic – they provide service in suburban communities in the Washington D.C. area. Once again, CUE compared very favorably to the other suburban transit systems. Findings of this peer review analysis are also presented in Appendix B. A summary of those key findings are as follows:

Service Supplied: CUE operated much greater revenue-hours and revenue-miles per capita than the other D.C. area providers. For example, CUE's revenue-hours per capita was 2.8 times higher than the average of the other DC area systems.

Ridership Service Productivity: CUE's service was much more productive than the peer systems on a per capita basis (50 riders per capita vs. the peer average of 15 riders per capita). CUE was also more productive with regards to passengers per revenue-hour (30.3 per revenue-hour for CUE vs. 25.5 per revenue-hour for the peer average) and passengers per revenue-mile (2.4 per revenue-mile vs. 2.0 per revenue-mile for the peer average).

Cost Efficiency: CUE's cost per passenger trip was much lower than most other D.C. area operators, with a cost of \$2.85 per passenger trip vs. the peer average of \$3.68. CUE's cost per revenue-hour and cost per revenue-mile were also lower than the peer average of other D.C. area operators. Once again, this data is based on 2008 information which is the most recent available information from the National Transit Database.

3.7 CUE Accident Rates

In 2009, CUE buses were involved in a total of 12 accidents. Of these 12, five were determined to be the fault of the CUE driver. One case involved an injury (to the CUE driver). CUE also reported 3 safety incidents pertaining to passengers riding on the CUE. Two of these incidents were determined to be related to intoxicated passengers falling out of their seat. The third incident was a passenger falling out of his wheelchair.

3.8 On-Board Survey Findings

The National Capital Region Transit Planning Board (TPB) conducted a regional on-board survey in the spring of 2008. This survey was conducted to determine trip origin and destination trip patterns and other travel-related and demographic data of WMATA and local bus system riders. The survey instrument was based on previous bus surveys conducted by MWCOG and WMATA, as well as recently-

completed on-board surveys conducted by the Maryland Transit Administration. The survey was distributed among bus passengers of Arlington County Transit (ART), Prince George's County (TheBus), City of Fairfax (CUE), Alexandria (DASH), Frederick County (TransIT), the Potomac Rappahannock Transit Commission (PRTC), Montgomery County, MD (Ride-On), and WMATA MetroBus.

Appendix C of this TDP presents a detailed assessment of responses from this survey from CUE riders. A total of 376 survey forms were from CUE riders (out of 28,419 total survey responses). This represents a little more than 10% of total CUE riders.

Questions on the survey included:

- **What is your home address?** About 36% of CUE riders indicated they had a home address within the City of Fairfax.
- **Where are you coming from?** A total of 73% were coming from either home or work. Another 13% was coming from school.
- **How did you get to this bus?** A total of 69% got to the bus by walking. Another 23% transferred from MetroRail.
- **What is the destination of your trip today?** A total of 72% were going to either home or work. Another 13% were going to school.
- **How will you get from the bus to your end destination?** A total of 70% indicated they would walk to their final destination. Another 22% indicated they would transfer to MetroRail.
- **How did you pay the fare for this bus ride?** A total of 35% paid a cash fare, another 30% paid with a SmarTrip card. Another 28% marked "Other". These are likely riders that board with a GMU student/staff card.
- **Including this bus, how many buses and trains will you use in making this one-way trip?** A total of 43% indicated that they would be completing their trip with just one bus ride. The remaining 57% indicated they would transfer to one or more trains/buses to complete their trip.
- **Do you receive a transit benefit from your employer?** A total of 25% indicated that they received a transit benefit from their employer.
- **How many usable cars, SUV's, vans or trucks are at your home?** A total of 46% indicated they had no vehicles at their home.
- **Was there a vehicle at your residence available to you today that you could have used to make this trip?** A total of 68% indicated there was no vehicle available at their residence that they could have used for their trip.
- **What was your estimated total household income in 2007 before taxes?** A total of 41% indicated that their household income was \$20,000 or less.
- **What is your race/ethnicity?** A total of 35% indicated their race/ethnicity was Asian, 18% indicated they were African American, and 15% indicated they were Hispanic.

It is important to note that this was a limited survey of only about 10% of all CUE riders. Thus, results may not necessarily be truly indicative of actual ridership characteristics. In fact, some of the results obtained from the MWCOG survey differ significantly from another survey of CUE riders that was conducted by a Virginia Tech graduate student. For example, the Virginia Tech student survey asked riders if they were a city resident. Seventy percent of respondents indicated that they were a City resident – much different than the 36% response obtained from the MWCOG survey. The MWCOG survey uses geocodable addresses to determine if riders are City residents, whereas the Virginia Tech student survey does not. Nevertheless, the stark difference in results does bring to question if MWCOG survey findings are truly indicative of actual ridership characteristics.

Despite these limitations, survey results were reviewed further to determine trip making characteristics. About ½ of all CUE riders had an origin or destination within the City of Fairfax. Another 25% had an origin or destination at George Mason University.

Figure 3-18 identifies home origins of surveyed CUE riders that reside within or adjacent to the City of Fairfax. Figure 3-19 identifies trip origin and destination locations. Dots in these figures do not represent total ridership activity at a particular location, but rather locations of unique addresses, origins and destinations. For example, trip origins from George Mason University are represented by one dot.

Figure 3-18
Home Origins of CUE Survey Responses Within and Adjacent to City of Fairfax

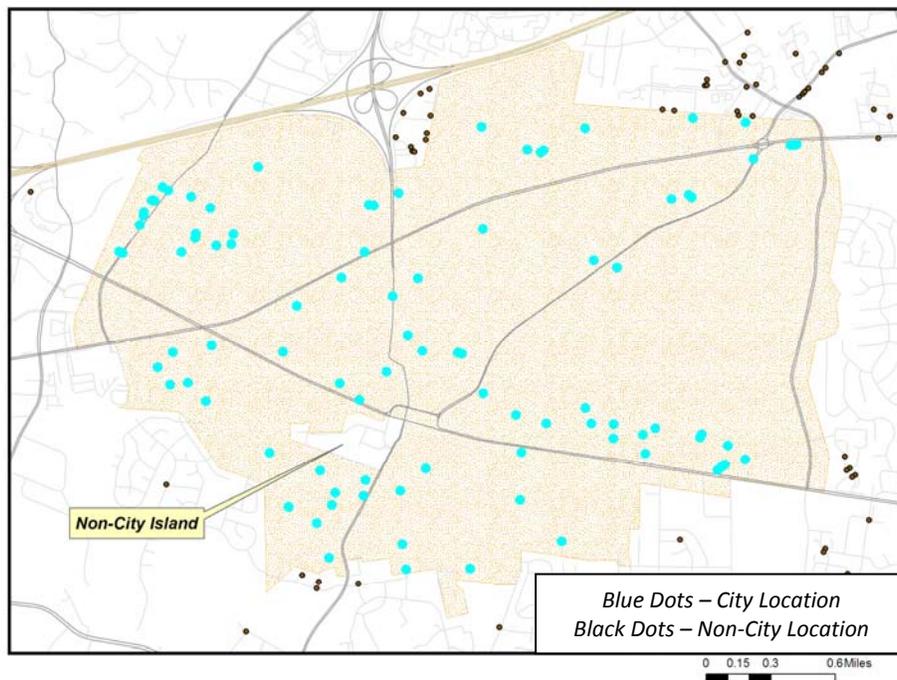
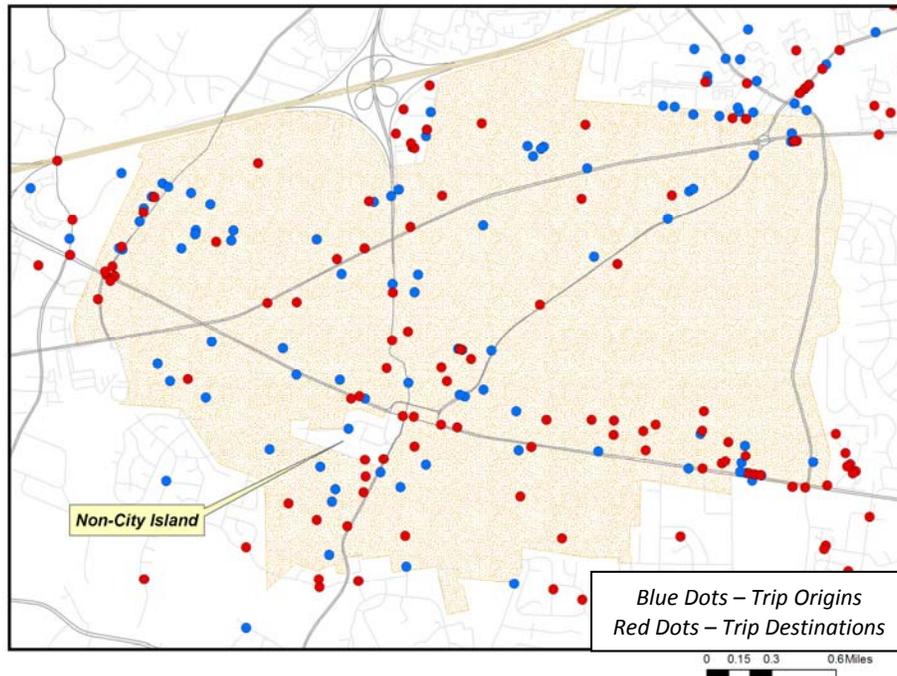


Figure 3-19
Trip Origin and Destination Locations of CUE Survey Responses



3.9 Demographic Characteristics

Demographic data from the MWCOG (traffic analysis zone forecasts) was also used to determine population, household and employment growth projections for the City of Fairfax. Those trends are noted below in Table 3-8. As reflected in this table, nominal growth is projected in population (5.5% over 10-years). Households are projected to grow by a similar percentage (5.4%). Employment within the City is projected to grow by 11 percent.

Table 3-8
Existing and Projected Demographic Characteristics
for the City of Fairfax

| Year | Population | Households | Employment |
|------|------------|------------|------------|
| 2010 | 24,320 | 8,680 | 27,370 |
| 2015 | 24,880 | 8,870 | 28,680 |
| 2020 | 25,660 | 9,150 | 30,390 |

3.10 City Comprehensive Plan

The City’s Comprehensive Plan was reviewed to determine the desired direction of future growth in the City. The Comprehensive Plan was completed in 2004 and emphasizes the City’s strong sense of community with a small town atmosphere. It describes pressures experienced by the City with 250,000

to 300,000 vehicles traveling through the City each day, and notes the impact George Mason University's tremendous growth has on the City. Information provided in the Comprehensive Plan that is directly relevant to this TDP effort is as follows:

Demographics

The City's Comprehensive Plan notes the substantial growth experienced by the Town of Fairfax between 1950 and 1960 (almost 600%) and the further growth experienced between 1960 and 1970 (67%). The City's population saw a decrease from 1970 through 1990, but has seen slight increases since 1990. More recently, Asian and Hispanic households represent the largest percentage increases in the City's population, and have included larger average household sizes. The City's Comprehensive Plan anticipates continued modest population and household increases through 2020.

The median age of City residents has increased from 33.5 years in 1990 to 37.0 years in 2000. The City has seen a steady increase in the percentage of elderly persons. In 1990, population 65 and over represented 10.9 percent of the City's population. In 2000, this number increased to 12.8 percent. The Comprehensive plan estimated this percentage to increase to 18 percent by 2010.

In 2000, approximately 73 percent of the City population was white, reflecting a drop from 86 percent in the 1990 Census. In 2000, 12% were Asian and 5% were African American. People that identified themselves as Hispanic were 14% of the total population (note that Hispanic is an ethnic classification, not a racial category).

Other key demographic characteristics noted in the City's Comprehensive Plan are as follows:

- A total of 11.9 percent of City residents identified themselves as having a disability.
- Females composed 51.2% of the City's population in 2000.
- In 2000, 88.6% of all residents over the age of 25 were at least high school graduates, and 45.7% completed a bachelors degree or higher.
- The 1999 median income for City households was \$67,642.

Economics

The Comprehensive Plan notes that the City's retail activity primarily occurs in three areas: the Fairfax Boulevard/Lee Highway Corridor (Fairfax Circle, Northfax and Kamp Washington), the intersection of Main Street and Picket Road (Fair City Mall, Pickett Shopping Center and Turnpike Plaza), and Old Town Fairfax (the City's historic center). George Mason University is of course a major contributing factor to the Fairfax economy, with its growing enrollment and expanding university. The redevelopment of Lee Highway/Fairfax Boulevard is identified as one of the City's priority economic development projects.

Transportation

The Comprehensive Plan notes how the City is at the crossroads of several major Northern Virginia highways: US 29, US 50, VA Route 123 and VA Route 236. This section of the Comprehensive Plan describes the pressures experienced within the City with through traffic commuters.

The City also has a defined trail system of multipurpose trails, paved trails, sidewalks and shared highways. City has trails connect to the regional Washington and Old Dominion Trail (W&OD), as shown in Figure 3-20.

Land Use

The City's current Comprehensive Plan was used to identify the City of Fairfax' existing and future land use characteristics. The City's Comprehensive Plan notes that the City of Fairfax is essentially built-out. Existing land usage within the City by category is as follows:

- Residential – 53%
- Commercial – 15%
- Industrial – 5.5%
- Institutional – 13.5%
- Public Right-of-Way – 13%

Residential usage in the City is primarily single family, with more than 90% of residentially developed land composed of single-family homes. In 2003, about 12% of the City's land area was considered undeveloped.

Figure 3-21 presents the City's Existing Land Use Map and Figure 3-22 presents the City's Future Land Use Map from its current Comprehensive Plan.

3.11 Fairfax Blvd. Master Plan

The City of Fairfax Department of Community Development and Planning prepared a Master Plan in 2008 for Fairfax Boulevard. This plan envisions **centers** of mixed-use environments with short, walkable blocks for pedestrian activity. These centers would be joined by commercial **connectors** that are defined by a linear, aesthetically enhanced boulevard. Portions of Fairfax Boulevard would be configured with five through lanes of traffic, with additional one-way side streets running in each direction for local access and on-street parking. These local lanes would be separated from the through lanes with landscaped medians. This "vision" for Fairfax Boulevard includes providing an appropriate balance for pedestrians, motorists, bicyclists and transit.

CUE service can be an important element to the transportation component of this plan. CUE can provide the needed transit connections between the defined Fairfax Boulevard "centers". As plans for Fairfax Boulevard progress, it will be important to take into consideration transit service amenities, such as the design of passenger shelters at bus stops and bus pull-out lanes.

Figure 3-20
City of Fairfax Existing Trail System

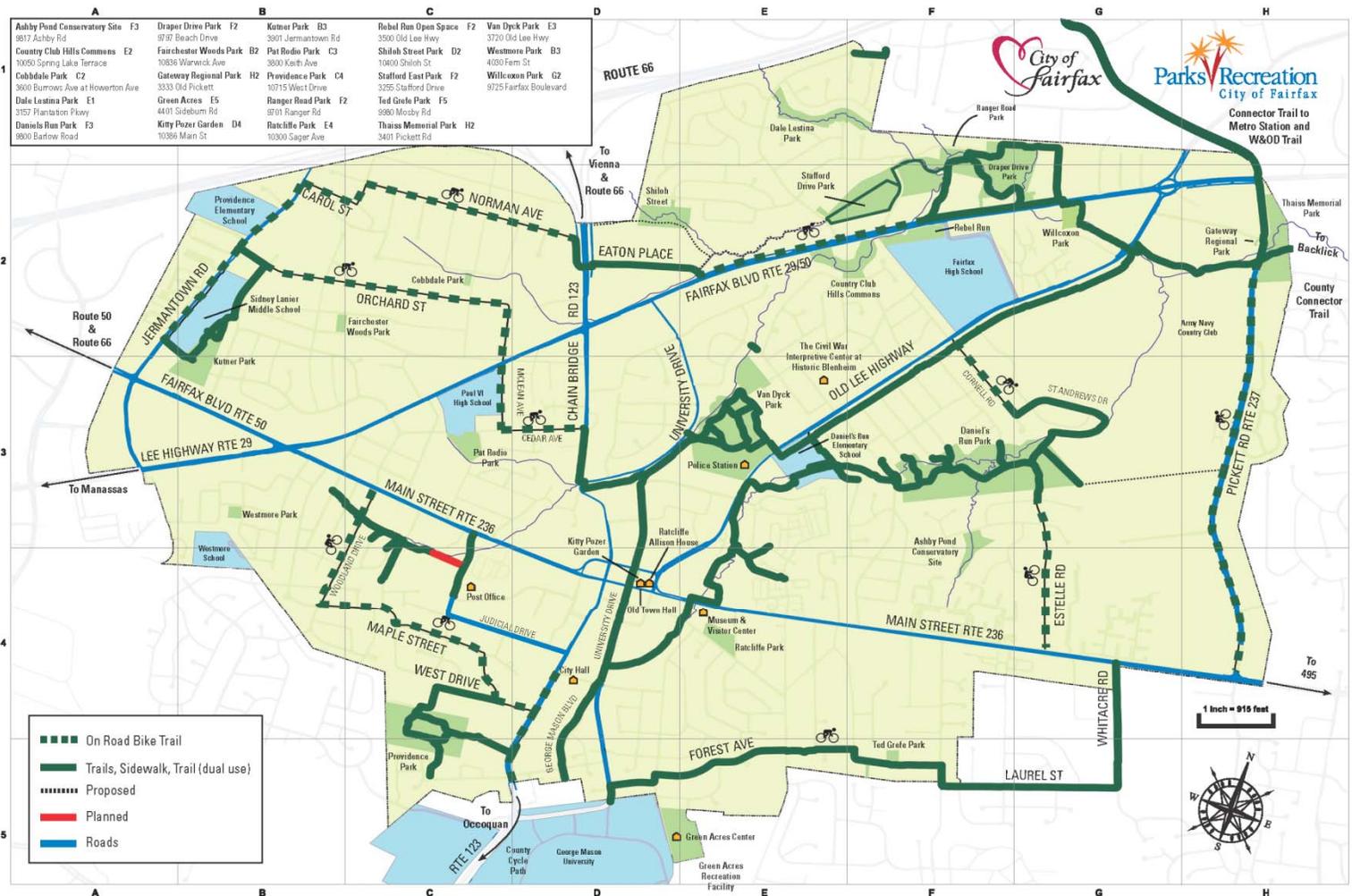


Figure 3-21
 City of Fairfax Existing Land Use Map

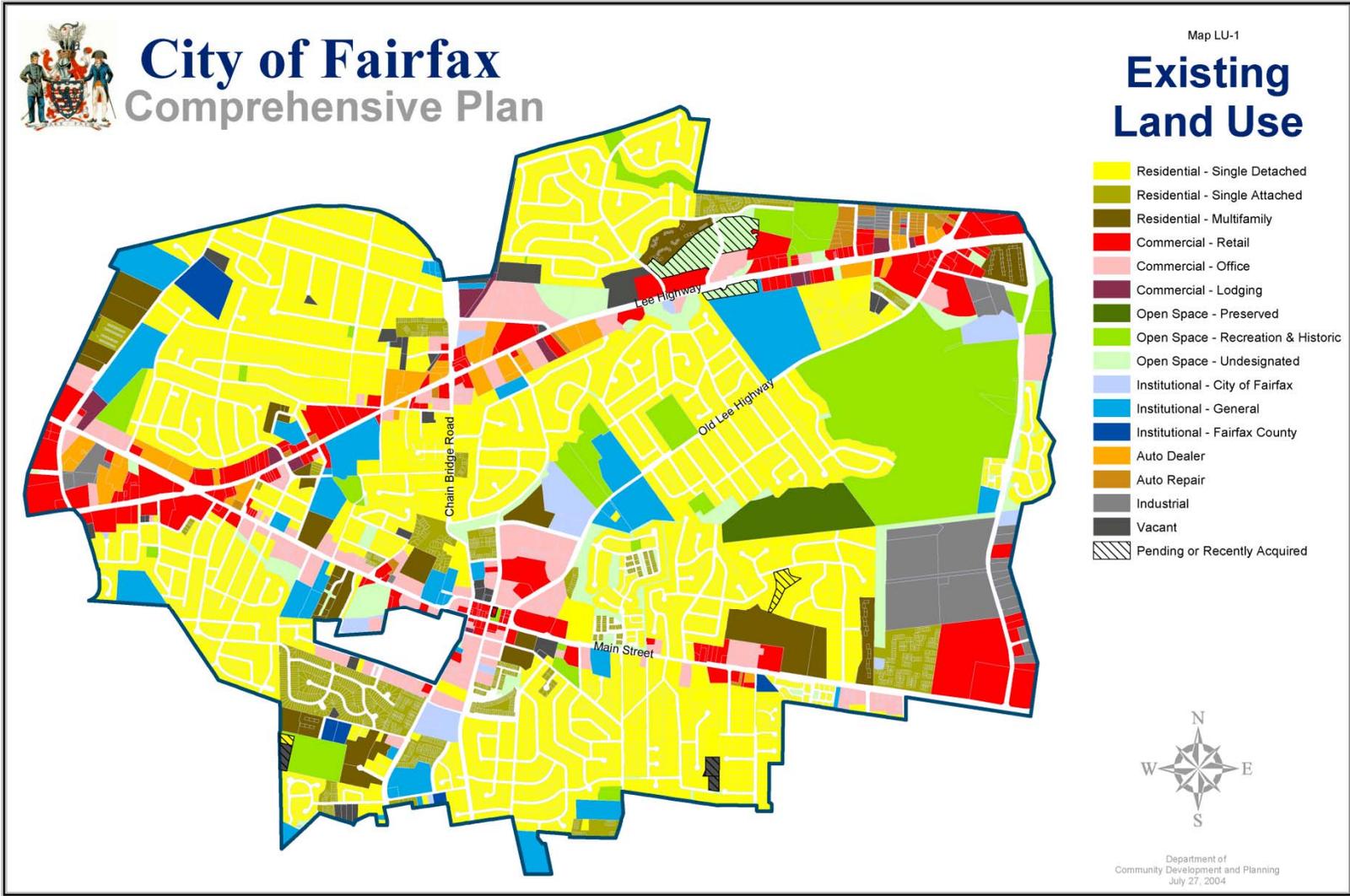
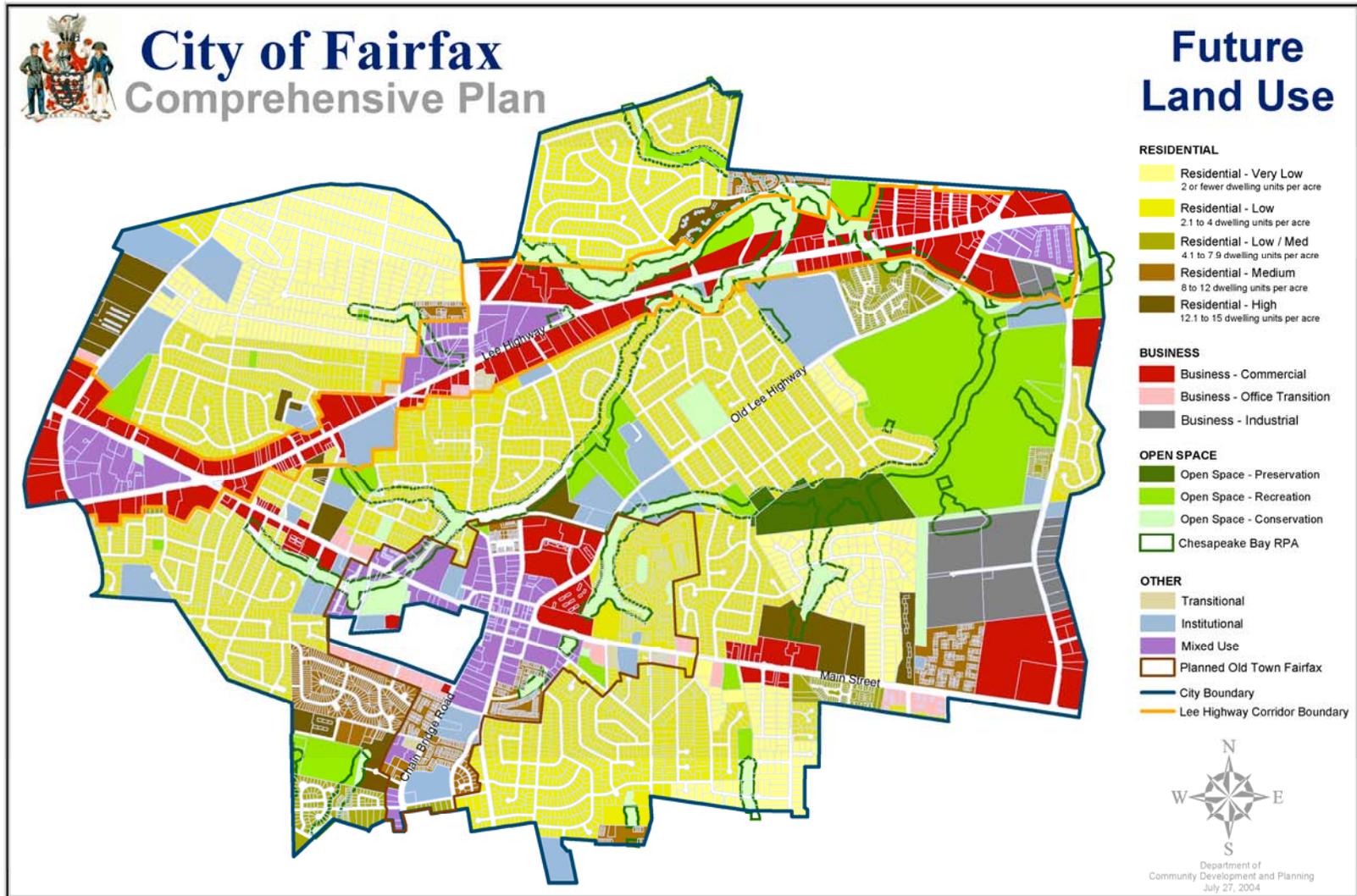


Figure 3-22
City of Fairfax Future Land Use Map



3.12 Facility and Equipment Characteristics

As previously noted in Chapter 1, CUE buses are stored and maintained at the City's Property Yard on Old Pickett Road. Drivers are also dispatched from this location. Also noted in Chapter 1, CUE has 13 buses in its fleet. One bus is a 1997 bus and is not considered part of the active fleet. Of the remaining 12 buses, six were purchased in 2003 and the other six were purchased in 2009. The 2009 buses are hybrid-electric buses. The 2003 buses have an estimated 12-year life and will need to be replaced by 2015 at the latest.

3.13 TDP Public Outreach Efforts

The following outreach efforts have been undertaken as part of this TDP work effort:

- TDP consultant staff and the City's Transportation Director met with CUE drivers to gather input. Drivers provided comments regarding service issues, and also conveyed comments and requests typically made by riders.
- A powerpoint presentation of the TDP process was made to the City's Planning Commission and to the City Council. Members from both groups provided comments.
- TDP consultant staff and the City's Transportation Director met with GMU Parking and Transportation Department to discuss the TDP process and to gather input regarding GMU's transit service needs.
- An e-mail blast went to all City residents requesting input on future transit service needs.

Input gathered from these efforts is presented in Appendix D of this TDP.

3.14 Title VI and Triennial Review

The City of Fairfax is not required to complete Title VI or Quadrennial Reports to the Federal Transit Administration for the City does not receive any federal funds for CUE service.

4.0 TRANSIT SERVICE AND FACILITY NEEDS ASSESSMENT

This chapter identifies potential service and facility needs for the Fairfax CUE service area. Service and facility / equipment needs are identified based on the evaluation conducted in previous chapters of this TDP, stakeholder meetings and demographic analysis. A meeting with City and CUE staff was also held to discuss potential service needs for inclusion in the TDP.

Key findings that have been taken into consideration in identifying transit service and facility needs are as follows:

1. Service to/from the Vienna/Fairfax-GMU Metrorail station is an essential connection provided by the CUE, with 27% of all riders using CUE service to connect to/from Metrorail.
2. Without CUE, a large portion of Fairfax residents would not have direct transit access to the Vienna/Fairfax-GMU Metrorail station. Only Metrobus Route 2G serves this station, and this route provides service to only a small portion of City residents (along Jermantown Road). Metrobus Route 1C provides service through Fairfax along Hwy 50, but this route connects with the Dunn Loring Metrorail station.
3. Service to/from GMU is also an important connection provided by the CUE. Nearly 20% of all riders use CUE service to connect to/from GMU.
4. GMU staff, faculty and students are a large part of CUE's ridership base, with about 1/3 of all riders using a GMU ID.
5. CUE ridership does vary throughout the year, with lower ridership during the summer months when GMU is not in fall or spring session.
6. An analysis of service coverage determined that a large percentage of City residents and employees are within walking distance of a CUE route. Without CUE service, several thousand residents and employees would lose access to transit service, with very few having access to the Vienna/Fairfax-GMU Metrorail station (the closest Metrorail station for City residents and employees).
7. There is minimal transit service within the City of Fairfax on Saturday evenings, Sunday mornings and Sunday evenings when CUE is not in-service. There are few Metrobus routes operating within the City of Fairfax during those time periods.
8. A review of service effectiveness, cost effectiveness and service efficiency indicates CUE performs better than its peers in nearly all metrics. This peer analysis was completed with systems across the U.S. that are similar in size to CUE, as well as with systems in the D.C. metropolitan area.
9. A review of the City's Comprehensive Plan and demographic projections indicate that the City is essentially built-out, with modest population and employment growth projections over the next ten years. The Comprehensive Plan notes that the City's retail activity primarily occurs in three areas: the Fairfax Boulevard/Lee Highway Corridor, the intersection of Main Street and Picket Road, and Old Town Fairfax.
10. The City also has prepared a Master Plan for the Fairfax Boulevard corridor. Transit is an important transportation element of this Master Plan.

Based on these findings, the following needs and service improvements have been identified for consideration for inclusion in the Fairfax CUE TDP. It is important to note that this list represents

potential TDP improvements. Recommended improvements for the TDP 6-year time period are identified in Chapter 5.

4.1 Service Needs

1. Maintain service to the Vienna/Fairfax-GMU Metrorail Station and to GMU

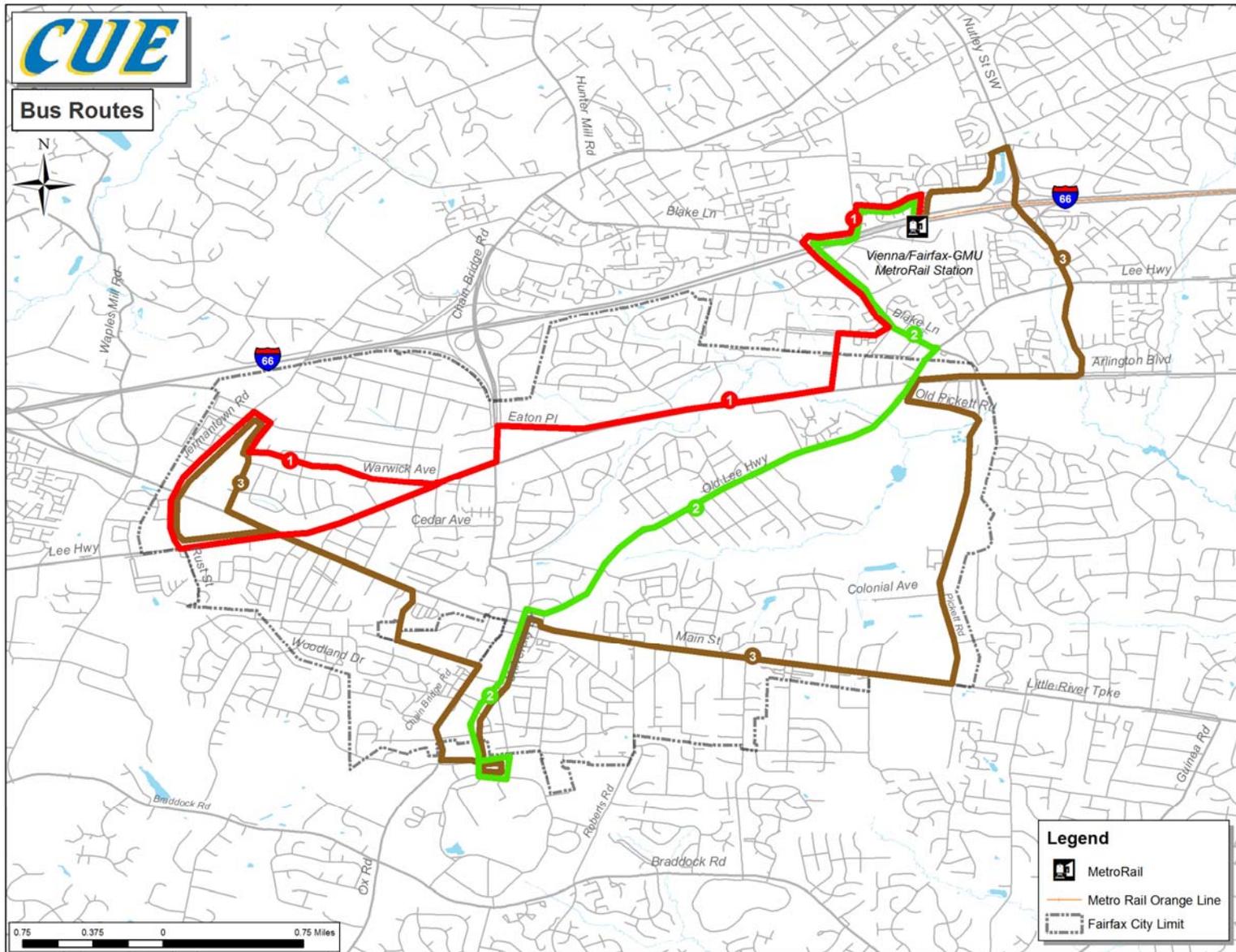
This is not a new need, but rather, reflects the critical need to maintain strong service to both of these major transit rider destinations. As noted in Chapter 3 of this TDP, these two locations account for nearly 50% of CUE ridership. Service to both of these locations benefits City residents that are destined to the Metrorail or to GMU, and non-City residents that arrive via Metrorail and are destined to either GMU or to their place of employment within the City of Fairfax.

2. Restructure CUE route alignments

CUE service is presently structured as two loops, with bi-directional service provided on each loop. This route structure has provided maximum service coverage to the City, but it does have some limitations. First, it can create additional travel time to CUE riders, depending on the bus trip. For example, a trip from the GMU campus to the Vienna/Fairfax-GMU Metrorail station can take 24 to 36 minutes, depending on the bus route that a passenger rides. Second, the loop service does not provide much flexibility in varying service levels by time of day, by day of week or by time of year. Third, there may be benefit in providing a direct one-seat ride between the high density multifamily units along Jermantown road and the shopping centers at Main Street and Pickett Road.

Figure 4-1 presents a possible route restructuring of CUE service. It is important to keep in mind that this is just one possible route scenario. Further consideration of other scenarios is required before determining the restructuring scenario that best serves the City of Fairfax. With the example shown in Figure 4-1, direct service is provided between GMU and the Vienna/Fairfax-GMU Metrorail station, one-seat ride service is provided along Main Street (with a deviation to GMU), and service is structured in a manner where frequencies can be easily modified depending on the time of day, day of week and time of year. For example, the direct service between GMU and Metrorail (Route 2) can operate at 15, 20, 30 or 60-minute frequencies, depending on demand. Similarly, Route 1 could operate at higher frequencies in the peak periods and lower frequencies (or not at all) during periods of low demand. For periods when there is low demand, CUE could operate with just Route 3 in service, which would still provide service to the Metrorail Station, the shopping centers at Main Street and Pickett Road, Old Town Fairfax, GMU, the Fairfax County Judicial Center, the Kamp/Washington intersection area, and Jermantown Road. Thus, this potential restructuring scenario, as illustrated in Figure 4-1, provides the City with much more flexibility to modify CUE service in a manner that matches better with ridership demand.

Figure 4-1
Potential New CUE Service Scenario



3. Operate CUE service at clock headways

Over the years, the City of Fairfax has seen substantial increases in traffic volumes on the City's arterials. Often, this traffic will spill over onto local streets. CUE buses often experience delays because of congested traffic conditions. On-time performance is particularly problematic in the afternoons – particularly when there is a traffic incident on I-66 and through traffic spills over onto US 50.

As a result of these deteriorating traffic conditions, CUE service no longer operates at 30-minute clock headways. Service operates at 35-minutes during most time periods on weekdays, and at 65-minutes on Saturdays and Sundays. Clock headways are much easier for a passenger to understand (e.g., the bus always arrives at 15 and 45 after the hour). Thus, an identified need for this TDP is to get CUE routes back on clock headways. In conjunction with this need, bus cycle times should be modified to provide additional schedule recovery time as a means to improve on-time performance.

Clock headways are not achievable with the current CUE route structure without putting additional buses in-service. Alternatively, clock headways could be achieved without a need for additional buses or bus-hours if modified route alignments were put in place, such as the scenario proposed in Figure 4-1.

4. Increase CUE service frequencies to the GMU campus

As noted in Chapter 3, GMU ridership is a significant portion of CUE's ridership base. CUE ridership has dropped since introduction of the GMU shuttles. However, overall transit ridership has increased substantially when considering both CUE and GMU shuttle ridership.

There may be an opportunity to explore increasing CUE service frequencies to/from the GMU campus in conjunction with service modifications to the GMU shuttle service. For example, GMU operates its Mason to Metro shuttle at 15 to 30-minute frequencies during the day and 30-minute frequencies in the evening. This shuttle service competes with CUE service. If CUE were to provide more frequent and more direct service between GMU and Metrorail, there may be an opportunity for GMU to reduce or eliminate its Mason to Metro shuttle and use cost savings from that service reduction or elimination towards an increased financial contribution towards CUE service.

Although not included in this TDP, additional potential service needs that might be considered in future TDP updates include the extension of p.m. peak period service frequencies until 8:00 p.m. and the expansion of Saturday and Sunday service hours.

4.2 Facility and Equipment Needs

The existing City Property Yard at Old Pickett Road is not anticipated to require modifications or improvements over the TDP six-year time period. There will, however, be a need to replace six of CUE's bus fleet. The process for replacing these buses is anticipated to begin in FY 2014, with the purchase of the buses in FY 2015. A service vehicle replacement is also scheduled to occur in FY 2012, and a second service vehicle replacement in FY 2014.

4.3 Funding Requirements

Potential costs were estimated for the service and facility needs identified above (in current year dollars). Potential funding requirements are based on the following assumptions:

- No additional costs were identified for maintaining existing strong service to the Vienna/Fairfax-GMU Metrorail station and to the GMU campus.
- The restructuring of CUE service was also estimated as being cost-neutral. The potential service restructuring scenario presented in Figure 4-1 can provide similar service levels as today, with no additional change in CUE's peak bus requirement, and minimal changes in CUE's bus-hours and bus-miles of service. Staffing is the primary cost for CUE service. Thus, more detailed analysis is required to determine if a restructured CUE service plan impacts CUE's existing staffing levels. There will also be some costs associated with planning and implementing restructured CUE bus service.
- The operation of CUE service at clock headways can also be achieved through CUE restructured routes. It is estimated that this can be achieved with no change in CUE's peak bus requirement, and minimal changes in CUE's bus-hours and bus-miles of service.
- The list of potential needs includes increasing service frequencies between GMU and the Vienna/Fairfax-GMU Metrorail station. The proposed route structure scenario that is shown in Figure 4-1 provides a direct route between these two key destinations (Route 2). The provision of 15-minute service frequencies during the GMU school session for 10-hours a day will add 2 peak buses (3 fleet), and about 5,160 annual revenue bus-hours. This is estimated to cost about \$425,700 in annual O&M costs. As previously noted, increased CUE service frequencies to GMU may provide GMU with the ability to reduce service or eliminate its Mason to Metro Shuttle. Cost savings from this service reduction could possibly be applied towards increased GMU funding contribution to CUE service. The ability of GMU to possibly do this, however, may depend on the contractual terms with GMU's private service contractor. Further discussions will be required with GMU staff.
- It was also noted that 6 CUE buses are scheduled to be replaced in FY 2015. This TDP assumes those replacement buses will be hybrid-electric buses, at a cost of \$550,000 per bus, or \$3,300,000 for all six buses.
- Two service vehicles also will require replacement during the TDP time period. These vehicles are estimated to cost \$30,000 each, or \$60,000 for both vehicles.

Table 4-1 summarizes anticipated costs associated with each identified service need.

**Table 4-1
Estimated Costs for CUE Service and Vehicle Needs**

| Service Need | Additional Bus-Hours | Cost Impact |
|---|--|--|
| 1. Maintaining Strong Service to Metrorail and GMU | None | No cost impact |
| 2. Restructure CUE Service | None – Service can be modified with no change in bus-hours | Minimal cost impact. Service can be modified and remain cost neutral |
| 3. Operate at clock headways | No anticipated hours if implemented in conjunction with restructured CUE service | No anticipated cost impact if implemented in conjunction with restructured CUE service |
| 6. Increase service frequencies between GMU and Metrorail | 5,160 hours | \$425,700 in O&M costs. Also requires 3 additional buses at a cost of \$1,650,000. |
| Replace six buses in fleet in 2015 | n/a | \$3,300,000 |
| Replace 2 service vehicles (2014 and 2016) | n/a | \$60,000 |

Notes:

1. *O&M costs estimated at about \$82.50 per revenue bus-hour (FY 11 dollars).*
2. *Capital costs for new buses estimated at \$550,000 per bus (FY 11 dollars).*

5.0 SERVICE AND FACILITY RECOMMENDATIONS

This chapter identifies service and facility needs that are recommended for inclusion in the six-year TDP time period (FY 2011 through FY 2016). Potential service and facility needs were previously identified in Chapter 4 of this TDP. Recommended service and facility improvements that are presented in this chapter are based on anticipated available funding during the TDP time period.

5.1 Service Recommendations

Chapter 4 of this TDP identified the following potential service improvements for consideration over the TDP's six-year time period:

1. Maintain service to the Vienna/Fairfax-GMU Metrorail Station and to GMU.
2. Restructure CUE route alignments
3. Operate CUE service at clock headways.
4. Increase CUE service frequencies to the GMU campus.

Unfortunately, the reality of Fairfax' financial condition may not allow for transit service expansion in the near future. The City of Fairfax, like many cities at this time, is struggling with reduced tax revenues. Historically, the City has covered 25 to 30 percent of annual O&M costs through the City's General Fund, with most of the remainder coming through fare box revenues, an annual contribution from GMU and from the Northern Virginia Transportation Commission (NVTC). For FY 2011, the City was able to reduce its local contribution to CUE's \$2.84 million budget through increased funding from GMU, NVTC and a planned 15 cent fare increase for CUE beginning Updated October 2010 (from \$1.45 to \$1.60 for a base cash fare). Projected revenue sources for FY 2011 CUE operations are as follows:

- NVTC – 46% of revenues
- Passenger Fares – 20% of revenues
- GMU Contribution – 19% of revenues
- City General Fund Support – 14% of revenues
- Miscellaneous – 1% of revenues

Following are proposed service improvements for inclusion in the TDP's six-year time period.

FY 2011

This TDP's first recommendation is to investigate the feasibility of restructuring CUE route alignments in a manner that eliminates the existing loop alignments and returns CUE service to clock headways. It is recommended that service restructuring be completed prior to the end of FY 2011. One potential realignment scenario was presented in Chapter 4.

These service changes will have some impact on CUE expenses (i.e., staff time to develop new schedules and driver assignments, printing costs for new system route maps and schedules, costs associated with updating route signage and schedule information at stops). However, this change will ultimately provide the City with more flexibility to adjust CUE service schedules and headways by time of day. The

restructuring of CUE bus service may provide in the ability to reduce bus service hours for select time periods, and thus reduce CUE bus costs. Further evaluation of the full costs and impacts associated with restructured CUE service will be required as part of a more detailed study of a restructured CUE bus system.

FY 2013

This TDP includes the recommendation of improving service frequencies to/from George Mason University by FY 2013. Specifically, 15-minute frequencies are proposed between GMU and the Vienna/Fairfax-GMU Metrorail for 10-hours a day (e.g., from 9:00 a.m. until 7:00 p.m.). As noted in Chapter 4, there may be the opportunity to modify the City’s cost-sharing agreement with GMU to fund this service improvement. This improvement cannot be implemented without a modified GMU cost-sharing agreement. This improvement will require two additional peak buses (3 fleet buses). Ultimately, Fairfax will need to purchase new buses to accommodate this improvement. However, the City does have 1997 buses stored at the yard that is not presently part of CUE’s active fleet. Two of these buses could be rehabbed for service as an interim measure, should expanded GMU service be moved forward prior to the City’s ability to purchase new buses.

Estimates of system service requirements for each year of the TDP are noted below in Table 5-1. Weekday, Saturday and Sunday service plan tables for the TDP time period are provided in Appendix E.

**Table 5-1
Annual CUE Service Requirements**

| Service Statistic | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Wkdy Peak Buses | 8 | 8 | 8 | 10 | 10 | 10 | 10 |
| Sat. Peak Buses | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Sun. Peak Buses | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Fleet Buses | 13 | 13 | 13 | 16 | 16 | 16 | 16 |
| Annual Rev. Bus-Hrs. | 34,460 | 34,970 | 34,970 | 39,620 | 39,620 | 39,620 | 39,620 |

Other service improvements that were not included in this TDP but may be considered in future TDP Updates include:

- Expansion of p.m. peak period service frequencies until 8:00 p.m.; and
- Expansion of Saturday and Sunday service hours (earlier starting times/later ending times).

5.2 Vehicle and Facility Recommendations

This TDP has also identified the following vehicle and facility improvements for consideration over the TDP’s six-year time period:

FY 2012

- One service vehicle is scheduled for replacement in FY 2012.

FY 2013

- Three additional fleet buses will be needed for expanded CUE service to GMU in FY 2013. Alternatively, older CUE buses that are not part of the active fleet can be rehabilitated until new buses can be purchased.

FY 2014

- One other service vehicle is scheduled for replacement in FY 2014

FY 2015

- Six CUE buses are scheduled for replacement in FY 2015.

6.0 CAPITAL IMPROVEMENT PROGRAM

This chapter of the TDP describes capital programs required to carry out the operations and services set forth in the TDP service and facility recommendations that were presented in the prior chapter.

6.1 Revenue Vehicle Replacement Program

As was noted in prior chapters of this TDP, an additional 2 peak/3 fleet buses are required for proposed service expansion to the GMU campus in FY 2013. These are not replacement buses. As previously noted, on an interim bases the City could rehab buses that are in its inactive fleet, if new buses cannot be purchased in time for expanded service to GMU. An additional six buses are scheduled for replacement in FY 2015. Five of these buses will replace buses purchased in FY 2003. One of the new buses will replace a 1997 bus. One 2003 bus will continue to remain in the active fleet as an extra spare (i.e., serving the same purpose as the existing 1997 bus).

The City of Fairfax uses funds from its NVTC account for reimbursement of bus purchases. Thus, 100% NVTC funding has been assumed for bus purchases in this TDP. The proposed fleet replacement plan is presented in Table 6-1. The average bus fleet age grows to 7.6 years in FY 2012, but is reduced to 4.5 years in FY 2015, when six replacement buses are programmed for purchase.

6.2 Non-Revenue Vehicle Replacement Program

Two service vehicles are also scheduled to be replaced during the TDP time period. One vehicle is to be replaced in FY 2012 and the other vehicle in FY 2014. Table 6-2 presents the fleet replacement schedule for service vehicles. Once again, NVTC funds have historically been used for reimbursement of 100% of the cost for service vehicles, thus has been assumed for this TDP.

6.3 Facility Improvement Program

No facility improvements have been identified for the TDP time period.

**Table 6-1
Fairfax CUE
Proposed Vehicle Replacement Program for
Revenue Vehicle Fleet**

| Fleet | Bus # | Bus Type | Model Year | Years in Service | | | | | | |
|-------------------|-------|----------------|------------|------------------|---------|---------|---------|---------|---------|---------|
| | | | | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
| Existing Vehicles | 815 | Gillig Phamton | 1997 | 13 | 14 | 15 | 16 | 17 | R | |
| | 821 | Gillig Phamton | 2003 | 7 | 8 | 9 | 10 | 11 | R | |
| | 822 | Gillig Phamton | 2003 | 7 | 8 | 9 | 10 | 11 | R | |
| | 823 | Gillig Phamton | 2003 | 7 | 8 | 9 | 10 | 11 | R | |
| | 824 | Gillig Phamton | 2003 | 7 | 8 | 9 | 10 | 11 | R | |
| | 825 | Gillig Phamton | 2003 | 7 | 8 | 9 | 10 | 11 | R | |
| | 826 | Gillig Phamton | 2003 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| | 827 | Gillig Hybrid | 2007 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | 828 | Gillig Hybrid | 2007 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | 829 | Gillig Hybrid | 2007 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | 830 | Gillig Hybrid | 2007 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | 831 | Gillig Hybrid | 2007 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | 832 | Gillig Hybrid | 2007 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| New Vehicles | n/a | New Bus | 2013 | | | | 0 | 1 | 2 | 3 |
| | n/a | New Bus | 2013 | | | | 0 | 1 | 2 | 3 |
| | n/a | New Bus | 2013 | | | | 0 | 1 | 2 | 3 |
| | n/a | New Bus | 2015 | | | | | 0 | 1 | 2 |
| | n/a | New Bus | 2015 | | | | | 0 | 1 | 2 |
| | n/a | New Bus | 2015 | | | | | 0 | 1 | 2 |
| | n/a | New Bus | 2015 | | | | | 0 | 1 | 2 |
| | n/a | New Bus | 2015 | | | | | 0 | 1 | 2 |
| | n/a | New Bus | 2015 | | | | | 0 | 1 | 2 |

**Table 6-2
Fairfax CUE
Proposed Vehicle Replacement Program for
Service Vehicle Fleet**

| Service Veh. Make/Model | Service Veh. Model Year | Years in Service | | | | | | |
|--------------------------------|----------------------------|------------------|----------|----------|----------|----------|----------|----------|
| | | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
| Chevy Blazer | 1997 | 13 | 14 | R | | | | |
| Chevy Van | 2001 | 9 | 10 | 11 | 12 | R | | |
| Chevy S-10 | 2004 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Chevy Trailblazer | 2007 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| New Vehicle | 2012 | | | 0 | 1 | 2 | 3 | 4 |
| New Vehicle | 2014 | | | | | 0 | 1 | 2 |
| Total Vehicles in Fleet | | 4 | 4 | 4 | 4 | 4 | 4 | 4 |

7.0 FINANCIAL PLAN

The financial plan is a principal objective of the TDP. It is in this chapter that an agency demonstrates its ability to provide a sustainable level of transit service over the TDP time period, including the rehabilitation and replacement of capital assets. This chapter identifies potential funding sources for annual operating and maintenance costs, and funding requirements and funding sources for bus and service vehicle purchases.

7.1 Operating and Maintenance Costs and Funding Sources

The City of Fairfax has recently completed its budget process for FY 2011. The adopted FY 2011 budget for CUE and CITY WHEELS is \$2.844 million. This cost includes all salaries, fringe benefits, purchased services, fuel, vehicle maintenance, supplies, materials and other charges related to CUE service. Transit-related revenues in the City's budget are to come from the following sources:

Local Revenues

- Farebox revenues from CUE riders
- Advertising
- CITY WHEELS fares
- Charter services
- Miscellaneous revenues

Other Revenues

- George Mason University (GMU) Contribution
- Northern Virginia Transportation Commission (NVTC)

As noted earlier in this TDP, GMU contributes annually to the City of Fairfax for the provision of CUE service onto its Fairfax campus.

State funds are channeled through the NVTC. State operating and capital assistance funds for Northern Virginia transit systems are collected by the NVTC, and allocated through a Subsidy Allocation Model (SAM) formula. For FY 2011, the City's allocation of state funds through the SAM formula is \$1.8 million. The City of Fairfax typically draws a portion of its allocated state funds, leaving the rest with NVTC for future reimbursement of City bus purchases. For example, in FY 2011, the City is applying \$1.3 million of its state funds towards operations, and will be leaving \$500,000 to be applied towards future bus purchases. NVTC also collects revenues generated from a Northern Virginia motor vehicle sales tax. Funds from this tax, however, are applied exclusively towards WMATA bus and rail services.

Key expense and revenue assumptions utilized in the TDP Financial Plan (Table 7-1) are as follows:

- Annual O&M costs during the TDP time period are based on a rate of \$82.50 per revenue bus-hour (FY 11 dollars). Costs in Table 7-1 reflect Year of Expenditure (YOE) dollars. A 3.0% annual inflation rate has been assumed during the TDP six-year time period. It is important to note that the City will be investigating the feasibility of restructuring CUE service in FY 2011. This study may result in O&M cost expenditures that are different than what is assumed in Table 7-1.

- Farebox revenues from CUE riders are assumed to increase at 3% for FY 2012 and 2.5% in subsequent years. This financial plan does not assume any fare increase (beyond the 15 cent base fare increase that will go in effect at the beginning of FY 2011).
- Other local revenues (e.g., charter services, advertising) are assumed to increase at the assumed rate of inflation (3.0% per year).
- GMU's annual contribution for FY 2011 through FY 2012 has been set at \$540,000.
- In FY 2013, the financial assumptions assume GMU absorbs 100% of the cost of increasing CUE service frequencies to/from the GMU campus (the FY 2013 proposed CUE service improvement). A 3% annual increase is assumed after FY 2013.
- NVTC funds are assumed to grow at the same rate of funding growth reflected in the State Six-Year Transportation Improvement Program. This rates ranges from 3.18 to 4.26% per year.

Using the assumptions presented above, funding requirements from the City's General Fund are anticipated to grow to just over \$850,000 per year (2016, in 2016 dollars).

It is important to note that local (City and GMU) funding requirements shown in Table 7-1 are based on several assumptions that may or may not occur. These assumptions will need to be revisited and revised in each year's budget process. Similarly, projects identified in the six-year TDP period can be moved forward or back, depending on availability of funding.

7.2 Bus Purchase Costs and Funding Sources

The TDP includes the purchase of three additional fleet buses in FY 2013 for expanded GMU service. Six replacement buses are proposed in FY 2015. As previously noted, hybrid-electric buses are estimated to cost \$550,000 each in FY 2011 dollars). Thus, estimated costs in YOY dollars are as follows:

- FY 2013 – Three expansion buses estimated to cost \$1.73 million (assuming 3.0%/year inflation)
- FY 2015 – Six replacement buses estimated to cost \$3.60 million (assuming 3.0%/year inflation)

As previously noted, the City applies a portion of its state funds from the NVTC for CUE operations. The remaining amount remains unspent in the City's NVTC account. The City draws this remaining amount for reimbursement when it purchases new buses. Table 7-2 illustrates anticipated NVTC funding that will be available for future reimbursement of bus purchases. In this table, NVTC funds from the state are assumed to increase at the same overall rate of growth projected in the State Six-Year Transportation Improvement Program. NVTC funds used for O&M costs are based on assumptions presented in Table 7-1. As shown in Table 7-2, there is not anticipated to be enough reserve funds to purchase the six replacement vehicles needed for FY 2015. The City may need to fund an additional \$35,600 towards the purchase of 6 buses in FY 2015. Of course, these funding assumptions are likely to change between now and FY 2015, and will need to be revisited with each annual update of the TDP.

7.3 Support Vehicle Purchase Costs and Funding Sources

Two support vehicles will also need to be replaced during the TDP time period – in FY 2012 and FY 2014. The estimated cost for each vehicle in YOE dollars is as follows:

- FY 2012 - \$31,000
- FY 2014 - \$32,000

Once again, the TDP assumes reimbursement of costs for support vehicles through NVTC funds. Table 7-2 includes the programming of support vehicles.

Table 7-1
TDP Financial Plan for
Annual O&M Costs
(Costs in Year of Expenditure Dollars)

| Service Statistic/Funding Category | Etimated FY 2010 | Budget FY 2011 | Project'd. FY 2012 | Project'd. FY 2013 | Project'd. FY 2014 | Project'd. FY 2015 | Project'd. FY 2016 |
|------------------------------------|---------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Wkdy Peak Buses Req'd. | 8 | 8 | 8 | 10 | 10 | 10 | 10 |
| Sat. Peak Buses Req'd. | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Sun. Peak Buses Req'd. | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Fleet Buses | 13 | 13 | 13 | 16 | 16 | 16 | 16 |
| Annual Rev. Bus-Hrs. | 34,460 | 34,970 | 34,970 | 39,620 | 39,620 | 39,620 | 39,620 |
| <hr/> | | | | | | | |
| PROJECTED O&M COSTS | \$2,893,128 | \$2,843,976 | \$2,971,600 | \$3,467,700 | \$3,571,700 | \$3,678,900 | \$3,789,300 |
| <i>Change from Prior Year</i> | | <i>-\$49,152</i> | <i>\$127,624</i> | <i>\$496,100</i> | <i>\$104,000</i> | <i>\$107,200</i> | <i>\$110,400</i> |
| Anticipated Funding Sources | | | | | | | |
| <u>Local Revenues</u> | | | | | | | |
| CUE Bus Receipts | \$507,500 | \$562,500 | \$579,400 | \$593,900 | \$608,700 | \$623,900 | \$639,500 |
| Advertising | \$7,500 | \$7,500 | \$7,700 | \$7,900 | \$8,100 | \$8,300 | \$8,500 |
| CITY WHEELS Fares | \$1,000 | \$1,000 | \$1,000 | \$1,000 | \$1,000 | \$1,000 | \$1,000 |
| Charter Services | \$7,000 | \$7,000 | \$7,200 | \$7,400 | \$7,600 | \$7,800 | \$8,000 |
| Miscellaneous | \$0 | \$20,000 | \$20,600 | \$21,200 | \$21,800 | \$22,500 | \$23,200 |
| <u>Non-Local Sources</u> | | | | | | | |
| GMU Bus Contribution | \$394,000 | \$540,000 | \$540,000 | \$961,800 | \$990,700 | \$1,020,400 | \$1,051,000 |
| NVTC | \$1,200,000 | \$1,300,000 | \$1,036,000 | \$1,077,751 | \$1,122,046 | \$1,169,846 | \$1,207,047 |
| General Fund Support | \$776,200 | \$405,976 | \$779,700 | \$796,749 | \$811,754 | \$825,154 | \$851,053 |
| <i>Change from Prior Year</i> | | <i>-\$370,224</i> | <i>\$373,724</i> | <i>\$17,049</i> | <i>\$15,004</i> | <i>\$13,401</i> | <i>\$25,899</i> |
| <hr/> | | | | | | | |
| TOTAL PROJECTED REVENUES | \$2,893,200 | \$2,843,976 | \$2,971,600 | \$3,467,700 | \$3,571,700 | \$3,678,900 | \$3,789,300 |

1. Service statistic increases based on service plans described in Chapters 4 and 5 of the TDP.
2. O&M cost estimates for FY 2010 and projections for FY 2011 obtained from City of Fairfax FY 2011 Transit Fund budget.
3. O&M costs for FY 2012 through FY 2016 based on \$82.50 in FY 2010 dollars, adjusted for inflation (3%/year).
4. City bus receipts (farebox revenues) assumed to increase by 3% in 2012 and 2.5% after 2012 from improved economic conditions and route changes.
5. All other local revenues assumed to increase at the rate of inflation (3%/year).
6. GMU contribution assumed at \$540,000 for FY 2011, based on recent agreement with GMU.
7. In FY 2013, GMU contribution is assumed to cover 100% of the increase in service costs associated with frequency improvements to GMU campus. A 3%/year increase is assumed after FY 2013.
8. State funds from NVTC assumed to grow at rate consistent with VDRPT SYIP.
9. General funds support requirements based on remaining funding support required.

Table 7-2
TDP Financial Plan for
Capital Costs
(Year of Expenditure Dollars)

| Service Statistic/Funding Category | Budget FY 2011 | Project'd. FY 2012 | Project'd. FY 2013 | Project'd. FY 2014 | Project'd. FY 2015 | Project'd. FY 2016 |
|---------------------------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| a. NVTC Reserves at Beginning of Year | \$1,300,000 | \$1,800,000 | \$2,629,000 | \$1,761,249 | \$2,628,203 | \$0 |
| b. Current Year NVTC Funding: | \$1,800,000 | \$1,865,000 | \$1,940,000 | \$2,020,000 | \$2,106,000 | \$2,173,000 |
| c. Funding Applied to Annual O&M | \$1,300,000 | \$1,036,000 | \$1,077,751 | \$1,122,046 | \$1,169,846 | \$1,207,047 |
| d. Remaining Current Year NVTC Funds | \$500,000 | \$829,000 | \$862,249 | \$897,954 | \$936,154 | \$965,953 |
| e. New End of Year Reserves (a+d) | \$1,800,000 | \$2,629,000 | \$3,491,249 | \$2,659,203 | \$3,564,357 | \$965,953 |
| f. Capital Purchases | | | | | | |
| Bus Replacements (6 buses) | | | | | \$3,600,000 | |
| Service Vehicle Replacements | | | | \$31,000 | | \$32,000 |
| Service Expansion Buses (3 buses) | | | \$1,730,000 | | | |
| g. Net Balance (e-f) | \$1,800,000 | \$2,629,000 | \$1,761,249 | \$2,628,203 | -\$35,643 | \$933,953 |

1. State funds from NVTC assumed to grow at rate consistent with VDRPT SYIP.
2. Funding applied towards annual O&M reflected in table 7-1.
3. Capital purchases based on vehicle needs identified in Chapter 6 of the TDP.
4. The negative net balance shown at the end of FY 2015 is assumed to be covered by the City of Fairfax, resulting in a new balance of \$0 at the start of FY 2016.

8.0 TDP MONITORING AND EVALUATION

This TDP has presented a comprehensive evaluation of Fairfax CUE service and cost characteristics. Key elements that have been addressed in this TDP include:

- Development of goals, objectives and performance standards that are to guide further development of Fairfax CUE services;
- A detailed evaluation of existing service characteristics, with identification of system strengths and weaknesses;
- A peer agency review that compares Fairfax CUE service and financial characteristics to other similar-sized systems;
- Another peer agency review that compares Fairfax CUE service and financial characteristics to DC suburban transit systems;
- A summary of rider survey results from the 2008 MWCOG transit on-board survey;
- A listing of potential service and facility improvements, for consideration in the TDP;
- A potential restructuring of CUE service to a 3-route system that operates on clock headways;
- Recommended service improvements and vehicle purchases for inclusion in the TDP, with improvements identified by year; and
- Funding requirements and potential funding sources for recommended service improvements and vehicle purchases.

This TDP reflects an initial step in future service improvements for the Fairfax CUE. It will be important to coordinate closely with other transportation and land use planning efforts, to continue to monitor service performance, and to provide DRPT with annual updates regarding implementation of TDP service and facility improvements.

8.1 Coordination with Other Plans and Programs

Goals and objectives from this TDP should be reviewed and incorporated into the City's Comprehensive Plan and its annual budget process. Close coordination is also required with George Mason University (GMU) – a major financial partner for CUE. Coordination efforts must also continue with the MWCOG, the NVTC, WMATA and Fairfax County. Formal coordination meetings with other transit providers are suggested as a means to ensure continual communication and awareness of service planning efforts.

8.2 Service Performance Monitoring

This TDP has identified specific system-wide service performance measures to ensure CUE's existing performance characteristics do not degrade substantially. Corrective measures are to be taken if these monitoring efforts identify service performance degradation (e.g., through route alignment adjustments, headway and/or span of service adjustments). This TDP has recommended a monitoring program that could be used for periodic service evaluation.

8.3 Annual TDP Monitoring

The DRPT will require submittal of an annual letter that provides updates to the contents of this TDP. Recommended contents of this “TDP Update” letter include:

- A summary of ridership trends for the past 12 months.
- A description of TDP goals and objectives that have been advanced over the past 12 months.
- A list of improvements (service and facility) that have been implemented in the past 12 months, including identification of those that were noted in this TDP.
- An update to the TDP’s list of recommended service and facility improvements (e.g., identify service improvements that are being shifted to a new year, being eliminated, and/or being added). This update of recommended improvements should be extended one more fiscal year to maintain a six-year planning period.
- A summary of current year costs and funding sources.
- Updates to the financial plan table presented in Chapter 7 of this TDP. This table should be extended one more fiscal year to maintain a six-year planning period.

The financial plan is a principal objective of the TDP. It is in this chapter that an agency demonstrates its ability to provide a sustainable level of transit service over the TDP time period, including the rehabilitation and replacement of capital assets. This chapter identifies potential funding sources for annual operating and maintenance costs, and funding requirements and funding sources for bus and service vehicle purchases.

Appendix A
LISTING OF CUE BUS STOPS AND SHELTERS

| ID NU | GOLD 1 | GOLD 2 | GREEN 1 | GREEN 2 | ON STREET | AT STREET |
|-------|--------|--------|---------|---------|--------------------|--------------------|
| 1 | X | X | X | X | METRO STATION | |
| 2 | X | X | | | COUNTRY CREEK ROAD | VILLAGE SPRING LN |
| 3 | X | X | | | BLAKE LANE | FIVE OAKS ROAD |
| 4 | X | X | | | BLAKE LANE | BEL GLADE STREET |
| 5 | X | X | | | BLAKE LANE | KINGSBRIDGE DR. |
| 6 | X | | | | BLAKE LANE | BLAKE LANE LOOP |
| 7 | X | | | | LEE HIGHWAY | CITY LINE |
| 8 | | | | X | FAIRFAX BL | CAMPBELL DRIVE |
| 9 | | | | X | FAIRFAX BL | SPRING STREET |
| 10 | | | | X | FAIRFAX BL | DRAPER DRIVE |
| 11 | | X | | X | FAIRFAX BL | REBEL RUN |
| 12 | | X | | X | FAIRFAX BL | STAFFORD DRIVE |
| 13 | | X | | X | FAIRFAX BL | PLANTATION PKY |
| 14 | | X | | X | FAIRFAX BL | ACROSS #10201 |
| 15 | | | | X | EATON PLACE | LEE HIGHWAY |
| 16 | | | | X | EATON PLACE | AT 10306 BLOCK |
| 17 | | | | X | EATON PLACE | BEST WESTERN |
| 18 | | | | X | CHAIN BRIDGE ROAD | ORCHARD STREET |
| 19 | | | | X | CHAIN BRIDGE ROAD | LEE HIGHWAY |
| 20 | | | | X | CHAIN BRIDGE ROAD | PROVIDENCE WAY |
| 21 | | | | X | CHAIN BRIDGE ROAD | KENMORE DRIVE |
| | | | | | | |
| 23 | | | | X | CHAIN BRIDGE ROAD | MAIN STREET |
| 24 | | X | | X | CHAIN BRIDGE ROAD | CO.COURT HOUSE |
| 25 | | X | | X | CHAIN BRIDGE ROAD | ARMSTRONG ST. |
| 26 | | X | | X | CHAIN BRIDGE ROAD | WEST DRIVE |
| 27 | | X | | X | CHAIN BRIDGE ROAD | CANFIELD STREET |
| 28 | | X | | X | CHAIN BRIDGE ROAD | SCHOOL STREET |
| 29 | | X | | X | UNIVERSITY DRIVE | OCCOQUAN LANE |
| 30 | X | X | X | X | POHICK LN/GMU | PATRIOT CIRCLE |
| | | | | | | |
| 32 | | X | | X | GMU BVLD. | SCHOOL ST. |
| 33 | | X | | X | UNIVERSITY DRIVE | ARMSTRONG ST. |
| 34 | | X | | X | UNIVERSITY DRIVE | FIREHOUSE #3 |
| 35 | | X | | X | UNIVERSITY DRIVE | SAGER AVENUE |
| | | | | | | |
| 36 | | X | | X | UNIVERSITY DRIVE | MAIN STREET |
| 36A | | X | | X | UNIVERSITY DRIVE | NORTH ST. |
| 37 | | | | X | MAIN STREET | EAST STREET |
| 38 | | | | X | MAIN STREET | LOCUST STREET |
| 39 | | | | X | MAIN STREET | ROBERTS ROAD |
| 40 | | | | X | MAIN STREET | VIRGINIA STREET |
| 41 | | | | X | MAIN STREET | TEDRICH BLVD |
| 42 | | | | X | MAIN STREET | STONEWALL AVE |
| 43 | | | | X | MAIN STREET | MAPLE AVE |
| 44 | | | | X | MAIN STREET | TRAPP ROAD |
| 45 | | | | X | MAIN STREET | WHITACRE ROAD |
| 46 | | | | X | PICKETT ROAD | PICKETT S/C |
| 47 | | | | X | PICKETT ROAD | MATHY DRIVE |
| 48 | | | | X | PICKETT ROAD | COLONIAL AVE. |
| 49 | | | | X | PICKETT ROAD | US. POST OFFICE |
| 50 | | | | X | PICKETT ROAD | BARRISTER'S KEEPE |
| 51 | | | | X | PICKETT ROAD | SILVER KING CT |
| 52 | | | | X | PICKETT ROAD | THAISS PARK |
| 53 | | | | X | OLD PICKETT ROAD | FOXCROFT |
| 54 | | | | X | OLD PICKETT ROAD | OLD LEE HIGHWAY |
| 55 | | X | | | LEE HIGHWAY | FAIRFAX CIR. PLAZA |

| ID NU | GOLD 1 | GOLD 2 | GREEN 1 | GREEN 2 | ON STREET | AT STREET |
|-------|--------|--------|---------|---------|--------------------|--------------------|
| 56 | | X | | | BLAKE LANE | FX. PLAZA OFF.PK. |
| 57 | X | X | | | BLAKE LANE | LINDDENBROOK ST. |
| 58 | X | X | | | BLAKE LANE | BEL GLADE STREET |
| 59 | X | X | | | BLAKE LANE | FIVE OAKS ROAD |
| 60 | X | X | | | COUNTRY CREEK ROAD | VILLAGE SPRING LN |
| 61 | | X | | | KINGSBRIDGE DRIVE | KINGS CROWN CT. |
| 62 | | X | | | DRAPER DRIVE | BEECH DRIVE |
| 63 | | X | | | DRAPER DRIVE | LEE HIGHWAY |
| 64 | | X | | | FAIRFAX BL | EATON PLACE |
| 65 | | X | | | FAIRFAX BL | UNIVERSITY DRIVE |
| 66 | | X | | | FAIRFAX BL | CHAINBRIDGE ROAD |
| 67 | | X | | | FAIRFAX BL | McLEAN AVENUE |
| 68 | | X | | | WARWICK AVENUE | BURROWS AVENUE |
| 69 | | X | | | WARWICK AVENUE | MEREDITH DRIVE |
| 70 | | X | | | WARWICK AVENUE | HILL STREET |
| 71 | | X | | | WARWICK AVENUE | BEVAN DRIVE |
| 72 | | X | | | ORCHARD STREET | BEVAN DRIVE |
| 73 | | X | | | JERMANTOWN ROAD | GAINSBOROUGH CT |
| 74 | | X | | | JERMANTOWN ROAD | FAIRHAVEN COURT |
| 75 | | X | | | JERMANTOWN ROAD | KUTNER PARK |
| 76 | | X | | | JERMANTOWN ROAD | MAIN STREET |
| 77 | | X | | | JERMANTOWN ROAD | JAMES SWART CIR. |
| 78 | | X | | | JERMANTOWN ROAD | LEE HIGHWAY |
| 79 | | X | | | LEE HIGHWAY | RUST ROAD |
| 80 | | X | | | LEE HIGHWAY | PIER 1 IMPORTS |
| 81 | | X | | | LEE HIGHWAY | HOLLY ROAD |
| 82 | | X | | | MAIN STREET | CHESTNUT STREET |
| 83 | | X | | | MAIN STREET | HALLMAN STREET |
| 84 | | X | | | MAIN STREET | OAK STREET |
| 85 | | X | | | MAIN STREET | KEITH AVENUE |
| 86 | X | | | | MAIN STREET | JUDICIAL DR. |
| 87A | X | | | | WEST STREET | PAGE AVE |
| 87 | X | | | | MAIN STREET | FAIRFAX BUILDING |
| 88 | | X | | | OLD LEE HIGHWAY | WILLARD WAY |
| 89 | | X | | | OLD LEE HIGHWAY | LAYTON HALL DR. |
| 90 | | X | | | OLD LEE HIGHWAY | DANIELS RUN SCHOOL |
| 91 | | X | | | OLD LEE HIGHWAY | HERITAGE LANE |
| 92 | | X | | | OLD LEE HIGHWAY | EMBASSY LANE |
| 93 | | X | | | OLD LEE HIGHWAY | QUEEN ANN DRIVE |
| 94 | | X | | | OLD LEE HIGHWAY | CORNELL ROAD |
| 95 | | X | | | OLD LEE HIGHWAY | GREAT OAKS CT. |
| 96 | | X | | | OLD LEE HIGHWAY | RIDGE AVENUE |
| 97 | | X | | | OLD LEE HIGHWAY | HOME DEPOT |
| 98 | | | X | | OLD PICKETT ROAD | HOME DEPOT |
| 99 | | | X | | OLD PICKETT ROAD | ASPHALT PLANT |
| 100 | | | X | | PICKETT ROAD | THAISS PARK |
| 101 | | | X | | PICKETT ROAD | SILVER KING COURT |
| 102 | | | X | | PICKETT ROAD | BARRISTER KEEPE |
| 103 | | | X | | PICKETT ROAD | U.S.POST OFFICE |
| 104 | | | X | | PICKETT ROAD | COLONIAL AVENUE |
| 105 | | | X | | PICKETT ROAD | MATHY DRIVE |
| 106 | | | X | | PICKETT ROAD | TURNPIKE S.C. |
| 107 | | | X | | MAIN STREET | PICKETT ROAD |
| 108 | | | X | | MAIN STREET | WHITACRE ROAD |
| 109 | | | X | | MAIN STREET | LYNDHURST DRIVE |
| 110 | | | X | | MAIN STREET | MAPLE AVENUE |

| ID NU | GOLD 1 | GOLD 2 | GREEN 1 | GREEN 2 | ON STREET | AT STREET |
|-------|--------|--------|---------|---------|-------------------|-----------------------|
| 111 | | | X | | MAIN STREET | STONEWALL AVE. |
| 112 | | | X | | MAIN STREET | TEDRICK BLVD. |
| 113 | | | X | | MAIN STREET | VIRGINIA AVENUE |
| 114 | | | X | | MAIN STREET | ROBERTS ROAD |
| 115 | | | X | | MAIN STREET | LOCUST STREET |
| 116 | | | X | | MAIN STREET | Main St. Market Place |
| 117 | X | | X | | UNIVERSITY DRIVE | MAIN STREET |
| 118 | X | | X | | UNIVERSITY DRIVE | SAGER AVENUE |
| 119 | X | | X | | UNIVERSITY DRIVE | FIREHOUSE #3 |
| 120 | X | | X | | UNIVERSITY DRIVE | ARMSTRONG ST. |
| 121 | X | | X | | GMU BLVD. | SCHOOL ST. |
| | | | | | | |
| 123 | X | | X | | UNIVERSITY DRIVE | OCCOQUAN LANE |
| 124 | X | | X | | CHAIN BRIDGE ROAD | SCHOOL STREET |
| 125 | X | | X | | CHAIN BRIDGE ROAD | INOVA |
| 126 | X | | X | | CHAIN BRIDGE ROAD | WEST DRIVE |
| 127 | X | | X | | CHAIN BRIDGE ROAD | ARMSTRONG ST. |
| 128 | | | X | | CHAIN BRIDGE ROAD | CO.COURT HOUSE |
| 129 | | | X | | CHAIN BRIDGE ROAD | MAIN STREET |
| 130 | | | X | | CHAIN BRIDGE ROAD | WHITEHEAD STREET |
| 131 | | | X | | CHAIN BRIDGE ROAD | KENMORE DRIVE |
| 132 | | | X | | CHAIN BRIDGE ROAD | STRATFORD AVE |
| 133 | | | X | | CHAIN BRIDGE ROAD | LEE HIGHWAY |
| 134 | | | X | | CHAIN BRIDGE ROAD | ORCHARD STREET |
| 135 | | | X | | EATON PLACE | BEST WESTERN |
| 136 | | | X | | EATON PLACE | AT # 3545 BLOCK |
| 136-A | | | X | | EATON PLACE | LEE HIGHWAY |
| 137 | X | | X | | LEE HIGHWAY | AT #10201 BLOCK |
| 138 | X | | X | | LEE HIGHWAY | PLANTATION PKY. |
| 139 | X | | X | | LEE HIGHWAY | STAFFORD DRIVE |
| 140 | X | | X | | LEE HIGHWAY | REBEL RUN |
| 141 | | | X | | LEE HIGHWAY | DRAPER DRIVE |
| 142 | | | X | | LEE HIGHWAY | SPRING STREET |
| 143 | | | X | | LEE HIGHWAY | CAMPBELL DRIVE |
| 144 | X | | | | OLD LEE HIGHWAY | FX.CIRCLE S.C. |
| 145 | X | | | | OLD LEE HIGHWAY | RIDGE AVENUE |
| 146 | X | | | | OLD LEE HIGHWAY | GREAT OAKS DR. |
| 147 | X | | | | OLD LEE HIGHWAY | FAIRFAX HIGH |
| 148 | X | | | | OLD LEE HIGHWAY | BROOKWOOD DR. |
| 148-A | X | | | | OLD LEE HIGHWAY | EMBASSY LANE |
| 149 | X | | | | OLD LEE HIGHWAY | HERITAGE LANE |
| 150 | X | | | | OLD LEE HIGHWAY | ST LEO'S CHURCH |
| 151 | X | | | | OLD LEE HIGHWAY | LAYTON HALL DR. |
| 152 | X | | | | OLD LEE HIGHWAY | WILLARD WAY |
| 152A | X | | | | OLD LEE HIGHWAY | LIBRARY/NORTH ST |
| 153 | | X | | | JUDICIAL DRIVE | CO.COURT HOUSE |
| 154 | | X | | | JUDICIAL DRIVE | JONES STREET |
| 154-A | | X | | | JUDICIAL DRIVE | PAGE AVE. |
| 154-B | | X | | | JUDICIAL DRIVE | MAIN STREET |
| 155 | X | | | | MAIIN STREET | KEITH AVENUE |
| 156 | X | | | | MAIIN STREET | OAK STREET |
| 157 | X | | | | MAIIN STREET | HALLMAN STREET |
| 158 | X | | | | LEE HIGHWAY | BORDERS BOOKS |
| 159 | X | | | | LEE HIGHWAY | HILLTOP S.C. |
| 160 | X | | | | LEE HIGHWAY | JERMANTOWN RD. |

| ID NU | GOLD 1 | GOLD 2 | GREEN 1 | GREEN 2 | ON STREET | AT STREET |
|-------|--------|--------|---------|---------|-------------------|------------------|
| 161 | X | | | | JERMANTOWN RD. | JERMANTOWN SQ. |
| 162 | X | | | | JERMANTOWN RD. | JAMES SWART CI. |
| 163 | X | | | | JERMANTOWN RD. | MAIN STREET |
| 164 | X | | | | JERMANTOWN RD. | CONFORT INN |
| 165 | X | | | | JERMANTOWN RD. | FAIR HAVEN CT. |
| 166 | X | | | | JERMANTOWN RD. | CAVALIER COURT |
| 167 | X | | | | ORCHARD STREET | BEVAN DRIVE |
| 168 | X | | | | BEVAN DRIVE | LANIER SCHOOL |
| 169 | X | | | | WARWICK AVENUE | HILL STREET |
| 170 | X | | | | WARWICK AVENUE | MEREDITH DRIVE |
| 170-A | X | | | | WARWICK AVENUE | SUPER FRESH |
| 172 | X | | | | LEE HIGHWAY | McLEAN AVENUE |
| 173 | X | | | | LEE HIGHWAY | DENNY'S REST. |
| 174 | X | | | | LEE HIGHWAY | UNIVERSITY DRIVE |
| 175 | X | | | | LEE HIGHWAY | EATON PLACE |
| 176 | X | | | | DRAPER DRIVE | LEE HIGHWAY |
| 177 | X | | | | DRAPER DRIVE | BEECH DRIVE |
| 178 | X | | | | KINGSBRIDGE DRIVE | KINGS CROWN CT. |
| 179 | | | X | X | ARLINGTON BLVD | PICKETT ROAD |
| 180 | | | X | X | ARLINGTON BLVD | STONEHURST DRIVE |
| 181 | | | X | X | NUTLEY STREET | BARRICK STREET |
| 181A | | | X | X | NUTLEY STREET | PAN AM CENTER |
| 182 | | | X | X | NUTLEY STREET | LEE HIGHWAY |
| 183 | | | X | X | NUTLEY STREET | LEE HIGHWAY |
| 184 | | | X | X | NUTLEY STREET | BARRICK STREET |
| 185 | | | X | X | ARLINGTON BLVD | STONEHURST DRIVE |
| 186 | | | X | X | ARLINGTON BLVD | PICKETT ROAD |

Appendix B
CUE TRANSIT PEER REVIEW
TECHNICAL MEMORANDUM

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1.0 OVERVIEW OF PEER ANALYSIS PROCESS

A peer analysis provides the means to compare various performance characteristics of a transit agency to transit systems of similar size. Transit agencies report such information to the Federal Transit Administration (FTA), which records the information annually in the National Transit Database (NTD). Agencies have strict requirements regarding the manner in which cost and service characteristics are reported to the NTD. Thus, the NTD provides a consistent set of measurable data that can be used in a peer systems analysis.

While a peer analysis based on NTD data provides operational and financial information, it is important to keep in mind other aspects of service quality that are not reported in the NTD, such as passenger satisfaction, vehicle cleanliness and comfort, schedule adherence and route connectivity. It is also worth noting that there may be unique operating and financial characteristics associated with a particular transit agency.

1.1 National Transit Database

The National Transit Database is the only comprehensive source of validated operating and financial information reported by transit systems nationwide. This database is updated annually by submissions from each transit system. The FTA reviews and confirms the accuracy of the information received and publishes a final report after all reporting transit systems successfully respond to comments and inquiries. The NTD is used by the FTA and other federal, state, and local agencies as a resource to help guide public investment decisions, shape public policy, and develop planning initiatives. The NTD reports various standard measures of performance that allow decision makers and other stakeholders to determine the efficiency and effectiveness of transit services on a local, regional and national basis. It is important to note that smaller systems (i.e., operating with fewer than nine peak vehicles) have the option of taking an exemption from NTD reporting. Fairfax CUE does report its operational service and financial information to NTD. One of Fairfax CUE's peer agencies that have been used in this analysis, however, utilizes the exemption (Falls Church, VA).

1.2 Technical Memorandum Contents

Sections 2 through 6 of this technical memorandum present a peer review of transit systems that are similar in service areas size, population, and operation to the CUE system:

- Section 2 describes the process used to select the CUE's peer transit systems.
- Section 3 provides an overview of the peer systems' operating and capital budgets, ridership, service area and passenger fare characteristics compared with CUE.
- Section 4 contains a detailed comparison of specific service productivity measures. These productivity measures focus on vehicle utilization, service supply, service productivity, cost efficiency, and vehicle maintenance performance.

- Section 5 summarizes financial information, highlighting the revenue sources used by CUE and its peers to fund operating and maintenance (O&M) and capital requirements.
- Section 6 summarizes the key findings of the Peer Analysis.

Section 7 contains a supplementary peer review that compares CUE on selected performance measures with other D.C.-area bus systems that are not necessarily similar in service area size, population density, or operating characteristics.

2.0 PEER SELECTION PROCESS

Select criteria were used to determine transit systems that have similar service area characteristics. As shown in Table 2-1, criteria included service area size, population density, the number of peak vehicles in operation on a typical weekday, and connection to a rail system.

Table 2-1: Criteria for Selecting Peer Transit Systems

| Criteria | Importance |
|--|------------|
| Population density | Primary |
| Number of Peak Buses | Primary |
| Proximity to Passenger Rail Service | Primary |
| Service Area Population | Secondary |
| Service Area Size | Secondary |
| Suburban Location in a Major Metropolitan Area | Secondary |
| Supplemental Regional Bus Service | Preference |
| Washington, D.C. / Baltimore Region | Preference |

The following seven transit systems were identified as peers based on the application of the selection criteria and regional preference:

- City of Falls Church (Falls Church, VA),
- City of Redondo Beach (Redondo Beach, CA),
- Petersburg Area Transit (Petersburg, VA),
- City of Union City Transit Division (Union City, CA),
- Transit Services of Frederick County (Frederick, MD),
- East Chicago Transit (East Chicago, IN), and
- Howard Transit (Laurel, MD).

Table 2-2 displays the population density, number of peak buses, service area population and square miles, as reported in the 2008 NTD (the most recent NTD information that is available). Metropolitan area location, proximity to rail and supplemental regional bus service are summarized below.

Falls Church, VA – Located within Fairfax County with two nearby WMATA Metrorail stations and also served by WMATA Metrobus.

Redondo Beach, CA – Located in Los Angeles County, south of the airport. Redondo Beach is a station on the Metropolitan Transportation Authority (MTA) Green Line and also is served by some MTA bus routes.

Petersburg, VA – About 23 miles south of Richmond and served by AMTRAK at the Ettrick station.

Union City, CA – Located in Alameda County in the San Francisco Bay Area. Bay Area Rapid Transit (BART) has a station in Union City, and the city is also served by the AC Transit bus system.

Frederick, MD – About 50 miles northwest of Washington, D.C. and 50 miles west of Baltimore. The city is a station on the MARC commuter rail line and is served by Maryland Transit Administration buses to the Shady Grove Metrorail station.

East Chicago, IN – Located in Lake County, northwest of Gary, Indiana. East Chicago is a station on the Northern Indiana South Shore Line commuter rail system which serves Chicago, Illinois.

Laurel, MD – In Prince George’s County, midway between Washington, D.C. and Baltimore. Laurel is served by two MARC stations and WMATA Metrobus.

**Table 2-2: Peer Transit Agency Comparisons
(FY 2008)**

| System Location | Service Area | | | Service | | | |
|---------------------|--------------|--------------|--------------------|------------|---------------|---------------|---------|
| | Population | Square Miles | Population Density | Peak Buses | Revenue Miles | Revenue Hours | Days |
| Falls Church, VA | 11,169 | 2 | 5,077 | 2 | 34,476 | 3,422 | Mon-Fri |
| Redondo Beach, CA | 63,261 | 13 | 4,866 | 7 | 375,348 | 30,401 | Mon-Sun |
| Petersburg, VA | 31,300 | 7 | 4,471 | 10 | 418,260 | 38,457 | Mon-Sat |
| Union City, CA | 71,000 | 18 | 3,944 | 11 | 462,381 | 39,636 | Mon-Sun |
| Frederick, MD | 60,154 | 18 | 3,342 | 18 | 655,976 | 57,586 | Mon-Sat |
| East Chicago, IN | 33,892 | 11 | 3,081 | 4 | 167,260 | 7,680 | Mon-Sat |
| Laurel, MD | 97,243 | 51 | 1,907 | 18 | 1,087,825 | 72,957 | Mon-Sun |
| Peer System: | | | | | | | |
| Low | 31,300 | 2 | 1,907 | 2 | 34,476 | 3,422 | n/a |
| High | 97,243 | 51 | 5,077 | 18 | 1,087,825 | 72,957 | n/a |
| Average | 52,574 | 17 | 3,813 | 10 | 457,361 | 35,734 | n/a |
| Fairfax, VA | 21,000 | 6 | 3,500 | 8 | 440,330 | 34,602 | Mon-Sun |

Notes:

(1) Falls Church statistics are for 2006, derived from the Virginia Transit Performance Report (FY 2002-FY 2006).

(2) All other information is from the 2008 National Transit Database.

Table 2-2 shows the following about CUE’s peer group:

- *Square Miles* – Two of the peer service areas are smaller than the CUE system and five are larger.
- *Population Density* – Four peers have higher population concentrations and three are less densely populated than the CUE system’s service area.
- *Peak Buses* – Four peer systems have a peak fleet that is larger than the CUE’s and three have a smaller peak fleet.

3.0 PEER SYSTEM OVERVIEW

A general overview of peer systems' operating and capital expenses, ridership, service area and passenger fare characteristics was completed prior to conducting a detailed assessment of specific financial, ridership and service characteristics.

3.1 Annual Operating and Capital Expenses

Table 3-1 summarizes the annual operating and capital expenses for the peer systems for FY 2008 (the most recent NTD information that is available). A breakdown of the level of funding by source is also provided. Note that Table 3-1 combines costs for operating fixed-route and demand-response service for the agencies that provide both modes. This is the only format in which the online NTD provides funding sources. Key characteristics are as follows:

Operating Expenses

- CUE's FY 2008 operating budget of \$2,980,627 was two-thirds of the peer average (\$4.47 million). Of the seven peer systems, Petersburg and Union City were most similar to CUE with respect to the size of the annual operating budget.
- CUE derived a significantly higher share of its operating revenue from fares (23 percent of the total budget) than the peer average (13 percent).
- CUE was identical to the peer average with local operating assistance (40 percent).
- State operating assistance (37 percent) was slightly higher for CUE than the peer average (32 percent).
- With no federal operating assistance, CUE is below the peer average of 14 percent federal funds.

Capital Expenses

- Along with Redondo Beach and East Chicago, CUE reported no capital expenditures in 2008; the peer average was \$1.2 million. The peers reporting capital expenditures spent between \$41,800 (Frederick) and \$5 million (Petersburg). It is worth noting that capital expenses typically vary significantly by year depending on an agency's programmed projects.
- The peer systems relied most heavily on federal assistance (77 percent average).

A more detailed analysis of the operating and capital expenses is provided in Section 4 of this report.

Table 3-1: Comparison of 2008 Operating and Capital Budgets

| | Falls Church, VA | Redondo Beach, CA | Petersburg, VA | Union City, CA | Frederick, MD | East Chicago, IN | Laurel, MD | Peer Average | Fairfax, VA |
|-------------------------------|---------------------|----------------------|--------------------|--------------------|--------------------|---------------------|--------------------|--------------------|--------------------|
| Fares | n/a | 100% | 16% | 12% | 17% | (Free) | 7% | 13% | 23% |
| Local Assistance | n/a | 0% | 23% | 0% | 30% | 50% | 66% | 40% | 40% |
| State Assistance | n/a | 0% | 14% | 87% | 25% | 23% | 25% | 32% | 37% |
| Federal Assistance | n/a | 0% | 46% | 0% | 27% | 26% | 0% | 14% | 0% |
| Other Funds | n/a | 0% | 1% | 0.8% | 1% | 0.6% | 1% | 1% | 1% |
| Total Operating Budget | | \$2,451,417 | \$2,757,622 | \$3,207,435 | \$5,341,749 | \$1,380,529 | \$9,071,502 | \$4,468,196 | \$2,980,627 |
| Local Assistance | n/a | 0% | 15% | 0% | 10% | 0% | 11% | 14% | 0% |
| State Assistance | n/a | 0% | 5% | 100% | 10% | 0% | 21% | 9% | 0% |
| Federal Assistance | n/a | 0% | 80% | 0% | 80% | 0% | 68% | 77% | 0% |
| Other Funds | n/a | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Total Capital Budget | | \$0 | \$5,039,304 | \$78,252 | \$41,819 | \$0 | \$976,363 | \$1,227,148 | \$0 |

Notes:

- (1) Based on agency totals for all modes of service provided.
- (2) Peer average for fares does not include East Chicago, Indiana.
- (3) "n/a" = information not available

Table 3-2: Comparison of 2008 Annual Ridership

| | Falls Church, VA | Redondo Beach, CA | Petersburg, VA | Union City, CA | Frederick, MD | East Chicago, IN | Laurel, MD | Peer Average | Fairfax, VA |
|------------------------|---------------------|----------------------|-------------------|-------------------|------------------|---------------------|---------------|-----------------|----------------|
| Annual Passenger Trips | 53,085 | 351,279 | 591,887 | 438,017 | 664,732 | 256,736 | 885,616 | 463,050 | 1,047,346 |
| | | | | | | | | | |

Note: Falls Church data are from 2006

3.2 Annual Ridership

Annual ridership, as measured in passenger trips, reflects is the total number of boardings made by users of the transit system. A passenger trip is recorded every time a person boards a transit vehicle, including multiple transfers that may occur between the trip origin and the final destination. As shown in Table 3-2:

- CUE’s ridership (1,047,346) was more than any of the individual peer systems, which ranged between 53,100 and 885,600, and more than twice the peer average (463,050).
- The closest peer ridership to CUE was Laurel (885,600) which was about 85 percent of CUE’s annual passenger trips.

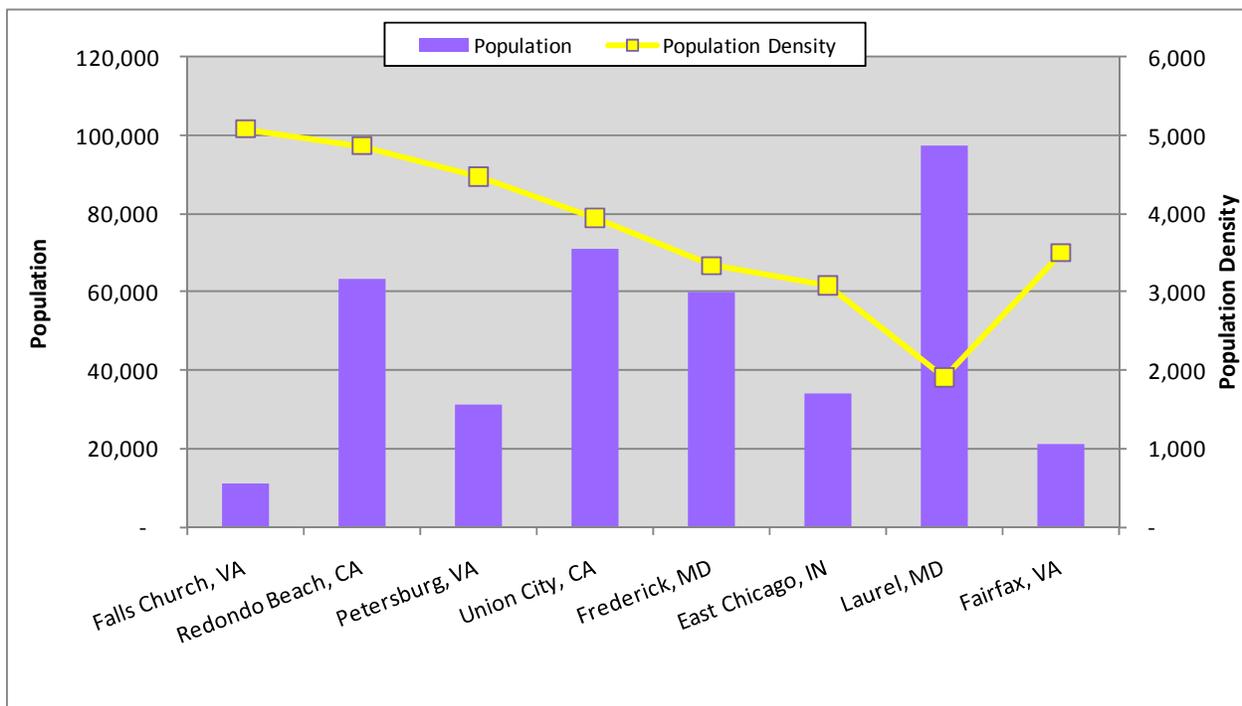
Section 4.0 compares costs and ridership on a service level basis.

3.3 Service Area Characteristics

The peer bus systems reported service areas that ranged in size from 2.2 to 51 square miles, with an average of 17.2. At six square miles, the CUE’s service area is 35 percent of the peer average.

Figure 3-1 summarizes and compares the service area population and population density for CUE and the peer systems. Although the NTD data is the best available source for this information, caution should be used when interpreting service area population and population-based measures. There are sometimes variations with regard to the way agencies report this information.

Figure 3-1: Peer Systems’ Service Area Characteristics



The source of the service area data in the graph is the 2008 National Transit Database except for Falls Church, which was documented in the Virginia Transit Performance Report (FY 2002 – FY 2006).

- The peer average service area population (52,574) is 2.5 times higher than CUE’s service area population (21,000).
- CUE’s service area density (3,500) was about 9 percent below the peer average (3,813).

3.4 Services Provided

All peer systems except Falls Church operate both fixed-route and demand-responsive services. To be consistent with transit services provided by the City of Fairfax, this peer review focuses on the fixed-route bus service operated by the peer systems. In 2008, the fixed-route spans of service for the peer systems were:

| | |
|--------------------|---|
| Falls Church, VA: | 6:00 to 10:00 a.m. and 4:00 to 8:00 p.m. Monday through Friday |
| Redondo Beach, CA: | 6:00 a.m. to 9:00 p.m., Monday through Friday 8:00 a.m. to 9:00 p.m., Saturday 9:00 a.m. to 6:00 p.m., Sunday |
| Petersburg, VA: | 5:45 a.m. to 6:45 p.m., Monday through Friday 6:45 a.m. to 7:45 p.m., Saturday |
| Union City, CA: | 4:15 a.m. to 10:25 p.m., Monday through Friday 7:00 a.m. to 7:30 p.m., Saturday 8:00 a.m. to 6:30 p.m., Sunday |
| Frederick, MD: | 4:30 a.m. to 9:30 p.m., Monday through Friday 7:30 a.m. to 9:45 p.m., Saturday |
| East Chicago, IN: | 6:00 a.m. to 8:40 p.m., Monday through Friday 9:00 a.m. to 4:40 p.m., Saturday |
| Laurel, MD: | 5:30 a.m. to 11:00 p.m., Monday through Friday 7:30 a.m. to 11:00 p.m., Saturday 8:00 a.m. to 8:30 p.m., Sunday |

CUE provides fixed-route service from approximately 5:15 a.m. to 11:45 p.m. on weekdays (until 12:45 a.m. on Fridays), 8:00 a.m. to 8:30 p.m. on Saturdays, and 9:30 a.m. to 6:30 p.m. on Sundays.

3.5 Fare Structure

Fare structures also have been compared for the peer transit agencies, as presented in Table 3-3.

- East Chicago is the one system that does not charge passenger fares. Of the systems that do charge passengers, the lowest fares were in Falls Church, Redondo Beach, and Petersburg (\$1.00). The base fares in Union City and Laurel were the highest at \$1.50. CUE's base fare is \$1.35.
- All agencies except Falls Church provide discounted elderly/disabled fares. None of the discounted fares varies by time of day.
- Two systems offer discounted middle and high school student fares (Union City, Laurel). Laurel also discounts the fare for college students.
- None of the peer systems charges for in-system transfers.

Table 3-3: Comparison of Fare Structure

| City | Fixed Route | Discount Rates | | | College ID | Within-System Transfers |
|---------------------|-------------|-----------------------|----------|----------------|------------|-------------------------|
| | | Elderly/Disabled Peak | Off-Peak | Student (K-12) | | |
| Falls Church, VA | \$1.00 | \$1.00 | dna | \$1.00 | \$1.00 | unknown |
| Redondo Beach, CA | \$1.00 | \$0.50 | \$0.50 | \$1.00 | \$1.00 | \$0.00 |
| Petersburg, VA | \$1.00 | \$0.50 | \$0.50 | \$1.00 | \$1.00 | unknown |
| Union City, CA | \$1.50 | \$0.50 | \$0.50 | \$0.85 | \$1.50 | \$0.00 |
| Frederick, MD | \$1.10 | \$0.55 | \$0.55 | \$1.10 | \$1.10 | \$0.00 |
| East Chicago, IN | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Laurel, MD | \$1.50 | \$0.50 | \$0.50 | \$0.50 | \$0.50 | \$0.00 |
| Peer System: | | | | | | |
| Low | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| High | \$1.50 | \$1.00 | \$0.55 | \$1.10 | \$1.50 | \$0.00 |
| Average | \$1.01 | \$0.51 | \$0.43 | \$0.78 | \$0.87 | \$0.00 |
| Fairfax, VA | \$1.35 | \$0.65 | \$0.65 | \$0.65 | \$0.00 | \$0.00 |

Note: The East Chicago, Indiana system does not charge passenger fares.

4.0 SERVICE PRODUCTIVITY COMPARISONS

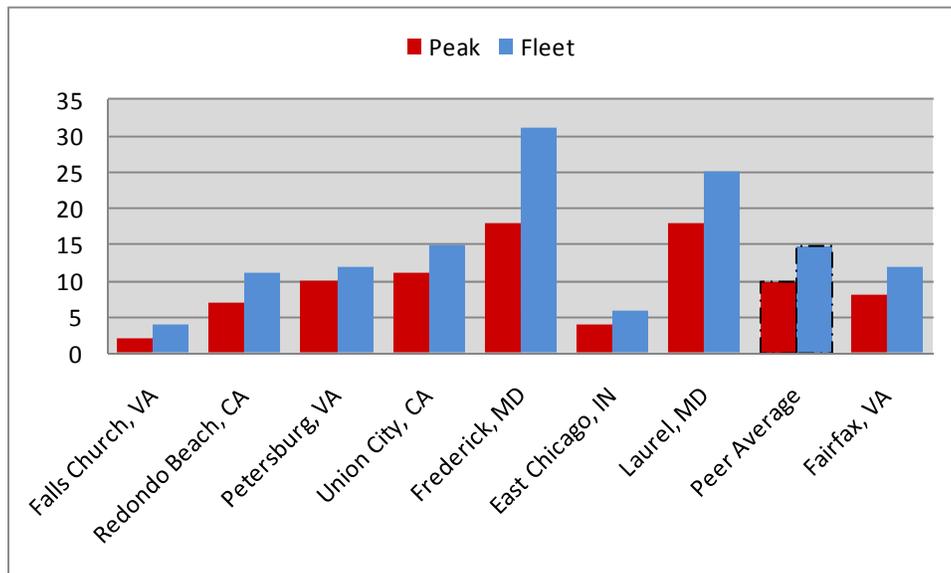
This section presents a detailed comparison of specific service productivity measures. These productivity measures focus on: vehicle utilization, service supplied, ridership productivity, cost efficiency, and revenue vehicle maintenance performance. Unless stated otherwise, the data were obtained from the 2008 NTD for all systems except Falls Church for which 2006 data were used.

4.1 Vehicle Utilization

The peer systems were compared on several indicators of vehicle utilization including size of the bus fleet available for revenue service, maximum number of buses in simultaneous scheduled service, and hours and miles of revenue service per peak bus.

- **Vehicles Available:** As shown in blue on Figure 4-1, the peer systems' active bus fleets ranged between four (Falls Church) and 31 (Frederick). At 12, CUE's 2008 bus fleet was 25 percent smaller than the peer average of 15.

Figure 4-1: Peer Comparison – Fleet and Peak Buses

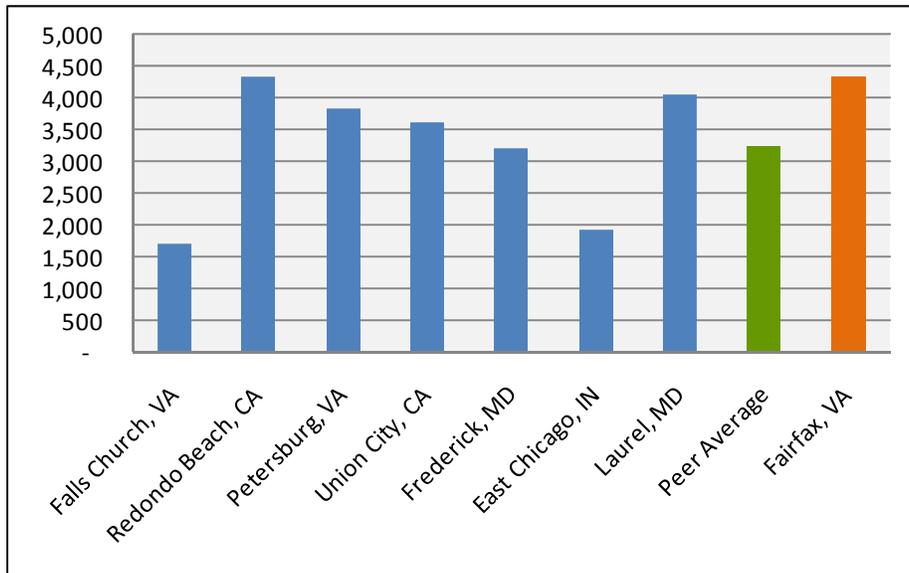


The average age of peer system bus fleets ranged from 3.7 years (East Chicago) to 10.3 years (Union City). Overall, the peer system fleets averaged 5.8 years old. CUE's bus fleet was 7.5 years old in 2008, or 29 percent older than the peer average.

- **Peak Vehicles:** The number of vehicles operated in maximum service is shown in red on Figure 4-1. Peer systems operated between two (Falls Church) and 18 buses (Frederick, Laurel) during peak periods. With an eight-vehicle peak requirement, CUE operates 25 percent fewer vehicles in maximum service than the peer average of 10.

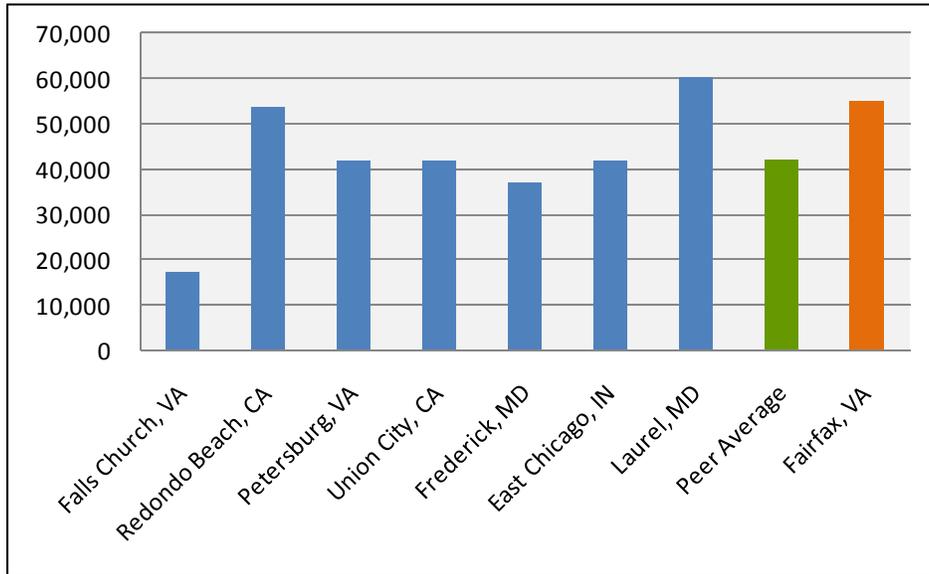
- Spare Ratio:** Spare ratio is an indication of how a transit agency meets its need to balance the provision of sufficient vehicles to operate scheduled revenue service with the requirements of vehicle maintenance and overhaul programs. FTA's formula to calculate a spare ratio is: $(\text{Total Active Fleet} - \text{Peak Vehicle Requirement}) / \text{Peak Vehicle Requirement}$. Accordingly, peer spare ratios range from 20 percent (Petersburg) to 100 percent (Falls Church). At 50 percent, CUE's spare ratio is almost identical to the peer average of 49 percent.
- Revenue-Hours per Peak Bus:** Figure 4-2 shows that the peer systems operated between 1,711 (Falls Church) and 4,343 (Redondo Beach) revenue-hours per peak bus. At 4,325, CUE operated the second highest hours of service per peak vehicle and 34 percent more than the peer average of 3,239.

Figure 4-2: Peer Comparison – Revenue-Hours per Peak Bus



- Revenue-Miles per Peak Bus:** Figure 4-3 shows that the peer systems operated between 17,238 (Falls Church) and 60,435 (Laurel) revenue-miles per peak bus. At 55,041, CUE operated the second highest miles of service per peak vehicle and 31 percent more than the peer average of 45,736.

Figure 4-3: Peer Comparison – Revenue-Miles per Peak Bus



4.2 Service Supplied

Service supplied compares the hours and miles of operation provided to the peers' service area populations as well as the geographic extent of service provision.

- Transit Service per Capita:** This analysis looks at two measures of the amount of bus service provided to the service area population – revenue-hours and revenue-miles per capita. Figure 4-4 shows that CUE provides more service hours per capita (1.65) than any of the peer systems, which range between 0.23 (East Chicago) and 1.23 (Petersburg). The number of revenue-hours per capita that CUE provides is 2.6 times higher than the peer average (0.64).

Figure 4-4: Peer Comparison – Revenue-Hours per Capita

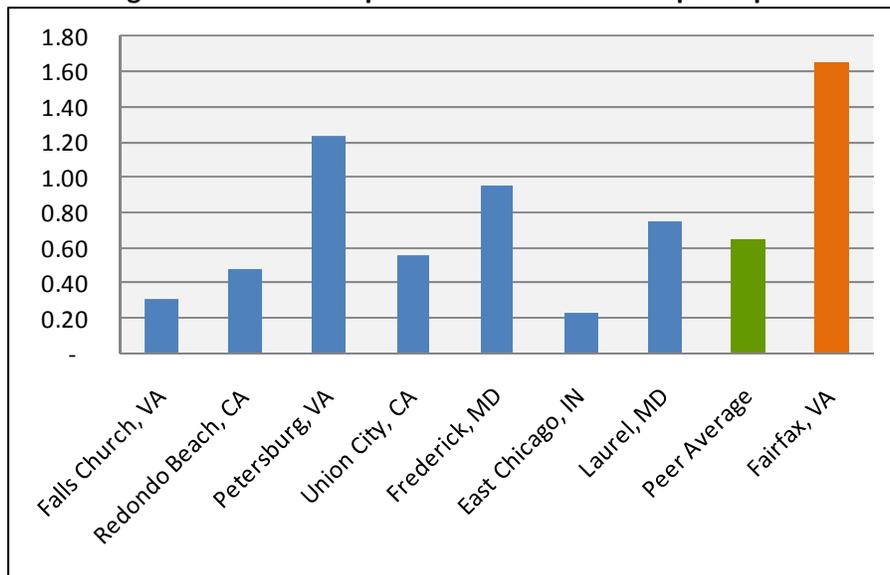
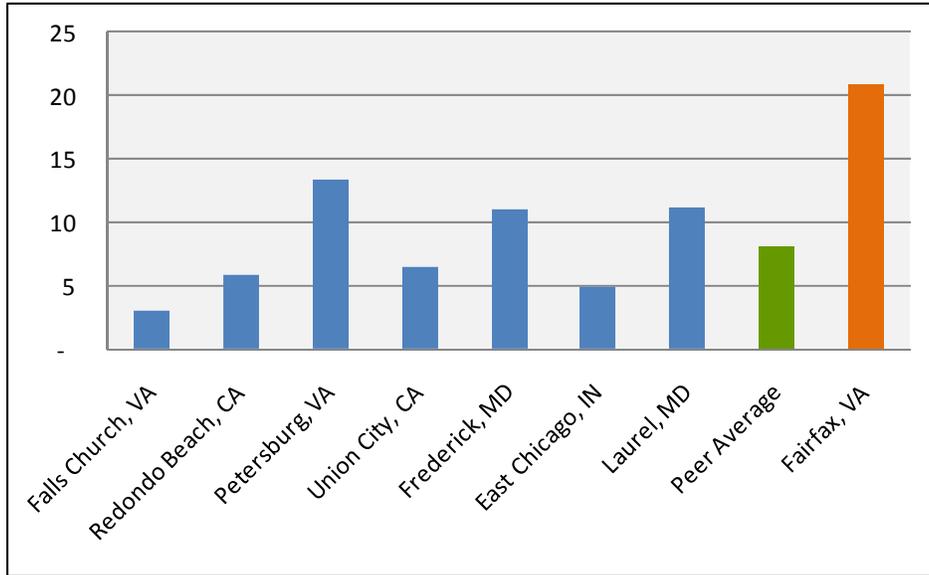


Figure 4-5 shows that CUE operates more revenue-miles per capita (21) than any of the peer systems, which range between three (Falls Church) and 13 (Petersburg). CUE's revenue-miles per capita are 2.6 times more than the peer average (eight).

Figure 4-5: Peer Comparison – Revenue-Miles per Capita



- Service Area:** In Figure 4-6, the peer systems operated between 698 (East Chicago) and 5,494 (Petersburg) revenue-hours per square mile. At 5,767 revenue-hours per square mile, CUE supplies about 2.4 times more service-hours than the peer average (2,417).

Figure 4-7 shows that CUE operated 73,388 revenue-miles of service per square mile which is about 2.5 times more than the peer average (29,074). The peer systems that supplied the lowest and highest revenue-miles of service per square mile were East Chicago (15,205) and Petersburg (59,751).

Figure 4-6: Peer Comparison – Revenue-Hours per Square Mile of Service Area

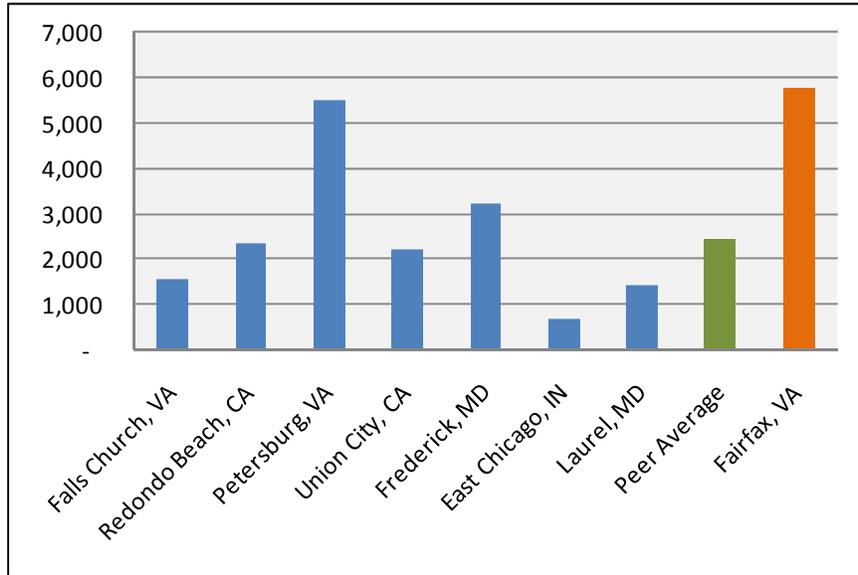
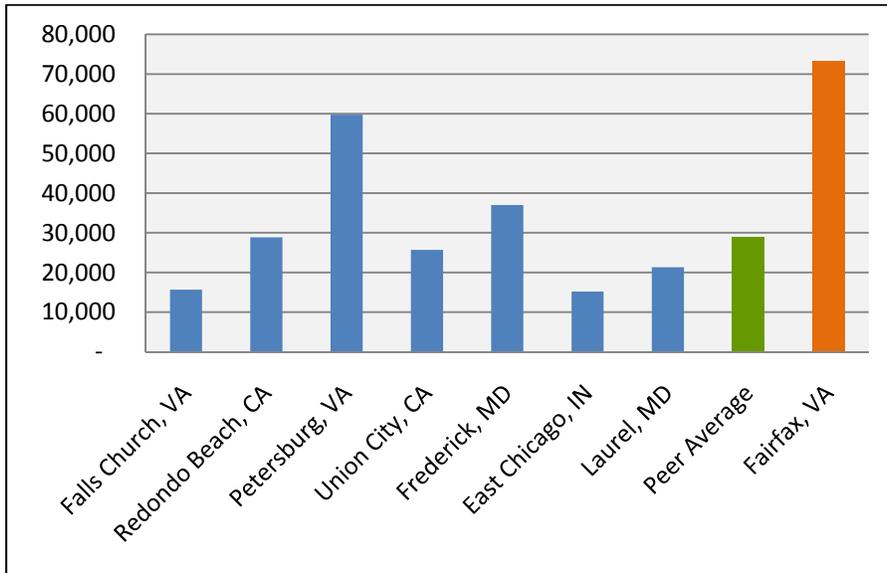


Figure 4-7: Peer Comparison – Revenue-Miles per Square Mile of Service Area

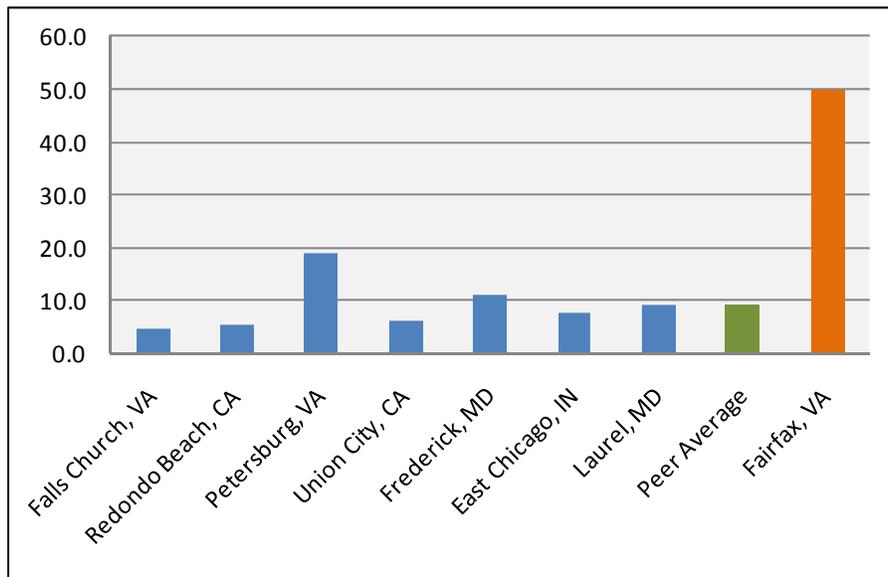


4.3 Ridership Productivity (Effectiveness)

Ridership productivity or effectiveness provides a way to evaluate how well a transit agency is able to attract passengers relative to the level of service operated. Three measures that reveal productivity are passenger trips per capita, revenue-hour, and revenue-mile. As used here, a passenger trip is counted at the time of each separate boarding and therefore includes transfers.

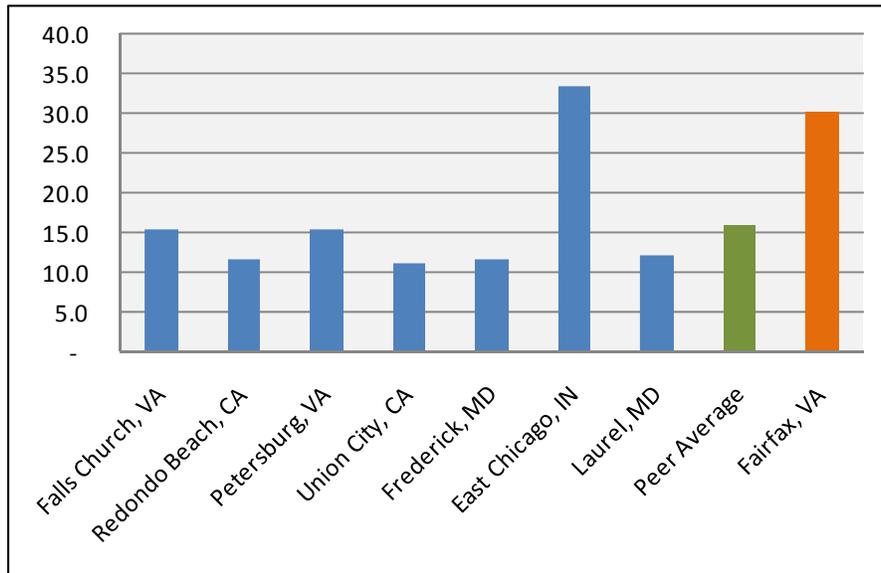
- **Passenger Trips per Capita:** As shown in Figure 4-8, CUE is significantly more effective at attracting riders per capita than any of the peer systems. CUE's productivity on this measure is about 5.5 times greater than the peer average.

Figure 4-8: Peer Comparison – Passenger Trips per Capita



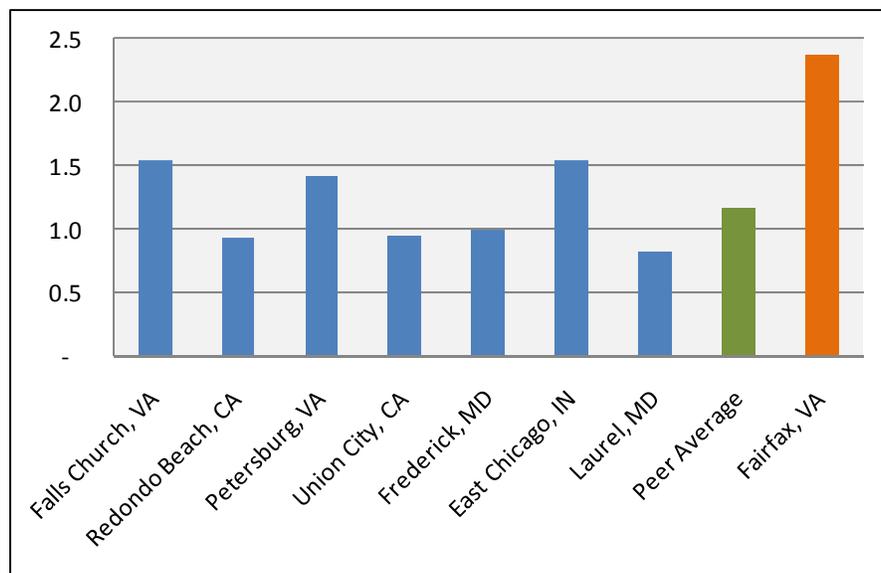
- **Passenger Trips per Revenue-Hour:** Figure 4-9 shows that the peer systems generate between 11.1 (Union City) and 33.4 (East Chicago) passenger trips for every revenue-hour of bus service. CUE's productivity of 30.3 passengers per revenue-hour is about 1.9 times greater than the peer average of 15.8.

Figure 4-9: Peer Comparison – Passenger Trips per Revenue-Hour



- Passenger Trips per Revenue-Mile:** Figure 4-10 shows the peer systems generate between 0.8 (Laurel) and 1.5 (Falls Church, East Chicago) passenger trips per revenue-mile of service. CUE serves 2.4 passengers per revenue-mile which demonstrates more effective service delivery on this measure than any of the peers.

Figure 4-10: Peer Comparison – Passenger Trips per Revenue-Mile

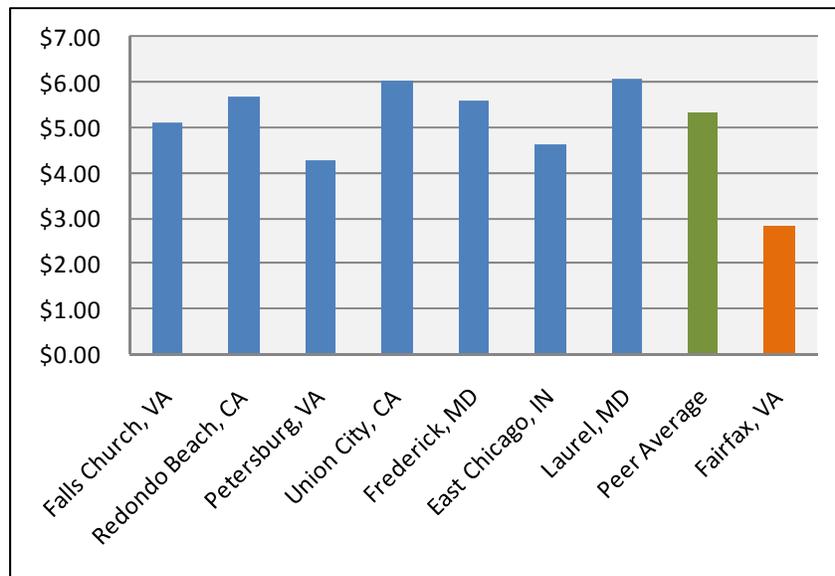


4.4 Cost Efficiency

Transit systems typically must balance the level of service they operate with the budget required to do so. Cost efficiency performance can be measured in several ways, including operating cost per passenger trip, revenue-hour, and revenue-mile.

- **Operating Cost per Passenger Trip:** This performance measure provides an indication of how efficient a system is at balancing the cost of providing service with the number of patrons it serves. Peer system costs per passenger trip range from \$4.29 (Petersburg) to \$6.09 (Laurel) with an average of \$5.34. CUE's performance on this measure is better than any of the peers and at \$2.85 is close to half the peer average.

Figure 4-11: Peer Comparison – Operating Cost per Passenger Trip



- **Operating Cost per Revenue-Hour:** Figure 4-12 shows the peer systems' cost per revenue-hour range from \$64.57 (Frederick) to \$154.96 (East Chicago), averaging at \$81.52. On this performance measure CUE is less efficient than four of the peers. CUE's operations cost \$86.14 per revenue-hour which is 5.7 percent more than the peer average.
- **Operating Cost per Revenue-Mile:** Figure 4-13 shows that on this measure of efficiency, the peers range between \$4.96 (Laurel) and \$7.85 (Falls Church) with an average cost per revenue-mile of \$6.08. Again, CUE is less efficient than four peers by spending \$6.77 for each revenue-mile of service. This is 11 percent above the peer average.

Figure 4-12: Peer Comparison – Operating Cost per Revenue-Hour

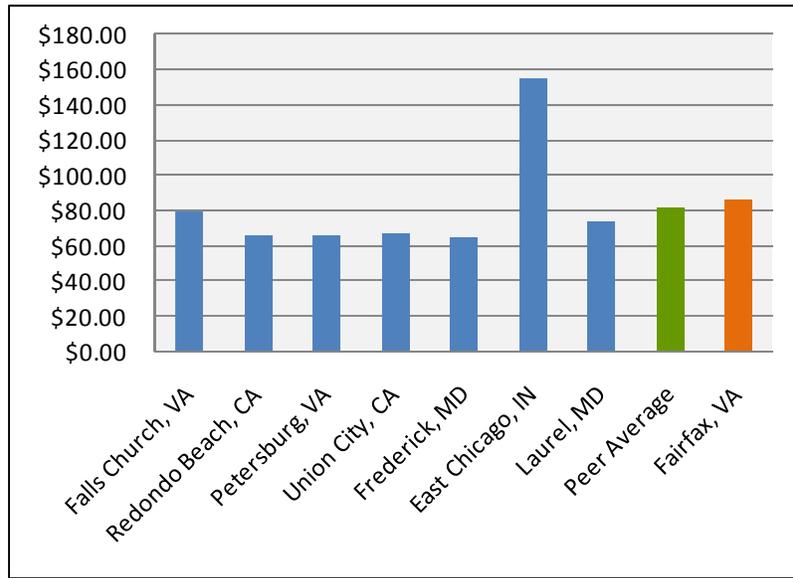
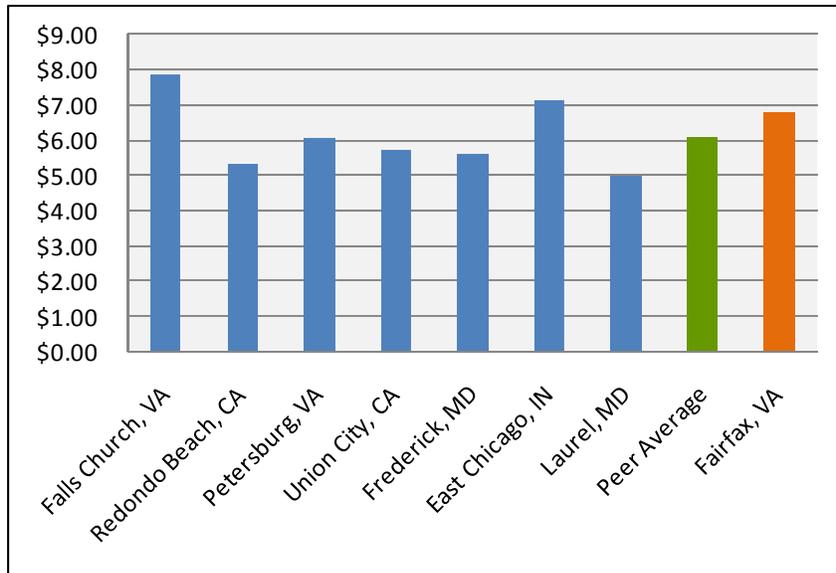


Figure 4-13: Peer Comparison: Operating Cost per Revenue-Mile



4.5 Revenue Vehicle Maintenance Performance

This analysis compares the number of mechanical failures to evaluate revenue vehicle maintenance performance. (It also would be interesting to compare labor hours for vehicle inspection and maintenance but this information was not provided in the online version of the 2008 NTD for CUE or any of the peer transit systems.)

As reported to the NTD, incidents of mechanical failure are those that prevent the revenue vehicles from starting or completing trips. The NTD categorizes mechanical failures as major or minor.

Major mechanical failures are defined as requiring assistance from someone other than the vehicle operator to restore the vehicle to an operating condition and the failure usually prevents the vehicle from continuing in revenue service. Major system failures include malfunctions in:

- Brakes,
- Doors,
- Engine cooling systems,
- Steering and front axle,
- Rear axle and suspension,
- Torque convertors, or
- Similar major mechanical items.

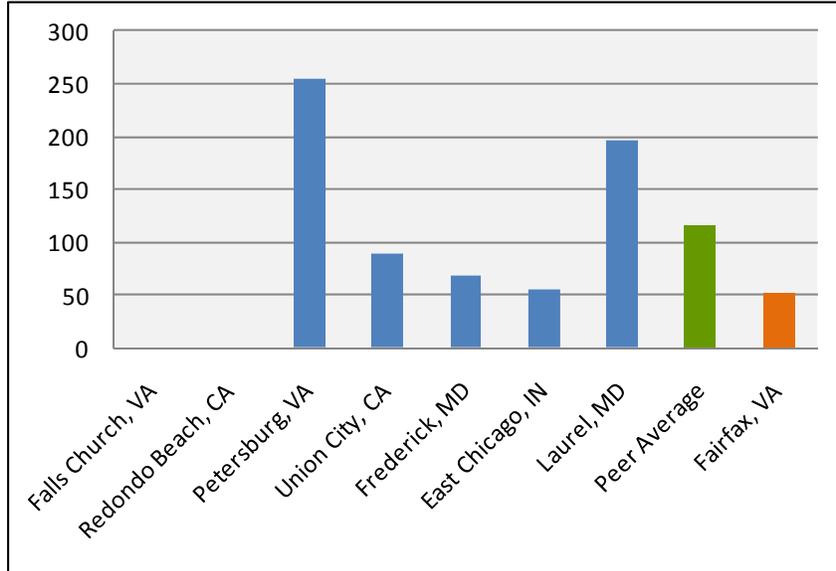
Minor mechanical failures generally do not prevent a vehicle from continuing in revenue service. However, the minor system failures reported to the NTD are those that prevent revenue vehicles from completing their trips, either due to transit agency policies or minor mechanical mishaps affecting:

- Fareboxes,
- Wheelchair lifts,
- Air conditioning, or
- Similar minor mechanical items.

It is important to note that vehicle system failure figures should be viewed as gross indicators. Analysis of vehicle system failures as a measure of maintenance performance should be undertaken with caution and a more detailed examination of how system failures are defined as well as the individual transit agencies' policies for taking vehicles out of revenue service. In addition, the FTA limits its collection of this data to directly-operated service (i.e., purchased transportation is not required to report).

- **Revenue Vehicle Mechanical Failures:** As shown in Figure 4-14, peer systems that reported mechanical failures ranged from a total of 55 (East Chicago) to 254 (Petersburg) incidents. No data were available for Falls Church or Redondo Beach. The peer average of 115 was more than twice CUE's 52 reported mechanical failures.

Figure 4-14: Peer Comparison – Revenue Vehicle Mechanical Failures



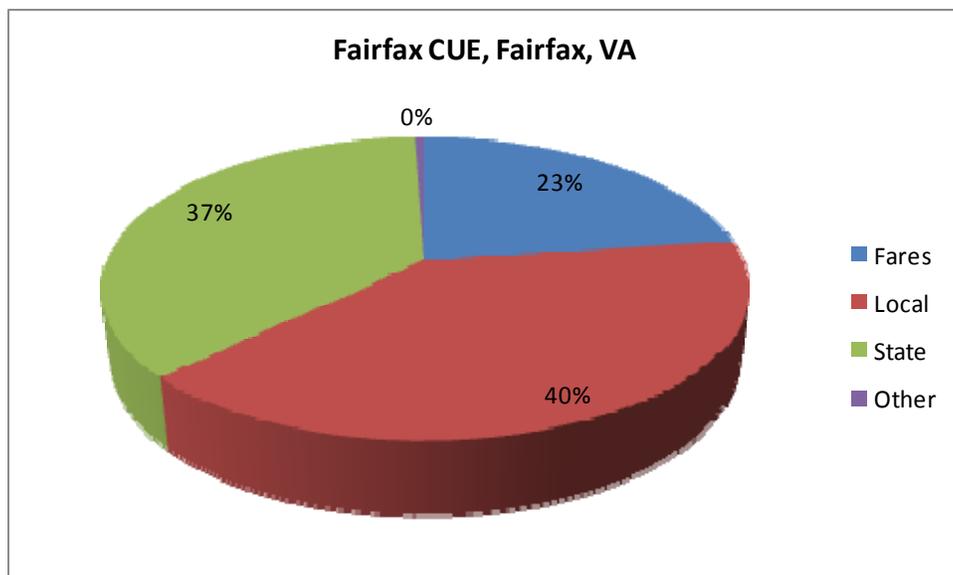
5.0 FINANCIAL ANALYSIS

The subsections below highlight the revenue sources used by CUE and its peers to fund operating and maintenance (O&M) and capital requirements. Note that the data utilized for the following analyses indicate the range of funding sources reported for the 2008 NTD report year. While levels and sources of funding used for O&M tend to be relatively consistent from year to year, annual capital funding levels and sources can vary significantly, depending on the projects programmed and grant sources occurring in a particular year.

5.1 Funding Sources Used for O&M

The NTD categorizes sources of O&M funds as passenger fares; local, state and federal assistance; and other. Figure 5-1 illustrates the CUE's key revenue sources for report year 2008. CUE relied most heavily on local (40 percent) and state (37 percent) assistance. Passenger fares accounted for 23 percent of CUE's operating funds. Other sources made up 0.54 percent of the operating budget, shown as "0 percent" in the figure.

Figure 5-1: CUE O&M Funding, by Major Source



The next two figures compare sources of operating funds for the peer systems. The operating funds referred to finance fixed-route and demand-response service for the peer systems that operate both modes. Figure 5-2 provides an overview of the total dollar level of O&M funding used by CUE and its peer systems. Figure 5-3 uses percentages to show the relative reliance on each funding source of the peers. Falls Church data were not available.

Figure 5-2: Summary of Funding Used for O&M (in 2008 dollars)

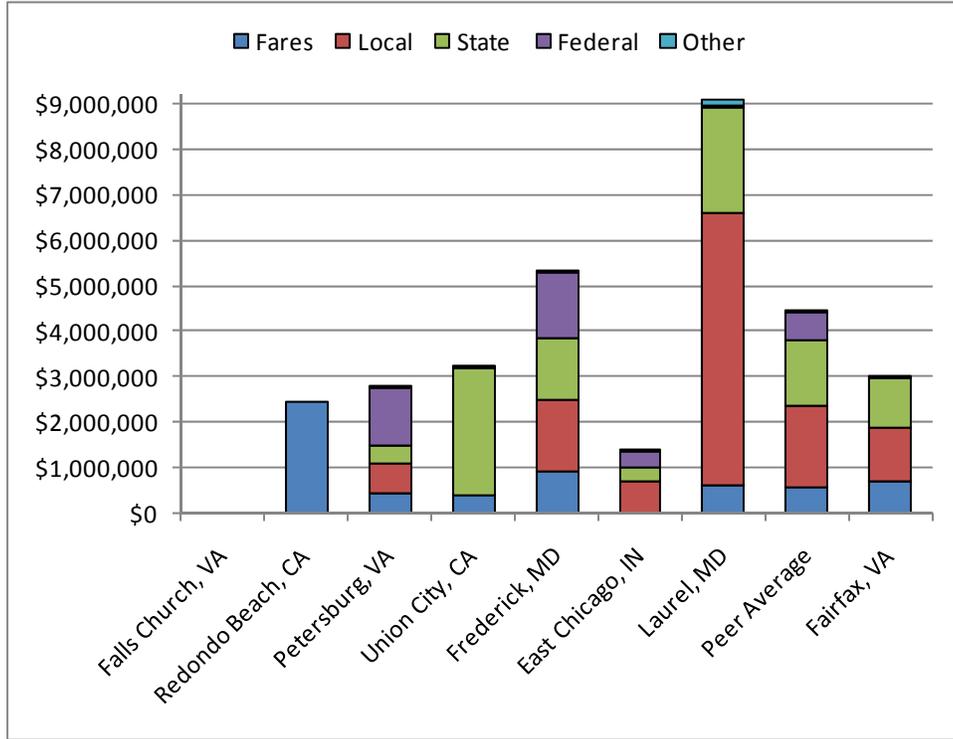
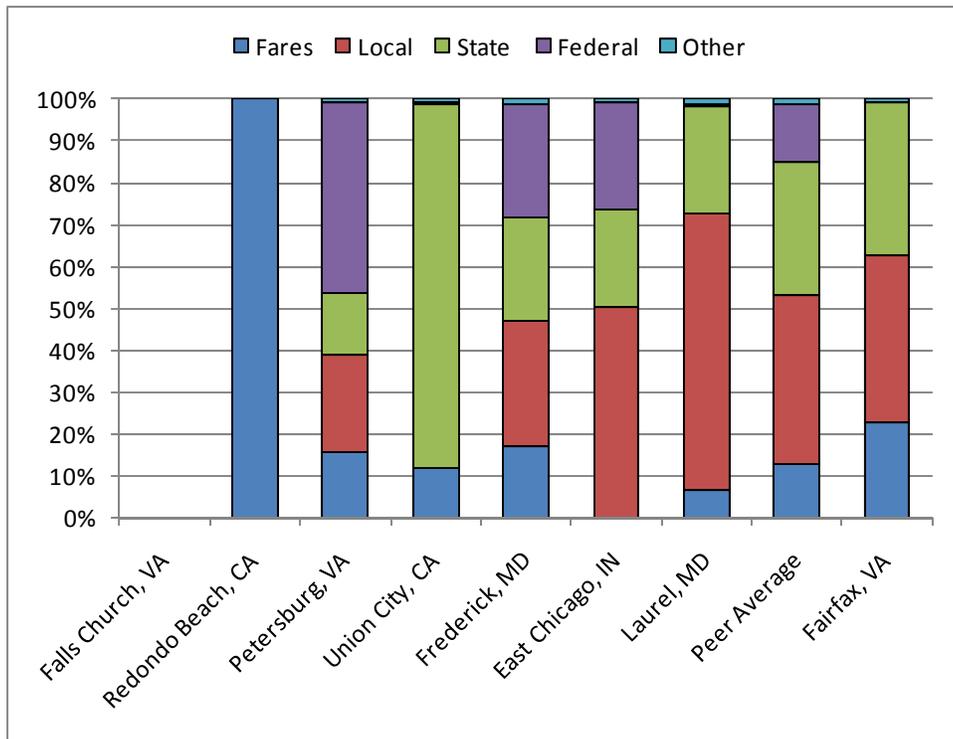
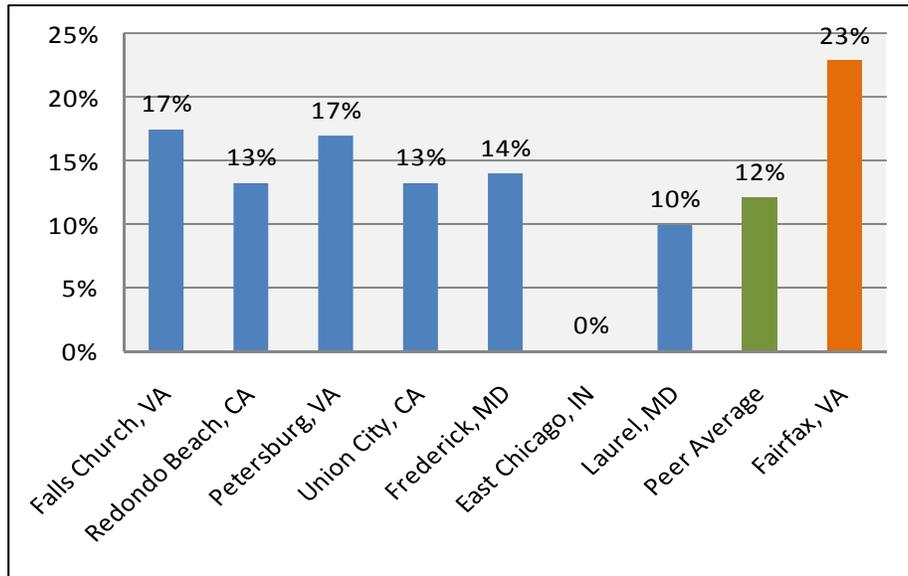


Figure 5-3: Summary of Funding Used for O&M (%)



- Farebox Revenues for O&M:** Most transit agencies collect fares for the services they provide. The extent to which fares cover O&M costs is referred to as the farebox recovery rate. One of CUE’s peer systems does not collect fares (East Chicago) and fare collection data was not available for another (Falls Church). The NTD does separate farebox data by mode and Figure 5-4 shows the recovery rate for the peer bus systems, without including demand response.

Figure 5-4: Bus O&M Funding from Fares (Farebox Recovery Rate)



For peer systems reporting, farebox recovery rates ranged from 10 percent (Laurel) to 23 percent (Fairfax). CUE’s farebox recovery rate was nearly double the peer average of 12 percent.

- Local Assistance for O&M:** For transit agencies that receive local operating assistance, these funds may be generated from various sources and provided to the agency by the local political jurisdiction (e.g., through local sales, property, and/or gasoline taxes) or be specifically designated for transit. Dedicated local funds are either received directly by the transit agency or collected by the local jurisdiction(s) in the service area and contributed to the transit agency in payment for service.

Figure 5-5 shows a wide variation among the peer systems with respect to reliance on local sources of operating funds. Local funds ranged between 0 (Redondo Beach, Union City) to 66 percent (Laurel). With 40 percent of its operating budget funded locally, CUE is identical to the peer average.

Figure 5-6 illustrates the local operating subsidy per passenger trip. Fairfax CUE’s local subsidy per trip is 68 percent less than the peer average. Note that the CUE figure includes GMU’s contribution towards CUE bus service. In 2009, GMU’s contribution was about 30% of the total local subsidy. Thus, the subsidy per passenger trip provided by the City of Fairfax was 70% of the total.

Figure 5-5: Percent of O&M Funding from Local Sources

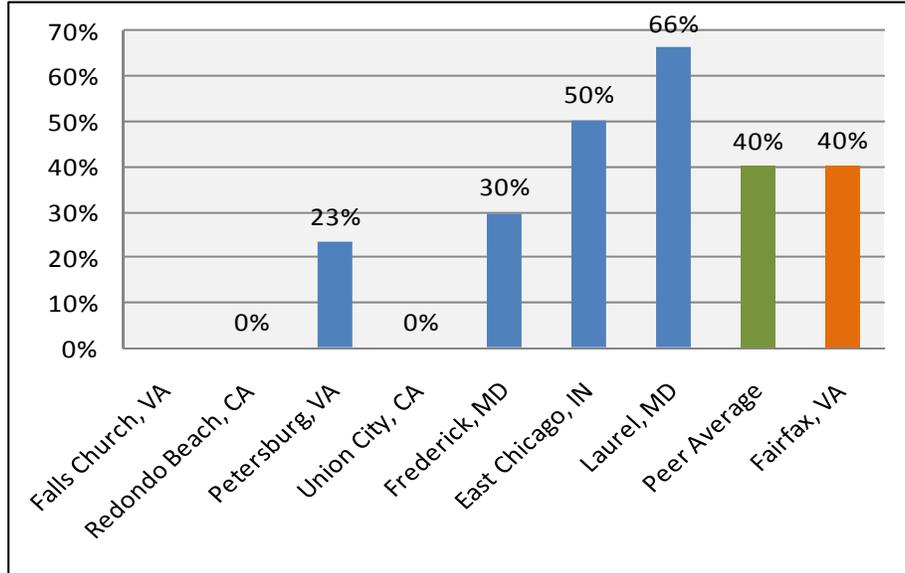
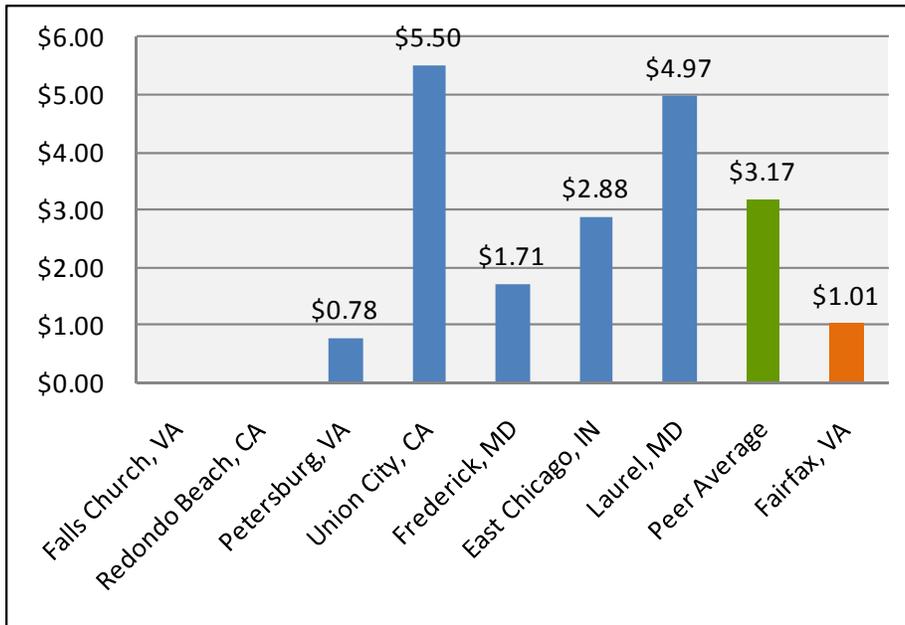
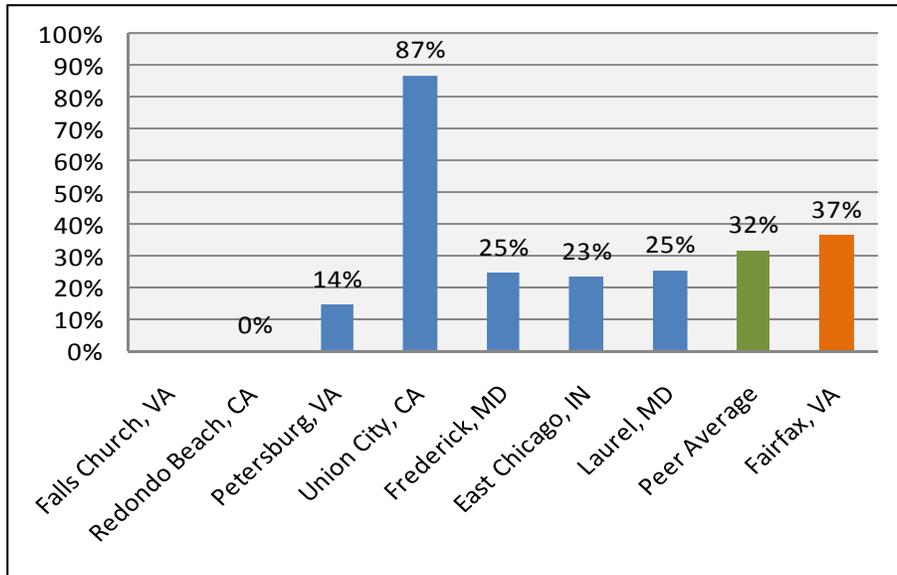


Figure 5-6: Local Subsidy per Passenger Trip



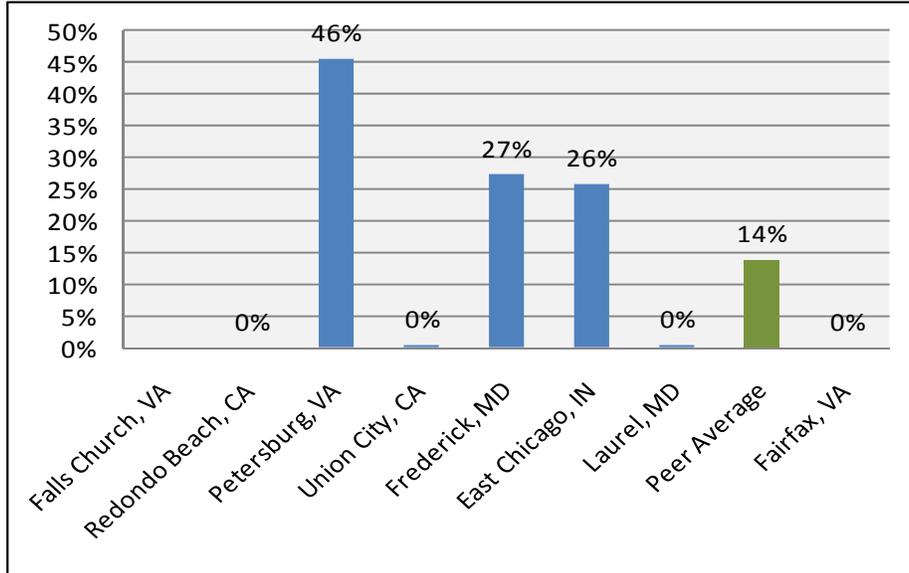
- State Sources for O&M:** States vary with respect to funding transit programs. As shown in Figure 5-7, peer system reliance on state funding sources varies from 0 (Redondo Beach) to 87 percent (Union City) with a peer average of 32 percent. With 37 percent of CUE's operating cost funded by the state, it is slightly above the peer average.

Figure 5-7: Percent of O&M Funding from State Sources



- Federal Sources for O&M:** As shown in Figure 5-8, peer system reliance on federal sources of O&M funds ranged from 0 (Redondo Beach, Union City, Laurel, Fairfax) to 46 percent (Petersburg). With no reliance on federal funds for operations, CUE is below the peer average of 14 percent.

Figure 5-8: Percent of O&M Funding from Federal Sources



5.2 Funding Sources Used for Capital

While funding sources and levels used for O&M remain relatively consistent from year to year, capital expenditure sources and levels can vary significantly from one year to the next, depending on the specific projects underway and the grants available. Thus, the information on capital funding described below reflects a snapshot for 2008, the most recent year for which data is available from the NTD. In 2008, CUE did not report any capital expenditures.

Figures 5-9 and 5-10 summarize capital funding in dollars and percent reliance by source, respectively.

Figure 5-9: Summary of Funding Used for Capital (in 2008 dollars)

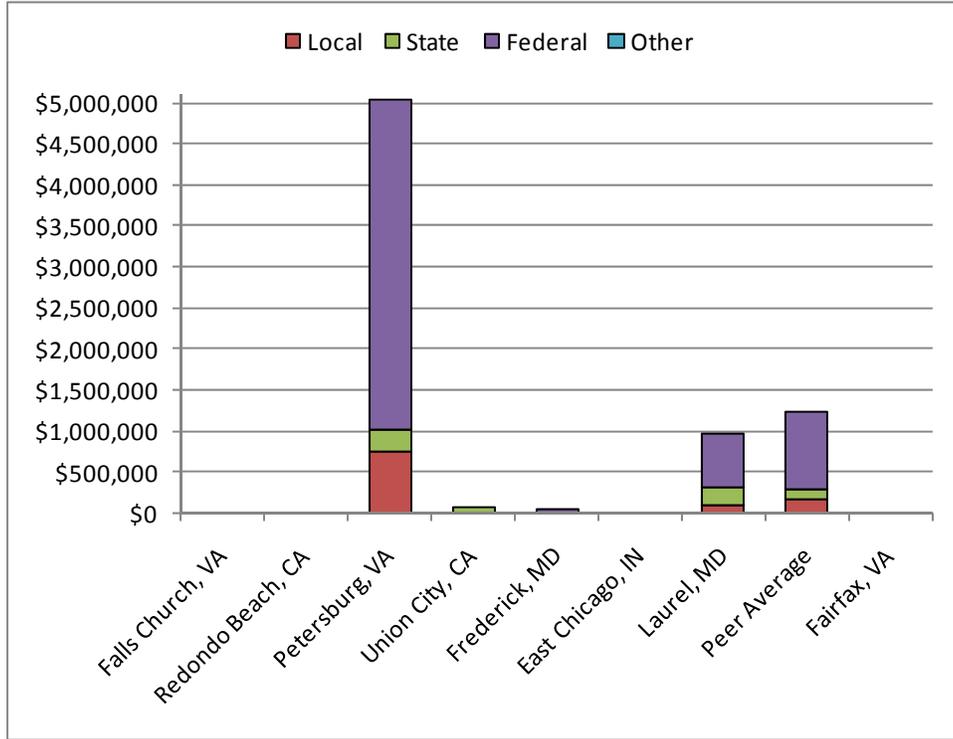
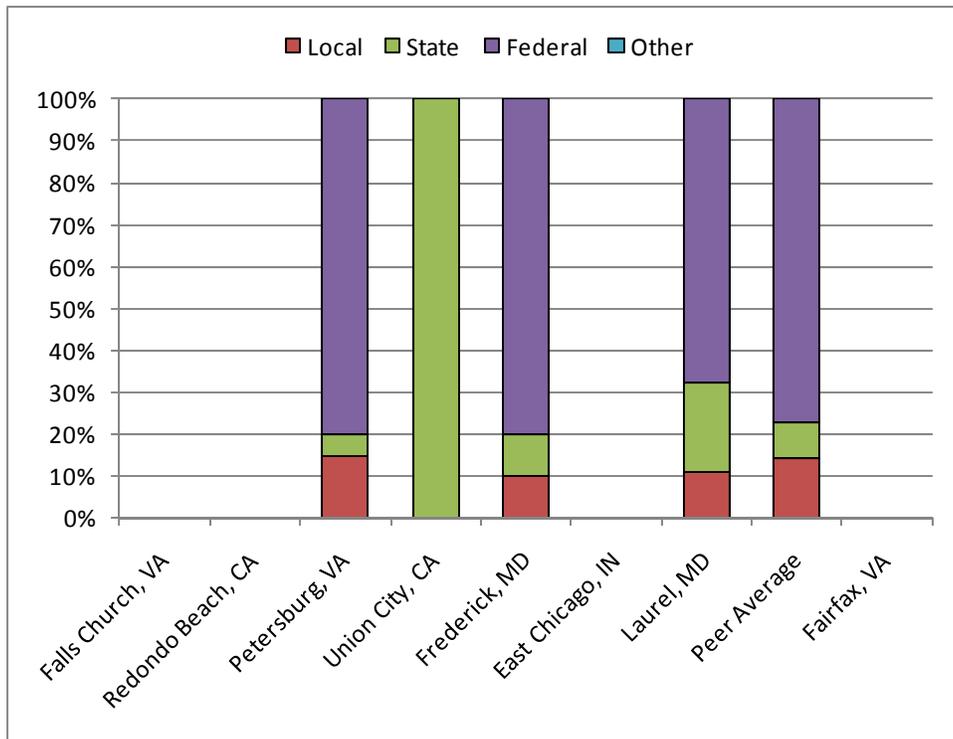
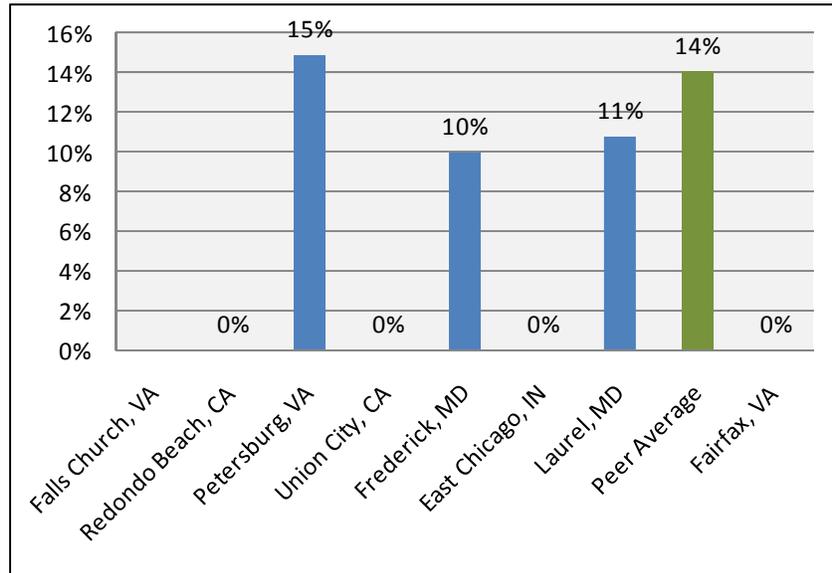


Figure 5-10: Summary of Funding Used for Capital (%)



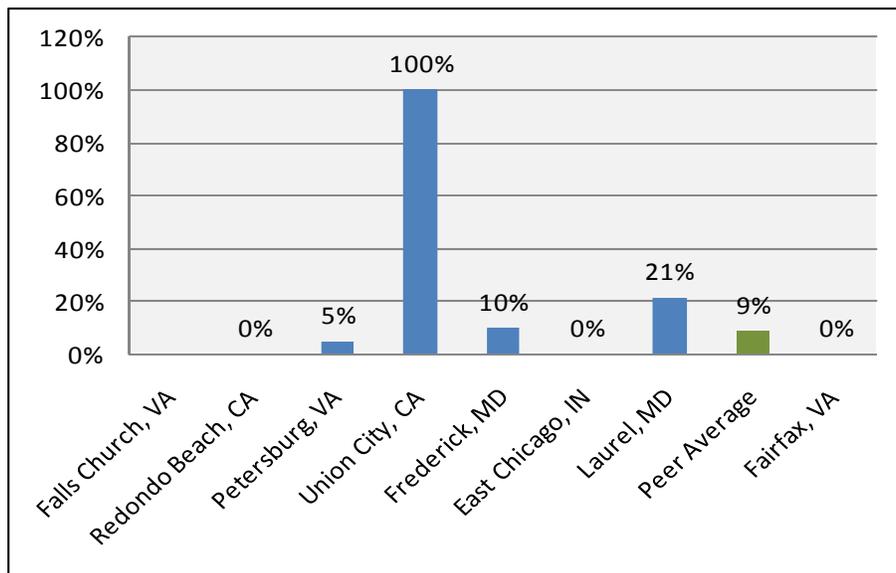
- Local Sources for Capital:** As with O&M, local jurisdictions that receive transit service may provide funding to pay a portion of capital costs for projects not paid through federal and state grants. As shown in Figure 5-11, the peer systems are divided between systems that did not receive any capital funds from local sources (Redondo Beach, Union City, East Chicago, Fairfax) and those that received 10 to 15 percent.

Figure 5-11: Percent of Capital Funding from Local Sources



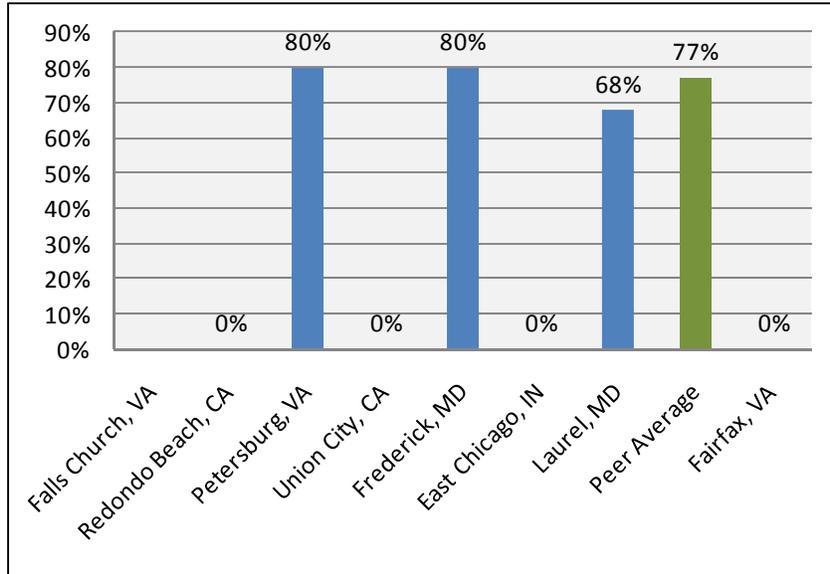
- State Sources for Capital:** States vary with respect to the existence of special state grant programs for transit capital projects. As with O&M, some of the peer systems funded capital expenditures with state money, covering from five percent of their capital expenses (Petersburg) to 100 percent (Union City). The peer average was nine percent. Fairfax and two of the peers (Redondo Beach, East Chicago) did not use any state sources for capital funding.

Figure 5-12: State Sources for Capital



- Federal Sources for Capital:** Transit agencies receive grants from various federal programs, notably the Federal Transit Administration’s formula and discretionary grant programs. As shown in Figure 5-13, reliance on federal funds for capital expenses, as demonstrated by CUE and its peers ranged from 0 (Redondo Beach, Union City, Fairfax) to 80 percent (Petersburg, Frederick). The peer average was 77 percent.

Figure 5-13: Percent of Capital Funding from Federal Sources



6.0 KEY FINDINGS OF PRIMARY PEER REVIEW

This review has compared the Fairfax CUE bus system to seven peer transit systems with respect to operational and financial characteristics and performance. The Federal Transit Administration's NTD was the primary source of data for six of the systems, with the most recently available data (2008) used in the analysis. The transit systems selected as peers to CUE were:

- City of Falls Church (Falls Church, VA),
- City of Redondo Beach (Redondo Beach, CA),
- Petersburg Area Transit (Petersburg, VA),
- City of Union City Transit Division (Union City, CA),
- Transit Services of Frederick County (Frederick, MD),
- East Chicago Transit (East Chicago, IN), and
- Howard Transit (Laurel, MD).

Falls Church was the system for which information was not available in the NTD, but was obtained instead from the Virginia Transit Performance Report (FY 2002 – FY 2006).

In general, CUE's service area, service, and financial characteristics were similar to the peer system averages, as summarized in Table 6-1.

Table 6-1: CUE and Peer-Average Characteristics

| Characteristic | Primary Peer Review | |
|-----------------------|---------------------|--------------|
| | Peer Average | CUE |
| Service Area | | |
| Population | 52,574 | 21,000 |
| Square Miles | 17 | 6 |
| Population Density | 3,813 | 3,500 |
| Service | | |
| Peak Buses | 10 | 8 |
| Passenger Trips | 463,050 | 1,047,346 |
| Revenue-Miles | 457,361 | 440,330 |
| Revenue-Hours | 35,734 | 34,602 |
| Financial | | |
| Annual Operating Cost | \$ 2,534,731 | \$ 2,980,627 |
| Fare Revenue | \$ 307,295 | \$ 681,260 |

Key findings were as follows:

- **Vehicle Utilization:** The size of CUE's bus fleet and vehicles operated in maximum service both were 25 percent below the peer average. However, CUE's revenue-miles and revenue-hours per peak bus were 20 and 21 percent higher, respectively.

- **Service Supplied:** CUE operates significantly more revenue-hours and revenue-miles per capita and per square mile than the peer average.
- **Ridership Productivity:** CUE was more productive in attracting ridership than the peer system average when compared on a revenue-hour, revenue-mile, and per capita basis.
- **Cost Efficiency:** CUE's cost efficiency surpassed the peer average on a passenger trip basis but was slightly less cost effective per revenue-hour and revenue-mile.
- **Vehicle Maintenance Performance:** CUE reported a much lower rate of revenue vehicle failures than the peer average, although data were not available for two of the peer systems.
- **Farebox Revenues:** CUE did much better than every peer system regarding farebox recovery and almost double the peer average.
- **Local Subsidy per Passenger Trip:** CUE also did much better in the amount of local subsidy required per passenger trip, averaging 68 percent better than the peer average.
- **Source of O&M Funds:** CUE had similar characteristics to the peer average with regard to the percent of funding that originated from state and local sources. The peer system average, however, demonstrated some use of federal funding sources as well.
- **Source of Capital Funds:** For the analysis year of 2008, the peer systems varied widely with regard to capital funding (0 to 46 percent). CUE joined three peer systems in reporting a zero capital budget.

To conclude, this primary peer review analysis has determined that CUE's ridership, service, and financial characteristics appear to be much better than the range experienced by its peer systems.

7.0 SUPPLEMENTAL PEER REVIEW

A limited peer review was conducted to compare the Fairfax CUE bus system to six suburban bus systems that all operate in the District of Columbus area. As with the primary peer review, this evaluation used the Federal Transit Administration’s 2008 NTD for five of the transit agencies (including one NTD report that was not in the included in the FTA’s database, but was provided by the agency). The bus systems selected as D.C.-area peers were:

- Arlington Transit (Arlington, VA),
- City of Alexandria (Alexandria, VA),
- City of Falls Church (Falls Church, VA),
- Fairfax Connector Bus System (Fairfax County, VA),
- Ride-On Montgomery County Transit (Montgomery County, MD), and
- Prince George’s County Transit (Prince George’s County, MD).

Falls Church was the system for which NTD information was not available, but was obtained instead from the Virginia Transit Performance Report (FY 2002 – FY 2006).

Except for regional location, CUE’s service area, service, and financial characteristics were unlike the D.C.-area peer averages, as summarized in Table 7-1:

Table 7-1: CUE and D.C. Peer-Average Characteristics

| Characteristic | Supplemental Peer Review | |
|-----------------------|--------------------------|--------------|
| | Peer Average | CUE |
| Service Area | | |
| Population | 536,899 | 21,000 |
| Square Miles | 238 | 6 |
| Population Density | 4,717 | 3,500 |
| Service | | |
| Peak Buses | 110 | 8 |
| Passenger Trips | 7,974,170 | 1,047,346 |
| Revenue-Miles | 4,057,609 | 440,330 |
| Revenue-Hours | 312,139 | 34,602 |
| Financial | | |
| Annual Operating Cost | \$ 29,377,177 | \$ 2,980,627 |
| Fare Revenue | \$ 1,116,900 | \$ 681,260 |

7.1 Supplemental Peer Review Analysis

The following graphs compare CUE and the D.C.-area peers on measures of service supplied, ridership productivity, and cost efficiency.

- **Service Supplied:** CUE operates significantly more revenue-hours and revenue-miles per capita than the D.C. peer average.

Figure 7-1 shows that CUE provides more service hours per capita (1.65) than any of the D.C.-area peer systems, which range between 0.20 (Arlington) and 1.12 (Alexandria). The number of revenue-hours per capita that CUE provides is 2.9 times higher than the peer average (0.56).

Figure 7-1: D.C. Peer Comparison – Revenue-Hours per Capita

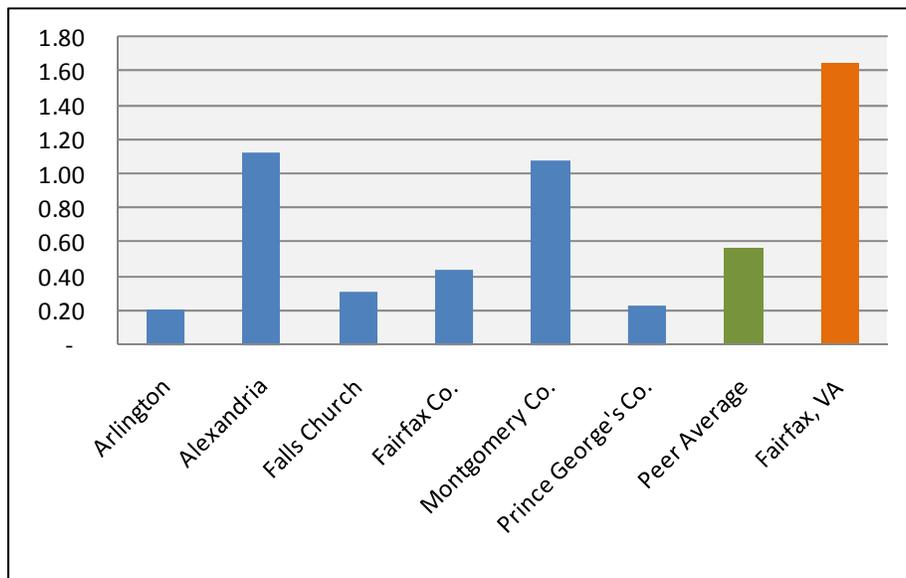
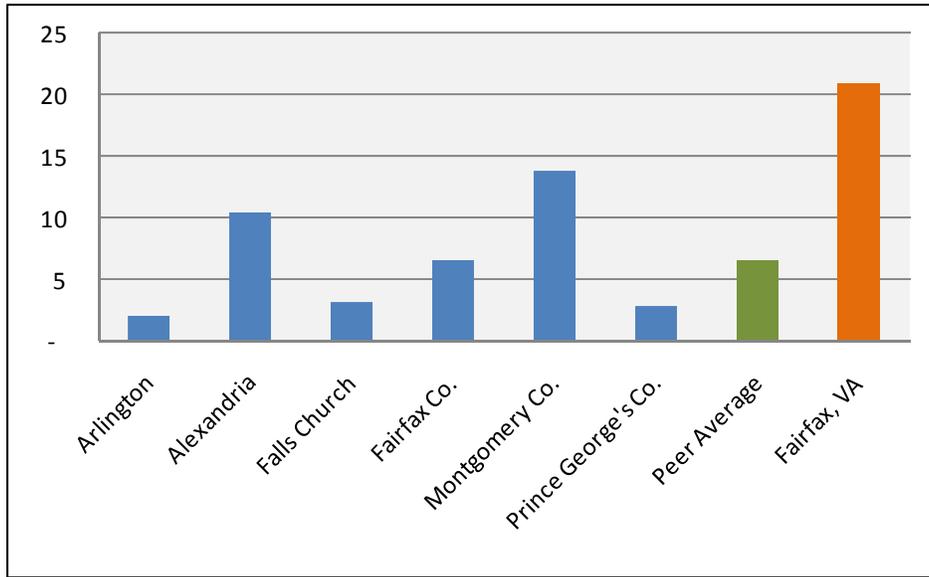


Figure 7-2 shows that CUE also operates more revenue bus-miles per capita (21) than any of the D.C.-area peer systems, which range between two (Arlington) and 14 (Montgomery County). CUE's revenue-miles per capita are 3.2 times more than the peer average (six).

Figure 7-2: D.C. Peer Comparison – Revenue-Miles per Capita



- Ridership Productivity:** CUE was much more productive than the D.C. peer average in attracting ridership per capita and also more productive in terms of passenger trips per revenue-hour and per revenue-mile.

As shown in Figure 7-3, CUE is significantly more effective at attracting riders per capita than any of the D.C.-area peer systems. CUE's productivity on this measure is 3.6 times greater than the peer average.

Figure 7-3: D.C. Peer Comparison – Passenger Trips per Capita

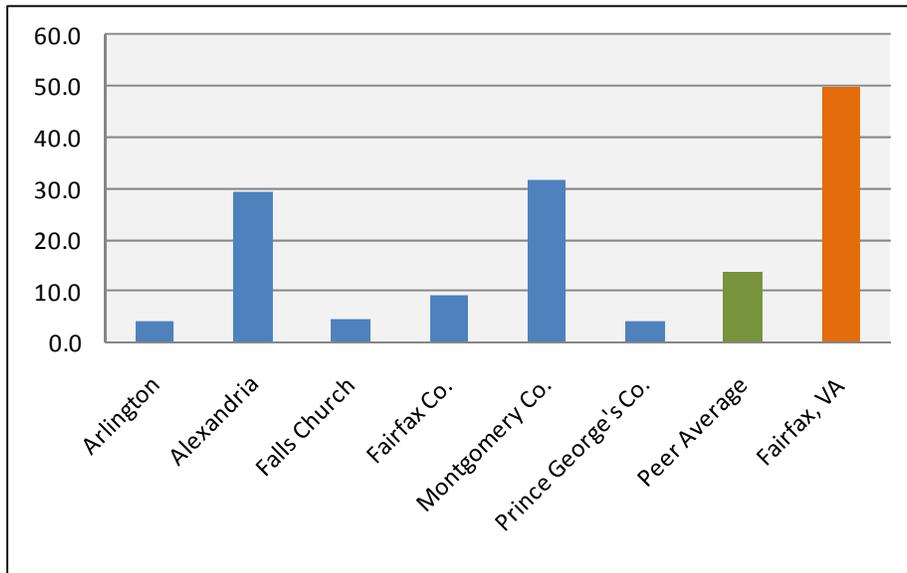


Figure 7-4 shows that the D.C.-area peer systems generate between 15.5 (Falls Church) and 29.6 (Montgomery County) passenger trips for every revenue-hour of bus service. CUE's productivity of 30.3 passengers per revenue-hour is 39 percent greater than the peer average of 21.7.

Figure 7-4: D.C. Peer Comparison – Passenger Trips per Revenue-Hour

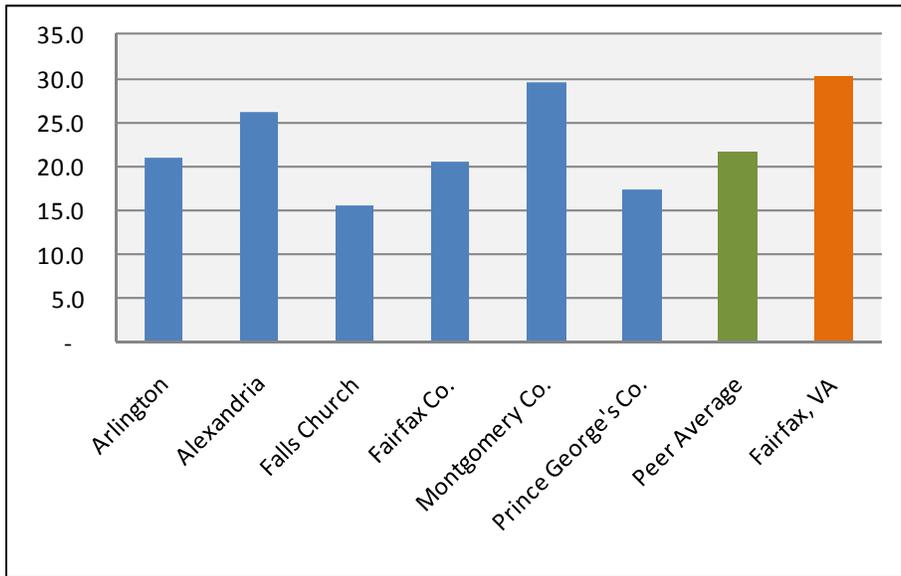
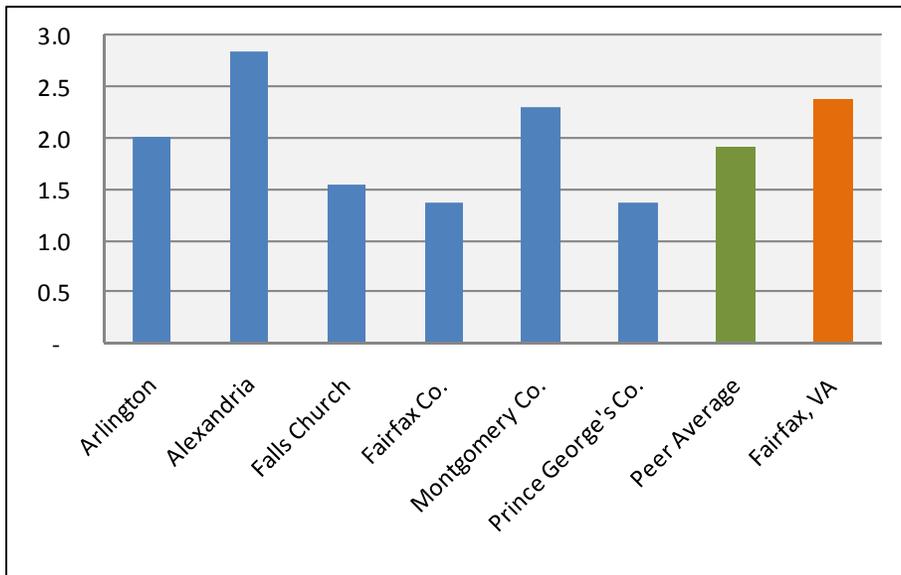


Figure 7-5 shows the D.C.-area peer systems generate between 1.4 (Fairfax County, Prince George’s County) and 2.8 (Alexandria) passenger trips per revenue-mile of service. CUE serves 2.4 passengers per revenue-mile which demonstrates more effective service delivery on this measure than the D.C. peer average (1.9).

Figure 7-5: D.C. Peer Comparison – Passenger Trips per Revenue-Mile



- Cost Efficiency:** CUE’s cost efficiency was better than the D.C. peer average when compared on a passenger trip basis, and similar to peer systems when compared on a revenue-hour, and revenue-mile basis.

Figure 7-6 shows the D.C. peer systems' cost per passenger trip ranges from revenue-hour ranges from \$2.78 (Alexandria) to \$5.10 (Falls Church), averaging at \$4.10. On this performance measure, CUE is much better than the peer average with a cost of \$2.85 per passenger trip.

Figure 7-6: D.C. Peer Comparison – Operating Cost per Passenger Trip

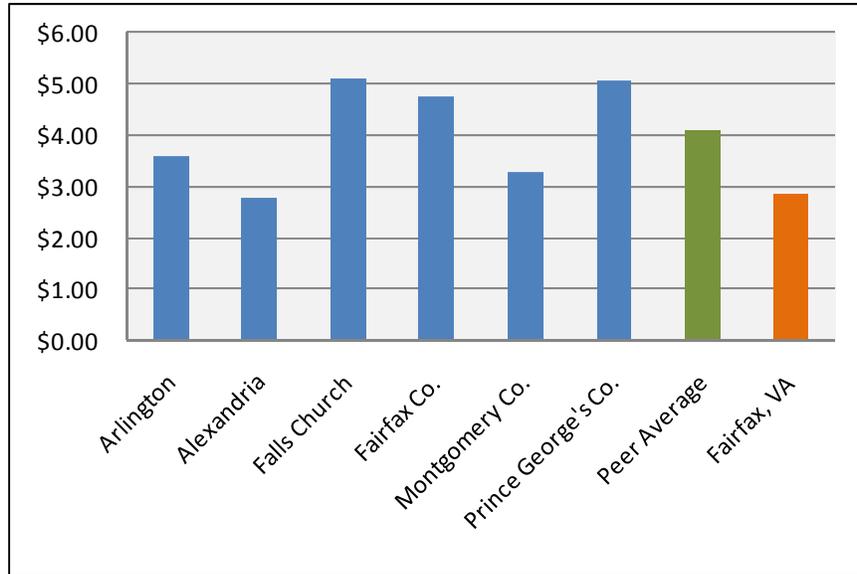


Figure 7-7 shows the D.C. peer systems' cost per revenue-hour ranges from \$72.96 (Alexandria) to \$98.26 (Fairfax County), averaging at \$85.15. On this performance measure, CUE is similar to the peer average with a cost of \$86.14 per revenue-hour (1.2% higher).

Figure 7-7: D.C. Peer Comparison – Operating Cost per Revenue-Hour

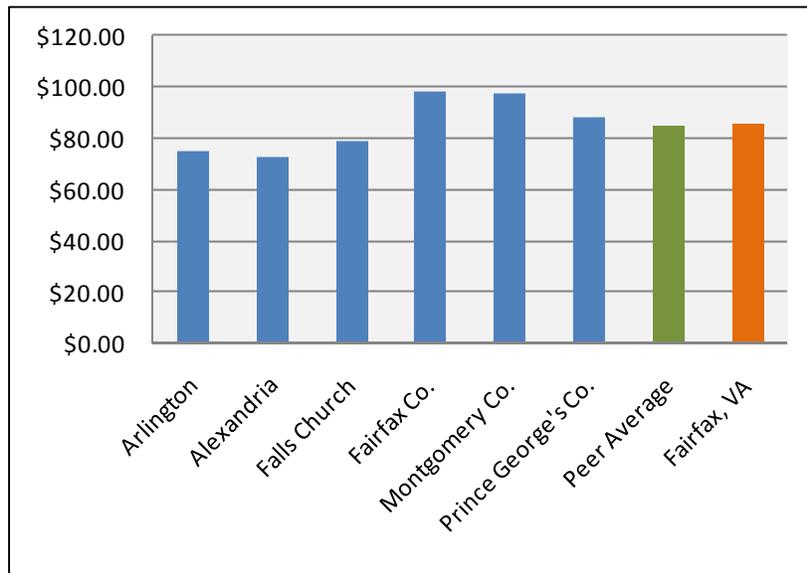


Figure 7-8 shows that on a cost per revenue-mile basis, the D.C.-area peers range between \$6.60 (Fairfax County) and \$7.91 (Alexandria) with an average cost per revenue-mile of \$7.35.

CUE is more efficient than five peer systems by spending \$6.77 for each revenue-mile of service. This is eight percent better than the peer average.

Figure 7-8: D.C. Peer Comparison – Operating Cost per Revenue-Mile

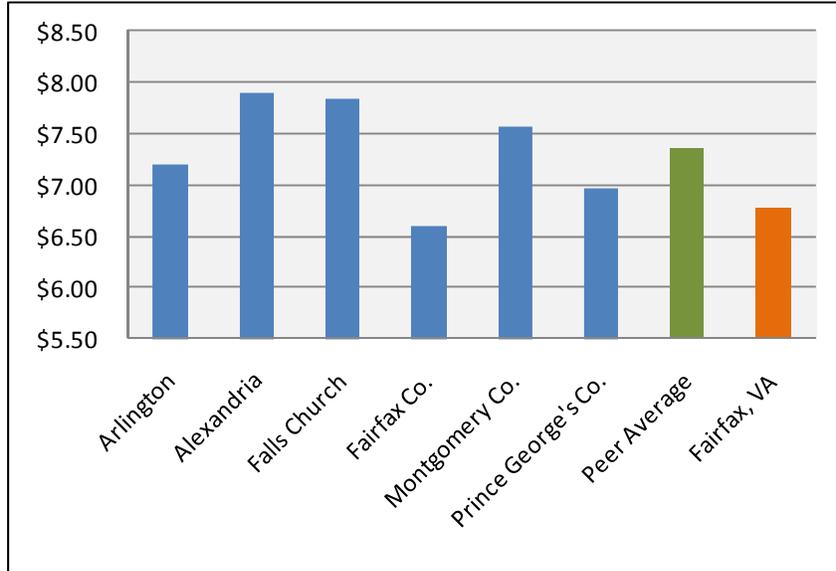
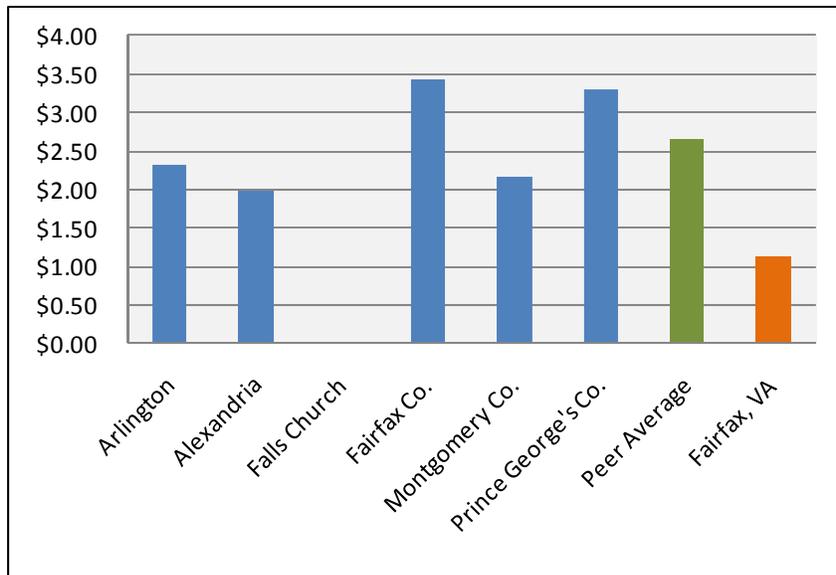


Figure 7-9 shows the local subsidy required per passenger trip. The Fairfax CUE's local subsidy per passenger trip is 57% better than the peer averages. Note that this figure includes GMU's contribution towards CUE bus service. In 2009, GMU's contribution was about 30% of the total local subsidy. Thus, the subsidy per passenger trip provided by the City of Fairfax was 70% of the total.

Figure 7-9: D.C. Peer Comparison – Local Subsidy per Passenger Trip



7.2 Supplemental Peer Review Findings

The peer review completed with data from D.C.-area suburban transit systems presents a conclusion very similar to the full peer review assessment. The CUE service provides much more service per capita than other suburban D.C. systems, the CUE exhibits higher ridership productivity measures, and has a lower cost per passenger trip than all but one area system (Alexandria). The CUE's cost per revenue-hour and cost per revenue-mile are also within the range experienced by other D.C.-area peer systems.

**Appendix C
CUE TRANSIT
ON-BOARD SURVEY
TECHNICAL MEMORANDUM**

Table of Contents

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| 1.0 | Introduction | 1 |
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| 3.0 | Trip Making Patterns Within the City of Fairfax | 11 |

1.0 Introduction

The National Capital Region Transportation Planning Board (TPB) conducted a regional on-board survey in the spring of 2008. The technical report¹ cites the main purposes of the survey as follows:

- 1) collect the jurisdiction of residence data of Washington Metropolitan Transit Authority's (WMATA) weekday bus passengers in support of WMATA's bus subsidy allocation formula;
- 2) collect origin and destination trip patterns of the local jurisdiction bus systems for local bus route planning and regional travel demand model validation; and,
- 3) collect other travel-related and demographic data to update the regional profile of WMATA and local bus system riders and their related bus trips.

The survey instrument was based on previous bus surveys conducted by MWCOG and WMATA as well as a recently-completed on-board survey conducted by the Maryland Transit Administration. The purpose for this coordinated effort was to ensure the resulting dataset can be used in both local transit planning and modeling as well as regional travel demand modeling which includes transit travel between Maryland and Washington DC and surrounding areas.

The survey was distributed among bus passengers of Arlington County Transit (ART), Prince George's County (TheBus), City of Fairfax (CUE), Alexandria (DASH), Frederick County (TransIT), Potomac Rappahannock Transit Commission (PRTC), Montgomery County (Ride-On), and WMATA's MetroBus. Table 1-1 summarizes the survey's raw and expanded responses by service provider.

**Table 1-1
2008 Regional Bus Survey
Raw and Expanded Responses by Service Provider**

| Service Provider | Raw Survey Responses | Expanded Responses |
|------------------|----------------------|--------------------|
| TransIT | 156 | 2,813 |
| CUE | 376 | 3,563 |
| ART | 398 | 4,719 |
| PRTC | 603 | 12,425 |
| DASH | 815 | 14,673 |
| TheBus | 331 | 15,262 |
| Ride-On | 2,717 | 97,966 |
| MetroBus | 23,023 | 454,897 |
| Total | 28,419 | 606,318 |

This Technical Memorandum summarizes survey responses for CUE riders. It is important to note that this was a limited survey of only about 10% of all CUE riders. Thus, results may not necessarily be truly indicative of actual ridership characteristics.

¹ MWCOG, 2008 Regional Bus Survey, Technical Report, June 2009

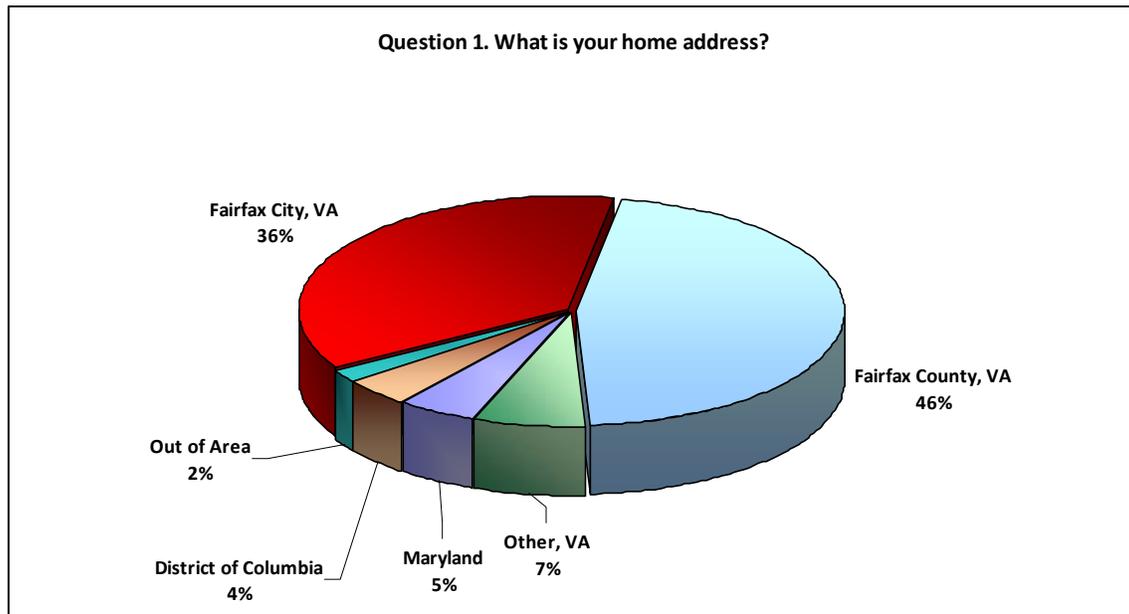
1.0 CUE On-Board Survey Responses

There were 12 questions in the MWCOG on-board survey. Response rates for the CUE are as follows:

Home Address

The first question of the MWCOG on-board survey asked for the respondent's home address (Figure 2-1). Over 80% of CUE riders responded as being from either the City of Fairfax (36%) or Fairfax County (46%). Another 5% of the CUE riders indicated a Maryland home address. It is important to note that the CUE serves residential areas outside of the City (i.e., to/from the Metrorail station), and serves George Mason University and the Fairfax County Courthouse complex – both of which are considered outside of the city limits and attract non-resident riders.

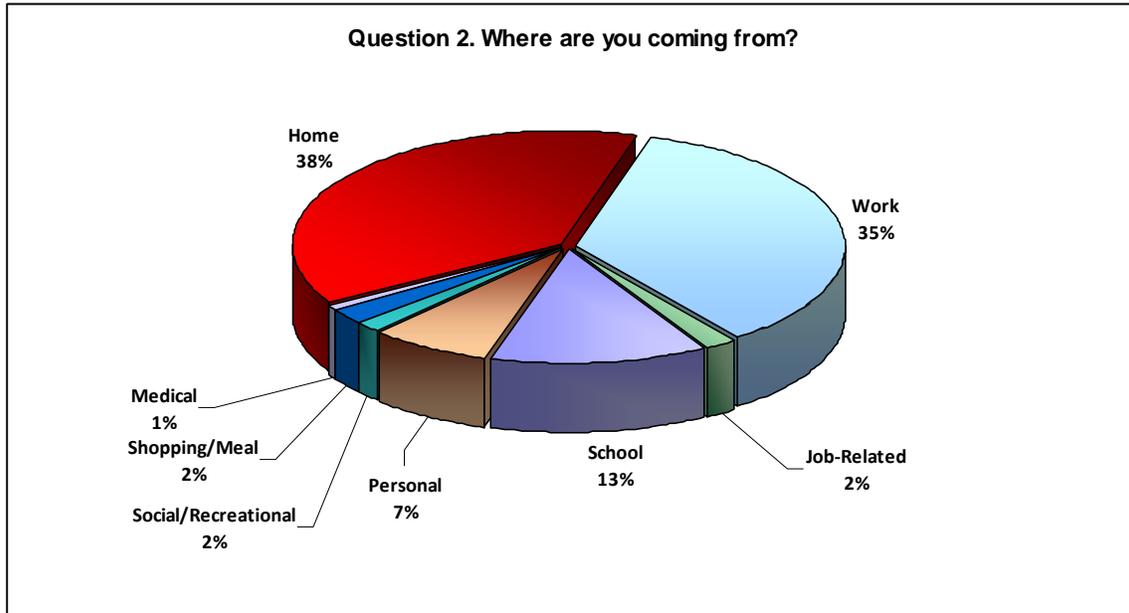
Figure 2-1
Home Addresses for CUE Riders



Starting Location of Trip

The second survey question asked riders where they were coming from. Responses for CUE riders appear below in Figure 2-2. As shown, most of the responses were home or work, with some 38% of the riders indicating they came from their homes and another 35% said they come from work. School was the third-most prevalent answer.

Figure 2-2
Originating Trip Purposes of CUE Riders



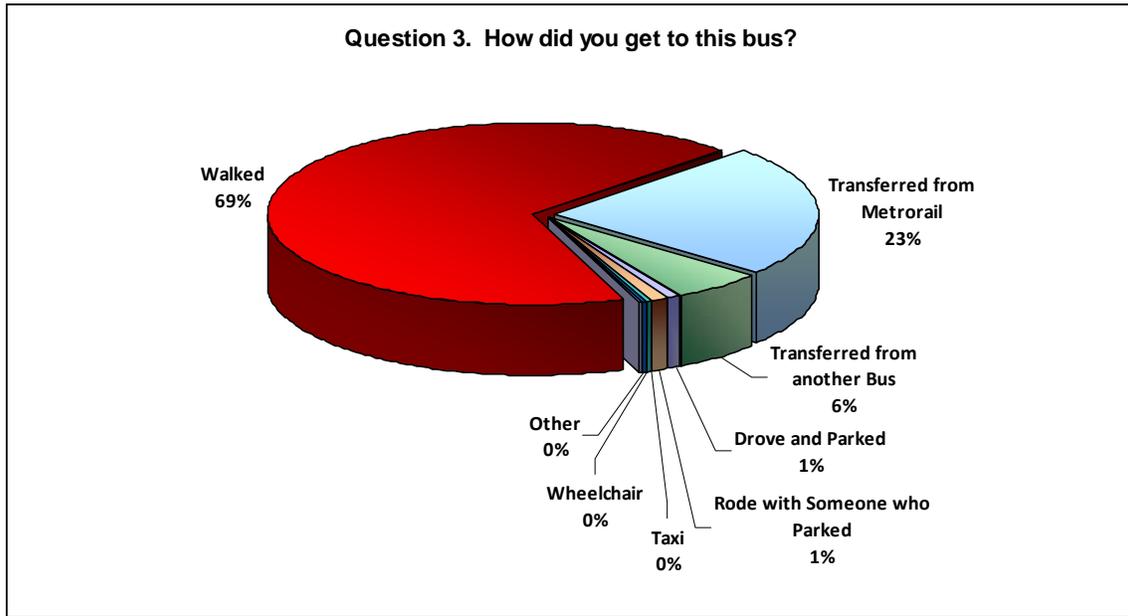
Mode of Access

The third survey question asked riders how they got to the bus they were currently riding on. Responses for CUE riders appear below in Figure 2-3. The predominant response (69%) was walked. Another 23% of CUE riders indicated they transferred from Metrorail. Some 6% said they transferred from another bus.

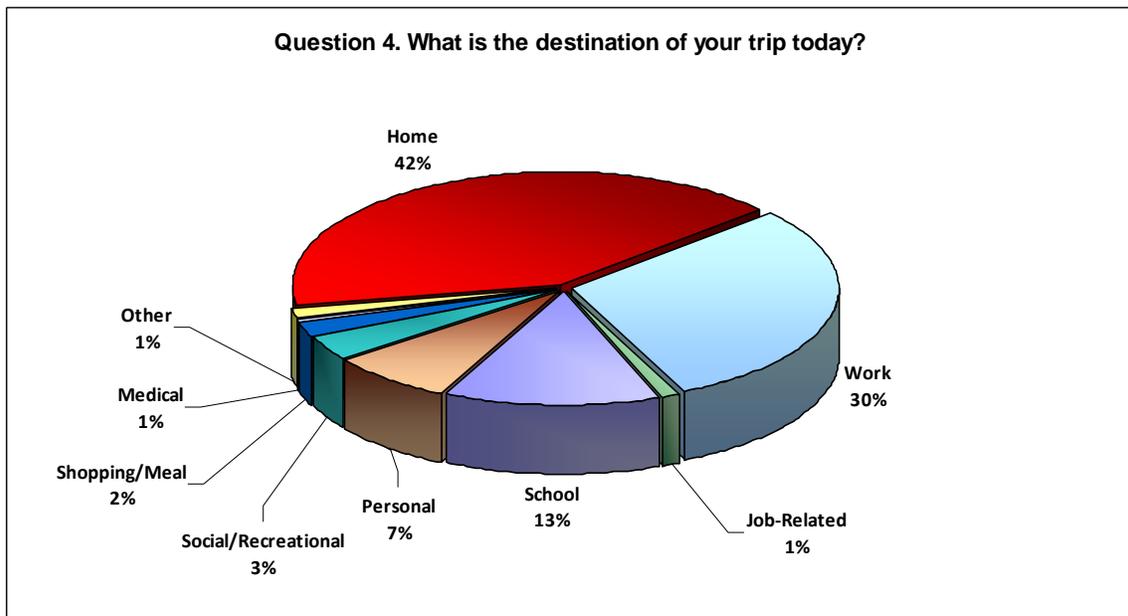
Trip Destination

The next survey question asked riders where they were going on their trip. Some 72% of CUE riders indicated that they were either going home (42%) or to work (30%). Another 13% identified school as the destination of their trip. Figure 2-4 illustrates response rates to this question.

**Figure 2-3
Mode-of-Access Responses for CUE Riders**



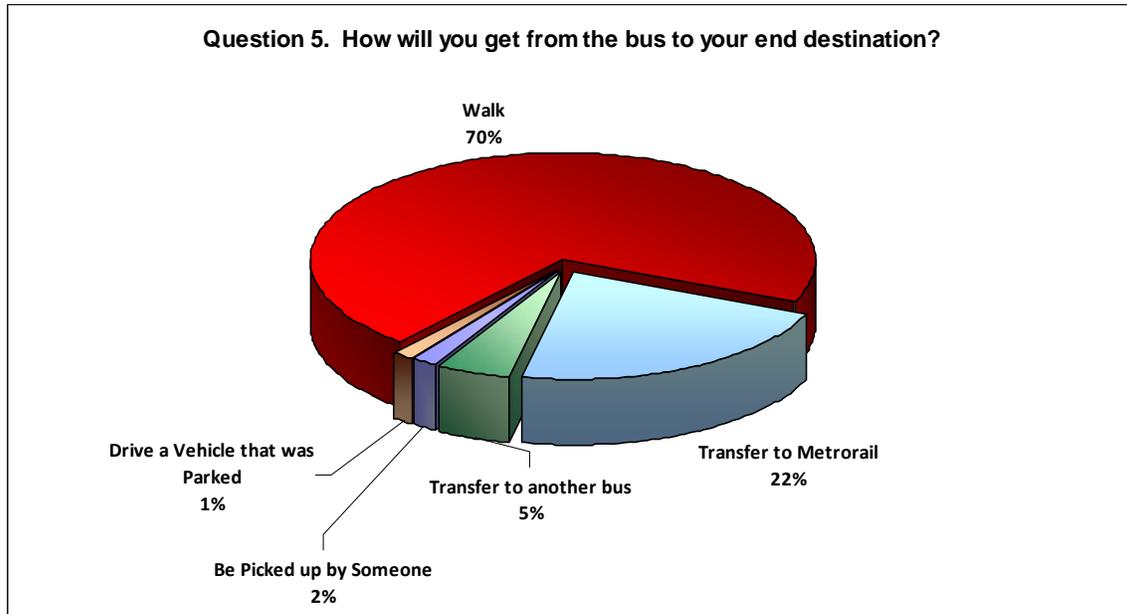
**Figure 2-4
Destination Trip Purposes of CUE Riders**



Mode of Egress

The fifth question asked riders about their mode-of-egress or how they would get from their bus to their destination. Responses were similar to the access modes, with 70% walking, 22% transferring to Metrorail and another 5% transferring to another bus. Figure 2-5 breaks out all responses for CUE riders.

**Figure 2-5
Mode-of-Egress Responses for CUE Riders**



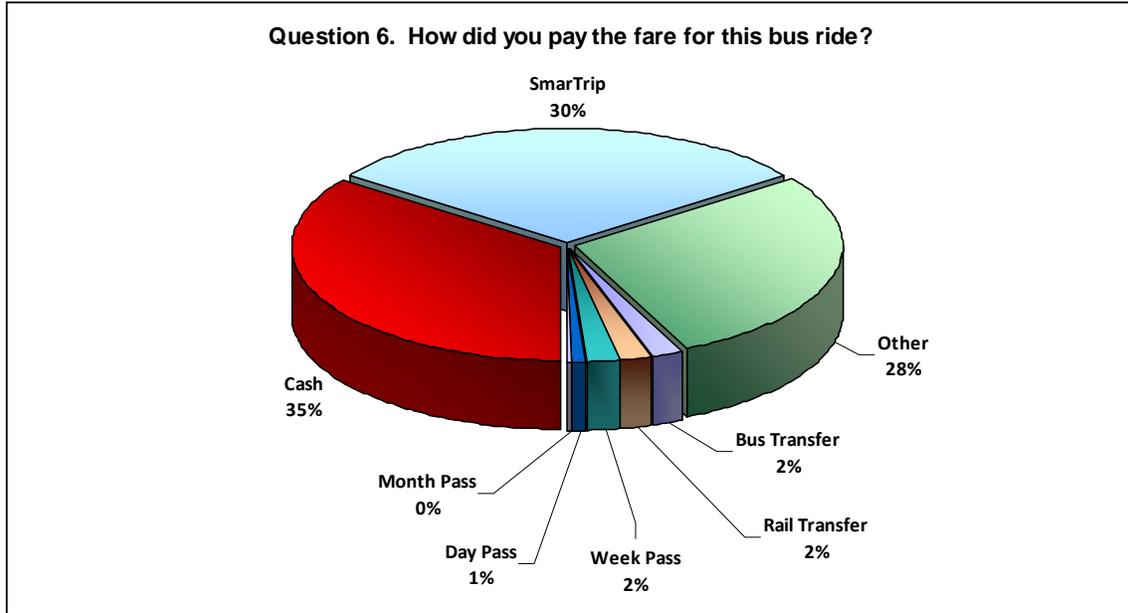
Transit Fare

The next survey question asked riders how they paid for the bus ride. Figure 2-6 suggests that CUE riders primarily pay cash fares (35%), with another 30% indicating that they used the Smart Trip form of payment. Some 28% of CUE riders answered “other” and a closer review of the responses found nearly all of the responses were student-related travel for George Mason University.

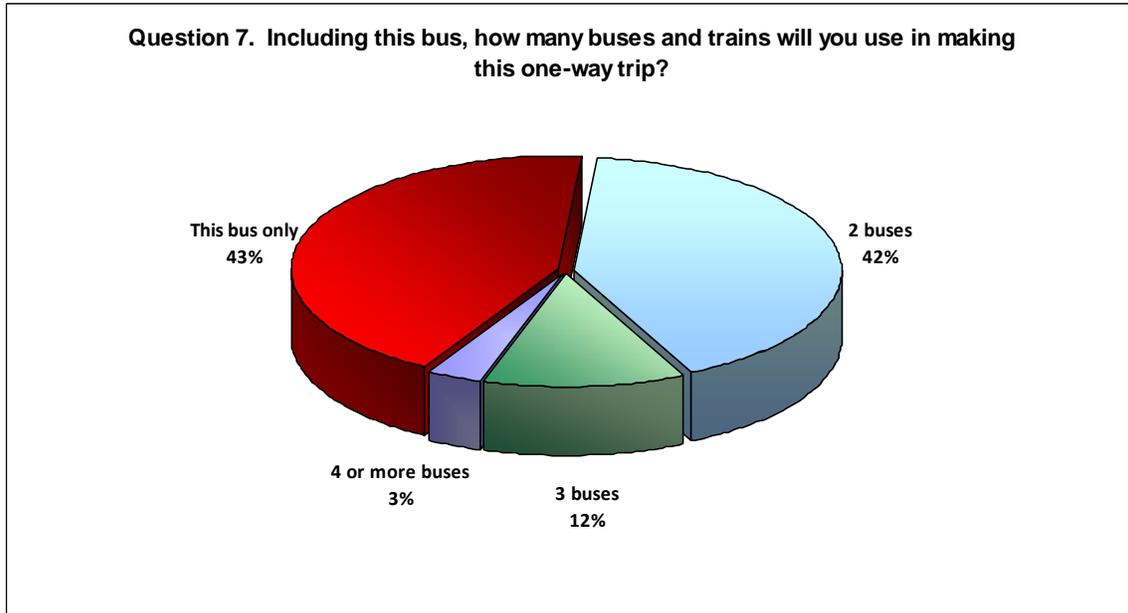
Number of Transit Trips

Question seven asked riders to indicate how many vehicles they would use to complete the trip they were making (Figure 2-7). For CUE riders, some 43% indicated they would only use the bus they were currently riding on. Another 42% of the CUE’s riders indicated that they would use two buses to complete their trip.

**Figure 2-6
Method of Payment for CUE Riders**



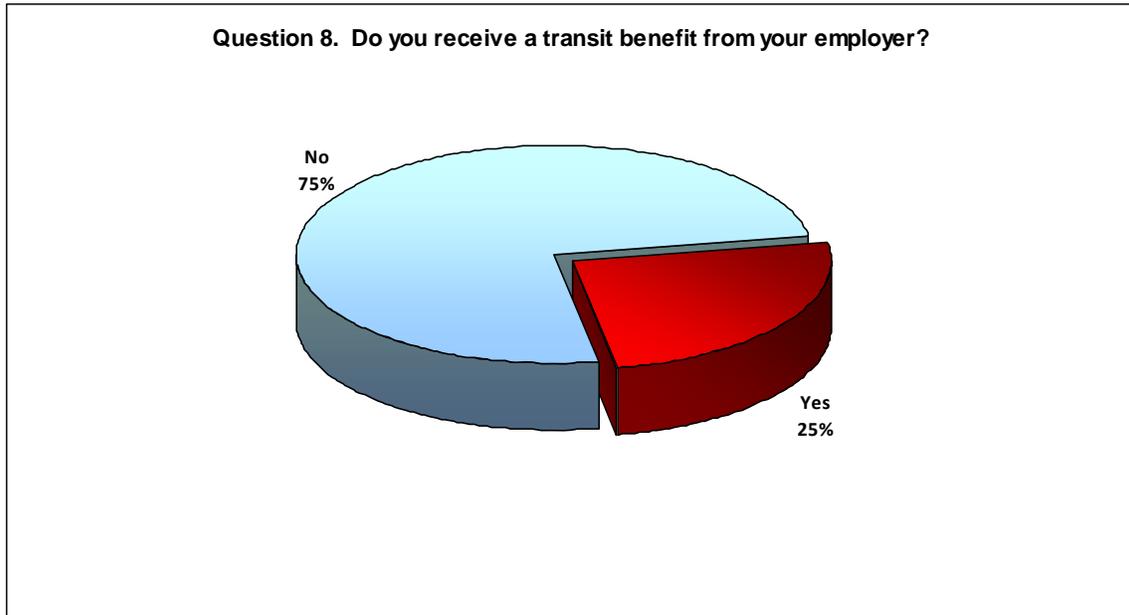
**Figure 2-7
Number of Vehicles used by CUE Riders**



Employer Subsidy

The next survey question asked the respondent if he or she received some form of compensation from their employer. Figure 2-8 suggests most CUE riders did not receive any employer compensation (i.e., no responses were 75%).

**Figure 2-8
Employer Compensation for CUE Riders**



Household Vehicles

The ninth MWCOG survey question asked each rider how many cars were at their place of residence. Figure 2-9 suggests that roughly 46% of CUE riders had no vehicles at their house. Another 32% said they had one vehicle at their house and 18% responded with two vehicles.

Vehicle Availability

The next survey question asked riders if they had a household vehicle available for making the trip they were on. As shown in Figure 2-10, some 68% of CUE riders indicated that they did not have a vehicle available for making their trip. Hence, some 32% chose riding a CUE bus over driving themselves.

Figure 2-9
Household Vehicles for CUE Riders

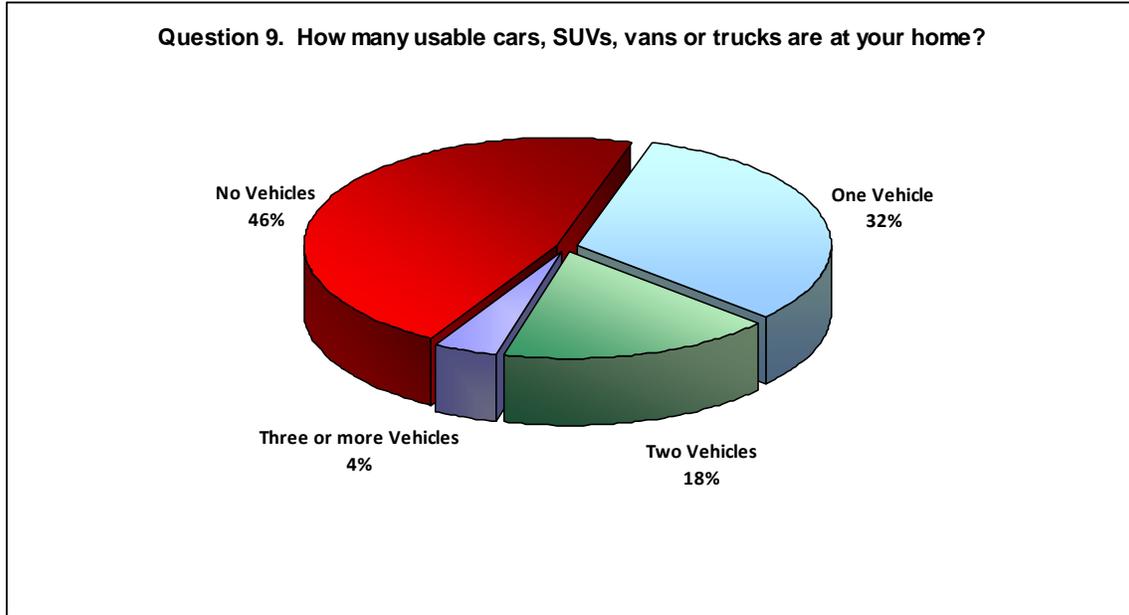
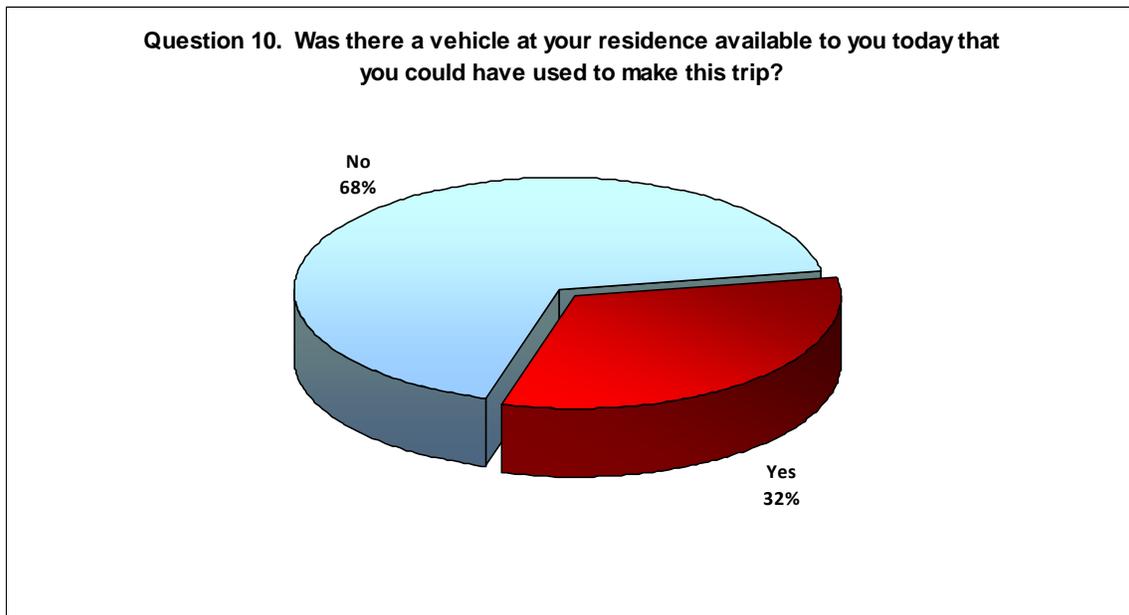


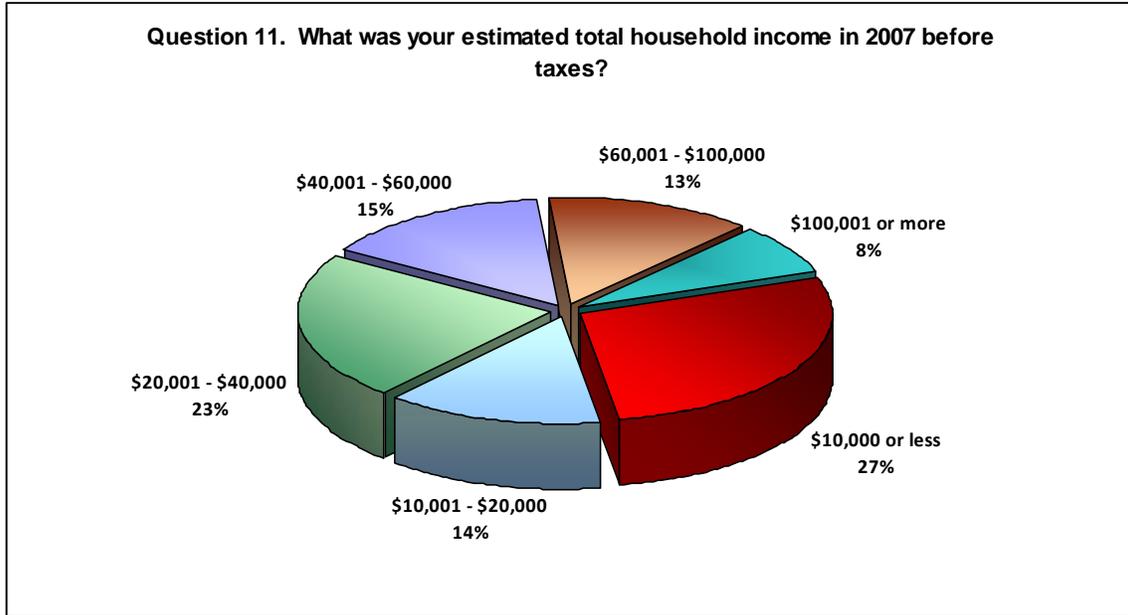
Figure 2-10
Household Vehicle Availability for CUE Riders



Annual Household Income

The next survey question (i.e., Question 11) asked each respondent about their annual household income. CUE responses (Figure 2-11) indicate that over 64% of the CUE’s riders had household incomes under \$40,000 per year. Of these responses, 27% indicated household incomes under \$10,000, 14% reported a range between \$10,000 and \$20,000 and another 23% ranged between \$20,000 and \$40,000.

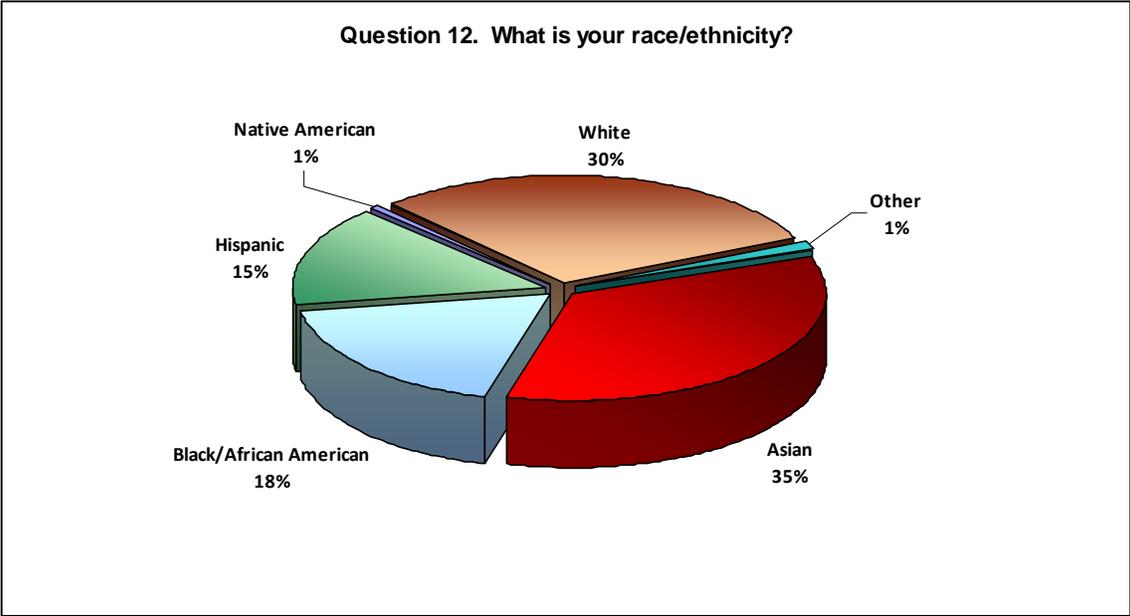
**Figure 2-11
Estimated Annual Household Incomes of CUE Riders**



Rider Ethnicity

The final survey question asked riders to indicate their race or ethnic origins. Asian was the predominant response (i.e. 35%) for CUE riders. Some 30% indicated “white” as their race. Another 18% responded as being African American. Hispanic persons amounted to 15% of the expanded responses. Figure 2-12 presents survey response rates.

Figure 2-12
Ethnicity of CUE Riders



2.0 Trip Making Patterns Within the City of Fairfax

Survey responses from the MWCOG were reviewed further to determine trip-making characteristics within the city limits. About ½ of all CUE riders had an origin or destination within the City of Fairfax. Another 25% had an origin or destination at George Mason University.

Figure 3-1 identifies home origins of surveyed CUE riders that reside within or adjacent to the City of Fairfax. Figure 3-2 identifies trip origin and destination locations. Dots in these figures do not represent total ridership activity at a particular location, but rather locations of unique addresses, origins and destinations. For example, trip origins from George Mason University are represented by one dot.

Figure 3-1
Home Origins of CUE Survey Responses Within and Adjacent to City of Fairfax

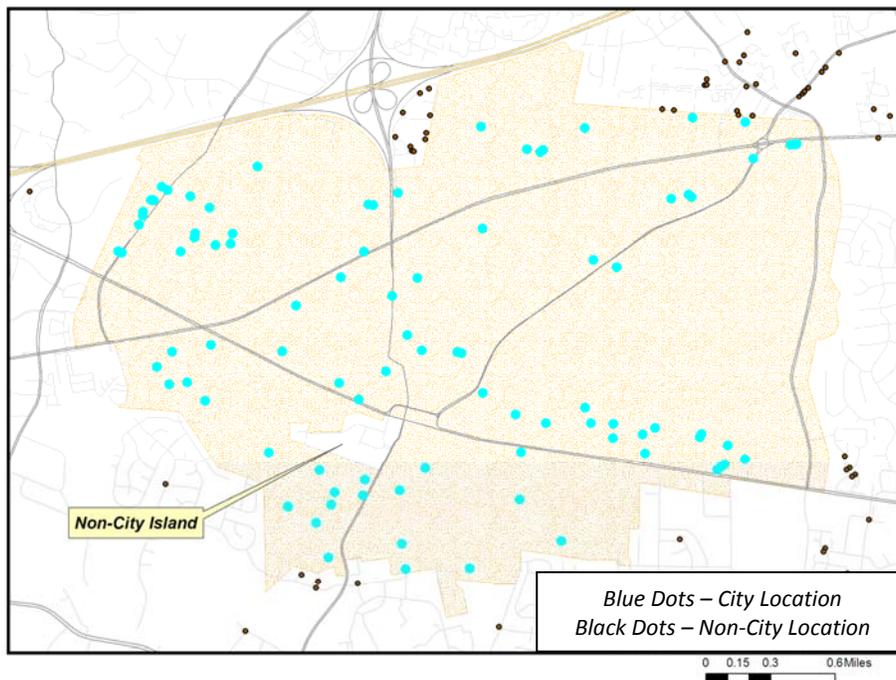
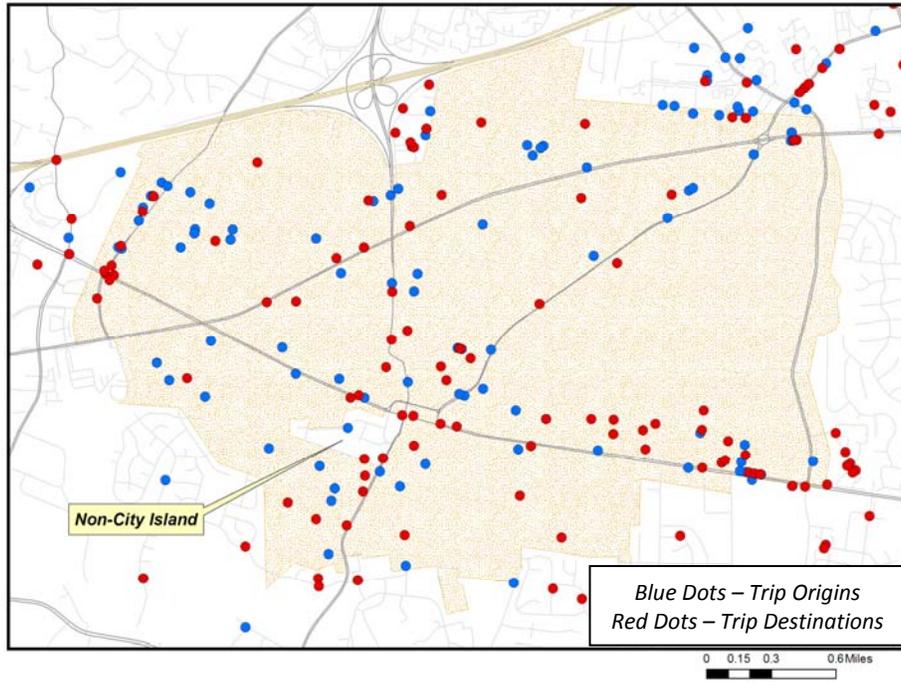


Figure 3-2
Trip Origin and Destination Locations of CUE Survey Responses



**Appendix D
TDP COMMENTS
RECEIVED FROM CUE STAFF AND THE PUBLIC**

Comments from CUE Staff (Superintendent, Supervisors, Drivers) – 1/28/10

1. On-time performance is an issue, particularly in the p.m.
2. Riders ask for later service on the weekends.
3. Having 2 buses on every route is a plus because of traffic.
4. Major transit trip generators are GMU, the Courthouse, the Courthouse plaza, Jermantown Road, K-Mart, Main & Picket
5. Riders would like to go to Fair Oaks Mall.
6. CUE schedule is not in-sync with MetroBus 29k for transfers.
7. Routes pick up a lot of riders on Nutley Road.
8. Cuts in service will create overloads.
9. Ridership at rail stations – seem to be 50/50 in terms of people going to the metrorail and coming from the metrorail (i.e., CUE is bringing riders into the City as much as they are transporting people to Metrorail).
10. Signal pre-emption would help a lot. Light at Jermantown Road is a 220-second cycle light.
11. ADA riders impact run times with boarding times.
12. Later service in summertime would be good. Riders may use the service to go to a Nationals game, but they can't get back at night because CUE service has ended.
13. Bus bunching tends to occur in the peak periods.
14. When there is an accident on I-66, traffic spills over onto US 50, which creates run time problems.
15. Putting additional travel time into the schedule may not help because traffic conditions vary so much.
16. Hot spot congestion areas include: Jermantown Road (NB in the a.m., SB in the p.m.), Main Street/US 50 intersection, Chain Bridge Road and Eaton Place, Fairfax Circle.

Comments from City Residents

Hello,

I am writing to ask if the city has considered implementing an advertising program for the CUE bus to raise revenue, such as advertising on buses, inside buses, and advertising shelters. I believe finding additional sources of revenue is a preferred alternative to cutting service, even late at night.

In particular, shelter ads provide an improved amenity for the city as well as revenue. I worked for a transportation consultant in Montgomery County as they were implementing their advertising shelter program, and it was primarily a positive experience for them. They received a lot of positive feedback from the community as the shelters were being installed. The county chose the style of the shelter and negotiated the locations with the advertising agency. I understand Fairfax County is considering implementing a program, as well as George Mason University for bike shelters.

Good afternoon,

I am a resident of Fairfax (Fairfax Blvd & Chain Bridge Road) and rely heavily on the Cue bus to transport me back and forth to the Vienna metro station primarily because I work in NW DC (Farragut West). I would love to see the Green 2 extend its PM hours to later times Monday through Friday. Currently the Green 2 picks up from Vienna metro stations stops at 7:42pm and on many occasions I have need to work late or attend after hour functions and forced to pay for a cab to go home which can run \$10 - \$20. I also, would like to see the Cue bus green 2 run more frequent than one hour and fifteen minutes after the 6:33.

Appendix E
PROPOSED TDP SERVICE PLANS

**CUE OPERATING STATISTICS WORKSHEET
SUMMARY OF EXISTING (2010)
SERVICE STATISTICS**

| Statistic | Day | Daily Value | Annual Factor | Annual Value |
|------------------------------|------------|--------------------|----------------------|---------------------|
| Annual Bus Trips | Mon-Thur. | 109 | 206 | 22,454 |
| | Fridays | 111 | 52 | 5,772 |
| | Saturdays | 46 | 51 | 2,346 |
| | Sundays | 30 | 52 | 1,560 |
| | Annual | | 361 | 32,132 |
| Annual Rev. Bus-Hours | Mon-Thur. | 119 | 206 | 24,514 |
| | Fridays | 121 | 52 | 6,292 |
| | Saturdays | 40 | 51 | 2,040 |
| | Sundays | 31 | 52 | 1,612 |
| | Annual | | 361 | 34,458 |
| Annual Rev. Bus-Miles | Mon-Thur. | 1,468 | 206 | 302,346 |
| | Fridays | 1,495 | 52 | 77,724 |
| | Saturdays | 620 | 51 | 31,595 |
| | Sundays | 404 | 52 | 21,003 |
| | Annual | | 361 | 432,668 |
| Peak Buses | Mon-Thur. | 8 | n/a | n/a |
| | Fridays | 8 | n/a | n/a |
| | Saturdays | 4 | n/a | n/a |
| | Sundays | 4 | n/a | n/a |

EXISTING (2010) SERVICE

Mondays through Thursdays

| Route Pattern | Service Frequency | | | | Daily Trips | Peak Period Cycle Time | | | | One-Way Distance (Miles) | Average Weekday | | | Bus Requirements | | | |
|---------------|-------------------|--------|-------|------|-------------|------------------------|--------------|-----------|------------|--------------------------|-----------------|-----------|------------|------------------|--------|-------|---------|
| | AM Pk | Midday | PM Pk | Eve. | | Time (Min.) | Layover Time | % Layover | Cycle Time | | In-Serv. Hours | Rev. Hrs. | Rev. Miles | AM Pk | Midday | PM Pk | Evening |
| Green 1 | 35 | 35 | 35 | 60 | 27 | 65 | 5 | 7% | 70 | 13.7 | 28.7 | 31.0 | 369.9 | 2.00 | 2.00 | 2.00 | 1.00 |
| Green 2 | 35 | 35 | 35 | 60 | 24 | 65 | 5 | 7% | 70 | 13.6 | 26.0 | 28.0 | 326.4 | 2.00 | 2.00 | 2.00 | 1.00 |
| Gold 1 | 31 | 31 | 31 | 62 | 30 | 57 | 5 | 8% | 62 | 13.3 | 28.5 | 31.0 | 399.0 | 2.00 | 2.00 | 2.00 | 1.00 |
| Gold 2 | 31 | 31 | 31 | 62 | 28 | 57 | 5 | 8% | 62 | 13.3 | 26.7 | 29.0 | 372.4 | 2.00 | 2.00 | 2.00 | 1.00 |
| | | | | | 109 | | | | | | 109.9 | 119.0 | 1,467.7 | 8.00 | 8.00 | 8.00 | 4.00 |

AM Peak = 5:30 to 9:00 a.m.
 Midday = 9:00 a.m. to 3:00 p.m.
 PM Peak = 3:00 to 7:00 p.m.
 Eve. = After 7:00 p.m.

Fridays

| Route Pattern | Service Frequency | | | | Daily Trips | Peak Period Cycle Time | | | | One-Way Distance (Miles) | Average Weekday | | | Bus Requirements | | | |
|---------------|-------------------|--------|-------|------|-------------|------------------------|--------------|-----------|------------|--------------------------|-----------------|-----------|------------|------------------|--------|-------|---------|
| | AM Pk | Midday | PM Pk | Eve. | | Time (Min.) | Layover Time | % Layover | Cycle Time | | In-Serv. Hours | Rev. Hrs. | Rev. Miles | AM Pk | Midday | PM Pk | Evening |
| Green 1 | 35 | 35 | 35 | 60 | 28 | 65 | 5 | 7% | 70 | 13.7 | 29.7 | 32.0 | 383.6 | 2.00 | 2.00 | 2.00 | 1.00 |
| Green 2 | 35 | 35 | 35 | 60 | 24 | 65 | 5 | 7% | 70 | 13.6 | 26.0 | 28.0 | 326.4 | 2.00 | 2.00 | 2.00 | 1.00 |
| Gold 1 | 31 | 31 | 31 | 62 | 31 | 57 | 5 | 8% | 62 | 13.3 | 29.4 | 32.0 | 412.3 | 2.00 | 2.00 | 2.00 | 1.00 |
| Gold 2 | 31 | 31 | 31 | 62 | 28 | 57 | 5 | 8% | 62 | 13.3 | 26.7 | 29.0 | 372.4 | 2.00 | 2.00 | 2.00 | 1.00 |
| | | | | | 111 | | | | | | 111.7 | 121.0 | 1,494.7 | 8.00 | 8.00 | 8.00 | 4.00 |

AM Peak = 5:30 to 9:00 a.m.
 Midday = 9:00 a.m. to 3:00 p.m.
 PM Peak = 3:00 to 7:00 p.m.
 Eve. = After 7:00 p.m.

Saturdays

| Route Pattern | One Way? | Serv. Freq. | | | Daily Trips | Base Period | | | | One-Way Distance (Miles) | Average Weekday | | | Bus Requirements | |
|---------------|----------|-------------|------|----|-------------|-------------|--------------|-----------|------------|--------------------------|-----------------|-----------|------------|------------------|------|
| | | Base | Eve. | | | Time (Min.) | Layover Time | % Layover | Cycle Time | | In-Serv. Hours | Rev. Hrs. | Rev. Miles | Midday | Eve. |
| Green 1 | Y | 65 | 65 | 11 | 60 | 5 | 8% | 65 | 13.7 | 10.6 | 11.5 | 150.7 | 1.00 | 1.00 | |
| Green 2 | Y | 65 | 65 | 11 | 60 | 5 | 8% | 65 | 13.6 | 10.6 | 11.5 | 149.6 | 1.00 | 1.00 | |
| Gold 1 | Y | 61 | 61 | 12 | 56 | 5 | 8% | 61 | 13.3 | 11.0 | 12.0 | 159.6 | 1.00 | 1.00 | |
| Gold 2 | Y | 61 | 61 | 12 | 56 | 5 | 8% | 61 | 13.3 | 11.0 | 12.0 | 159.6 | 1.00 | 1.00 | |
| | | | | 46 | | | | | | 43.3 | 47.0 | 619.5 | 4.00 | 4.00 | |

Base = 8:00 a.m. to 6:00 p.m.
 Eve. = After 6:00 p.m.

Sundays

| Route Pattern | One Way? | Serv. Freq. | | | Daily Trips | Base Period | | | | One-Way Distance (Miles) | Average Weekday | | | Bus Requirements | |
|---------------|----------|-------------|------|----|-------------|-------------|--------------|-----------|------------|--------------------------|-----------------|-----------|------------|------------------|------|
| | | Base | Eve. | | | Time (Min.) | Layover Time | % Layover | Cycle Time | | In-Serv. Hours | Rev. Hrs. | Rev. Miles | Midday | Eve. |
| Green 1 | Y | 65 | n/a | 7 | 60 | 5 | 8% | 65 | 13.7 | 6.9 | 7.5 | 95.9 | 1.00 | 0.00 | |
| Green 2 | Y | 65 | n/a | 7 | 60 | 5 | 8% | 65 | 13.6 | 6.9 | 7.5 | 95.2 | 1.00 | 0.00 | |
| Gold 1 | Y | 61 | n/a | 8 | 56 | 5 | 8% | 61 | 13.3 | 7.3 | 8.0 | 106.4 | 1.00 | 0.00 | |
| Gold 2 | Y | 61 | n/a | 8 | 56 | 5 | 8% | 61 | 13.3 | 7.3 | 8.0 | 106.4 | 1.00 | 0.00 | |
| | | | | 30 | | | | | | 28.5 | 31.0 | 403.9 | 4.00 | 0.00 | |

Base = 8:00 a.m. to 6:00 p.m.
 Eve. = After 6:00 p.m.

**CUE OPERATING STATISTICS WORKSHEET
SUMMARY OF EXISTING/PROPOSED FY 2011
SERVICE STATISTICS**

| Statistic | Day | Existing Daily | New Daily | Annual Factor | Existing Annual | New Annual |
|------------------------------|------------|-----------------------|------------------|----------------------|------------------------|-------------------|
| Annual Bus Trips | Mon-Thur. | 109 | 178 | 206 | 22,454 | 36,668 |
| | Fridays | 111 | 180 | 52 | 5,772 | 9,360 |
| | Saturdays | 46 | 64 | 51 | 2,346 | 3,264 |
| | Sundays | 30 | 48 | 52 | 1,560 | 2,496 |
| | Annual | | | 361 | 32,132 | 51,788 |
| Annual Rev. Bus-Hours | Mon-Thur. | 119 | 120 | 206 | 24,514 | 24,720 |
| | Fridays | 121 | 122 | 52 | 6,292 | 6,344 |
| | Saturdays | 47 | 44 | 51 | 2,397 | 2,244 |
| | Sundays | 31 | 32 | 52 | 1,612 | 1,664 |
| | Annual | | | 361 | 34,815 | 34,972 |
| Annual Rev. Bus-Miles | Mon-Thur. | 1,468 | 1,261 | 206 | 302,408 | 259,725 |
| | Fridays | 1,495 | 1,282 | 52 | 77,740 | 66,674 |
| | Saturdays | 620 | 463 | 51 | 31,620 | 23,603 |
| | Sundays | 404 | 336 | 52 | 21,008 | 17,472 |
| | Annual | | | 361 | 432,776 | 367,474 |
| Peak Buses | Mon-Thur. | 8 | 8 | n/a | n/a | n/a |
| | Fridays | 8 | 8 | n/a | n/a | n/a |
| | Saturdays | 4 | 4 | n/a | n/a | n/a |
| | Sundays | 4 | 4 | n/a | n/a | n/a |

CUE OPERATING STATISTICS WORKSHEET
Proposed FY 2011 Service

Mondays through Thursdays

| Route Pattern | Service Frequency | | | | | Peak Period Cycle Time | | | | One-Way Distance (Miles) | Average Weekday | | | Bus Requirements | | | |
|------------------------------|-------------------|--------|-------|------|-------------|------------------------|--------------|-----------|------------|--------------------------|-----------------|-----------|------------|------------------|--------|-------|---------|
| | AM Pk | Midday | PM Pk | Eve. | Daily Trips | Time (Min.) | Layover Time | % Layover | Cycle Time | | In-Serv. Hours | Rev. Hrs. | Rev. Miles | AM Pk | Midday | PM Pk | Evening |
| Rte 1 - Metro-W. Fairfax | 30 | 30 | 30 | 60 | 58 | 25 | 10 | 17% | 60 | 5.2 | 24.2 | 29.0 | 301.6 | 2.00 | 2.00 | 2.00 | 1.00 |
| Rte 2 - Metro-GMU | 30 | 30 | 30 | 60 | 58 | 25 | 10 | 17% | 60 | 5.1 | 24.2 | 29.0 | 295.8 | 2.00 | 2.00 | 2.00 | 1.00 |
| Rte 3 - W. Fairfax-GMU-Metro | 30 | 30 | 30 | 60 | 62 | 50 | 20 | 17% | 120 | 10.7 | 51.7 | 62.0 | 663.4 | 4.00 | 4.00 | 4.00 | 2.00 |
| | | | | | 178 | | | | | | 100.0 | 120.0 | 1,260.8 | 8.00 | 8.00 | 8.00 | 4.00 |

AM Peak = 5:30 to 9:00 a.m.

Midday = 9:00 a.m. to 3:00 p.m.

PM Peak = 3:00 to 7:00 p.m.

Eve. = 7:00 p.m. to 11:00 p.m.

112.0
8.0

Fridays

| Route Pattern | Service Frequency | | | | | Peak Period Cycle Time | | | | One-Way Distance (Miles) | Average Weekday | | | Bus Requirements | | | |
|------------------------------|-------------------|--------|-------|------|-------------|------------------------|--------------|-----------|------------|--------------------------|-----------------|-----------|------------|------------------|--------|-------|---------|
| | AM Pk | Midday | PM Pk | Eve. | Daily Trips | Time (Min.) | Layover Time | % Layover | Cycle Time | | In-Serv. Hours | Rev. Hrs. | Rev. Miles | AM Pk | Midday | PM Pk | Evening |
| Rte 1 - Metro-W. Fairfax | 30 | 30 | 30 | 60 | 58 | 25 | 10 | 17% | 60 | 5.2 | 24.2 | 29.0 | 301.6 | 2.00 | 2.00 | 2.00 | 1.00 |
| Rte 2 - Metro-GMU | 30 | 30 | 30 | 60 | 58 | 25 | 10 | 17% | 60 | 5.1 | 24.2 | 29.0 | 295.8 | 2.00 | 2.00 | 2.00 | 1.00 |
| Rte 3 - W. Fairfax-GMU-Metro | 30 | 30 | 30 | 60 | 64 | 50 | 20 | 17% | 120 | 10.7 | 53.3 | 64.0 | 684.8 | 4.00 | 4.00 | 4.00 | 2.00 |
| | | | | | 180 | | | | | | 101.7 | 122.0 | 1,282.2 | 8.00 | 8.00 | 8.00 | 4.00 |

AM Peak = 5:30 to 9:00 a.m.

Midday = 9:00 a.m. to 3:00 p.m.

PM Peak = 3:00 to 7:00 p.m.

Eve. = 7:00 p.m. to 12:00 midnight

Saturdays

| Route Pattern | Serv. Freq. | | | Base Period | | | | One-Way Distance (Miles) | Average Saturday | | | Bus Requirements | |
|------------------------------|-------------|------|-------------|-------------|--------------|-----------|------------|--------------------------|------------------|-----------|------------|------------------|------|
| | Base | Eve. | Daily Trips | Time (Min.) | Layover Time | % Layover | Cycle Time | | In-Serv. Hours | Rev. Hrs. | Rev. Miles | Midday | Eve. |
| Rte 1 - Metro-W. Fairfax | 60 | n/a | 20 | 25 | 10 | 17% | 60 | 5.2 | 8.3 | 10.0 | 104.0 | 1.00 | 0.00 |
| Rte 2 - Metro-GMU | 60 | n/a | 20 | 25 | 10 | 17% | 60 | 5.1 | 8.3 | 10.0 | 102.0 | 1.00 | 0.00 |
| Rte 3 - W. Fairfax-GMU-Metro | 60 | 60 | 24 | 50 | 20 | 17% | 120 | 10.7 | 20.0 | 24.0 | 256.8 | 2.00 | 2.00 |
| | | | 64 | | | | | | 36.7 | 44.0 | 462.8 | 4.00 | 2.00 |

Base = 8:00 a.m. to 6:00 p.m.

Eve. = 6:00 to 8:00 p.m.

Sundays

| Route Pattern | Serv. Freq. | | | Base Period | | | | One-Way Distance (Miles) | Average Sunday | | | Bus Requirements | |
|------------------------------|-------------|------|-------------|-------------|--------------|-----------|------------|--------------------------|----------------|-----------|------------|------------------|------|
| | Base | Eve. | Daily Trips | Time (Min.) | Layover Time | % Layover | Cycle Time | | In-Serv. Hours | Rev. Hrs. | Rev. Miles | Midday | Eve. |
| Rte 1 - Metro-W. Fairfax | 60 | n/a | 16 | 25 | 10 | 17% | 60 | 5.2 | 6.7 | 8.0 | 83.2 | 1.00 | 0.00 |
| Rte 2 - Metro-GMU | 60 | n/a | 16 | 25 | 10 | 17% | 60 | 5.1 | 6.7 | 8.0 | 81.6 | 1.00 | 0.00 |
| Rte 3 - W. Fairfax-GMU-Metro | 60 | n/a | 16 | 50 | 20 | 17% | 120 | 10.7 | 13.3 | 16.0 | 171.2 | 2.00 | 0.00 |
| | | | 48 | | | | | | 26.7 | 32.0 | 336.0 | 4.00 | 0.00 |

Base = 10:00 a.m. to 6:00 p.m.

**CUE OPERATING STATISTICS WORKSHEET
SUMMARY OF EXISTING/PROPOSED FY 2013
SERVICE STATISTICS**

| Statistic | Day | Existing Daily | New Daily | Annual Factor | Existing Annual | New Annual |
|------------------------------|------------|-----------------------|------------------|----------------------|------------------------|-------------------|
| Annual Bus Trips | Mon-Thur. | 109 | 214 | 206 | 22,454 | 44,084 |
| | Fridays | 111 | 216 | 52 | 5,772 | 11,232 |
| | Saturdays | 46 | 64 | 51 | 2,346 | 3,264 |
| | Sundays | 30 | 48 | 52 | 1,560 | 2,496 |
| | Annual | | | 361 | 32,132 | 61,076 |
| Annual Rev. Bus-Hours | Mon-Thur. | 119 | 138 | 206 | 24,514 | 28,428 |
| | Fridays | 121 | 140 | 52 | 6,292 | 7,280 |
| | Saturdays | 47 | 44 | 51 | 2,397 | 2,244 |
| | Sundays | 31 | 32 | 52 | 1,612 | 1,664 |
| | Annual | | | 361 | 34,815 | 39,616 |
| Annual Rev. Bus-Miles | Mon-Thur. | 1,468 | 1,444 | 206 | 302,408 | 297,546 |
| | Fridays | 1,495 | 1,466 | 52 | 77,740 | 76,222 |
| | Saturdays | 620 | 463 | 51 | 31,620 | 23,603 |
| | Sundays | 404 | 336 | 52 | 21,008 | 17,472 |
| | Annual | | | 361 | 432,776 | 414,843 |
| Peak Buses | Mon-Thur. | 8 | 10 | n/a | n/a | n/a |
| | Fridays | 8 | 10 | n/a | n/a | n/a |
| | Saturdays | 4 | 4 | n/a | n/a | n/a |
| | Sundays | 4 | 4 | n/a | n/a | n/a |

CUE OPERATING STATISTICS WORKSHEET
Proposed FY 2013 Service

Mondays through Thursdays

| Route Pattern | Service Frequency | | | | | Daily Trips | Peak Period Cycle Time | | | | One-Way Distance (Miles) | Average Weekday | | | Bus Requirements | | | |
|------------------------------|-------------------|--------|-------|------|-------------|-------------|------------------------|-----------|------------|----------------|--------------------------|-----------------|------------|-------|------------------|-------|---------|--|
| | AM Pk | Midday | PM Pk | Eve. | Time (Min.) | | Layover Time | % Layover | Cycle Time | In-Serv. Hours | | Rev. Hrs. | Rev. Miles | AM Pk | Midday | PM Pk | Evening | |
| Rte 1 - Metro-W. Fairfax | 30 | 30 | 30 | 60 | 58 | 25 | 10 | 17% | 60 | 5.2 | 24.2 | 29.0 | 301.6 | 2.00 | 2.00 | 2.00 | 1.00 | |
| Rte 2 - Metro-GMU | 30 | 15 | 15 | 60 | 94 | 25 | 10 | 17% | 60 | 5.1 | 39.2 | 47.0 | 479.4 | 2.00 | 4.00 | 4.00 | 1.00 | |
| Rte 3 - W. Fairfax-GMU-Metro | 30 | 30 | 30 | 60 | 62 | 50 | 20 | 17% | 120 | 10.7 | 51.7 | 62.0 | 663.4 | 4.00 | 4.00 | 4.00 | 2.00 | |
| | | | | | 214 | | | | | | 115.0 | 138.0 | 1,444.4 | 8.00 | 10.00 | 10.00 | 4.00 | |

AM Peak = 5:30 to 9:00 a.m.
 Midday = 9:00 a.m. to 3:00 p.m.
 PM Peak = 3:00 to 7:00 p.m.
 Eve. = 7:00 p.m. to 11:00 p.m.

Fridays

| Route Pattern | Service Frequency | | | | | Daily Trips | Peak Period Cycle Time | | | | One-Way Distance (Miles) | Average Weekday | | | Bus Requirements | | | |
|------------------------------|-------------------|--------|-------|------|-------------|-------------|------------------------|-----------|------------|----------------|--------------------------|-----------------|------------|-------|------------------|-------|---------|--|
| | AM Pk | Midday | PM Pk | Eve. | Time (Min.) | | Layover Time | % Layover | Cycle Time | In-Serv. Hours | | Rev. Hrs. | Rev. Miles | AM Pk | Midday | PM Pk | Evening | |
| Rte 1 - Metro-W. Fairfax | 30 | 30 | 30 | 60 | 58 | 25 | 10 | 17% | 60 | 5.2 | 24.2 | 29.0 | 301.6 | 2.00 | 2.00 | 2.00 | 1.00 | |
| Rte 2 - Metro-GMU | 30 | 15 | 15 | 60 | 94 | 25 | 10 | 17% | 60 | 5.1 | 39.2 | 47.0 | 479.4 | 2.00 | 4.00 | 4.00 | 1.00 | |
| Rte 3 - W. Fairfax-GMU-Metro | 30 | 30 | 30 | 60 | 64 | 50 | 20 | 17% | 120 | 10.7 | 53.3 | 64.0 | 684.8 | 4.00 | 4.00 | 4.00 | 2.00 | |
| | | | | | 216 | | | | | | 116.7 | 140.0 | 1,465.8 | 8.00 | 10.00 | 10.00 | 4.00 | |

AM Peak = 5:30 to 9:00 a.m.
 Midday = 9:00 a.m. to 3:00 p.m.
 PM Peak = 3:00 to 7:00 p.m.
 Eve. = 7:00 p.m. to 12:00 midnight

Saturdays

| Route Pattern | One Way? | Oper. Hours | | Serv. Freq. | | Daily Trips | Base Period | | | | One-Way Distance (Miles) | Average Saturday | | | Bus Requirements | |
|------------------------------|----------|-------------|------|-------------|------|-------------|-------------|--------------|-----------|------------|--------------------------|------------------|-----------|------------|------------------|------|
| | | Base | Eve. | Base | Eve. | | Time (Min.) | Layover Time | % Layover | Cycle Time | | In-Serv. Hours | Rev. Hrs. | Rev. Miles | Midday | Eve. |
| Rte 1 - Metro-W. Fairfax | N | 10 | n/a | 60 | n/a | 20 | 25 | 10 | 17% | 60 | 5.2 | 8.3 | 10.0 | 104.0 | 1.00 | 0.00 |
| Rte 2 - Metro-GMU | N | 10 | n/a | 60 | n/a | 20 | 25 | 10 | 17% | 60 | 5.1 | 8.3 | 10.0 | 102.0 | 1.00 | 0.00 |
| Rte 3 - W. Fairfax-GMU-Metro | N | 10 | 2 | 60 | 60 | 24 | 50 | 20 | 17% | 120 | 10.7 | 20.0 | 24.0 | 256.8 | 2.00 | 2.00 |
| | | | | | | 64 | | | | | | 36.7 | 44.0 | 462.8 | 4.00 | 2.00 |

Base = 8:00 a.m. to 6:00 p.m.
 Eve. = 6:00 to 8:00 p.m.

Sundays

| Route Pattern | One Way? | Oper. Hours | | Serv. Freq. | | Daily Trips | Base Period | | | | One-Way Distance (Miles) | Average Sunday | | | Bus Requirements | |
|------------------------------|----------|-------------|------|-------------|------|-------------|-------------|--------------|-----------|------------|--------------------------|----------------|-----------|------------|------------------|------|
| | | Base | Eve. | Base | Eve. | | Time (Min.) | Layover Time | % Layover | Cycle Time | | In-Serv. Hours | Rev. Hrs. | Rev. Miles | Midday | Eve. |
| Rte 1 - Metro-W. Fairfax | N | 8 | n/a | 60 | n/a | 16 | 25 | 10 | 17% | 60 | 5.2 | 6.7 | 8.0 | 83.2 | 1.00 | 0.00 |
| Rte 2 - Metro-GMU | N | 8 | n/a | 60 | n/a | 16 | 25 | 10 | 17% | 60 | 5.1 | 6.7 | 8.0 | 81.6 | 1.00 | 0.00 |
| Rte 3 - W. Fairfax-GMU-Metro | N | 8 | n/a | 60 | n/a | 16 | 50 | 20 | 17% | 120 | 10.7 | 13.3 | 16.0 | 171.2 | 2.00 | 0.00 |
| | | | | | | 48 | | | | | | 26.7 | 32.0 | 336.0 | 4.00 | 0.00 |

Base = 10:00 a.m. to 6:00 p.m.